

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:	Q3030	OrderDate:	9/5/2025 10:46:26 AM
Client:	CHA Companies, Inc.	Project:	UAlbany - Bleecker Hall
Contact:	Henry Uhlig	Location:	D31

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q3030-01	BLEECKER-082825HU	TCLP			08/28/25			09/05/25
	01-TCLP		TCLP ICP Metals	6010D		09/09/25	09/09/25	
			TCLP Mercury	7470A		09/09/25	09/10/25	



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

Hit Summary Sheet
SW-846

SDG No.: Q3030

Order ID: Q3030

Client: CHA Companies, Inc.

Project ID: UAlbany - Bleecker Hall

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : BLEECKER-082825HU01-TCLP								
Q3030-01	BLEECKER-082825HU01-TCLI	TCLP	Barium	1100		72.8	500	ug/L
Q3030-01	BLEECKER-082825HU01-TCLI	TCLP	Lead	354		11.5	60.0	ug/L



SAMPLE DATA

Report of Analysis

Client:	CHA Companies, Inc.	Date Collected:	08/28/25
Project:	UAlbany - Bleecker Hall	Date Received:	09/05/25
Client Sample ID:	BLEECKER-082825HU01-TCLP	SDG No.:	Q3030
Lab Sample ID:	Q3030-01	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	09/09/25 12:30	09/09/25 14:27	6010D	SW3050
7440-39-3	Barium	1100	*	1	72.8	500	ug/L	09/09/25 12:30	09/09/25 14:27	6010D	SW3050
7440-43-9	Cadmium	2.50	U	1	2.50	30.0	ug/L	09/09/25 12:30	09/09/25 14:27	6010D	SW3050
7440-47-3	Chromium	10.6	U	1	10.6	50.0	ug/L	09/09/25 12:30	09/09/25 14:27	6010D	SW3050
7439-92-1	Lead	354		1	11.5	60.0	ug/L	09/09/25 12:30	09/09/25 14:27	6010D	SW3050
7439-97-6	Mercury	0.76	U	1	0.76	2.00	ug/L	09/09/25 10:15	09/10/25 10:48	7470A	
7782-49-2	Selenium	48.2	U	1	48.2	100	ug/L	09/09/25 12:30	09/09/25 14:27	6010D	SW3050
7440-22-4	Silver	8.10	U	1	8.10	50.0	ug/L	09/09/25 12:30	09/09/25 14:27	6010D	SW3050

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

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

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



METAL CALIBRATION DATA

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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
ICV24	Mercury	4.31	4.0	108	90 - 110	CV	09/10/2025	09:48	LB137126

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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
CCV70	Mercury	5.13	5.0	103	90 - 110	CV	09/10/2025	10:03	LB137126
CCV71	Mercury	4.80	5.0	96	90 - 110	CV	09/10/2025	11:05	LB137126
CCV72	Mercury	4.64	5.0	93	90 - 110	CV	09/10/2025	12:14	LB137126
CCV73	Mercury	4.73	5.0	94	90 - 110	CV	09/10/2025	13:20	LB137126

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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	4030	4000	101	90 - 110	P	09/09/2025	12:14	LB137122
	Barium	7780	8000	97	90 - 110	P	09/09/2025	12:14	LB137122
	Cadmium	1990	2000	100	90 - 110	P	09/09/2025	12:14	LB137122
	Chromium	813	800	102	90 - 110	P	09/09/2025	12:14	LB137122
	Lead	3910	4000	98	90 - 110	P	09/09/2025	12:14	LB137122
	Selenium	4060	4000	102	90 - 110	P	09/09/2025	12:14	LB137122
	Silver	1020	1000	102	90 - 110	P	09/09/2025	12:14	LB137122

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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	17.8	20.0	89	80 - 120	P	09/09/2025	12:26	LB137122
	Barium	90.1	100	90	80 - 120	P	09/09/2025	12:26	LB137122
	Cadmium	5.68	6.0	95	80 - 120	P	09/09/2025	12:26	LB137122
	Chromium	9.24	10.0	92	80 - 120	P	09/09/2025	12:26	LB137122
	Lead	11.1	12.0	92	80 - 120	P	09/09/2025	12:26	LB137122
	Selenium	19.7	20.0	98	80 - 120	P	09/09/2025	12:26	LB137122
	Silver	9.91	10.0	99	80 - 120	P	09/09/2025	12:26	LB137122

