

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

LAB CHRONICLE

OrderID: Q3092
Client: Atlantic Recovery Services, Inc.
Contact: Kenny Pyle

OrderDate: 9/12/2025 12:02:28 PM
Project: PGW Phila. Gas Works
Location: D41

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q3092-02	291376	TCLP			09/12/25			09/12/25
			TCLP ICP Metals	6010D		09/15/25	09/15/25	
			TCLP Mercury	7470A		09/15/25	09/16/25	
Q3092-04	279182	TCLP			09/12/25			09/12/25
			TCLP ICP Metals	6010D		09/15/25	09/15/25	
			TCLP Mercury	7470A		09/15/25	09/16/25	



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Hit Summary Sheet
SW-846

SDG No.: Q3092

Order ID: Q3092

Client: Atlantic Recovery Services, Inc.

Project ID: PGW Phila. Gas Works

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : 291376								
Q3092-02	291376	TCLP	Barium	1120		72.8	500	ug/L
Q3092-02	291376	TCLP	Lead	19.5	J	11.5	60.0	ug/L
Q3092-02	291376	TCLP	Mercury	1.18	J	0.76	2.00	ug/L
Q3092-02	291376	TCLP	Silver	11.0	J	8.10	50.0	ug/L
Client ID : 279182								
Q3092-04	279182	TCLP	Barium	1200		72.8	500	ug/L
Q3092-04	279182	TCLP	Lead	19.3	J	11.5	60.0	ug/L
Q3092-04	279182	TCLP	Silver	13.1	J	8.10	50.0	ug/L



SAMPLE DATA

Report of Analysis

Client:	Atlantic Recovery Services, Inc.	Date Collected:	09/12/25
Project:	PGW Phila. Gas Works	Date Received:	09/12/25
Client Sample ID:	291376	SDG No.:	Q3092
Lab Sample ID:	Q3092-02	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-38-2	Arsenic	25.6	U	1	25.6	100	ug/L	09/15/25 12:30	09/15/25 16:21	6010D	SW3050
7440-39-3	Barium	1120	N	1	72.8	500	ug/L	09/15/25 12:30	09/15/25 16:21	6010D	SW3050
7440-43-9	Cadmium	2.50	U	1	2.50	30.0	ug/L	09/15/25 12:30	09/15/25 16:21	6010D	SW3050
7440-47-3	Chromium	10.6	U	1	10.6	50.0	ug/L	09/15/25 12:30	09/15/25 16:21	6010D	SW3050
7439-92-1	Lead	19.5	J	1	11.5	60.0	ug/L	09/15/25 12:30	09/15/25 16:21	6010D	SW3050
7439-97-6	Mercury	1.18	J	1	0.76	2.00	ug/L	09/15/25 14:50	09/16/25 10:57	7470A	
7782-49-2	Selenium	48.2	U	1	48.2	100	ug/L	09/15/25 12:30	09/15/25 16:21	6010D	SW3050
7440-22-4	Silver	11.0	J	1	8.10	50.0	ug/L	09/15/25 12:30	09/15/25 16:21	6010D	SW3050

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

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

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

Report of Analysis

Client:	Atlantic Recovery Services, Inc.	Date Collected:	09/12/25
Project:	PGW Phila. Gas Works	Date Received:	09/12/25
Client Sample ID:	279182	SDG No.:	Q3092
Lab Sample ID:	Q3092-04	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-38-2	Arsenic	25.6	U	1	25.6	100	ug/L	09/15/25 12:30	09/15/25 16:25	6010D	SW3050
7440-39-3	Barium	1200	N	1	72.8	500	ug/L	09/15/25 12:30	09/15/25 16:25	6010D	SW3050
7440-43-9	Cadmium	2.50	U	1	2.50	30.0	ug/L	09/15/25 12:30	09/15/25 16:25	6010D	SW3050
7440-47-3	Chromium	10.6	U	1	10.6	50.0	ug/L	09/15/25 12:30	09/15/25 16:25	6010D	SW3050
7439-92-1	Lead	19.3	J	1	11.5	60.0	ug/L	09/15/25 12:30	09/15/25 16:25	6010D	SW3050
7439-97-6	Mercury	0.76	U	1	0.76	2.00	ug/L	09/15/25 14:50	09/16/25 10:59	7470A	
7782-49-2	Selenium	48.2	U	1	48.2	100	ug/L	09/15/25 12:30	09/15/25 16:25	6010D	SW3050
7440-22-4	Silver	13.1	J	1	8.10	50.0	ug/L	09/15/25 12:30	09/15/25 16:25	6010D	SW3050

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

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

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



METAL CALIBRATION DATA

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV30	Mercury	3.83	4.0	96	90 - 110	CV	09/16/2025	10:15	LB137199

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV91	Mercury	5.04	5.0	101	90 - 110	CV	09/16/2025	10:19	LB137199
CCV92	Mercury	5.05	5.0	101	90 - 110	CV	09/16/2025	10:48	LB137199
CCV93	Mercury	4.79	5.0	96	90 - 110	CV	09/16/2025	11:18	LB137199
CCV94	Mercury	4.70	5.0	94	90 - 110	CV	09/16/2025	11:48	LB137199

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Arsenic	3820	4000	96	90 - 110	P	09/15/2025	11:31	LB137198
	Barium	7650	8000	96	90 - 110	P	09/15/2025	11:31	LB137198
	Cadmium	1900	2000	95	90 - 110	P	09/15/2025	11:31	LB137198
	Chromium	795	800	99	90 - 110	P	09/15/2025	11:31	LB137198
	Lead	3730	4000	93	90 - 110	P	09/15/2025	11:31	LB137198
	Selenium	3840	4000	96	90 - 110	P	09/15/2025	11:31	LB137198
	Silver	981	1000	98	90 - 110	P	09/15/2025	11:31	LB137198

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLICV01	Arsenic	19.8	20.0	99	80 - 120	P	09/15/2025	11:36	LB137198
	Barium	97.4	100	97	80 - 120	P	09/15/2025	11:36	LB137198
	Cadmium	5.55	6.0	92	80 - 120	P	09/15/2025	11:36	LB137198
	Chromium	10.1	10.0	101	80 - 120	P	09/15/2025	11:36	LB137198
	Lead	11.7	12.0	98	80 - 120	P	09/15/2025	11:36	LB137198
	Selenium	17.9	20.0	90	80 - 120	P	09/15/2025	11:36	LB137198
	Silver	10.2	10.0	102	80 - 120	P	09/15/2025	11:36	LB137198

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Arsenic	5010	5000	100	90 - 110	P	09/15/2025	12:35	LB137198
	Barium	9760	10000	98	90 - 110	P	09/15/2025	12:35	LB137198
	Cadmium	2480	2500	99	90 - 110	P	09/15/2025	12:35	LB137198
	Chromium	985	1000	98	90 - 110	P	09/15/2025	12:35	LB137198
	Lead	4940	5000	99	90 - 110	P	09/15/2025	12:35	LB137198
	Selenium	5020	5000	100	90 - 110	P	09/15/2025	12:35	LB137198
	Silver	1230	1250	99	90 - 110	P	09/15/2025	12:35	LB137198
CCV02	Arsenic	4820	5000	96	90 - 110	P	09/15/2025	13:42	LB137198
	Barium	9480	10000	95	90 - 110	P	09/15/2025	13:42	LB137198
	Cadmium	2360	2500	94	90 - 110	P	09/15/2025	13:42	LB137198
	Chromium	950	1000	95	90 - 110	P	09/15/2025	13:42	LB137198
	Lead	4710	5000	94	90 - 110	P	09/15/2025	13:42	LB137198
	Selenium	4860	5000	97	90 - 110	P	09/15/2025	13:42	LB137198
	Silver	1200	1250	96	90 - 110	P	09/15/2025	13:42	LB137198
CCV03	Arsenic	4920	5000	98	90 - 110	P	09/15/2025	15:11	LB137198
	Barium	9220	10000	92	90 - 110	P	09/15/2025	15:11	LB137198
	Cadmium	2420	2500	97	90 - 110	P	09/15/2025	15:11	LB137198
	Chromium	964	1000	96	90 - 110	P	09/15/2025	15:11	LB137198
	Lead	4810	5000	96	90 - 110	P	09/15/2025	15:11	LB137198
	Selenium	4960	5000	99	90 - 110	P	09/15/2025	15:11	LB137198
	Silver	1200	1250	96	90 - 110	P	09/15/2025	15:11	LB137198
CCV04	Arsenic	5000	5000	100	90 - 110	P	09/15/2025	16:12	LB137198
	Barium	9470	10000	95	90 - 110	P	09/15/2025	16:12	LB137198
	Cadmium	2430	2500	97	90 - 110	P	09/15/2025	16:12	LB137198
	Chromium	976	1000	98	90 - 110	P	09/15/2025	16:12	LB137198
	Lead	4840	5000	97	90 - 110	P	09/15/2025	16:12	LB137198
	Selenium	5090	5000	102	90 - 110	P	09/15/2025	16:12	LB137198
	Silver	1230	1250	98	90 - 110	P	09/15/2025	16:12	LB137198
CCV05	Arsenic	4890	5000	98	90 - 110	P	09/15/2025	16:55	LB137198
	Barium	9460	10000	95	90 - 110	P	09/15/2025	16:55	LB137198
	Cadmium	2400	2500	96	90 - 110	P	09/15/2025	16:55	LB137198
	Chromium	960	1000	96	90 - 110	P	09/15/2025	16:55	LB137198
	Lead	4760	5000	95	90 - 110	P	09/15/2025	16:55	LB137198
	Selenium	4960	5000	99	90 - 110	P	09/15/2025	16:55	LB137198



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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Atlantic Recovery Services, Inc.
Contract: ATLA10
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

SDG No.: Q3092
Lab Code: ACE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV05	Silver	1190	1250	95	90 - 110	P	09/15/2025	16:55	LB137198



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Metals

- 2b -

CRDL STANDARD FOR AA & ICP

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Initial Calibration Source: _____

Continuing Calibration Source: _____

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Arsenic	20.9	20.0	104	65 - 135	P	09/15/2025	11:47	LB137198
	Barium	94.0	100	94	65 - 135	P	09/15/2025	11:47	LB137198
	Cadmium	5.68	6.0	95	65 - 135	P	09/15/2025	11:47	LB137198
	Chromium	9.82	10.0	98	65 - 135	P	09/15/2025	11:47	LB137198
	Lead	11.4	12.0	95	65 - 135	P	09/15/2025	11:47	LB137198
	Selenium	20.9	20.0	104	65 - 135	P	09/15/2025	11:47	LB137198
	Silver	10.1	10.0	101	65 - 135	P	09/15/2025	11:47	LB137198
CRA	Mercury	0.19	0.2	96	70 - 130	CV	09/16/2025	10:24	LB137199



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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB30	Mercury	0.076	+/-0.2	U	0.20	CV	09/16/2025	10:17	LB137199

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB91	Mercury	0.076	+/-0.2	U	0.20	CV	09/16/2025	10:22	LB137199
CCB92	Mercury	0.076	+/-0.2	U	0.20	CV	09/16/2025	10:50	LB137199
CCB93	Mercury	0.076	+/-0.2	U	0.20	CV	09/16/2025	11:20	LB137199
CCB94	Mercury	0.076	+/-0.2	U	0.20	CV	09/16/2025	11:50	LB137199

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Arsenic	5.12	+/-10	U	20.0	P	09/15/2025	11:43	LB137198
	Barium	14.6	+/-50	U	100	P	09/15/2025	11:43	LB137198
	Cadmium	0.50	+/-3	U	6.00	P	09/15/2025	11:43	LB137198
	Chromium	2.12	+/-5	U	10.0	P	09/15/2025	11:43	LB137198
	Lead	2.30	+/-6	U	12.0	P	09/15/2025	11:43	LB137198
	Selenium	9.64	+/-10	U	20.0	P	09/15/2025	11:43	LB137198
	Silver	1.62	+/-5	U	10.0	P	09/15/2025	11:43	LB137198

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Arsenic	5.12	+/-10	U	20.0	P	09/15/2025	12:39	LB137198
	Barium	14.6	+/-50	U	100	P	09/15/2025	12:39	LB137198
	Cadmium	0.50	+/-3	U	6.00	P	09/15/2025	12:39	LB137198
	Chromium	2.12	+/-5	U	10.0	P	09/15/2025	12:39	LB137198
	Lead	2.30	+/-6	U	12.0	P	09/15/2025	12:39	LB137198
	Selenium	9.64	+/-10	U	20.0	P	09/15/2025	12:39	LB137198
	Silver	1.62	+/-5	U	10.0	P	09/15/2025	12:39	LB137198
CCB02	Arsenic	5.12	+/-10	U	20.0	P	09/15/2025	13:47	LB137198
	Barium	14.6	+/-50	U	100	P	09/15/2025	13:47	LB137198
	Cadmium	0.50	+/-3	U	6.00	P	09/15/2025	13:47	LB137198
	Chromium	2.12	+/-5	U	10.0	P	09/15/2025	13:47	LB137198
	Lead	2.30	+/-6	U	12.0	P	09/15/2025	13:47	LB137198
	Selenium	9.64	+/-10	U	20.0	P	09/15/2025	13:47	LB137198
	Silver	1.62	+/-5	U	10.0	P	09/15/2025	13:47	LB137198
CCB03	Arsenic	5.12	+/-10	U	20.0	P	09/15/2025	15:15	LB137198
	Barium	14.6	+/-50	U	100	P	09/15/2025	15:15	LB137198
	Cadmium	0.50	+/-3	U	6.00	P	09/15/2025	15:15	LB137198
	Chromium	2.12	+/-5	U	10.0	P	09/15/2025	15:15	LB137198
	Lead	2.30	+/-6	U	12.0	P	09/15/2025	15:15	LB137198
	Selenium	9.64	+/-10	U	20.0	P	09/15/2025	15:15	LB137198
	Silver	1.62	+/-5	U	10.0	P	09/15/2025	15:15	LB137198
CCB04	Arsenic	5.12	+/-10	U	20.0	P	09/15/2025	16:16	LB137198
	Barium	14.6	+/-50	U	100	P	09/15/2025	16:16	LB137198
	Cadmium	0.50	+/-3	U	6.00	P	09/15/2025	16:16	LB137198
	Chromium	2.12	+/-5	U	10.0	P	09/15/2025	16:16	LB137198
	Lead	2.30	+/-6	U	12.0	P	09/15/2025	16:16	LB137198
	Selenium	9.64	+/-10	U	20.0	P	09/15/2025	16:16	LB137198
	Silver	1.62	+/-5	U	10.0	P	09/15/2025	16:16	LB137198
CCB05	Arsenic	5.12	+/-10	U	20.0	P	09/15/2025	16:59	LB137198
	Barium	14.6	+/-50	U	100	P	09/15/2025	16:59	LB137198
	Cadmium	0.50	+/-3	U	6.00	P	09/15/2025	16:59	LB137198
	Chromium	2.12	+/-5	U	10.0	P	09/15/2025	16:59	LB137198
	Lead	2.30	+/-6	U	12.0	P	09/15/2025	16:59	LB137198
	Selenium	9.64	+/-10	U	20.0	P	09/15/2025	16:59	LB137198
	Silver	1.62	+/-5	U	10.0	P	09/15/2025	16:59	LB137198

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Instrument: CV1

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169677TB		WATER		Batch Number:	PB169703		Prep Date:	09/15/2025	
	Mercury	0.76	<2	U	2.00	CV	09/16/2025	11:37	LB137199
Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169703BL		WATER		Batch Number:	PB169703		Prep Date:	09/15/2025	
	Mercury	0.11	<0.2	J	0.20	CV	09/16/2025	10:31	LB137199

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169677TB		WATER		Batch Number:	PB169685		Prep Date:	09/15/2025	
	Arsenic	25.6	<50	U	100	P	09/15/2025	16:50	LB137198
	Barium	72.8	<250	U	500	P	09/15/2025	16:50	LB137198
	Cadmium	2.50	<15	U	30.0	P	09/15/2025	16:50	LB137198
	Chromium	10.6	<25	U	50.0	P	09/15/2025	16:50	LB137198
	Lead	11.5	<30	U	60.0	P	09/15/2025	16:50	LB137198
	Selenium	48.2	<50	U	100	P	09/15/2025	16:50	LB137198
	Silver	8.10	<25	U	50.0	P	09/15/2025	16:50	LB137198
Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169685BL		WATER		Batch Number:	PB169685		Prep Date:	09/15/2025	
	Arsenic	25.6	<50	U	100	P	09/15/2025	15:19	LB137198
	Barium	72.8	<250	U	500	P	09/15/2025	15:19	LB137198
	Cadmium	2.50	<15	U	30.0	P	09/15/2025	15:19	LB137198
	Chromium	10.6	<25	U	50.0	P	09/15/2025	15:19	LB137198
	Lead	11.5	<30	U	60.0	P	09/15/2025	15:19	LB137198
	Selenium	48.2	<50	U	100	P	09/15/2025	15:19	LB137198
	Silver	8.10	<25	U	50.0	P	09/15/2025	15:19	LB137198

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: <u>Atlantic Recovery Services, Inc.</u>	SDG No.: <u>Q3092</u>
Contract: <u>ATLA10</u>	Lab Code: <u>ACE</u>
ICS Source: <u>EPA</u>	Instrument ID: <u>P4</u>

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSA01	Arsenic	3.35			-20	20	09/15/2025	12:12	LB137198
	Barium	3.67	6.0	61	-94	106	09/15/2025	12:12	LB137198
	Cadmium	1.26	1.0	126	-5	7	09/15/2025	12:12	LB137198
	Chromium	55.6	52.0	107	42	62	09/15/2025	12:12	LB137198
	Lead	-0.061			-12	12	09/15/2025	12:12	LB137198
	Selenium	2.20			-20	20	09/15/2025	12:12	LB137198
	Silver	1.40			-10	10	09/15/2025	12:12	LB137198
ICSAB01	Arsenic	99.1	104	95	88.4	120	09/15/2025	12:16	LB137198
	Barium	473	537	88	437	637	09/15/2025	12:16	LB137198
	Cadmium	963	972	99	826	1120	09/15/2025	12:16	LB137198
	Chromium	537	542	99	460	624	09/15/2025	12:16	LB137198
	Lead	45.1	49.0	92	37	61	09/15/2025	12:16	LB137198
	Selenium	49.1	46.0	107	26	66	09/15/2025	12:16	LB137198
	Silver	204	201	102	170	232	09/15/2025	12:16	LB137198



METAL

QC

DATA

metals
- 5a -
MATRIX SPIKE SUMMARY

client: <u>Atlantic Recovery Services, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q3092</u>
contract: <u>ATLA10</u>		lab code: <u>ACE</u>
matrix: <u>Water</u>	sample id: <u>Q3092-04</u>	client id: <u>279182MS</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q3092-04MS</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Arsenic	ug/L	75 - 125	3640		100	U	4000	91		P
Barium	ug/L	75 - 125	1840		1200		1000	64	N	P
Cadmium	ug/L	75 - 125	874		30.0	U	1000	87		P
Chromium	ug/L	75 - 125	1740		50.0	U	2000	87		P
Lead	ug/L	75 - 125	4150		19.3	J	5000	83		P
Mercury	ug/L	75 - 125	40.0		2.00	U	40.0	100		CV
Selenium	ug/L	75 - 125	9180		100	U	10000	92		P
Silver	ug/L	75 - 125	338		13.1	J	380	86		P

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: <u>Atlantic Recovery Services, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q3092</u>
contract: <u>ATLA10</u>		lab code: <u>ACE</u>
matrix: <u>Water</u>	sample id: <u>Q3092-04</u>	client id: <u>279182MSD</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q3092-04MSD</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Arsenic	ug/L	75 - 125	3960		100	U	4000	99		P
Barium	ug/L	75 - 125	2180		1200		1000	98		P
Cadmium	ug/L	75 - 125	952		30.0	U	1000	95		P
Chromium	ug/L	75 - 125	1910		50.0	U	2000	96		P
Lead	ug/L	75 - 125	4510		19.3	J	5000	90		P
Mercury	ug/L	75 - 125	39.0		2.00	U	40.0	98		CV
Selenium	ug/L	75 - 125	10000		100	U	10000	100		P
Silver	ug/L	75 - 125	378		13.1	J	380	96		P

Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: Atlantic Recovery Services, Inc. **SDG No.:** Q3092
Contract: ATLA10 **Lab Code:** ACE
Matrix: Water **Level:** LOW **Client ID:** 279182A
Sample ID: Q3092-04 **Spiked ID:** Q3092-04A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Barium	ug/L	75 - 125	1980		1200		1000	78		P

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Atlantic Recovery Services, Inc. **Level:** LOW **SDG No.:** Q3092
Contract: ATLA10 **Lab Code:** ACE
Matrix: Water **Sample ID:** Q3092-04 **Client ID:** 279182DUP
Percent Solids for Sample: NA **Duplicate ID** Q3092-04DUP **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Arsenic	ug/L	20	100	U	100	U			P
Barium	ug/L	20	1200		1140		5		P
Cadmium	ug/L	20	30.0	U	30.0	U			P
Chromium	ug/L	20	50.0	U	50.0	U			P
Lead	ug/L	20	19.3	J	16.2	J	17		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	13.1	J	13.9	J	6		P

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Atlantic Recovery Services, Inc. **Level:** LOW **SDG No.:** Q3092
Contract: ATLA10 **Lab Code:** ACE
Matrix: Water **Sample ID:** Q3092-04MS **Client ID:** 279182MSD
Percent Solids for Sample: NA **Duplicate ID** Q3092-04MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Arsenic	ug/L	20	3640		3960		8		P
Barium	ug/L	20	1840		2180		17		P
Cadmium	ug/L	20	874		952		9		P
Chromium	ug/L	20	1740		1910		9		P
Lead	ug/L	20	4150		4510		8		P
Mercury	ug/L	20	40.0		39.0		3		CV
Selenium	ug/L	20	9180		10000		9		P
Silver	ug/L	20	338		378		11		P

Metals

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB169685BS							
Arsenic	ug/L	4000	3830		96	80 - 120	P
Barium	ug/L	1000	909		91	80 - 120	P
Cadmium	ug/L	1000	931		93	80 - 120	P
Chromium	ug/L	2000	1940		97	80 - 120	P
Lead	ug/L	5000	4640		93	80 - 120	P
Selenium	ug/L	10000	9750		98	80 - 120	P
Silver	ug/L	380	365		96	80 - 120	P

Metals

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB169703BS Mercury	ug/L	4.0	3.89		97	80 - 120	CV

Metals
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ICP SERIAL DILUTIONS

SAMPLE NO.

279182L

Lab Name: Alliance **Contract:** ATLA10
Lab Code: ACE **Lb No.:** lb137198 **Lab Sample ID :** Q3092-04L **SDG No.:** Q3092
Matrix (soil/water): Water **Level (low/med):** LOW
Concentration Units: ug/L

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Differ-ence		Q	M
		C		C				
Arsenic		100 U		500 U				P
Barium		1200		1280 J		7		P
Cadmium		30.0 U		150 U				P
Chromium		50.0 U		250 U				P
Lead		19.3 J		300 U		100.0		P
Mercury		2.00 U		10.0 U				CV
Selenium		100 U		500 U				P
Silver		13.1 J		250 U		100.0		P



METAL PREPARATION & INSTRUMENT DATA

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

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

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

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

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Cr	Cu	K	Mn	Mo
Arsenic	193.759	-0.0029000	0.0000000	0.0000000	0.0000000	0.0004900
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000070	0.0002200	0.0000000
Lead	220.353	0.0000000	0.0000000	0.0000000	0.0001400	-0.0008600
Selenium	196.090	0.0000000	0.0000000	0.0000000	0.0007460	0.0000000
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	-0.0000120

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Na	Ni	Pb	Sb	Se
Arsenic	193.759	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	0.0006580	0.0000000	0.0000000	0.0001290
Selenium	196.090	0.0000000	0.0000000	0.0003330	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Sn	Ti	Tl	V	Zn
Arsenic	193.759	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000630	0.0001280	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0001110	0.0000000
Lead	220.353	0.0000000	-0.0003610	0.0000000	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.068	0.0000000	-0.0007420	0.0000000	0.0000000	0.0000000



METAL PREPARATION & ANALYICAL SUMMARY

Metals

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SAMPLE PREPARATION SUMMARY

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Method: _____

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB169685							
PB169677TB	PB169677TB	MB	WATER	09/15/2025	5.0	25.0	
PB169685BL	PB169685BL	MB	WATER	09/15/2025	5.0	25.0	
PB169685BS	PB169685BS	LCS	WATER	09/15/2025	5.0	25.0	
Q3092-02	291376	SAM	WATER	09/15/2025	5.0	25.0	
Q3092-04	279182	SAM	WATER	09/15/2025	5.0	25.0	
Q3092-04DUP	279182DUP	DUP	WATER	09/15/2025	5.0	25.0	
Q3092-04MS	279182MS	MS	WATER	09/15/2025	5.0	25.0	
Q3092-04MSD	279182MSD	MSD	WATER	09/15/2025	5.0	25.0	

Metals

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SAMPLE PREPARATION SUMMARY

Client: Atlantic Recovery Services, Inc.

SDG No.: Q3092

Contract: ATLA10

Lab Code: ACE

Method: _____

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB169703							
PB169677TB	PB169677TB	MB	WATER	09/15/2025	3.0	30.0	
PB169703BL	PB169703BL	MB	WATER	09/15/2025	30.0	30.0	
PB169703BS	PB169703BS	LCS	WATER	09/15/2025	30.0	30.0	
Q3092-02	291376	SAM	WATER	09/15/2025	3.0	30.0	
Q3092-04	279182	SAM	WATER	09/15/2025	3.0	30.0	
Q3092-04DUP	279182DUP	DUP	WATER	09/15/2025	3.0	30.0	
Q3092-04MS	279182MS	MS	WATER	09/15/2025	3.0	30.0	
Q3092-04MSD	279182MSD	MSD	WATER	09/15/2025	3.0	30.0	

metals
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ANALYSIS RUN LOG

Client: Atlantic Recovery Services, Inc.

Contract: ATLA10

Lab code: ACE

Sdg no.: Q3092

Instrument id number: _____ **Method:** _____

Run number: LB137198

Start date: 09/15/2025 **End date:** 09/15/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1106	Ag,As,Ba,Cd,Cr,Pb,Se
S1	S1	1	1110	Ag,As,Ba,Cd,Cr,Pb,Se
S2	S2	1	1114	Ag,As,Ba,Cd,Cr,Pb,Se
S3	S3	1	1118	Ag,As,Ba,Cd,Cr,Pb,Se
S4	S4	1	1122	Ag,As,Ba,Cd,Cr,Pb,Se
S5	S5	1	1126	Ag,As,Ba,Cd,Cr,Pb,Se
ICV01	ICV01	1	1131	Ag,As,Ba,Cd,Cr,Pb,Se
LLICV01	LLICV01	1	1136	Ag,As,Ba,Cd,Cr,Pb,Se
ICB01	ICB01	1	1143	Ag,As,Ba,Cd,Cr,Pb,Se
CRI01	CRI01	1	1147	Ag,As,Ba,Cd,Cr,Pb,Se
ICSA01	ICSA01	1	1212	Ag,As,Ba,Cd,Cr,Pb,Se
ICSAB01	ICSAB01	1	1216	Ag,As,Ba,Cd,Cr,Pb,Se
CCV01	CCV01	1	1235	Ag,As,Ba,Cd,Cr,Pb,Se
CCB01	CCB01	1	1239	Ag,As,Ba,Cd,Cr,Pb,Se
CCV02	CCV02	1	1342	Ag,As,Ba,Cd,Cr,Pb,Se
CCB02	CCB02	1	1347	Ag,As,Ba,Cd,Cr,Pb,Se
CCV03	CCV03	1	1511	Ag,As,Ba,Cd,Cr,Pb,Se
CCB03	CCB03	1	1515	Ag,As,Ba,Cd,Cr,Pb,Se
PB169685BL	PB169685BL	1	1519	Ag,As,Ba,Cd,Cr,Pb,Se
PB169685BS	PB169685BS	1	1523	Ag,As,Ba,Cd,Cr,Pb,Se
CCV04	CCV04	1	1612	Ag,As,Ba,Cd,Cr,Pb,Se
CCB04	CCB04	1	1616	Ag,As,Ba,Cd,Cr,Pb,Se
Q3092-02	291376	1	1621	Ag,As,Ba,Cd,Cr,Pb,Se
Q3092-04	279182	1	1625	Ag,As,Ba,Cd,Cr,Pb,Se
Q3092-04DUP	279182DUP	1	1629	Ag,As,Ba,Cd,Cr,Pb,Se
Q3092-04L	279182L	5	1634	Ag,As,Ba,Cd,Cr,Pb,Se
Q3092-04MS	279182MS	1	1638	Ag,As,Ba,Cd,Cr,Pb,Se
Q3092-04MSD	279182MSD	1	1642	Ag,As,Ba,Cd,Cr,Pb,Se
Q3092-04A	279182A	1	1646	Ba
PB169677TB	PB169677TB	1	1650	Ag,As,Ba,Cd,Cr,Pb,Se
CCV05	CCV05	1	1655	Ag,As,Ba,Cd,Cr,Pb,Se
CCB05	CCB05	1	1659	Ag,As,Ba,Cd,Cr,Pb,Se

metals
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ANALYSIS RUN LOG

Client: Atlantic Recovery Services, Inc.

Contract: ATLA10

Lab code: ACE

Sdg no.: Q3092

Instrument id number: _____

Method: _____

Run number: LB137199

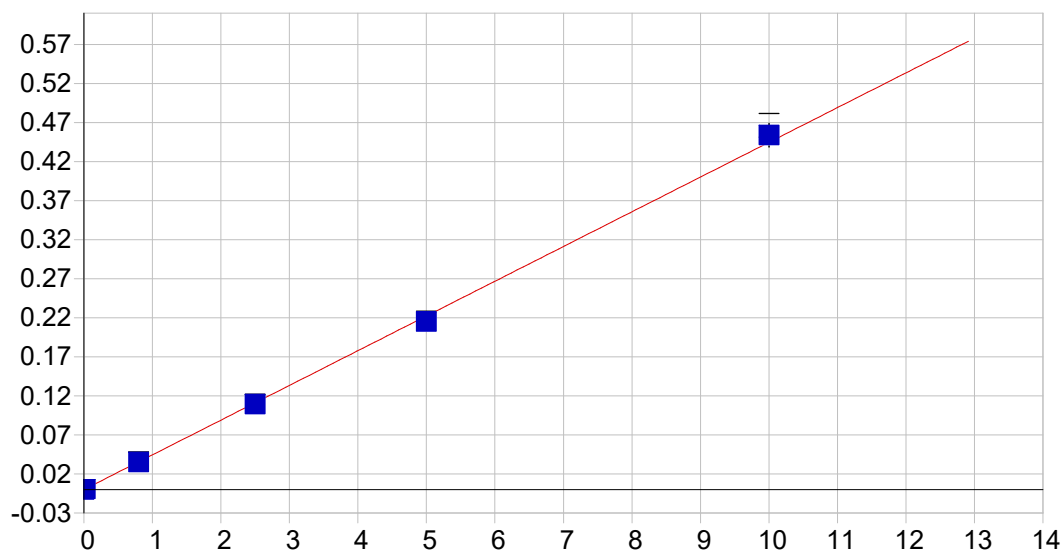
Start date: 09/16/2025

End date: 09/16/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	0957	HG
S0.2	S0.2	1	1000	HG
S2.5	S2.5	1	1002	HG
S5	S5	1	1004	HG
S7.5	S7.5	1	1007	HG
S10	S10	1	1012	HG
ICV30	ICV30	1	1015	HG
ICB30	ICB30	1	1017	HG
CCV91	CCV91	1	1019	HG
CCB91	CCB91	1	1022	HG
CRA	CRA	1	1024	HG
PB169703BL	PB169703BL	1	1031	HG
PB169703BS	PB169703BS	1	1033	HG
CCV92	CCV92	1	1048	HG
CCB92	CCB92	1	1050	HG
Q3092-02	291376	1	1057	HG
Q3092-04	279182	1	1059	HG
Q3092-04DUP	279182DUP	1	1101	HG
Q3092-04MS	279182MS	1	1104	HG
Q3092-04MSD	279182MSD	1	1106	HG
CCV93	CCV93	1	1118	HG
CCB93	CCB93	1	1120	HG
PB169677TB	PB169677TB	1	1137	HG
CCV94	CCV94	1	1148	HG
CCB94	CCB94	1	1150	HG



METAL RAW DATA

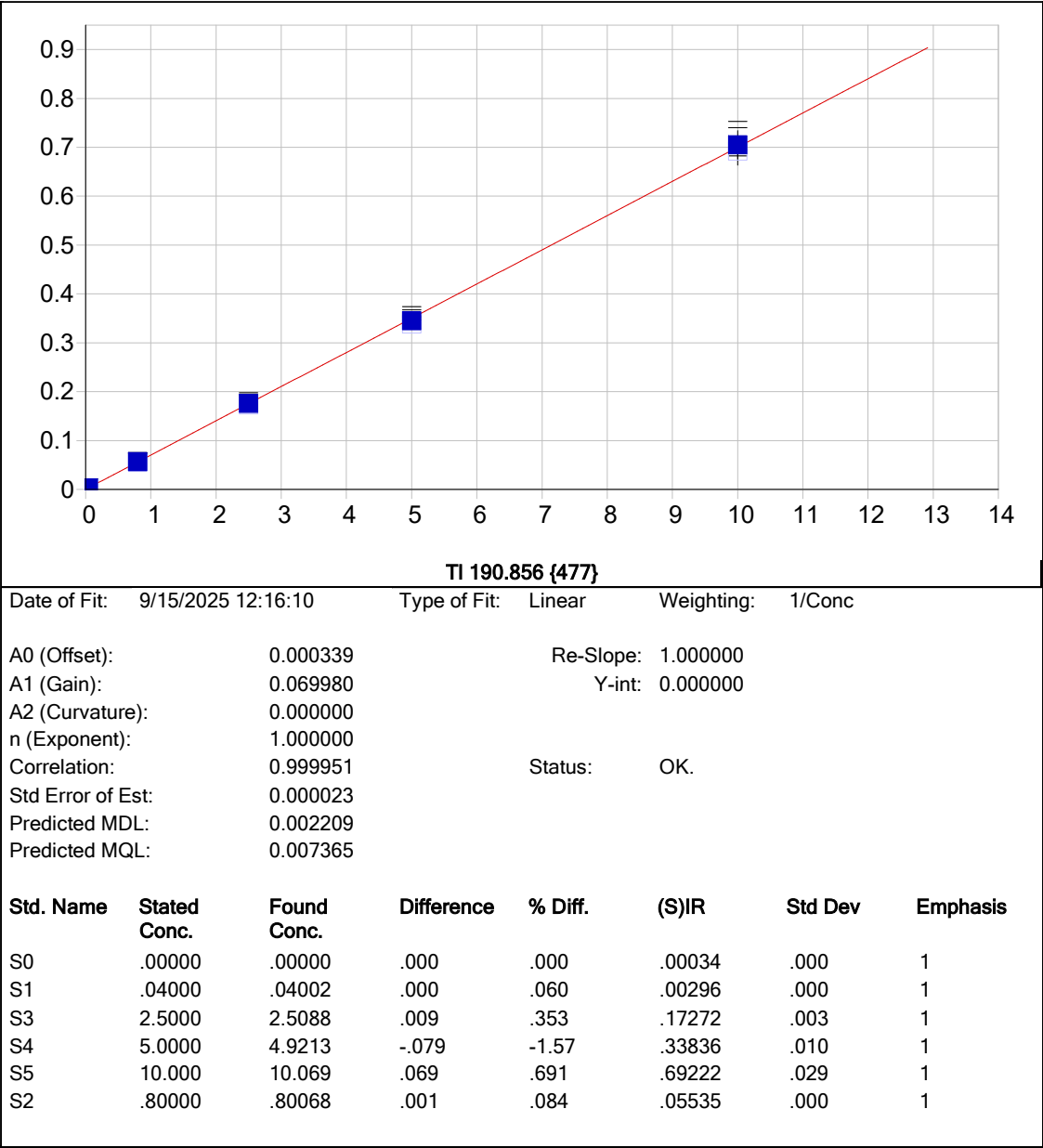


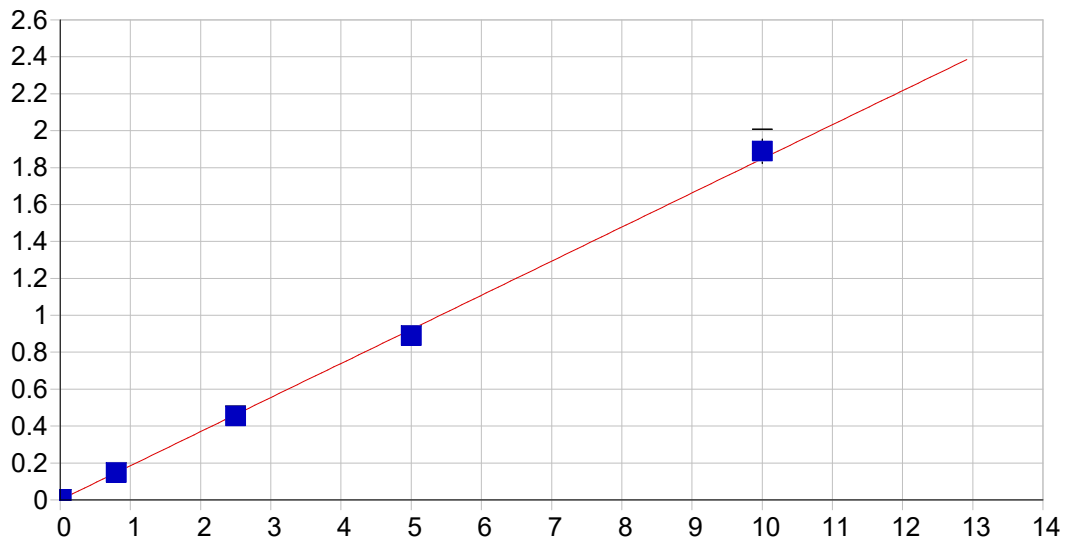
As 189.042 {479}

Date of Fit: 9/15/2025 12:16:10 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset): -0.000050 Re-Slope: 1.000000
A1 (Gain): 0.044463 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999719 Status: OK.
Std Error of Est: 0.000025
Predicted MDL: 0.002344
Predicted MQL: 0.007812

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00005	.000	1
S1	.02000	.01867	-.001	-6.64	.00078	.000	1
S3	2.5000	2.4575	-.042	-1.70	.10910	.000	1
S4	5.0000	4.8404	-.160	-3.19	.21494	.001	1
S5	10.000	10.208	.208	2.08	.45338	.015	1
S2	.80000	.79528	-.005	-.590	.03527	.000	1



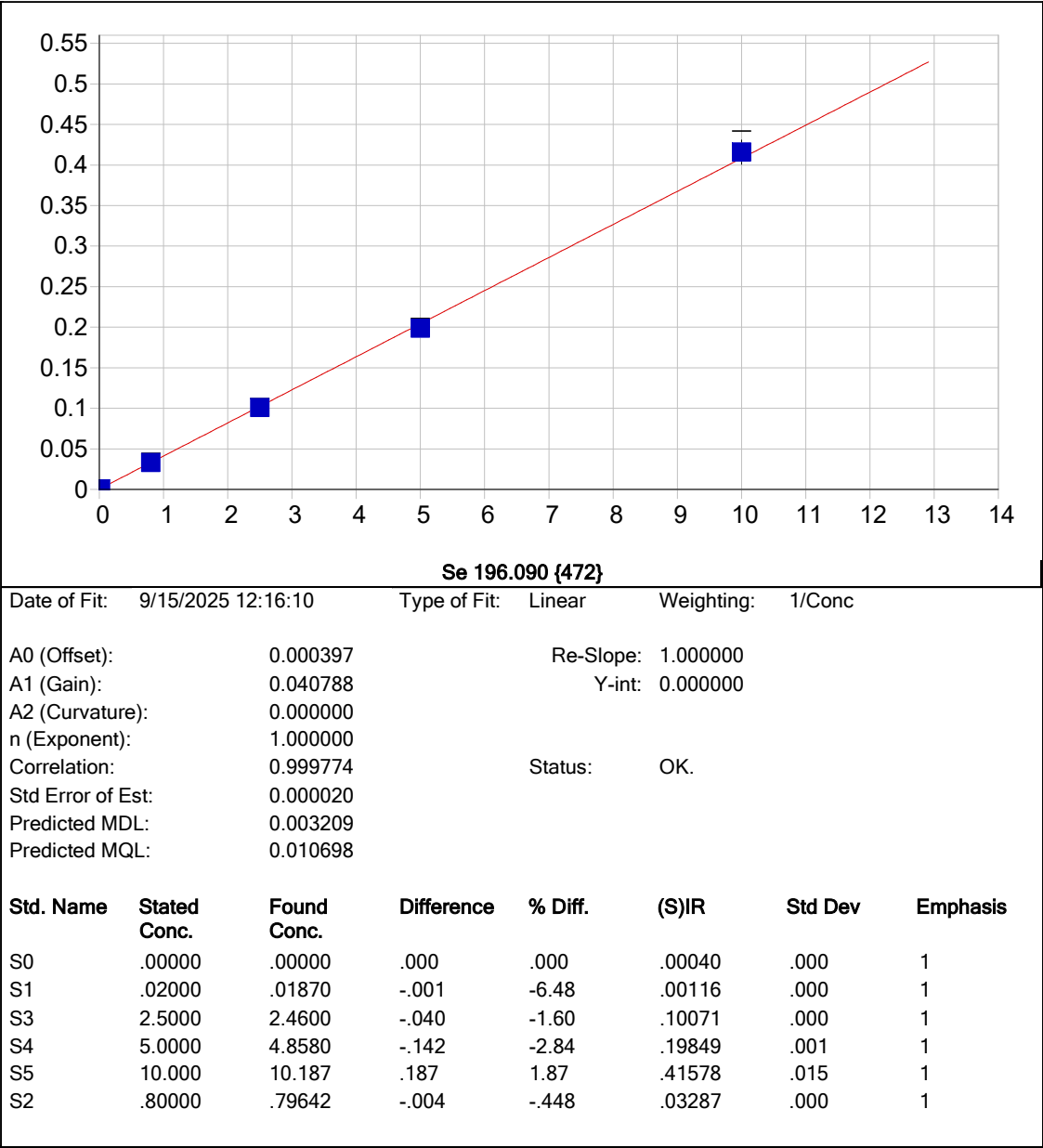


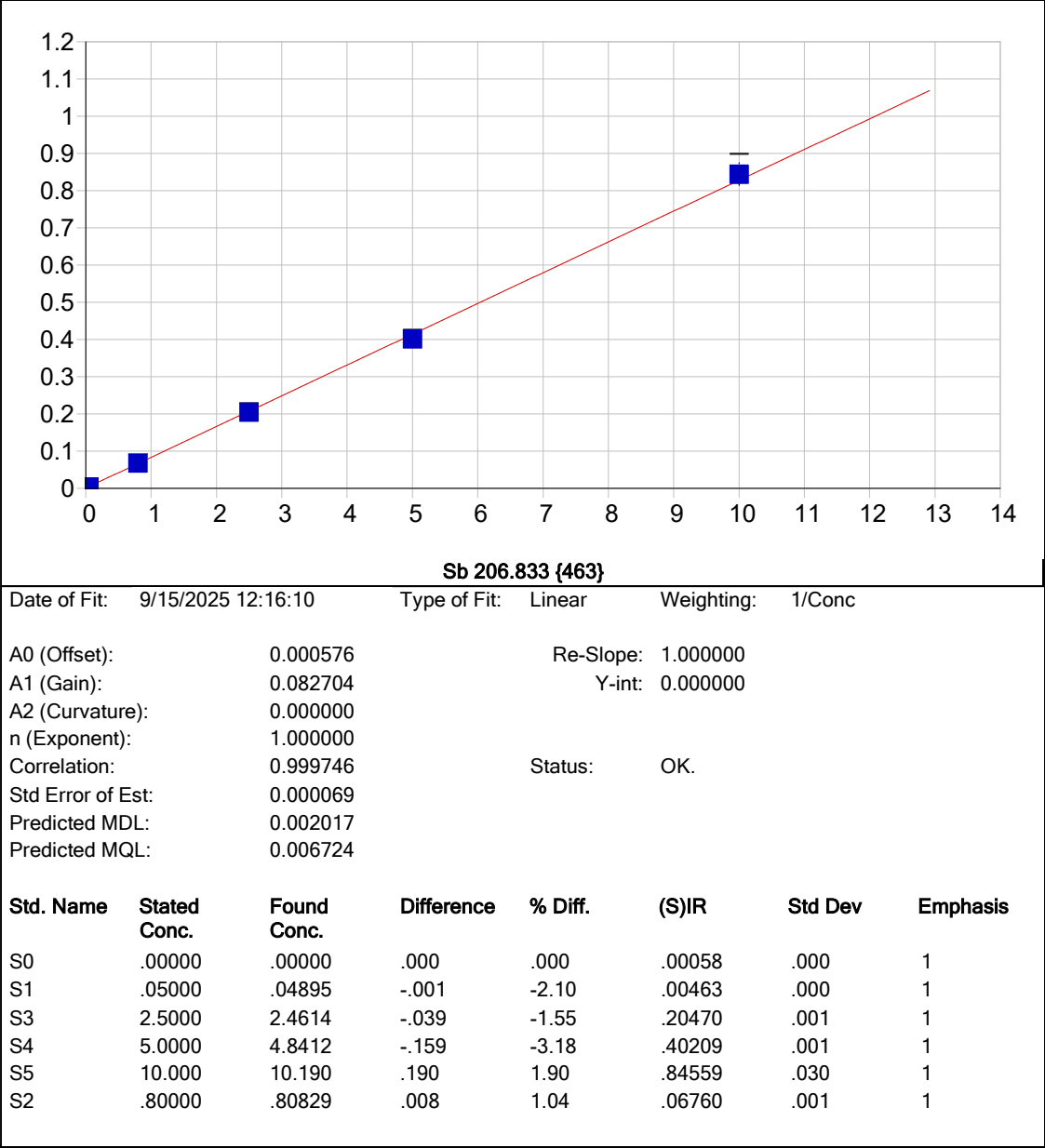
Pb 220.353 {453}

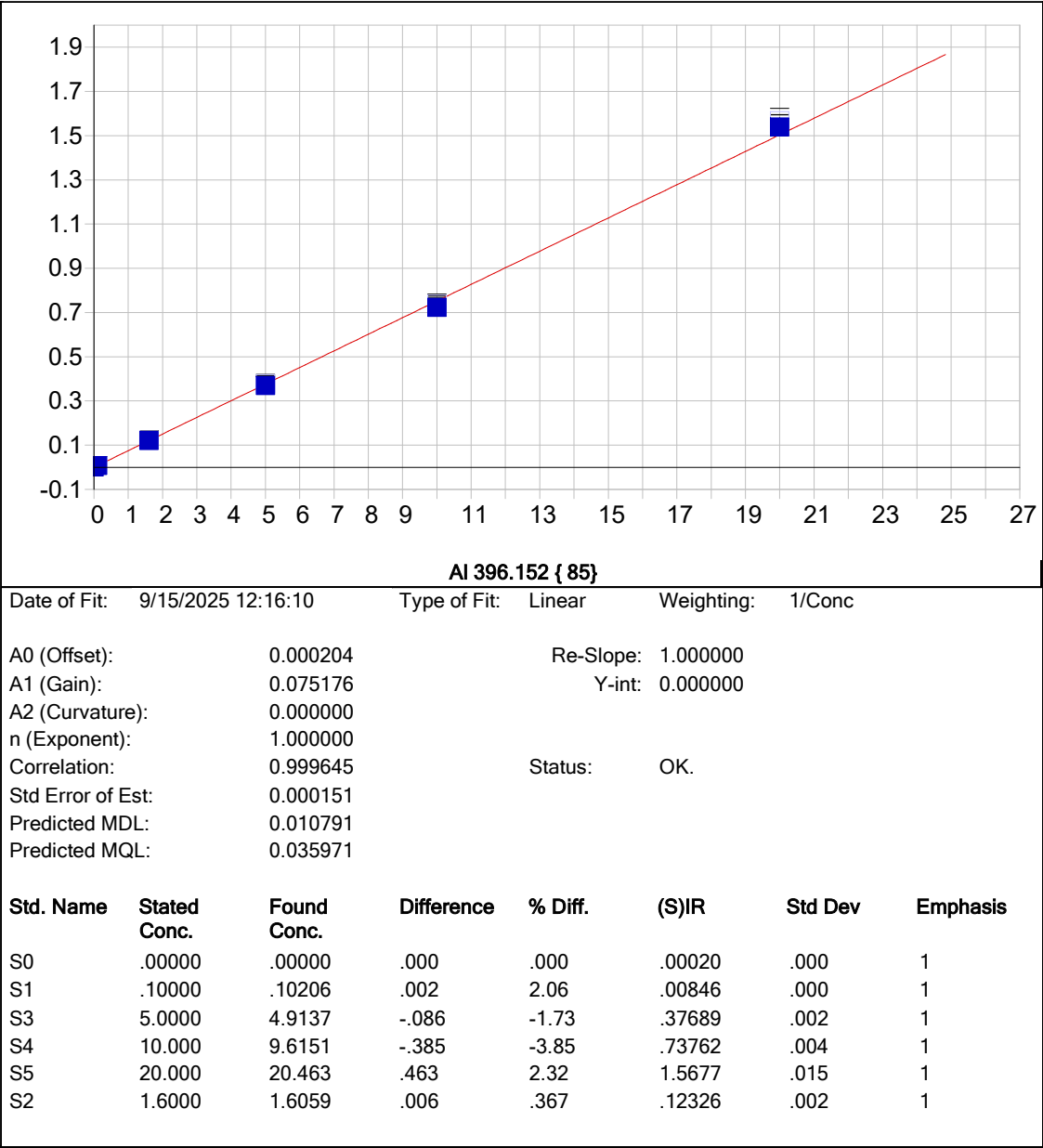
Date of Fit: 9/15/2025 12:16:10 Type of Fit: Linear Weighting: 1/Conc

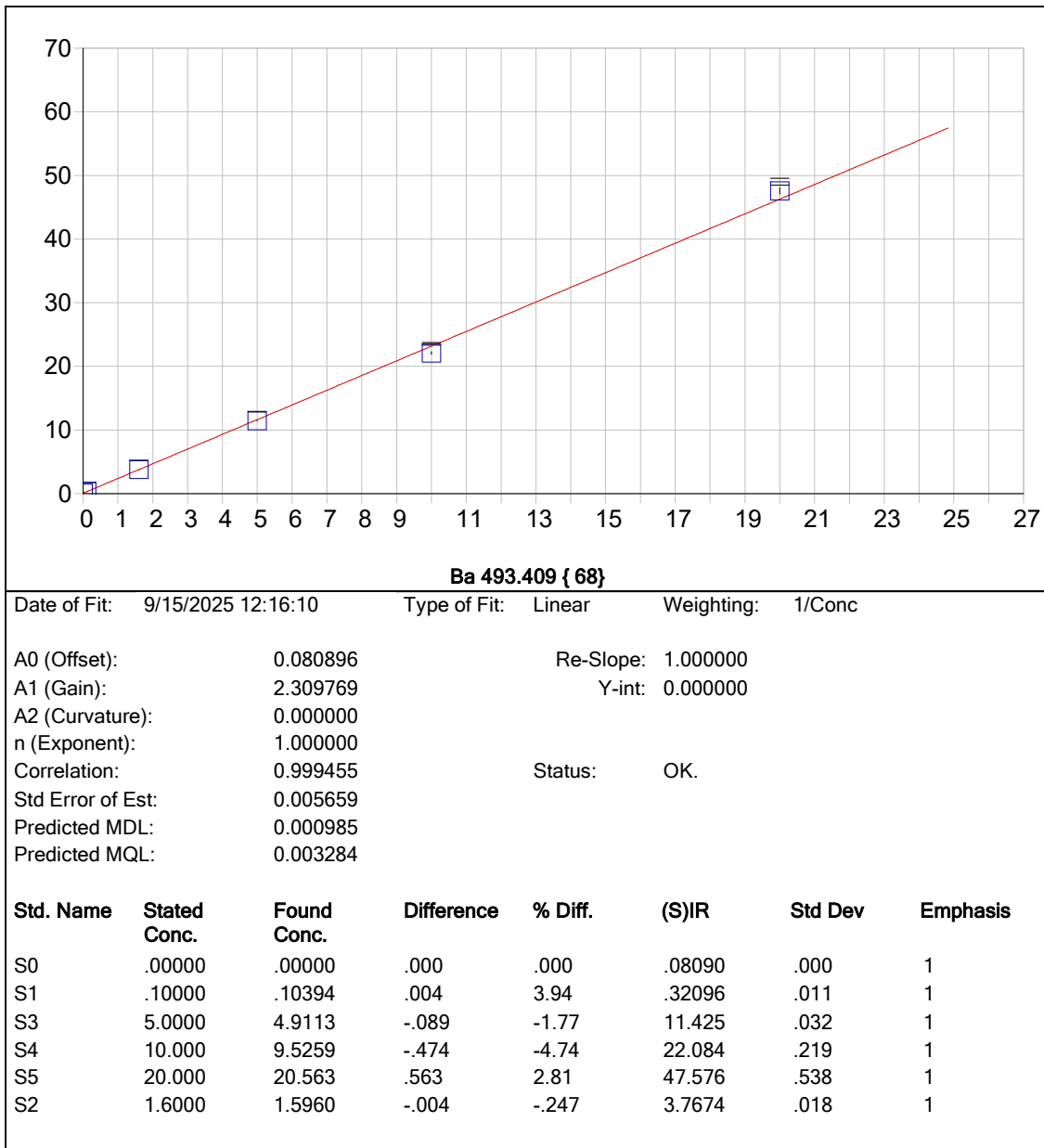
A0 (Offset): 0.000280 Re-Slope: 1.000000
A1 (Gain): 0.184698 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999653 Status: OK.
Std Error of Est: 0.000088
Predicted MDL: 0.001326
Predicted MQL: 0.004418

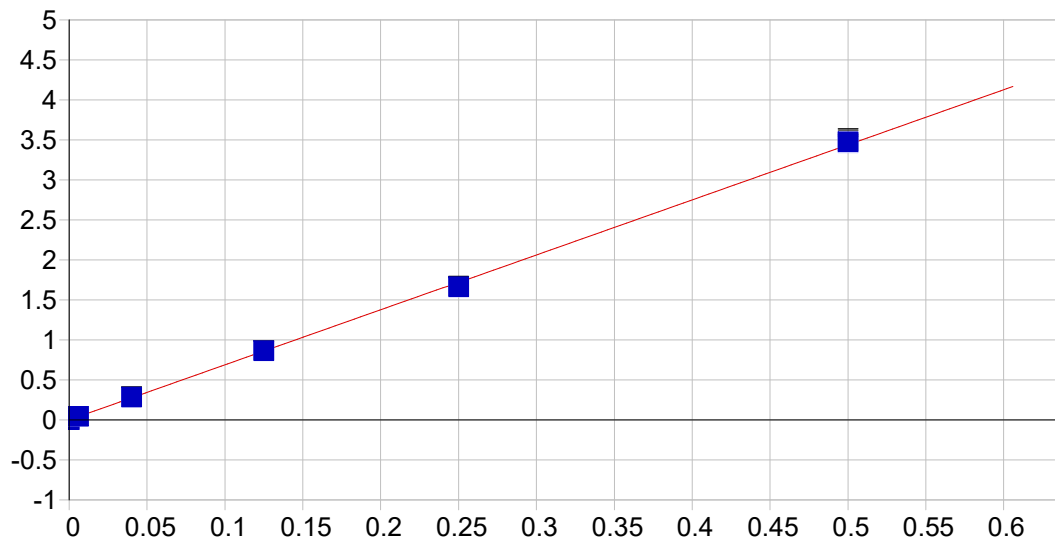
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00028	.000	1
S1	.01200	.01168	-.000	-2.66	.00239	.000	1
S3	2.5000	2.4601	-.040	-1.60	.45413	.000	1
S4	5.0000	4.8171	-.183	-3.66	.88897	.001	1
S5	10.000	10.230	.230	2.30	1.8877	.066	1
S2	.80000	.79321	-.007	-.848	.14662	.002	1









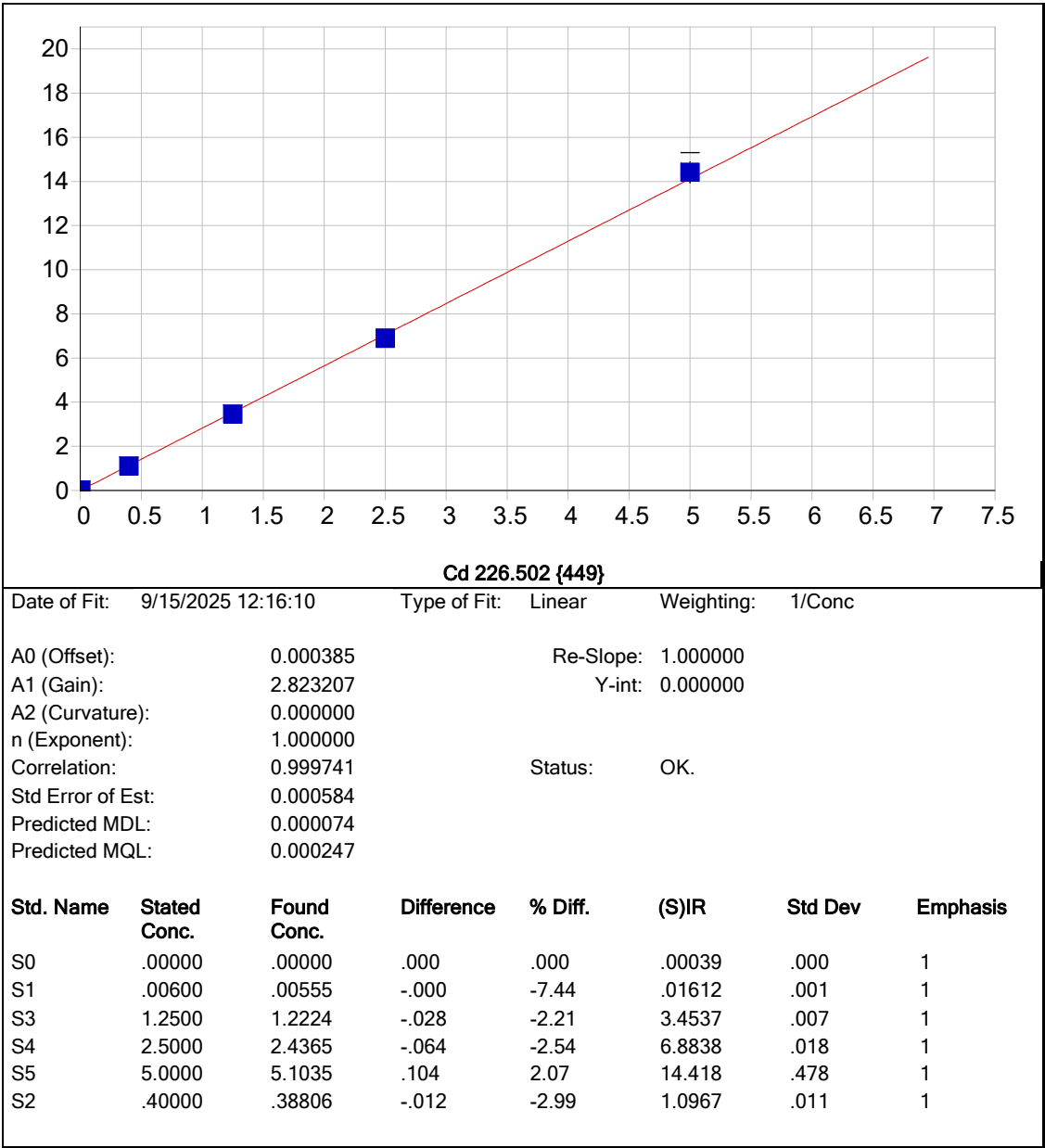


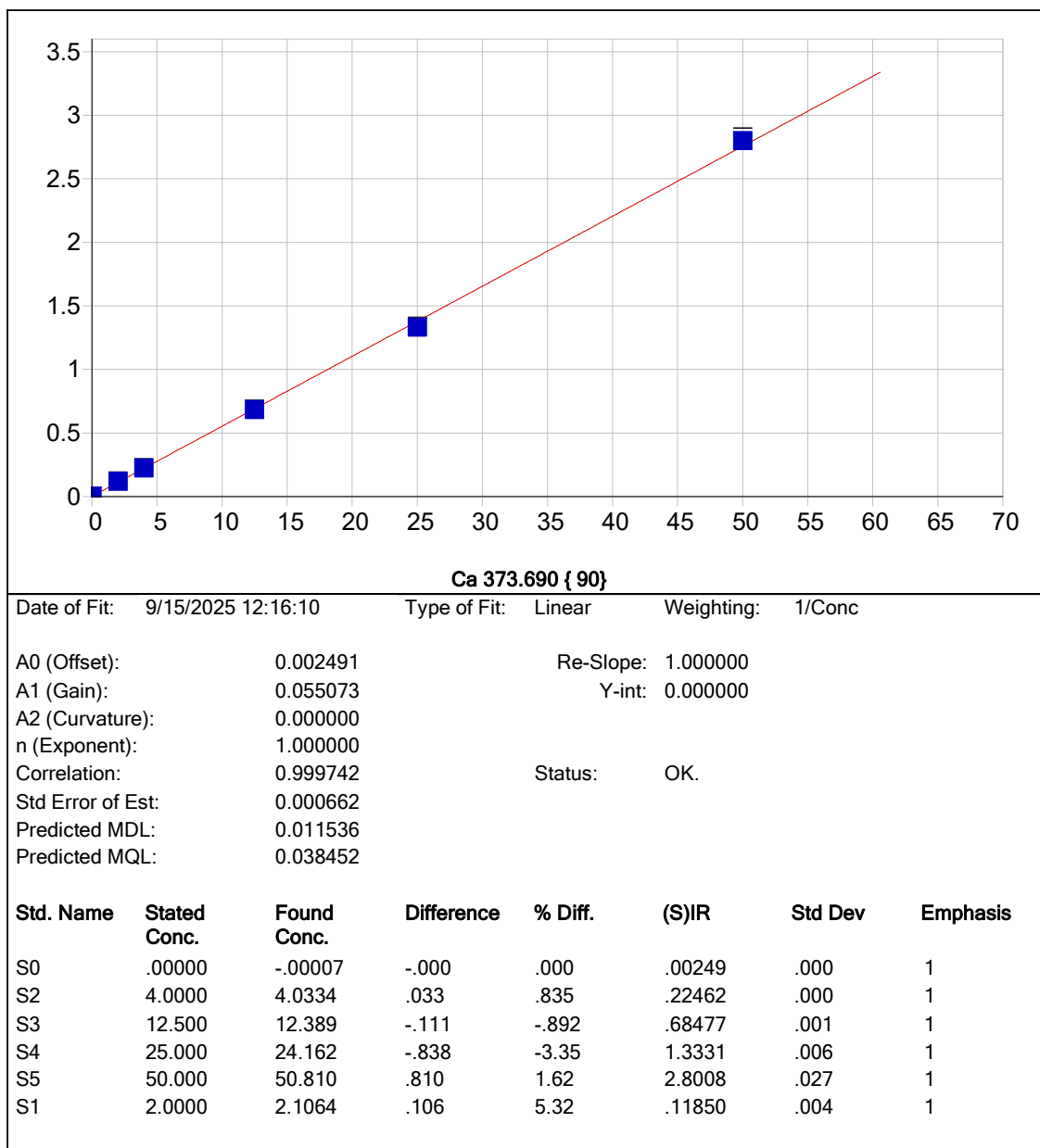
Be 234.861 {144}

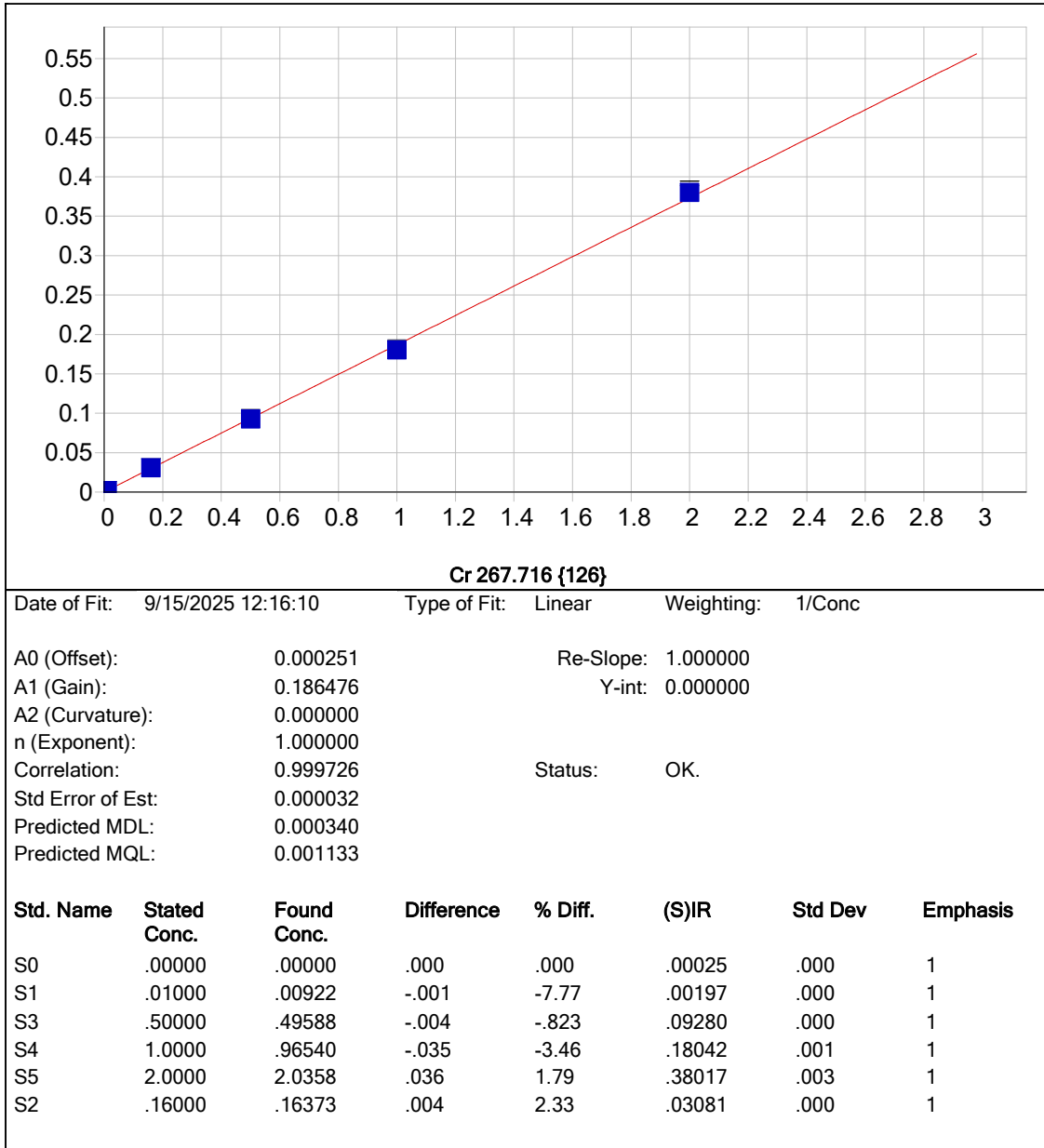
Date of Fit: 9/15/2025 12:16:10 Type of Fit: Linear Weighting: 1/Conc