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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	4880	5000	98	90 - 110	P	09/09/2025	12:59	LB137122
	Barium	9860	10000	99	90 - 110	P	09/09/2025	12:59	LB137122
	Cadmium	2440	2500	98	90 - 110	P	09/09/2025	12:59	LB137122
	Chromium	1000	1000	100	90 - 110	P	09/09/2025	12:59	LB137122
	Lead	4900	5000	98	90 - 110	P	09/09/2025	12:59	LB137122
	Selenium	4890	5000	98	90 - 110	P	09/09/2025	12:59	LB137122
	Silver	1250	1250	100	90 - 110	P	09/09/2025	12:59	LB137122
CCV02	Arsenic	4700	5000	94	90 - 110	P	09/09/2025	14:14	LB137122
	Barium	9680	10000	97	90 - 110	P	09/09/2025	14:14	LB137122
	Cadmium	2330	2500	93	90 - 110	P	09/09/2025	14:14	LB137122
	Chromium	954	1000	95	90 - 110	P	09/09/2025	14:14	LB137122
	Lead	4650	5000	93	90 - 110	P	09/09/2025	14:14	LB137122
	Selenium	4700	5000	94	90 - 110	P	09/09/2025	14:14	LB137122
	Silver	1190	1250	96	90 - 110	P	09/09/2025	14:14	LB137122
CCV03	Arsenic	4750	5000	95	90 - 110	P	09/09/2025	15:11	LB137122
	Barium	9520	10000	95	90 - 110	P	09/09/2025	15:11	LB137122
	Cadmium	2330	2500	93	90 - 110	P	09/09/2025	15:11	LB137122
	Chromium	940	1000	94	90 - 110	P	09/09/2025	15:11	LB137122
	Lead	4630	5000	93	90 - 110	P	09/09/2025	15:11	LB137122
	Selenium	4780	5000	96	90 - 110	P	09/09/2025	15:11	LB137122
	Silver	1190	1250	95	90 - 110	P	09/09/2025	15:11	LB137122
CCV04	Arsenic	4750	5000	95	90 - 110	P	09/09/2025	16:24	LB137122
	Barium	9410	10000	94	90 - 110	P	09/09/2025	16:24	LB137122
	Cadmium	2350	2500	94	90 - 110	P	09/09/2025	16:24	LB137122
	Chromium	941	1000	94	90 - 110	P	09/09/2025	16:24	LB137122
	Lead	4670	5000	93	90 - 110	P	09/09/2025	16:24	LB137122
	Selenium	4770	5000	95	90 - 110	P	09/09/2025	16:24	LB137122
	Silver	1180	1250	94	90 - 110	P	09/09/2025	16:24	LB137122
CCV05	Arsenic	4890	5000	98	90 - 110	P	09/09/2025	17:13	LB137122
	Barium	9660	10000	97	90 - 110	P	09/09/2025	17:13	LB137122
	Cadmium	2400	2500	96	90 - 110	P	09/09/2025	17:13	LB137122
	Chromium	968	1000	97	90 - 110	P	09/09/2025	17:13	LB137122
	Lead	4780	5000	96	90 - 110	P	09/09/2025	17:13	LB137122
	Selenium	4910	5000	98	90 - 110	P	09/09/2025	17:13	LB137122

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV05	Silver	1210	1250	97	90 - 110	P	09/09/2025	17:13	LB137122
CCV06	Arsenic	4850	5000	97	90 - 110	P	09/09/2025	17:46	LB137122
	Barium	9720	10000	97	90 - 110	P	09/09/2025	17:46	LB137122
	Cadmium	2410	2500	96	90 - 110	P	09/09/2025	17:46	LB137122
	Chromium	977	1000	98	90 - 110	P	09/09/2025	17:46	LB137122
	Lead	4800	5000	96	90 - 110	P	09/09/2025	17:46	LB137122
	Selenium	4860	5000	97	90 - 110	P	09/09/2025	17:46	LB137122
	Silver	1220	1250	98	90 - 110	P	09/09/2025	17:46	LB137122



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

Metals

- 2b -

CRDL STANDARD FOR AA & ICP

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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	16.4	20.0	82	65 - 135	P	09/09/2025	12:36	LB137122
	Barium	92.2	100	92	65 - 135	P	09/09/2025	12:36	LB137122
	Cadmium	5.53	6.0	92	65 - 135	P	09/09/2025	12:36	LB137122
	Chromium	9.50	10.0	95	65 - 135	P	09/09/2025	12:36	LB137122
	Lead	9.44	12.0	79	65 - 135	P	09/09/2025	12:36	LB137122
	Selenium	19.9	20.0	100	65 - 135	P	09/09/2025	12:36	LB137122
	Silver	9.64	10.0	96	65 - 135	P	09/09/2025	12:36	LB137122
CRA	Mercury	0.21	0.2	107	70 - 130	CV	09/10/2025	10:24	LB137126



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

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB24	Mercury	0.076	+/-0.2	U	0.20	CV	09/10/2025	09:56	LB137126