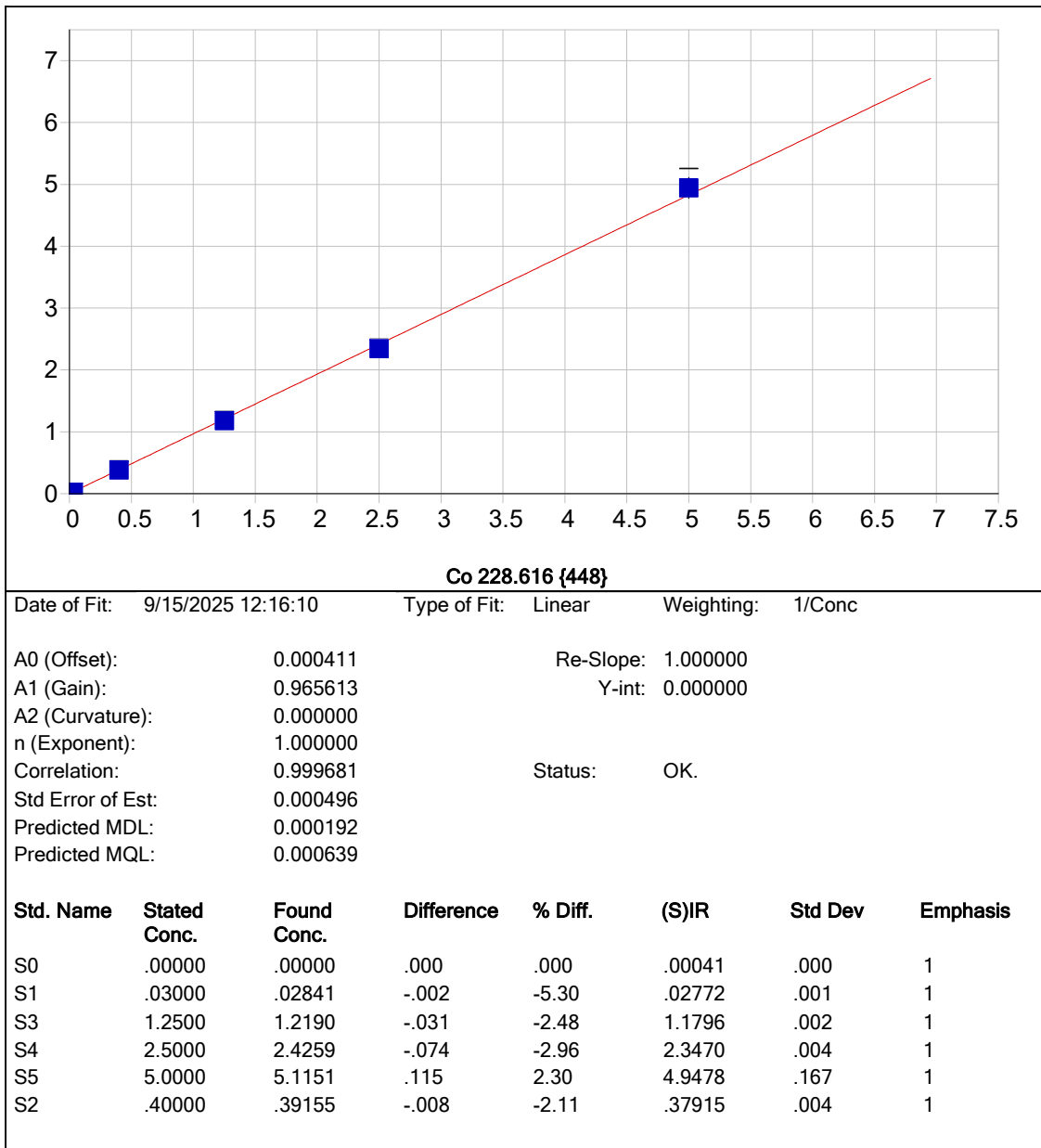
A0 (Offset): -0.000729 Re-Slope: 1.000000
A1 (Gain): 6.879999 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999761 Status: OK.
Std Error of Est: 0.000431
Predicted MDL: 0.000069
Predicted MQL: 0.000231

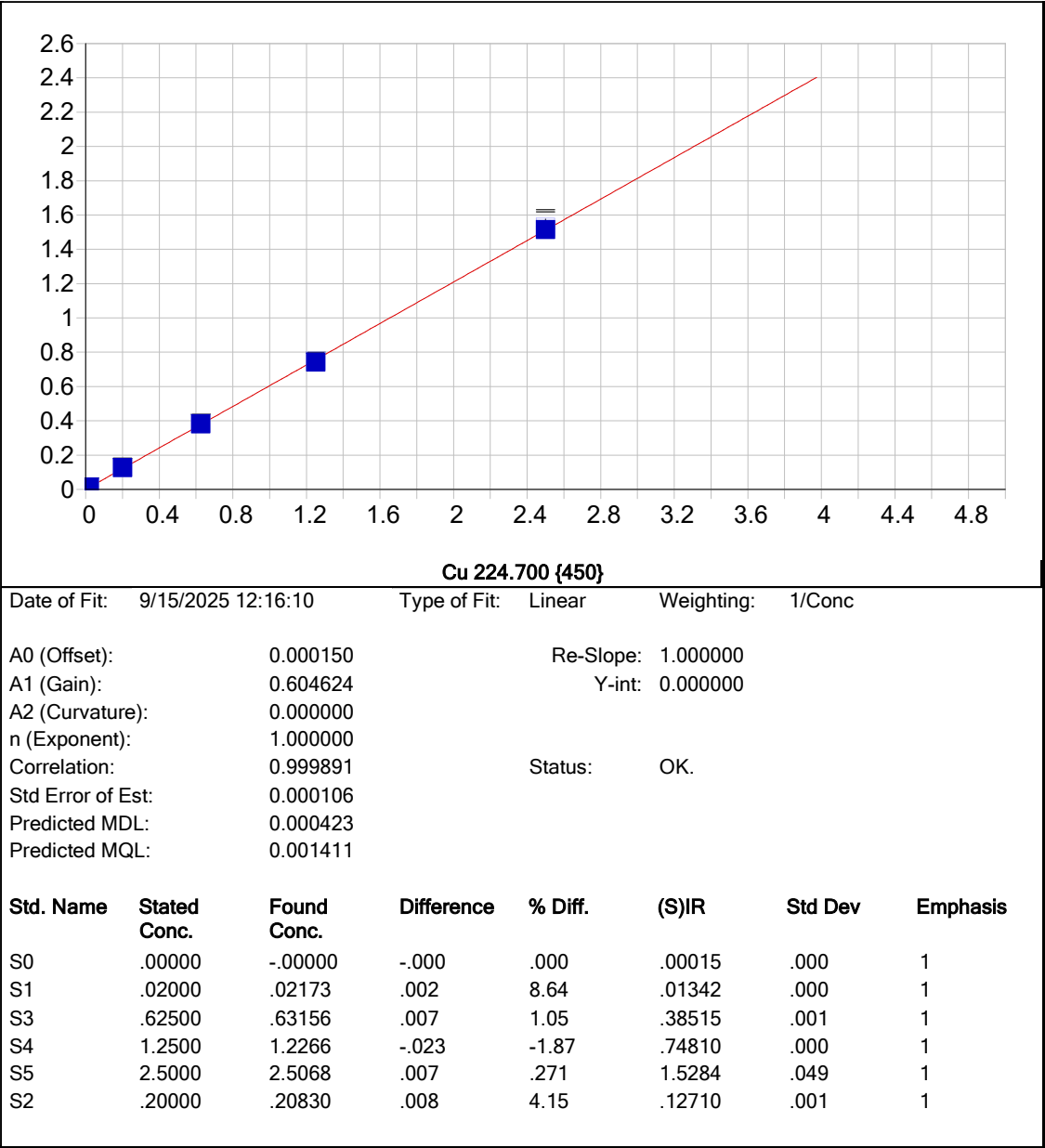
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00073	.000	1
S1	.00600	.00653	.001	8.89	.04391	.002	1
S3	.12500	.12548	.000	.382	.85870	.004	1
S4	.25000	.24188	-.008	-3.25	1.6557	.007	1
S5	.50000	.50553	.006	1.11	3.4619	.039	1
S2	.04000	.04158	.002	3.95	.28412	.002	1

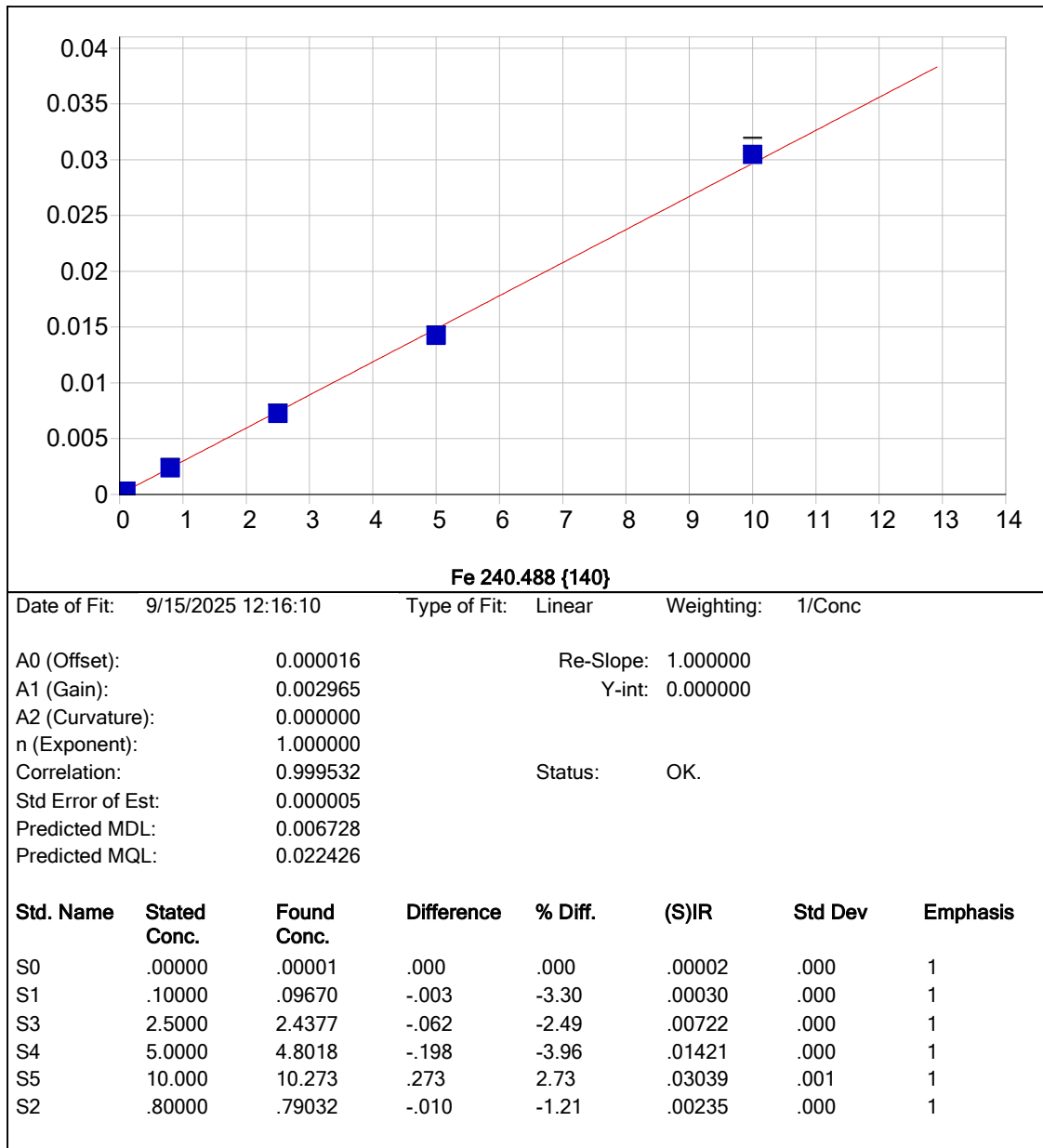


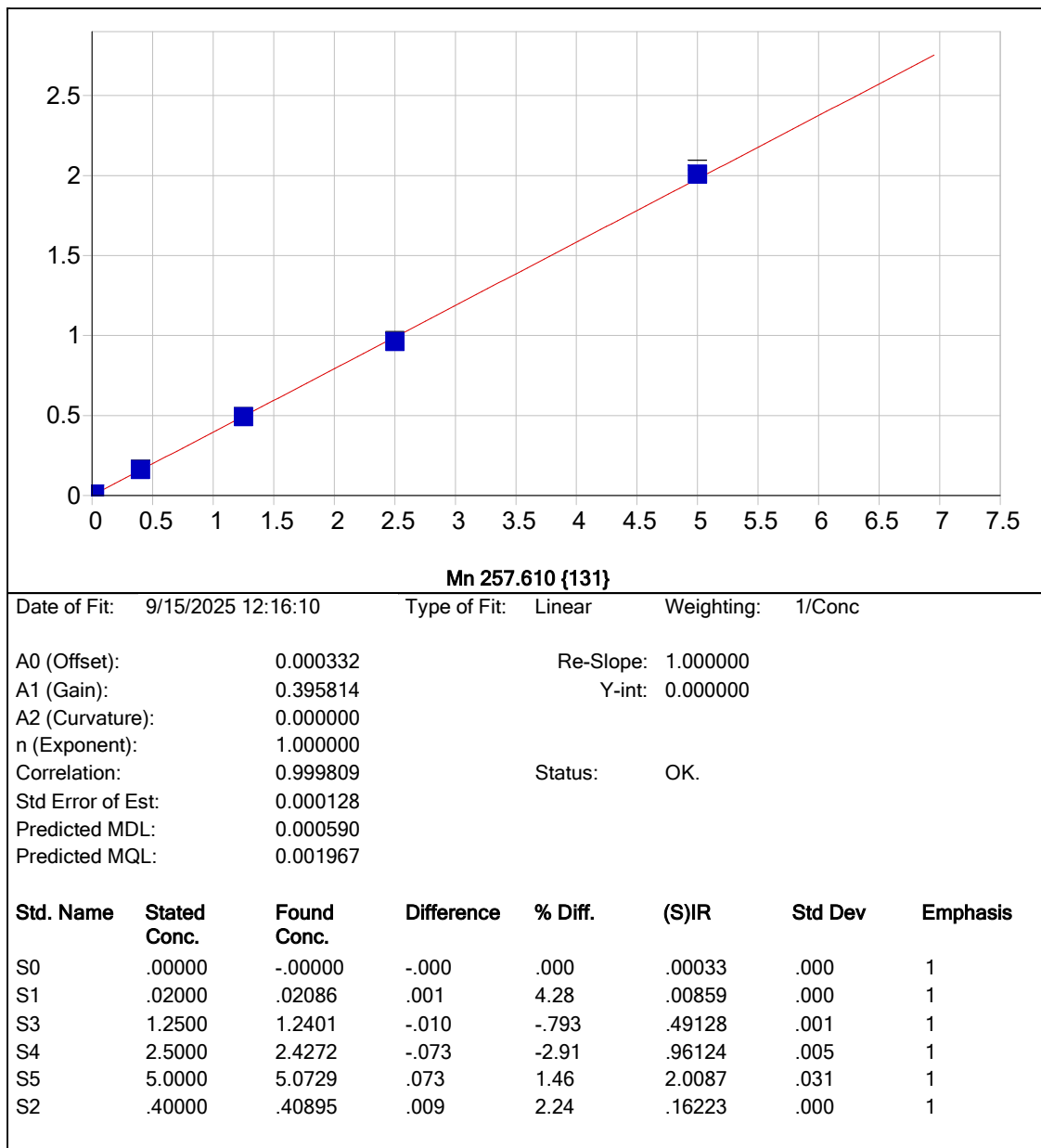


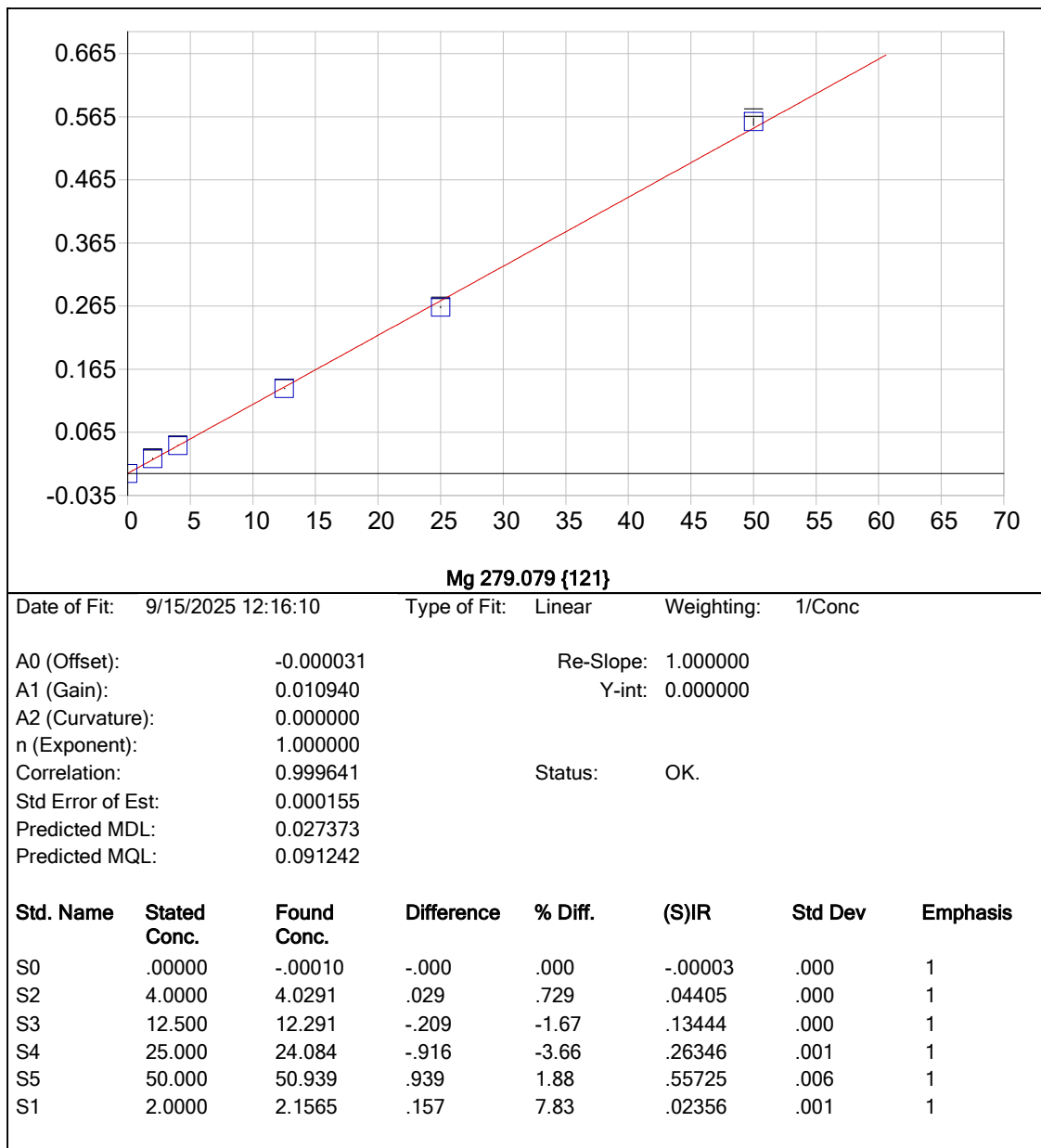


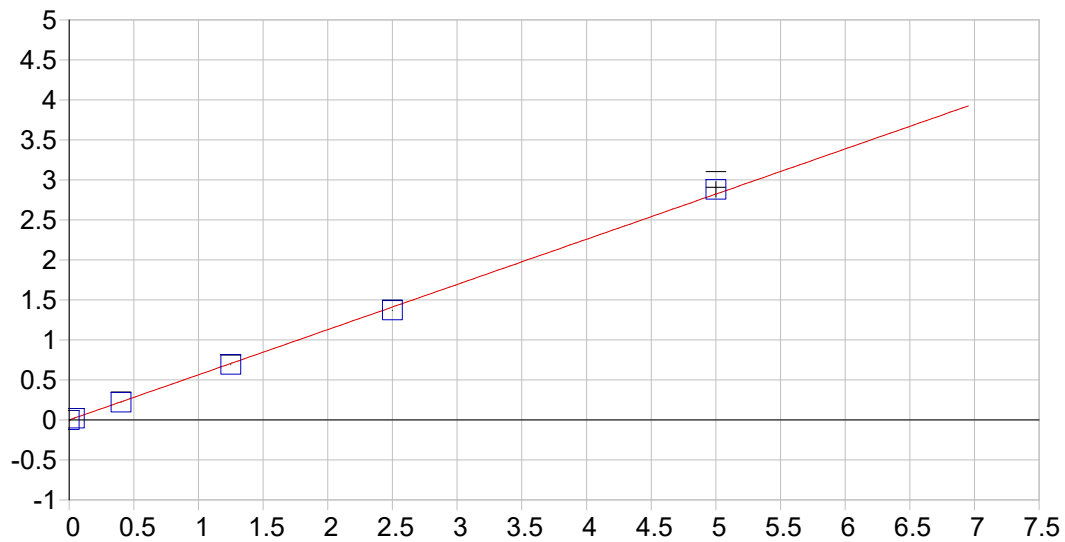










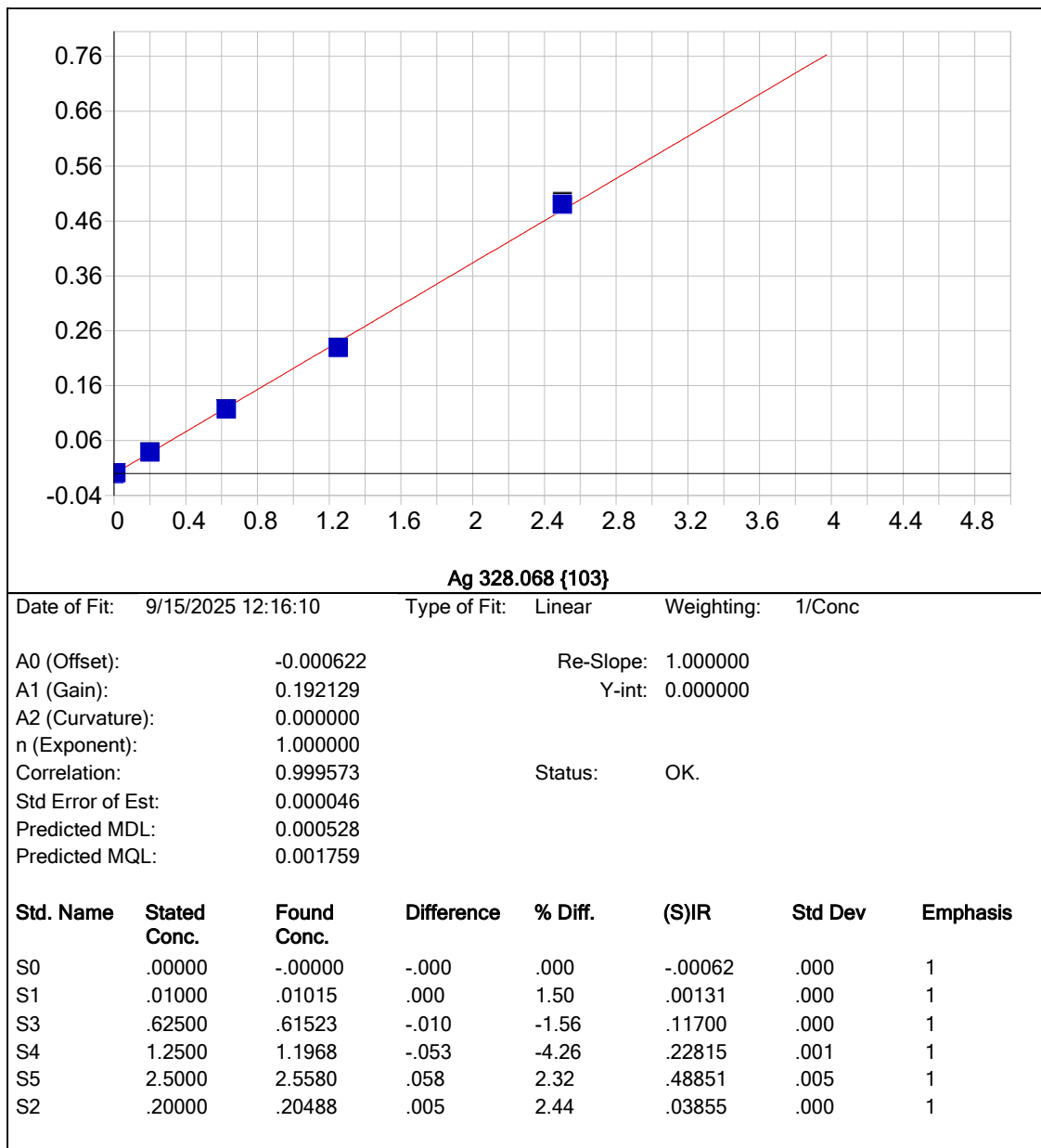


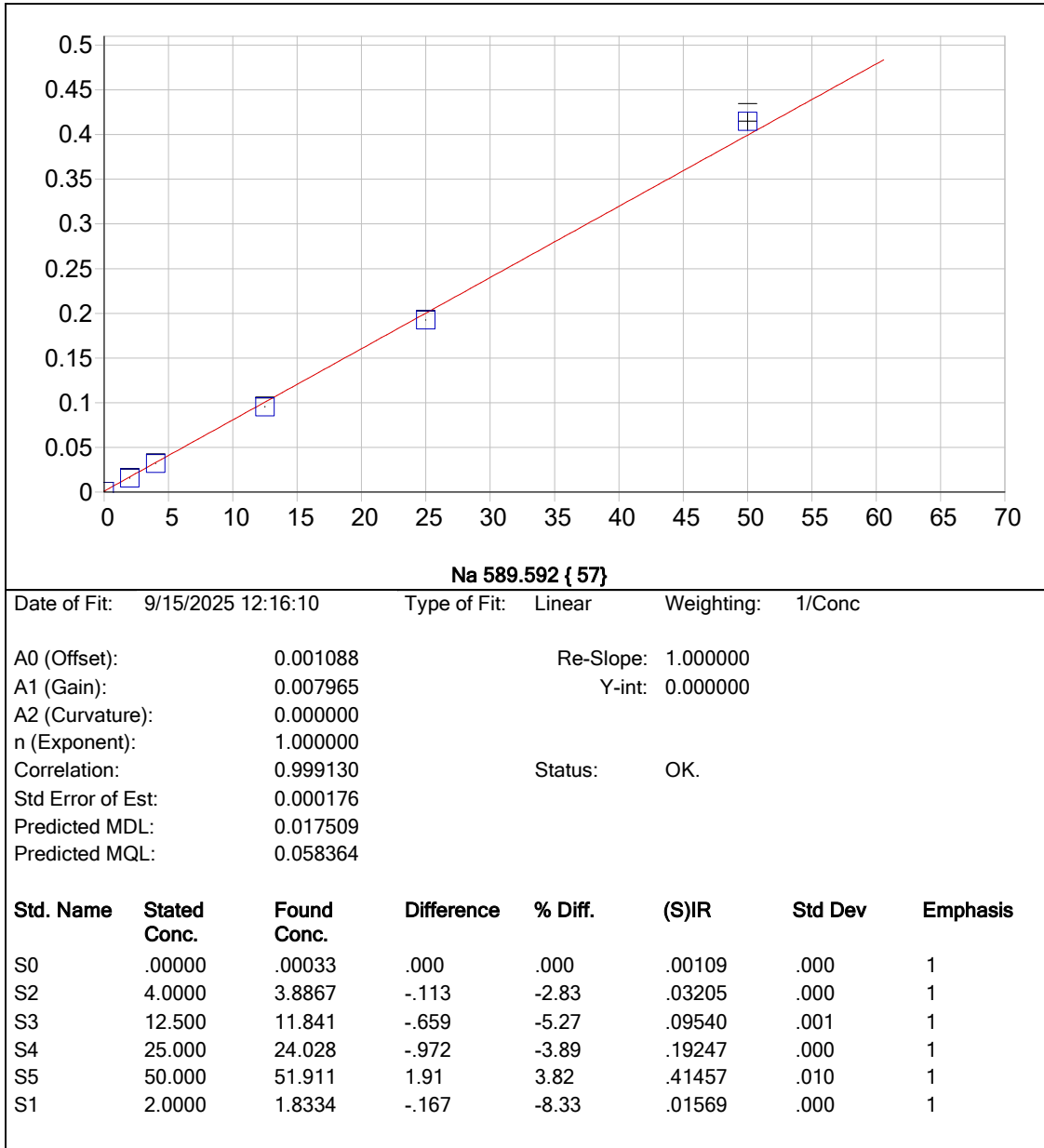
Ni 231.604 {446}

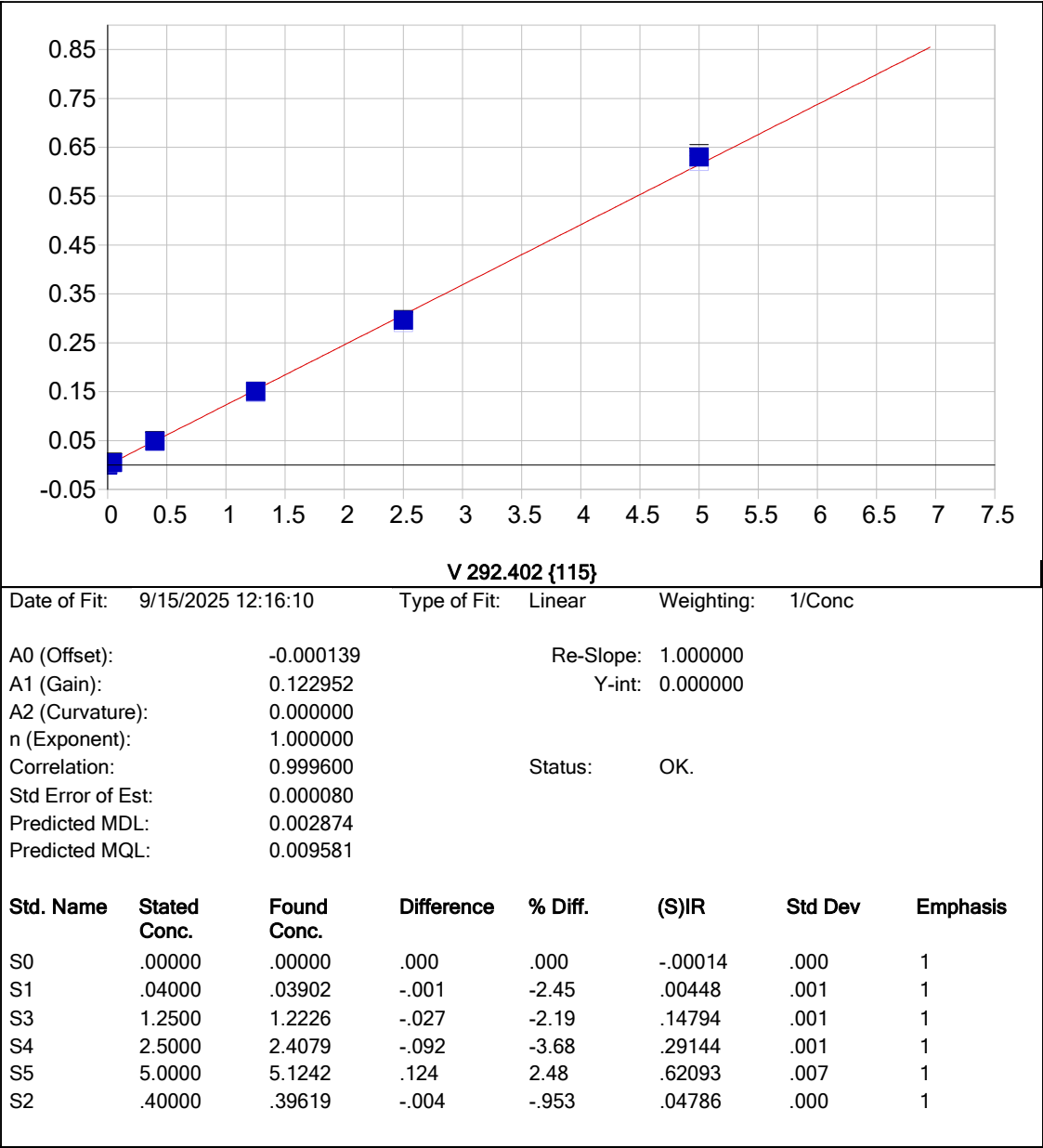
Date of Fit: 9/15/2025 12:16:10 Type of Fit: Linear Weighting: 1/Conc

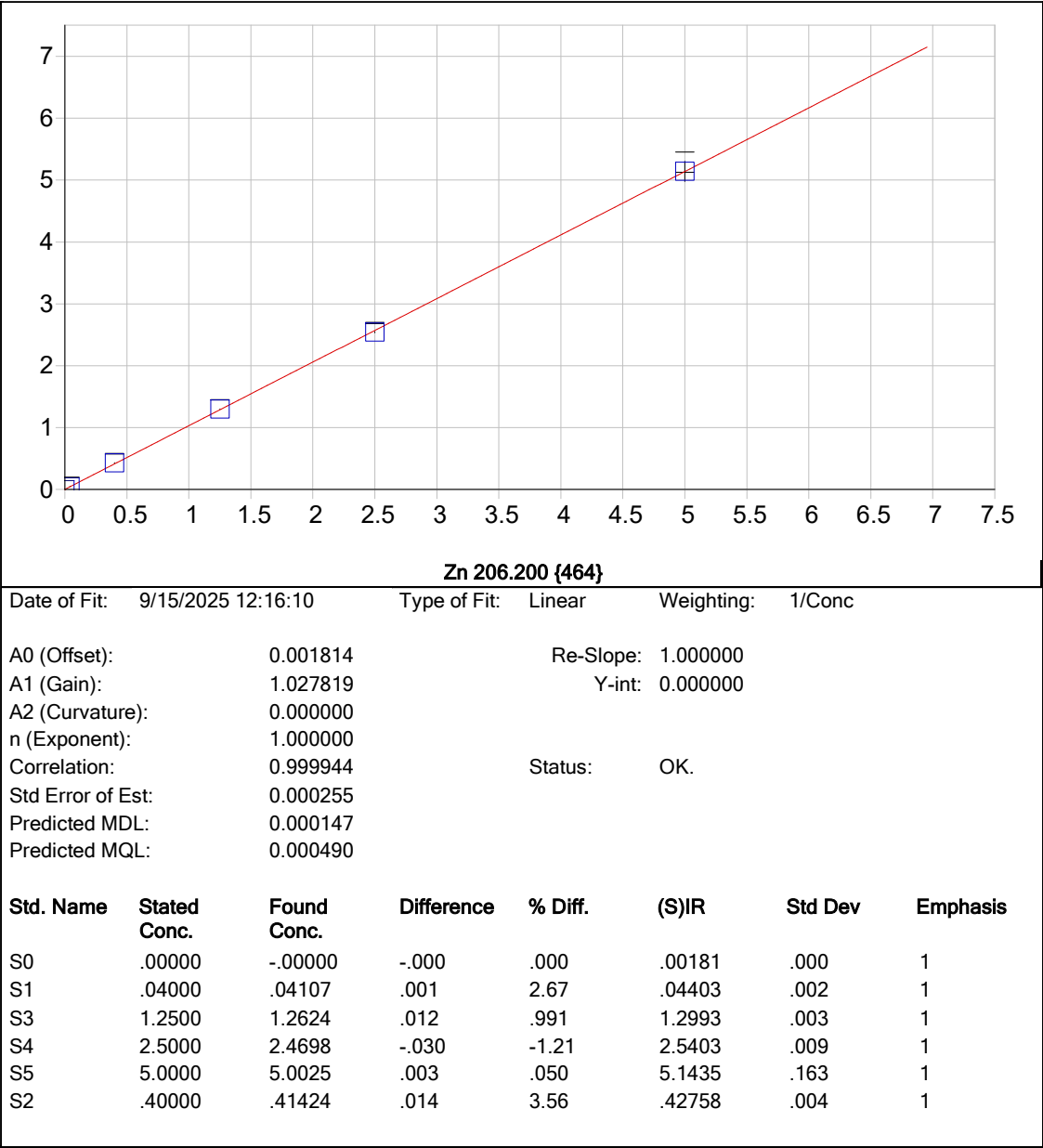
A0 (Offset): -0.000235 Re-Slope: 1.000000
A1 (Gain): 0.564551 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999733 Status: OK.
Std Error of Est: 0.000306
Predicted MDL: 0.000349
Predicted MQL: 0.001164

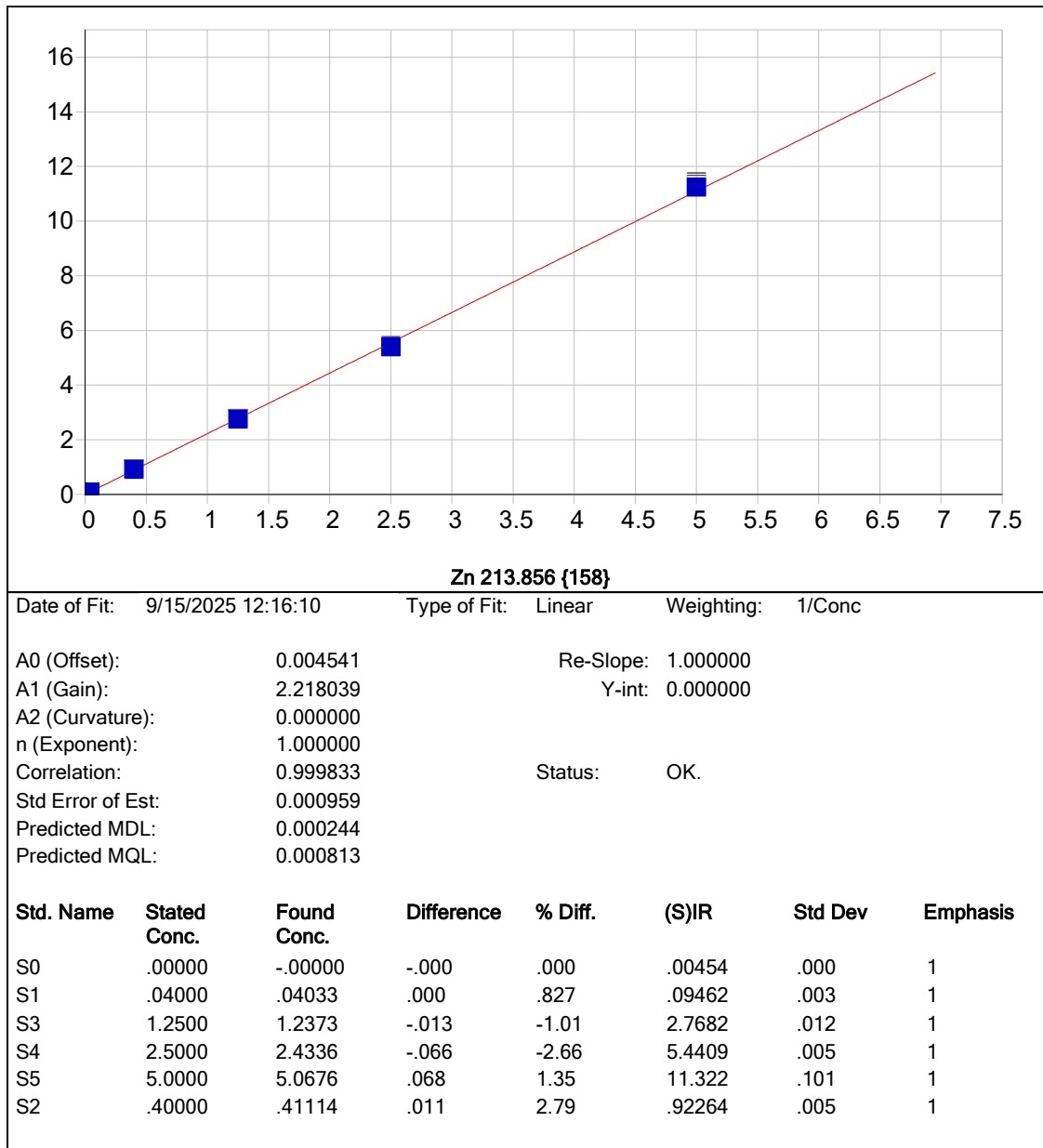
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00023	.000	1
S1	.04000	.03859	-.001	-3.53	.02155	.001	1
S3	1.2500	1.2251	-.025	-2.00	.69137	.002	1
S4	2.5000	2.4283	-.072	-2.87	1.3706	.003	1
S5	5.0000	5.1047	.105	2.09	2.8816	.098	1
S2	.40000	.39343	-.007	-1.64	.22188	.003	1

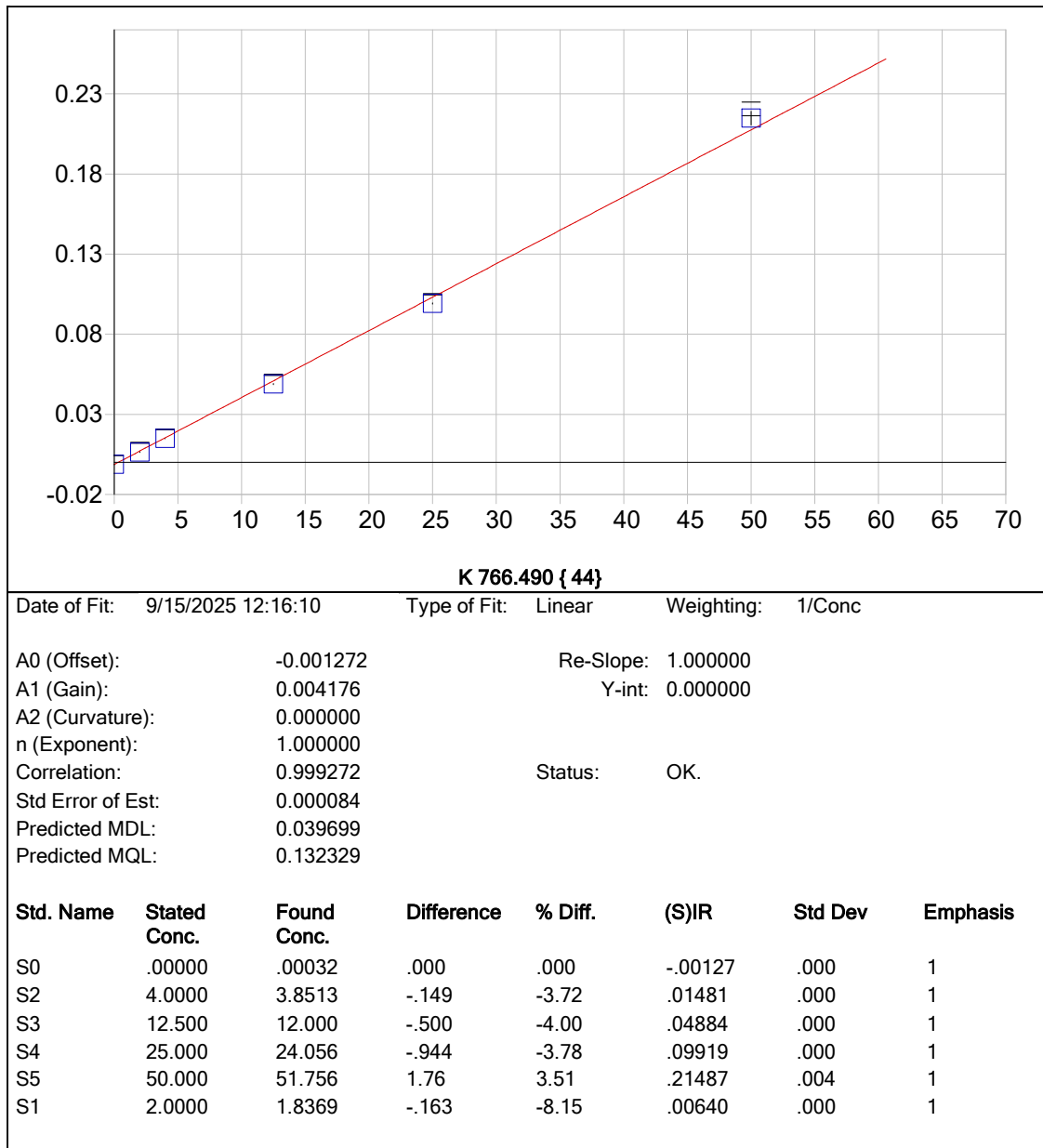


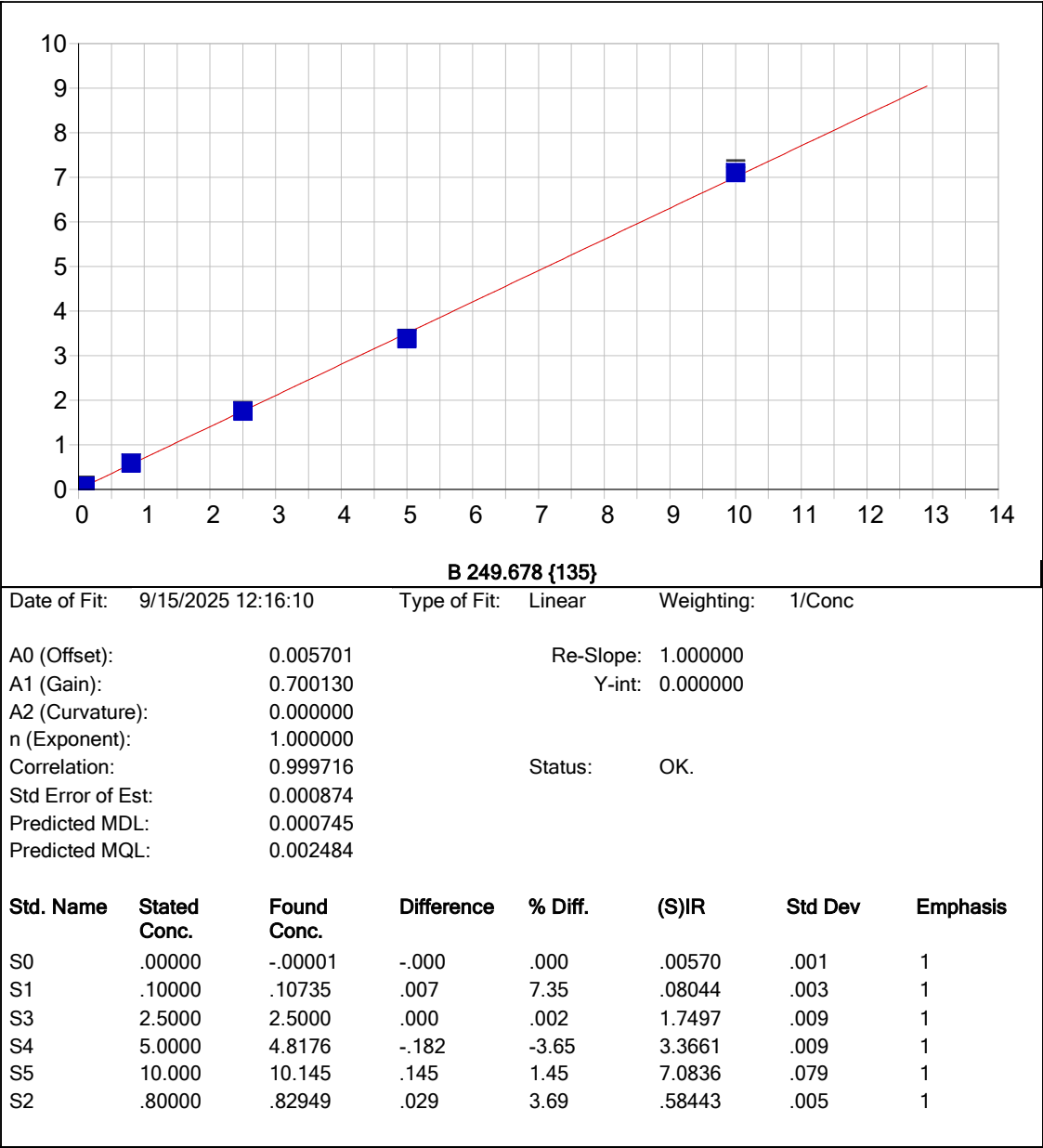


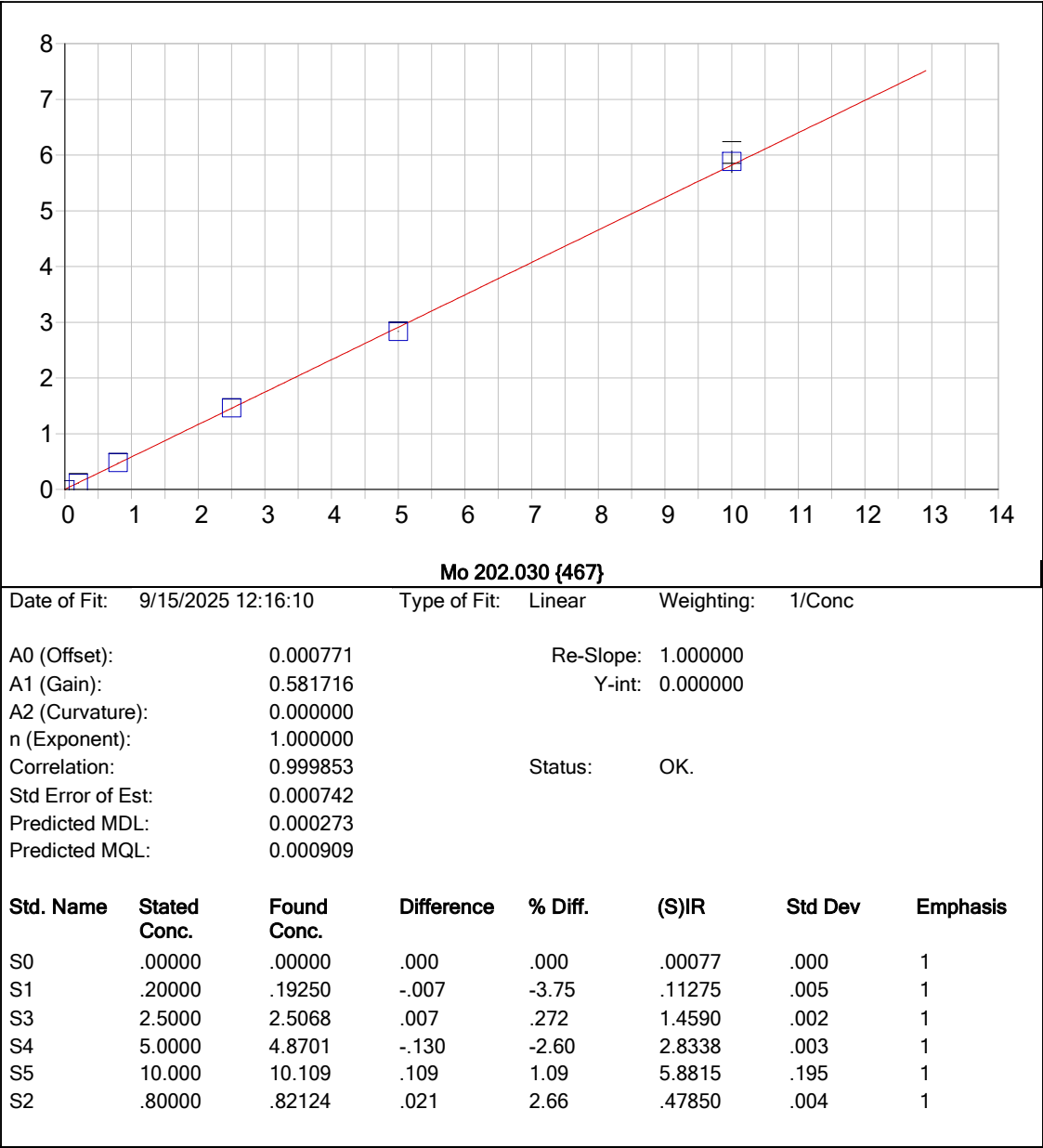


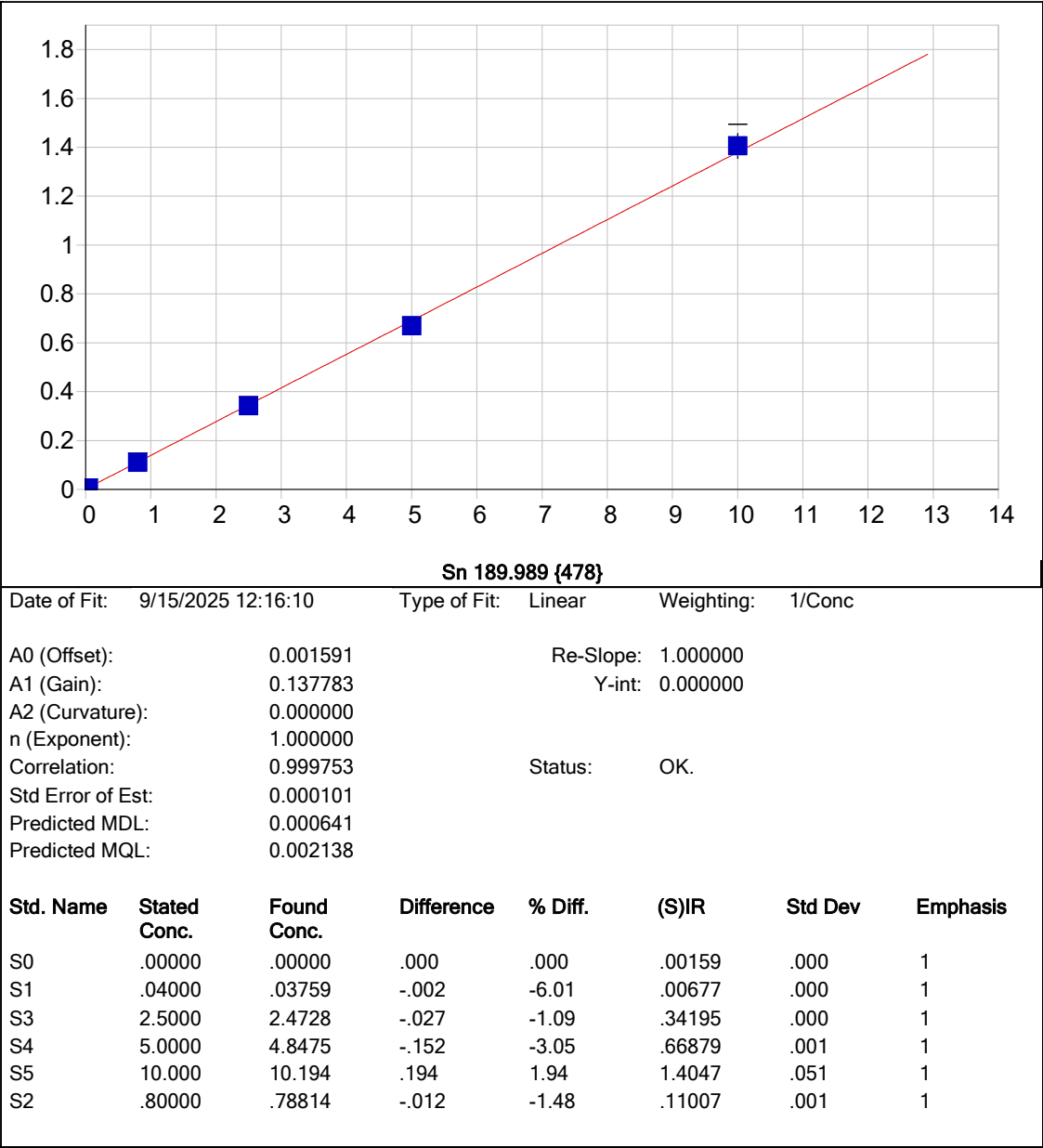


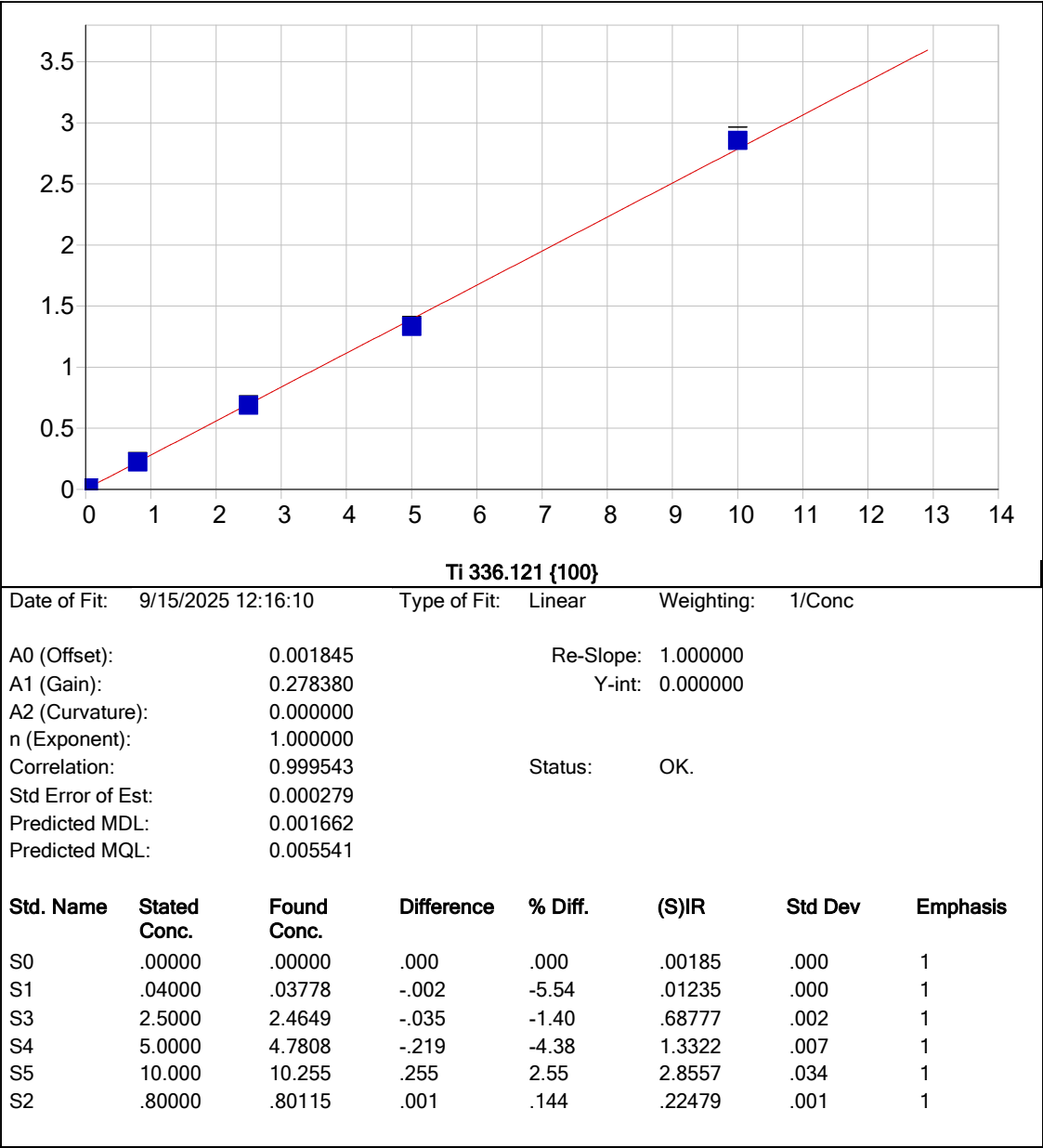


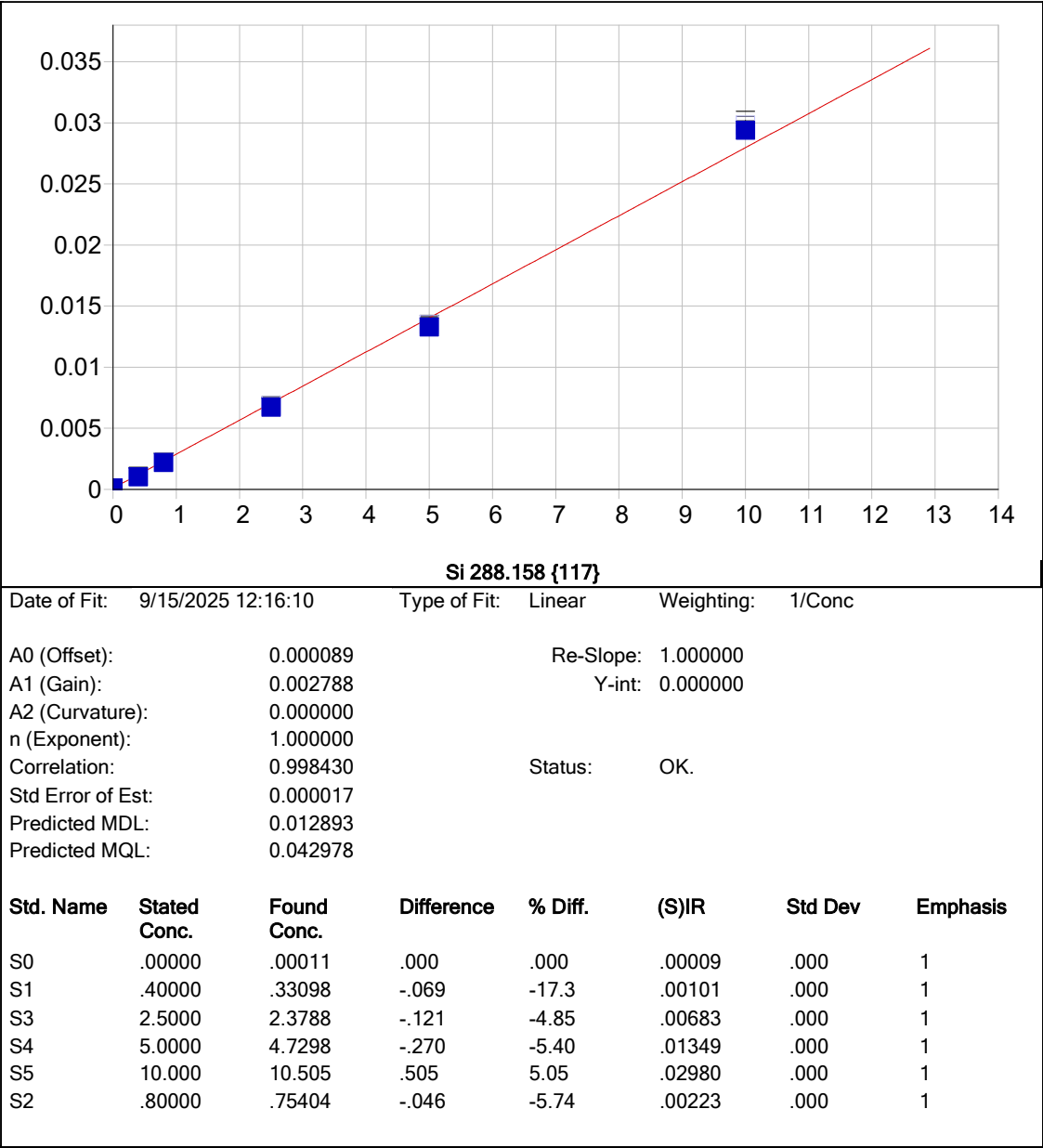


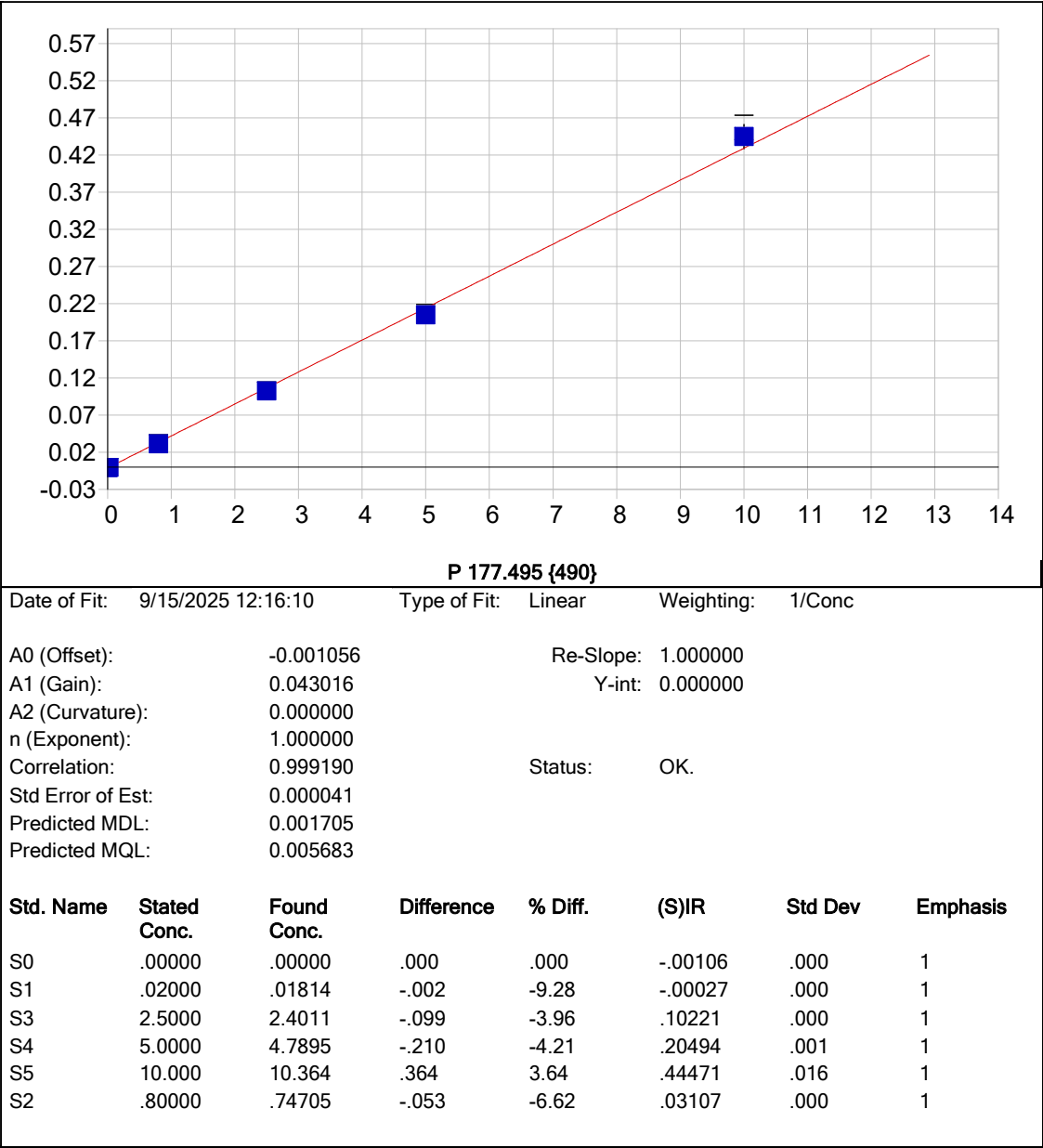


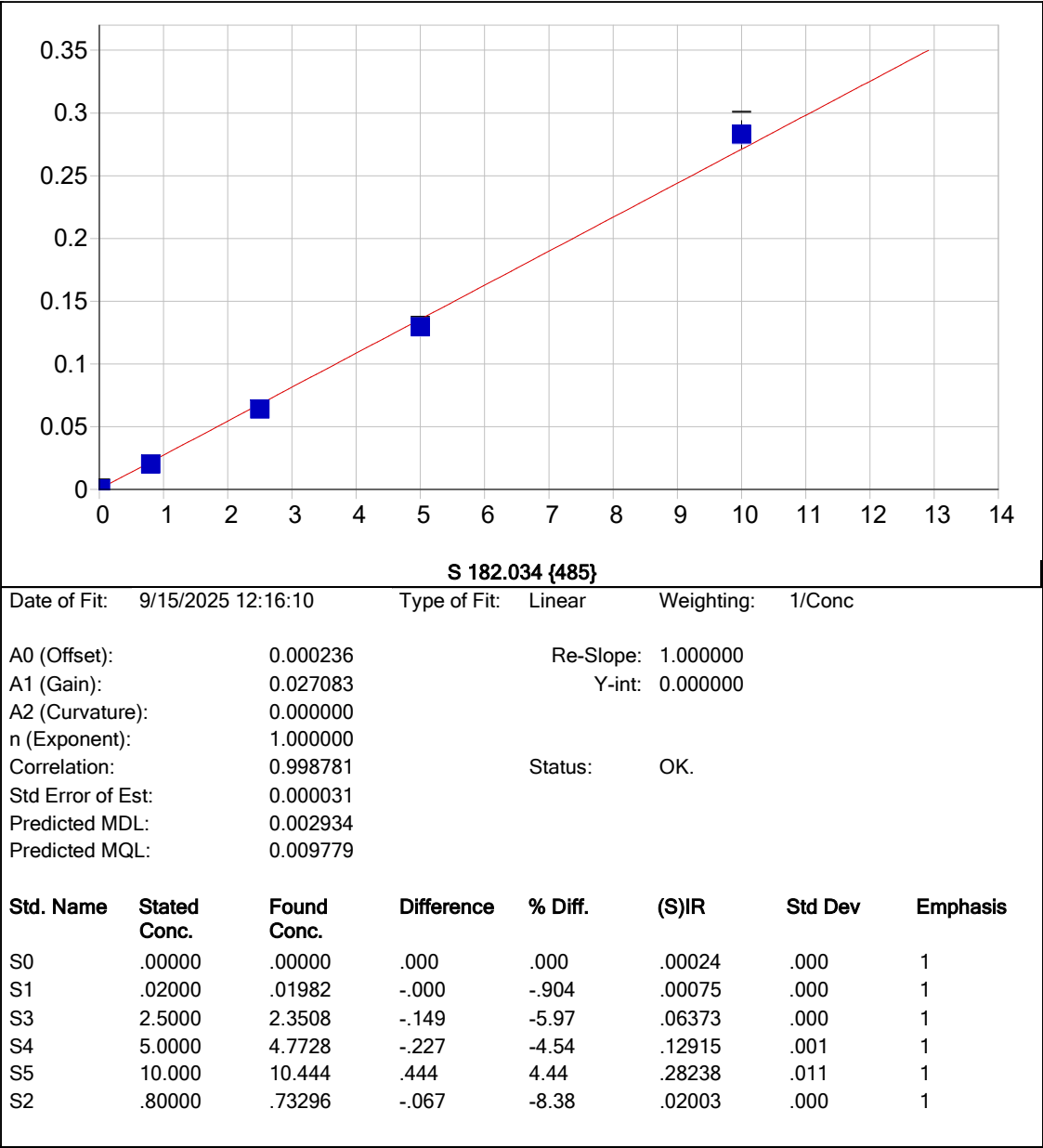


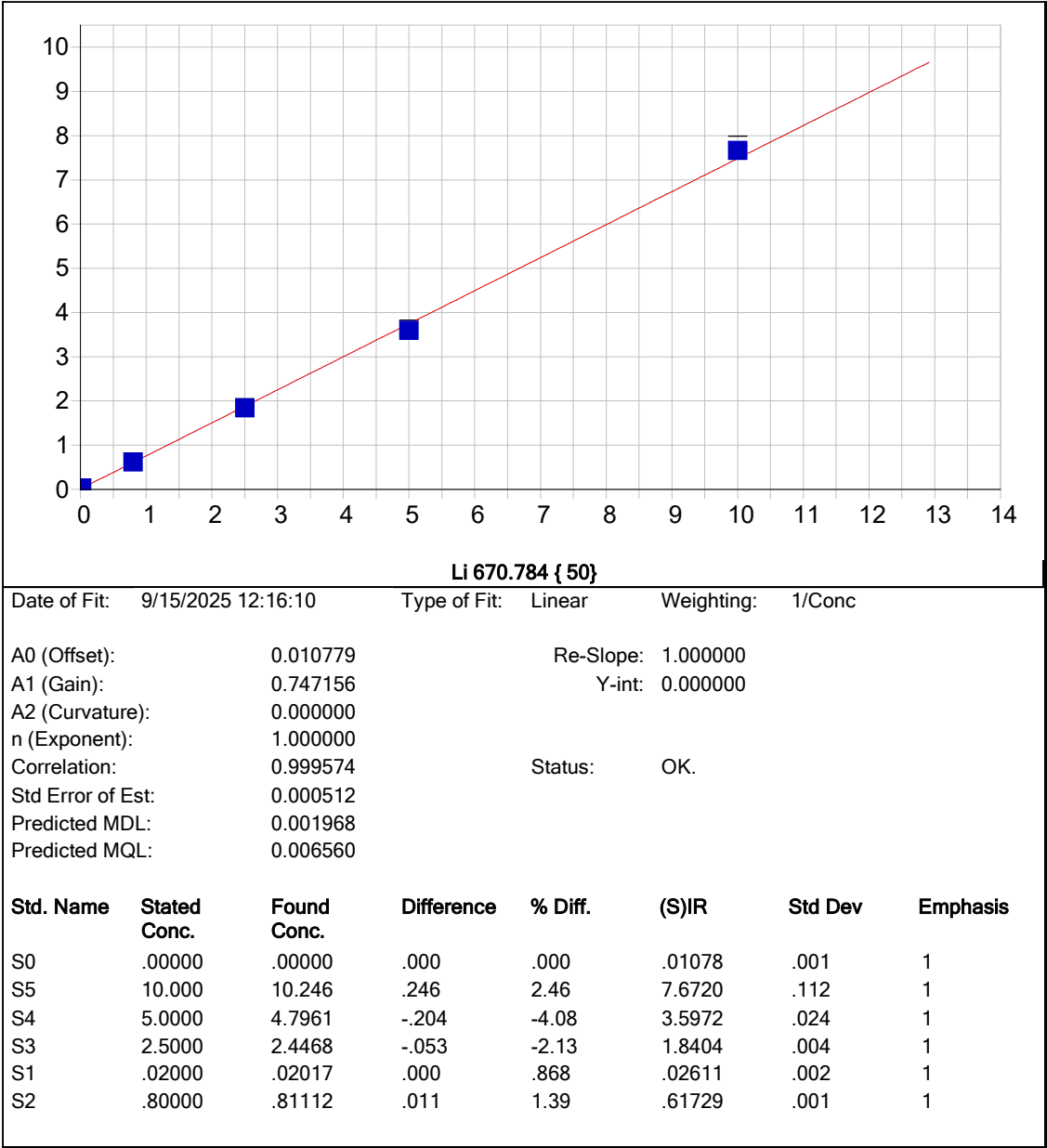


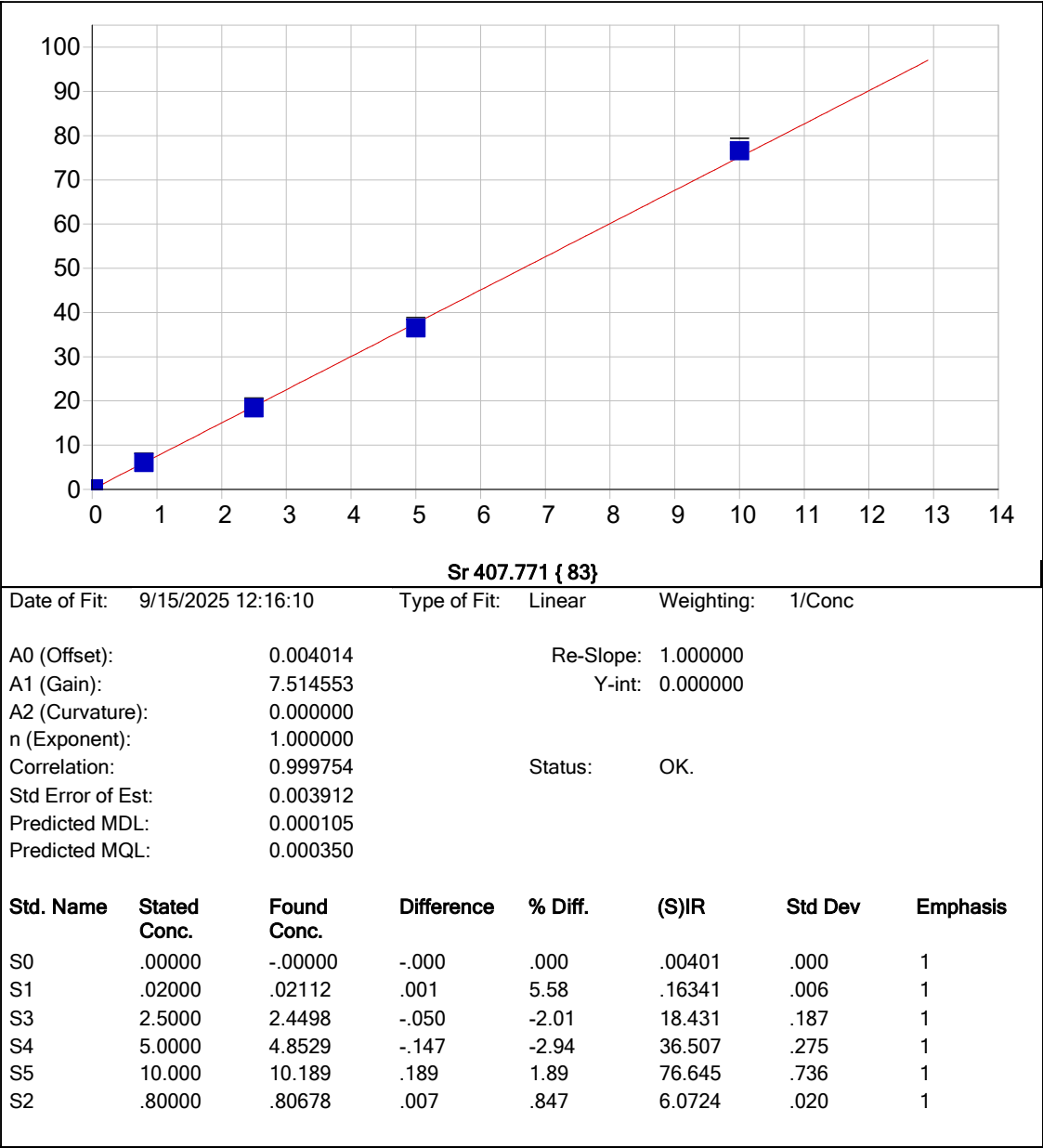


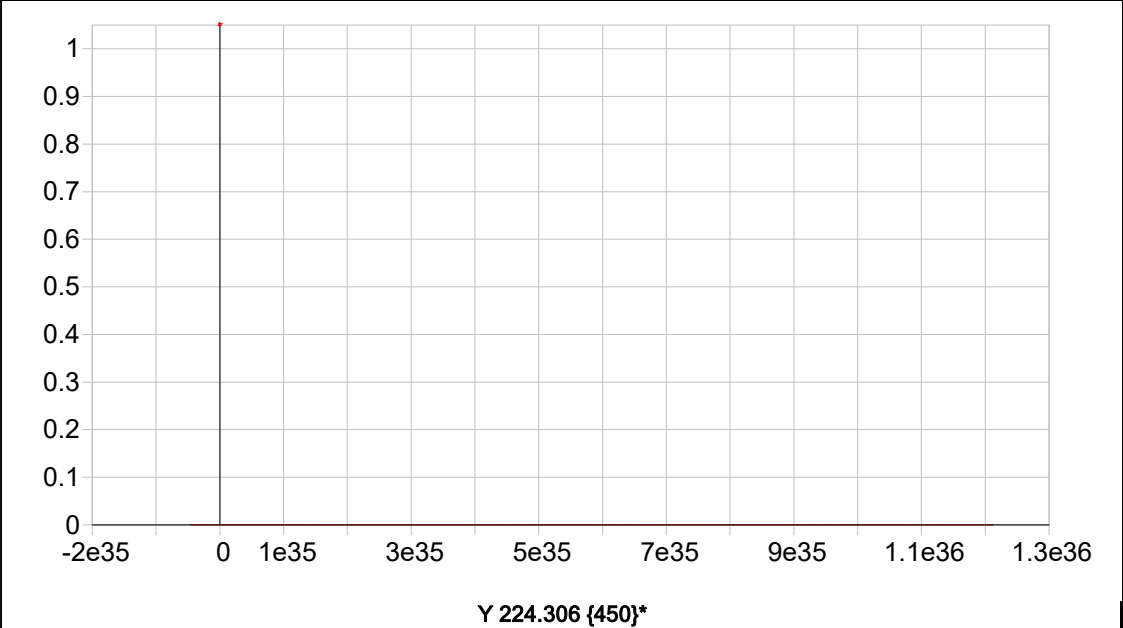






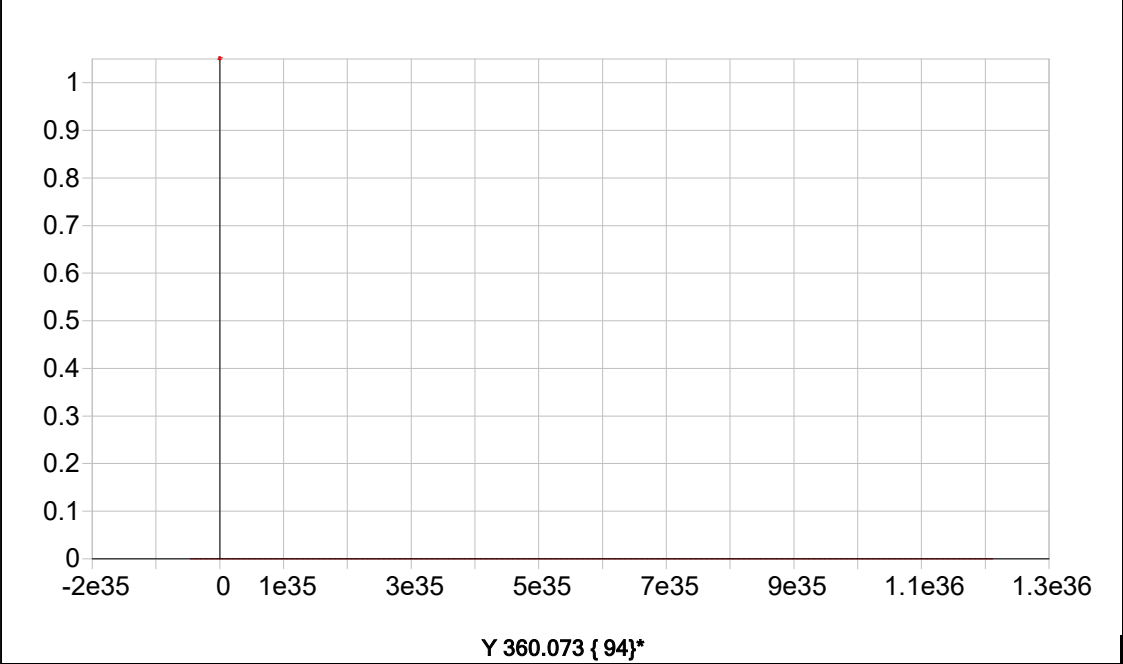




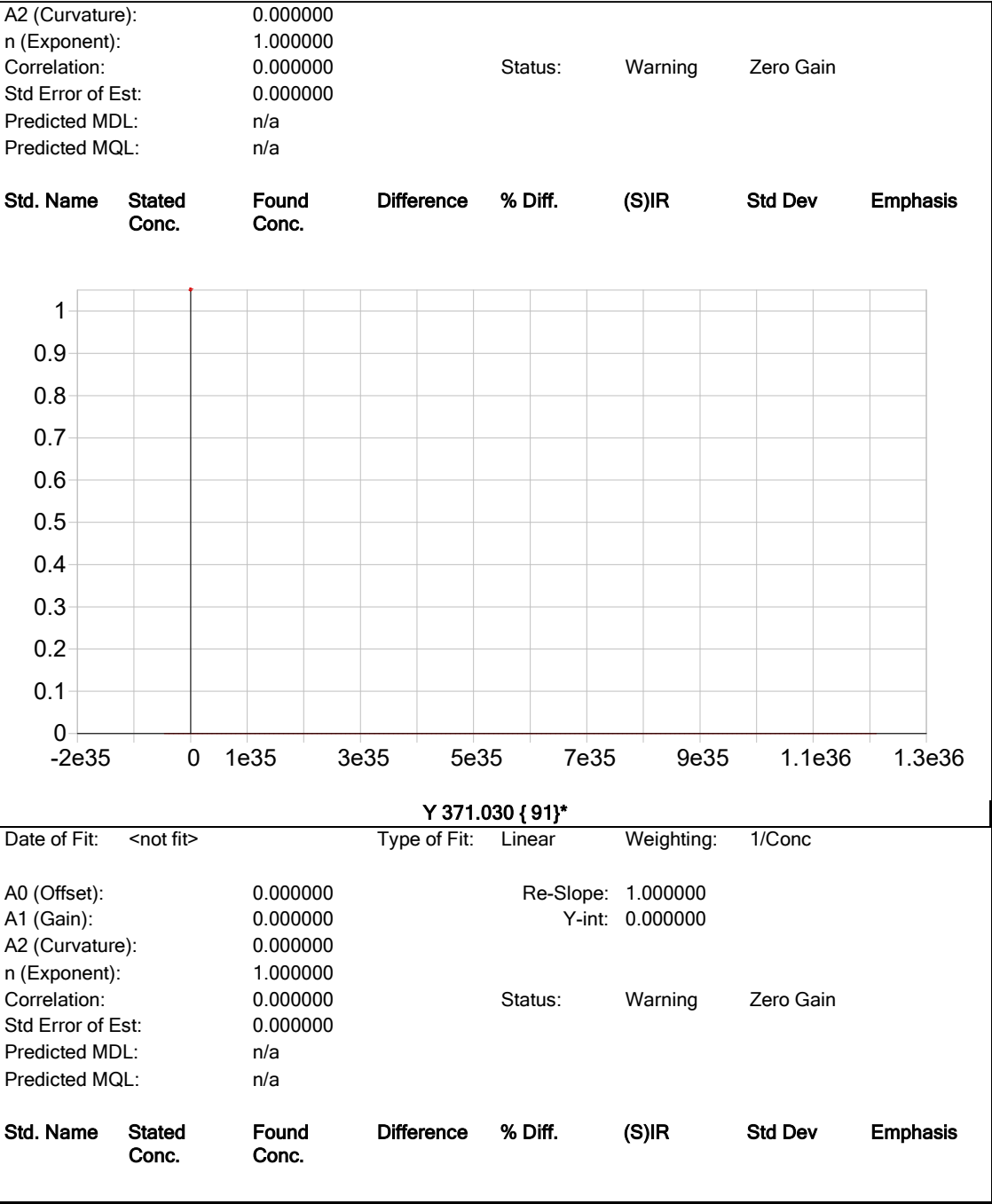


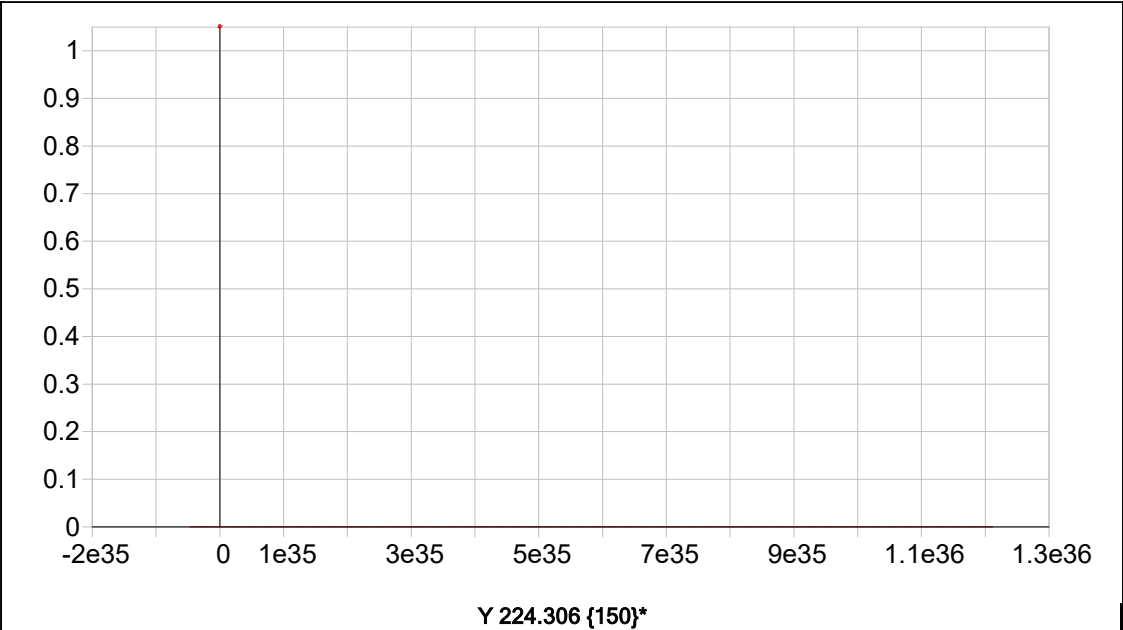
Date of Fit:	9/15/2025 12:16:10	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

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





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

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

A2 (Curvature):		0.000000		Status:	Warning	Zero Gain	
n (Exponent):		1.000000					
Correlation:		0.000000					
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

Sample Name: S0 Acquired: 9/15/2025 11:06:01 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00005	.00034	.00028	.00040	.00058	.00020	.08090	-.00073
Stddev	.00005	.00008	.00009	.00001	.00018	.00039	.00026	.00023
%RSD	100.06	23.855	33.765	3.6669	31.669	192.82	.32374	31.374

#1	-.00008	.00028	.00036	.00041	.00069	.00059	.08059	-.00089
#2	.00001	.00043	.00018	.00038	.00037	.00022	.08102	-.00084
#3	-.00008	.00031	.00031	.00040	.00067	-.00020	.08107	-.00047

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	.00039	.00249	.00025	.00041	.00015	.00002	.00033	-.00003
Stddev	.00007	.00013	.00006	.00020	.00011	.00001	.00016	.00028
%RSD	17.998	5.3829	23.891	49.308	72.664	62.821	49.362	900.45

#1	.00043	.00246	.00019	.00029	.00015	.00001	.00030	-.00013
#2	.00031	.00237	.00025	.00065	.00025	.00003	.00051	-.00025
#3	.00042	.00263	.00031	.00030	.00004	.00001	.00018	.00029

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	-.00023	-.00062	.00109	-.00014	.00454	-.00127	.00570	.00077
Stddev	.00018	.00002	.00004	.00013	.00030	.00008	.00052	.00007
%RSD	78.372	2.5573	3.6844	93.505	6.5261	5.9772	9.1840	8.6876

#1	-.00003	-.00062	.00105	-.00025	.00484	-.00135	.00521	.00075
#2	-.00030	-.00061	.00109	-.00017	.00452	-.00126	.00625	.00085
#3	-.00038	-.00064	.00113	.00000	.00425	-.00120	.00563	.00072

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	.00159	.00185	.00009	-.00106	.00024	.01078	.00401
Stddev	.00004	.00017	.00003	.00003	.00005	.00133	.00024
%RSD	2.4401	9.1872	34.818	2.4739	22.159	12.325	6.0310

#1	.00162	.00183	.00005	-.00106	.00020	.01150	.00413
#2	.00160	.00169	.00011	-.00103	.00030	.01159	.00373
#3	.00155	.00202	.00010	-.00108	.00021	.00925	.00417

Sample Name: S0 Acquired: 9/15/2025 11:06:01 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6393.7	110430.	10447.	4930.0	8045.6
Stddev	7.3	124.	54.	11.0	4.7
%RSD	.11345	.11192	.51773	.22270	.05853
#1	6386.2	110560.	10508.	4922.4	8041.4
#2	6394.3	110310.	10427.	4925.0	8044.8
#3	6400.6	110440.	10406.	4942.6	8050.7

Sample Name: S1 Acquired: 9/15/2025 11:10:23 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00078	.00296	.00239	.00116	.00463	.00846	.32096	.04391
Stddev	.00011	.00019	.00014	.00006	.00012	.00048	.01064	.00163
%RSD	14.225	6.3599	6.0164	5.0800	2.6245	5.6956	3.3135	3.7219
#1	.00090	.00301	.00223	.00118	.00476	.00902	.32880	.04521
#2	.00073	.00312	.00250	.00121	.00461	.00818	.32523	.04445
#3	.00070	.00275	.00246	.00109	.00452	.00818	.30886	.04208
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	.01612	.11850	.00197	.02772	.01342	.00030	.00859	.02356
Stddev	.00074	.00395	.00008	.00105	.00041	.00002	.00039	.00094
%RSD	4.5946	3.3353	3.8589	3.8014	3.0813	5.0488	4.5272	3.9969
#1	.01644	.12214	.00206	.02816	.01370	.00032	.00896	.02450
#2	.01665	.11906	.00195	.02849	.01362	.00029	.00862	.02356
#3	.01527	.11430	.00191	.02652	.01295	.00030	.00819	.02262
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	.02155	.00131	.01569	.00448	.09462	.00640	.08044	.11275
Stddev	.00103	.00010	.00041	.00056	.00318	.00025	.00273	.00479
%RSD	4.7775	7.8509	2.5899	12.522	3.3637	3.9788	3.3973	4.2514
#1	.02209	.00135	.01594	.00501	.09820	.00647	.08313	.11525
#2	.02220	.00139	.01591	.00453	.09353	.00661	.08053	.11578
#3	.02036	.00119	.01522	.00389	.09212	.00612	.07767	.10722
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	.00677	.01235	.00101	-.00027	.00075	.02611	.16341	
Stddev	.00023	.00009	.00003	.00006	.00007	.00188	.00645	
%RSD	3.3647	.76779	3.0706	20.481	9.6961	7.2009	3.9496	
#1	.00685	.01232	.00105	-.00022	.00077	.02801	.16819	
#2	.00694	.01228	.00101	-.00027	.00081	.02608	.16597	
#3	.00651	.01246	.00098	-.00033	.00067	.02425	.15607	

Sample Name: S1 Acquired: 9/15/2025 11:10:23 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6262.8	109430.	9805.5	4862.8	7794.3
Stddev	228.5	2713.	304.5	139.8	286.9
%RSD	3.6492	2.4792	3.1050	2.8759	3.6815
#1	6128.2	106540.	9535.1	4710.8	7637.3
#2	6133.5	109810.	9746.0	4891.7	7620.0
#3	6526.7	111930.	10135.	4986.0	8125.4

Sample Name: S2 Acquired: 9/15/2025 11:14:39 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2265
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.03527	.05535	.14662	.03287	.06760	.12326	3.7674	.28412	1.0967
Stddev	.00030	.00038	.00151	.00031	.00060	.00168	.0177	.00223	.0115
%RSD	.84379	.68000	1.0276	.94163	.89075	1.3637	.47121	.78344	1.0455

#1	.03497	.05494	.14488	.03252	.06694	.12451	3.7801	.28477	1.0837
#2	.03529	.05543	.14745	.03308	.06812	.12392	3.7750	.28595	1.1009
#3	.03556	.05568	.14754	.03302	.06775	.12135	3.7471	.28164	1.1055

Elem	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.22462	.03081	.37915	.12710	.00235	.16223	.04405	.22188	.03855
Stddev	.00044	.00022	.00376	.00143	.00005	.00034	.00046	.00269	.00020
%RSD	.19514	.71592	.99263	1.1219	1.9889	.20861	1.0536	1.2130	.51711

#1	.22495	.03064	.37484	.12547	.00231	.16237	.04373	.21886	.03841
#2	.22480	.03073	.38085	.12772	.00234	.16184	.04458	.22274	.03847
#3	.22413	.03106	.38177	.12812	.00240	.16247	.04384	.22403	.03878

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.03205	.04786	.92264	.01481	.58443	.47850	.11007	.22479	.00223
Stddev	.00040	.00047	.00488	.00019	.00461	.00387	.00131	.00132	.00002
%RSD	1.2437	.97182	.52918	1.2576	.78958	.80787	1.1884	.58608	.78133

#1	.03178	.04732	.91774	.01466	.58739	.47404	.10861	.22614	.00221
#2	.03185	.04810	.92268	.01476	.58679	.48095	.11045	.22471	.00224
#3	.03250	.04815	.92751	.01502	.57912	.48050	.11114	.22351	.00222

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.03107	.02003	.61729	6.0724
Stddev	.00033	.00011	.00088	.0196
%RSD	1.0520	.53604	.14192	.32211

#1	.03072	.01991	.61769	6.0902
#2	.03114	.02007	.61789	6.0755
#3	.03136	.02011	.61628	6.0514

Sample Name: S2 Acquired: 9/15/2025 11:14:39 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6082.2	103360.	10030.	4647.6	7432.8
Stddev	52.1	571.	80.	39.5	72.5
%RSD	.85738	.55196	.79268	.84924	.97534
#1	6142.5	103910.	9997.0	4681.3	7516.3
#2	6051.8	103400.	9972.6	4657.3	7395.3
#3	6052.5	102780.	10121.	4604.2	7386.7

Sample Name: S3 Acquired: 9/15/2025 11:18:41 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2265
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.10910	.17272	.45413	.10071	.20470	.37689	11.425	.85870	3.4537
Stddev	.00009	.00271	.00013	.00006	.00055	.00238	.032	.00407	.0074
%RSD	.08625	1.5662	.02943	.05626	.26995	.63091	.28005	.47341	.21444

#1	.10915	.17162	.45426	.10067	.20445	.37495	11.407	.86290	3.4507
#2	.10900	.17073	.45399	.10077	.20432	.37954	11.462	.85841	3.4482
#3	.10916	.17580	.45416	.10068	.20534	.37618	11.406	.85479	3.4621

Elem	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.68477	.09280	1.1796	.38515	.00722	.49128	.13444	.69137	.11700
Stddev	.00108	.00026	.0019	.00103	.00004	.00132	.00012	.00165	.00035
%RSD	.15840	.27633	.15917	.26634	.60011	.26822	.08988	.23907	.29777

#1	.68601	.09309	1.1789	.38522	.00720	.49073	.13457	.69072	.11736
#2	.68426	.09263	1.1782	.38410	.00720	.49278	.13436	.69015	.11697
#3	.68403	.09267	1.1817	.38615	.00727	.49032	.13437	.69325	.11667

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.09540	.14794	2.7682	.04884	1.7497	1.4590	.34195	.68777	.00683
Stddev	.00053	.00055	.0116	.00036	.0091	.0018	.00028	.00240	.00002
%RSD	.55139	.37187	.41915	.73858	.52211	.12170	.08153	.34841	.29884

#1	.09483	.14732	2.7813	.04845	1.7537	1.4583	.34163	.68726	.00681
#2	.09551	.14835	2.7591	.04893	1.7562	1.4577	.34216	.69038	.00685
#3	.09587	.14815	2.7643	.04915	1.7393	1.4611	.34206	.68567	.00682

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.10221	.06373	1.8404	18.431
Stddev	.00010	.00012	.0036	.187
%RSD	.09833	.18734	.19292	1.0122

#1	.10222	.06369	1.8366	18.554
#2	.10211	.06386	1.8436	18.524
#3	.10231	.06363	1.8411	18.217

Sample Name: S3 Acquired: 9/15/2025 11:18:41 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6080.1	103690.	10169.	4669.4	7212.1
Stddev	12.9	328.	50.	33.0	10.7
%RSD	.21221	.31624	.49199	.70622	.14835
#1	6074.5	103340.	10115.	4641.4	7207.4
#2	6094.8	103980.	10178.	4705.7	7224.4
#3	6070.9	103740.	10213.	4661.1	7204.6

Sample Name: S4 Acquired: 9/15/2025 11:22:45 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2265
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.21494	.33836	.88897	.19849	.40209	.73762	22.084	1.6557	6.8838
Stddev	.00052	.01030	.00128	.00080	.00077	.00379	.219	.0074	.0177
%RSD	.24416	3.0428	.14402	.40471	.19212	.51320	.99164	.44484	.25722

#1	.21494	.33342	.88777	.19886	.40297	.73327	22.256	1.6488	6.8660
#2	.21546	.35019	.88881	.19903	.40176	.73940	22.157	1.6635	6.8839
#3	.21441	.33145	.89032	.19757	.40153	.74018	21.837	1.6547	6.9014

Elem	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.3331	.18042	2.3470	.74810	.01421	.96124	.26346	1.3706	.22815
Stddev	.0056	.00090	.0039	.00032	.00002	.00538	.00113	.0028	.00055
%RSD	.42131	.50156	.16511	.04222	.15849	.55984	.42745	.20613	.23977

#1	1.3267	.18018	2.3433	.74798	.01422	.95516	.26216	1.3675	.22852
#2	1.3369	.18142	2.3467	.74846	.01418	.96319	.26401	1.3715	.22841
#3	1.3359	.17966	2.3510	.74786	.01422	.96538	.26420	1.3729	.22752

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.19247	.29144	5.4409	.09919	3.3661	2.8338	.66879	1.3322	.01349
Stddev	.00028	.00132	.0050	.00036	.0094	.0034	.00126	.0069	.00003
%RSD	.14346	.45354	.09251	.36409	.27839	.11943	.18785	.51649	.19295

#1	.19216	.28993	5.4409	.09878	3.3561	2.8315	.66740	1.3243	.01347
#2	.19270	.29201	5.4459	.09934	3.3747	2.8377	.66984	1.3357	.01347
#3	.19255	.29238	5.4359	.09945	3.3674	2.8322	.66914	1.3366	.01352

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.20494	.12915	3.5972	36.507
Stddev	.00130	.00103	.0240	.275
%RSD	.63510	.80046	.66849	.75442

#1	.20448	.12918	3.5700	36.279
#2	.20641	.13017	3.6058	36.430
#3	.20393	.12810	3.6158	36.813

Sample Name: S4 Acquired: 9/15/2025 11:22:45 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6091.8	105400.	10445.	4708.1	7086.1
Stddev	33.5	232.	32.	15.8	45.7
%RSD	.55039	.21973	.30700	.33545	.64526
#1	6125.8	105210.	10481.	4712.4	7134.2
#2	6091.0	105340.	10421.	4690.6	7080.9
#3	6058.7	105660.	10434.	4721.3	7043.2

Sample Name: S5 Acquired: 9/15/2025 11:26:56 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2265
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.45338	.69222	1.8877	.41578	.84559	1.5677	47.576	3.4619	14.418
Stddev	.01513	.02883	.0661	.01486	.02974	.0147	.538	.0386	.478
%RSD	3.3380	4.1655	3.5030	3.5741	3.5171	.93969	1.1313	1.1138	3.3165

#1	.47083	.72256	1.9640	.43277	.87952	1.5574	47.651	3.4391	14.970
#2	.44544	.68893	1.8508	.40942	.83324	1.5846	48.073	3.5065	14.121
#3	.44386	.66517	1.8482	.40517	.82402	1.5612	47.005	3.4402	14.163

Elem	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.8008	.38017	4.9478	1.5284	.03039	2.0087	.55725	2.8816	.48851
Stddev	.0274	.00277	.1665	.0490	.00071	.0305	.00590	.0977	.00471
%RSD	.97986	.72762	3.3651	3.2066	2.3254	1.5197	1.0584	3.3899	.96353

#1	2.7717	.37823	5.1400	1.5850	.02981	1.9736	.55164	2.9944	.48453
#2	2.8263	.37894	4.8488	1.5015	.03017	2.0228	.56340	2.8228	.48729
#3	2.8043	.38334	4.8545	1.4987	.03117	2.0296	.55672	2.8276	.49370

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.41457	.62093	11.322	.21487	7.0836	5.8815	1.4047	2.8557	.02980
Stddev	.00995	.00665	.101	.00427	.0794	.1953	.0509	.0344	.00040
%RSD	2.3992	1.0705	.88937	1.9854	1.1212	3.3204	3.6211	1.2036	1.3333

#1	.40683	.61487	11.241	.21149	7.0382	6.1068	1.4635	2.8164	.02949
#2	.41109	.62804	11.290	.21345	7.1753	5.7768	1.3741	2.8801	.02966
#3	.42579	.61988	11.435	.21966	7.0373	5.7609	1.3766	2.8707	.03025

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.44471	.28238	7.6720	76.645
Stddev	.01648	.01079	.1119	.736
%RSD	3.7054	3.8221	1.4588	.95973

#1	.46374	.29484	7.5430	76.777
#2	.43523	.27641	7.7438	77.306
#3	.43516	.27589	7.7291	75.852

Sample Name: S5 Acquired: 9/15/2025 11:26:56 Type: Cal
Method: 6010-200.7 NEW(v169) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5786.0	98034.	9832.5	4349.0	6542.3
Stddev	173.5	592.	106.4	44.1	203.1
%RSD	2.9993	.60432	1.0821	1.0152	3.1043
#1	5586.5	98436.	9875.0	4383.0	6307.9
#2	5869.2	98312.	9711.4	4364.9	6653.4
#3	5902.2	97354.	9911.1	4299.1	6665.7

Sample Name: ICV01 Acquired: 9/15/2025 11:31:07 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.823364	3.739508	3.731190	3.844822	3.929517	7.657097
Stddev	.001854	.031797	.005060	.010909	.004348	.196919
%RSD	.0485021	.8502907	.1356084	.2837296	.1106428	2.571722

#1	3.821688	3.705381	3.726147	3.832244	3.924537	7.669930
#2	3.825357	3.744845	3.736266	3.851710	3.932560	7.454076
#3	3.823048	3.768299	3.731158	3.850511	3.931453	7.847287

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.646400	1.1926144	1.895843	19.04133	.7952153	1.906437
Stddev	.171863	.0037082	.002952	.49561	.0245371	.004088
%RSD	2.247632	1.925199	.1557225	2.602792	3.085595	.2144501

#1	7.669806	.1933216	1.896691	19.06625	.8149502	1.906972
#2	7.464033	.1886035	1.898278	18.53373	.8029538	1.910232
#3	7.805360	.1959180	1.892559	19.52400	.7677419	1.902108

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9801973	3.932375	1.911243	19.00166	1.909860	.9809070
Stddev	.0007585	.095154	.045279	.48977	.002870	.0273223
%RSD	.0773860	2.419771	2.369108	2.577524	.1502826	2.785411

#1	.9800960	4.002699	1.915722	19.03291	1.909705	.9998272
#2	.9810013	3.970325	1.863891	18.49702	1.912805	.9933108
#3	.9794944	3.824101	1.954117	19.47507	1.907071	.9495831

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	19.15490	1.912061	1.968524	19.37774	3.766050	3.884538
Stddev	.51080	.050447	.057868	.46137	.074961	.005460
%RSD	2.666694	2.638351	2.939664	2.380931	1.990443	.1405463

#1	19.56003	1.916918	2.008635	19.73808	3.772416	3.878234
#2	19.32357	1.859361	1.994751	19.53740	3.688109	3.887664
#3	18.58109	1.959904	1.902186	18.85775	3.837625	3.887716

Sample Name: ICV01 Acquired: 9/15/2025 11:31:07 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.803839	3.829103	3.653875	F .0049743	F .0267525	F -.001790
Stddev	.010263	.091014	.089060	.0012263	.0010424	.000860
%RSD	.2698057	2.376896	2.437407	24.65221	3.896520	48.04846
#1	3.793031	3.834966	3.728009	.0036473	.0278510	-.002743
#2	3.813453	3.735299	3.678532	.0060656	.0257771	-.001554
#3	3.805033	3.917043	3.555085	.0052099	.0266294	-.001072

Elem	Sr4077
Units	ppm
Avg	F -.003574
Stddev	.000154
%RSD	4.307022
#1	-.003650
#2	-.003675
#3	-.003397

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6234.066	104713.8	10685.52	4653.744	7339.903
Stddev	25.465	2742.5	243.32	117.975	26.327
%RSD	.4084852	2.619060	2.277114	2.535061	.3586834
#1	6263.467	102559.5	10662.53	4563.019	7369.377
#2	6218.910	103780.8	10939.52	4611.100	7318.718
#3	6219.823	107801.1	10454.51	4787.111	7331.615

Sample Name: LLICV01 Acquired: 9/15/2025 11:36:58 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0197635	.0367542	.0117055	.0178903	.0482646	.1028634	.0973921
Stddev	.0011223	.0008352	.0008071	.0018462	.0018994	.0063898	.0007169
%RSD	5.678508	2.272398	6.895280	10.31970	3.935289	6.211941	.7360602

#1	.0188018	.0365901	.0121504	.0183088	.0475003	.1083068	.0981988
#2	.0209965	.0376593	.0121922	.0158708	.0468664	.0958281	.0968281
#3	.0194921	.0360132	.0107738	.0194914	.0504270	.1044551	.0971494

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0061077	.0055529	2.000214	.0100653	.0284231	.0214630	.1036052
Stddev	.0001041	.0000823	.007509	.0006807	.0004495	.0000760	.0057757
%RSD	1.704766	1.481904	.3754149	6.762767	1.581325	.3542055	5.574771

#1	.0062243	.0054631	1.992015	.0107557	.0280341	.0215365	.1084826
#2	.0060747	.0055708	2.001872	.0100455	.0283200	.0214679	.0972273
#3	.0060240	.0056247	2.006756	.0093948	.0289151	.0213847	.1051058

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0205898	2.047550	.0378060	.0102247	1.903725	.0361457	.0416154
Stddev	.0004061	.009312	.0006242	.0005084	.077446	.0023716	.0020097
%RSD	1.972513	.4548005	1.650997	4.972638	4.068119	6.561240	4.829131

#1	.0204927	2.058298	.0374764	.0107183	1.963537	.0334758	.0436379
#2	.0210357	2.041882	.0374157	.0102532	1.931394	.0380081	.0415895
#3	.0202410	2.042471	.0385259	.0097026	1.816245	.0369532	.0396188

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.972644	.1038454	.1921192	.0379661	.0370065	.3446703	.0173385
Stddev	.037438	.0005000	.0033755	.0005706	.0008029	.0149167	.0005732
%RSD	1.897882	.4815078	1.757005	1.503005	2.169636	4.327819	3.306167

#1	1.995840	.1043046	.1902944	.0375162	.0362372	.3510923	.0175235
#2	1.992638	.1039188	.1900488	.0377741	.0369431	.3553005	.0177963
#3	1.929453	.1033127	.1960143	.0386079	.0378392	.3276182	.0166956

Sample Name: LLICV01 Acquired: 9/15/2025 11:36:58 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0210305	.0205527	.0204006
Stddev	.0020388	.0007949	.0001053
%RSD	9.694646	3.867670	.5160803
#1	.0230048	.0212312	.0202800
#2	.0211539	.0196781	.0204479
#3	.0189327	.0207487	.0204739

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6403.458	109363.6	10717.20	4855.445	7988.774
Stddev	84.312	4155.2	32.88	180.494	96.491
%RSD	1.316659	3.799432	.3067911	3.717352	1.207838
#1	6464.755	105634.7	10695.88	4681.070	8060.556
#2	6438.312	108613.2	10755.07	4843.775	8026.682
#3	6307.308	113842.8	10700.66	5041.491	7879.086

Sample Name: ICB01 Acquired: 9/15/2025 11:43:34 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001131	.0001409	-.000430	-.002028	-.000049	-.006559	-.002564
Stddev	.001040	.0022936	.001139	.003055	.000716	.010406	.000988
%RSD	91.89982	1627.803	264.9417	150.6531	1472.697	158.6445	38.53630

#1	-.001939	-.002346	-.001716	.001136	-.000664	-.017600	-.003159
#2	-.001496	.002173	.000449	-.002258	-.000219	.003067	-.003108
#3	.000042	.000596	-.000023	-.004961	.000737	-.005145	-.001423

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000034	-.000250	-.007665	.0000177	-.000158	.0002389	-.000828
Stddev	.000030	.000035	.005419	.0001607	.000117	.0001861	.003820
%RSD	86.34085	14.21514	70.70048	909.7512	74.30217	77.88512	461.3708

#1	-.000038	-.000226	-.002544	.0000927	-.000022	.0004527	-.004758
#2	-.000062	-.000233	-.007111	.0001271	-.000229	.0001509	-.000596
#3	-.000003	-.000290	-.013340	-.000167	-.000223	.0001132	.002871

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000332	.0013159	-.000342	-.000297	-.021388	.0001377	-.000220
Stddev	.000160	.0127059	.000166	.000478	.007853	.0016429	.000191
%RSD	48.05728	965.5353	48.43455	161.2126	36.71538	1193.272	87.15613

#1	-.000516	.0154562	-.000387	-.000292	-.030292	.0009711	-.000199
#2	-.000246	-.009142	-.000481	.000179	-.015452	-.001755	-.000039
#3	-.000233	-.002366	-.000159	-.000777	-.018420	.001197	-.000421

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0178855	.0015608	-.000396	-.000983	-.000904	.0011454	-.001302
Stddev	.0210988	.0005282	.000061	.000096	.001397	.0073533	.001362
%RSD	117.9663	33.84048	15.36050	9.723537	154.5392	641.9706	104.6509

#1	-.006459	.0020293	-.000457	-.001091	-.002427	.0092595	-.000873
#2	.029233	.0016646	-.000335	-.000909	-.000601	-.000745	-.002827
#3	.030882	.0009884	-.000397	-.000949	.000317	-.005078	-.000206

Sample Name: ICB01 Acquired: 9/15/2025 11:43:34 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000232	-.003008	-.000403
Stddev	.000701	.001175	.000084
%RSD	302.8115	39.06263	20.88365

#1	.000568	-.001796	-.000384
#2	-.000521	-.004142	-.000495
#3	-.000741	-.003086	-.000330

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6593.425	114243.8	11093.75	5096.736	8310.415
Stddev	10.488	321.1	61.17	23.010	18.063
%RSD	.1590661	.2810839	.5513676	.4514751	.2173577

#1	6584.727	113874.1	11158.58	5073.083	8291.350
#2	6605.072	114452.8	11085.61	5098.080	8327.274
#3	6590.476	114404.5	11037.06	5119.045	8312.620

Sample Name: CRI01 Acquired: 9/15/2025 11:47:52 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0209010	.0378355	.0114242	.0208694	.0491067	.1011411	.0939853
Stddev	.0017738	.0019427	.0015317	.0011691	.0009963	.0071978	.0011487
%RSD	8.486614	5.134554	13.40791	5.601881	2.028895	7.116588	1.222184

#1	.0212437	.0368946	.0117226	.0199547	.0496347	.0930500	.0943191
#2	.0189809	.0400695	.0097652	.0204669	.0497280	.1035409	.0949301
#3	.0224785	.0365424	.0127847	.0221865	.0479575	.1068324	.0927067

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060610	.0056833	1.976309	.0098158	.0291436	.0217372	.1035971
Stddev	.0000458	.0000456	.017134	.0004762	.0000066	.0000297	.0054668
%RSD	.7563026	.8014312	.8669610	4.851528	.0227901	.1365716	5.276964

#1	.0060132	.0056836	1.994313	.0093473	.0291422	.0217206	.1093088
#2	.0060653	.0057287	1.974411	.0098008	.0291377	.0217194	.1030689
#3	.0061046	.0056376	1.960204	.0102994	.0291508	.0217714	.0984136

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0196233	2.039250	.0390372	.0100792	1.844448	.0360858	.0413874
Stddev	.0004010	.029099	.0004875	.0007108	.019486	.0012327	.0001845
%RSD	2.043366	1.426932	1.248795	7.052190	1.056490	3.416064	.4456554

#1	.0192109	2.069378	.0395560	.0107848	1.832082	.0368881	.0414172
#2	.0200117	2.037067	.0385886	.0093633	1.866911	.0346664	.0411899
#3	.0196474	2.011304	.0389670	.0100895	1.834351	.0367028	.0415551

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.902826	.1007163	.1958791	.0385655	.0358096	.3426805	.0171373
Stddev	.028341	.0009074	.0004116	.0005973	.0005722	.0050868	.0007499
%RSD	1.489392	.9009732	.2101327	1.548793	1.597924	1.484427	4.375843

#1	1.871046	.1017361	.1961916	.0388723	.0363688	.3416930	.0173043
#2	1.925476	.0999978	.1954127	.0378772	.0358350	.3481887	.0177895
#3	1.911957	.1004151	.1960330	.0389471	.0352252	.3381599	.0163179

Sample Name: CRI01 Acquired: 9/15/2025 11:47:52 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0198342	.0201721	.0197265
Stddev	.0010104	.0011071	.0000569
%RSD	5.094112	5.488367	.2884782

#1	.0209346	.0194930	.0197036
#2	.0196198	.0195736	.0196846
#3	.0189482	.0214496	.0197912

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6238.491	108128.4	10547.05	4761.556	7753.266
Stddev	1.646	380.1	26.97	30.467	7.473
%RSD	.0263796	.3515397	.2557036	.6398614	.0963840

#1	6240.326	108500.3	10528.24	4791.410	7759.405
#2	6238.002	107740.5	10577.95	4730.510	7744.945
#3	6237.146	108144.3	10534.96	4762.746	7755.448

Sample Name: ICSA01 Acquired: 9/15/2025 12:12:19 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033530	-.002034	-.000061	.0022016	-.001621	247.3397	.0036708
Stddev	.0030149	.003772	.002376	.0031809	.002606	.3569	.0003361
%RSD	89.91641	185.4584	3864.759	144.4827	160.7962	.1442997	9.155554

#1	.0067957	.002116	.001963	.0012394	-.000091	247.3855	.0033200
#2	.0020790	-.002964	-.002677	.0057525	-.004630	247.6715	.0037024
#3	.0011843	-.005255	.000529	-.000387	-.000142	246.9621	.0039899

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016381	.0012622	235.0768	.0555784	.0016989	.0068497	98.66757
Stddev	.0001004	.0000321	.2909	.0001225	.0001517	.0006188	.43501
%RSD	6.127994	2.539426	.1237334	.2204109	8.927739	9.033373	.4408875

#1	.0016090	.0012479	234.7662	.0557157	.0017126	.0074027	98.84631
#2	.0015555	.0012989	235.3428	.0555392	.0015408	.0069650	98.17166
#3	.0017499	.0012398	235.1214	.0554803	.0018432	.0061814	98.98475

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0095498	250.4210	.0067757	.0014041	.1088578	.0038654	.0039888
Stddev	.0003052	.3593	.0003122	.0000389	.0093678	.0022372	.0002283
%RSD	3.195347	.1434928	4.607145	2.767965	8.605552	57.87671	5.722981

#1	.0097834	250.0926	.0068855	.0014282	.1183208	.0034497	.0038551
#2	.0092046	250.8048	.0064235	.0013593	.1086645	.0018652	.0038590
#3	.0096616	250.3655	.0070181	.0014248	.0995881	.0062813	.0042524

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.098342	.0392684	.0014008	-.001880	-.004752	.0185257	.0056610
Stddev	.033736	.0022406	.0002600	.000821	.001091	.0108729	.0033033
%RSD	34.30471	5.705761	18.55749	43.64769	22.95050	58.69063	58.35152

#1	-.071321	.0390978	.0015511	-.000978	-.005121	.0232789	.0081508
#2	-.136153	.0371181	.0011006	-.002582	-.005611	.0262126	.0069185
#3	-.087552	.0415894	.0015505	-.002081	-.003525	.0060856	.0019136

Sample Name: ICSA01 Acquired: 9/15/2025 12:12:19 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.003354	F -.031199	.0025488
Stddev	.004223	.001554	.0005579
%RSD	125.9095	4.981190	21.89023

#1	-.006515	-.032736	.0019659
#2	.001442	-.029628	.0030778
#3	-.004989	-.031232	.0026028

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5635.851	96158.56	10148.66	4351.201	6370.583
Stddev	8.092	367.06	30.50	7.838	12.409
%RSD	.1435845	.3817204	.3005793	.1801363	.1947897

#1	5626.809	96120.27	10183.88	4342.660	6358.212
#2	5642.412	96543.25	10131.92	4358.065	6383.030
#3	5638.332	95812.14	10130.20	4352.878	6370.508

Sample Name: ICSAB01 Acquired: 9/15/2025 12:16:30 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0990587	.1044416	.0451493	.0491173	.5725775	238.8700
Stddev	.0010528	.0014114	.0026400	.0041990	.0005063	4.4126
%RSD	1.062834	1.351356	5.847348	8.548882	.0884315	1.847279

#1	.1002543	.1028211	.0481087	.0487503	.5731479	243.9651
#2	.0982702	.1054022	.0443031	.0451138	.5721810	236.3590
#3	.0986516	.1051013	.0430361	.0534877	.5724036	236.2860

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4732841	.4786153	.9627445	228.0067	.5374745	.4785741
Stddev	.0102516	.0069336	.0010075	4.0332	.0013761	.0008167
%RSD	2.166052	1.448671	.1046534	1.768878	.2560342	.1706417

#1	.4850773	.4864928	.9617661	232.6603	.5380740	.4788293
#2	.4665017	.4759150	.9626887	225.5249	.5384491	.4776603
#3	.4682732	.4734382	.9637788	225.8348	.5359003	.4792327

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4738302	95.61264	.4730451	242.4160	.9562642	.2036577
Stddev	.0008021	.33587	.0088043	4.1527	.0012825	.0001807
%RSD	.1692748	.3512841	1.861206	1.713052	.1341209	.0887172

#1	.4740123	95.95945	.4831227	247.2089	.9577451	.2038032
#2	.4745256	95.28889	.4668451	239.8930	.9555266	.2037145
#3	.4729528	95.58958	.4691676	240.1461	.9555207	.2034555

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1163300	.4575709	.9793565	-.054831	.9186658	.9684047
Stddev	.0154032	.0114873	.0046730	.025584	.0110098	.0012256
%RSD	13.24095	2.510496	.4771518	46.65862	1.198451	.1265592

#1	.0994440	.4706129	.9799955	-.049461	.9312499	.9670165
#2	.1199351	.4531445	.9836771	-.032359	.9139379	.9688604
#3	.1296109	.4489553	.9743969	-.082674	.9108097	.9693371

Sample Name: ICSAB01 Acquired: 9/15/2025 12:16:30 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9524399	.9189665	.9278232	F .0083087	F .0018794	F -.031328
Stddev	.0007752	.0172953	.0126157	.0018036	.0038305	.000523
%RSD	.0813916	1.882039	1.359714	21.70738	203.8179	1.668169
#1	.9515589	.9388994	.9388665	.0101418	.0062849	-.031727
#2	.9530175	.9079335	.9140741	.0065362	.0000173	-.030737
#3	.9527435	.9100666	.9305291	.0082480	-.000664	-.031521

Elem	Sr4077
Units	ppm
Avg	F .0029641
Stddev	.0013572
%RSD	45.78855
#1	.0045307
#2	.0022177
#3	.0021439

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5763.909	97528.41	10292.92	4443.276	6509.337
Stddev	6.582	233.60	128.99	10.323	3.388
%RSD	.1141941	.2395156	1.253176	.2323285	.0520435
#1	5761.486	97719.64	10145.01	4438.721	6508.608
#2	5758.881	97268.05	10351.76	4436.014	6506.373
#3	5771.359	97597.54	10382.00	4455.093	6513.030

Sample Name: ICSADLX20 Acquired: 9/15/2025 12:26:39 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSADLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002769	-.000008	.0000646	-.000574	-.000528	11.97890	.0015585
Stddev	.0024583	.002713	.0003188	.002078	.001237	.70340	.0018539
%RSD	887.6952	34624.12	493.4044	361.8269	234.0044	5.871952	118.9511

#1	.0010754	.002890	-.000155	.000464	-.000419	12.70855	.0035892
#2	.0022367	-.002488	.000430	-.002967	.000650	11.92305	.0011300
#3	-.002481	-.000426	-.000081	.000780	-.001816	11.30509	-.000044

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001052	-.000136	11.84138	.0025286	-.000046	.0005748	4.623611
Stddev	.0000540	.000034	.70453	.0001579	.000046	.0000842	.117833
%RSD	51.35669	24.96113	5.949734	6.245530	101.3351	14.64726	2.548516

#1	.0000624	-.000149	12.56825	.0025426	-.000066	.0004791	4.503775
#2	.0001660	-.000161	11.79435	.0026790	.000007	.0006376	4.627724
#3	.0000874	-.000097	11.16155	.0023641	-.000079	.0006077	4.739334

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004703	12.47393	-.000311	-.000012	-.031231	-.001184	.0000359
Stddev	.0006640	.75431	.000073	.000189	.011873	.003070	.0002313
%RSD	141.2058	6.047051	23.60790	1561.016	38.01730	259.2104	644.1366

#1	-.000292	13.26597	-.000312	.000204	-.044897	-.002064	-.000199
#2	.000926	12.39174	-.000385	-.000097	-.023452	-.003718	.000263
#3	.000776	11.76409	-.000238	-.000144	-.025343	.002229	.000044

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.109544	-.002138	-.000484	-.001553	-.001605	.0076813	-.001757
Stddev	.035804	.000594	.000293	.000781	.002102	.0047725	.001308
%RSD	32.68501	27.80282	60.58349	50.26828	130.9449	62.13142	74.43912

#1	-.081879	-.002801	-.000556	-.002440	.000818	.0128973	-.000416
#2	-.096768	-.001962	-.000161	-.000970	-.002696	.0035331	-.003029
#3	-.149983	-.001652	-.000733	-.001249	-.002937	.0066137	-.001826

Sample Name: ICSADLX20 Acquired: 9/15/2025 12:26:39 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSADLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000056	-.003570	-.000010
Stddev	.002416	.000993	.000346
%RSD	4349.283	27.79986	3354.404

#1	.002272	-.002630	.000344
#2	-.002551	-.003474	-.000027
#3	.000112	-.004607	-.000348

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6262.872	107008.0	10380.57	4818.189	7657.641
Stddev	203.704	4155.8	453.57	173.954	258.360
%RSD	3.252565	3.883645	4.369435	3.610363	3.373886

#1	6498.079	111363.1	9927.25	5005.137	7955.969
#2	6147.112	106575.7	10380.08	4788.338	7507.860
#3	6143.425	103085.3	10834.39	4661.092	7509.095

Sample Name: ICSAB01DLX20 Acquired: 9/15/2025 12:30:55 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0041130	.0038564	.0016387	.0012320	.0298445	12.37141	.0257808
Stddev	.0006664	.0015815	.0004425	.0021578	.0004175	.00950	.0011079
%RSD	16.20162	41.01023	27.00564	175.1459	1.398898	.0767613	4.297248

#1	.0038294	.0031514	.0011589	-.000508	.0296358	12.37762	.0245029
#2	.0036353	.0056679	.0020308	.003646	.0295724	12.37612	.0263672
#3	.0048742	.0027501	.0017263	.000558	.0303252	12.36047	.0264721

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0260646	.0486965	12.20510	.0286020	.0241167	.0265142	4.728455
Stddev	.0001512	.0000700	.02202	.0002078	.0001525	.0002072	.041002
%RSD	.5801384	.1436885	.1803923	.7263502	.6325467	.7814121	.8671334

#1	.0259003	.0486188	12.23023	.0286361	.0242909	.0266810	4.774484
#2	.0261979	.0487544	12.19587	.0283792	.0240516	.0262823	4.695838
#3	.0260957	.0487165	12.18920	.0287905	.0240074	.0265794	4.715044

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0249227	12.90494	.0485158	.0103071	-.026028	.0216750	.0500079
Stddev	.0002230	.05368	.0002554	.0000677	.001916	.0017811	.0003378
%RSD	.8947191	.4159484	.5264351	.6572866	7.360610	8.217433	.6754440

#1	.0248439	12.85513	.0485917	.0102514	-.026058	.0196872	.0503552
#2	.0251743	12.96179	.0487247	.0102874	-.024097	.0231260	.0499878
#3	.0247497	12.89790	.0482311	.0103825	-.027928	.0222118	.0496805

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.149043	.0459719	.0494183	.0468037	.0464438	.0433212	-.002434
Stddev	.019423	.0003547	.0000962	.0006333	.0021450	.0066777	.001259
%RSD	13.03179	.7714759	.1946728	1.353187	4.618407	15.41434	51.73079

#1	-.161091	.0455629	.0493279	.0470860	.0447578	.0410795	-.003742
#2	-.159401	.0461936	.0494076	.0472469	.0457156	.0508313	-.002330
#3	-.126636	.0461594	.0495194	.0460783	.0488581	.0380528	-.001230

Sample Name: ICSAB01DLX20 Acquired: 9/15/2025 12:30:55 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000322	-.005152	.0000866
Stddev	.003355	.000469	.0000602
%RSD	1043.554	9.101632	69.48239

#1	-.003534	-.005140	.0000207
#2	.003160	-.005627	.0001385
#3	-.000591	-.004690	.0001006

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6185.401	104759.0	10069.51	4712.132	7525.185
Stddev	7.540	504.1	11.32	28.535	21.410
%RSD	.1218931	.4812033	.1124140	.6055639	.2845166

#1	6192.983	104503.6	10080.34	4679.835	7547.757
#2	6177.904	105339.7	10070.44	4733.931	7505.165
#3	6185.315	104433.7	10057.76	4722.629	7522.632

Sample Name: CCV01 Acquired: 9/15/2025 12:35:40 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.005280	4.919744	4.936165	5.017396	5.005072	9.921760	9.763321
Stddev	.012766	.048946	.018851	.001705	.003546	.320982	.229676
%RSD	.2550417	.9948846	.3818992	.0339831	.0708381	3.235135	2.352432

#1	4.990568	4.974373	4.914397	5.017650	5.007718	10.29223	10.01190
#2	5.011858	4.904976	4.946994	5.015578	5.001044	9.72697	9.55899
#3	5.013416	4.879882	4.947102	5.018959	5.006456	9.74608	9.71908

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2497765	2.479928	24.84432	.9845741	2.465863	1.248116	4.927875
Stddev	.0067188	.007599	.66399	.0022054	.006551	.000382	.012242
%RSD	2.689928	.3064273	2.672613	.2239929	.2656484	.0306095	.2484152

#1	.2575320	2.471181	25.60615	.9852979	2.458299	1.247739	4.923059
#2	.2457201	2.483702	24.38860	.9820977	2.469651	1.248106	4.918774
#3	.2460776	2.484902	24.53821	.9863266	2.469639	1.248502	4.941792

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.478415	24.84483	2.470237	1.231977	24.24191	2.493300	2.475995
Stddev	.059507	.65848	.006680	.003035	.08561	.066881	.003291
%RSD	2.401024	2.650358	.2704103	.2463366	.3531448	2.682420	.1329139

#1	2.547045	25.60330	2.462591	1.235481	24.15495	2.570058	2.479515
#2	2.441177	24.41936	2.473182	1.230183	24.32609	2.447560	2.472995
#3	2.447023	24.51184	2.474939	1.230268	24.24470	2.462283	2.475477

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.45857	5.012682	5.049735	4.986384	4.973534	4.894455	4.989792
Stddev	.02223	.148798	.002424	.011819	.130128	.024397	.021436
%RSD	.0908814	2.968425	.0480027	.2370318	2.616414	.4984648	.4295990

#1	24.44122	5.184473	5.046942	4.973389	5.123544	4.869326	4.966200
#2	24.45086	4.924187	5.050976	4.989270	4.891037	4.895992	4.995101
#3	24.48362	4.929387	5.051288	4.996493	4.906021	4.918048	5.008075