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB70	Mercury	0.076	+/-0.2	U	0.20	CV	09/10/2025	10:09	LB137126
CCB71	Mercury	0.076	+/-0.2	U	0.20	CV	09/10/2025	11:07	LB137126
CCB72	Mercury	0.076	+/-0.2	U	0.20	CV	09/10/2025	12:31	LB137126
CCB73	Mercury	0.076	+/-0.2	U	0.20	CV	09/10/2025	13:26	LB137126

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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	09/09/2025	12:31	LB137122
	Barium	14.6	+/-50	U	100	P	09/09/2025	12:31	LB137122
	Cadmium	0.50	+/-3	U	6.00	P	09/09/2025	12:31	LB137122
	Chromium	2.12	+/-5	U	10.0	P	09/09/2025	12:31	LB137122
	Lead	2.30	+/-6	U	12.0	P	09/09/2025	12:31	LB137122
	Selenium	9.64	+/-10	U	20.0	P	09/09/2025	12:31	LB137122
	Silver	1.62	+/-5	U	10.0	P	09/09/2025	12:31	LB137122

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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	09/09/2025	13:26	LB137122
	Barium	14.6	+/-50	U	100	P	09/09/2025	13:26	LB137122
	Cadmium	0.50	+/-3	U	6.00	P	09/09/2025	13:26	LB137122
	Chromium	2.12	+/-5	U	10.0	P	09/09/2025	13:26	LB137122
	Lead	2.30	+/-6	U	12.0	P	09/09/2025	13:26	LB137122
	Selenium	9.64	+/-10	U	20.0	P	09/09/2025	13:26	LB137122
	Silver	1.62	+/-5	U	10.0	P	09/09/2025	13:26	LB137122
CCB02	Arsenic	5.12	+/-10	U	20.0	P	09/09/2025	14:19	LB137122
	Barium	14.6	+/-50	U	100	P	09/09/2025	14:19	LB137122
	Cadmium	0.50	+/-3	U	6.00	P	09/09/2025	14:19	LB137122
	Chromium	2.12	+/-5	U	10.0	P	09/09/2025	14:19	LB137122
	Lead	2.30	+/-6	U	12.0	P	09/09/2025	14:19	LB137122
	Selenium	9.64	+/-10	U	20.0	P	09/09/2025	14:19	LB137122
	Silver	1.62	+/-5	U	10.0	P	09/09/2025	14:19	LB137122
CCB03	Arsenic	5.12	+/-10	U	20.0	P	09/09/2025	15:25	LB137122
	Barium	14.6	+/-50	U	100	P	09/09/2025	15:25	LB137122
	Cadmium	0.50	+/-3	U	6.00	P	09/09/2025	15:25	LB137122
	Chromium	2.12	+/-5	U	10.0	P	09/09/2025	15:25	LB137122
	Lead	2.30	+/-6	U	12.0	P	09/09/2025	15:25	LB137122
	Selenium	9.64	+/-10	U	20.0	P	09/09/2025	15:25	LB137122
	Silver	1.62	+/-5	U	10.0	P	09/09/2025	15:25	LB137122
CCB04	Arsenic	5.12	+/-10	U	20.0	P	09/09/2025	16:28	LB137122
	Barium	14.6	+/-50	U	100	P	09/09/2025	16:28	LB137122
	Cadmium	0.50	+/-3	U	6.00	P	09/09/2025	16:28	LB137122
	Chromium	2.12	+/-5	U	10.0	P	09/09/2025	16:28	LB137122
	Lead	2.30	+/-6	U	12.0	P	09/09/2025	16:28	LB137122
	Selenium	9.64	+/-10	U	20.0	P	09/09/2025	16:28	LB137122
	Silver	1.62	+/-5	U	10.0	P	09/09/2025	16:28	LB137122
CCB05	Arsenic	5.12	+/-10	U	20.0	P	09/09/2025	17:17	LB137122
	Barium	14.6	+/-50	U	100	P	09/09/2025	17:17	LB137122
	Cadmium	0.50	+/-3	U	6.00	P	09/09/2025	17:17	LB137122
	Chromium	2.12	+/-5	U	10.0	P	09/09/2025	17:17	LB137122
	Lead	2.30	+/-6	U	12.0	P	09/09/2025	17:17	LB137122
	Selenium	9.64	+/-10	U	20.0	P	09/09/2025	17:17	LB137122
	Silver	1.62	+/-5	U	10.0	P	09/09/2025	17:17	LB137122
CCB06	Arsenic	5.12	+/-10	U	20.0	P	09/09/2025	17:50	LB137122
	Barium	14.6	+/-50	U	100	P	09/09/2025	17:50	LB137122
	Cadmium	0.50	+/-3	U	6.00	P	09/09/2025	17:50	LB137122
	Chromium	2.12	+/-5	U	10.0	P	09/09/2025	17:50	LB137122

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB06	Lead	2.30	+/-6	U	12.0	P	09/09/2025	17:50	LB137122
	Selenium	9.64	+/-10	U	20.0	P	09/09/2025	17:50	LB137122
	Silver	1.62	+/-5	U	10.0	P	09/09/2025	17:50	LB137122

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: CHA Companies, Inc.