Sample Name: CCV01 Acquired: 9/15/2025 12:35:40 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.887799	4.914828	4.988584
Stddev	.022668	.128664	.134861
%RSD	.4637767	2.617873	2.703401

#1	4.864400	5.063321	5.119705
#2	4.889340	4.836500	4.850270
#3	4.909658	4.844662	4.995777

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6085.809	104173.7	10305.78	4651.981	7083.754
Stddev	13.058	62.8	264.36	9.208	27.035
%RSD	.2145646	.0602712	2.565145	.1979316	.3816450

#1	6099.675	104196.7	10000.78	4660.885	7114.795
#2	6073.746	104221.8	10468.94	4652.563	7065.362
#3	6084.008	104102.7	10447.63	4642.497	7071.105

Sample Name: CCB01 Acquired: 9/15/2025 12:39:52 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000796	-.001020	-.001375	-.001045	-.000783	-.001456	-.000627
Stddev	.000813	.001027	.000352	.003389	.001719	.002898	.000305
%RSD	102.1075	100.6856	25.58464	324.3253	219.4351	198.9711	48.64777

#1	-.001604	-.002177	-.001638	-.000189	-.001511	.001757	-.000432
#2	.000021	-.000220	-.001512	.001834	-.002019	-.003871	-.000978
#3	-.000805	-.000661	-.000976	-.004779	.001180	-.002255	-.000469

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000081	-.000213	-.008964	.0000552	-.000258	.0002336	.0021152
Stddev	.000028	.000057	.005618	.0001899	.000122	.0003423	.0055901
%RSD	34.10958	26.94965	62.67264	344.0230	47.30414	146.5687	264.2864

#1	-.000097	-.000218	-.002872	-.000077	-.000264	.0001311	-.003503
#2	-.000098	-.000268	-.013940	-.000031	-.000376	.0006154	.007676
#3	-.000049	-.000153	-.010079	.000273	-.000133	-.000046	.002172

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000002	-.009916	-.000377	-.000075	-.041589	-.000923	-.000140
Stddev	.000503	.004561	.000202	.000128	.012551	.001914	.000048
%RSD	20502.18	45.99342	53.40673	170.0624	30.17762	207.4460	34.71205

#1	.000545	-.005123	-.000179	-.000186	-.055914	.000443	-.000174
#2	-.000110	-.014202	-.000371	.000065	-.032525	-.000101	-.000160
#3	-.000443	-.010425	-.000582	-.000104	-.036329	-.003110	-.000084

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.091287	-.000249	-.000319	-.000424	-.001332	-.007097	-.000894
Stddev	.024044	.000927	.000137	.000240	.000370	.002894	.000183
%RSD	26.33876	372.9156	42.92377	56.62158	27.79475	40.77038	20.51767

#1	-.098767	.000733	-.000174	-.000152	-.000943	-.010281	-.000756
#2	-.064393	-.000370	-.000447	-.000606	-.001372	-.004626	-.000824
#3	-.110702	-.001108	-.000336	-.000513	-.001681	-.006385	-.001102

Sample Name: CCB01 Acquired: 9/15/2025 12:39:52 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001543	-.003277	-.000392
Stddev	.001210	.000745	.000049
%RSD	78.44783	22.72549	12.49050

#1	-.002585	-.002422	-.000413
#2	-.001828	-.003783	-.000336
#3	-.000215	-.003627	-.000428

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6335.408	111000.5	10706.53	4919.038	8083.381
Stddev	14.617	163.2	28.44	20.555	16.432
%RSD	.2307139	.1470014	.2656616	.4178570	.2032809

#1	6351.385	110855.1	10681.74	4895.326	8101.854
#2	6322.708	111177.0	10737.58	4931.776	8070.392
#3	6332.130	110969.3	10700.26	4930.013	8077.899

Sample Name: LR-1 Acquired: 9/15/2025 12:44:10 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.005012	.0030489	.0150120	-.020118	.0162845	.2145279	-.007276
Stddev	.004122	.0052083	.0020203	.003723	.0011304	.0249468	.001098
%RSD	82.23918	170.8271	13.45812	18.50666	6.941597	11.62868	15.08406

#1	-.008466	-.002762	.0144584	-.018911	.0161864	.2249606	-.006793
#2	-.006121	.007295	.0133263	-.017148	.0152063	.1860584	-.006504
#3	-.000449	.004614	.0172515	-.024295	.0174607	.2325647	-.008533

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002022	.0005238	2364.440	.0252017	.0002521	.0032894	.5140425
Stddev	.0001251	.0001172	41.976	.0008234	.0002420	.0003802	.0023516
%RSD	61.84302	22.37146	1.775314	3.267417	95.99107	11.55691	.4574700

#1	.0001689	.0006471	2368.468	.0248241	.0002617	.0036088	.5131939
#2	.0003405	.0004138	2404.257	.0246348	.0004892	.0033904	.5167006
#3	.0000972	.0005106	2320.595	.0261463	.0000055	.0028689	.5122330

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0169413	2146.179	.0162490	-.001307	2232.466	.0061059	.0540854
Stddev	.0006266	49.360	.0008571	.000415	25.922	.0012314	.0001794
%RSD	3.698495	2.299887	5.275026	31.76946	1.161131	20.16733	.3316259

#1	.0162574	2152.247	.0166512	-.001767	2261.887	.0072727	.0541117
#2	.0174877	2192.223	.0168311	-.001194	2222.523	.0048187	.0538944
#3	.0170790	2094.065	.0152647	-.000960	2212.987	.0062262	.0542502

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.117181	.0089761	.0181318	-.010431	-.115380	-.007816	.0287554
Stddev	.428024	.0011158	.0009536	.000755	.001700	.005056	.0043375
%RSD	13.73111	12.43032	5.259457	7.242502	1.473227	64.68440	15.08423

#1	2.692791	.0096693	.0171153	-.009946	-.115796	-.012296	.0327393
#2	3.110005	.0095700	.0182734	-.011302	-.116832	-.002334	.0241347
#3	3.548748	.0076890	.0190068	-.010046	-.113510	-.008820	.0293923

Sample Name: LR-1 Acquired: 9/15/2025 12:44:10 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2226670	-.366594	.0597460
Stddev	.0053172	.005475	.0011910
%RSD	2.387966	1.493384	1.993442
#1	.2285637	-.368351	.0593988
#2	.2212000	-.370975	.0610720
#3	.2182373	-.360457	.0587672

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4139.875	74606.58	9299.027	3184.347	4404.683
Stddev	35.116	173.91	167.256	16.271	29.602
%RSD	.8482304	.2330989	1.798645	.5109838	.6720602
#1	4102.718	74762.49	9259.926	3187.592	4374.295
#2	4144.396	74638.23	9154.785	3198.751	4406.325
#3	4172.511	74419.02	9482.370	3166.697	4433.430

Sample Name: LR-3 Acquired: 9/15/2025 12:53:16 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1103697	.0072455	218.7194	-.000442	.1891887	.0433240
Stddev	.0025357	.0008421	.4847	.004907	.0042589	.0030066
%RSD	2.297489	11.62182	.2215893	1110.933	2.251158	6.939824
#1	.1120184	.0078741	218.3665	.003084	.1853245	.0467368
#2	.1116410	.0075737	219.2720	.001637	.1884865	.0410660
#3	.1074498	.0062888	218.5198	-.006046	.1937551	.0421692
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001484	-.004457	-.002334	.1697674	27.49271	.0074747
Stddev	.000794	.000101	.000051	.0086723	.13773	.0000687
%RSD	53.49601	2.269086	2.167641	5.108362	.5009805	.9197041
#1	-.001617	-.004537	-.002392	.1643831	27.60230	.0075280
#2	-.002203	-.004343	-.002299	.1797716	27.53772	.0074989
#3	-.000632	-.004490	-.002311	.1651474	27.33810	.0073971
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	52.03514	.0425628	48.44244	-.198500	F 27.78558	.0042070
Stddev	.07949	.0065272	.49266	.017682	.04173	.0001342
%RSD	.1527547	15.33540	1.017011	8.907620	.1501876	3.188686
#1	51.96705	.0433295	48.77455	-.216836	27.82288	.0042728
#2	52.01590	.0486727	47.87639	-.197109	27.74051	.0042955
#3	52.12248	.0356861	48.67638	-.181555	27.79334	.0040526
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3508359	-.045919	30.15294	.5152989	.0020254	-.015688
Stddev	.0105135	.003027	.11750	.0165796	.0002387	.000474
%RSD	2.996696	6.593031	.3896737	3.217473	11.78470	3.020691
#1	.3403709	-.043037	30.01802	.5151355	.0017545	-.016157
#2	.3507396	-.045646	30.23282	.4988016	.0021167	-.015209
#3	.3613972	-.049074	30.20797	.5319596	.0022049	-.015698

Sample Name: LR-3 Acquired: 9/15/2025 12:53:16 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004502	-.052698	-.144333	.1288150	.0674473	-.001064
Stddev	.000267	.002184	.005784	.0028545	.0011386	.000669
%RSD	5.941852	4.145038	4.007628	2.215969	1.688214	62.86135
#1	-.004519	-.051727	-.150945	.1311827	.0686195	-.000708
#2	-.004226	-.051169	-.140208	.1296170	.0673770	-.001836
#3	-.004760	-.055200	-.141847	.1256453	.0663454	-.000649

Elem	Sr4077
Units	ppm
Avg	.0001946
Stddev	.0000353
%RSD	18.16700
#1	.0001801
#2	.0001687
#3	.0002348

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5998.019	110300.0	10938.30	4736.216	7757.286
Stddev	6.085	147.0	56.13	21.538	24.789
%RSD	.1014443	.1332717	.5131373	.4547475	.3195545
#1	5992.628	110260.1	10947.49	4722.125	7728.942
#2	6004.616	110462.8	10989.26	4761.009	7774.914
#3	5996.812	110177.0	10878.14	4725.515	7768.003

Sample Name: PB169680BL Acquired: 9/15/2025 12:58:10 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002686	-.003964	.0006463	-.000272	.0000869	.0051829	-.002937
Stddev	.001116	.001378	.0006320	.001937	.0006465	.0028776	.000142
%RSD	41.52704	34.76192	97.78773	713.1563	744.1777	55.52160	4.833089

#1	-.001766	-.003506	.0013671	-.001212	.0005742	.0020253	-.003081
#2	-.002365	-.002873	.0003851	-.001559	.0003330	.0058654	-.002797
#3	-.003927	-.005513	.0001868	.001956	-.000647	.0076578	-.002932

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000116	-.000194	-.021478	-.000169	-.000284	.0000078	.0042894
Stddev	.000056	.000037	.003190	.000100	.000162	.0002502	.0036780
%RSD	48.67493	19.03542	14.85056	59.05216	57.20555	3221.540	85.74644

#1	-.000089	-.000222	-.023219	-.000068	-.000409	-.000172	.0002624
#2	-.000078	-.000208	-.023419	-.000267	-.000100	.000293	.0051344
#3	-.000181	-.000152	-.017797	-.000172	-.000341	-.000098	.0074713

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000080	.0082667	-.001143	-.000185	-.117250	-.000498	.0000302
Stddev	.000373	.0232770	.000089	.000560	.007546	.001065	.0002572
%RSD	465.7379	281.5771	7.797393	301.7602	6.435678	213.9556	851.3828

#1	-.000473	-.000251	-.001103	-.000754	-.120943	.000088	.0002619
#2	-.000037	.034603	-.001245	-.000168	-.108569	.000146	.0000753
#3	.000270	-.009552	-.001081	.000365	-.122238	-.001728	-.000247

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.077187	-.004302	-.000504	-.010168	-.001502	-.011841	-.001947
Stddev	.013063	.000414	.000197	.000267	.000051	.006014	.001154
%RSD	16.92358	9.627295	39.08715	2.625831	3.410137	50.79467	59.27622

#1	-.066564	-.004741	-.000726	-.010476	-.001512	-.009926	-.000687
#2	-.073226	-.004248	-.000348	-.010033	-.001447	-.007017	-.002201
#3	-.091773	-.003918	-.000439	-.009996	-.001548	-.018579	-.002953

Sample Name: PB169680BL Acquired: 9/15/2025 12:58:10 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.005737	-.006203	-.000309
Stddev	.001130	.001413	.000058
%RSD	19.69843	22.78171	18.86220
#1	-.005729	-.006532	-.000245
#2	-.006871	-.004654	-.000360
#3	-.004611	-.007422	-.000321

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6605.623	117577.1	11257.63	5140.072	8477.892
Stddev	20.681	490.0	9.34	39.436	19.663
%RSD	.3130760	.4167209	.0829774	.7672205	.2319279
#1	6615.350	117874.1	11268.03	5185.201	8481.516
#2	6619.646	117845.7	11254.88	5122.769	8495.492
#3	6581.872	117011.6	11249.97	5112.246	8456.670

Sample Name: PB169680BS Acquired: 9/15/2025 13:02:29 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8016909	2.025897	.9722155	2.038449	.7992851	1.967347	.1939433
Stddev	.0056885	.024490	.0026213	.007762	.0027939	.003016	.0008246
%RSD	.7095678	1.208836	.2696198	.3808037	.3495505	.1532981	.4251623

#1	.7981665	2.046781	.9715021	2.037401	.7973362	1.966215	.1942711
#2	.7986528	1.998943	.9700247	2.031263	.7980329	1.970765	.1945536
#3	.8082535	2.031966	.9751196	2.046682	.8024860	1.965060	.1930052

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2037950	.1935184	.9791598	.3993885	.1958170	.3124221	2.961393
Stddev	.0011462	.0005022	.0009468	.0005801	.0004197	.0014066	.017022
%RSD	.5624264	.2595260	.0966906	.1452355	.2143392	.4502209	.5747967

#1	.2050517	.1936462	.9787535	.3998346	.1960757	.3114906	2.953460
#2	.2035263	.1929646	.9802418	.3987328	.1953327	.3117355	2.949785
#3	.2028070	.1939444	.9784839	.3995980	.1960425	.3140401	2.980933

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2005137	1.984057	.4914907	.0760858	2.988567	.2952903	.2021447
Stddev	.0015225	.017389	.0009326	.0001702	.032283	.0013564	.0007240
%RSD	.7593233	.8764302	.1897429	.2236429	1.080209	.4593391	.3581658

#1	.2018801	1.976138	.4915341	.0762811	2.998083	.2968059	.2013094
#2	.1988725	1.972038	.4905372	.0759693	2.952596	.2948747	.2025331
#3	.2007887	2.003996	.4924009	.0760071	3.015023	.2941904	.2025917

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.807844	.3016567	.4056703	.6764474	.1870969	.8452502	5.580371
Stddev	.064801	.0007092	.0013345	.0019141	.0033396	.0102051	.021211
%RSD	.6607013	.2350972	.3289690	.2829624	1.784928	1.207349	.3801053

#1	9.809169	.3018012	.4060947	.6768566	.1909509	.8334801	5.582022
#2	9.742391	.3008864	.4041751	.6743618	.1852823	.8516273	5.558383
#3	9.871972	.3022825	.4067409	.6781238	.1850575	.8506432	5.600709

Sample Name: PB169680BS Acquired: 9/15/2025 13:02:29 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	F -.002440	.2046638	.1932876
Stddev	.001016	.0023798	.0007529
%RSD	41.62771	1.162782	.3895244

#1	-.003257	.2074052	.1941374
#2	-.001303	.2031299	.1927038
#3	-.002759	.2034561	.1930215

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6300.159	109127.6	10721.53	4840.930	7764.484
Stddev	11.287	162.6	51.79	10.476	4.526
%RSD	.1791554	.1490407	.4830080	.2164116	.0582910

#1	6309.631	108984.7	10666.61	4841.945	7762.679
#2	6303.177	109304.6	10728.51	4850.862	7769.634
#3	6287.670	109093.6	10769.47	4829.983	7761.140

Sample Name: PB169682BL Acquired: 9/15/2025 13:06:31 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009334	-.001676	-.000886	-.001271	-.001571	.0048814	-.002934
Stddev	.0007865	.000278	.000364	.001701	.002283	.0073468	.000370
%RSD	84.26060	16.56880	41.09119	133.7631	145.2467	150.5064	12.62308

#1	.0002191	-.001995	-.001001	.000684	.000033	.0130950	-.002871
#2	.0017762	-.001545	-.000478	-.002094	-.000563	.0026123	-.003332
#3	.0008048	-.001489	-.001179	-.002404	-.004185	-.001063	-.002599

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000010	-.000163	-.004954	-.000240	-.000238	.0001345	.0121083
Stddev	.000047	.000045	.002183	.000231	.000083	.0000967	.0042610
%RSD	451.5415	27.46202	44.07420	96.18687	34.96956	71.84217	35.19107

#1	.000033	-.000123	-.004239	-.000506	-.000310	.0001544	.0170005
#2	-.000060	-.000211	-.007405	-.000101	-.000147	.0000295	.0092086
#3	-.000004	-.000154	-.003217	-.000112	-.000258	.0002197	.0101157

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000233	-.001334	-.000644	.0001509	.1396498	-.002050	.0002331
Stddev	.000577	.024369	.000389	.0001478	.0307087	.002556	.0001443
%RSD	248.0417	1826.791	60.37515	97.99831	21.98980	124.6900	61.91079

#1	-.000258	-.029412	-.000245	-.000019	.1061823	.000523	.0003726
#2	.000357	.011099	-.001022	.000246	.1665310	-.002085	.0000844
#3	-.000797	.014311	-.000665	.000226	.1462361	-.004589	.0002422

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1576329	-.004080	-.000624	-.000553	-.002155	-.004688	.0001494
Stddev	.0107326	.000466	.000236	.000440	.001020	.005509	.0003222
%RSD	6.808612	11.42966	37.84169	79.61881	47.32148	117.5111	215.6665

#1	.1491783	-.003551	-.000417	-.000098	-.001721	-.000350	-.000201
#2	.1540130	-.004255	-.000574	-.000584	-.001424	-.010886	.000432
#3	.1697074	-.004433	-.000881	-.000977	-.003319	-.002828	.000217

Sample Name: PB169682BL Acquired: 9/15/2025 13:06:31 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.002146	-.003415	-.000419
Stddev	.001238	.000644	.000037
%RSD	57.68928	18.87006	8.798945
#1	-.003334	-.002712	-.000409
#2	-.000864	-.003977	-.000388
#3	-.002239	-.003556	-.000460

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6605.321	112111.5	10939.04	4990.471	8453.990
Stddev	209.967	315.2	63.96	28.811	276.217
%RSD	3.178755	.2811340	.5846754	.5773166	3.267301
#1	6444.152	112425.6	10973.17	5022.677	8241.054
#2	6529.048	112113.8	10978.69	4981.586	8354.813
#3	6842.764	111795.2	10865.25	4967.149	8766.103

Sample Name: PB169682BS Acquired: 9/15/2025 13:10:49 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8140933	2.046865	.9847868	2.060112	.8256278	2.005225	.1963985
Stddev	.0025432	.004411	.0033856	.006744	.0035084	.017768	.0012541
%RSD	.3124000	.2155165	.3437915	.3273677	.4249384	.8861052	.6385359

#1	.8168241	2.050859	.9875275	2.064147	.8273359	1.988486	.1949528
#2	.8117925	2.047606	.9810022	2.063863	.8279550	2.003320	.1971934
#3	.8136632	2.042130	.9858307	2.052326	.8215924	2.023869	.1970493

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2072163	.1967956	1.019042	.4078114	.1990206	.3164544	3.012869
Stddev	.0015819	.0003586	.006853	.0006072	.0007655	.0007973	.022074
%RSD	.7633945	.1822095	.6724927	.1488975	.3846289	.2519462	.7326691

#1	.2057375	.1968325	1.014759	.4079836	.1991000	.3161481	3.038220
#2	.2070271	.1964200	1.015421	.4071367	.1982185	.3173594	2.997900
#3	.2088842	.1971343	1.026946	.4083139	.1997433	.3158557	3.002487

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2034730	2.032425	.4992371	.0770886	2.971365	.3004122	.2064940
Stddev	.0001471	.015405	.0008809	.0002934	.039391	.0031101	.0003844
%RSD	.0723002	.7579678	.1764527	.3806099	1.325703	1.035292	.1861374

#1	.2033967	2.032394	.4998967	.0773998	3.014066	.2969398	.2069242
#2	.2036426	2.017036	.4982367	.0768171	2.936445	.3013552	.2061845
#3	.2033797	2.047846	.4995779	.0770489	2.963583	.3029418	.2063731

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.918238	.3051375	.4202049	.6992672	.1966440	.8748308	5.662423
Stddev	.077416	.0006432	.0006996	.0013419	.0004658	.0093975	.020604
%RSD	.7805406	.2107980	.1664845	.1918950	.2368587	1.074208	.3638639

#1	10.00679	.3049021	.4209712	.7008092	.1968303	.8834842	5.682927
#2	9.88454	.3046452	.4200430	.6986277	.1961139	.8761745	5.662622
#3	9.86338	.3058653	.4196004	.6983647	.1969878	.8648338	5.641721

Sample Name: PB169682BS Acquired: 9/15/2025 13:10:49 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	F -.004828	.2084497	.1965728
Stddev	.002057	.0007449	.0007720
%RSD	42.61011	.3573270	.3927480

#1	-.003103	.2075952	.1958053
#2	-.004276	.2087925	.1965639
#3	-.007105	.2089614	.1973493

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6300.158	108954.5	10715.01	4807.761	7741.268
Stddev	8.748	204.1	98.56	19.093	14.551
%RSD	.1388461	.1872875	.9198219	.3971316	.1879615

#1	6292.904	108757.6	10813.92	4824.735	7729.681
#2	6297.696	109165.0	10714.32	4787.090	7757.598
#3	6309.872	108940.9	10616.80	4811.458	7736.525

Sample Name: Q3082-01 Acquired: 9/15/2025 13:14:50 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1009911	-.023610	2.766087	.0070352	-.000448	169.9909	1.262231
Stddev	.0025031	.004309	.003308	.0031938	.001052	.2105	.005293
%RSD	2.478574	18.25108	.1195931	45.39779	234.9417	.1238026	.4193390

#1	.0992511	-.028473	2.764780	.0066371	.000665	170.1836	1.262971
#2	.0998624	-.020265	2.763631	.0040591	-.001426	170.0229	1.256607
#3	.1038599	-.022091	2.769849	.0104094	-.000582	169.7663	1.267115

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0129885	.0176098	62.35066	.2038963	.1288378	2.344161	331.3879
Stddev	.0002259	.0001005	.07857	.0002010	.0002449	.002410	3.1256
%RSD	1.739060	.5708652	.1260064	.0985646	.1900483	.1028281	.9431927

#1	.0132486	.0177066	62.44130	.2041082	.1291067	2.346933	330.7878
#2	.0128422	.0176167	62.30197	.2038724	.1287789	2.342995	328.6059
#3	.0128745	.0175059	62.30872	.2037084	.1286277	2.342556	334.7701

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.483071	48.05131	.2989193	.0095702	1.840823	.3263870	6.076188
Stddev	.019857	.04676	.0003156	.0017859	.025318	.0023683	.027215
%RSD	.4429315	.0973181	.1055849	18.66130	1.375367	.7255999	.4479033

#1	4.494469	48.09251	.2991592	.0088309	1.842440	.3263942	6.097194
#2	4.460142	48.06096	.2985617	.0082727	1.814736	.3240151	6.085926
#3	4.494601	48.00048	.2990369	.0116071	1.865294	.3287516	6.045443

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.86870	.2006560	.0083880	.5789990	3.110045	3.661069	5.142643
Stddev	.13872	.0162006	.0002943	.0012673	.007331	.064044	.023029
%RSD	.7763294	8.073793	3.508027	.2188837	.2357189	1.749324	.4478120

#1	17.82840	.1933143	.0081106	.5784246	3.115867	3.610317	5.157336
#2	17.75460	.1894262	.0083568	.5781206	3.101812	3.639865	5.116102
#3	18.02312	.2192277	.0086966	.5804518	3.112455	3.733026	5.154491

Sample Name: Q3082-01 Acquired: 9/15/2025 13:14:50 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.663578	.3364074	.3236150
Stddev	.006726	.0021886	.0021697
%RSD	.1442232	.6505806	.6704512
#1	4.670410	.3384910	.3256176
#2	4.656963	.3341271	.3239174
#3	4.663359	.3366043	.3213100

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7133.949	123097.5	13242.79	5462.672	7174.306
Stddev	2.858	209.2	90.78	14.946	6.225
%RSD	.0400572	.1699192	.6855167	.2736065	.0867706
#1	7132.612	122877.9	13171.63	5467.477	7167.442
#2	7137.230	123294.4	13211.72	5445.915	7179.586
#3	7132.005	123120.3	13345.03	5474.625	7175.889

Sample Name: Q3082-03 Acquired: 9/15/2025 13:18:51 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1729379	-.028127	7.242079	.0076353	.0052835	146.1393	2.083057
Stddev	.0025227	.002483	.015930	.0027285	.0029381	.1655	.013452
%RSD	1.458757	8.826031	.2199626	35.73527	55.60935	.1132662	.6457638

#1	.1734180	-.025399	7.235521	.0107408	.0032223	145.9678	2.068055
#2	.1751861	-.028730	7.230474	.0056227	.0086478	146.1520	2.094044
#3	.1702096	-.030253	7.260241	.0065424	.0039804	146.2981	2.087071

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0154524	.0281415	49.57370	.2439283	.2064476	2.799874	416.5953
Stddev	.0001927	.0004800	.14447	.0009617	.0001861	.001447	2.1594
%RSD	1.247070	1.705727	.2914314	.3942547	.0901329	.0516928	.5183381

#1	.0152969	.0283802	49.43122	.2428350	.2066309	2.799700	415.0306
#2	.0156680	.0275890	49.72009	.2446433	.2062589	2.798521	419.0590
#3	.0153922	.0284554	49.56978	.2443066	.2064529	2.801400	415.6964

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.403575	47.61962	.4463285	.0104416	6.204917	.4280944	5.225008
Stddev	.044670	.10375	.0007473	.0008194	.048228	.0017460	.023409
%RSD	.5315568	.2178715	.1674401	7.847163	.7772535	.4078412	.4480187

#1	8.358638	47.62696	.4460180	.0097602	6.162141	.4286038	5.238538
#2	8.447973	47.71950	.4457865	.0113507	6.257185	.4295290	5.197978
#3	8.404114	47.51239	.4471810	.0102138	6.195424	.4261504	5.238508

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.27403	.2452483	.0147773	.2098179	3.277341	3.438442	6.967479
Stddev	.12492	.0080782	.0004091	.0008676	.010979	.020625	.043830
%RSD	.7231907	3.293874	2.768296	.4135259	.3349892	.5998480	.6290669

#1	17.15306	.2491439	.0151896	.2102622	3.269100	3.440119	6.985423
#2	17.40256	.2506406	.0143715	.2088181	3.289804	3.458178	6.917525
#3	17.26648	.2359606	.0147709	.2103735	3.273119	3.417030	6.999491

Sample Name: Q3082-03 Acquired: 9/15/2025 13:18:51 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.026623	.3248550	.4509496
Stddev	.038879	.0022901	.0031688
%RSD	.7734680	.7049507	.7026922
#1	5.052061	.3226657	.4473076
#2	4.981869	.3272341	.4530756
#3	5.045941	.3246654	.4524657

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7184.467	124796.5	13538.81	5472.688	6846.550
Stddev	7.174	360.6	63.44	19.814	9.926
%RSD	.0998611	.2889468	.4685542	.3620476	.1449843
#1	7192.652	125168.9	13611.42	5459.855	6855.379
#2	7179.266	124449.0	13510.89	5495.508	6848.465
#3	7181.483	124771.6	13494.13	5462.701	6835.805

Sample Name: Q3082-05 Acquired: 9/15/2025 13:22:52 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0905554	-.024181	8.743496	.0021984	-.005775	151.5439	2.994215
Stddev	.0031035	.002108	.010294	.0050514	.001487	.0767	.010999
%RSD	3.427157	8.718789	.1177304	229.7773	25.74653	.0506128	.3673461

#1	.0870966	-.026534	8.738993	-.001771	-.006359	151.5483	3.006047
#2	.0914732	-.022464	8.736221	.000482	-.004084	151.4651	2.984300
#3	.0930965	-.023545	8.755274	.007884	-.006880	151.6183	2.992299

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0130530	.0141311	42.24942	.2542646	.1743143	4.407332	347.0139
Stddev	.0001536	.0002949	.03461	.0002559	.0005044	.001860	1.0884
%RSD	1.176415	2.087138	.0819125	.1006505	.2893563	.0422028	.3136598

#1	.0131438	.0141732	42.23052	.2542435	.1739652	4.407711	346.4290
#2	.0131394	.0144028	42.22838	.2545305	.1740850	4.405312	346.3430
#3	.0128757	.0138174	42.28936	.2540199	.1748926	4.408974	348.2698

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.366690	65.99849	.3641689	.0088130	1.645144	.3903153	9.751029
Stddev	.021202	.21304	.0012881	.0003851	.004720	.0023264	.003031
%RSD	.2878080	.3227882	.3537154	4.369224	.2869207	.5960221	.0310812

#1	7.389094	65.78787	.3632209	.0091051	1.640424	.3928268	9.754271
#2	7.346940	65.99374	.3636504	.0083766	1.649865	.3898850	9.748266
#3	7.364036	66.21386	.3656355	.0089572	1.645143	.3882342	9.750550

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	22.52675	.1948585	.0098737	.1729657	3.961006	3.250973	7.513869
Stddev	.06060	.0014031	.0005452	.0005875	.001626	.019999	.018030
%RSD	.2689993	.7200810	5.521452	.3396743	.0410379	.6151784	.2399576

#1	22.49203	.1938011	.0099751	.1722992	3.962883	3.229733	7.504446
#2	22.49151	.1964503	.0103610	.1731898	3.960072	3.253744	7.534658
#3	22.59672	.1943241	.0092849	.1734083	3.960062	3.269442	7.502503

Sample Name: Q3082-05 Acquired: 9/15/2025 13:22:52 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.073167	.4060600	.0704571
Stddev	.014949	.0012606	.0017808
%RSD	.3670014	.3104525	2.527512
#1	4.069521	.4055840	.0725088
#2	4.089601	.4074893	.0695503
#3	4.060379	.4051067	.0693122

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7013.165	121713.1	13017.85	5333.293	6922.019
Stddev	2.273	371.5	18.48	15.368	3.799
%RSD	.0324076	.3051998	.1419398	.2881491	.0548847
#1	7012.506	121975.0	12997.33	5333.043	6925.271
#2	7011.294	121876.3	13033.17	5348.784	6922.942
#3	7015.694	121288.0	13023.04	5318.052	6917.843

Sample Name: CCV02 Acquired: 9/15/2025 13:42:59 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.822451	4.816600	4.711191	4.860137	4.851122	9.483504	9.484430
Stddev	.119151	.112080	.122172	.107609	.120170	.024587	.125097
%RSD	2.470752	2.326943	2.593221	2.214106	2.477167	.2592647	1.318974

#1	4.884290	4.709197	4.780290	4.919304	4.924262	9.495498	9.536250
#2	4.897968	4.932833	4.783153	4.925179	4.916674	9.455222	9.341749
#3	4.685094	4.807771	4.570129	4.735927	4.712431	9.499793	9.575290

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2403200	2.359148	23.71226	.9495961	2.354817	1.195000	4.722317
Stddev	.0017754	.059496	.07470	.0053986	.059455	.030507	.031606
%RSD	.7387572	2.521915	.3150291	.5685179	2.524818	2.552885	.6692961

#1	.2411650	2.390929	23.79278	.9544754	2.388114	1.212507	4.743734
#2	.2382799	2.396005	23.64521	.9505165	2.390163	1.212719	4.737199
#3	.2415149	2.290511	23.69879	.9437965	2.286175	1.159774	4.686016

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.374581	23.63276	2.356351	1.196338	23.31449	2.385740	2.383535
Stddev	.003061	.11340	.058866	.000903	.20306	.005064	.006395
%RSD	.1289149	.4798548	2.498175	.0755064	.8709820	.2122623	.2683036

#1	2.378115	23.59063	2.388725	1.197318	23.37472	2.388826	2.389748
#2	2.372869	23.54645	2.391925	1.196159	23.48062	2.379896	2.376972
#3	2.372759	23.76119	2.288404	1.195538	23.08812	2.388498	2.383885

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.75720	4.832461	4.872655	4.766718	4.782614	4.668626	4.812800
Stddev	.15380	.026802	.123916	.116210	.009535	.012548	.104889
%RSD	.6473929	.5546329	2.543087	2.437937	.1993783	.2687730	2.179385

#1	23.70433	4.836305	4.943090	4.819385	4.791357	4.681915	4.831339
#2	23.93047	4.803944	4.945300	4.847268	4.784039	4.656981	4.907184
#3	23.63681	4.857134	4.729575	4.633500	4.772446	4.666983	4.699877

Sample Name: CCV02 Acquired: 9/15/2025 13:42:59 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.715626	4.718861	4.757971
Stddev	.109192	.011391	.020921
%RSD	2.315532	.2413905	.4397010
#1	4.725404	4.732013	4.742483
#2	4.819600	4.712135	4.781770
#3	4.601874	4.712436	4.749660

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6347.082	109025.6	10809.34	4841.754	7425.400
Stddev	135.679	533.1	32.44	33.388	156.367
%RSD	2.137654	.4889396	.3001046	.6895773	2.105846
#1	6275.321	108755.5	10781.78	4807.981	7349.658
#2	6262.355	108681.6	10845.09	4842.539	7321.327
#3	6503.571	109639.6	10801.16	4874.742	7605.215

Sample Name: CCB02 Acquired: 9/15/2025 13:47:10 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	.0001073	-.002040	-.000425	.0000654	-.001132	.0019335	-.002861
Stddev	.0010126	.000969	.000628	.0014954	.001956	.0027619	.000237
%RSD	943.3989	47.50888	147.8457	2286.270	172.7133	142.8482	8.268955

#1	-.000374	-.003137	-.000268	-.000247	.000990	-.001245	-.003131
#2	-.000575	-.001301	-.001116	.001693	-.001526	.003748	-.002692
#3	.001271	-.001681	.000110	-.001249	-.002862	.003297	-.002759

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000000	-.000200	-.012333	-.000213	-.000158	.0000716	.0031545
Stddev	.000000	.000035	.003867	.000100	.000064	.0001413	.0064908
%RSD	81.68331	17.33687	31.35322	46.95483	40.24347	197.4407	205.7603

#1	-.000000	-.000161	-.007897	-.000103	-.000230	.0002282	.0013776
#2	-.000001	-.000228	-.014991	-.000236	-.000138	-.000047	.0103488
#3	-.000000	-.000210	-.014110	-.000299	-.000108	.000033	-.002263

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000532	.0011863	-.000711	.0001550	.0627467	-.000674	-.000229
Stddev	.000700	.0056121	.000221	.0001911	.0154024	.001047	.000263
%RSD	131.6258	473.0685	31.09348	123.3390	24.54693	155.4934	114.5898

#1	-.000146	.0032104	-.000811	-.000023	.0463274	-.001451	.000074
#2	-.001340	-.005157	-.000865	.000132	.0650370	-.001087	-.000392
#3	-.000110	.005506	-.000458	.000357	.0768757	.000517	-.000370

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1123390	-.001731	-.000454	-.000649	-.000917	-.006215	-.001416
Stddev	.0318875	.000652	.000052	.000494	.000106	.007340	.000626
%RSD	28.38505	37.67310	11.50353	76.14679	11.51346	118.1032	44.20248

#1	.1327067	-.000996	-.000411	-.001196	-.001039	.001347	-.001805
#2	.0755905	-.001955	-.000512	-.000235	-.000859	-.006681	-.001750
#3	.1287198	-.002241	-.000438	-.000516	-.000853	-.013312	-.000694

Sample Name: CCB02 Acquired: 9/15/2025 13:47:10 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0018830	-.001359	-.000458
Stddev	.0006490	.001700	.000038
%RSD	34.46448	125.0580	8.321081

#1	.0019306	-.000021	-.000487
#2	.0025070	-.003272	-.000471
#3	.0012116	-.000785	-.000415

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6505.681	112840.4	10892.88	4983.319	8275.937
Stddev	14.996	232.9	31.61	4.300	21.086
%RSD	.2305045	.2064220	.2902160	.0862957	.2547810

#1	6490.084	112601.0	10856.90	4978.409	8253.000
#2	6519.994	112853.8	10905.55	4985.130	8294.479
#3	6506.966	113066.3	10916.20	4986.417	8280.331

Sample Name: Q3082-07 Acquired: 9/15/2025 13:51:29 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1309585	-.022029	7.296904	.0041561	-.008544	135.5939	2.486245
Stddev	.0016981	.002082	.072091	.0015795	.004804	5.0829	.088797
%RSD	1.296698	9.449215	.9879627	38.00280	56.22296	3.748590	3.571527

#1	.1290000	-.021806	7.216726	.0049955	-.012548	136.1778	2.506824
#2	.1318546	-.020068	7.356375	.0051386	-.009867	140.3597	2.562946
#3	.1320209	-.024214	7.317612	.0023342	-.003217	130.2444	2.388965

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0151886	.0287922	135.9662	.2408025	.1654837	5.356904	349.7224
Stddev	.0004353	.0010151	4.7408	.0037680	.0019048	.056081	5.7035
%RSD	2.866140	3.525720	3.486729	1.564751	1.151040	1.046891	1.630856

#1	.0153602	.0276223	136.6542	.2447898	.1632974	5.294427	356.0076
#2	.0155119	.0293131	140.3254	.2403167	.1667852	5.402892	348.2831
#3	.0146936	.0294411	130.9190	.2373010	.1663684	5.373393	344.8764

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.110738	52.13624	.3532847	.0094148	2.681926	.4276881	6.078019
Stddev	.244521	1.82047	.0045645	.0005935	.036295	.0145627	.102399
%RSD	3.438761	3.491758	1.292032	6.304375	1.353307	3.404986	1.684739

#1	7.177200	52.25622	.3481529	.0096800	2.723233	.4280638	6.192685
#2	7.315157	53.89375	.3568915	.0098296	2.667404	.4420594	6.045669
#3	6.839856	50.25875	.3548098	.0087349	2.655141	.4129412	5.995702

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.27356	.2023239	.0135441	.1289676	3.817985	3.249181	8.202738
Stddev	.34706	.0247988	.0003126	.0012202	.138024	.040411	.068232
%RSD	1.491211	12.25698	2.308109	.9461276	3.615099	1.243717	.8318155

#1	23.64328	.2144191	.0133120	.1276249	3.843783	3.279269	8.135998
#2	23.22259	.1737983	.0138995	.1300089	3.941290	3.265024	8.272369
#3	22.95481	.2187543	.0134206	.1292690	3.668882	3.203249	8.199847

Sample Name: Q3082-07 Acquired: 9/15/2025 13:51:29 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.707057	.3147024	.5862711
Stddev	.039418	.0100905	.0309821
%RSD	.8374129	3.206366	5.284602
#1	4.675898	.3174235	.5893192
#2	4.751369	.3231534	.6156165
#3	4.693904	.3035304	.5538776

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7068.750	123069.4	13203.11	5415.689	6791.712
Stddev	58.639	1310.2	405.15	87.528	61.248
%RSD	.8295502	1.064598	3.068621	1.616194	.9018098
#1	7134.456	121576.6	13137.97	5319.306	6861.152
#2	7021.735	123603.0	12834.47	5437.538	6745.376
#3	7050.058	124028.5	13636.89	5490.222	6768.609

Sample Name: Q3082-09 Acquired: 9/15/2025 13:55:30 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0606316	-.019392	1.639233	.0027684	-.004930	139.3879
Stddev	.0035368	.001742	.000669	.0009508	.002673	.1428
%RSD	5.833254	8.981234	.0408137	34.34587	54.21216	.1024322

#1	.0625722	-.017848	1.639848	.0038613	-.007741	139.4955
#2	.0565493	-.021280	1.638521	.0021313	-.002422	139.2259
#3	.0627733	-.019048	1.639331	.0023125	-.004627	139.4422

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.573164	.0105573	.0083532	265.3918	.1826932	.1049725
Stddev	.006270	.0000776	.0001674	.7233	.0010395	.0003960
%RSD	.3985336	.7349950	2.003682	.2725504	.5689737	.3772621

#1	1.577359	.0105979	.0082377	266.0042	.1815980	.1047797
#2	1.565957	.0106062	.0082768	264.5938	.1836662	.1047097
#3	1.576178	.0104679	.0085451	265.5775	.1828153	.1054280

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6572492	229.8756	3.763642	87.31614	.2322720	.0069473
Stddev	.0009303	.7235	.011364	.20456	.0004748	.0003653
%RSD	.1415476	.3147176	.3019457	.2342722	.2044321	5.258017

#1	.6578985	229.2184	3.776106	87.52401	.2320926	.0067853
#2	.6561834	230.6508	3.753855	87.30935	.2319131	.0073656
#3	.6576658	229.7576	3.760965	87.11506	.2328105	.0066911

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.625126	.2887756	1.267935	19.21730	.1565237	.0084081
Stddev	.009795	.0021711	.001061	.09881	.0067142	.0002255
%RSD	.3731175	.7518424	.0836549	.5141619	4.289599	2.681576

#1	2.617997	.2897257	1.269108	19.10320	.1491836	.0082719
#2	2.636295	.2903098	1.267652	19.27505	.1623556	.0086684
#3	2.621087	.2862914	1.267044	19.27363	.1580319	.0082840

Sample Name: Q3082-09 Acquired: 9/15/2025 13:55:30 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0851120	1.464085	3.987029	6.062880	F 11.68421	.2452645
Stddev	.0008933	.002539	.032591	.026208	.07757	.0009471
%RSD	1.049584	.1734090	.8174318	.4322735	.6638790	.3861532

#1	.0840909	1.464296	3.998109	6.032968	11.59568	.2451948
#2	.0857496	1.461447	4.012636	6.073854	11.71670	.2443542
#3	.0854954	1.466512	3.950342	6.081816	11.74026	.2462445

Elem	Sr4077
Units	ppm
Avg	.4688857
Stddev	.0030572
%RSD	.6520068

#1	.4709929
#2	.4653794
#3	.4702849

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6718.325	115972.1	12809.34	5180.251	6710.426
Stddev	3.152	359.3	55.75	21.923	2.700
%RSD	.0469110	.3098400	.4352168	.4232089	.0402309

#1	6715.184	116195.4	12746.82	5203.115	6712.589
#2	6718.303	115557.6	12853.88	5159.409	6707.400
#3	6721.487	116163.2	12827.32	5178.228	6711.288

Sample Name: Q3082-01DUP Acquired: 9/15/2025 13:59:32 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1061950	-.022015	2.476796	.0028106	-.000373	165.4215	1.279411
Stddev	.0023510	.001594	.007162	.0020651	.002296	.7904	.006587
%RSD	2.213804	7.238342	.2891495	73.47591	615.8950	.4777927	.5148108

#1	.1060708	-.021275	2.477230	.0007148	.002204	164.9157	1.274495
#2	.1086055	-.023844	2.483732	.0028735	-.001121	166.3323	1.286895
#3	.1039086	-.020926	2.469428	.0048436	-.002201	165.0166	1.276844

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0144688	.0245176	78.10832	.2134422	.1584028	1.846617	337.0242
Stddev	.0000522	.0000628	.36884	.0007419	.0003311	.003846	.8955
%RSD	.3608295	.2561165	.4722159	.3475840	.2090393	.2082617	.2657013

#1	.0144176	.0244723	77.88219	.2126155	.1580666	1.850386	336.6869
#2	.0144669	.0244913	78.53394	.2136611	.1584133	1.842699	338.0393
#3	.0145219	.0245893	77.90882	.2140500	.1587286	1.846764	336.3463

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.512299	59.17385	.3725443	.0090057	1.880183	.3479787	6.176553
Stddev	.039744	.23995	.0007364	.0000815	.007276	.0043934	.002486
%RSD	.4669035	.4055076	.1976696	.9051227	.3869828	1.262542	.0402417

#1	8.473984	58.93789	.3733907	.0089417	1.872040	.3461207	6.178280
#2	8.553333	59.41761	.3720510	.0090975	1.886046	.3529958	6.177675
#3	8.509579	59.16604	.3721910	.0089781	1.882463	.3448195	6.173704

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	18.29573	.2095704	.0093027	.1334279	3.364705	3.791888	5.703942
Stddev	.11837	.0042269	.0002528	.0009015	.015081	.013340	.006680
%RSD	.6470075	2.016956	2.717335	.6756310	.4482208	.3518158	.1171043

#1	18.31171	.2132491	.0090254	.1330711	3.354350	3.795502	5.697429
#2	18.40529	.2105091	.0093624	.1327596	3.382007	3.803050	5.703621
#3	18.17017	.2049530	.0095203	.1344532	3.357757	3.777113	5.710777

Sample Name: Q3082-01DUP Acquired: 9/15/2025 13:59:32 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.141244	.3490647	.4371315
Stddev	.003880	.0005609	.0030290
%RSD	.0936823	.1607014	.6929187
#1	4.139573	.3490130	.4352738
#2	4.138480	.3496497	.4406267
#3	4.145679	.3485314	.4354940

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7234.212	125049.6	13431.98	5525.193	6922.000
Stddev	15.638	86.9	44.04	8.922	7.110
%RSD	.2161607	.0694525	.3278877	.1614814	.1027151
#1	7219.828	124964.7	13481.45	5533.096	6921.919
#2	7231.949	125045.9	13417.48	5515.518	6914.931
#3	7250.857	125138.3	13397.02	5526.967	6929.150

Sample Name: Q3082-01LX5 Acquired: 9/15/2025 14:03:34 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0204614	-.005632	.5833095	-.002510	-.001048	40.01366	.2930356
Stddev	.0016951	.001561	.0008494	.003639	.001793	.68084	.0054349
%RSD	8.284562	27.71101	.1456196	144.9972	171.0275	1.701518	1.854691

#1	.0196898	-.004370	.5824813	.001609	.001019	39.90742	.2923500
#2	.0224050	-.005149	.5841786	-.005290	-.001996	39.39219	.2879760
#3	.0192892	-.007377	.5832686	-.003849	-.002169	40.74138	.2987808

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0032208	.0026886	15.09092	.0477511	.0260241	.5701505	74.86515
Stddev	.0000542	.0000974	.22780	.0002613	.0001853	.0010934	.52846
%RSD	1.682500	3.622164	1.509542	.5472094	.7121035	.1917819	.7058865

#1	.0032825	.0027990	15.06015	.0476466	.0262288	.5705901	74.62283
#2	.0031995	.0026518	14.88006	.0475582	.0258679	.5709557	74.50129
#3	.0031806	.0026150	15.33254	.0480485	.0259756	.5689057	75.47132

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.089070	11.74649	.0613371	.0015551	.4420008	.0768560	1.452830
Stddev	.017513	.22166	.0001185	.0004614	.0089303	.0028655	.000975
%RSD	1.608091	1.887050	.1931583	29.66794	2.020435	3.728393	.0671294

#1	1.086324	11.68509	.0613479	.0017025	.4357856	.0792636	1.453399
#2	1.073092	11.56200	.0614498	.0010380	.4379824	.0736866	1.451704
#3	1.107794	11.99238	.0612136	.0019247	.4522343	.0776179	1.453388

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.886936	.0272620	.0012487	.1171876	.7422707	1.015297	1.048577
Stddev	.056481	.0001963	.0001736	.0001914	.0133189	.031480	.002402
%RSD	1.453101	.7201229	13.90575	.1633634	1.794350	3.100600	.2290669

#1	3.833585	.0274879	.0010788	.1169703	.7413782	.986412	1.049838
#2	3.881124	.0271664	.0014259	.1173311	.7294204	1.048851	1.045807
#3	3.946098	.0271319	.0012415	.1172615	.7560134	1.010629	1.050085

Sample Name: Q3082-01LX5 Acquired: 9/15/2025 14:03:34 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.9303842	.0738333	.0780202
Stddev	.0016175	.0035649	.0017138
%RSD	.1738582	4.828294	2.196655

#1	.9308212	.0722615	.0780861
#2	.9285930	.0713245	.0762743
#3	.9317383	.0779140	.0797000

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6603.274	113666.4	11314.56	5047.389	7753.166
Stddev	4.177	651.0	157.16	28.614	3.333
%RSD	.0632611	.5727516	1.389049	.5669015	.0429938

#1	6607.052	114186.6	11327.31	5056.017	7756.458
#2	6603.981	113876.3	11464.96	5070.695	7749.793
#3	6598.788	112936.3	11151.41	5015.454	7753.249

Sample Name: Q3082-01MS Acquired: 9/15/2025 14:07:41 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7108859	1.630690	3.863205	1.438705	.2921792	216.9929
Stddev	.0041303	.016360	.003154	.005404	.0021751	4.5942
%RSD	.5810102	1.003267	.0816450	.3756126	.7444519	2.117216

#1	.7061284	1.623071	3.864544	1.443218	.2910734	219.3636
#2	.7135554	1.619529	3.859602	1.440180	.2907792	219.9175
#3	.7129738	1.649470	3.865468	1.432716	.2946851	211.6976

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.586338	.1594478	.2069173	142.8279	.5512382	.3697042
Stddev	.028601	.0026368	.0004814	2.7173	.0018629	.0003594
%RSD	1.802976	1.653714	.2326294	1.902503	.3379500	.0972182

#1	1.591916	.1610809	.2065322	144.0549	.5530583	.3692900
#2	1.611740	.1608566	.2067628	144.7153	.5493352	.3698886
#3	1.555359	.1564058	.2074570	139.7134	.5513210	.3699340

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.415814	372.9673	6.621733	78.05002	.8479016	.0656237
Stddev	.002425	2.5055	.132051	1.51732	.0010906	.0014495
%RSD	.1003702	.6717735	1.994203	1.944037	.1286193	2.208744

#1	2.413334	371.7400	6.662967	78.78030	.8467628	.0648174
#2	2.415929	375.8499	6.728246	79.06411	.8480056	.0672970
#3	2.418179	371.3121	6.473985	76.30564	.8489365	.0647566

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.989688	.6135955	6.992584	39.16203	.3644242	.3079695
Stddev	.030563	.0085251	.031365	.19882	.0036791	.0004994
%RSD	.6125274	1.389375	.4485397	.5076869	1.009562	.1621583

#1	4.956218	.6190549	7.027263	38.97449	.3602135	.3074000
#2	5.016114	.6179598	6.966204	39.37048	.3660416	.3083327
#3	4.996734	.6037718	6.984283	39.14113	.3670175	.3081758

Sample Name: Q3082-01MS Acquired: 9/15/2025 14:07:41 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7784535	4.493189	4.914544	F 11.35387	4.819267	.5461964
Stddev	.0024169	.079888	.046037	.02345	.017737	.0112278
%RSD	.3104719	1.777971	.9367505	.2065224	.3680459	2.055639
#1	.7791828	4.518543	4.921526	11.33225	4.820501	.5501391
#2	.7757559	4.557323	4.956692	11.35056	4.800945	.5549211
#3	.7804217	4.403701	4.865415	11.37880	4.836355	.5335290

Elem	Sr4077
Units	ppm
Avg	.7817726
Stddev	.0187774
%RSD	2.401906
#1	.7892760
#2	.7956382
#3	.7604037

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7377.056	126537.0	13647.35	5573.443	6735.770
Stddev	2.104	117.6	224.29	40.921	9.101
%RSD	.0285144	.0929719	1.643433	.7342161	.1351111
#1	7377.427	126405.8	13505.84	5528.421	6739.835
#2	7374.791	126571.9	13530.27	5608.377	6742.130
#3	7378.949	126633.3	13905.95	5583.530	6725.345

Sample Name: Q3082-01MSD Acquired: 9/15/2025 14:11:46 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9013920	1.629579	3.922514	1.516417	.3118286	201.1500
Stddev	.0011888	.023549	.004464	.001580	.0021398	1.5049
%RSD	.1318816	1.445088	.1138126	.1042014	.6861999	.7481635

#1	.9002730	1.615695	3.920552	1.514718	.3093587	199.6015
#2	.9026400	1.656768	3.927624	1.517844	.3130056	201.2415
#3	.9012630	1.616272	3.919367	1.516688	.3131215	202.6072

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.556835	.1635065	.2022848	59.70570	.5622903	.3613355
Stddev	.012420	.0007931	.0005456	.39073	.0029463	.0002475
%RSD	.7977599	.4850497	.2697383	.6544349	.5239827	.0685071

#1	1.547231	.1626659	.2019774	59.31692	.5655065	.3615628
#2	1.552413	.1636122	.2029147	59.70182	.5616430	.3613720
#3	1.570861	.1642415	.2019621	60.09836	.5597215	.3610718

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.571571	434.1586	8.665240	64.44400	.8937343	.0693388
Stddev	.001776	1.2170	.059755	.56524	.0006295	.0008404
%RSD	.0690451	.2803220	.6895946	.8771014	.0704379	1.212049

#1	2.573212	434.6918	8.611950	63.87971	.8930199	.0695352
#2	2.569686	432.7660	8.653925	64.44210	.8942077	.0684176
#3	2.571814	435.0181	8.729843	65.01018	.8939753	.0700636

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.128827	.6233768	6.906537	27.86715	.3898113	.3317250
Stddev	.016607	.0060154	.004153	.11749	.0029029	.0004285
%RSD	.4022087	.9649730	.0601251	.4215944	.7446855	.1291848

#1	4.145575	.6165653	6.910823	28.00250	.3931551	.3319603
#2	4.112365	.6256048	6.902532	27.79152	.3879381	.3312303
#3	4.128542	.6279604	6.906256	27.80744	.3883405	.3319843

Sample Name: Q3082-01MSD Acquired: 9/15/2025 14:11:46 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7584355	3.655963	4.240076	F 11.48157	6.177673	.5500453
Stddev	.0016642	.024092	.028455	.03897	.028045	.0040806
%RSD	.2194289	.6589649	.6711022	.3394255	.4539800	.7418751
#1	.7568163	3.632020	4.213068	11.48413	6.188873	.5462814
#2	.7583489	3.655670	4.237374	11.51919	6.198387	.5494725
#3	.7601414	3.680200	4.269785	11.44138	6.145758	.5543822

Elem	Sr4077
Units	ppm
Avg	.4854136
Stddev	.0061823
%RSD	1.273614
#1	.4796140
#2	.4847087
#3	.4919182

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6907.666	119181.7	12800.99	5249.342	6832.063
Stddev	6.756	637.4	50.36	34.179	6.965
%RSD	.0978080	.5348399	.3934385	.6511094	.1019472
#1	6903.017	118466.1	12834.26	5214.952	6832.536
#2	6904.564	119688.6	12825.66	5283.306	6824.873
#3	6915.416	119390.5	12743.04	5249.767	6838.779

Sample Name: Q3082-01A Acquired: 9/15/2025 14:15:42 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5404987	1.138190	3.432078	1.082322	.4484636	172.8952	1.298193
Stddev	.1414975	.383910	.175561	.338273	.1408726	3.4173	.021186
%RSD	26.17905	33.72985	5.115288	31.25442	31.41226	1.976519	1.631967

#1	.3991552	.753025	3.255919	.742521	.3054802	168.9513	1.273779
#2	.5401913	1.140714	3.433280	1.085397	.4527847	174.9791	1.309052
#3	.6821496	1.520832	3.607034	1.419047	.5871259	174.7550	1.311748

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0503330	.1414653	63.45359	.2877225	.2577732	2.556832	339.8476
Stddev	.0090557	.0384965	1.18348	.0173631	.0388600	.040353	2.9272
%RSD	17.99146	27.21267	1.865114	6.034660	15.07528	1.578252	.8613348

#1	.0410483	.1025901	62.09346	.2713636	.2186249	2.514790	340.8463
#2	.0508099	.1422341	64.24840	.2858637	.2583562	2.560453	336.5517
#3	.0591408	.1795716	64.01891	.3059402	.2963384	2.595252	342.1447

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.547303	49.20519	.6168691	.0246571	2.183719	.3581350	6.261666
Stddev	.076508	1.07021	.0964914	.0040382	.073040	.0132301	.024903
%RSD	1.682487	2.174988	15.64211	16.37754	3.344734	3.694155	.3977097

#1	4.459223	47.99514	.5195291	.0217421	2.158595	.3439944	6.281844
#2	4.597254	50.02744	.6185893	.0229626	2.126557	.3601987	6.233834
#3	4.585431	49.59297	.7124888	.0292664	2.266004	.3702120	6.269320

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	19.66690	.2646363	.2387542	1.036627	3.196930	4.773270	8.926602
Stddev	.22345	.0228976	.0723221	.136168	.055597	.066813	1.139153
%RSD	1.136152	8.652498	30.29146	13.13568	1.739059	1.399738	12.76133

#1	19.62960	.2707666	.1654068	.898896	3.132740	4.830552	7.773891
#2	19.46444	.2392975	.2408502	1.039810	3.228226	4.699873	8.954220
#3	19.90664	.2838448	.3100055	1.171176	3.229825	4.789385	10.05170

Sample Name: Q3082-01A Acquired: 9/15/2025 14:15:42 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.805565	.3605652	.3440724
Stddev	.017276	.0078823	.0126587
%RSD	.3594946	2.186099	3.679093
#1	4.786075	.3518220	.3295565
#2	4.811625	.3627462	.3528173
#3	4.818994	.3671273	.3498433

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6939.786	119645.5	13011.12	5330.318	6942.766
Stddev	9.531	214.3	286.64	46.315	9.986
%RSD	.1373427	.1790717	2.203034	.8689020	.1438282
#1	6950.267	119638.1	13318.84	5322.185	6954.253
#2	6931.637	119863.3	12751.69	5380.161	6936.159
#3	6937.454	119435.0	12962.82	5288.608	6937.885

Sample Name: LR-2 Acquired: 9/15/2025 14:40:29 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0826792	-.181653	.0982942	.0210383	-.133299	1755.783	.0185990
Stddev	.0084473	.004964	.0090506	.0060642	.002715	9.506	.0005671
%RSD	10.21694	2.732480	9.207619	28.82477	2.036733	.5414213	3.048966

#1	.0821856	-.179159	.1001722	.0168136	-.135738	1752.393	.0189341
#2	.0913626	-.178432	.1062585	.0279869	-.130374	1766.520	.0179443
#3	.0744896	-.187369	.0884520	.0183143	-.133786	1748.437	.0189188

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0377626	.0317413	13.24429	-.245455	.0595558	.0243273	2588.820
Stddev	.0001035	.0010340	.20008	.000434	.0002764	.0057847	8.817
%RSD	.2741911	3.257497	1.510683	.1766905	.4640521	23.77864	.3405674

#1	.0377777	.0307517	13.02306	-.245925	.0596015	.0201543	2597.913
#2	.0378577	.0328146	13.41256	-.245070	.0592595	.0309307	2580.309
#3	.0376523	.0316577	13.29725	-.245369	.0598065	.0218969	2588.236

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.163650	1.247577	.0465691	^ *****	3.176430	.0408060	.0843433
Stddev	.001453	.004327	.0014541	-----	.088920	.0007492	.0014018
%RSD	.8879313	.3467962	3.122518	-----	2.799376	1.836040	1.661967

#1	-.165325	1.252102	.0472552	^ -----	3.096513	.0410355	.0835856
#2	-.162731	1.243481	.0475533	^ -----	3.160561	.0399689	.0834835
#3	-.162893	1.247147	.0448989	^ -----	3.272216	.0414136	.0859609

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1622.984	^ *****	-.014683	.0176916	.0022413	.4697108	.0812746
Stddev	7.831	-----	.000376	.0007808	.0016177	.0065661	.0039643
%RSD	.4825165	-----	2.560605	4.413621	72.17652	1.397907	4.877612

#1	1626.914	^ -----	-.014468	.0184391	.0024130	.4740794	.0817631
#2	1628.072	^ -----	-.014465	.0168812	.0005446	.4621599	.0849720
#3	1613.966	^ -----	-.015117	.0177546	.0037663	.4728931	.0770887

Sample Name: LR-2 Acquired: 9/15/2025 14:40:29 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.455667	.2502761	-2.48212
Stddev	.009915	.0021495	.00839
%RSD	2.175853	.8588532	.3382077
#1	-.461424	.2522037	-2.49077
#2	-.461359	.2506663	-2.47401
#3	-.444219	.2479582	-2.48159

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5327.483	87918.05	10824.26	3979.482	5686.187
Stddev	6.431	201.25	40.86	11.248	3.905
%RSD	.1207067	.2289103	.3774568	.2826620	.0686706
#1	5322.412	87760.96	10789.06	3973.356	5683.770
#2	5325.321	88144.91	10814.65	3972.626	5684.100
#3	5334.716	87848.29	10869.06	3992.464	5690.692

Sample Name: LR-3 Acquired: 9/15/2025 14:48:42 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1107777	.0036171	215.9431	-.001613	.1854540	.0415892	-.002349
Stddev	.0012642	.0026323	3.6687	.005435	.0207522	.0064431	.000384
%RSD	1.141179	72.77498	1.698922	336.9369	11.18992	15.49228	16.36888

#1	.1093999	.0052227	213.3966	-.000647	.1690518	.0403839	-.001968
#2	.1118841	.0050493	220.1483	.003274	.2087838	.0358339	-.002341
#3	.1110491	.0005792	214.2846	-.007467	.1785265	.0485499	-.002736

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004198	-.002212	.1603353	26.54829	.0068956	49.99062	.1093881
Stddev	.000028	.000086	.0068853	.20814	.0000828	1.37532	.0021545
%RSD	.6766423	3.900107	4.294308	.7840136	1.201436	2.751150	1.969605

#1	-.004225	-.002137	.1532321	26.77425	.0068856	48.98835	.1069856
#2	-.004168	-.002306	.1607939	26.36439	.0069830	51.55856	.1100301
#3	-.004200	-.002191	.1669798	26.50622	.0068182	49.42494	.1111487

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	46.88188	-.199456	26.96975	.0043790	.2227149	-.049815	31.04825
Stddev	.44940	.017969	.71981	.0005510	.0239651	.003337	.26307
%RSD	.9585808	9.008864	2.668937	12.58248	10.76044	6.697956	.8472839

#1	47.00801	-.187531	26.50331	.0047181	.2048069	-.046109	30.97887
#2	46.38289	-.220123	27.79874	.0037433	.2133986	-.050757	30.82682
#3	47.25474	-.190714	26.60720	.0046757	.2499392	-.052580	31.33905

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5226977	-.000061	-.016947	-.007201	-.051946	-.127122	.1186585
Stddev	.0360608	.000418	.000531	.000591	.000692	.003582	.0038327
%RSD	6.898985	683.7720	3.135412	8.205089	1.332105	2.817528	3.230049

#1	.4966086	-.000334	-.016565	-.007819	-.052104	-.124636	.1167829
#2	.5076369	-.000269	-.017554	-.007142	-.052545	-.131228	.1230678
#3	.5638475	.000420	-.016723	-.006641	-.051188	-.125504	.1161249

Sample Name: LR-3 Acquired: 9/15/2025 14:48:42 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0590344	-.002760	.0001343
Stddev	.0104029	.001297	.0000718
%RSD	17.62185	46.99766	53.42023
#1	.0563094	-.002175	.0000761
#2	.0705287	-.001859	.0002145
#3	.0502652	-.004247	.0001124

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6192.453	115013.3	11157.61	4866.688	8017.131
Stddev	134.789	753.0	26.73	43.731	168.501
%RSD	2.176671	.6546873	.2395726	.8985815	2.101761
#1	6292.466	114437.9	11133.48	4855.375	8124.817
#2	6039.169	115865.5	11153.01	4914.963	7822.948
#3	6245.724	114736.4	11186.35	4829.724	8103.629

Sample Name: CCV03 Acquired: 9/15/2025 15:11:08 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.915353	4.890892	4.806632	4.959299	4.922865	9.348137	9.224705
Stddev	.009970	.138061	.010022	.006053	.025781	.010812	.151075
%RSD	.2028313	2.822812	.2084970	.1220593	.5237008	.1156564	1.637719

#1	4.907194	4.795720	4.804825	4.955696	4.904574	9.354532	9.247905
#2	4.926466	4.827720	4.817434	4.966288	4.952351	9.354226	9.063372
#3	4.912399	5.049237	4.797636	4.955914	4.911670	9.335654	9.362837

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2363495	2.421825	23.50513	.9638631	2.407832	1.220337	4.767087
Stddev	.0008163	.003087	.04382	.0039715	.004210	.002286	.038455
%RSD	.3453676	.1274472	.1864371	.4120359	.1748396	.1873447	.8066836

#1	.2372699	2.421103	23.52751	.9602577	2.406392	1.218537	4.722914
#2	.2357133	2.425208	23.53325	.9632114	2.412573	1.222909	4.793097
#3	.2360655	2.419163	23.45464	.9681200	2.404531	1.219564	4.785249

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.340507	23.53721	2.410809	1.198559	22.64260	2.373558	2.374468
Stddev	.011894	.05232	.005185	.002681	.22663	.010835	.011734
%RSD	.5081687	.2222791	.2150692	.2236476	1.000915	.4565058	.4941704

#1	2.328281	23.58912	2.411312	1.195552	22.38119	2.364340	2.367072
#2	2.352038	23.53802	2.415725	1.199427	22.76264	2.385494	2.368334
#3	2.341201	23.48449	2.405392	1.200698	22.78396	2.370840	2.387998

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.86989	4.724435	4.981575	4.878831	4.711290	4.790108	4.899569
Stddev	.17071	.010525	.009441	.008680	.016600	.037983	.032672
%RSD	.7151598	.2227724	.1895086	.1779083	.3523514	.7929525	.6668339

#1	23.69835	4.734586	4.975904	4.876481	4.695507	4.746619	4.862224
#2	23.87158	4.725146	4.992473	4.888444	4.728602	4.806926	4.913601
#3	24.03975	4.713573	4.976349	4.871569	4.709763	4.816778	4.922880

Sample Name: CCV03 Acquired: 9/15/2025 15:11:08 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.805814	4.516710	4.685609
Stddev	.019093	.013822	.007154
%RSD	.3972806	.3060177	.1526887

#1	4.784909	4.502556	4.682938
#2	4.810205	4.530175	4.693715
#3	4.822329	4.517399	4.680175

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6199.326	106914.4	10831.91	4698.883	7240.223
Stddev	23.024	282.3	57.05	15.396	22.252
%RSD	.3714012	.2640234	.5266810	.3276462	.3073365

#1	6217.540	107221.1	10783.78	4694.594	7256.467
#2	6173.447	106665.6	10817.02	4715.969	7214.860
#3	6206.990	106856.4	10894.93	4686.087	7249.341

Sample Name: CCB03 Acquired: 9/15/2025 15:15:18 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001771	-.001308	.0000336	-.001129	-.001809	-.000848	-.001391
Stddev	.001293	.001657	.0020285	.000829	.000678	.000970	.001103
%RSD	73.02354	126.7333	6036.029	73.42420	37.46041	114.3966	79.29538

#1	-.002308	-.001890	-.000845	-.001267	-.002509	-.000141	-.001822
#2	-.000296	.000562	.002353	-.000240	-.001156	-.000449	-.000138
#3	-.002710	-.002595	-.001407	-.001881	-.001761	-.001953	-.002215

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000056	-.000182	-.005893	-.000082	-.000329	.0001484	.0025610
Stddev	.000053	.000067	.014531	.000304	.000068	.0001433	.0039197
%RSD	94.98497	36.95003	246.5648	372.6947	20.80177	96.51503	153.0533

#1	.000003	-.000169	-.015680	-.000329	-.000398	.0000153	-.001624
#2	-.000099	-.000122	.010803	.000258	-.000262	.0001299	.006146
#3	-.000072	-.000255	-.012804	-.000173	-.000326	.0003000	.003161

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000110	-.002903	-.000465	.0001375	.1663726	-.001159	-.000090
Stddev	.000368	.020175	.000173	.0001769	.0121334	.000622	.000101
%RSD	335.4462	694.8669	37.24508	128.7093	7.292926	53.64624	112.3462

#1	-.000417	.014573	-.000265	.0002480	.1530055	-.000500	-.000118
#2	.000298	-.024982	-.000571	.0002309	.1694216	-.001735	-.000173
#3	-.000211	.001699	-.000558	-.000067	.1766908	-.001243	.000022

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3954764	.0014175	-.000231	.0002262	-.000918	.0015456	-.000211
Stddev	.0468898	.0002735	.000254	.0002637	.000808	.0073624	.001484
%RSD	11.85653	19.29607	110.1129	116.5678	88.10000	476.3307	704.5460

#1	.3690922	.0015359	.000060	.0003824	-.000073	-.006945	.001044
#2	.3677227	.0016120	-.000343	-.000078	-.000995	.006155	-.001848
#3	.4496143	.0011048	-.000409	.000375	-.001685	.005427	.000172

Sample Name: CCB03 Acquired: 9/15/2025 15:15:18 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0000544	-.001045	-.000389
Stddev	.0005521	.001341	.000050
%RSD	1014.383	128.3624	12.85282
#1	.0002565	-.001955	-.000334
#2	.0004770	.000495	-.000398
#3	-.000570	-.001674	-.000433

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6294.549	107657.4	10446.10	4745.795	7957.409
Stddev	16.735	1004.9	198.20	16.361	19.484
%RSD	.2658633	.9334373	1.897378	.3447503	.2448567
#1	6297.329	108794.0	10640.78	4764.554	7964.239
#2	6276.598	106886.8	10244.55	4738.358	7935.430
#3	6309.720	107291.4	10452.98	4734.474	7972.559

Sample Name: PB169685BL Acquired: 9/15/2025 15:19:36 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002099	-.002283	-.000566	.0009247	-.000186	-.005779	-.001769
Stddev	.000391	.002343	.000981	.0022503	.000405	.006928	.000454
%RSD	18.61846	102.6210	173.3571	243.3601	217.4778	119.8917	25.66663

#1	-.001886	.000412	-.000535	-.000780	-.000472	-.005282	-.002271
#2	-.001862	-.003423	-.001561	.000079	.000277	.000888	-.001648
#3	-.002550	-.003838	.000399	.003475	-.000363	-.012942	-.001387

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000129	-.000216	-.016823	-.000328	-.000311	.0002628	.0067006
Stddev	.000044	.000040	.002787	.000451	.000146	.0002316	.0012050
%RSD	34.30396	18.63830	16.56547	137.3747	46.86642	88.12224	17.98323

#1	-.000091	-.000233	-.018812	-.000343	-.000326	.0003935	.0067985
#2	-.000177	-.000171	-.018018	-.000772	-.000449	-.000005	.0054497
#3	-.000119	-.000246	-.013638	.000130	-.000158	.000400	.0078537

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000229	.0005957	-.000521	.0000974	-.119000	.0002281	-.000162
Stddev	.000260	.0147650	.000270	.0004017	.014820	.0031531	.000028
%RSD	113.8305	2478.476	51.79882	412.4635	12.45349	1382.111	17.10701

#1	-.000266	.0176206	-.000595	.0000329	-.130955	.0036905	-.000132
#2	-.000468	-.007130	-.000747	-.000268	-.102419	-.000528	-.000168
#3	.000048	-.008703	-.000222	.000527	-.123626	-.002478	-.000186

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.085786	-.001105	-.000321	-.010885	-.001538	-.009183	-.001212
Stddev	.010986	.000405	.000066	.000372	.001119	.006439	.001776
%RSD	12.80601	36.64413	20.69643	3.414754	72.72168	70.12360	146.5307

#1	-.073423	-.000989	-.000336	-.011171	-.001147	-.003093	-.003254
#2	-.089506	-.000771	-.000378	-.010465	-.000668	-.015923	-.000024
#3	-.094429	-.001556	-.000248	-.011019	-.002800	-.008533	-.000359

Sample Name: PB169685BL Acquired: 9/15/2025 15:19:36 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.003192	-.007054	-.000400
Stddev	.001562	.000465	.000052
%RSD	48.94836	6.596072	12.91164
#1	-.002771	-.006599	-.000422
#2	-.001883	-.007529	-.000437
#3	-.004922	-.007034	-.000341

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6766.029	118390.6	11162.94	5173.230	8713.476
Stddev	10.306	381.6	197.50	30.560	16.991
%RSD	.1523226	.3223492	1.769209	.5907407	.1949956
#1	6771.607	117962.0	10935.29	5138.527	8728.885
#2	6754.136	118515.9	11265.12	5185.041	8695.254
#3	6772.343	118693.7	11288.41	5196.123	8716.289

Sample Name: PB169685BS Acquired: 9/15/2025 15:23:55 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7654385	1.987750	.9282756	1.950556	.7762168	1.875941	.1818956
Stddev	.0031799	.020645	.0004254	.003144	.0074750	.015504	.0004077
%RSD	.4154399	1.038607	.0458293	.1611751	.9629995	.8264527	.2241194

#1	.7687139	2.010563	.9282311	1.953182	.7847201	1.874950	.1820118
#2	.7623635	1.970352	.9287215	1.947073	.7706822	1.860957	.1814425
#3	.7652382	1.982336	.9278741	1.951413	.7732482	1.891917	.1822326

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1970748	.1861315	.9540078	.3872563	.1877063	.2988756	2.801716
Stddev	.0012084	.0001425	.0094371	.0028657	.0000339	.0005423	.033388
%RSD	.6131649	.0765381	.9892094	.7400151	.0180522	.1814594	1.191701

#1	.1958686	.1860657	.9649009	.3905646	.1876678	.2992019	2.833075
#2	.1970706	.1860338	.9488154	.3855402	.1877197	.2982495	2.805458
#3	.1982853	.1862949	.9483070	.3856640	.1877314	.2991753	2.766614

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1891958	1.909427	.4723541	.0730855	2.698908	.2849279	.1943876
Stddev	.0003168	.023268	.0004439	.0003912	.040403	.0013593	.0016458
%RSD	.1674545	1.218568	.0939756	.5352712	1.497000	.4770542	.8466343

#1	.1888485	1.884386	.4728428	.0730975	2.740087	.2851309	.1956108
#2	.1894690	1.913515	.4719758	.0734706	2.697307	.2834785	.1950356
#3	.1892699	1.930379	.4722438	.0726884	2.659330	.2861742	.1925165

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.315172	.2902993	.3998602	.6635159	.1825194	.8038257	5.409438
Stddev	.078621	.0020162	.0012609	.0006751	.0006023	.0171764	.015524
%RSD	.8440131	.6945329	.3153365	.1017518	.3299942	2.136836	.2869839

#1	9.405182	.2886461	.4010839	.6642915	.1818554	.8228787	5.427192
#2	9.280409	.2897063	.3985651	.6630597	.1830306	.7990708	5.398415
#3	9.259925	.2925456	.3999317	.6631965	.1826723	.7895276	5.402708

Sample Name: PB169685BS Acquired: 9/15/2025 15:23:55 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	F -.002924	.1890988	.1825070
Stddev	.002586	.0000925	.0003257
%RSD	88.45567	.0489283	.1784372

#1	-.005242	.1889922	.1825658
#2	-.003395	.1891584	.1827992
#3	-.000134	.1891457	.1821559

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6421.694	110085.4	10803.29	4857.198	7902.093
Stddev	19.149	777.5	47.47	38.243	19.134
%RSD	.2981919	.7062500	.4394370	.7873481	.2421375

#1	6403.004	109194.0	10848.04	4822.076	7887.369
#2	6420.808	110438.6	10808.33	4851.578	7895.190
#3	6441.271	110623.6	10753.50	4897.940	7923.721

Sample Name: Q3082-02 Acquired: 9/15/2025 15:27:56 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003250	-.004450	.0104173	-.001143	.0000556	.0690509	.1780344
Stddev	.002621	.000833	.0026755	.002537	.0008195	.0112332	.0005486
%RSD	80.63222	18.72225	25.68332	221.9848	1473.830	16.26794	.3081244

#1	-.006173	-.005407	.0110523	-.000059	-.000400	.0793241	.1779607
#2	-.001108	-.004062	.0074814	-.004042	.001002	.0570565	.1775264
#3	-.002471	-.003882	.0127181	.000672	-.000435	.0707722	.1786161

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000085	.0014346	65.83901	-.000212	.0000997	.0211572	.0206699
Stddev	.000049	.0000369	.24601	.000154	.0000843	.0004345	.0051289
%RSD	57.52905	2.569523	.3736465	72.89236	84.58264	2.053778	24.81329

#1	-.000045	.0014338	65.71824	-.000091	.0000185	.0212250	.0237124
#2	-.000140	.0014719	65.67673	-.000386	.0000937	.0206928	.0235489
#3	-.000071	.0013982	66.12206	-.000158	.0001868	.0215539	.0147483

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6988237	5.196826	.0058191	-.000067	235.5383	-.001926	.8097482
Stddev	.0041650	.032699	.0001210	.000624	3.2371	.001786	.0037551
%RSD	.5960061	.6292128	2.078534	938.5284	1.374332	92.74067	.4637366

#1	.6968639	5.225592	.0057558	-.000690	234.3623	-.003467	.8066970
#2	.6960001	5.161262	.0057428	-.000068	239.1990	-.002342	.8139418
#3	.7036072	5.203623	.0059585	.000558	233.0536	.000031	.8086059

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.128599	.0129967	-.000394	-.011161	-.003494	2.004755	.0394277
Stddev	.026891	.0010551	.000078	.000519	.001545	.027767	.0022637
%RSD	2.382661	8.118525	19.81163	4.649750	44.20212	1.385040	5.741409

#1	1.131547	.0129501	-.000483	-.011698	-.005276	2.013696	.0414043
#2	1.153894	.0119656	-.000361	-.011123	-.002662	2.026949	.0399205
#3	1.100355	.0140743	-.000338	-.010662	-.002544	1.973619	.0369581

Sample Name: Q3082-02 Acquired: 9/15/2025 15:27:56 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2780303	-.014732	.3719432
Stddev	.0013212	.000948	.0009948
%RSD	.4751920	6.432901	.2674683
#1	.2794807	-.013643	.3709603
#2	.2768956	-.015369	.3719199
#3	.2777145	-.015185	.3729495

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6014.038	102562.3	10668.53	4555.150	6906.284
Stddev	45.229	555.2	136.16	16.360	52.304
%RSD	.7520631	.5413686	1.276251	.3591580	.7573399
#1	5979.088	102476.0	10775.96	4551.991	6870.497
#2	5997.903	102055.2	10714.23	4540.601	6882.045
#3	6065.122	103155.6	10515.40	4572.860	6966.310

Sample Name: Q3082-04 Acquired: 9/15/2025 15:32:20 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004855	-.002661	.0284245	.0019113	.0015844	.0894212	.2529677
Stddev	.001291	.001125	.0014478	.0008345	.0018873	.0113690	.0092062
%RSD	26.58404	42.28836	5.093622	43.65980	119.1212	12.71399	3.639287

#1	-.005972	-.002496	.0300879	.0011238	-.000031	.0791662	.2423788
#2	-.005151	-.001627	.0277382	.0018243	.003659	.1016466	.2590749
#3	-.003442	-.003859	.0274474	.0027859	.001125	.0874509	.2574494

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000117	.0010245	22.77814	.0001037	-.000211	.0280606	.0409819
Stddev	.000030	.0000519	.70601	.0001133	.000186	.0002012	.0019553
%RSD	25.59963	5.064344	3.099491	109.3038	88.45693	.7169930	4.771048

#1	-.000111	.0010666	21.97350	.0001879	-.000041	.0278404	.0415535
#2	-.000090	.0009666	23.29384	.0001483	-.000180	.0282348	.0425876
#3	-.000149	.0010404	23.06709	-.000025	-.000410	.0281066	.0388045

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0946664	2.626187	.0036224	-.000066	296.4516	-.003182	.3554670
Stddev	.0034652	.087052	.0001966	.000275	5.2730	.002598	.0068067
%RSD	3.660451	3.314772	5.426514	415.3298	1.778695	81.63067	1.914848

#1	.0907484	2.527771	.0034273	-.000124	296.8046	-.002122	.3617778
#2	.0973287	2.693107	.0036197	-.000308	291.0110	-.006143	.3482544
#3	.0959220	2.657683	.0038204	.000233	301.5392	-.001282	.3563688

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9809182	.0222364	-.000386	-.010550	-.001023	2.724869	.0272121
Stddev	.0118352	.0006490	.000144	.001205	.001262	.033871	.0008380
%RSD	1.206544	2.918722	37.24638	11.42039	123.2706	1.243035	3.079577

#1	.9702430	.0217208	-.000358	-.009826	-.002192	2.754217	.0263817
#2	.9936451	.0220232	-.000259	-.011941	-.001192	2.687806	.0280575
#3	.9788664	.0229652	-.000542	-.009883	.000314	2.732584	.0271969

Sample Name: Q3082-04 Acquired: 9/15/2025 15:32:20 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2914873	-.008544	.2757692
Stddev	.0020408	.000597	.0084607
%RSD	.7001152	6.986096	3.068029
#1	.2900611	-.008921	.2660728
#2	.2905759	-.007856	.2816509
#3	.2938250	-.008856	.2795839

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6086.611	103777.7	11069.81	4600.658	7043.294
Stddev	25.654	2124.4	269.88	85.086	27.138
%RSD	.4214878	2.047082	2.437937	1.849434	.3852993
#1	6116.230	101869.2	11380.98	4508.950	7074.302
#2	6071.393	106066.6	10899.54	4677.039	7031.708
#3	6072.209	103397.3	10928.93	4615.985	7023.873

Sample Name: Q3082-06 Acquired: 9/15/2025 15:36:43 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004880	-.005082	.1829827	.0043648	.0016424	.0814953	.2782334
Stddev	.002814	.000472	.0031683	.0011524	.0007865	.0089199	.0024501
%RSD	57.66477	9.290207	1.731505	26.40279	47.88531	10.94524	.8805848

#1	-.004683	-.004824	.1865406	.0050025	.0007500	.0715409	.2757721
#2	-.002170	-.004796	.1819415	.0030344	.0019430	.0887629	.2782558
#3	-.007787	-.005627	.1804659	.0050574	.0022342	.0841822	.2806722

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000009	.0012912	21.95770	.0000162	-.000074	.0917362	.0195146
Stddev	.000083	.0000939	.07591	.0002515	.000158	.0022798	.0041712
%RSD	907.2569	7.276087	.3457209	1556.788	213.5915	2.485126	21.37494

#1	.000029	.0013997	21.87004	.0000189	-.000115	.0943389	.0147251
#2	.000048	.0012376	22.00160	.0002662	-.000207	.0907760	.0214684
#3	-.000104	.0012364	22.00146	-.000237	.000100	.0900935	.0223503

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1400175	2.659374	.0080150	.0000435	343.9746	-.001799	2.114099
Stddev	.0006781	.012320	.0001521	.0003010	5.8882	.000823	.017523
%RSD	.4843109	.4632720	1.897398	692.6180	1.711824	45.75390	.8288567

#1	.1401235	2.649888	.0080222	.0002381	343.6115	-.001262	2.115406
#2	.1392927	2.673298	.0078594	-.000303	338.2763	-.002747	2.130932
#3	.1406364	2.654934	.0081633	.000196	350.0360	-.001388	2.095960

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.266278	.0184981	-.000804	-.010199	-.002149	1.408120	.0316887
Stddev	.058749	.0003672	.000181	.000065	.000951	.009965	.0014633
%RSD	2.592294	1.985259	22.48039	.6328508	44.27027	.7077055	4.617848

#1	2.267784	.0186246	-.000938	-.010129	-.001517	1.419440	.0332771
#2	2.206790	.0187853	-.000599	-.010213	-.003243	1.404253	.0313938
#3	2.324259	.0180843	-.000877	-.010256	-.001686	1.400668	.0303954

Sample Name: Q3082-06 Acquired: 9/15/2025 15:36:43 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.7694103	-.006384	.1857456
Stddev	.0188500	.000610	.0014338
%RSD	2.449923	9.561754	.7719174

#1	.7903203	-.007057	.1842156
#2	.7641900	-.005866	.1859628
#3	.7537207	-.006229	.1870584

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6155.729	102014.9	10953.09	4528.237	7107.306
Stddev	139.269	1028.0	33.43	16.060	166.811
%RSD	2.262436	1.007721	.3051827	.3546524	2.347032

#1	6006.939	100924.5	10955.94	4512.844	6930.907
#2	6177.283	102153.7	10918.33	4526.977	7128.510
#3	6282.965	102966.4	10985.00	4544.889	7262.501

Sample Name: Q3082-08 Acquired: 9/15/2025 15:41:05 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003136	-.001726	.0851144	.0024204	.0013509	.1399422	.2445310
Stddev	.001061	.001818	.0008089	.0015516	.0008946	.0108229	.0007176
%RSD	33.81914	105.3461	.9503638	64.10381	66.22434	7.733863	.2934631

#1	-.002766	-.002506	.0846077	.0039835	.0004490	.1506932	.2449577
#2	-.004332	-.003023	.0860472	.0008805	.0022381	.1400845	.2449329
#3	-.002311	.000352	.0846882	.0023973	.0013656	.1290488	.2437025

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000252	.0026323	49.85617	.0001114	-.000302	.1972242	.0128541
Stddev	.0000245	.0000710	.32692	.0001892	.000135	.0000643	.0067645
%RSD	97.19829	2.696660	.6557258	169.8970	44.66297	.0325869	52.62511

#1	.0000505	.0026012	50.22959	.0001574	-.000432	.1971569	.0147743
#2	.0000017	.0025822	49.71734	-.000097	-.000311	.1972307	.0053371
#3	.0000233	.0027135	49.62158	.000273	-.000163	.1972849	.0184509

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2200827	2.104514	.0051945	-.000402	312.4456	.0015967	.6652520
Stddev	.0009790	.039486	.0003528	.000203	4.8840	.0016841	.0010418
%RSD	.4448251	1.876229	6.792107	50.47258	1.563150	105.4698	.1566090

#1	.2212072	2.146800	.0050462	-.000491	315.1092	.0014020	.6640864
#2	.2194205	2.068605	.0049401	-.000170	306.8089	.0000185	.6660928
#3	.2196204	2.098137	.0055973	-.000545	315.4187	.0033696	.6655768

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.239281	.0122615	-.000283	-.010872	-.003187	1.628141	.0181324
Stddev	.043143	.0003955	.000308	.000246	.000454	.021496	.0017764
%RSD	1.926637	3.225355	108.7202	2.266685	14.25727	1.320289	9.796678

#1	2.189669	.0120643	.000067	-.011144	-.003449	1.607377	.0161195
#2	2.260174	.0120034	-.000509	-.010665	-.002662	1.626745	.0187971
#3	2.267999	.0127168	-.000407	-.010807	-.003450	1.650301	.0194806

Sample Name: Q3082-08 Acquired: 9/15/2025 15:41:05 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.064350	-.011025	.2551058
Stddev	.006510	.001835	.0011442
%RSD	.6116130	16.64532	.4485123
#1	1.070377	-.012791	.2563117
#2	1.057446	-.009128	.2549701
#3	1.065226	-.011156	.2540355

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6197.160	107857.1	11654.81	4733.500	7155.337
Stddev	15.406	905.9	149.84	29.572	18.243
%RSD	.2485999	.8398864	1.285660	.6247375	.2549500
#1	6196.988	108683.4	11493.84	4762.698	7166.562
#2	6212.652	107999.3	11680.36	4734.236	7165.161
#3	6181.841	106888.5	11790.24	4703.568	7134.288

Sample Name: Q3082-10 Acquired: 9/15/2025 15:45:27 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000578	-.005122	.0175587	.0019673	.0000719	.0805332	.1546230
Stddev	.000542	.001503	.0006617	.0012976	.0021752	.0073068	.0012163
%RSD	93.82359	29.33683	3.768322	65.95671	3026.892	9.073035	.7866568

#1	-.000888	-.003650	.0173875	.0020489	.0002999	.0724001	.1548977
#2	.000048	-.006654	.0169994	.0032222	-.002208	.0865438	.1556785
#3	-.000894	-.005062	.0182891	.0006309	.002124	.0826555	.1532928

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000979	-.000173	42.33719	-.001321	.0019842	.0042779	11.21354
Stddev	.0000177	.000074	.02445	.000168	.0000527	.0003521	.01009
%RSD	18.12493	42.69287	.0577546	12.71161	2.655350	8.229481	.0899549

#1	.0001123	-.000218	42.31835	-.001136	.0020450	.0040507	11.21381
#2	.0001032	-.000213	42.32839	-.001464	.0019559	.0046834	11.22348
#3	.0000781	-.000088	42.36482	-.001364	.0019516	.0040996	11.20331

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5971380	2.660006	.0023762	.0005314	231.5806	.0008952	.0623453
Stddev	.0022969	.031142	.0002006	.0001007	2.8551	.0016303	.0001030
%RSD	.3846460	1.170767	8.443650	18.95542	1.232855	182.1131	.1652754

#1	.5960254	2.685689	.0025236	.0005307	234.4968	.0020480	.0624599
#2	.5997793	2.668962	.0021477	.0004310	231.4543	-.000970	.0623159
#3	.5956093	2.625367	.0024573	.0006324	228.7909	.001608	.0622602

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.433008	.0239012	-.000073	-.011800	-.001926	1.113480	.0901915
Stddev	.028123	.0003232	.000261	.000429	.000232	.019958	.0008808
%RSD	1.155909	1.352418	356.3136	3.635084	12.03788	1.792436	.9766310

#1	2.434499	.0242425	-.000234	-.011312	-.001892	1.133868	.0912072
#2	2.460355	.0235997	.000228	-.011971	-.002173	1.112590	.0896364
#3	2.404168	.0238616	-.000213	-.012118	-.001713	1.093981	.0897311

Sample Name: Q3082-10 Acquired: 9/15/2025 15:45:27 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6705109	-.012398	.1312376
Stddev	.0046778	.000621	.0010596
%RSD	.6976445	5.011525	.8073803
#1	.6662026	-.012847	.1303106
#2	.6754865	-.011689	.1323926
#3	.6698436	-.012659	.1310095

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6379.276	109798.6	11764.16	4882.060	7428.945
Stddev	7.195	137.1	34.99	20.858	27.102
%RSD	.1127869	.1248613	.2974405	.4272469	.3648150
#1	6380.778	109645.6	11802.59	4858.786	7408.521
#2	6371.449	109910.3	11755.78	4888.332	7418.623
#3	6385.602	109840.0	11734.13	4899.064	7459.691

Sample Name: Q3085-01 Acquired: 9/15/2025 15:49:50 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004270	-.003448	.0072407	-.001217	.0024268	.0652567	.1153187
Stddev	.001920	.001557	.0007815	.003112	.0010263	.0073973	.0004102
%RSD	44.96532	45.14968	10.79369	255.6272	42.29057	11.33576	.3557072

#1	-.006345	-.002190	.0077553	.000794	.0013714	.0601160	.1157132
#2	-.003909	-.005189	.0076253	.000356	.0034214	.0737347	.1153485
#3	-.002556	-.002965	.0063413	-.004802	.0024877	.0619194	.1148944

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000133	.0002523	203.2267	.0007188	-.000096	.0052459	.0061449
Stddev	.000072	.0000075	1.1353	.0002449	.000192	.0001896	.0044630
%RSD	54.21514	2.980695	.5586502	34.06649	199.5543	3.614961	72.62881

#1	-.000216	.0002561	204.3359	.0004861	.000125	.0054574	.0091186
#2	-.000099	.0002572	202.0669	.0006959	-.000221	.0051891	.0083030
#3	-.000084	.0002437	203.2774	.0009742	-.000193	.0050911	.0010131

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1522369	4.102012	.0028349	-.000198	358.7535	-.001467	.0487442
Stddev	.0009155	.009501	.0001612	.000776	1.4181	.000620	.0011318
%RSD	.6013642	.2316281	5.686484	391.6153	.3952938	42.25468	2.321975

#1	.1530969	4.105548	.0027885	-.000634	357.4006	-.002182	.0480573
#2	.1512745	4.091249	.0030143	.000698	360.2289	-.001090	.0481247
#3	.1523393	4.109238	.0027021	-.000658	358.6310	-.001128	.0500505

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.175574	.0372531	.0019953	-.010998	-.008426	5.609013	.0420114
Stddev	.117418	.0003122	.0001385	.000257	.000249	.089925	.0009580
%RSD	1.436207	.8379325	6.942432	2.335023	2.951490	1.603227	2.280254

#1	8.063999	.0370307	.0019760	-.011221	-.008139	5.541934	.0409917
#2	8.164652	.0371185	.0018675	-.011056	-.008569	5.573909	.0428926
#3	8.298072	.0376099	.0021425	-.010717	-.008570	5.711195	.0421499

Sample Name: Q3085-01 Acquired: 9/15/2025 15:49:50 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	8.281785	-.036132	.8633242
Stddev	.065879	.002582	.0036962
%RSD	.7954737	7.146266	.4281316
#1	8.260509	-.035576	.8662438
#2	8.229173	-.038947	.8591683
#3	8.355673	-.033874	.8645603

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5849.356	103331.7	11190.97	4527.604	6713.088
Stddev	8.672	591.4	123.92	17.127	14.554
%RSD	.1482539	.5723585	1.107302	.3782787	.2168036
#1	5856.091	103743.6	11055.14	4546.735	6709.550
#2	5852.405	103597.6	11219.92	4522.380	6729.086
#3	5839.571	102654.0	11297.84	4513.697	6700.630

Sample Name: Q3091-07 Acquired: 9/15/2025 15:54:13 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002600	-.005360	.0025841	.0032955	-.000234	.3790849	.1238779
Stddev	.001282	.001955	.0012566	.0027493	.001587	.0095829	.0004378
%RSD	49.31225	36.47621	48.62872	83.42576	679.0648	2.527909	.3534050

#1	-.004080	-.004244	.0033367	.0039277	-.002058	.3680838	.1238869
#2	-.001876	-.007617	.0032821	.0002851	.000820	.3856170	.1243111
#3	-.001843	-.004218	.0011334	.0056735	.000537	.3835540	.1234356

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000553	-.000135	2.874536	.0005733	.0023839	.0012083	.0194415
Stddev	.0000681	.000046	.009192	.0000880	.0000214	.0001708	.0034465
%RSD	122.9962	33.86946	.3197677	15.35372	.8968528	14.13611	17.72764

#1	.0000193	-.000087	2.868475	.0006730	.0023825	.0010206	.0174549
#2	.0001339	-.000178	2.870020	.0005403	.0024059	.0013547	.0174484
#3	.0000128	-.000141	2.885112	.0005065	.0023632	.0012495	.0234212

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0554747	.9519438	.0051758	.0000208	313.7657	.0003515	.0678374
Stddev	.0004017	.0155178	.0002881	.0004476	1.6945	.0012676	.0003236
%RSD	.7240939	1.630119	5.566203	2151.311	.5400574	360.6158	.4769679

#1	.0552700	.9466403	.0053190	.0001116	311.9149	-.000941	.0676864
#2	.0552166	.9397730	.0048441	.0004160	314.1415	.001592	.0676170
#3	.0559375	.9694181	.0053641	-.000465	315.2408	.000404	.0682089

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6031204	.0169316	-.000335	-.009366	-.000765	.6552857	.0048123
Stddev	.0217737	.0002954	.000187	.000561	.000466	.0015732	.0017798
%RSD	3.610176	1.744915	55.86438	5.987219	60.97195	.2400803	36.98569

#1	.5951430	.0172253	-.000421	-.009278	-.000572	.6551860	.0068375
#2	.6277577	.0169351	-.000464	-.008854	-.000426	.6537647	.0034968
#3	.5864605	.0166345	-.000120	-.009965	-.001297	.6569064	.0041025

Sample Name: Q3091-07 Acquired: 9/15/2025 15:54:13 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.8371392	-.005114	.0122368
Stddev	.0114329	.000912	.0001666
%RSD	1.365713	17.82959	1.361109
#1	.8503207	-.005463	.0121911
#2	.8299185	-.004079	.0124215
#3	.8311784	-.005799	.0120979

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6436.747	107927.7	11600.30	4807.448	7438.414
Stddev	127.658	785.7	93.77	27.179	141.835
%RSD	1.983265	.7279675	.8083799	.5653571	1.906787
#1	6290.185	108580.0	11706.10	4838.680	7277.429
#2	6496.386	108147.6	11527.45	4794.500	7492.830
#3	6523.670	107055.5	11567.34	4789.164	7544.982

Sample Name: Q3091-14 Acquired: 9/15/2025 15:58:38 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002733	-.004604	.0005749	.0043982	.0000397	.2173859	.1507250
Stddev	.001203	.000901	.0010767	.0035667	.0004347	.0048787	.0019880
%RSD	44.00543	19.56538	187.2589	81.09524	1095.959	2.244248	1.318992

#1	-.001654	-.003844	.0017710	.0004331	-.000153	.2214933	.1488894
#2	-.004029	-.005599	.0002705	.0054161	.000537	.2186712	.1528367
#3	-.002516	-.004370	-.000317	.0073452	-.000266	.2119933	.1504490

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000048	-.000122	2.085410	.0003039	.0023269	.0009221	.0104376
Stddev	.000022	.000054	.030400	.0004560	.0001641	.0002623	.0034112
%RSD	45.59235	44.24022	1.457762	150.0396	7.051066	28.44565	32.68186

#1	-.000024	-.000089	2.050577	.0000879	.0021374	.0010247	.0077019
#2	-.000067	-.000093	2.106590	-.000004	.0024217	.0011176	.0142597
#3	-.000053	-.000184	2.099063	.000828	.0024215	.0006240	.0093513

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0643691	.6485984	.0020815	-.000284	329.8912	.0002776	.0569622
Stddev	.0006729	.0147773	.0000110	.000232	6.4870	.0017086	.0009622
%RSD	1.045344	2.278347	.5267103	81.53957	1.966403	615.5437	1.689173

#1	.0636622	.6573198	.0020688	-.000534	323.0272	-.001194	.0560448
#2	.0650018	.6315365	.0020876	-.000076	330.7262	-.000125	.0568782
#3	.0644432	.6569390	.0020880	-.000243	335.9203	.002151	.0579636

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5745215	.0192795	-.000225	-.006800	-.002041	.8031156	.0061765
Stddev	.0309154	.0003694	.000228	.000523	.000727	.0167636	.0006607
%RSD	5.381073	1.916052	101.1202	7.687882	35.61288	2.087319	10.69781

#1	.5421675	.0188630	-.000455	-.007401	-.002771	.7840309	.0056908
#2	.5776339	.0194077	-.000220	-.006549	-.002033	.8098567	.0059098
#3	.6037629	.0195677	-.000000	-.006451	-.001318	.8154593	.0069289

Sample Name: Q3091-14 Acquired: 9/15/2025 15:58:38 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2998746	-.007147	.0113734
Stddev	.0029563	.001091	.0001133
%RSD	.9858364	15.27181	.9959894
#1	.2966325	-.007626	.0112440
#2	.3005702	-.005898	.0114213
#3	.3024210	-.007916	.0114548

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6193.057	107630.1	11423.93	4757.566	7189.615
Stddev	47.956	886.9	89.26	44.179	54.063
%RSD	.7743462	.8239819	.7813410	.9286014	.7519570
#1	6242.520	108610.6	11501.67	4808.414	7243.013
#2	6189.888	107395.9	11326.45	4728.585	7190.920
#3	6146.765	106883.9	11443.65	4735.700	7134.911

Sample Name: CCV04 Acquired: 9/15/2025 16:12:47 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.004843	5.361392	4.839910	5.093514	5.044962	9.446017	9.469768
Stddev	.015473	.021005	.009594	.015983	.015774	.099223	.175610
%RSD	.3091519	.3917804	.1982363	.3137885	.3126675	1.050425	1.854426

#1	5.022444	5.348996	4.846775	5.111568	5.057027	9.364690	9.303802
#2	4.993388	5.385644	4.828947	5.081174	5.027112	9.416790	9.451853
#3	4.998696	5.349535	4.844007	5.087799	5.050746	9.556571	9.653649

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2391801	2.427788	23.68710	.9760020	2.428443	1.234168	4.839218
Stddev	.0016661	.002960	.14276	.0077359	.004191	.002180	.055891
%RSD	.6965778	.1219222	.6026795	.7926123	.1725965	.1766296	1.154968

#1	.2381909	2.427565	23.52750	.9803949	2.431569	1.234716	4.837204
#2	.2382457	2.424946	23.73121	.9805413	2.423680	1.231767	4.896090
#3	.2411037	2.430853	23.80261	.9670698	2.430079	1.236022	4.784361

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.362494	23.61627	2.422767	1.228300	23.21815	2.394941	2.442191
Stddev	.014488	.22434	.003893	.010576	.29656	.016504	.025583
%RSD	.6132436	.9499517	.1606653	.8610499	1.277293	.6891335	1.047562

#1	2.346663	23.37929	2.423835	1.235188	23.34864	2.379023	2.465463
#2	2.365725	23.64417	2.418452	1.233591	23.42710	2.393825	2.446313
#3	2.375093	23.82536	2.426014	1.216123	22.87872	2.411975	2.414797

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.58520	4.791266	5.059485	4.925758	4.759652	4.894100	4.973755
Stddev	.19428	.033736	.010774	.009085	.026753	.051545	.006388
%RSD	.7902165	.7041110	.2129473	.1844482	.5620717	1.053214	.1284373

#1	24.64724	4.779448	5.069939	4.936241	4.734988	4.862949	4.976621
#2	24.74089	4.765029	5.048417	4.920152	4.755876	4.953598	4.966436
#3	24.36749	4.829321	5.060099	4.920882	4.788092	4.865754	4.978209

Sample Name: CCV04 Acquired: 9/15/2025 16:12:47 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.948369	4.624314	4.752830
Stddev	.019631	.019878	.084242
%RSD	.3967139	.4298677	1.772456
#1	4.970470	4.604126	4.781787
#2	4.941682	4.624948	4.657929
#3	4.932955	4.643868	4.818774

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6232.269	107948.0	11020.80	4736.361	7312.010
Stddev	17.324	816.0	90.83	23.815	22.529
%RSD	.2779762	.7559007	.8241555	.5028061	.3081137
#1	6245.850	107615.2	11093.35	4723.858	7331.961
#2	6238.199	107351.1	11050.12	4721.403	7316.494
#3	6212.758	108877.8	10918.93	4763.824	7287.577

Sample Name: CCB04 Acquired: 9/15/2025 16:16:58 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001014	-.002653	-.000747	-.001635	-.001125	-.003125	-.001868
Stddev	.000355	.002360	.000568	.000453	.001613	.006460	.001539
%RSD	35.02758	88.95574	76.04858	27.71236	143.3565	206.7139	82.40684

#1	-.000631	-.004999	-.000251	-.002064	-.000209	.004334	-.000093
#2	-.001333	-.002680	-.000623	-.001681	-.002988	-.006856	-.002676
#3	-.001078	-.000279	-.001366	-.001161	-.000179	-.006853	-.002834

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000127	-.000192	-.014287	-.000012	-.000176	.0001190	.0022242
Stddev	.0000488	.000009	.009190	.000280	.000069	.0003114	.0021830
%RSD	382.7336	4.821213	64.32136	2245.679	38.97489	261.6848	98.14789

#1	.0000346	-.000189	-.006268	.000272	-.000128	.0000724	.0010219
#2	-.000043	-.000202	-.012279	-.000289	-.000254	.0004511	.0047440
#3	.000047	-.000185	-.024314	-.000021	-.000146	-.000166	.0009066

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000185	.0055888	-.000224	-.000020	.3265322	-.001141	.0000065
Stddev	.000245	.0126219	.000152	.000204	.0279163	.000648	.0001436
%RSD	131.9306	225.8420	67.82515	1039.268	8.549316	56.78482	2220.726

#1	-.000033	.0060234	-.000154	.000216	.2943563	-.001449	.0001659
#2	-.000467	.0179878	-.000398	-.000140	.3409324	-.001576	-.000113
#3	-.000055	-.007245	-.000120	-.000135	.3443080	-.000396	-.000034

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6961017	.0003797	-.000152	-.001114	-.001919	.0021328	.0001297
Stddev	.0339867	.0005539	.000115	.000073	.001371	.0092446	.0011799
%RSD	4.882432	145.8713	75.75581	6.531935	71.45748	433.4417	909.4784

#1	.6652446	.0008592	-.000235	-.001152	-.002079	-.001115	-.000541
#2	.6905308	-.000227	-.000020	-.001160	-.000475	.012563	.001492
#3	.7325296	.000507	-.000201	-.001030	-.003203	-.005049	-.000562

Sample Name: CCB04 Acquired: 9/15/2025 16:16:58 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0010755	-.001016	-.000105
Stddev	.0027976	.000512	.000478
%RSD	260.1151	50.41444	453.8824
#1	.0003706	-.000707	.000444
#2	-.001302	-.001608	-.000337
#3	.004158	-.000734	-.000423

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6643.823	116249.8	11349.24	5065.556	8490.688
Stddev	3.508	131.4	41.76	17.955	11.688
%RSD	.0528009	.1130366	.3679575	.3544484	.1376512
#1	6647.413	116226.2	11302.11	5061.223	8500.550
#2	6643.652	116131.8	11381.65	5050.164	8493.734
#3	6640.403	116391.4	11363.95	5085.281	8477.778

Sample Name: Q3092-02 Acquired: 9/15/2025 16:21:17 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003617	-.006462	.0038944	-.000398	-.005127	.0341200	.2245933
Stddev	.001166	.000548	.0014119	.001254	.003348	.0024635	.0020694
%RSD	32.24868	8.476998	36.25387	314.9976	65.28797	7.220095	.9213769

#1	-.003608	-.007080	.0024988	-.001842	-.008903	.0365038	.2222296
#2	-.004787	-.006039	.0053220	.000231	-.003956	.0342723	.2260782
#3	-.002455	-.006266	.0038626	.000417	-.002523	.0315839	.2254721

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006133	.0000878	28.31586	-.004629	.0245820	.0062326	57.94202
Stddev	.0000608	.0000232	.09706	.000049	.0001520	.0000416	.24953
%RSD	9.915197	26.39278	.3427862	1.062779	.6181419	.6671698	.4306522

#1	.0006674	.0001145	28.21285	-.004582	.0247321	.0062789	58.12173
#2	.0006251	.0000739	28.40562	-.004680	.0245857	.0062203	58.04721
#3	.0005475	.0000749	28.32910	-.004624	.0244282	.0061985	57.65712

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.749569	1.728616	.0541419	.0022055	328.5273	-.000383	.6862134
Stddev	.026159	.015462	.0002353	.0005150	.9599	.001172	.0016226
%RSD	.6976411	.8944937	.4346647	23.35155	.2921916	306.0625	.2364571

#1	3.719364	1.710856	.0539593	.0016120	328.2211	.000948	.6861815
#2	3.764697	1.735908	.0540590	.0025345	327.7579	-.000838	.6846070
#3	3.764646	1.739085	.0544075	.0024699	329.6030	-.001259	.6878517

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6288813	.0447090	-.000873	-.011181	-.001929	3.674884	.0138453
Stddev	.0052295	.0032445	.000201	.000390	.000714	.041327	.0010314
%RSD	.8315621	7.256920	23.00182	3.489800	37.00506	1.124573	7.449464

#1	.6346840	.0476831	-.001062	-.011452	-.001171	3.722199	.0143224
#2	.6274272	.0451949	-.000895	-.011358	-.002588	3.645852	.0145518
#3	.6245326	.0412489	-.000662	-.010734	-.002028	3.656601	.0126617

Sample Name: Q3092-02 Acquired: 9/15/2025 16:21:17 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6901381	-.006171	.0479995
Stddev	.0009717	.001779	.0007506
%RSD	.1408027	28.82576	1.563769
#1	.6900176	-.004806	.0471951
#2	.6911644	-.005525	.0481224
#3	.6892322	-.008183	.0486811

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6160.629	104771.7	11029.08	4661.165	7086.754
Stddev	7.833	318.4	129.54	39.374	10.894
%RSD	.1271447	.3039349	1.174573	.8447238	.1537198
#1	6169.299	104918.5	11156.87	4689.353	7099.255
#2	6158.525	104990.3	11032.51	4677.964	7081.715
#3	6154.063	104406.3	10897.85	4616.178	7079.292

Sample Name: Q3092-04 Acquired: 9/15/2025 16:25:37 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003468	-.010804	.0038535	-.000012	-.005151	.0361126	.2396705
Stddev	.0017335	.003075	.0008228	.001931	.001941	.0086549	.0006155
%RSD	499.9000	28.46346	21.35342	16324.45	37.67204	23.96648	.2568218

#1	.0001758	-.012712	.0035230	.001142	-.005371	.0382440	.2402076
#2	.0021594	-.007256	.0047902	-.002241	-.006972	.0265911	.2398050
#3	-.001295	-.012443	.0032472	.001063	-.003110	.0435026	.2389988

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006605	-.000004	56.25307	-.006069	.0276990	.0047353	71.17966
Stddev	.0000230	.000035	.12307	.000411	.0000134	.0003357	.29182
%RSD	3.484661	896.0700	.2187848	6.779263	.0485266	7.088345	.4099768

#1	.0006806	-.000042	56.38708	-.006399	.0276834	.0043796	71.49690
#2	.0006656	.000025	56.22704	-.005608	.0277065	.0047798	70.92267
#3	.0006354	.000006	56.14509	-.006199	.0277069	.0050465	71.11939

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.617753	2.232641	.0570895	.0026149	349.0341	-.000350	.4857418
Stddev	.019249	.010679	.0002257	.0003370	5.7387	.001716	.0017016
%RSD	.4168435	.4783198	.3954116	12.88703	1.644156	490.3226	.3503147

#1	4.639622	2.239222	.0572948	.0024975	353.8907	.000105	.4873010
#2	4.603379	2.238382	.0568478	.0023523	350.5100	-.002248	.4859977
#3	4.610257	2.220319	.0571260	.0029949	342.7016	.001093	.4839267

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7814938	.0499924	-.000968	.0152359	-.002945	4.563104	.0173656
Stddev	.0265619	.0007017	.000044	.0007472	.001601	.010513	.0008924
%RSD	3.398861	1.403653	4.544449	4.904040	54.35531	.2303828	5.138799

#1	.7675884	.0505024	-.000971	.0146962	-.003896	4.555606	.0172961
#2	.7647713	.0491921	-.000922	.0160887	-.001097	4.558586	.0165099
#3	.8121217	.0502826	-.001010	.0149228	-.003842	4.575120	.0182906

Sample Name: Q3092-04 Acquired: 9/15/2025 16:25:37 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.172565	-.008355	.0595186
Stddev	.004052	.002377	.0003530
%RSD	.3455974	28.44872	.5930460
#1	1.170853	-.011056	.0599171
#2	1.169650	-.007431	.0592453
#3	1.177193	-.006579	.0593935

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6147.295	103907.0	11042.81	4621.133	7058.062
Stddev	6.282	436.0	73.63	23.597	5.678
%RSD	.1021936	.4196003	.6667745	.5106245	.0804433
#1	6151.618	103662.9	11010.05	4596.212	7056.880
#2	6140.089	103647.7	10991.25	4624.053	7053.069
#3	6150.179	104410.3	11127.14	4643.133	7064.238

Sample Name: Q3092-04DUP Acquired: 9/15/2025 16:29:55 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002949	-.011671	.0032355	-.000733	-.004038	.0378309	.2279580
Stddev	.001427	.000417	.0003382	.002660	.001308	.0123009	.0014336
%RSD	48.40213	3.575401	10.45281	362.8098	32.40341	32.51555	.6288730

#1	-.004389	-.011532	.0028906	-.003170	-.004548	.0240836	.2263029
#2	-.001535	-.012139	.0032494	-.001136	-.005015	.0416109	.2287622
#3	-.002923	-.011340	.0035665	.002105	-.002551	.0477983	.2288090

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006606	.0000726	53.03549	-.005896	.0267182	.0059251	66.66317
Stddev	.0000492	.0000337	.29046	.000088	.0002920	.0007398	.33561
%RSD	7.445397	46.46214	.5476688	1.499265	1.092979	12.48549	.5034415

#1	.0006766	.0000342	52.80040	-.005946	.0265797	.0053130	66.40990
#2	.0006998	.0000976	53.36020	-.005794	.0265212	.0067472	66.53578
#3	.0006054	.0000859	52.94589	-.005948	.0270537	.0057151	67.04382

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.339632	2.128678	.0546278	.0027854	327.1377	-.004032	.4505679
Stddev	.024270	.031252	.0004434	.0002780	3.2018	.001767	.0005887
%RSD	.5592748	1.468149	.8116511	9.979168	.9787273	43.82734	.1306652

#1	4.314750	2.155373	.0542479	.0025324	327.1132	-.005210	.4505018
#2	4.363241	2.136361	.0545205	.0027408	323.9482	-.002000	.4500151
#3	4.340904	2.094301	.0551150	.0030830	330.3516	-.004886	.4511869

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6248674	.0471237	-.000638	-.011321	-.002554	4.235237	.0141867
Stddev	.0094927	.0020199	.000225	.000098	.001020	.013943	.0013398
%RSD	1.519159	4.286406	35.26877	.8678355	39.92655	.3292155	9.443844

#1	.6274592	.0454209	-.000386	-.011223	-.003536	4.219806	.0127247
#2	.6143480	.0465948	-.000819	-.011420	-.001500	4.238976	.0153557
#3	.6327951	.0493555	-.000708	-.011319	-.002627	4.246929	.0144796

Sample Name: Q3092-04DUP Acquired: 9/15/2025 16:29:55 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.9270650	-.007438	.0562243
Stddev	.0025126	.000561	.0003798
%RSD	.2710260	7.540548	.6755253
#1	.9252288	-.006869	.0558320
#2	.9260379	-.007991	.0565903
#3	.9299285	-.007452	.0562507

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5968.532	103922.2	10949.41	4625.788	6871.320
Stddev	35.516	219.1	57.01	6.752	38.254
%RSD	.5950509	.2107914	.5206313	.1459536	.5567194
#1	6004.195	104003.8	10981.00	4626.593	6906.891
#2	5933.166	104088.6	10883.61	4632.101	6830.854
#3	5968.233	103674.0	10983.64	4618.670	6876.215

Sample Name: Q3092-04LX5 Acquired: 9/15/2025 16:34:14 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001643	-.004815	-.000649	-.001679	-.000201	.0109352	.0511112
Stddev	.002575	.000862	.000528	.003494	.000591	.0085450	.0002589
%RSD	156.6772	17.91069	81.38749	208.1174	294.2499	78.14249	.5065814

#1	.000068	-.004499	-.000818	-.005711	-.000379	.0136472	.0513588
#2	-.000393	-.004156	-.001073	.000219	-.000682	.0177952	.0508422
#3	-.004604	-.005791	-.000057	.000456	.000459	.0013633	.0511326

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001253	-.000190	12.62800	-.001652	.0057757	.0013266	15.27014
Stddev	.0000273	.000037	.00463	.000036	.0001553	.0004513	.02918
%RSD	21.75768	19.31046	.0366853	2.178599	2.689178	34.01604	.1910815

#1	.0001567	-.000177	12.63333	-.001686	.0055999	.0018474	15.26346
#2	.0001119	-.000231	12.62495	-.001615	.0058330	.0010501	15.30208
#3	.0001074	-.000161	12.62572	-.001654	.0058942	.0010824	15.24487

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.031634	.4948566	.0119025	.0007420	73.04107	.0000349	.1032901
Stddev	.002899	.0304695	.0003510	.0002653	.27970	.0021709	.0009022
%RSD	.2810141	6.157241	2.949193	35.75969	.3829400	6226.815	.8734994

#1	1.030322	.5077819	.0114974	.0007652	73.14863	.0020953	.1035805
#2	1.034957	.4600550	.0120949	.0009950	73.25102	-.002232	.1040113
#3	1.029623	.5167328	.0121153	.0004659	72.72355	.000241	.1022784

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8097854	.0055450	-.000697	-.003663	-.000916	.9449190	.0023805
Stddev	.0631696	.0006895	.000069	.000313	.000475	.0052900	.0006341
%RSD	7.800785	12.43451	9.918968	8.537429	51.86198	.5598373	26.63710

#1	.7477515	.0047691	-.000619	-.003314	-.001353	.9509847	.0021330
#2	.8075722	.0057785	-.000722	-.003757	-.000985	.9425099	.0031011
#3	.8740326	.0060875	-.000750	-.003917	-.000411	.9412622	.0019075

Sample Name: Q3092-04LX5 Acquired: 9/15/2025 16:34:14 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2059474	.0022178	.0136123
Stddev	.0036609	.0012939	.0002457
%RSD	1.777584	58.34124	1.805132

#1	.2061699	.0008691	.0138835
#2	.2094920	.0034488	.0134044
#3	.2021804	.0023353	.0135492

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6391.769	110592.3	11198.82	4874.459	7596.313
Stddev	6.258	258.4	50.01	10.784	8.931
%RSD	.0979025	.2336298	.4465420	.2212331	.1175704

#1	6385.220	110360.1	11159.04	4883.711	7593.632
#2	6397.687	110870.6	11254.96	4862.615	7606.278
#3	6392.400	110546.3	11182.47	4877.051	7589.030

Sample Name: Q3092-04MS Acquired: 9/15/2025 16:38:28 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7278198	1.824428	.8300835	1.835911	.7140008	1.684233	.3670783
Stddev	.0001236	.031297	.0027162	.003441	.0030591	.013502	.0012915
%RSD	.0169847	1.715428	.3272220	.1874276	.4284443	.8016626	.3518181

#1	.7279464	1.838125	.8270068	1.833765	.7148217	1.683291	.3667968
#2	.7278137	1.788618	.8321495	1.834089	.7165657	1.671226	.3659508
#3	.7276994	1.846542	.8310943	1.839880	.7106151	1.698180	.3684873

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1625736	.1748675	48.06684	.3474884	.1984039	.2606488	63.08297
Stddev	.0023549	.0004427	.22956	.0024294	.0004198	.0007968	.94597
%RSD	1.448503	.2531382	.4775839	.6991353	.2115996	.3057069	1.499560

#1	.1615447	.1744468	47.93894	.3490657	.1979389	.2597638	63.74709
#2	.1609083	.1748266	47.92973	.3487087	.1987550	.2608732	63.50194
#3	.1652679	.1753292	48.33186	.3446907	.1985179	.2613093	61.99987

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.033903	3.490331	.4845726	.0676584	300.1257	.2552006	.5816773
Stddev	.011964	.056742	.0011718	.0007379	3.1888	.0014725	.0010955
%RSD	.2965883	1.625684	.2418164	1.090619	1.062493	.5770108	.1883416

#1	4.036635	3.479082	.4833084	.0677354	300.7487	.2535051	.5819918
#2	4.020809	3.440057	.4847871	.0683548	302.9571	.2561597	.5804589
#3	4.044265	3.551855	.4856224	.0668850	296.6714	.2559370	.5825811

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.714543	.2677785	.3830675	.6215670	.1670200	4.640110	5.282498
Stddev	.110475	.0021357	.0002178	.0035326	.0016069	.069232	.022966
%RSD	1.137214	.7975624	.0568629	.5683428	.9620848	1.492026	.4347655

#1	9.809345	.2691772	.3830299	.6177059	.1653629	4.654492	5.265705
#2	9.741064	.2688380	.3833017	.6223582	.1671259	4.701020	5.273120
#3	9.593222	.2653202	.3828709	.6246370	.1685714	4.564817	5.308670

Sample Name: Q3092-04MS Acquired: 9/15/2025 16:38:28 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.8500584	.1628324	.2106117
Stddev	.0016595	.0008709	.0011123
%RSD	.1952253	.5348370	.5281210
#1	.8481609	.1637471	.2107475
#2	.8512386	.1620131	.2094377
#3	.8507757	.1627370	.2116498

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6291.290	108140.8	11633.87	4799.119	7242.055
Stddev	23.430	958.5	98.08	21.332	33.916
%RSD	.3724212	.8863601	.8430333	.4445080	.4683171
#1	6318.260	107609.5	11673.62	4800.381	7280.844
#2	6279.664	107565.6	11705.83	4777.183	7227.328
#3	6275.946	109247.3	11522.16	4819.792	7217.992

Sample Name: Q3092-04MSD Acquired: 9/15/2025 16:42:34 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7917996	1.941413	.9022907	2.001040	.7781177	1.894540	.4362816
Stddev	.0024063	.033790	.0008604	.008489	.0011224	.016700	.0032795
%RSD	.3039054	1.740485	.0953547	.4242370	.1442466	.8814845	.7516823

#1	.7897258	1.929792	.9029919	1.991512	.7789860	1.888084	.4356932
#2	.7944380	1.914967	.9013306	2.003810	.7785167	1.882032	.4333362
#3	.7912350	1.979480	.9025497	2.007798	.7768503	1.913505	.4398154

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1825086	.1903115	60.84783	.3826588	.2199141	.2829042	78.66812
Stddev	.0003680	.0001500	.18721	.0004641	.0004244	.0010151	.73135
%RSD	.2016389	.0787951	.3076706	.1212769	.1929934	.3588181	.9296636

#1	.1827611	.1904691	60.75406	.3827336	.2197877	.2838265	78.12228
#2	.1826782	.1901706	60.72604	.3830808	.2195673	.2830694	78.38301
#3	.1820863	.1902947	61.06340	.3821618	.2203874	.2818166	79.49909

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.083397	4.205181	.5335187	.0755601	367.6558	.2796770	.7072331
Stddev	.022368	.040364	.0010150	.0002534	1.1465	.0026960	.0026602
%RSD	.4400179	.9598655	.1902450	.3353935	.3118454	.9639552	.3761402

#1	5.069112	4.163291	.5328065	.0752852	368.5690	.2768348	.7071598
#2	5.071904	4.208427	.5346809	.0756107	366.3691	.2821979	.7046104
#3	5.109174	4.243823	.5330687	.0757845	368.0293	.2799983	.7099292

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.66973	.2995903	.4175335	.6783154	.1837787	5.732597	5.801924
Stddev	.08106	.0019646	.0003584	.0010703	.0019529	.041619	.009417
%RSD	.7597204	.6557538	.0858276	.1577906	1.062659	.7260096	.1622998

#1	10.60218	.2987319	.4179103	.6783061	.1843803	5.697697	5.812700
#2	10.64740	.2982010	.4171970	.6793904	.1815957	5.721435	5.797793
#3	10.75962	.3018380	.4174932	.6772498	.1853601	5.778659	5.795279

Sample Name: Q3092-04MSD Acquired: 9/15/2025 16:42:34 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.049705	.1815455	.2407120
Stddev	.004899	.0017706	.0012366
%RSD	.4666923	.9752696	.5137295

#1	1.046735	.1803941	.2410545
#2	1.047020	.1806580	.2393403
#3	1.055359	.1835843	.2417413

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6059.450	102620.1	10895.55	4556.460	6938.397
Stddev	11.697	340.9	2.64	32.302	10.731
%RSD	.1930345	.3321835	.0241956	.7089332	.1546631

#1	6046.800	102934.6	10898.02	4565.587	6926.796
#2	6061.677	102667.8	10895.85	4583.217	6940.426
#3	6069.873	102257.9	10892.78	4520.576	6947.968

Sample Name: Q3092-04A Acquired: 9/15/2025 16:46:41 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7644688	1.863877	.8649464	1.955275	.7583574	1.765037	.3961267
Stddev	.0026248	.008282	.0029787	.003771	.0036797	.019912	.0035135
%RSD	.3433490	.4443580	.3443769	.1928504	.4852129	1.128143	.8869707

#1	.7642377	1.863564	.8682577	1.951071	.7541599	1.748965	.3961386
#2	.7672016	1.855756	.8624851	1.956394	.7598853	1.758834	.3926072
#3	.7619672	1.872312	.8640965	1.958359	.7610269	1.787312	.3996343

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1712895	.1824424	53.23792	.3609362	.2086785	.2727151	70.87001
Stddev	.0020317	.0005755	.55820	.0019872	.0005024	.0004387	.42161
%RSD	1.186125	.3154468	1.048491	.5505648	.2407406	.1608803	.5949086

#1	.1692507	.1830071	52.99352	.3601704	.2092576	.2732170	71.30269
#2	.1713035	.1824636	52.84362	.3631924	.2083594	.2724044	70.84694
#3	.1733141	.1818567	53.87664	.3594458	.2084185	.2725240	70.46041

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.467665	3.750211	.5085028	.0731266	334.0514	.2661987	.6458356
Stddev	.037172	.038181	.0007804	.0004788	2.7643	.0015639	.0027004
%RSD	.8320185	1.018101	.1534724	.6547297	.8275217	.5875094	.4181188

#1	4.462188	3.722796	.5093754	.0733141	332.6387	.2644477	.6458177
#2	4.433536	3.734016	.5078718	.0734832	337.2366	.2666915	.6485449
#3	4.507272	3.793820	.5082612	.0725824	332.2789	.2674569	.6431443

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.34386	.2848048	.4010375	.6461879	.1733110	5.211545	5.510459
Stddev	.04477	.0010997	.0006641	.0012170	.0009202	.043110	.009826
%RSD	.4328031	.3861096	.1655954	.1883385	.5309235	.8271940	.1783125

#1	10.38144	.2858711	.4013148	.6475760	.1732022	5.261120	5.521591
#2	10.35580	.2836746	.4015180	.6453045	.1724501	5.182860	5.502997
#3	10.29433	.2848687	.4002797	.6456830	.1742807	5.190656	5.506788

Sample Name: Q3092-04A Acquired: 9/15/2025 16:46:41 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.9103128	.1740800	.2240186
Stddev	.0010869	.0019486	.0022925
%RSD	.1193963	1.119384	1.023332
#1	.9106437	.1738363	.2230754
#2	.9111957	.1722647	.2223481
#3	.9090989	.1761390	.2266322

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6205.019	106248.8	11574.79	4686.424	7154.514
Stddev	16.861	453.4	123.86	30.086	28.477
%RSD	.2717250	.4267362	1.070092	.6419896	.3980291
#1	6188.174	106361.4	11689.26	4689.900	7122.956
#2	6204.986	105749.7	11591.81	4654.751	7162.292
#3	6221.895	106635.2	11443.30	4714.622	7178.294

Sample Name: PB169677TB Acquired: 9/15/2025 16:50:48 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002875	-.005013	-.001068	.0032289	.0016502	.0035949	-.002871
Stddev	.002359	.003611	.000518	.0006316	.0018145	.0046437	.001559
%RSD	82.05614	72.04007	48.56679	19.55999	109.9535	129.1753	54.28711

#1	-.002647	-.008805	-.000676	.0033719	.0037361	.0086799	-.004435
#2	-.005340	-.001616	-.001655	.0025381	.0007778	-.000421	-.002861
#3	-.000638	-.004617	-.000872	.0037767	.0004367	.002526	-.001318

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000138	-.000157	.0021457	.0002211	-.000362	.0003141	.0034507
Stddev	.000030	.000082	.0056489	.0001922	.000121	.0002301	.0012862
%RSD	22.11226	52.13265	263.2663	86.93721	33.38686	73.24738	37.27384

#1	-.000170	-.000245	-.004155	.0004198	-.000476	.0005747	.0038310
#2	-.000110	-.000082	.006757	.0000361	-.000375	.0001390	.0045039
#3	-.000133	-.000145	.003835	.0002074	-.000235	.0002287	.0020172

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0041675	-.003942	.0002425	-.000036	366.9299	-.000875	.0012586
Stddev	.0003101	.000584	.0001622	.000217	4.8333	.000472	.0001765
%RSD	7.441906	14.80634	66.87736	600.4160	1.317216	53.91967	14.02338

#1	.0044758	-.004331	.0001580	-.000194	364.5655	-.000422	.0010652
#2	.0041710	-.003271	.0001401	-.000126	372.4902	-.000838	.0012995
#3	.0038556	-.004225	.0004296	.000212	363.7341	-.001364	.0014110

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1292232	-.002760	-.000210	-.008964	-.001283	.0106629	.0053239
Stddev	.0019684	.000705	.000031	.000308	.000806	.0046460	.0017864
%RSD	1.523230	25.53810	14.58157	3.434529	62.80011	43.57185	33.55467

#1	.1310687	-.002252	-.000240	-.009294	-.000777	.0159288	.0051541
#2	.1294493	-.003565	-.000179	-.008914	-.002212	.0071421	.0071892
#3	.1271515	-.002464	-.000212	-.008684	-.000859	.0089178	.0036285

Sample Name: PB169677TB Acquired: 9/15/2025 16:50:48 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0712805	-.008268	-.000250
Stddev	.0016754	.000393	.000034
%RSD	2.350386	4.754880	13.73711

#1	.0721143	-.007922	-.000223
#2	.0693519	-.008187	-.000289
#3	.0723754	-.008695	-.000238

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6125.860	104922.7	11191.65	4687.426	7072.582
Stddev	34.293	1108.1	107.74	54.640	51.736
%RSD	.5598105	1.056109	.9627074	1.165663	.7315030

#1	6164.985	106169.2	11210.37	4742.747	7131.963
#2	6111.582	104049.4	11288.80	4633.495	7048.549
#3	6101.013	104549.5	11075.77	4686.035	7037.233

Sample Name: CCV05 Acquired: 9/15/2025 16:55:16 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.893588	5.319839	4.762595	4.959017	4.885419	9.459299	9.455589
Stddev	.022829	.013200	.021472	.021510	.026103	.204831	.044402
%RSD	.4665129	.2481345	.4508451	.4337475	.5343043	2.165390	.4695798

#1	4.880943	5.318938	4.752927	4.952820	4.877532	9.465369	9.461079
#2	4.879879	5.307112	4.747657	4.941286	4.864169	9.661027	9.408697
#3	4.919942	5.333466	4.787201	4.982945	4.914556	9.251501	9.496990

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2395218	2.400440	23.74186	.9596817	2.388754	1.209429	4.742689
Stddev	.0028770	.010396	.43836	.0026145	.010103	.004463	.042566
%RSD	1.201126	.4331072	1.846350	.2724301	.4229562	.3689917	.8975153

#1	.2409308	2.397264	23.71004	.9574207	2.387215	1.208305	4.704186
#2	.2414226	2.392003	24.19526	.9625446	2.379508	1.205637	4.788399
#3	.2362119	2.412055	23.32028	.9590798	2.399538	1.214347	4.735482

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.364787	23.77039	2.385935	1.192112	22.96164	2.390096	2.390536
Stddev	.042396	.42011	.010718	.000050	.23597	.045513	.006056
%RSD	1.792810	1.767372	.4492207	.0041992	1.027657	1.904228	.2533214

#1	2.363378	23.83875	2.382309	1.192166	22.80033	2.383335	2.394278
#2	2.407870	24.15212	2.377501	1.192104	23.23246	2.438611	2.393782
#3	2.323113	23.32029	2.397996	1.192067	22.85212	2.348342	2.383550

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.33360	4.748479	4.950816	4.861272	4.745643	4.756786	4.911344
Stddev	.35051	.062076	.023698	.018116	.083377	.075889	.013427
%RSD	1.440452	1.307288	.4786762	.3726507	1.756916	1.595388	.2733864

#1	23.98578	4.790623	4.949040	4.862086	4.733448	4.682316	4.908833
#2	24.68675	4.777621	4.928056	4.842763	4.834445	4.834019	4.899350
#3	24.32826	4.677194	4.975352	4.878966	4.669035	4.754022	4.925850

Sample Name: CCV05 Acquired: 9/15/2025 16:55:16 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.871073	4.570955	4.723268
Stddev	.015692	.081987	.076367
%RSD	.3221561	1.793656	1.616818

#1	4.877559	4.555586	4.803474
#2	4.853177	4.659539	4.714899
#3	4.882482	4.497740	4.651430

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6332.458	109286.8	10891.63	4819.794	7396.194
Stddev	21.844	460.4	156.40	16.657	24.493
%RSD	.3449556	.4212431	1.435932	.3456059	.3311514

#1	6335.095	109551.6	10822.33	4830.448	7399.338
#2	6352.863	108755.3	10781.85	4800.598	7418.963
#3	6309.414	109553.6	11070.70	4828.335	7370.281

Sample Name: CCB05 Acquired: 9/15/2025 16:59:26 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001926	-.002342	-.000420	-.001604	-.002426	.0000853
Stddev	.001016	.000687	.000613	.003618	.001154	.0043143
%RSD	52.76128	29.35954	145.9200	225.5527	47.55847	5059.358

#1	-.000993	-.002711	-.000278	.002574	-.001877	-.004267
#2	-.001777	-.002765	.000109	-.003677	-.001649	.000162
#3	-.003008	-.001548	-.001092	-.003709	-.003751	.004361

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002791	.0000052	-.000125	-.009495	.0000970	-.000150
Stddev	.001138	.0000292	.000071	.007660	.0005653	.000162
%RSD	40.78055	566.8012	56.66855	80.68152	583.0503	107.7511

#1	-.003726	.0000169	-.000043	-.007558	-.000542	-.000015
#2	-.001524	-.000028	-.000165	-.002988	.000302	-.000106
#3	-.003123	.000027	-.000166	-.017937	.000531	-.000329

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000984	-.000199	-.000377	.0045532	-.000360	.0002123
Stddev	.0001603	.001633	.000169	.0054671	.000163	.0003619
%RSD	162.8941	820.9626	44.80016	120.0723	45.41271	170.4791

#1	.0002781	.001660	-.000452	.0025875	-.000171	.0003853
#2	.0000471	-.000854	-.000183	.0003407	-.000447	.0004552
#3	-.000030	-.001403	-.000494	.0107313	-.000461	-.000204

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5596471	.0002306	-.000312	F 1.078064	-.000903	-.000415
Stddev	.0415809	.0029584	.000175	.105055	.000243	.000145
%RSD	7.429844	1282.927	55.94317	9.744779	26.94156	34.99639

#1	.5135861	.0009434	-.000430	.967057	-.001071	-.000273
#2	.5709403	.0027674	-.000112	1.091205	-.000624	-.000407
#3	.5944148	-.003019	-.000394	1.175930	-.001015	-.000563

Sample Name: CCB05 Acquired: 9/15/2025 16:59:26 Type: Unk
Method: 6010-200.7 NEW(v169) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000424	-.001413	-.002650	.0001295	-.001417	.0028445
Stddev	.000344	.000569	.013677	.0013298	.000326	.0008117
%RSD	81.23208	40.27143	516.0599	1026.757	23.03676	28.53426
#1	-.000099	-.000942	-.012597	-.000752	-.001387	.0019088
#2	-.000388	-.001252	.012946	.001659	-.001107	.0032649
#3	-.000784	-.002045	-.008300	-.000518	-.001757	.0033597

Elem	Sr4077
Units	ppm
Avg	-.000429
Stddev	.000005
%RSD	1.271062
#1	-.000423
#2	-.000434
#3	-.000431

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6626.231	116382.6	11225.65	5123.022	8455.493
Stddev	5.402	2410.3	67.53	81.465	4.519
%RSD	.0815179	2.070989	.6015335	1.590181	.0534392
#1	6632.193	119158.0	11302.33	5215.753	8458.267
#2	6621.664	114815.1	11175.07	5090.344	8450.279
#3	6624.834	115174.6	11199.55	5062.969	8457.933

LB137199

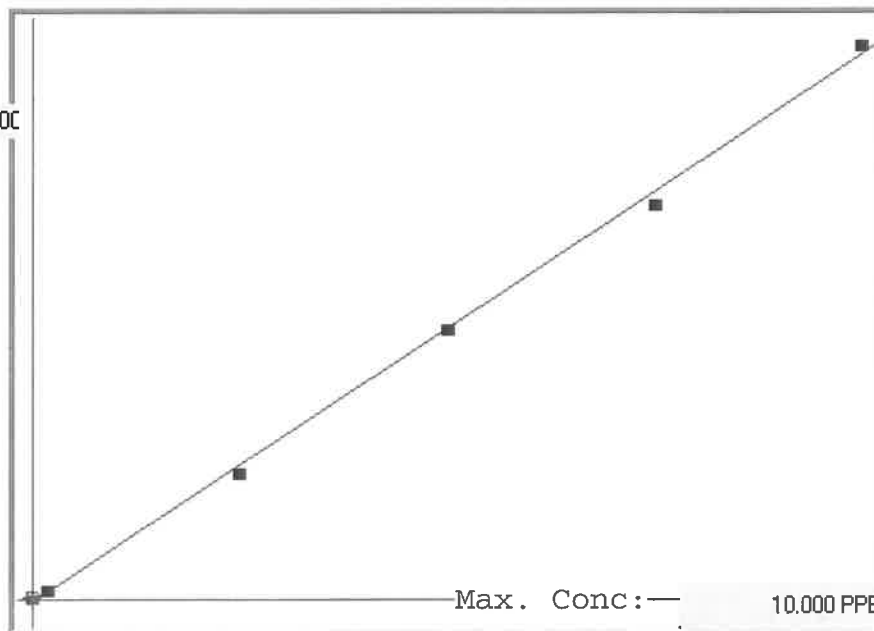
7470A

INSTRUMENT ID: CV1

Linear

μ Abs.:

39900



A= 0.0000e+000

B= 2.5374e-004

C= 5.7125e-002

Rho= 0.9993267

Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0.0	0.000	0.121	0.121	250	0.000	250	0			
0.2	0.200	0.235	0.035	701	0.0 %	701	0			
2.5	2.500	2.381	-0.119	9158	0.0 %	9158	0			
5.0	5.000	5.000	-0.000	19479	0.0 %	19479				
7.5	7.500	7.283	-0.217	28477	0.0 %	28477				
10.0	10.000	10.181	0.181	39900	0.0 %	39900				

0/01
18
- 5
0
- 3
2

LB137199 INSTRUMENT ID : CV1

Method: 7470A Operator: Admin Date of Analysis: 16 Sep 2025 09:27:03

Type	Sample ID	Extended ID	Conc.	μ Abs.	Units	Type	Std Conc	Method	Date
S	0.0 - 1	50	-	250	PPB	Std	0.0000	7470A	16 Sep 2025 09:57:50
S	0.2 - 1	50.2	-	701	PPB	Std	0.2000	7470A	16 Sep 2025 10:00:07
S	2.5 - 1	52.5	-	9158	PPB	Std	2.5000	7470A	16 Sep 2025 10:02:24
S	5.0 - 1	55	-	19479	PPB	Std	5.0000	7470A	16 Sep 2025 10:04:41
S	7.5 - 1	57.5	-	28477	PPB	Std	7.5000	7470A	16 Sep 2025 10:07:00
S	10.0 - 1	51.0	-	39900	PPB	Std	10.0000	7470A	16 Sep 2025 10:12:07
U	ICV30 - 1	ICV30	3.8330	14881	PPB	SMPL	-7470A		16 Sep 2025 10:15:15
U	ICB30 - 1	ICB30	0.0538	-13	PPB	SMPL	-7470A		16 Sep 2025 10:17:30
U	CCV91 - 1	CCV91	5.0364	19624	PPB	SMPL	-7470A		16 Sep 2025 10:19:48
U	CCB91 - 1	CCB91	0.0490	-32	PPB	SMPL	-7470A		16 Sep 2025 10:22:02
U	CRA - 1	CRA	0.1916	530	PPB	SMPL	-7470A		16 Sep 2025 10:24:21
U	HighStd - 1	HighStd	9.2350	36171	PPB	SMPL	-7470A		16 Sep 2025 10:26:35
U	ChkStd - 1	ChkStd	6.5203	25472	PPB	SMPL	-7470A		16 Sep 2025 10:28:51
U	PB169703BL - 1	PBW	0.1066	195	PPB	SMPL	-7470A		16 Sep 2025 10:31:12
U	PB169703BS - 1	LCSW	3.8946	15124	PPB	SMPL	-7470A		16 Sep 2025 10:33:46
U	Q3082-02 - 1	WC-29	0.1124	218	PPB	SMPL	-7470A		16 Sep 2025 10:36:38
U	Q3082-04 - 1	WC-30	0.0807	93	PPB	SMPL	-7470A		16 Sep 2025 10:39:03
U	Q3082-06 - 1	WC-31	0.0975	159	PPB	SMPL	-7470A		16 Sep 2025 10:41:20
U	Q3082-08 - 1	WC-32	0.1109	212	PPB	SMPL	-7470A		16 Sep 2025 10:43:38
U	Q3082-10 - 1	WC-33	0.1208	251	PPB	SMPL	-7470A		16 Sep 2025 10:45:53
U	CCV92 - 1	CCV92	5.0466	19664	PPB	SMPL	-7470A		16 Sep 2025 10:48:08
U	CCB92 - 1	CCB92	0.0148	-167	PPB	SMPL	-7470A		16 Sep 2025 10:50:23
U	Q3091-07 - 1	12/9C-COMP	0.0683	44	PPB	SMPL	-7470A		16 Sep 2025 10:52:41
U	Q3091-14 - 1	12/9B-COMP	0.0845	108	PPB	SMPL	-7470A		16 Sep 2025 10:54:56
U	Q3092-02 - 1	291376	0.1178	239	PPB	SMPL	-7470A		16 Sep 2025 10:57:11
U	Q3092-04 - 1	279182	0.0630	23	PPB	SMPL	-7470A		16 Sep 2025 10:59:27
U	Q3092-04DUP - 1	279182DUP	0.0396	-69	PPB	SMPL	-7470A		16 Sep 2025 11:01:42
U	Q3092-04MS - 1	279182MS	3.9997	15538	PPB	SMPL	-7470A		16 Sep 2025 11:04:00
U	Q3092-04MSD - 1	279182MSD	3.8977	15136	PPB	SMPL	-7470A		16 Sep 2025 11:06:16
U	PB169704BL - 1	PBW	0.0158	-163	PPB	SMPL	-7470A		16 Sep 2025 11:08:35
U	PB169704BS - 1	LCSW	3.3793	13093	PPB	SMPL	-7470A		16 Sep 2025 11:10:55
U	Q3088-02 - 1	90525-LQ	0.1135	222	PPB	SMPL	-7470A		16 Sep 2025 11:13:11
U	CCV93 - 1	CCV93	4.7911	18657	PPB	SMPL	-7470A		16 Sep 2025 11:18:17
U	CCB93 - 1	CCB93	0.0409	-64	PPB	SMPL	-7470A		16 Sep 2025 11:20:32
U	Q3088-02DUP - 1	90525-LQDUP	0.0949	149	PPB	SMPL	-7470A		16 Sep 2025 11:22:51
U	Q3088-02MS - 1	90525-LQMS	3.5815	13890	PPB	SMPL	-7470A		16 Sep 2025 11:30:15
U	Q3088-02MSD - 1	90525-LQMSD	3.7317	14482	PPB	SMPL	-7470A		16 Sep 2025 11:32:30
U	Q3090-01 - 1	90825-B	0.0843	107	PPB	SMPL	-7470A		16 Sep 2025 11:34:48
U	PB169677TB - 1	PB169677TB	0.0614	17	PPB	SMPL	-7470A		16 Sep 2025 11:37:07
U	Q3092-04LX5 - 1		0.0523	-19	PPB	SMPL	-7470A		16 Sep 2025 11:39:23
U	Q3092-04A - 1		3.8484	14942	PPB	SMPL	-7470A		16 Sep 2025 11:41:39
U	Q3088-02LX5 - 1		0.0117	-179	PPB	SMPL	-7470A		16 Sep 2025 11:43:56
U	Q3088-02A - 1		3.6137	14017	PPB	SMPL	-7470A		16 Sep 2025 11:46:17
U	CCV94 - 1	CCV94	4.7023	18307	PPB	SMPL	-7470A		16 Sep 2025 11:48:32
U	CCB94 - 1	CCB94	0.0087	-191	PPB	SMPL	-7470A		16 Sep 2025 11:50:51

SOP ID : M3010A-Digestion-17

SDG No : N/A

Matrix : WATER

Pipette ID : ICP A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #3

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

Start Digest Date: 09/15/2025 Time : 12:30 Temp : 96 °C

End Digest Date: 09/15/2025 Time : ~~15:32~~ Temp : 96 °C

Digestion tube ID: M5595 15:00

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: *SKG*

Supervisor Signature: *sgp*

Temp : 1. 96°C 2. N/A

SJ
09/16/25

Standard Name	MLS USED	STD REF. # FROM LOG
LFS-1	0.25	M6180
LFS-2	0.25	M6181
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
Conc. HNO3	3.00	M6158
1:1 HNO3	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 96C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
09/15/25 16:32 15:10	<i>SKG met dig</i> Preparation Group	<i>sgp Met lab</i> Analysis Group

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
PB169677TB	PB169677TB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	1
PB169685BL	PBW685	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	2
PB169685BS	LCS685	<2	5	25	Colorless	Colorless	Clear	Clear	M6180,M6181	3
Q3082-02	WC-29	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	4
Q3082-04	WC-30	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	5
Q3082-06	WC-31	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	6
Q3082-08	WC-32	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	7
Q3082-10	WC-33	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	8
Q3085-01	PAULDING-WC1	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	9
Q3091-07	12/9C-COMP	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	10
Q3091-14	12/9B-COMP	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	11
Q3092-02	291376	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	12
Q3092-04	279182	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	13
Q3092-04MS	279182MS	<2	5	25	Colorless	Colorless	Clear	Clear	M6180,M6181	15
Q3092-04MSD	279182MSD	<2	5	25	Colorless	Colorless	Clear	Clear	M6180,M6181	16
Q3092-04DUP	279182DUP	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	14

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
PB169677TB	LEB677	11	N/A	2000	N/A	N/A	N/A	4.94	1.5	T-2
Q3082-02	WC-29	01	100.03	2000	N/A	N/A	N/A	4.0	1.0	T-1
Q3082-04	WC-30	02	100.02	2000	N/A	N/A	N/A	5.5	1.5	T-1
Q3082-06	WC-31	03	100.03	2000	N/A	N/A	N/A	5.6	1.5	T-1
Q3082-08	WC-32	04	100.04	2000	N/A	N/A	N/A	6.2	1.0	T-1
Q3082-10	WC-33	05	100.02	2000	N/A	N/A	N/A	6.0	1.0	T-1
Q3085-01	PAULDING-WC1	06	100.02	2000	N/A	N/A	N/A	7.6	1.5	T-1
Q3091-07	12/9C-COMP	07	100.03	2000	N/A	N/A	N/A	3.0	1.0	T-1
Q3091-14	12/9B-COMP	08	100.02	2000	N/A	N/A	N/A	3.5	1.5	T-1
Q3092-02	291376	09	100.03	2000	N/A	N/A	N/A	4.5	1.0	T-1
Q3092-04	279182	10	100.02	2000	N/A	N/A	N/A	5.0	1.5	T-1

SOP ID : M7470A-Mercury-20

SDG No : NA

Matrix : WATER

Pipette ID: HG A

Balance ID : N/A

Filter paper ID : NA

pH Strip ID : M6069

Hood ID : #1

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

Start Digest Date: 09/15/2025 **Time :** 14:50 **Temp :** 95 °C

End Digest Date: 09/15/2025 **Time :** 16:50 **Temp :** 95 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature: *AS*

Supervisor Signature: *12*

Temp : 1. 95°C 2. N/A

Standard Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP87206
CCV	30mL	MP87208
CRA	30mL	MP87210
Blank Spike	0.48mL	MP87198
Matrix Spike	0.48mL	MP87198

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	2.25mL	MP87071
KMnO4 (5%)	4.5mL	MP87072
KI-starch paper	2.4mL	MP87073
Hydroxylamine HCL (12%)	1.8mL	MP87149
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	30MI	MP87199
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30MI	MP87201
2.5 ppb	S2.5	30MI	MP87202
5.0 ppb	S5.0	30MI	MP87203
7.5 ppb	S7.5	30MI	MP87204
10.0 ppb	S10.0	30MI	MP87205
ICV	ICV	30MI	MP87206
ICB	ICB	30MI	MP87207
CCV	CCV	30MI	MP87208
CCB	CCB	30MI	MP87209
CRI	CRI	30MI	MP87210
CHK STD	CHK STD	30MI	MP87211

Extraction Conformance/Non-Conformance Comments:

N/A		
Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
9/15/25 17:16	AS - 1119 Lab	AS - MP Lab
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB169677TB	PB169677TB	3	30	<2	N/A	3-1
PB169703BL	PBW703	30	30	<2	N/A	2
PB169703BS	LCS703	30	30	<2	MP87198	3
Q3082-02	WC-29	3	30	<2	N/A	4
Q3082-04	WC-30	3	30	<2	N/A	5
Q3082-06	WC-31	3	30	<2	N/A	6
Q3082-08	WC-32	3	30	<2	N/A	7
Q3082-10	WC-33	3	30	<2	N/A	8
Q3091-07	12/9C-COMP	3	30	<2	N/A	9
Q3091-14	12/9B-COMP	3	30	<2	N/A	10
Q3092-02	291376	3	30	<2	N/A	11
Q3092-04	279182	3	30	<2	N/A	12
Q3092-04DUP	279182DUP	3	30	<2	N/A	13
Q3092-04MS	279182MS	3	30	<2	MP87198	14
Q3092-04MSD	279182MSD	3	30	<2	MP87198	15

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
PB169677TB	LEB677	11	N/A	2000	N/A	N/A	N/A	4.94	1.5	T-2
Q3082-02	WC-29	01	100.03	2000	N/A	N/A	N/A	4.0	1.0	T-1
Q3082-04	WC-30	02	100.02	2000	N/A	N/A	N/A	5.5	1.5	T-1
Q3082-06	WC-31	03	100.03	2000	N/A	N/A	N/A	5.6	1.5	T-1
Q3082-08	WC-32	04	100.04	2000	N/A	N/A	N/A	6.2	1.0	T-1
Q3082-10	WC-33	05	100.02	2000	N/A	N/A	N/A	6.0	1.0	T-1
Q3085-01	PAULDING WC1 MB / 09/16/25	06	100.02	2000	N/A	N/A	N/A	7.6	1.5	T-1
Q3091-07	12/9C-COMP	07	100.03	2000	N/A	N/A	N/A	3.0	1.0	T-1
Q3091-14	12/9B-COMP	08	100.02	2000	N/A	N/A	N/A	3.5	1.5	T-1
Q3092-02	291376	09	100.03	2000	N/A	N/A	N/A	4.5	1.0	T-1
Q3092-04	279182	10	100.02	2000	N/A	N/A	N/A	5.0	1.5	T-1

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137198

Review By	Janvi	Review On	9/16/2025 11:58:31 AM
Supervise By	jaswal	Supervise On	9/16/2025 12:00:47 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87031,MP87038,MP87035,MP87034,MP87033,MP87032		
ICV Standard	MP87047,MP87038		
CCV Standard	MP87042		
ICSA Standard	MP87040,MP87048		
CRI Standard	MP87038		
LCS Standard			
Chk Standard	MP87043,MP87044,MP87045,MP87046,MP87049		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	09/15/25 11:06		Jaswal	OK
2	S1	S1	CAL2	09/15/25 11:10		Jaswal	OK
3	S2	S2	CAL3	09/15/25 11:14		Jaswal	OK
4	S3	S3	CAL4	09/15/25 11:18		Jaswal	OK
5	S4	S4	CAL5	09/15/25 11:22		Jaswal	OK
6	S5	S5	CAL6	09/15/25 11:26		Jaswal	OK
7	ICV01	ICV01	ICV	09/15/25 11:31		Jaswal	OK
8	LLICV01	LLICV01	LLICV	09/15/25 11:36		Jaswal	OK
9	ICB01	ICB01	ICB	09/15/25 11:43		Jaswal	OK
10	CRI01	CRI01	CRDL	09/15/25 11:47		Jaswal	OK
11	ICSA01	ICSA01	ICSA	09/15/25 12:12		Jaswal	OK
12	ICSAB01	ICSAB01	ICSAB	09/15/25 12:16		Jaswal	OK
13	ICSADL	ICSADL	ICSA	09/15/25 12:26		Jaswal	OK
14	ICSABDL	ICSABDL	ICSAB	09/15/25 12:30		Jaswal	OK
15	CCV01	CCV01	CCV	09/15/25 12:35		Jaswal	OK
16	CCB01	CCB01	CCB	09/15/25 12:39		Jaswal	OK
17	LR-1	LR-1	HIGH STD	09/15/25 12:44		Jaswal	OK
18	PB169680BL	PB169680BL	MB	09/15/25 12:58		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137198

Review By	Janvi	Review On	9/16/2025 11:58:31 AM
Supervise By	jaswal	Supervise On	9/16/2025 12:00:47 PM

STD. NAME	STD REF.#
ICAL Standard	MP87031,MP87038,MP87035,MP87034,MP87033,MP87032
ICV Standard	MP87047,MP87038
CCV Standard	MP87042
ICSA Standard	MP87040,MP87048
CRI Standard	MP87038
LCS Standard	
Chk Standard	MP87043,MP87044,MP87045,MP87046,MP87049

19	PB169680BS	PB169680BS	LCS	09/15/25 13:02		Jaswal	OK
20	PB169682BL	PB169682BL	MB	09/15/25 13:06		Jaswal	OK
21	PB169682BS	PB169682BS	LCS	09/15/25 13:10		Jaswal	OK
22	Q3082-01	WC-29	SAM	09/15/25 13:14		Jaswal	OK
23	Q3082-03	WC-30	SAM	09/15/25 13:18		Jaswal	OK
24	Q3082-05	WC-31	SAM	09/15/25 13:22		Jaswal	OK
25	CCV02	CCV02	CCV	09/15/25 13:42		Jaswal	OK
26	CCB02	CCB02	CCB	09/15/25 13:47		Jaswal	OK
27	Q3082-07	WC-32	SAM	09/15/25 13:51		Jaswal	OK
28	Q3082-09	WC-33	SAM	09/15/25 13:55		Jaswal	OK
29	Q3082-01DUP	WC-29DUP	DUP	09/15/25 13:59		Jaswal	OK
30	Q3082-01L	WC-29L	SD	09/15/25 14:03		Jaswal	OK
31	Q3082-01MS	WC-29MS	MS	09/15/25 14:07		Jaswal	OK
32	Q3082-01MSD	WC-29MSD	MSD	09/15/25 14:11		Jaswal	OK
33	Q3082-01A	WC-29A	PS	09/15/25 14:15	0.1 ML OF M6008 AND M6017 IN 10ML SAMPLE.	Jaswal	OK
34	LR-2	LR-2	HIGH STD	09/15/25 14:40		Jaswal	OK
35	LR-3	LR-3	HIGH STD	09/15/25 14:48		Jaswal	OK
36	CCV03	CCV03	CCV	09/15/25 15:11		Jaswal	OK
37	CCB03	CCB03	CCB	09/15/25 15:15		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137198

Review By	Janvi	Review On	9/16/2025 11:58:31 AM
Supervise By	jaswal	Supervise On	9/16/2025 12:00:47 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87031,MP87038,MP87035,MP87034,MP87033,MP87032		
ICV Standard	MP87047,MP87038		
CCV Standard	MP87042		
ICSA Standard	MP87040,MP87048		
CRI Standard	MP87038		
LCS Standard			
Chk Standard	MP87043,MP87044,MP87045,MP87046,MP87049		

38	PB169685BL	PB169685BL	MB	09/15/25 15:19		Jaswal	OK
39	PB169685BS	PB169685BS	LCS	09/15/25 15:23		Jaswal	OK
40	Q3082-02	WC-29	SAM	09/15/25 15:27		Jaswal	OK
41	Q3082-04	WC-30	SAM	09/15/25 15:32		Jaswal	OK
42	Q3082-06	WC-31	SAM	09/15/25 15:36		Jaswal	OK
43	Q3082-08	WC-32	SAM	09/15/25 15:41		Jaswal	OK
44	Q3082-10	WC-33	SAM	09/15/25 15:45		Jaswal	OK
45	Q3085-01	PAULDING-WC1	SAM	09/15/25 15:49		Jaswal	OK
46	Q3091-07	12/9C-COMP	SAM	09/15/25 15:54		Jaswal	OK
47	Q3091-14	12/9B-COMP	SAM	09/15/25 15:58		Jaswal	OK
48	CCV04	CCV04	CCV	09/15/25 16:12		Jaswal	OK
49	CCB04	CCB04	CCB	09/15/25 16:16		Jaswal	OK
50	Q3092-02	291376	SAM	09/15/25 16:21		Jaswal	OK
51	Q3092-04	279182	SAM	09/15/25 16:25		Jaswal	OK
52	Q3092-04DUP	279182DUP	DUP	09/15/25 16:29		Jaswal	OK
53	Q3092-04L	279182L	SD	09/15/25 16:34		Jaswal	OK
54	Q3092-04MS	279182MS	MS	09/15/25 16:38		Jaswal	OK
55	Q3092-04MSD	279182MSD	MSD	09/15/25 16:42		Jaswal	OK
56	Q3092-04A	279182A	PS	09/15/25 16:46	0.1 ML OF M6008 AND M6017 IN 10ML SAMPLE.	Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137198

Review By	Janvi	Review On	9/16/2025 11:58:31 AM
Supervise By	jaswal	Supervise On	9/16/2025 12:00:47 PM

STD. NAME	STD REF.#
ICAL Standard	MP87031,MP87038,MP87035,MP87034,MP87033,MP87032
ICV Standard	MP87047,MP87038
CCV Standard	MP87042
ICSA Standard	MP87040,MP87048
CRI Standard	MP87038
LCS Standard	
Chk Standard	MP87043,MP87044,MP87045,MP87046,MP87049

57	PB169677TB	PB169677TB	MB	09/15/25 16:50		Jaswal	OK
58	CCV05	CCV05	CCV	09/15/25 16:55		Jaswal	OK
59	CCB05	CCB05	CCB	09/15/25 16:59		Jaswal	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137199

Review By	mohan	Review On	9/16/2025 3:04:24 PM
Supervise By	jaswal	Supervise On	9/16/2025 10:31:06 PM

STD. NAME	STD REF.#
ICAL Standard	MP87199,MP87201,MP87202,MP87203,MP87204,MP87205
ICV Standard	MP87206
CCV Standard	MP87208
ICSA Standard	
CRI Standard	MP87210
LCS Standard	
Chk Standard	MP87207,MP87209,MP87211,MP87214

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	09/16/25 09:57		mohan	OK
2	S0.2	S0.2	CAL2	09/16/25 10:00		mohan	OK
3	S2.5	S2.5	CAL3	09/16/25 10:02		mohan	OK
4	S5	S5	CAL4	09/16/25 10:04		mohan	OK
5	S7.5	S7.5	CAL5	09/16/25 10:07		mohan	OK
6	S10	S10	CAL6	09/16/25 10:12		mohan	OK
7	ICV30	ICV30	ICV	09/16/25 10:15		mohan	OK
8	ICB30	ICB30	ICB	09/16/25 10:17		mohan	OK
9	CCV91	CCV91	CCV	09/16/25 10:19		mohan	OK
10	CCB91	CCB91	CCB	09/16/25 10:22		mohan	OK
11	CRA	CRA	CRDL	09/16/25 10:24		mohan	OK
12	HighStd	HighStd	HIGH STD	09/16/25 10:26		mohan	OK
13	ChkStd	ChkStd	SAM	09/16/25 10:28		mohan	OK
14	PB169703BL	PB169703BL	MB	09/16/25 10:31		mohan	OK
15	PB169703BS	PB169703BS	LCS	09/16/25 10:33		mohan	OK
16	Q3082-02	WC-29	SAM	09/16/25 10:36		mohan	OK
17	Q3082-04	WC-30	SAM	09/16/25 10:39		mohan	OK
18	Q3082-06	WC-31	SAM	09/16/25 10:41		mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137199

Review By	mohan	Review On	9/16/2025 3:04:24 PM
Supervise By	jaswal	Supervise On	9/16/2025 10:31:06 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87199,MP87201,MP87202,MP87203,MP87204,MP87205		
ICV Standard	MP87206		
CCV Standard	MP87208		
ICSA Standard			
CRI Standard	MP87210		
LCS Standard			
Chk Standard	MP87207,MP87209,MP87211,MP87214		

19	Q3082-08	WC-32	SAM	09/16/25 10:43		mohan	OK
20	Q3082-10	WC-33	SAM	09/16/25 10:45		mohan	OK
21	CCV92	CCV92	CCV	09/16/25 10:48		mohan	OK
22	CCB92	CCB92	CCB	09/16/25 10:50		mohan	OK
23	Q3091-07	12/9C-COMP	SAM	09/16/25 10:52		mohan	OK
24	Q3091-14	12/9B-COMP	SAM	09/16/25 10:54		mohan	OK
25	Q3092-02	291376	SAM	09/16/25 10:57		mohan	OK
26	Q3092-04	279182	SAM	09/16/25 10:59		mohan	OK
27	Q3092-04DUP	279182DUP	DUP	09/16/25 11:01		mohan	OK
28	Q3092-04MS	279182MS	MS	09/16/25 11:04		mohan	OK
29	Q3092-04MSD	279182MSD	MSD	09/16/25 11:06		mohan	OK
30	PB169704BL	PB169704BL	MB	09/16/25 11:08		mohan	OK
31	PB169704BS	PB169704BS	LCS	09/16/25 11:10		mohan	OK
32	Q3088-02	90525-LQ	SAM	09/16/25 11:13		mohan	OK
33	CCV93	CCV93	CCV	09/16/25 11:18		mohan	OK
34	CCB93	CCB93	CCB	09/16/25 11:20		mohan	OK
35	Q3088-02DUP	90525-LQDUP	DUP	09/16/25 11:22		mohan	OK
36	Q3088-02MS	90525-LQMS	MS	09/16/25 11:30		mohan	OK
37	Q3088-02MSD	90525-LQMSD	MSD	09/16/25 11:32		mohan	OK
38	Q3090-01	90825-B	SAM	09/16/25 11:34		mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137199

Review By	mohan	Review On	9/16/2025 3:04:24 PM
Supervise By	jaswal	Supervise On	9/16/2025 10:31:06 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87199,MP87201,MP87202,MP87203,MP87204,MP87205		
ICV Standard	MP87206		
CCV Standard	MP87208		
ICSA Standard			
CRI Standard	MP87210		
LCS Standard			
Chk Standard	MP87207,MP87209,MP87211,MP87214		

39	PB169677TB	PB169677TB	MB	09/16/25 11:37		mohan	OK
40	Q3092-04L	279182L	SD	09/16/25 11:39		mohan	OK
41	Q3092-04A	279182A	PS	09/16/25 11:41		mohan	OK
42	Q3088-02L	90525-LQL	SD	09/16/25 11:43		mohan	OK
43	Q3088-02A	90525-LQA	PS	09/16/25 11:46		mohan	OK
44	CCV94	CCV94	CCV	09/16/25 11:48		mohan	OK
45	CCB94	CCB94	CCB	09/16/25 11:50		mohan	OK

SOP ID :	M1311-TCLP-16	
SDG No :	N/A	Start Prep Date : 09/12/2025 Time : 17:00
Weigh By :	JP	End Prep Date : 09/13/2025 Time : 10:40
Balance ID :	WC SC-7	Combination Ratio : 20
pH Meter ID :	WC PH METER-1	ZHE Cleaning Batch : N/A ⁷⁸
Extraction By :	JP	Initial Room Temperature: 24 °C
Filter By :	JP	Final Room Temperature: 22 °C
Pipette ID :	WC	TCLP Technician Signature : ^{JP}
Tumbler ID :	T-1 / T-2	Supervisor By : ¹²
TCLP Filter ID :	40819719	

Standarded 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	WP114525
HCL-TCLP,1N	N/A	WP114527
HNO3-TCLP,1N	N/A	WP114528
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	MP86978

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after filtration and before preservation. TUMBLER T-1 / T-2 checked,30 rpm. Q3092-04 IS USED FOR MS-MSD.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
09/15/25 10:00	^{JP} 100 Room	^{SMS.} RJ/EXT
	Preparation Group	Analysis Group ^{met my}

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
PB169677TB	LEB677	11	N/A	2000	N/A	N/A	N/A	4.94	1.5	T-2
Q3082-02	WC-29	01	100.03	2000	N/A	N/A	N/A	4.0	1.0	T-1
Q3082-04	WC-30	02	100.02	2000	N/A	N/A	N/A	5.5	1.5	T-1
Q3082-06	WC-31	03	100.03	2000	N/A	N/A	N/A	5.6	1.5	T-1
Q3082-08	WC-32	04	100.04	2000	N/A	N/A	N/A	6.2	1.0	T-1
Q3082-10	WC-33	05	100.02	2000	N/A	N/A	N/A	6.0	1.0	T-1
Q3085-01	PAULDING-WC1	06	100.02	2000	N/A	N/A	N/A	7.6	1.5	T-1
Q3091-07	12/9C-COMP	07	100.03	2000	N/A	N/A	N/A	3.0	1.0	T-1
Q3091-14	12/9B-COMP	08	100.02	2000	N/A	N/A	N/A	3.5	1.5	T-1
Q3092-02	291376	09	100.03	2000	N/A	N/A	N/A	4.5	1.0	T-1
Q3092-04	279182	10	100.02	2000	N/A	N/A	N/A	5.0	1.5	T-1

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
PB169677TB	LEB677	N/A	N/A	N/A	N/A	N/A	N/A
Q3082-02	WC-29	N/A	N/A	N/A	N/A	100	N/A
Q3082-04	WC-30	N/A	N/A	N/A	N/A	100	N/A
Q3082-06	WC-31	N/A	N/A	N/A	N/A	100	N/A
Q3082-08	WC-32	N/A	N/A	N/A	N/A	100	N/A
Q3082-10	WC-33	N/A	N/A	N/A	N/A	100	N/A
Q3085-01	PAULDING-WC1	N/A	N/A	N/A	N/A	100	N/A
Q3091-07	12/9C-COMP	N/A	N/A	N/A	N/A	100	N/A
Q3091-14	12/9B-COMP	N/A	N/A	N/A	N/A	100	N/A
Q3092-02	291376	N/A	N/A	N/A	N/A	100	N/A
Q3092-04	279182	N/A	N/A	N/A	N/A	100	N/A

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

SampleID	ClientID	Sample Weight (g)	Volume DI Water (mL)	PH after 5 min stir	PH after 10 min stir	Extraction Fluid 1 or 2	pH Extraction Fluid
PB169677TB	LEB677	N/A	N/A	N/A	N/A	#1	4.94
Q3082-02	WC-29	5.02	96.5	7.0	2.5	#1	4.94
Q3082-04	WC-30	5.03	96.5	7.2	2.0	#1	4.94
Q3082-06	WC-31	5.03	96.5	7.2	2.5	#1	4.94
Q3082-08	WC-32	5.02	96.5	8.6	3.5	#1	4.94
Q3082-10	WC-33	5.01	96.5	8.4	3.0	#1	4.94
Q3085-01	PAULDING-WC1	5.02	96.5	9.1	3.5	#1	4.94
Q3091-07	12/9C-COMP	5.03	96.5	5.6	1.5	#1	4.94
Q3091-14	12/9B-COMP	5.02	96.5	5.8	1.5	#1	4.94
Q3092-02	291376	5.01	96.5	6.6	2.0	#1	4.94
Q3092-04	279182	5.02	96.5	7.0	2.5	#1	4.94

Prep Standard - Chemical Standard Summary

Order ID : Q3092

Test : TCLP ICP Metals,TCLP Mercury

Prepbatch ID : PB169685,PB169703,

Sequence ID/Qc Batch ID: LB137198,LB137198,LB137198,LB137199,

Standard ID :

MP85156,MP87031,MP87032,MP87033,MP87034,MP87035,MP87036,MP87038,MP87040,MP87042,MP87043,MP87044,MP87045,MP87046,MP87047,MP87048,MP87049,MP87071,MP87072,MP87073,MP87149,MP87198,MP87199,MP87201,MP87202,MP87203,MP87204,MP87205,MP87206,MP87207,MP87208,MP87209,MP87210,MP87211,MP87214,

Chemical ID :

M4397,M4916,M5062,M5467,M5658,M5748,M5751,M5798,M5799,M5800,M5801,M5814,M5820,M5884,M5962,M5969,M5971,M5979,M5985,M5998,M6021,M6023,M6026,M6027,M6028,M6030,M6032,M6058,M6076,M6077,M6128,M6137,M6138,M6140,M6142,M6144,M6145,M6151,M6157,M6158,M6159,M6160,M6161,M6163,M6164,M6165,M6171,M6174,M6176,M6177,M6178,M6179,M6180,M6181,M6182,M6184,M6187,M6196,M6200,W 3112,

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
170	1:1HCL	MP85156	04/07/2025	10/08/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								04/07/2025

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

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP87031	09/02/2025	10/03/2025	Sarabjit Jaswal	None	None	Janvi Patel
								09/04/2025

FROM 125.00000ml of M6151 + 2350.00000ml of W3112 + 25.00000ml of M6187 = Final Quantity: 2500.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
907	ICP AES STD S (S5)	MP87032	09/02/2025	10/03/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM	5.00000ml of M5467 + 5.00000ml of M5820 + 5.00000ml of M5969 + 5.00000ml of M5971 + 5.00000ml of M5998 + 5.00000ml of M6077 + 5.00000ml of M6160 + 5.00000ml of M6174 + 5.00000ml of M6176 + 455.00000ml of MP87031 = Final Quantity: 500.000 ml
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<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
910	ICP AES STD S4	MP87033	09/02/2025	10/03/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM	50.00000ml of MP87031 + 50.00000ml of MP87032 = Final Quantity: 100.000 ml
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Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
909	ICP AES STD S3	MP87034	09/02/2025	10/03/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 25.00000ml of MP87032 + 75.00000ml of MP87031 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3913	ICP AES STD S2	MP87035	09/02/2025	10/03/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 16.00000ml of MP87032 + 184.00000ml of MP87031 = Final Quantity: 200.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2950	ICP AES S1/CRI STOCK STD	MP87036	09/02/2025	10/03/2025	Sarabjit Jaswal	None	None	Janvi Patel
								09/04/2025

FROM 0.03000ml of M5798 + 0.03000ml of M6028 + 0.04000ml of M6137 + 0.05000ml of M5658 + 0.05000ml of M6030 + 0.05000ml of M6140 + 0.05000ml of M6159 + 0.06000ml of M6177 + 0.10000ml of M5751 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5962 + 0.10000ml of M5971 + 0.10000ml of M6128 + 0.10000ml of M6176 + 0.15000ml of M5800 + 0.20000ml of M5799 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.20000ml of M6027 + 0.20000ml of M6145 + 0.25000ml of M5467 + 0.25000ml of M6160 + 0.50000ml of M5814 + 0.50000ml of M6032 + 1.00000ml of M5979 + 1.00000ml of M6138 + 1.00000ml of M6142 + 1.00000ml of M6144 + 1.00000ml of M6171 + 1.00000ml of M6178 + 2.00000ml of M5969 + 88.29000ml of MP87031 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2951	ICP AES S1/CRI WORK STD	MP87038	09/02/2025	10/03/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel
								09/04/2025

FROM 2.00000ml of MP87036 + 98.00000ml of MP87031 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
904	ICP AES ICSA SOLN	MP87040	09/02/2025	10/03/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 25.00000ml of M6182 + 225.00000ml of MP87031 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
911	ICP AES CCV SOLN	MP87042	09/02/2025	10/03/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM 50.00000ml of MP87031 + 50.00000ml of MP87032 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
919	ICP AES INTERNAL STD	MP87043	09/02/2025	10/03/2025	Sarabjit Jaswal	None	None	Janvi Patel
								09/04/2025

FROM 1.00000ml of M6179 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6187 = Final Quantity: 2000.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
903	ICP AES RINSE SOLN	MP87044	09/02/2025	10/03/2025	Sarabjit Jaswal	None	None	Janvi Patel
								09/04/2025

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

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4225	LR-1	MP87045	09/02/2025	10/03/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 11.50000ml of M6138 + 11.50000ml of M6144 + 11.50000ml of M6171 + 15.50000ml of MP87031 = Final Quantity: 50.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4226	LR-2	MP87046	09/02/2025	10/03/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 13.50000ml of M6140 + 9.00000ml of M6142 + 9.50000ml of M6159 + 18.00000ml of MP87031 = Final Quantity: 50.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4163	NEW ICV-060925	MP87047	09/02/2025	10/03/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP)	Sarabjit Jaswal
A) FROM 0.20000ml of M6058 + 0.40000ml of M6163 + 0.40000ml of M6164 + 0.40000ml of M6165 + 48.60000ml of MP87031 = Final Quantity: 50.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3494	ICP AES ICSAB SOLN-1	MP87048	09/02/2025	10/03/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 09/04/2025
<u>FROM</u>	0.05000ml of M6076 + 5.00000ml of M6182 + 5.00000ml of M6184 + 39.95000ml of MP87031 = Final Quantity: 100.000 ml							



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4227	LR-3	MP87049	09/02/2025	10/03/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM 1.15000ml of M6026 + 1.25000ml of M5658 + 1.25000ml of M5748 + 1.50000ml of M6145 + 2.50000ml of M5751 + 2.50000ml of M6128 + 39.85000ml of MP87031 = Final Quantity: 50.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3965	2:1 H2SO4 : HNO3	MP87071	09/04/2025	11/07/2025	Mohan Bera	None	None	Sarabjit Jaswal 09/04/2025

FROM 1600.00000ml of M6157 + 800.00000ml of M6187 = Final Quantity: 3200.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP87072	09/04/2025	03/04/2026	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
09/04/2025								

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

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
66	POTASSIUM PERSULFATE SOLUTION 5 %	MP87073	09/04/2025	03/05/2026	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
09/04/2025								

FROM 100.00000ml of M4397 + 2000.00000ml of W3112 = Final Quantity: 2000.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP87149	09/09/2025	02/03/2026	Mohan Bera	METALS_SCALE_2 (M SC-2)	None	Sarabjit Jaswal
FROM 2000.00000ml of W3112 + 240.00000gram of M5884 + 240.00000ml of M6196 = Final Quantity: 2000.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP87198	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/16/2025
<u>FROM</u>	1.00000ml of M6187 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml							



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1340	Hg 0.00 PPB STD	MP87199	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG	Sarabjit Jaswal 09/16/2025

~~A)~~

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1341	Hg 0.2 PPB STD	MP87201	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/16/2025

~~A)~~



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1342	Hg 2.5 PPB STD	MP87202	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/16/2025
FROM 2.50000ml of M6187 + 245.00000ml of W3112 + 2.50000ml of MP87198 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1343	Hg 5.0 PPB STD	MP87203	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/16/2025
<u>FROM</u>	2.50000ml of M6187 + 242.50000ml of W3112 + 5.00000ml of MP87198 = Final Quantity: 250.000 ml							



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1344	Hg 7.5 PPB STD	MP87204	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/16/2025
FROM 2.50000ml of M6187 + 240.00000ml of W3112 + 7.50000ml of MP87198 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1345	Hg 10.0 PPB STD	MP87205	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
A) FROM 2.50000ml of M6187 + 237.50000ml of W3112 + 10.00000ml of MP87198 = Final Quantity: 250.000 ml								



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1346	Hg ICV SOLUTION	MP87206	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
A) FROM 2.50000ml of M6161 + 2.50000ml of M6187 + 245.00000ml of W3112 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1351	ICB (Hg 0.00 PPB SOLUTION)	MP87207	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/16/2025
<u>FROM</u>	2.50000ml of M6187 + 247.50000ml of W3112 = Final Quantity: 250.000 ml							



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1358	CCV (Hg 5.0 PPB SOLUTION)	MP87208	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
A) FROM 485.00000ml of W3112 + 5.00000ml of M6187 + 10.00000ml of MP87198 = Final Quantity: 500.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1352	CCB (Hg 0.00 PPB SOLUTION)	MP87209	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/16/2025
<u>FROM</u> 495.00000ml of W3112 + 5.00000ml of M6187 = Final Quantity: 500.000 ml								



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1349	CRA/CRI (Hg 0.2 PPB SOLUTION)	MP87210	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/16/2025
FROM 2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87198 = Final Quantity: 250.000 ml 								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1350	CHK STD (Hg 7.0 PPB SOLUTION)	MP87211	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/16/2025
<u>FROM</u> 2.50000ml of M6187 + 240.50000ml of W3112 + 7.00000ml of MP87198 = Final Quantity: 250.000 ml								



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
104	5% RINSING HCL	MP87214	09/15/2025	09/16/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
A) FROM 100.00000ml of M6200 + 1900.00000ml of W3112 = Final Quantity: 2000.000 ml								

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	0000227540	09/24/2025	08/16/2019 / RICHARD	07/17/2019 / RICHARD	M4397

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

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

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

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

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58029 / Cu, 1000 PPM, 500 ml	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.	57005 / B, 1000 PPM, 125 ml	071123	07/11/2026	03/26/2024 / Sohil	01/03/2024 / jaswal	M5814

CHEMICAL RECEIPT LOG BOOK

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Li, 1000 PPM, 125 ml	061224	06/21/2027	06/06/2025 / Janvi	07/01/2024 / Jaswal	M5971

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	08/05/2026	08/06/2025 / Janvi	02/22/2024 / Jaswal	M5979

CHEMICAL RECEIPT LOG BOOK

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

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

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

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

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

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

CHEMICAL RECEIPT LOG BOOK

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

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	V2-MEB746762	09/06/2029	01/23/2025 / kareem	09/19/2024 / kareem	M6077

CHEMICAL RECEIPT LOG BOOK

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.	58126 / Fe, 10000 PPM, 500 ml	011025	01/10/2028	06/25/2025 / Janvi	01/13/2025 / Jaswal	M6140

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58111 / Na, 10000 PPM, 500 ml	072424	07/24/2027	01/23/2025 / kareem	01/13/2025 / Jaswal	M6144

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	24i1262013	11/07/2025	05/07/2025 / RUPESH	02/18/2025 / Mohan	M6157

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	10/09/2025	03/10/2025 / Eman	02/02/2025 / Sagar	M6158

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

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

CHEMICAL RECEIPT LOG BOOK

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	12/31/2025	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 #
Inorganic Ventures	QCP-CICV-1-125ML / EPA CLP ICP Verification Standard1	V2-MEB744107	06/08/2026	06/09/2025 / jaswal	06/06/2025 / jaswal	M6163

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

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

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

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

CHEMICAL RECEIPT LOG BOOK

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Mo, 1000 PPM, 125 ml	080528	08/05/2028	08/06/2025 / Janvi	08/06/2025 / Janvi	M6178

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-1 / Laboratory Fortified Stock Solution 1, 125 ml	W2-MEB752149	02/05/2026	08/06/2025 / Janvi	07/22/2025 / Janvi	M6180

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	V2-MEB7433480	02/05/2026	08/06/2025 / Janvi	07/22/2025 / Janvi	M6181

CHEMICAL RECEIPT LOG BOOK

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	H330-500 / HYDROXYLAMINE HYDROCHLORIDE ACS 500G	243373	02/03/2026	09/04/2025 / mohan	08/04/2025 / mohan	M6196

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

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57056
010924
Barium (Ba)

Lot #
Solvent: 24002546 Nitric Acid

Expiration Date:

010927

2% 40.0 (mL) Nitric Acid

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number: 6UTB

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

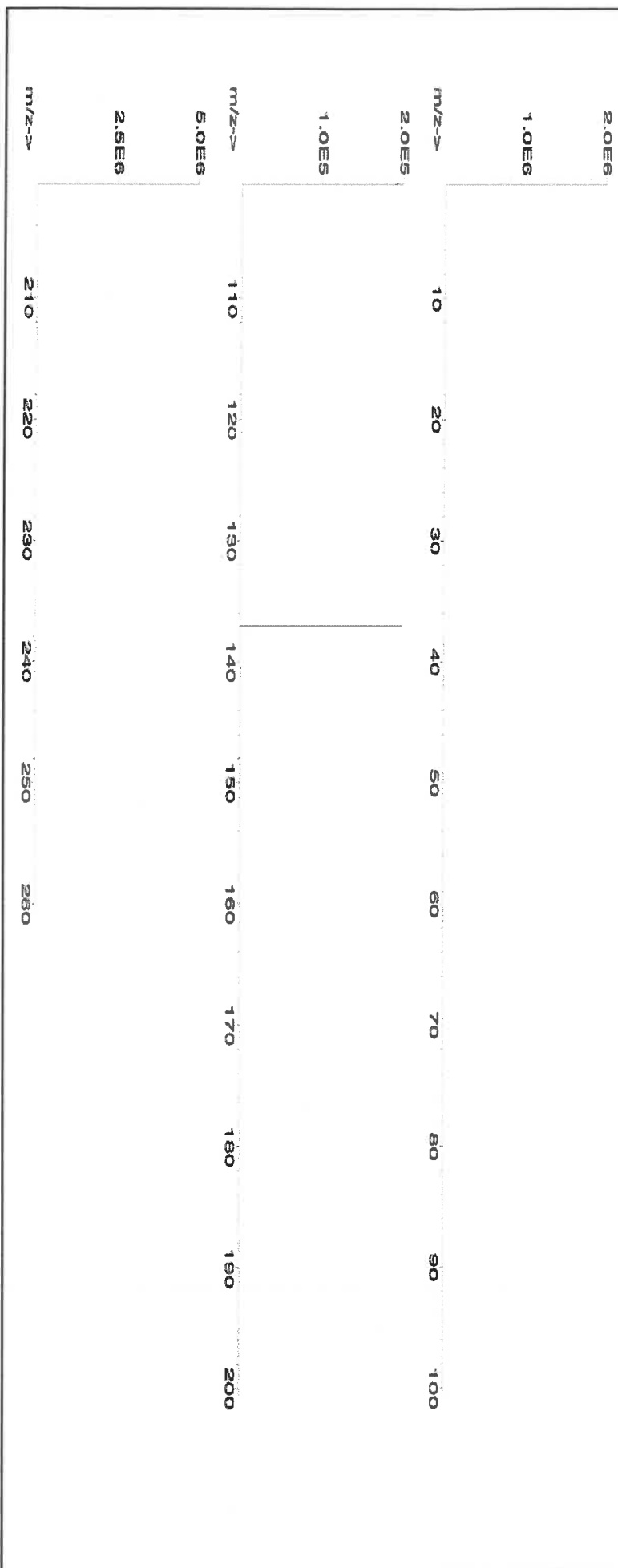
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
	010924
<i>Pedro L. Renteria</i>	
Reviewed By:	Pedro L. Renteria
	010924

Compound

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

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

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





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57048
070124
Cadmium (Cd)

Solvent: 24002546 Nitric Acid

R: 815/24

Lot #

2% 40.0 Nitric Acid (mL)

Expiration Date: 070127

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

SE-05 Balance Uncertainty

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

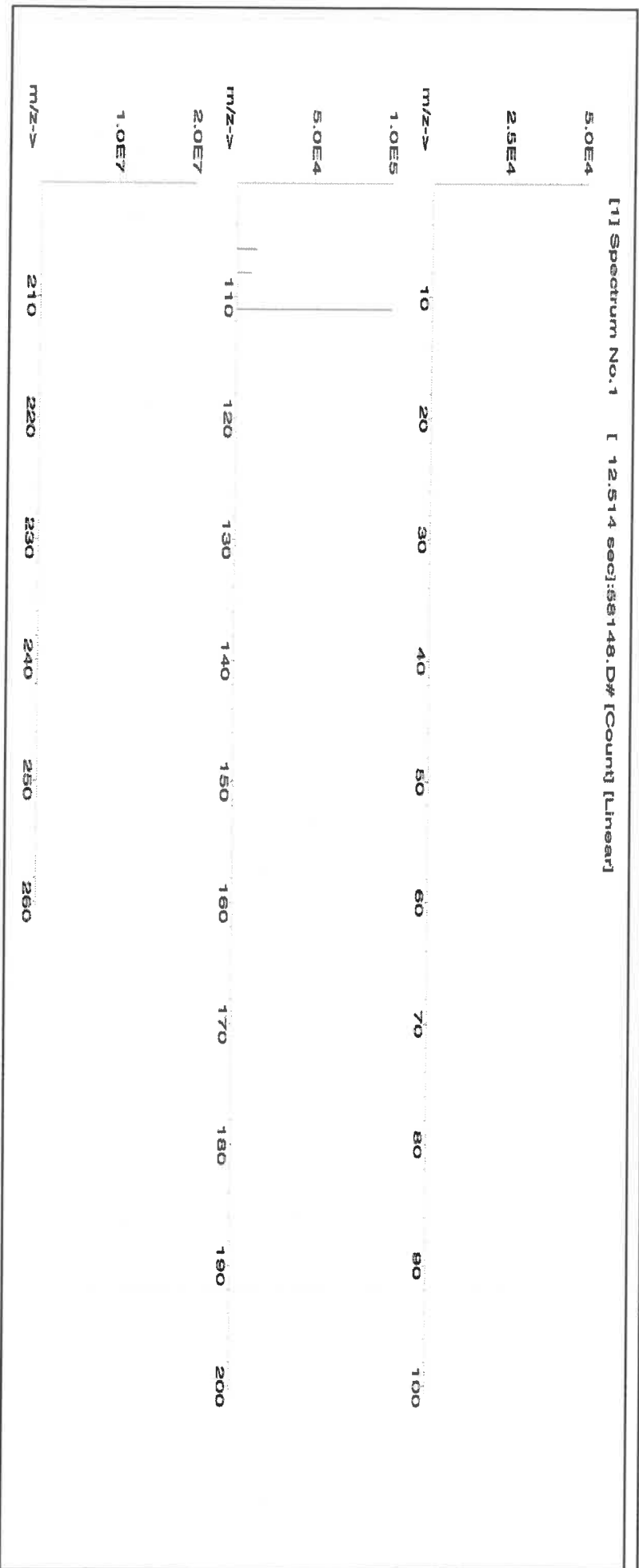
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	070124
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	070124

Compound

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

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

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





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

MC026



CERTIFIED WEIGHT REPORT:

Part Number: 57182 Lot #
Lot Number: 110923 Solvent: 24002546 Nitric Acid
Description: Lead (Pb)

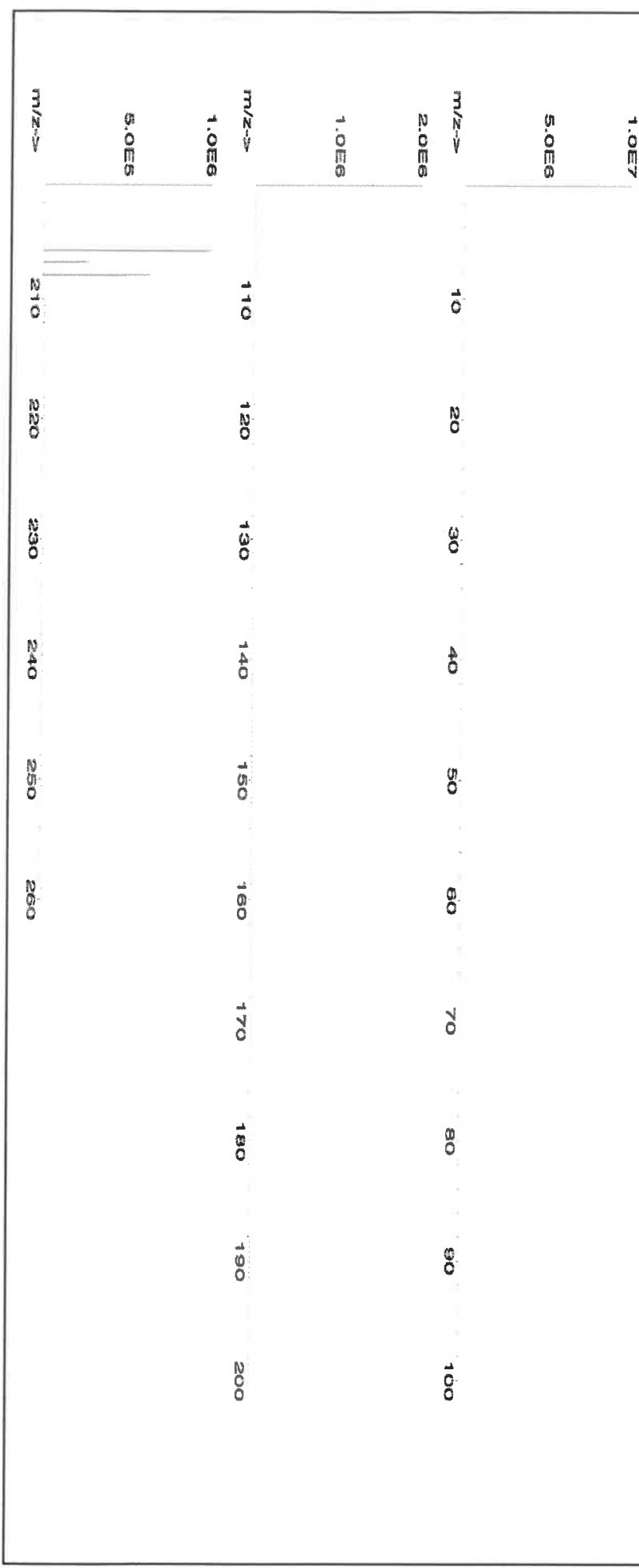
Expiration Date: 110926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02 5E-05 Balance Uncertainty 0.058 Flask Uncertainty

Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas
110923	

Compound	SDS Information									
	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)

1. Lead(II) nitrate (Pb) IN029 PED12016A1 10000 99.999 0.10 62.5 32.0006 32.0040 10001.1 20.0 10099-74-8 0.05 mg/m3 Inverse rat 83 mg/kg 3128

[1] Spectrum No.1 [17.284 sec]:58182.D# [Count] [Linear]





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

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

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

Physical Characterization:

(T)= Target analyte

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

Certified by:

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

Potassium Permanganate
BAKER ANALYZED® A.C.S. Reagent
Suitable for Mercury Determination



M4397
Supplied - 07.17.19
Opened - 08.16.19
exp - 08.24.25

Material No.: 3227-05
Batch No.: 0000227540
Manufactured Date: 2018/09/26
Retest Date: 2025/09/24
Revision No: 1

Certificate of Analysis

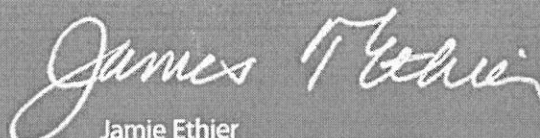
Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
ACS - Assay (KMnO ₄)	$\geq 99.0 \%$	99.0
ACS - Insoluble Matter	$\leq 0.2 \%$	< 0.1
ACS - Chloride and Chlorate (as Cl)	$\leq 0.005 \%$	0.005
ACS - Sulfate (SO ₄)	$\leq 0.02 \%$	0.02
Trace Impurities - Mercury (Hg)	$\leq 0.050 \text{ ppm}$	0.004

For Laboratory, Research or Manufacturing Use

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

NS
08.16.19


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

MS

Certificate of Analysis

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

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120632

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

Catalog Number	P279	Quality Test / Release Date	01/12/2021
Lot Number	210306		
Description	POTASSIUM PERMANGANATE, A.C.S.		
Country of Origin	United States	Suggested Retest Date	Jan/2026

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Dark purple to purple green crystals
ASSAY	%	>= 99	99.3
CHLORIDE & CHLORATE	%	<= 0.005	<0.005
IDENTIFICATION	PASS/FAIL	= PASS TEST	pass test
INSOLUBLE MATTER	%	<= 0.2	<0.2
MERCURY (Hg)	ppm	<= 0.05	<0.004
SULFATE (SO4)	%	<= 0.02	<0.02

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
 If there are any questions with this certificate, please call at (800) 227-6701.

*Based on suggested storage condition.

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

P: 800-669-6799/540-585-3030
 F: 540-585-3012
 info@inorganicventures.com

MS062
 MS063
 MS

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Mass Spec Solution
 Catalog Number: MSHG-10PPM
 Lot Number: S2-HG709270
 Matrix: 10% (v/v) HCl
 Value / Analyte(s): 10 µg/mL ea:
 Mercury
 Starting Material: Hg metal
 Starting Material Lot#: 1959
 Starting Material Purity: 99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL
Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
Hg	Calculated		See Sec. 4.2

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance.

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

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

k = coverage factor = 2

$u_{char} = [\sum ((w_i)^2 (u_{char i}^2))]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{CRM/RM} = (X_a) (u_{char a})$$

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag	0.000011	M	Eu	<	0.000201	O	Na	0.000004	M	Se	<	0.015915	O	Zn	<	0.001510
O	Al	0.000001	O	Fe	0.000001	M	Nb	<	0.000201	O	Si	0.000005	M	Zr	<	0.000201	
M	As	<	0.000402	M	Ga	<	0.000201	M	Nd	<	0.000201	M	Sm	<	0.000201		
M	Au	<	0.003631	M	Gd	<	0.000201	M	Ni	<	0.000402	M	Sn	<	0.001007		
M	B	<	0.001208	M	Ge	<	0.000201	M	Os	<	0.000605	M	Sr	<	0.000201		
M	Ba	<	0.000201	M	Hf	<	0.000201	O	P	<	0.032370	M	Ta	<	0.000201		
M	Be	<	0.000201	s	Hg	<		M	Pb	<	0.000201	M	Tb	<	0.000201		
M	Bi	<	0.000201	M	Ho	<	0.000201	M	Pd	<	0.000403	M	Te	<	0.002216		
O	Ca	0.000007	M	In	<	0.000201	M	Pr	<	0.000201	M	Th	<	0.000201			
M	Cd	<	0.000201	M	Ir	<	0.000201	M	Pt	<	0.000402	M	Ti	<	0.000402		
M	Ce	<	0.000201	O	K	0.000020	M	Rb	<	0.000201	O	Tl	<	0.016508			
M	Co	<	0.000201	M	La	<	0.000201	M	Re	<	0.000201	M	Tm	<	0.000201		
O	Cr	<	0.003021	O	Li	<	0.000107	M	Rh	<	0.000201	M	U	<	0.008058		
M	Cs	<	0.001208	M	Lu	<	0.000201	M	Ru	<	0.000201	M	V	<	0.000201		
M	Cu	<	0.000402	O	Mg	0.000001	O	S	<	0.053950	M	W	<	0.000604			
M	Dy	<	0.000201	M	Mn	<	0.000604	M	Sb	<	0.001208	M	Y	<	0.000201		
M	Er	<	0.000201	M	Mo	0.000009	M	Sc	<	0.000201	M	Yb	<	0.000201			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+

Chemical Compatibility - Stable in HNO₃. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

Stability - 2-100 ppb levels not stable in 1% HNO₃ / LDPE container, stable in 10% HNO₃ packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO₃ packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO₃ / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO₃); Oxide (Soluble in HNO₃); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 22, 2021

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

11.2 Lot Expiration Date

- **September 22, 2026**

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57058
020623
Cerium (Ce)

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

020626
Ambient (20 °C)
1000
6UTB

Weight shown below was diluted to (mL):

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

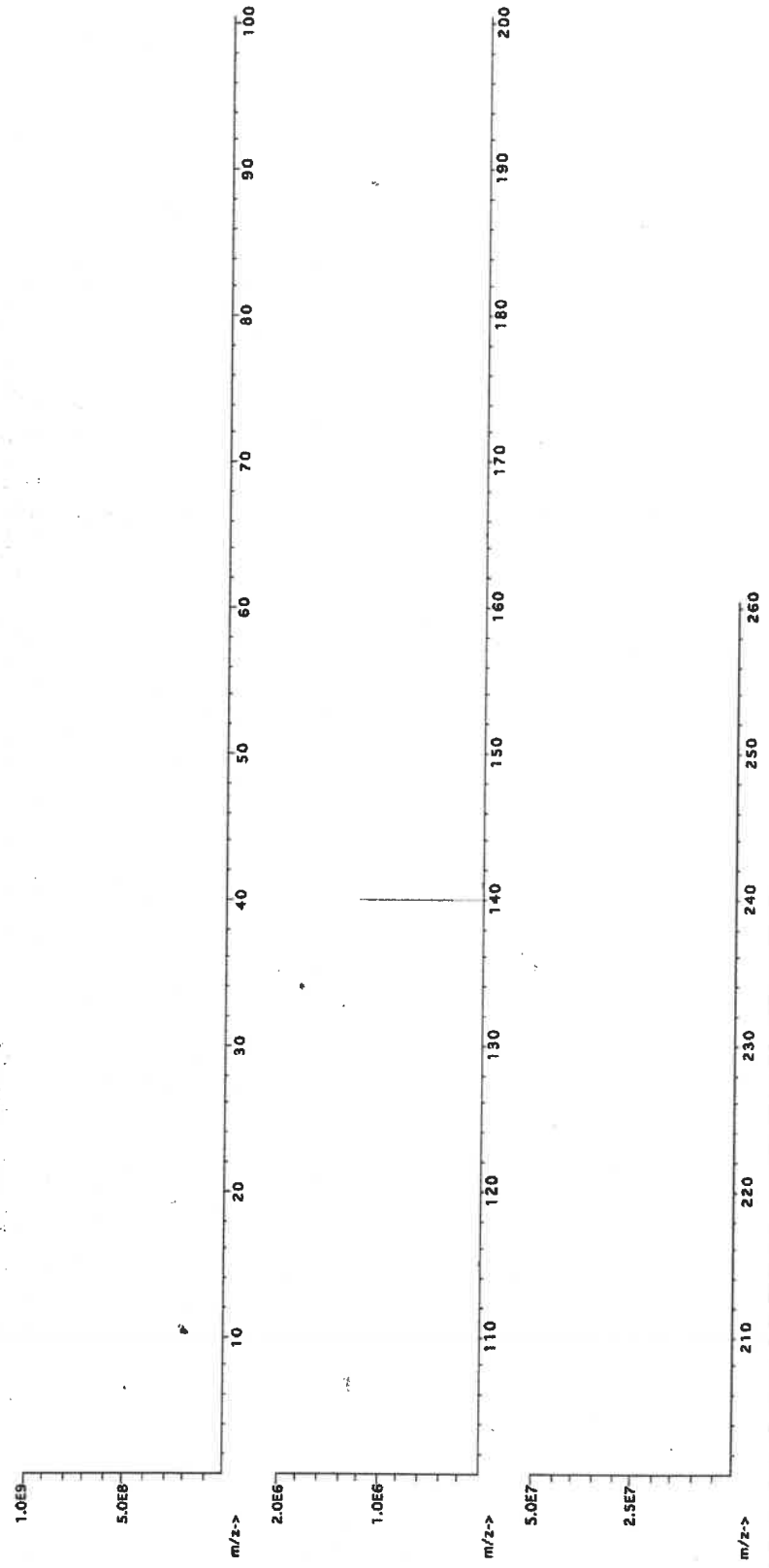
Lot #
Solvent: Nitric Acid

2% 20.0 (mL)
Nitric Acid

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information		
										(Solvent Safety Info. On Attached pg.)	LD50	SRM
1. Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.8	3.04919	1000.0	2.0	10294-41-4	NA	NA

[1] Spectrum No.1 [43.472 sec]58158.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 58024
Lot Number: 060523
Description: Chromium (Cr)

Lot # 2110221 **Solvent:** Nitric Acid

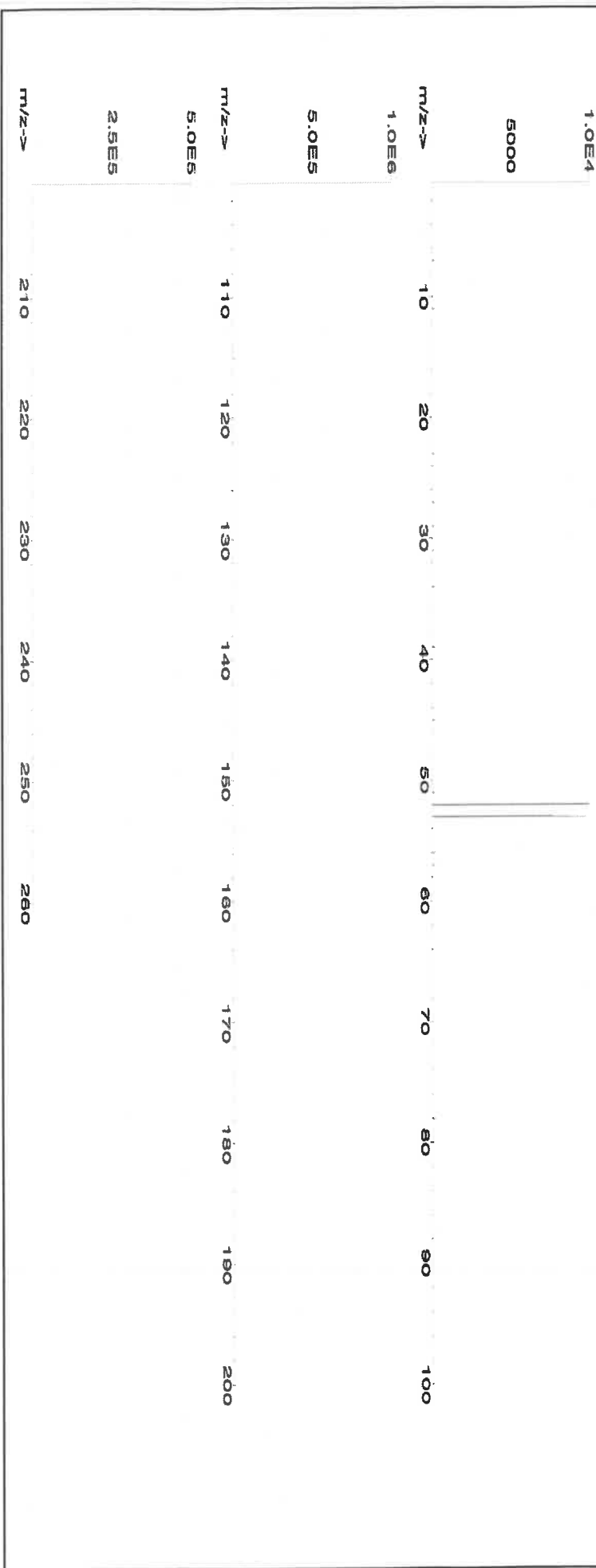
Formulated By:	Lawrence Barry
	060523
Reviewed By:	Pedro L. Ruelas
	060523

Expiration Date: 060526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Chromium(III) nitrate nonahydrate (Cr) 58124 071122 0.1000 200.0 0.084 1000 10000.1 1000.0 2.2 7789-02-8 0.5 mg(Cr)/m3 or rat 3250 mg/kg 3112a

[1] Spectrum No.1 [31.393 sec]:57024.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **57028**
Lot Number: **091223**
Description: **Nickel (NI)**

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

Expiration Date: **091226**

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

Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6U7B**

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

Balance Uncertainty: **5E-05**

Flask Uncertainty: **0.056**

2.0%

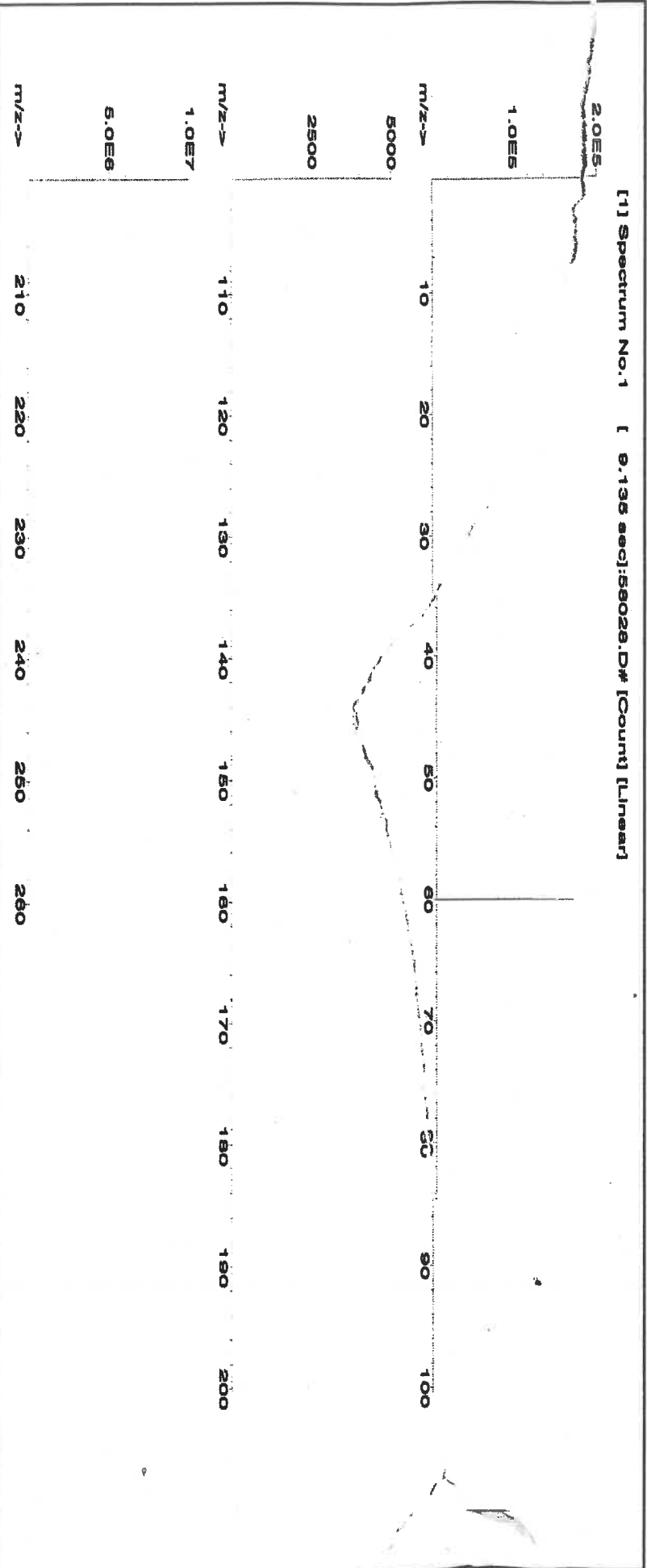
40.0 (mL)

Nitric Acid

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Nickel(II) nitrate hexahydrate (NI) 58128 062023 0.1000 200.0 0.084 1000 10000.4 1000.0 2.2 13478-00-7 1 mg/m3 or-rel 1620 mg/kg 3136





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **58029**
Lot Number: **071723**
Description: **Copper (Cu)**

Lot #: **2110221**
Solvent: **Nitric Acid**

2.0%

40.0 (mL)
Nitric Acid

Formulated By:	Benson Chan	071723
Reviewed By:	Pedro L. Ruelas	071723

Expiration Date: **071726**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6L7B**

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

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Copper(II) nitrate trihydrate (Cu) 58129 022723 0.1000 200.0 0.084 1000 10000.5 1000.0 2.2 10031-43-3 1 mg/m3 or-rat 794 mg/kg 3114

[1] Spectrum No.1 [33.422 sec]:58029.D# [Count] [Linear]

1.0E6	m/z-->	10	20	30	40	50	60	70	80	90	100
5.0E5	m/z-->	110	120	130	140	150	160	170	180	190	200
2.5E7	m/z-->	210	220	230	240	250	260				



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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 57004
Lot Number: 102523
Description: Beryllium (Be)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date:

102526

2.0%

40.0 (mL)

Nitric Acid

Recommended Storage:
Nominal Concentration (µg/mL):

Ambient (20 °C)

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

2000.02

5E-05 Balance Uncertainty

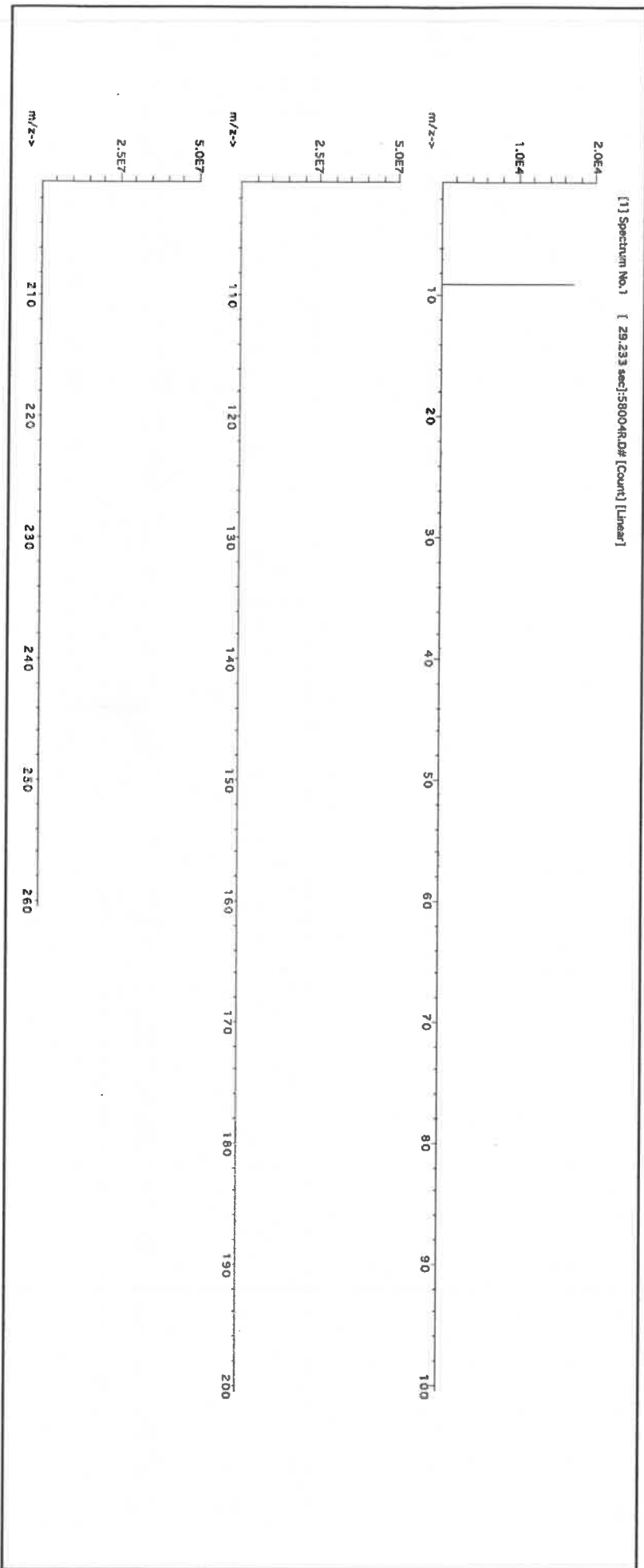
0.058 Flask Uncertainty

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

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	1000.0	2.2	13597-99-4	0.2µg/m3	intrinsc-rat 3.16mg/kg	NA
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

* All standard containers are meticulously cleaned prior to use.

* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).

* Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.

* All Standards should be stored with caps tight and under appropriate laboratory conditions.

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



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

Solvents: 21110221 Nitric Acid
22D0562008 Hydrochloric acid

Lot # R-02509124 M599

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL):

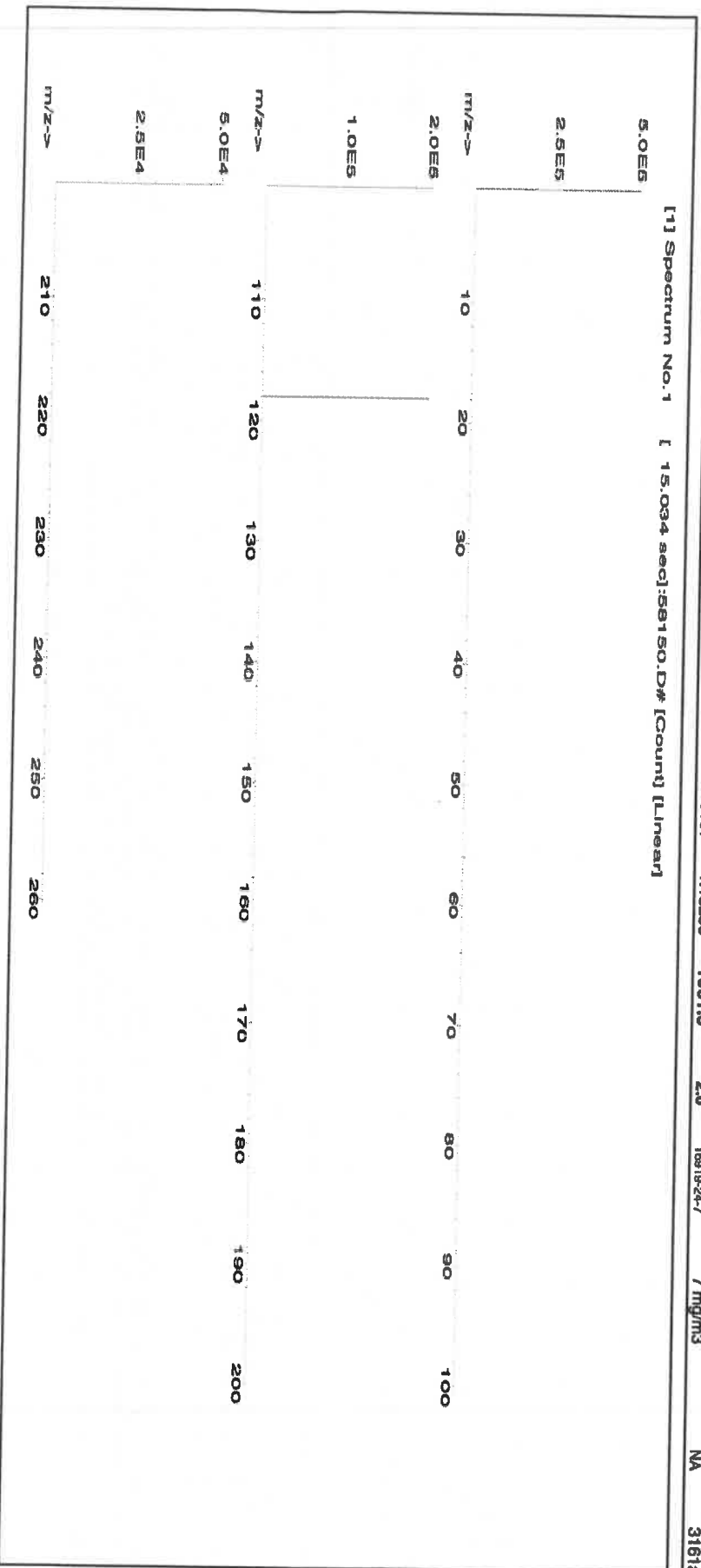
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By: Benson Chan	
071123	
Reviewed By: Pedro L. Rientas	
071123	

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

1. Ammonium hexafluoroantimonate(V) (Sn) INO10 SMD042023A1 1000 99.999 0.10 44.2 1.13107 1.13286 1001.6 2.0 16919-24-7 7 mg/m3 NA 3161a

[1] Spectrum No. 1 [15.034 sec]:56150.D# [Count] [Linear]





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ta	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



R: 02/09/24 115800 (54)

CERTIFIED WEIGHT REPORT:

Part Number: 57027
Lot Number: 091923
Description: Cobalt (Co)

Expiration Date: 091926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Volume shown below was diluted to (mL): 2000.02

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Lot # 24002546
Solvent: Nitric Acid

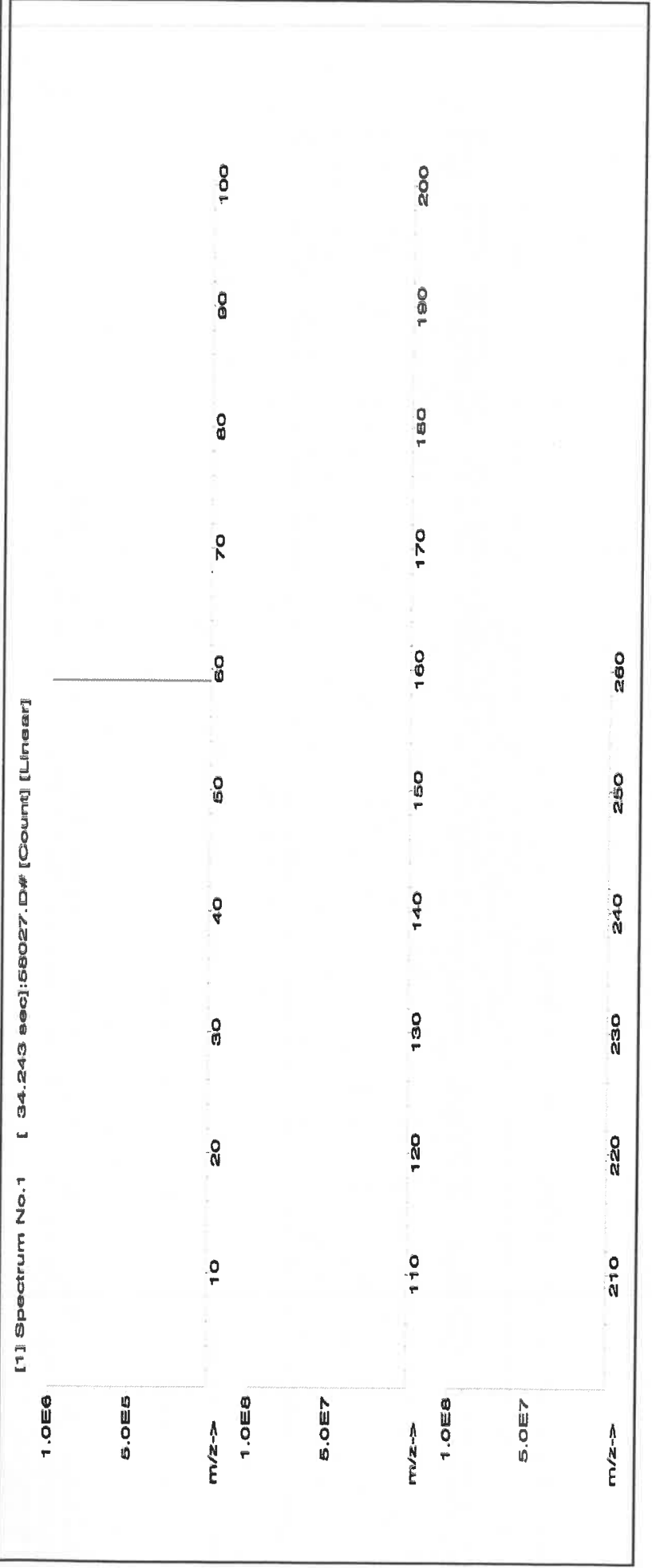
2.0% Nitric Acid
40.0 (mL)

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

SDS Information

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

1. Cobalt(II) nitrate hexahydrate (Co) 58127 050923 0.1000 200.0 0.084 1000 10000.0 1000.0 2.2 10026-22-9 0.02 mg/m3 orl-rat 691 mg/kg 3113





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

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

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

(T)= Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57033
111323
Arsenic (As)

Lot #
Solvent:

24002546
Nitric Acid

2.0%

80.0

Nitric Acid

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

111326
Ambient (20 °C)
1000

NIST Test Number:
Volume shown below was diluted to (mL):

6UTB
4000.0

5E-05
Balance Uncertainty
0.06
Flask Uncertainty

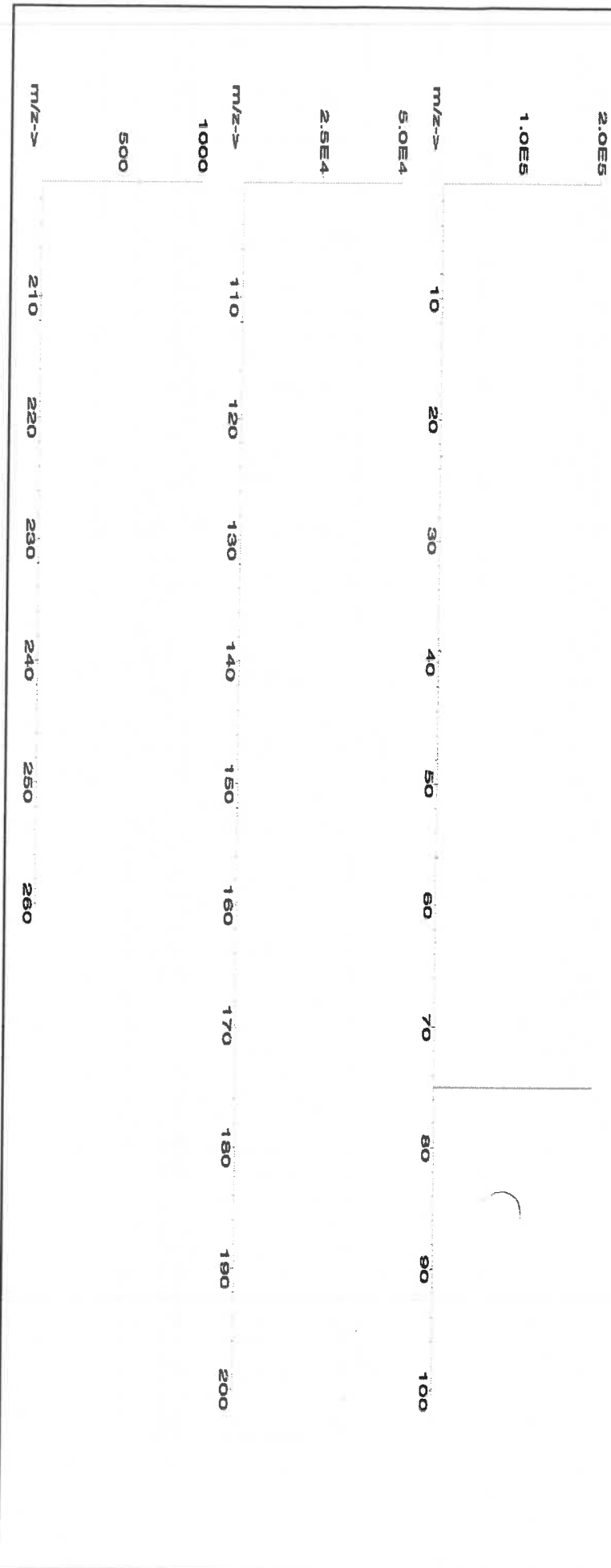
Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rendas	111323

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)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Arsenic (As)	58133	020522	0.1000	400.0	0.084	1000	10001.0	1000.0	2.0	7440-38-2	0.5 mg/m3	or-rat 500 mg/kg	3103a
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[1] Spectrum No.1 [34.433 sec]:57033.D# [Count] [Linear]





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	T	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Tl	<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	Sa	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **57005**
Lot Number: **071123**
Description: **Boron (B)**

Solvent: MKB0857V Ammonium hydroxide

Lot #

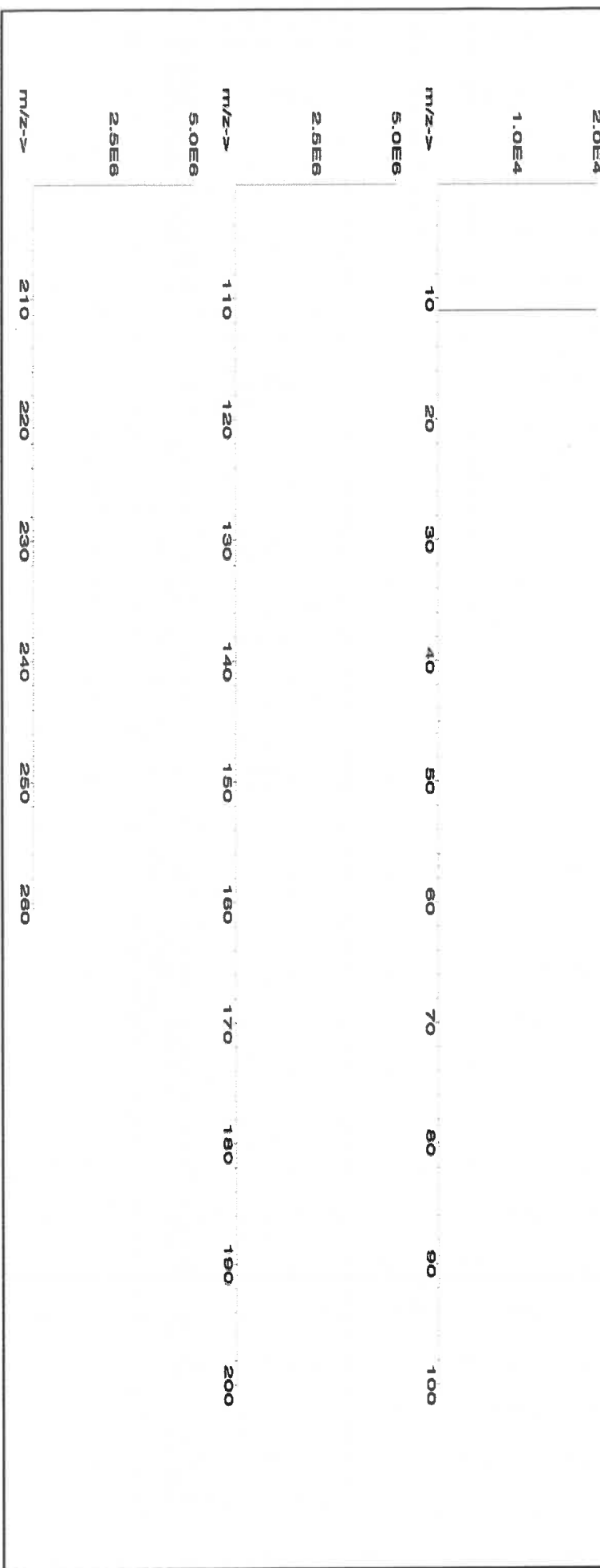
AI: 021009124 M5814

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1999.48 0.058 Balance Uncertainty
2.0% 40.0 Ammonium hydroxide (mL)

Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rientas
071123	

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	NIST SRM
Boric acid (B)	IN018 BV082018A1	1000	99.999	0.10	17.3	11.55772	11.56201	1000.4	3107

[1] Spectrum No. 1 [12.275 sec]:56105.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

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

Solvent: 24002546 Nitric Acid

Lot #

R: 02109124 M5820

Formulated By: Lawrence Barry 091123

Reviewed By: Pedro L. Rentas 091123

2% 40.0 (mL) Nitric Acid

Expiration Date: 091126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LJB

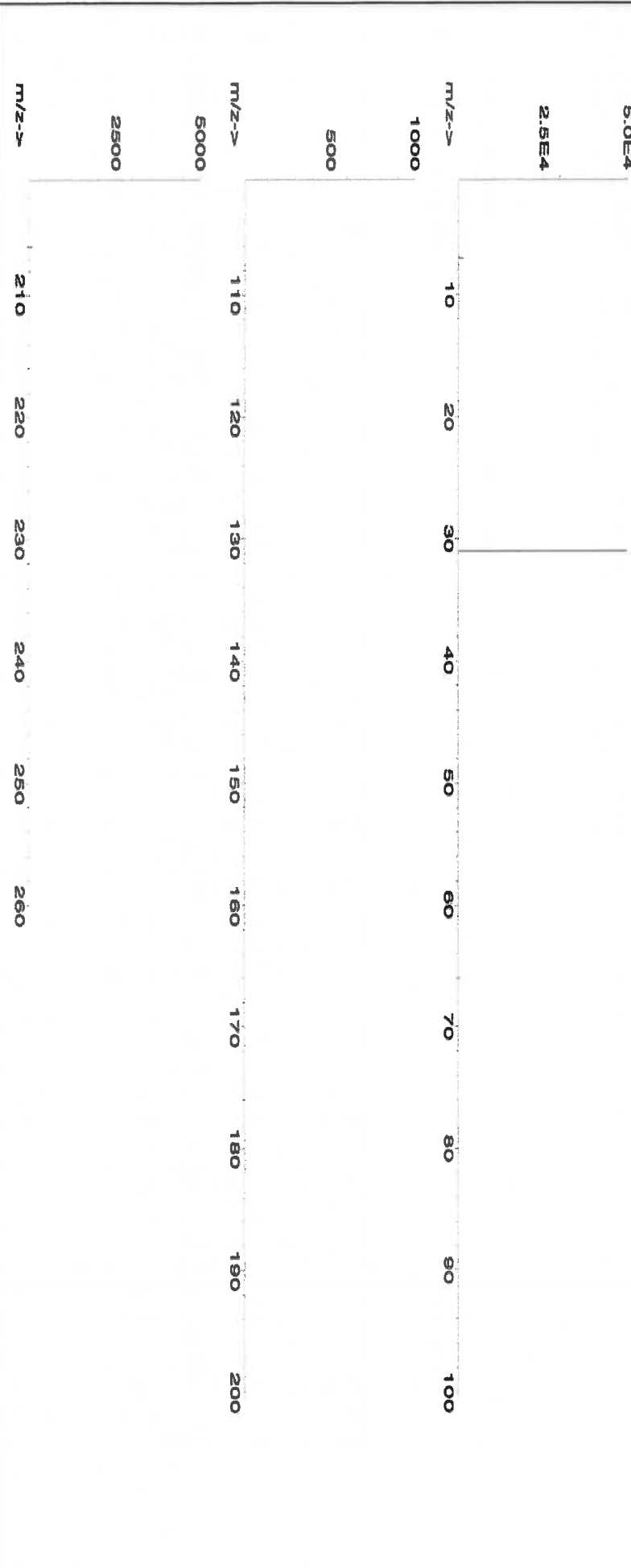
Weight shown below was diluted to (mL): 2000.02 0.058 Balance Uncertainty Flask Uncertainty

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium dihydrogen phosphate (P) IN008 PY082019A1 1000 99.999 0.10 27.5 7.2729 7.2730 1000.0 2.0 7722-76-1 5 mg/m3 xH-rat >2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Sodium Chloride, Crystal
BAKER ANALYZED® A.C.S. Reagent



MS824
MS

Material No.: 3624-01

Batch No.: 0000281938

Manufactured Date: 2021-06-07

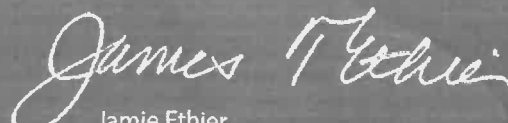
Retest Date: 2026-06-07

Revision No.: 1

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	$\geq 99.0 \%$	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	$\leq 0.005 \%$	0.003 %
Iodide (I)	$\leq 0.002 \%$	< 0.002 %
Bromide (Br)	$\leq 0.01 \%$	< 0.01 %
Chlorate and Nitrate (as NO ₃)	$\leq 0.003 \%$	< 0.001 %
ACS - Phosphate (PO ₄)	$\leq 5 \text{ ppm}$	< 5 ppm
Sulfate (SO ₄)	$\leq 0.004 \%$	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	$\leq 5 \text{ ppm}$	< 5 ppm
Iron (Fe)	$\leq 2 \text{ ppm}$	< 1 ppm
Calcium (Ca)	$\leq 0.002 \%$	< 0.001 %
Magnesium (Mg)	$\leq 0.001 \%$	< 0.001 %
Potassium (K)	$\leq 0.005 \%$	0.001 %

For Laboratory, Research, or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs
Country of Origin: USA
Packaging Site: Paris Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

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

Avantor Performance Materials, LLC

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



CERTIFIED WEIGHT REPORT:

MS962 **R10614124**

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

Part Number: **57034**
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**

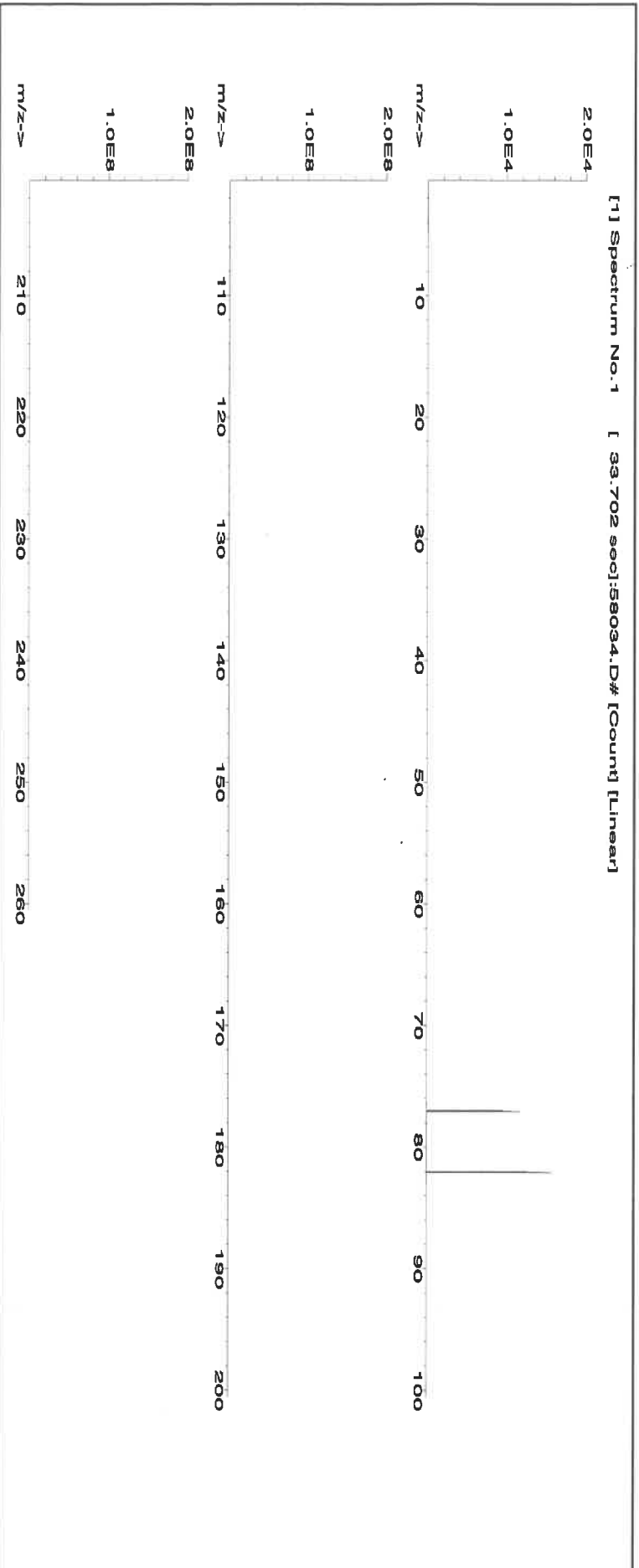
Volume shown below was diluted to (mL): **2000.07** **SE-05** Balance Uncertainty **0.100** Flask Uncertainty

Formulated By:	Benson Chan	060624
Reviewed By:	Pedro L. Rantas	060624

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	CAS#	OSHA PEL (TWA)	LDSO	NIST SRM
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1. Selenium (Se)	58134	071223	0.1000	200.0	0.084	1000	10002.5	1000.0	2.2	7782-49-2	0.2 mg/m3	or-tral 6700 mg/kg	3149
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 57016
Lot Number: 122923
Description: Sulfur (S)

Lot #
Solvent: 122923 ASTM Type 1 Water

Formulated By:	Benson Chan
122923	
Reviewed By:	Pedro L. Rentas
122923	

Expiration Date: 122926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.0
5E-05 Balance Uncertainty
0.06 Flask Uncertainty

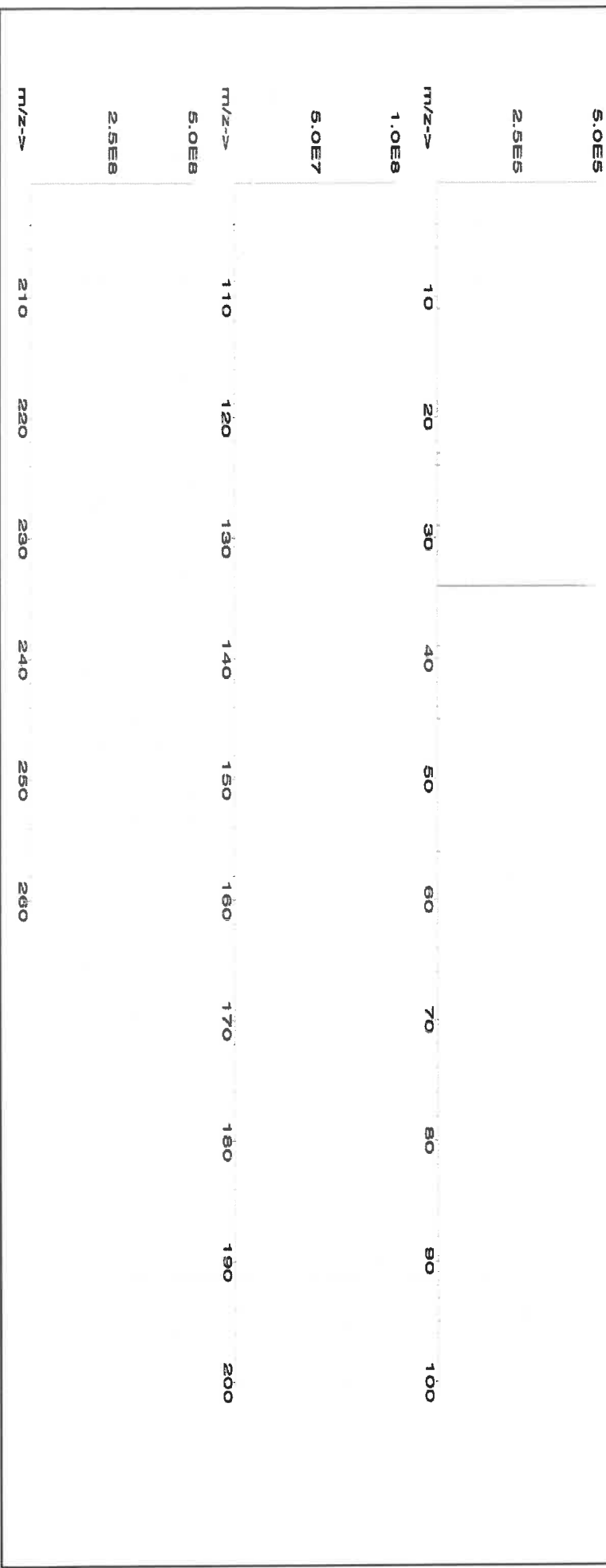
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty		NIST SRM
									±	(µg/mL)	

SDS Information

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

1. Ammonium sulfate (S) IN117 SLBR725V 1000 99.9 0.10 24.3 16.4979 16.4980 1000.0 2.0 7783-20-2 NA or-rel 4250mg/kg 3181

[1] Spectrum No. 1 [33.603 sec]:57016.D# [Count] [Linear]



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www.absolutestandards.com



Certified Reference Material CRM

M5970 M5971

R. J. 10/12/24



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

CERTIFIED WEIGHT REPORT:

Part Number: **57003**
Lot Number: **062124**
Description: **Lithium (Li)**
Expiration Date: **06/127**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Volume shown below was diluted to (mL): **250.11**
SE-05 Balance Uncertainty
0.016 Flask Uncertainty

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

2.0% 5.0 (mL) Nitric Acid

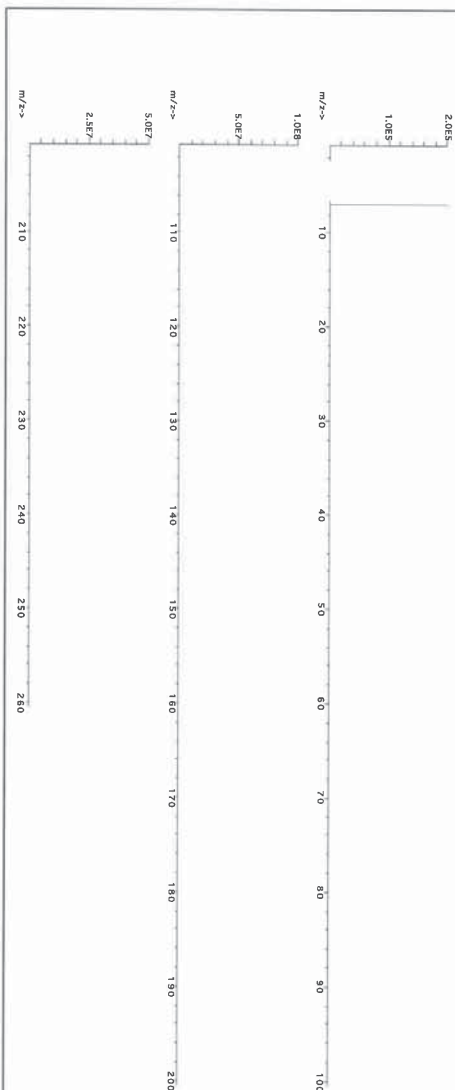
Microvial Capable	
Formulated By:	062124
Giovanni Esposito	

Reviewed By: *[Signature]*
Petro L. Parias

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

1. Lithium nitrate (Li) 58103 070622 0.1000 25.0 0.004 1000 10000.4 1000.0 2.0 7790-68-4 5 mg/m3 or-hal 1428 mg/kg NA

[1] Spectrum No. 1 [32.093 sec; 15000.0Hz Count [Lines]



Certificate of Analysis



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info@inorganicventures.com

R: 2/22/24

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution

Catalog Number: CGT1

Lot Number: T2-T1719972

Matrix: 2% (v/v) HNO₃

Value / Analyte(s): tr. HF

Starting Material: 1 000 µg/mL ea.

Starting Material: Titanium

Starting Material: Ti Metal

Starting Material Lot#: 2094

Starting Material Purity: 99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

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

Assay Method #1

1002 ± 4 µg/mL

ICP Assay NIST SRM 3162a Lot Number: 130925

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

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

Characterization of CRM/RM by Two or More Methods
Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = (x_p) / (x_{p,m})$

x_p = mean of Assay Method A with

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

$w_1 = (1/u_{char, A}^2) / \sum (1/u_{char, i}^2)$

k = coverage factor = 2

$u_{CRM/RM} = [(2/(n-1)) \sum (u_{char, i}^2)]^{1/2}$ where $u_{char, i}$ are the errors from each characterization method

$u_{RM} = [(2/(n-1)) \sum (u_{char, i}^2)]^{1/2}$ where $u_{char, i}$ are the errors from each characterization method

$u_{RM} = [(2/(n-1)) \sum (u_{char, i}^2)]^{1/2}$ where $u_{char, i}$ are the errors from each characterization method

$u_{RM} = [(2/(n-1)) \sum (u_{char, i}^2)]^{1/2}$ where $u_{char, i}$ are the errors from each characterization method

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an UHPA-filtered Clean Room. An UHPA-filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag	<	0.000536	M Eu	<	0.000268	O Na	<	0.032670	M Se	<	0.001204	O Zn	<	0.003267
M Al	<	0.000872	O Fe	<	0.003225	O Nb	<	0.043560	O Si	<	0.004735	O Zr	<	0.043560
M As	<	0.008586	M Ga	<	0.000268	M Nd	<	0.000268	M Sm	<	0.000268			
M Au	<	0.004577	M Gd	<	0.000268	O Ni	<	0.010890	M Sn	<	0.000986			
O B	<	0.008929	M Ge	<	0.002146	M Os	<	0.000269	O Sr	<	0.000986			
M Ba	<	0.002683	M Hf	<	0.002161	O P	<	0.054450	M Ta	<	0.010560			
M Be	<	0.005366	M Hg	<	0.003231	M Pb	<	0.001073	M Tb	<	0.000268			
M Bi	<	0.001609	M Ho	<	0.000268	M Pd	<	0.000268	M Th	<	0.001341			
O Ca	<	0.000676	M In	<	0.002683	M Pr	<	0.000268	M Th	<	0.053663			
M Cd	<	0.000268	M Ir	<	0.000269	M Pt	<	0.000536	S Ti	<	0.000268			
M Co	<	0.000268	M K	<	0.001172	M Rb	<	0.000268	M Tl	<	0.000268			
M Cr	<	0.000752	O Li	<	0.000268	M Re	<	0.000268	M Tm	<	0.000268			
M Cs	<	0.000268	M Lu	<	0.000268	M Rh	<	0.000268	M U	<	0.000268			
O Cu	<	0.010890	O Mg	<	0.005445	I S	<	0.006976	M Y	<	0.002146			
M Dy	<	0.000268	O Mn	<	0.003267	M Sb	<	0.004900	M Yb	<	0.000536			
M Er	<	0.000268	M Mo	<	0.000774	O Sc	<	0.004900	M Yb	<	0.000536			

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- 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 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); K₂SiO₇ - no KF if silica not present); Organic Matrices (Dry ash at 450EC in P10 and dissolve by heating with 1:1:1 H₂O / HF / H₂SO₄ or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystaline form).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	14 ppt
ICP-MS 48 amu		

HAZARDOUS INFORMATION

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

ICP-OES 323.452 nm	ICP-OES 334.941 nm	ICP-OES 336.121 nm
0.0054 / 0.00092 µg/mL	0.0038 / 0.00028 µg/mL	0.0053 / 0.00034 µg/mL

1 W, Mo, Co
1 Nb, Ta, Cr, U
1 Ce, Ar, Ni
Ru]]
(where X = Zr, Mo,
14N17N2, 36Ar12C,
48Ca, 196X=2
14N16O18O,
32S16O, 32S14N,
N/A

8.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

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

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / AZLA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0

CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

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

11.2 Lot Expiration Date

- June 17, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date:

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

12.0

NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozlikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Paul Gaines

80978

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
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M5985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGIN10
Lot Number: U2-IN729349
Matrix: 5% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Indium
Starting Material: Indium Metal
Starting Material Lot#: 2511
Starting Material Purity: 99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL
Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10021 ± 56 µg/mL ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	10035 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	10001 ± 33 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{char} = [\sum (w_i)^2 (u_{char i}^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{CRM/RM} = (X_a) (u_{char a})$$

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000760	M	Eu	<	0.000760	O	Na	0.012771	M	Se	<	0.023000	M	Zn	<	0.006100
M	Al	0.003385	O	Fe	0.004462	M	Nb	<	0.000760	O	Si	0.024619	M	Zr	<	0.000760		
M	As	<	0.004600	M	Ga	<	0.000760	M	Nd	<	0.000760	M	Sm	<	0.000760			
M	Au	<	0.002300	M	Gd	<	0.000760	O	Ni	<	0.005100	M	Sn	<	0.000760			
O	B	0.003692	M	Ge	<	0.001600	M	Os	<	0.000760	O	Sr	<	0.000610				
M	Ba	<	0.001600	M	Hf	<	0.000760	n	P	<		M	Ta	<	0.000760			
O	Be	<	0.000130	M	Hg	<	0.003100	M	Pb	0.001400	M	Tb	<	0.000760				
M	Bi	<	0.000760	M	Ho	<	0.000760	M	Pd	<	0.001600	M	Te	<	0.000760			
O	Ca	0.004616	s	In	<			M	Pr	<	0.000760	M	Th	<	0.000760			
M	Cd	<	0.000760	M	Ir	<	0.000760	M	Pt	<	0.000760	O	Ti	<	0.001100			
M	Ce	<	0.000760	O	K	0.007078	M	Rb	<	0.000760	M	Tl	<	0.000760				
M	Co	<	0.000760	M	La	<	0.000760	M	Re	<	0.000760	M	Tm	<	0.000760			
O	Cr	<	0.001300	O	Li	<	0.000130	M	Rh	<	0.000760	M	U	<	0.000760			
M	Cs	<	0.000760	M	Lu	<	0.000760	M	Ru	<	0.000760	M	V	<	0.001600			
M	Cu	<	0.003800	O	Mg	0.000707	n	S	<		M	W	<	0.001600				
M	Dy	<	0.000760	O	Mn	0.000149	M	Sb	<	0.000760	M	Y	<	0.000760				
M	Er	<	0.000760	M	Mo	<	0.002300	M	Sc	<	0.000760	M	Yb	<	0.000760			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 114.82 +3 6 In(H₂O)₆+3

Chemical Compatibility -Soluble in HCl, HNO₃, and H₂SO₄. Avoid neutral and basic media. Stable with most metals and inorganic anions. The oxalate, sulfide, carbonate, hydroxide and phosphate are insoluble in water.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

In Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO₃); Oxide (Soluble in mineral acids); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in dilute HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 115 amu	1 ppt	n/a	115Sn, 99Ru16O
ICP-OES 158.583 nm	0.05 / 0.002 µg/mL	1	
ICP-OES 230.606 nm	0.1 / 0.03 µg/mL	1	Ni, Os
ICP-OES 325.609 nm	0.2 / 0.05 µg/mL	1	Mn, Mo, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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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



Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories".

Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CLPP-CAL-3
Lot Number: T2-MEB727800
Matrix: 7% (v/v) HNO₃
Value / Analyte(s):
1 000 µg/mL ea:
Arsenic, Lead,
Selenium, Thallium,
500 µg/mL ea:
Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	1 000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 2.2 µg/mL
Lead, Pb	1 000 ± 4 µg/mL	Selenium, Se	1 000 ± 6 µg/mL
Thallium, Tl	1 000 ± 7 µg/mL		

Density: 1.042 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
As	Calculated		See Sec. 4.2
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 21, 2022

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

11.2 Lot Expiration Date

- **December 21, 2027**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746172
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum(w_i)(X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2(u_{\text{char } i})^2]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = long term stability standard uncertainty (storage)

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Characterization of CRM/RM by One Method

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

$$X_{\text{CRM/RM}} = (X_a)(u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™)

see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale).

<https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

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





Refine your results. Redefine your industry.

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Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

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EXP: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746762
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

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7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

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

11.2 Lot Expiration Date

- **September 06, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

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Custom VS Manager



Certifying Officer:

Paul Gaines
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EXP: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

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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
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
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Ti	ICP Assay	traceable to 3162a	T2-TI725816

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$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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X_a = mean of Assay Method A with

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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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- 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.

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

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

11.2 Lot Expiration Date

- **September 06, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58025
101124
Manganese (Mn)

R-71113128

Lot #
Solvent: 24002546 Nitric Acid

Expiration Date:

101127

2% 80.0 (mL) Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

4000.2

0.10 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Renteria</i>
	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)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Manganese(II) nitrate hydrate (Mn) IN031 MNM02020A1 1000 99.999 0.10 20.8 19.2322 19.2344 1000.1 2.0 15710-66-4 5 mg/m3 or-rel >300mg/kg 3132

[1] Spectrum No.1 [34.243 sec]:57025.D# [Count] [Linear]

5.0E6	m/z->	10	20	30	40	50	60	70	80	90	100
2.5E6	m/z->	110	120	130	140	150	160	170	180	190	200
1.0E6	m/z->	210	220	230	240	250	260				
5.0E7	m/z->										



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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Certificate of Analysis

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M6137
R-71013124

1.0 ACCREDITATION / REGISTRATION

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2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGSI1
Lot Number: V2-SI744713
Matrix: tr. HNO₃
tr. HF
Value / Analyte(s): 1 000 µg/mL ea:
Silicon
Starting Material: Silica
Starting Material Lot#: 1771
Starting Material Purity: 99.9981%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 999 ± 6 µg/mL
Density: 1.003 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	999 ± 5 µg/mL ICP Assay NIST SRM Traceable to 3150 Lot Number: S2-SI702546
Assay Method #2	1000 ± 7 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{char} = [\sum (w_i)^2 (u_{char\ i})^2]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{CRM/RM} = (X_a) (u_{char\ a})$$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000310	M	Eu	<	0.000310	O	Na	0.001656	M	Se	<	0.022000	M	Zn	<	0.002500	
M	Al		0.010787	M	Fe	<	0.027000	M	Nb	<	0.001300	s	Si	<		O	Zr	<	0.001900
M	As	<	0.001900	M	Ga	<	0.001300	M	Nd	<	0.000310	M	Sm	<	0.000310				
M	Au	<	0.000910	M	Gd	<	0.000310	M	Ni	<	0.005500	M	Sn		0.000096				
M	B		0.016180	M	Ge	<	0.001900	M	Os	<	0.000610	O	Sr		0.000092				
M	Ba		0.000096	M	Hf		0.000423	i	P	<		M	Ta		0.002542				
O	Be	<	0.000570	M	Hg	<	0.000610	M	Pb	<	0.000310	M	Tb	<	0.000310				
M	Bi	<	0.000310	M	Ho	<	0.000610	M	Pd	<	0.000610	M	Te	<	0.000910				
O	Ca		0.011557	M	In	<	0.000310	M	Pr	<	0.000310	M	Th	<	0.001900				
M	Cd	<	0.000310	M	Ir	<	0.000310	M	Pt	<	0.000310	M	Ti		0.001078				
M	Ce	<	0.000610	O	K		0.000577	M	Rb	<	0.009100	M	Tl	<	0.000310				
M	Co	<	0.001600	M	La	<	0.000310	M	Re	<	0.000310	M	Tm	<	0.000310				
M	Cr	<	0.010000	O	Li	<	0.000460	M	Rh	<	0.000310	M	U	<	0.000310				
M	Cs	<	0.000310	M	Lu	<	0.000310	M	Ru	<	0.000310	O	V	<	0.001300				
M	Cu	<	0.002500	O	Mg		0.001348	O	S	<	0.570000	M	W	<	0.001900				
M	Dy	<	0.000310	M	Mn	<	0.002500	M	Sb	<	0.000310	M	Y	<	0.000310				
M	Er	<	0.000310	M	Mo	<	0.000310	O	Sc	<	0.000590	M	Yb	<	0.000310				

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 28.09 +4 6 Si(OH)x(F)y2-

Chemical Compatibility -Soluble in HCl, HF, H3PO4 H2SO4 and HNO3 as the Si(OH)x(F)y2-. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths, or high levels of transition elements unless they are fluorinated. Stable with most inorganic anions with a tendency to hydrolyze forming silicic acid (silicic acid is soluble up to ∼100 ppm in water) in all dilute acids except HF.

Stability - 2-100 ppb levels - stability unknown - (alone or mixed with all other metals) as the Si(OH)x(F)y2-. 1-10,000 ppm single element solutions as the Si(OH)x(F)y2- chemically stable for years in 2-5 % HNO3 / trace HF in a LDPE container.

Si Containing Samples (Preparation and Solution) -Metal (Soluble in 1:1:1 H2O / HF / HNO3); Oxide - SiO2, amorphous (dissolve by heating in 1:1:1 H2O / HF / HNO3); Oxide - quartz (fuse in Pt0 with Na2CO3); Geological Samples(fuse in Pt0with Na2CO3 followed by HCl solution of the fuseate); Organic Matrices containing silicates and non volatile silicon compounds (dry ash at 4500C in Pt0 and dissolve by gently warming with 1:1:1 H2O / HF / H2SO4 or fuse / ash with Na2CO3 and dissolve fuseate with HCl / H2O); Silicone Oils - dimethyl silicones depolymerize to form volatile monomer units when heated (Measure directly in alcoholic KOH / xylene mixture where sample is treated first with the KOH at 60-1000C to "unzip" the Si- O-Si polymeric structure or digest with conc. H2SO4 / H2O2 followed by cooling and dissolution of the dehydrated silica with HF.) Note that the direct analysis of silicone oils in an organic solvent will result in false high results due to high vapor pressure of volatile monomer units like hexamethylcyclotrisiloxane. The KOH forms the K2+Si(CH3)2O= salt which is not volatile at room temperature.

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 28 amu	4000 - 8000 ppt	N/A	N2, 12C16O
ICP-OES 212.412 nm	0.02/0.01 µg/mL	1	Hf, Os, Mo, Ta
ICP-OES 251.611 nm	0.012/0.003 µg/mL	1	Ta, U, Zn, Th
ICP-OES 288.158 nm	0.03/0.004 µg/mL	1	Ta, Ce, Cr, Cd, Th

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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





M6138



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58120
121824
Calcium (Ca)

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

121827
Ambient (20 °C)
10000
6UTB

Weight shown below was diluted to (mL):

4000.1

Solvent:

Nitric Acid

Lot #

24012496

2%
80.0
(mL)

Nitric Acid

5E-05 Balance Uncertainty
0.15 Flask Uncertainty

Giovanni Esposito

Formulated By: Giovanni Esposito

121824

Pedro L. Rentas

Reviewed By: Pedro L. Rentas

121824

SDS Information

Expanded

Uncertainty

(Solvent Safety Info. On Attached pg.)

NIST

+/- (µg/mL)

CAS#

OSHA PEL (TWA)

LD50

SRM

Conc. (µg/mL)

Actual

Weight (g)

Target

Assay

Purity (%)

Purity (%)

Nominal

Conc. (µg/mL)

Lot

Number

RM#

IN014

CAD032023B3

10000

99.999

0.10

39.9

100.2537

100.2677

10001.4

20.0

471-34-1

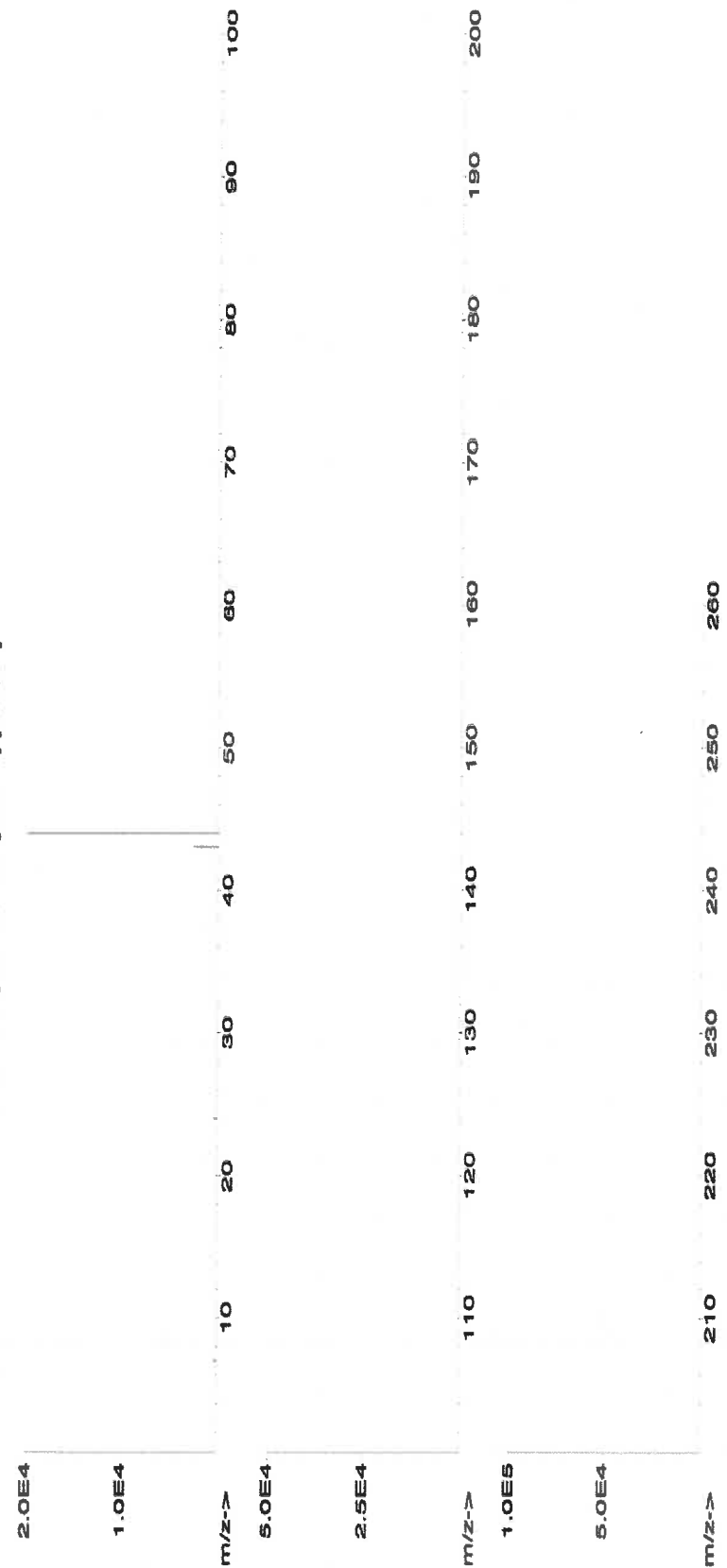
5 mg/m3

on-rat >2000mg/kg

3109a

1. Calcium carbonate (Ca)

[1] Spectrum No. 1 [12.514 sec]:58120.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02
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
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02
Be	<0.01	Cr	<0.02	Ga	30	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02
																W	<0.02
																U	<0.02
																V	<0.02
																Yb	<0.02
																Y	<0.02
																Zn	<0.02
																Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58126
011025
Iron (Fe)
M6140

Lot #
Solvent: 24012496 Nitric Acid

Expiration Date:

011028

2%

40.0 (mL) Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

10000

NIST Test Number:

6U7B

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 2000.07

0.100 Flask Uncertainty

Formulated By:	Benson Chan	011025
Reviewed By:	Pedro L. Renteria	011025

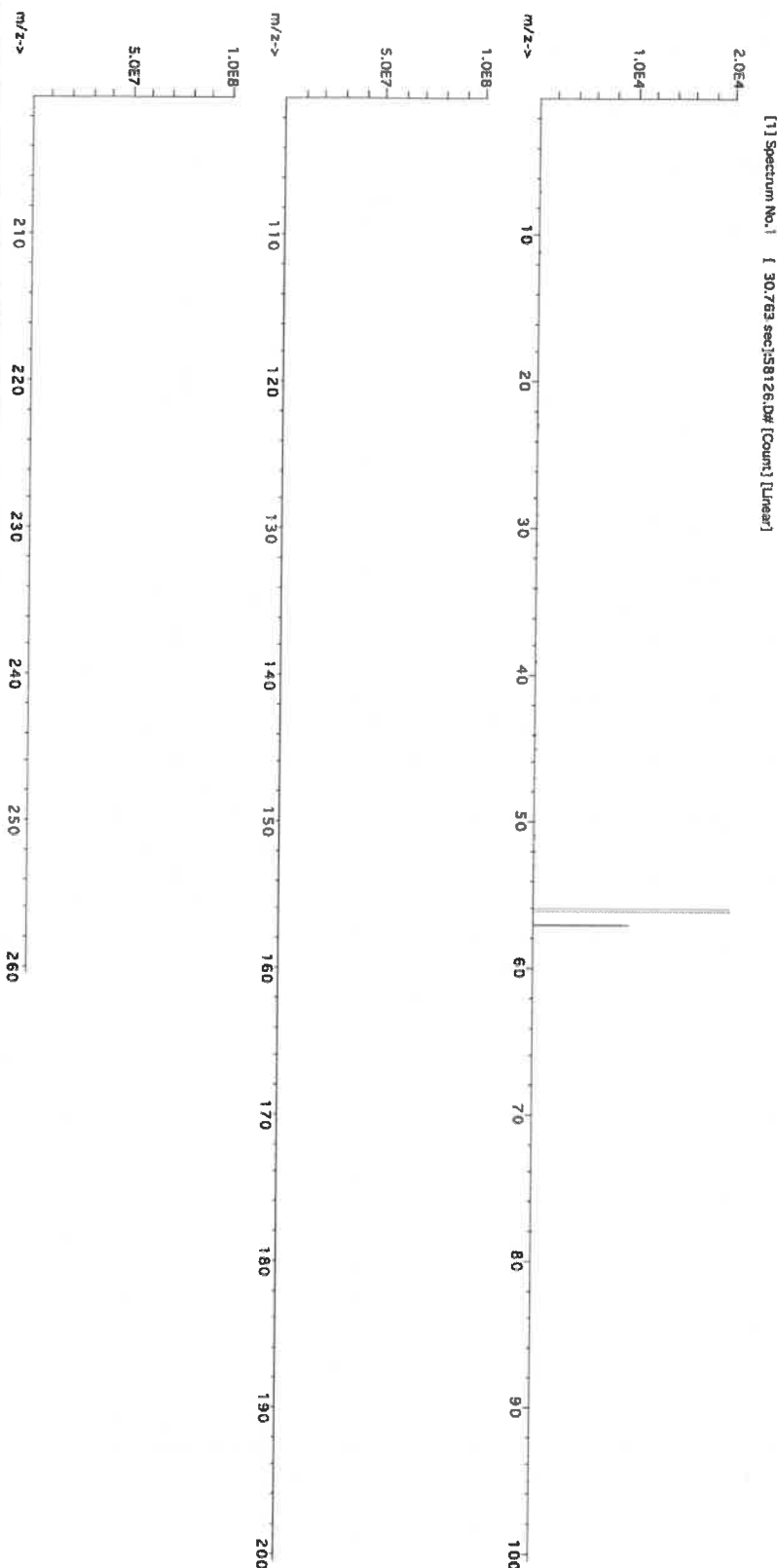
Compound

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

(Solvent Safety Info. On Attached pg.)

1. Iron(III) nitrate nonahydrate (Fe) IN028 FED082023A1 10000 99.999 0.10 13.0 153.8534 ##### 10000.2 20.0 7782-61-8 1 mg/m³ or-rel 3250mg/kg 3126A





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

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

(T)= Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 57119
Lot Number: 103024
Description: Potassium (K)

R-21113125

Solvent: 24002546 Nitric Acid
Lot #

Expiration Date: 103027
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

M6141
M6142
M6143

2% 80.0 (mL) Nitric Acid

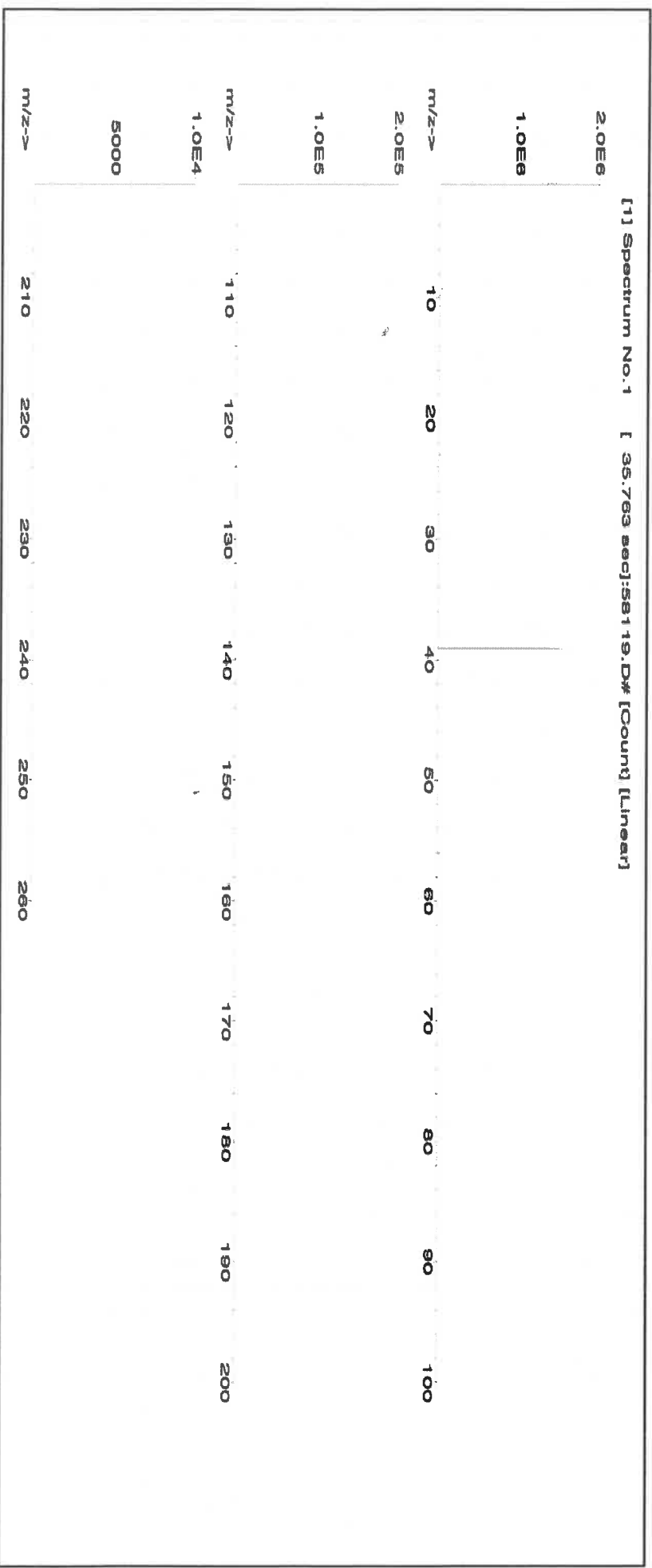
Weight shown below was diluted to (mL): 4000.1 0.15 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Renteria
	103024

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

1. Potassium nitrate (K) IN034 KD062022A1 10000 99.999 0.10 37.7 106.1040 ##### 10001.1 20.0 7757-79-1 5 mg/m3 orl-rat 3750 mg/kg 3141a

[1] Spectrum No. 1 [35.763 sec]:58119.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **58111** Lot # **R-1113125**
Lot Number: **072424** Solvent: **24002546 Nitric Acid**
Description: **Sodium (Na)**

Expiration Date: **072427** 2% 80.0 Nitric Acid (mL)

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

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

NIST Test Number: **6UTB**

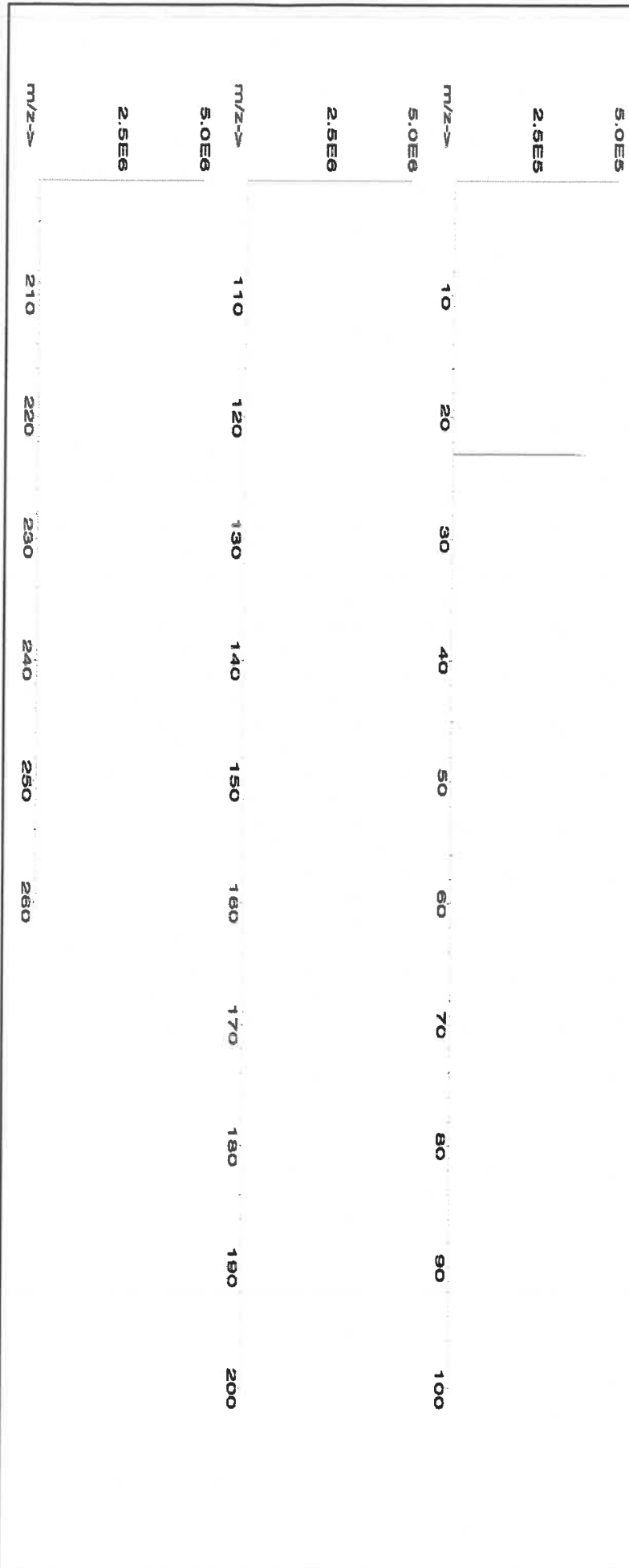
Weight shown below was diluted to (mL): **4000.2** 5E-05 Balance Uncertainty 0.10 Flask Uncertainty

Formulated By:	Benson Chan	072424
Reviewed By:	Pedro L. Renteria	072424

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Sodium nitrate (Na) IN036 NAV01201511 10000 99.999 0.10 26.9 148.7096 ##### 10000.0 20.0 7631-99-4 5 mg/m3 orl-rat 3430 mg/kg 3152a

[1] Spectrum No. 1 [8.935 sec]: 58111.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **58030** Lot # **24012496**
Lot Number: **121724** Nitric Acid
Description: **Zinc (Zn)**

Expiration Date: **121727** 2% 40.0 (mL)

Recommended Storage: **Ambient (20 °C)** Nitric Acid
Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6UTB** 5E-05 Balance Uncertainty
Weight shown below was diluted to (mL): **2000.1** 0.10 Flask Uncertainty

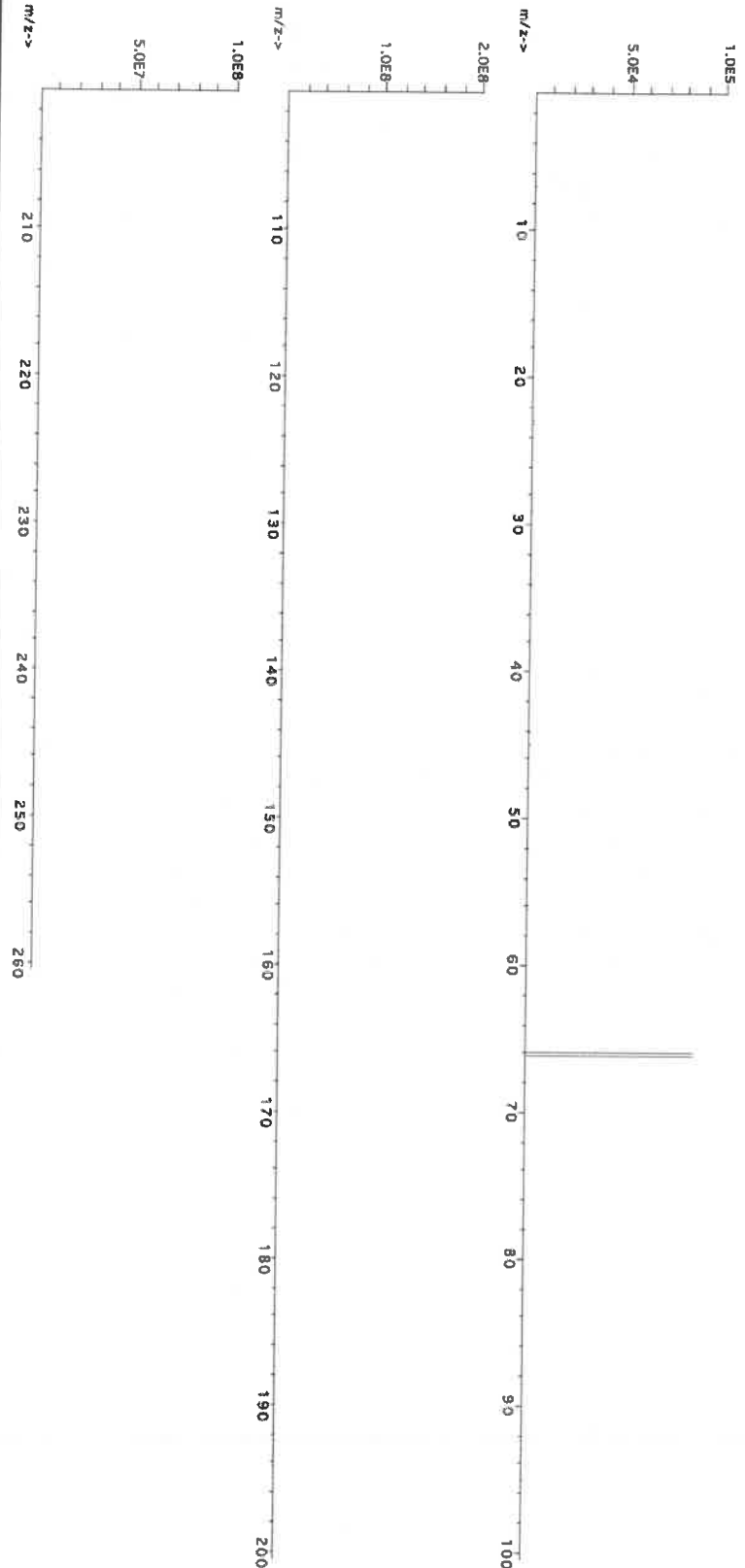
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
Reviewed By:	<i>Pedro L. Rentes</i>
	Pedro L. Rentes
	121724

Compound

Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	(Solvent Safety Info. On Attached pg.)	NIST
Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	± (µg/mL)	CAS#	SRM

1. Zinc nitrate hexahydrate (Zn) IN016 ZNE032021A1 1000 99.999 0.10 24.3 8.2308 8.2311 1000.0 2.0 10196-18-6 1 mg/m3 or-rat 1190mg/kg 3168

[1] Spectrum No.1 [31.103 sec;58130.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

 **avantortm**



M6151

R → 11/15/25

Material No.: 9530-33
Batch No.: 22G2862015
Manufactured Date: 2022-06-15
Retest Date: 2027-06-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid–base titrn)	36.5 – 38.0 %	37.9 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.191
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	1.3 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	163.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.7 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	0.6 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

 **avantorsm**



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



Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result
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For Laboratory, Research, or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

A handwritten signature in cursive script that reads 'Jamie Ethier'.
Jamie Ethier
Vice President Global Quality

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™



M6157
MS

Material No.: 9673-33

Batch No.: 24I1262013

Manufactured Date: 2024-08-07

Retest Date: 2029-08-06

Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H ₂ SO ₄)	95.0 – 98.0 %	96.2 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	<= 10	5
ACS – Residue after Ignition	<= 3 ppm	<1 ppm
ACS – Substances Reducing Permanganate(as SO ₂)	<= 2 ppm	<2 ppm
Ammonium (NH ₄)	<= 1 ppm	<1 ppm
Chloride (Cl)	<= 0.1 ppm	<0.1 ppm
Nitrate (NO ₃)	<= 0.2 ppm	0.1 ppm
Phosphate (PO ₄)	<= 0.5 ppm	<0.1 ppm
Trace Impurities – Aluminum (Al)	<= 30.0 ppb	<5.0 ppb
Arsenic & Antimony (as As)	<= 4.0 ppb	<2.0 ppb
Trace Impurities – Boron (B)	<= 10.0 ppb	<5.0 ppb
Trace Impurities – Cadmium (Cd)	<= 2.0 ppb	<1.0 ppb
Trace Impurities – Chromium (Cr)	<= 6.0 ppb	<1.0 ppb
Trace Impurities – Cobalt (Co)	<= 0.5 ppb	<0.3 ppb
Trace Impurities – Copper (Cu)	<= 1.0 ppb	<1.0 ppb
Trace Impurities – Gold (Au)	<= 10.0 ppb	<5.0 ppb
Heavy Metals (as Pb)	<= 500.0 ppb	<100.0 ppb
Trace Impurities – Iron (Fe)	<= 50.0 ppb	<1.0 ppb
Trace Impurities – Lead (Pb)	<= 0.5 ppb	<0.5 ppb
Trace Impurities – Magnesium (Mg)	<= 7.0 ppb	<1.0 ppb
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	<1.0 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	<10.0 ppb
Trace Impurities – Selenium (Se)	<= 50.0 ppb	7.2 ppb
Trace Impurities – Silicon (Si)	<= 100.0 ppb	12.8 ppb
Trace Impurities – Silver (Ag)	<= 1.0 ppb	<1.0 ppb

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

Avantor Performance Materials LLC

Sulfuric Acid

BAKER INSTRA-ANALYZED® Reagent

For Trace Metal Analysis

Low Selenium

 **avantors**™



Material No.: 9673-33

Batch No.: 2411262013

Test	Specification	Result
Trace Impurities – Sodium (Na)	≤ 500.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 5.0 ppb	< 1.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	1.1 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	< 1.0 ppb

For Laboratory, Research, or Manufacturing Use

Country of Origin: United States

Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Croak

Director Quality Operations, Bioscience Production

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

Avantor Performance Materials LLC

Nitric Acid 69%
CMOS

avantor™



R- 0210212025

m - 6158

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

Certificate of Analysis

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

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

 **avantor™**



Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	16 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	10 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	3 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantor™**



Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result
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For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Croak
Director Quality Operations, Bioscience Production

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution		
Catalog Number:	QCP-CICV-1		
Lot Number:	V2-MEB744107		
Matrix:	7% (v/v) HNO ₃		
Value / Analyte(s):	2 500 µg/mL ea:		
	Calcium,	Potassium,	
	Magnesium,	Sodium,	
	1 000 µg/mL ea:		
	Aluminum,	Barium,	
	500 µg/mL ea:		
	Iron,		
	250 µg/mL ea:		
	Nickel,	Vanadium,	
	Zinc,	Cobalt,	
	Manganese,		
	125 µg/mL ea:		
	Silver,	Copper,	
	100 µg/mL ea:		
	Chromium,		
	25 µg/mL ea:		
	Beryllium		

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	1 000 ± 4 µg/mL	Barium, Ba	1 000 ± 6 µg/mL
Beryllium, Be	24.98 ± 0.12 µg/mL	Calcium, Ca	2 500 ± 8 µg/mL
Chromium, Cr	99.9 ± 0.6 µg/mL	Cobalt, Co	250.2 ± 1.2 µg/mL
Copper, Cu	125.0 ± 0.5 µg/mL	Iron, Fe	500.0 ± 2.2 µg/mL
Magnesium, Mg	2 500 ± 11 µg/mL	Manganese, Mn	249.9 ± 1.1 µg/mL
Nickel, Ni	250.0 ± 1.2 µg/mL	Potassium, K	2 500 ± 11 µg/mL
Silver, Ag	125.0 ± 0.6 µg/mL	Sodium, Na	2 500 ± 11 µg/mL
Vanadium, V	250.0 ± 1.1 µg/mL	Zinc, Zn	249.9 ± 1.1 µg/mL

Density: 1.081 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale), <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>)

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 22, 2024

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

11.2 Lot Expiration Date

- **May 22, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: QCP-CICV-2
 Lot Number: U2-MEB733713
 Matrix: 3% (w/v) Tartaric acid
 1% (v/v) HNO₃
 Value / Analyte(s): 500 µg/mL ea:
 Antimony

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	500.0 ± 2.8 µg/mL		

Density: 1.017 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Sb	ICP Assay	3102a	140911

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum(w_i)(X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{char} = [\sum(w_i)^2(u_{char i}^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{CRM/RM} = (X_a)(u_{char a})$$

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale). <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 01, 2023

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

11.2 Lot Expiration Date

- **June 01, 2028**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: QCP-CICV-3
 Lot Number: V2-MEB749572
 Matrix: 7% (v/v) HNO₃
 Value / Analyte(s):
 500 µg/mL ea:
 Arsenic, Lead,
 Selenium, Thallium,
 250 µg/mL ea:
 Cadmium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	500.0 ± 3.1 µg/mL	Cadmium, Cd	250.1 ± 1.1 µg/mL
Lead, Pb	500.0 ± 2.3 µg/mL	Selenium, Se	500.0 ± 3.2 µg/mL
Thallium, Tl	500.0 ± 3.0 µg/mL		

Density: 1.040 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i})^2]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale), <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 02, 2025

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

11.2 Lot Expiration Date

- **January 02, 2030**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT:

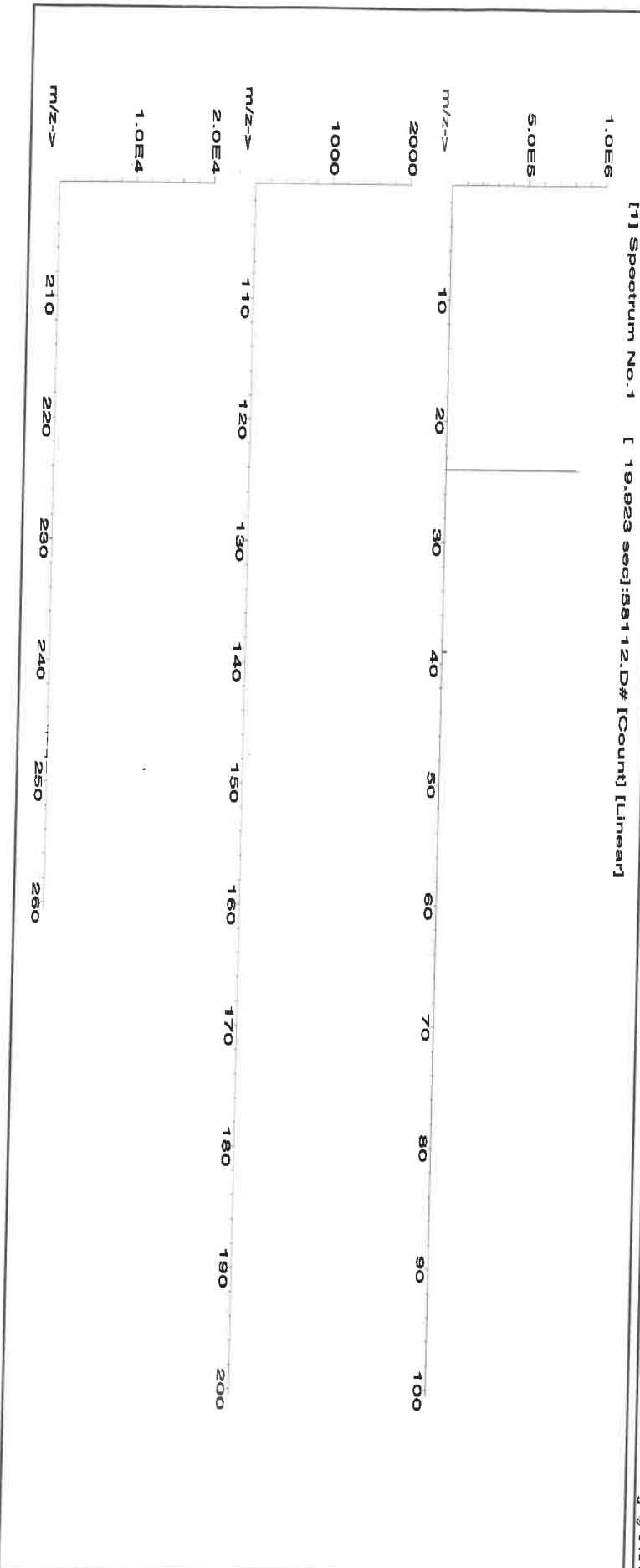
Part Number: 58112
Lot Number: 011525
Description: Magnesium (Mg)
Solvent: 24012496 Nitric Acid

Expiration Date: 011528
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.07
Balance Uncertainty: 5E-05
Flask Uncertainty: 0.100

Formulated By:	Benson Chan	011525
Reviewed By:	Pedro L. Rentas	011525

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Magnesium nitrate hexahydrate (Mg) IN030 MGD05023A1 10000 99.999 0.10 8.51 234.9183 234.9195 10000.1 20.0 13446-18-9 NA off-ret 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	Ku	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Certificate of Analysis

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M6174
R → S1/S124

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution	
Catalog Number:	CLPP-CAL-1	
Lot Number:	V2-MEB742428	
Matrix:	5% (v/v) HNO ₃	
Value / Analyte(s):	5 000 µg/mL ea:	
	Calcium,	Potassium,
	Magnesium,	Sodium,
	2 000 µg/mL ea:	
	Aluminum,	Barium,
	1 000 µg/mL ea:	
	Iron,	
	500 µg/mL ea:	
	Nickel,	Vanadium,
	Zinc,	Cobalt,
	Manganese,	
	250 µg/mL ea:	
	Silver,	Copper,
	200 µg/mL ea:	
	Chromium,	
	50 µg/mL ea:	
	Beryllium	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.03 ± 0.30 µg/mL	Calcium, Ca	5 000 ± 16 µg/mL
Chromium, Cr	200.0 ± 1.1 µg/mL	Cobalt, Co	500.0 ± 2.3 µg/mL
Copper, Cu	250.0 ± 1.1 µg/mL	Iron, Fe	1 000 ± 4 µg/mL
Magnesium, Mg	5 000 ± 22 µg/mL	Manganese, Mn	499.9 ± 2.2 µg/mL
Nickel, Ni	500.1 ± 2.3 µg/mL	Potassium, K	5 000 ± 22 µg/mL
Silver, Ag	250.0 ± 1.1 µg/mL	Sodium, Na	5 000 ± 22 µg/mL
Vanadium, V	500.0 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.117 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i})^2]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale). <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>)

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 22, 2024

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

11.2 Lot Expiration Date

- **March 22, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





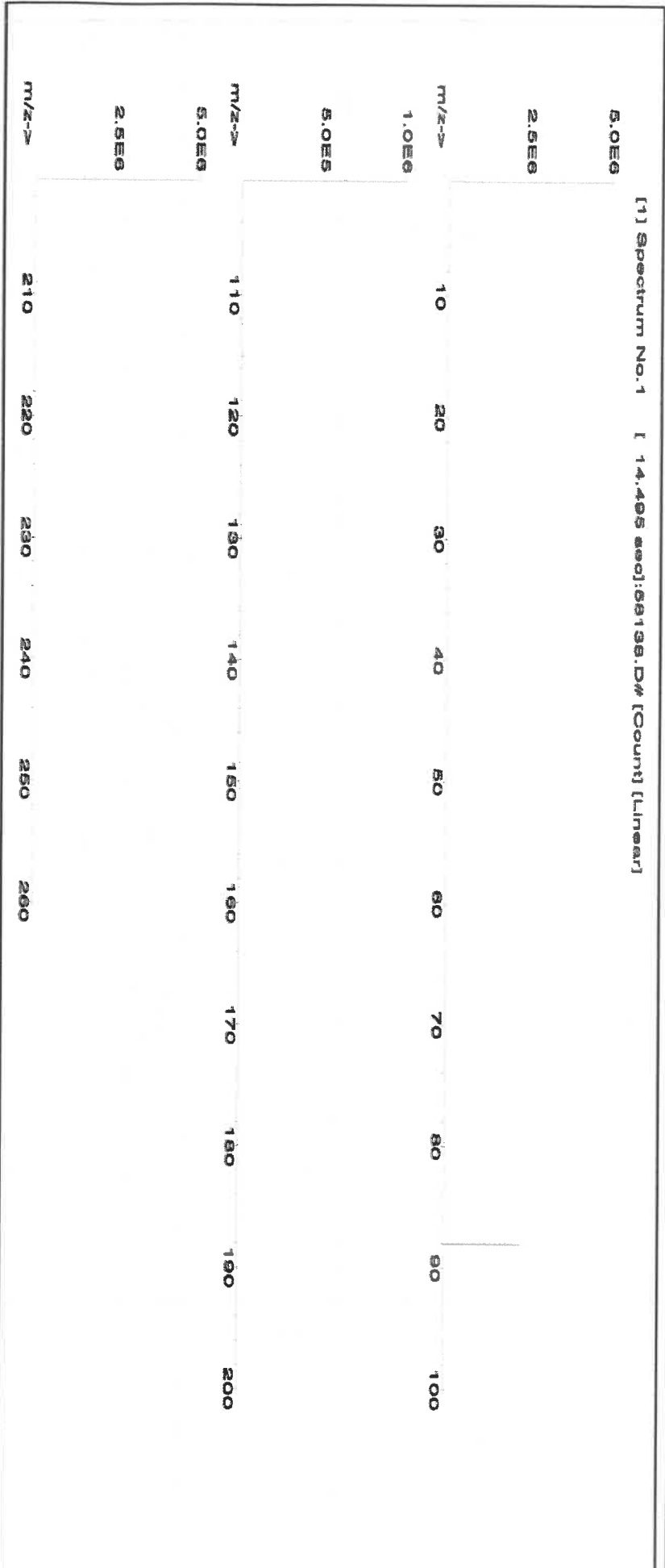
CERTIFIED WEIGHT REPORT:

Part Number: 57038 **Lot #** 24002546 **Solvent:** Nitric Acid
Lot Number: 092724
Description: Strontium (Sr)
Expiration Date: 092727 **2%** **40.0** **Nitric Acid**
Recommended Storage: Ambient (20 °C) **(mL)**
Nominal Concentration (µg/mL): 1000
NIST Test Number: 8UTB **5E-05** **Balance Uncertainty**
Weight shown below was diluted to (mL): 2000.07 **0.100** **Flask Uncertainty**

<i>[Signature]</i>	
Formulated By:	Benson Chan
	092724
<i>[Signature]</i>	
Reviewed By:	Pedro L. Rentas
	092724

SDS Information									
Compound	Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded
	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	Uncertainty
								+/- (µg/mL)	(Solvent Safety Info. On Attached pg.)
									CAS#
									OSHA PEL (TWA)
									LD50
									SRM

1. **Strontium nitrate (Sr)** **IN017 SR2022018A1** **1000** **99.997** **0.10** **41.2** **4.85470** **4.85481** **1000.0** **2.0** **10042-76-9** **NA** **or -rel >2000mg/kg 3153a**





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

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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

Solvent:
Ammonium hydroxide
ASTM Type 1 Water

Expiration Date:

080528

Recommended Storage:

Ambient (15 - 30 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

1999.41

5E-05

Balance Uncertainty
Flesh Uncertainty

0.5%

10.0

Ammonium hydroxide

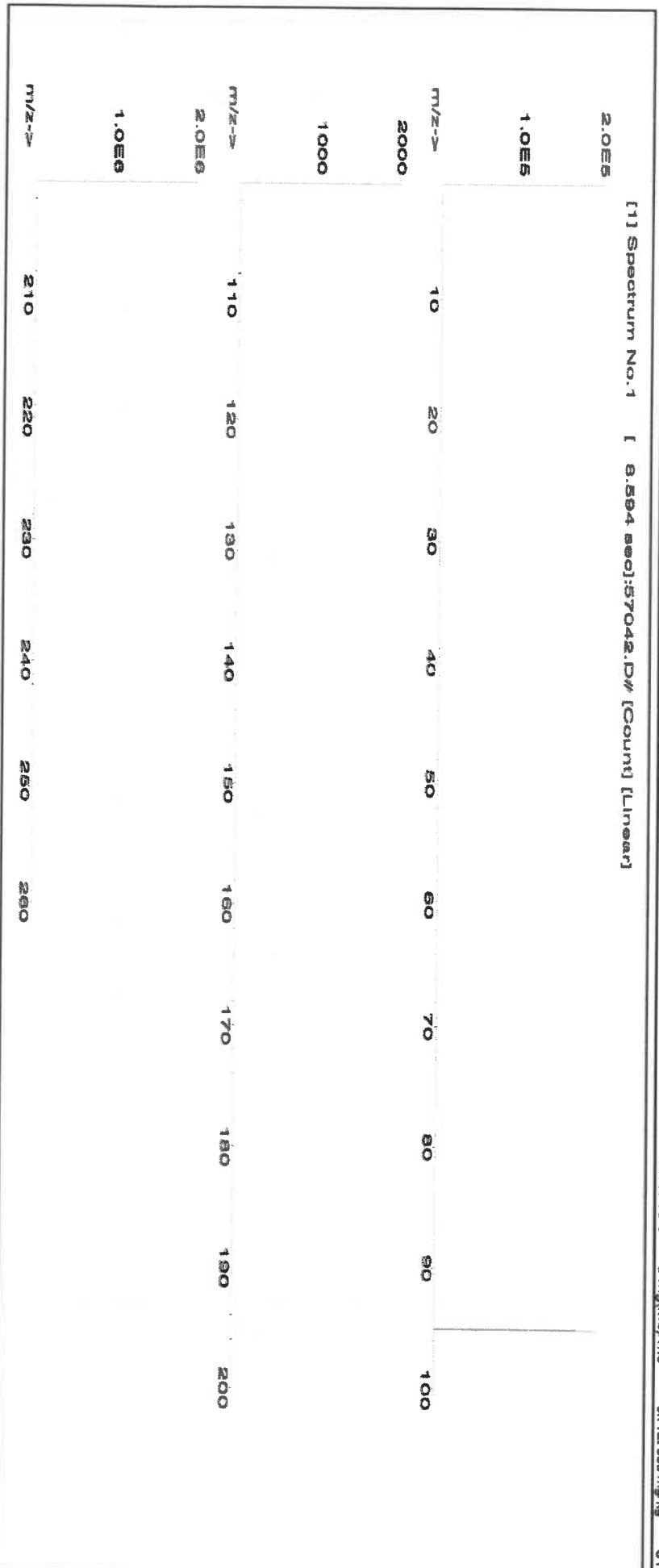
Formulated By:	Benson Chan	080525
Reviewed By:	Pedro L. Renteria	080525

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty ± (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium molybdate (Mo) 58142 112322 0.1000 200.0 0.084 1000 10001.4 1000.5 2.2 13106-76-8 5 mg(Mo)/m3 or-at 383 mg/kg 3134

[1] Spectrum No. 1 [8.594 sec]:57042.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02
Ba	<0.02	Ce	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	T	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02
																	Zr
																	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware, and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated by an ISO17025 certified organization with weights traceable through NIST to the SI kilogram (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).
- Rev 1.0, 2/25/2025



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57082
031525
Lead (Pb)

Lot #

Solvent: 24014457 Nitric Acid

Expiration Date:

031528

2%

40.0 (mL)

Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

2000.07

0.10 Flask Uncertainty

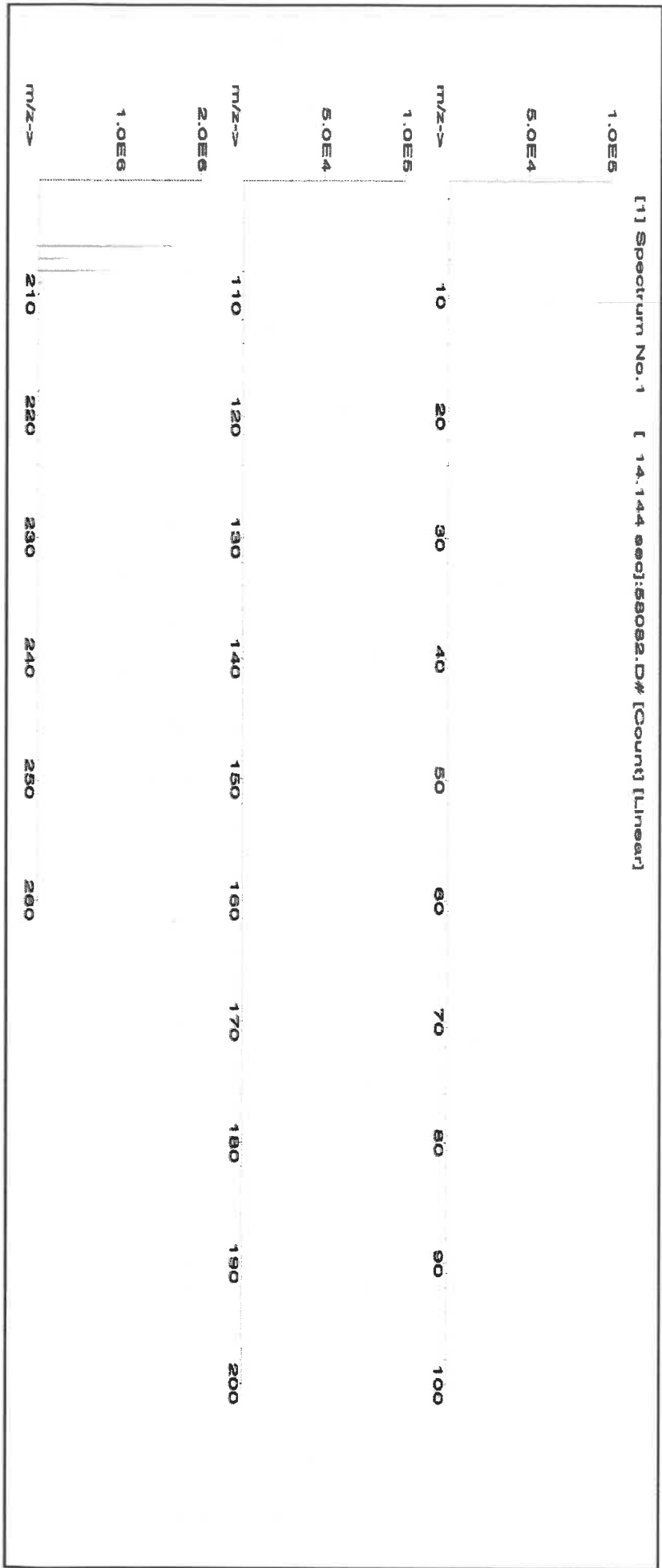
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
	031525
Reviewed By:	<i>Pedro L. Renteria</i>
	Pedro L. Renteria
	031525

SDS Information

Compound	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. **Lead(II) nitrate (Pb)** IN029 PBD122016A1 1000 99.999 0.10 62.5 3.20015 3.20067 1000.2 2.0 10099-74-8 0.05 mg/m3 Intrins-ral 93 mg/kg 3128

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





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

M6179
R → 612/24

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGY10
Lot Number: V2-Y740548
Matrix: 2% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Yttrium
Starting Material: Yttrium Oxide
Starting Material Lot#: 2661 and 06230520YL
Starting Material Purity: 99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL
Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10011 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	9997 ± 50 µg/mL ICP Assay NIST SRM 3167a Lot Number: 190730
Assay Method #3	9984 ± 31 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{char} = [\sum (w_i)^2 (u_{char i}^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{CRM/RM} = (X_a) (u_{char a})$$

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.004600	M	Eu	0.009037	M	Na	0.086360	M	Se	<	0.005200	M	Zn	0.030125	
M	Al		0.014862	O	Fe	0.002410	M	Nb	<	0.000570	O	Si	0.024100	O	Zr	<	0.002600
M	As	<	0.003500	M	Ga	<	0.000570	M	Nd	0.000923	M	Sm	0.000461				
M	Au	<	0.001700	M	Gd	<	0.003500	M	Ni	<	0.005700	M	Sn	<	0.002300		
O	B		0.002209	M	Ge	<	0.005200	M	Os	<	0.001200	M	Sr	<	0.004600		
O	Ba	<	0.002500	M	Hf	<	0.000570	n	P	<		M	Ta	<	0.000570		
O	Be	<	0.001400	M	Hg	<	0.000570	M	Pb	0.005020	M	Tb	0.001044				
M	Bi	<	0.003500	M	Ho	0.009037	M	Pd	<	0.005100	M	Te	<	0.002300			
O	Ca		0.009841	M	In	<	0.002300	M	Pr	<	0.002300	M	Th	<	0.000570		
M	Cd	<	0.000570	M	Ir	<	0.000570	M	Pt	<	0.000570	M	Ti	<	0.003500		
M	Ce	<	0.002300	O	K	0.018677	M	Rb	<	0.000570	M	Tl	<	0.000570			
M	Co	<	0.000570	M	La	0.000461	M	Re	<	0.000570	M	Tm	<	0.003500			
M	Cr	<	0.004000	O	Li	<	0.009300	M	Rh	<	0.008000	M	U	<	0.000570		
M	Cs	<	0.000570	M	Lu	0.000582	M	Ru	<	0.000570	M	V	0.001265				
M	Cu		0.002610	O	Mg	0.001486	n	S	<		M	W	<	0.002300			
M	Dy		0.003815	M	Mn	0.000582	M	Sb	0.005422	s	Y	<					
M	Er		0.003615	M	Mo	<	0.005700	M	Sc	<	0.001200	M	Yb	0.001827			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale). <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 88.91 +3 6 Y(OH)(H₂O)_{x+2}
Chemical Compatibility -Soluble in HCl, H₂SO₄ and HNO₃. Avoid HF, H₃PO₄ and neutral to basic media. Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride. Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H₂O / HNO₃); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H₂O / HCl or HNO₃).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 89 amu	0.8 ppt	N/A	<u>73Ge16O</u> , <u>178Hf+2</u>
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

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

11.2 Lot Expiration Date

- February 20, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



300 Technology Drive
Christiansburg, VA 24073 USA
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1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	WW-LFS-1
Lot Number:	W2-MEB752149
Matrix:	5% (v/v) HNO ₃

M6180
R-37/22/23

Value / Analyte(s):	1 000 µg/mL ea:	
	Potassium,	
	600 µg/mL ea:	
	Phosphorus,	
	300 µg/mL ea:	
	Sodium,	Iron,
	200 µg/mL ea:	
	Magnesium,	Aluminum,
	Cerium,	Selenium,
	Thallium,	
	100 µg/mL ea:	
	Lead,	Calcium,
	80 µg/mL ea:	
	Arsenic,	
	70 µg/mL ea:	
	Mercury,	
	50 µg/mL ea:	
	Nickel,	
	40 µg/mL ea:	
	Chromium,	
	30 µg/mL ea:	
	Copper,	Boron,
	Vanadium,	
	20 µg/mL ea:	
	Zinc,	Strontium,
	Barium,	Beryllium,
	Cadmium,	Cobalt,
	Manganese,	Lithium,
	7.5 µg/mL ea:	
	Silver	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	200.2 ± 0.7 µg/mL	Arsenic, As	80.1 ± 0.5 µg/mL
Barium, Ba	20.02 ± 0.12 µg/mL	Beryllium, Be	20.02 ± 0.11 µg/mL
Boron, B	30.02 ± 0.15 µg/mL	Cadmium, Cd	20.04 ± 0.09 µg/mL
Calcium, Ca	100.1 ± 0.3 µg/mL	Cerium, Ce	200.2 ± 1.0 µg/mL
Chromium, Cr	40.02 ± 0.26 µg/mL	Cobalt, Co	20.03 ± 0.09 µg/mL
Copper, Cu	30.03 ± 0.13 µg/mL	Iron, Fe	300.3 ± 1.3 µg/mL
Lead, Pb	100.1 ± 0.5 µg/mL	Lithium, Li	20.03 ± 0.09 µg/mL
Magnesium, Mg	200.2 ± 0.9 µg/mL	Manganese, Mn	19.99 ± 0.09 µg/mL
Mercury, Hg	70.0 ± 0.3 µg/mL	Nickel, Ni	50.05 ± 0.22 µg/mL
Phosphorus, P	600.5 ± 2.9 µg/mL	Potassium, K	1 001 ± 4 µg/mL
Selenium, Se	200.2 ± 1.1 µg/mL	Silver, Ag	7.52 ± 0.03 µg/mL
Sodium, Na	300.3 ± 1.3 µg/mL	Strontium, Sr	20.02 ± 0.10 µg/mL
Thallium, Tl	200.2 ± 1.0 µg/mL	Vanadium, V	30.02 ± 0.13 µg/mL
Zinc, Zn	20.05 ± 0.09 µg/mL		

Density: 1.037 g/mL (measured at 20 ± 5 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Ce	ICP Assay	3110	160830
Ce	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Li	ICP Assay	3129a	100714
Li	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Tl	ICP Assay	3158	151215
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ITS} = long term stability standard uncertainty (storage)

u_{TS} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ITS} = long term stability standard uncertainty (storage)

u_{TS} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 25° C to minimize the effects of transpiration. Use at 20° ± 5° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>)

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 08, 2025

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

11.2 Lot Expiration Date

- **April 08, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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M6181
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1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: WW-LFS-2
Lot Number: V2-MEB743480
Matrix: 5% (v/v) HNO₃
tr. HF
Value / Analyte(s):
200 µg/mL ea:
Silica,
80 µg/mL ea:
Antimony,
70 µg/mL ea:
Tin,
40 µg/mL ea:
Molybdenum,
20 µg/mL ea:
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.5 µg/mL	Molybdenum, Mo	40.05 ± 0.22 µg/mL
Silica, SiO ₂	200.3 ± 1.4 µg/mL	Tin, Sn	70.1 ± 0.4 µg/mL
Titanium, Ti	20.03 ± 0.12 µg/mL		

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

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102a	140911
SiO ₂	Calculated		See Sec. 4.2
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum ((w_i)^2 (u_{\text{char } i})^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. 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

May 07, 2024

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

11.2 Lot Expiration Date

- **May 07, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Thomas Kozikowski
Stock VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Instructions for QATS Reference Material: ICP-AES ICS

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

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

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

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



M6182

(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) BREAKAGE OR MISSING ITEMS

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

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

(C) ANALYSIS OF SAMPLES

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,





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

Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.



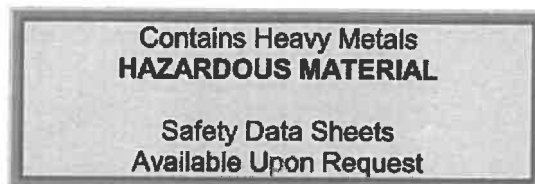
Instructions for QATS Reference Material: ICP-AES ICS

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

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

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

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



M6184

(A) **SAMPLE DESCRIPTION**

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) **BREAKAGE OR MISSING ITEMS**

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

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

(C) **ANALYSIS OF SAMPLES**

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,





Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value $\pm$ 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value $\pm$ 15 percent of the listed certified value.

Nitric Acid 69%
CMOS



M6187

R.D :- 08/08/25

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	0.1 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 1 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS



Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 1 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	1 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 1.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	13 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	5 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantorsTM**



Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
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For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Croak
Director Quality Operations, Bioscience Production

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA–ANALYZED® Reagent
For Trace Metal Analysis



M6200
R.O → 08/25/25

Material No.: 9530–33
Batch No.: 24D1562005
Manufactured Date: 2024–03–18
Retest Date: 2029–03–17
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid–base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.192
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	2.2 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	0.2 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 1.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	2.0 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	< 0.9 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.4 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	< 0.1 ppb

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA–ANALYZED® Reagent
For Trace Metal Analysis



Material No.: 9530–33
Batch No.: 24D1562005

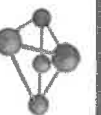
Test	Specification	Result
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For Laboratory, Research, or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

A handwritten signature in dark ink, appearing to read 'JCroak', is positioned above the printed name.

Jamie Croak
Director Quality Operations, Bioscience Production



CERTIFIED WEIGHT REPORT:

Part Number: **57028**
Lot Number: **062024**
Description: **Nickel (NI)**

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

Formulated By: *Benson Chan*
Reviewed By: *Pedro L. Rentes*

Benson Chan

062024

Expiration Date: **062027**

2.0%

40.0 (mL)

Nitric Acid

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

Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6UTB**

Balance Uncertainty

Volume shown below was diluted to (mL): **2000.07**

Flask Uncertainty

Expanded

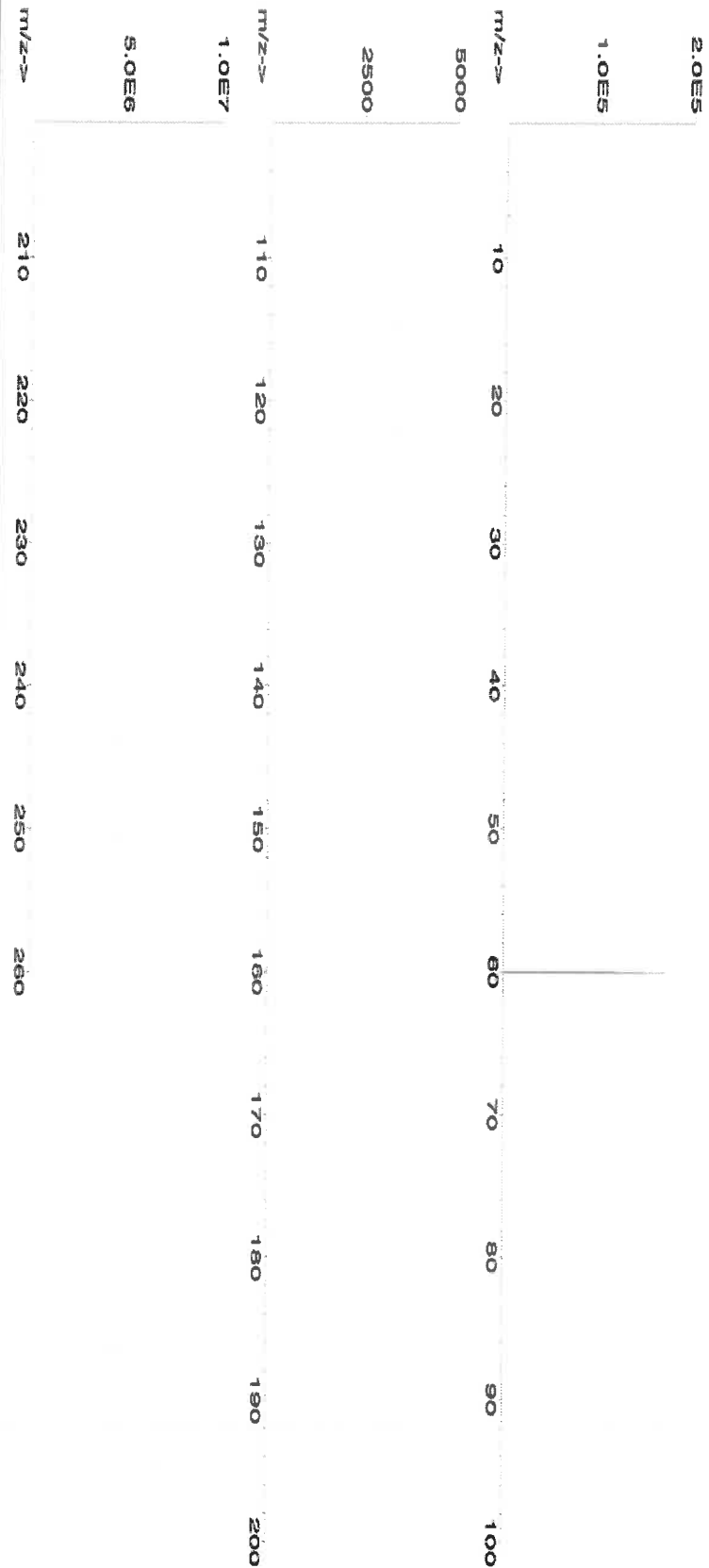
SDS Information

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Nickel(II) nitrate hexahydrate (NI) 58128 062023 0.1000 200.0 0.084 1000 10000.4 1000.0 2.2 13478-00-7 1 mg/m3 orl-rat 1620 mg/kg 3136

[1] Spectrum No.1 [9.136 sec]:58028.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

M6030



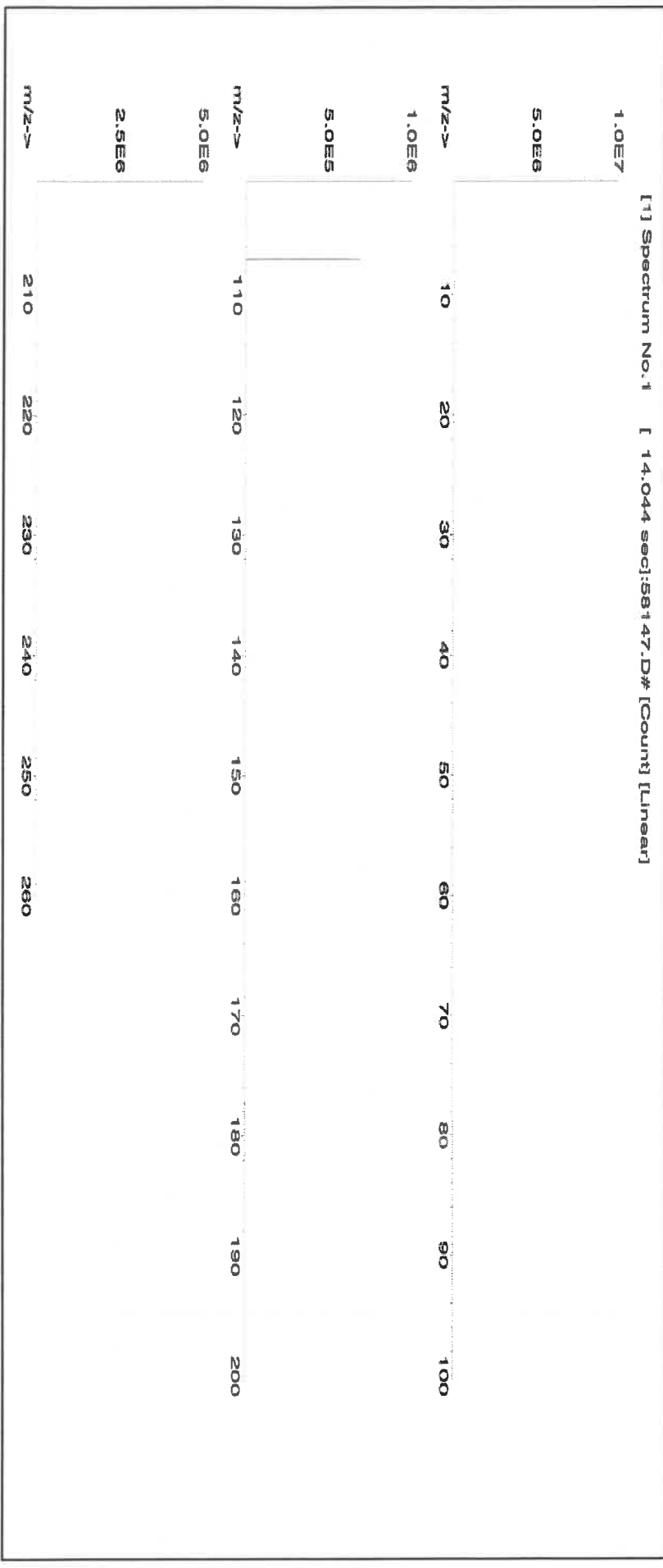
CERTIFIED WEIGHT REPORT:

Part Number: **57047**
Lot Number: **122823**
Description: **Silver (Ag)**
Solvent: **24002546 Nitric Acid**

Expiration Date: **122826**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Weight shown below was diluted to (mL): **4000.30**
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Benson Chan
Reviewed By:	
	Pedro L. Rentas
	122823

SDS Information									
Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)
1. Silver nitrate (Ag)	IN035	J0612A0A1	1000.0	99.9996	0.10	63.7	6.27992	6.27998	1000.0
							2.0	7761-88-8	10 µg/mL
									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	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	T	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: **57051**
Lot Number: **071724**
Description: **Antimony (Sb)**

Expiration Date: **071727**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**

Volume shown below was diluted to (mL): **2000.26**

126160

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

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

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

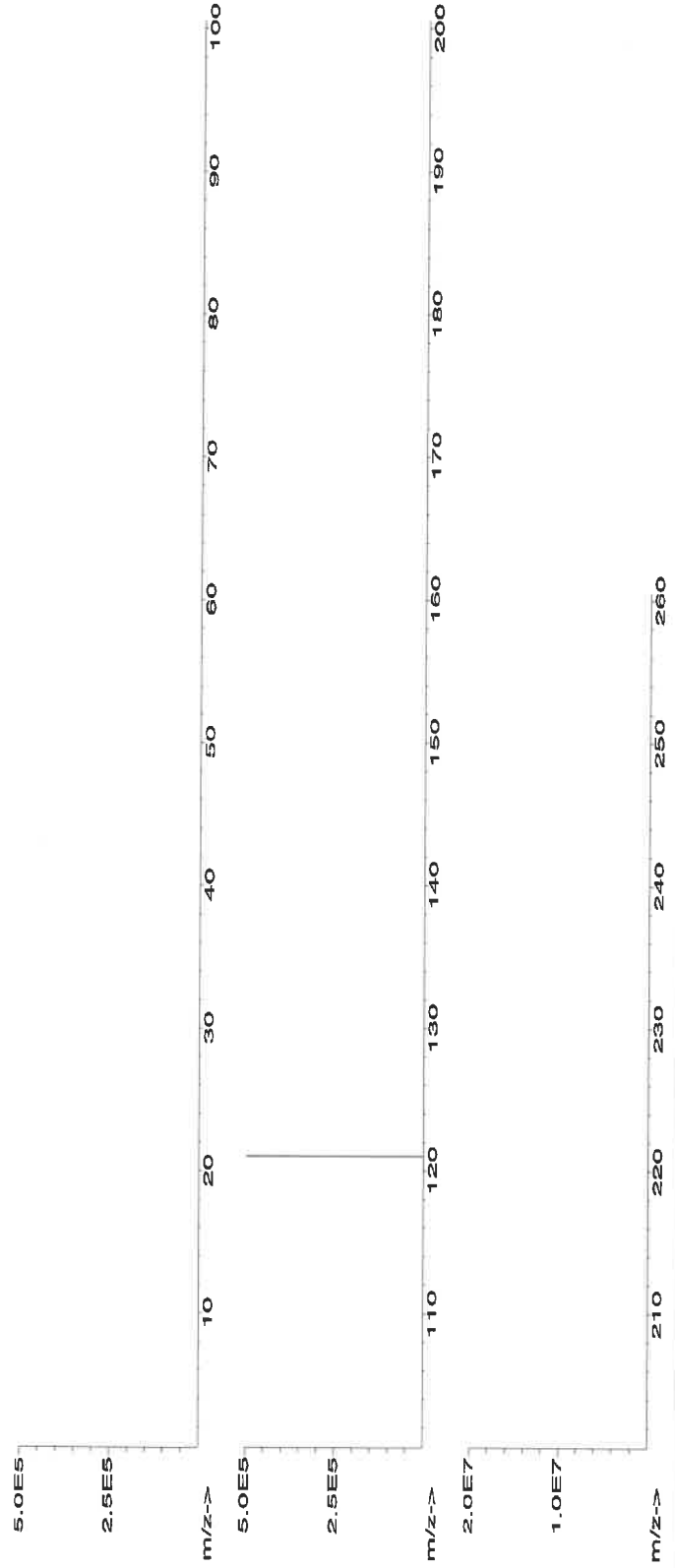
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas

SDS Information

Expanded Uncertainty	(Solvent Safety Info. On Attached pg.)	NIST
+/- (µg/mL)	CAS#	LD50
2.2	7440-36-0	0.5 mg/m3
or-rat 7000 mg/kg	3102a	

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)	OSHA PEL (TWA)	LD50	NIST SRM
1. Antimony (Sb)	58151	060324	0.1000	200.0	0.084	1000	10001.4	1000.0	2.2	7440-36-0	0.5 mg/m3	or-rat 7000 mg/kg 3102a

[1] Spectrum No.1 [17.964 sec]:58051.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 57081
Lot Number: 062724
Description: Thallium (TI)

Lot #

Solvent: 24002546 Nitric Acid

2% 40.0 Nitric Acid (mL)

Expiration Date:

062727

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL): 2000.1

5E-05 Balance Uncertainty
0.10 Flask Uncertainty

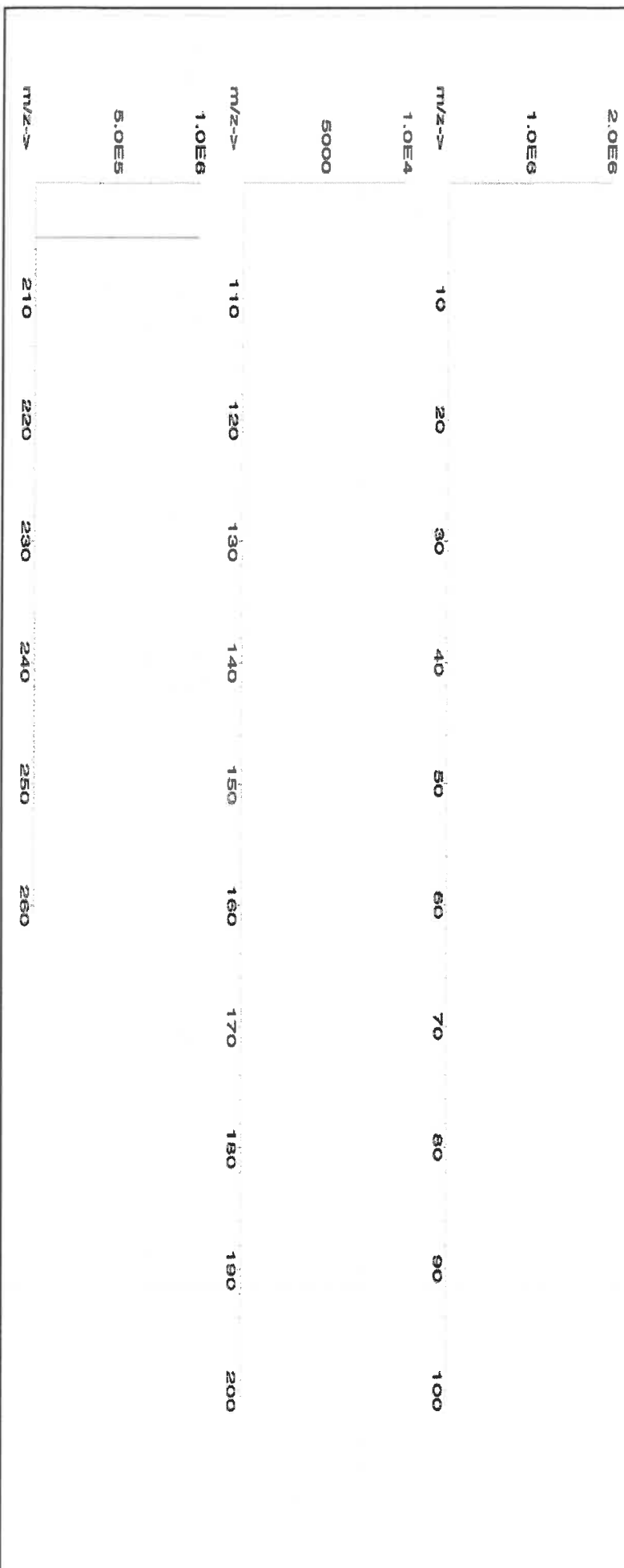
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	062724
Reviewed By:	<i>Pedro L. Rendas</i>
	Pedro L. Rendas
	062724

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Thallium nitrate (TI) IN037 BCCF4399 1000 99.999 0.10 77.0 2.5975 2.5977 1000.1 2.0 10102-45-1 0.1 mg/m3 orl-mus 15mg/kg 3158

[1] Spectrum No.1 [14.044 sec]:57081.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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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).



Certified Reference Material CRM

M6021



CERTIFIED WEIGHT REPORT:

Part Number: **57023**
Lot Number: **062424**
Description: **Vanadium (V)**

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

Aleah O'Brady	
Formulated By:	Aleah O'Brady
	062424
Reviewed By:	Pedro L. Rantas
	062424

Expiration Date: **062427**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**

2.0%
40.0 (mL)
Nitric Acid

Volume shown below was diluted to (mL): **2000.3**

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Compound		Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium metavanadate (V)		58123	021224	0.1000	200.0	0.084	1000	10000.3	1000.0	2.2	7803-55-6	0.05 mg/m3	or-at 58.1mg/kg	3165

[1] Spectrum No.1 [34.243 sec]:58023.D# [Count] [Linear]

2.0E6	m/z-->	10	20	30	40	50	60	70	80	90	100
1.0E6	m/z-->	10	20	30	40	50	60	70	80	90	100
2.0E7	m/z-->	10	20	30	40	50	60	70	80	90	100
1.0E7	m/z-->	10	20	30	40	50	60	70	80	90	100
5.0E8	m/z-->	110	120	130	140	150	160	170	180	190	200
2.5E8	m/z-->	110	120	130	140	150	160	170	180	190	200



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

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

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

(T) = Target analyte

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SHIPPING DOCUMENTS

CLIENT INFORMATION

COMPANY: **PGW / ATLANTIC**
ADDRESS: **3100 E. Venango**
CITY: **Philadelphia** STATE: **PA** ZIP:
ATTENTION: **Kenny Pyle**
PHONE: FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: **Atlantic Recovery Services**
PROJECT NO.: LOCATION:
PROJECT MANAGER: **Kenny Pyle**
e-mail:
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY STATE: ZIP:
ATTENTION: PHONE:

ANALYSIS

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) ☐ NYS ASP A ☐ NYS ASP B
+ Raw Data ☐ Other
☐ EDD FORMAT

1. **TCLP VOA**
2. **TCLP ZHE Extra**
3. **TCLP BNA**
4. **TCLP Herbicide**
5. **TCLP ICP Metals**
6. **TCLP Mercury**
7. **TCLP Pesticide**
8.
9.

PRESERVATIVES

COMMENTS

ALLIANCE SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE		SAMPLE COLLECTION		# OF BOTTLES	PRESERVATIVES									COMMENTS
			COMP	GRAB	DATE	TIME		1	2	3	4	5	6	7	8	9	
1.	291376	Soil		X	9-12-25	1111	2	X									0.2ppm
2.	291376		X			1122	4		X	X	X	X	X	X			
3.	279182			X		1131	2	X									0.0ppm
4.	279182		X			1143	4		X	X	X	X	X	X			
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER: 1. JT	DATE/TIME: 1200 9-12-25	RECEIVED BY: 1.	Conditions of bottles or coolers at receipt: ☒ COMPLIANT ☐ NON COMPLIANT ☐ COOLER TEMP 3.7 °C Comments:
RELINQUISHED BY SAMPLER: 2.	DATE/TIME:	RECEIVED BY: 2.	
RELINQUISHED BY SAMPLER: 3. JT	DATE/TIME: 1340 9-12-25	RECEIVED BY: 3.	

Page ____ of CLIENT: ☐ Hand Delivered ☐ Other Shipment Complete ☐ YES ☐ NO



Environmental Laboratory

www.chemtech.net | EMAIL: PM@chemtech.net

Project Name: Atlantic Recovery Services

Services

Service Order #:

Work Order #:

Labor WBS #:

Facility/Site:

Site Address:

Philadelphia PA

Sampler Name: IT

Client Project Coordinator & Phone: Kenny Pyle / Daniel DiBano

Page #: 1 of 1

Date: 9.12.25

Arrive Time: 1100

Depart Time: 1200

Waste Stream (circle one): drum / oil-dr / soil pile / in-situ / linear construction / frac-tank

Sample Matrices (circle all that apply): Water / Soil / NAPL / Concrete / Wipe

Collection Depths: N/A

Temp (range): °C PID Readings (range): 0.0-0.2 PPM

Dimensions/CY: N/A

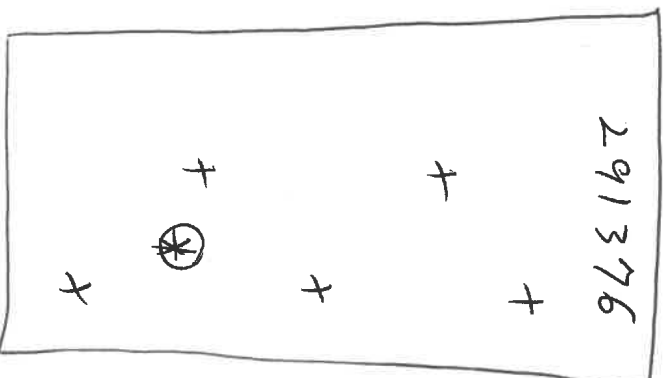
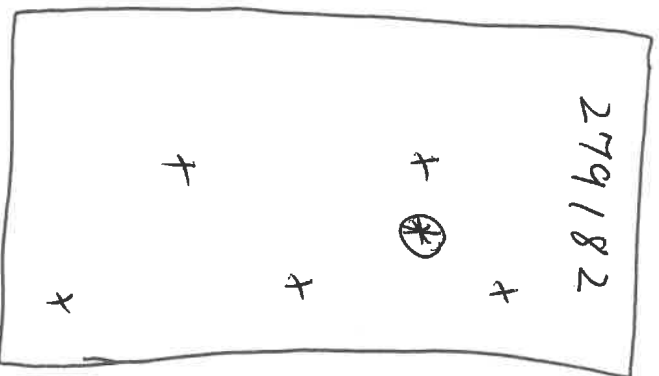
Sample Description: wet well silt

Odor: 0 / N Color: Y 0

Field Observations: 2 Roll-offs

Grid/Area Composite Map:

QA Control # A3041134



PGW Venango Location

Sampler Signature: IT

Client Signature:

Supervisor Review/Date:

Date/Time Arrived at Lab:

Laboratory Certification

Certified By	License No.
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255425
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	TX-C25-00189
Virginia	460312