SDG No.: Q3030

Instrument: CV1

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169589TB		WATER		Batch Number:	PB169614		Prep Date:	09/09/2025	
	Mercury	0.76	<2	U	2.00	CV	09/10/2025	13:03	LB137126
Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169614BL		WATER		Batch Number:	PB169614		Prep Date:	09/09/2025	
	Mercury	0.076	<0.2	U	0.20	CV	09/10/2025	10:41	LB137126

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: CHA Companies, Inc.

SDG No.: Q3030

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169589TB		WATER		Batch Number:	PB169617		Prep Date:	09/09/2025	
	Arsenic	25.6	<50	U	100	P	09/09/2025	15:58	LB137122
	Barium	72.8	<250	U	500	P	09/09/2025	15:58	LB137122
	Cadmium	2.50	<15	U	30.0	P	09/09/2025	15:58	LB137122
	Chromium	10.6	<25	U	50.0	P	09/09/2025	15:58	LB137122
	Lead	11.5	<30	U	60.0	P	09/09/2025	15:58	LB137122
	Selenium	48.2	<50	U	100	P	09/09/2025	15:58	LB137122
	Silver	8.10	<25	U	50.0	P	09/09/2025	15:58	LB137122
Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169617BL		WATER		Batch Number:	PB169617		Prep Date:	09/09/2025	
	Arsenic	25.6	<50	U	100	P	09/09/2025	16:03	LB137122
	Barium	72.8	<250	U	500	P	09/09/2025	16:03	LB137122
	Cadmium	2.50	<15	U	30.0	P	09/09/2025	16:03	LB137122
	Chromium	10.6	<25	U	50.0	P	09/09/2025	16:03	LB137122
	Lead	11.5	<30	U	60.0	P	09/09/2025	16:03	LB137122
	Selenium	48.2	<50	U	100	P	09/09/2025	16:03	LB137122
	Silver	8.10	<25	U	50.0	P	09/09/2025	16:03	LB137122

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: <u>CHA Companies, Inc.</u>	SDG No.: <u>Q3030</u>
Contract: <u>CLOU03</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	-0.30			-20	20	09/09/2025	12:42	LB137122
	Barium	-8.71	6.0	145	-94	106	09/09/2025	12:42	LB137122
	Cadmium	-1.23	1.0	123	-5	7	09/09/2025	12:42	LB137122
	Chromium	50.6	52.0	97	42	62	09/09/2025	12:42	LB137122
	Lead	-3.71			-12	12	09/09/2025	12:42	LB137122
	Selenium	4.10			-20	20	09/09/2025	12:42	LB137122
	Silver	0.80			-10	10	09/09/2025	12:42	LB137122
ICSAB01	Arsenic	107	104	103	88.4	120	09/09/2025	12:46	LB137122
	Barium	496	537	92	437	637	09/09/2025	12:46	LB137122
	Cadmium	1010	972	104	826	1120	09/09/2025	12:46	LB137122
	Chromium	606	542	112	460	624	09/09/2025	12:46	LB137122
	Lead	44.4	49.0	91	37	61	09/09/2025	12:46	LB137122
	Selenium	56.1	46.0	122	26	66	09/09/2025	12:46	LB137122
	Silver	221	201	110	170	232	09/09/2025	12:46	LB137122



METAL

QC

DATA

metals
- 5a -
MATRIX SPIKE SUMMARY

client: <u>CHA Companies, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q3030</u>
contract: <u>CLOU03</u>		lab code: <u>ACE</u>
matrix: <u>Water</u>	sample id: <u>Q3051-02</u>	client id: <u>VNJ-223MS</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q3051-02MS</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Arsenic	ug/L	75 - 125	3750		100	U	4000	94		P
Barium	ug/L	75 - 125	1160		204	J	1000	96		P
Cadmium	ug/L	75 - 125	887		30.0	U	1000	89		P
Chromium	ug/L	75 - 125	1850		50.0	U	2000	92		P
Lead	ug/L	75 - 125	4280		60.0	U	5000	86		P
Mercury	ug/L	75 - 125	45.0		2.00	U	40.0	112		CV
Selenium	ug/L	75 - 125	9480		100	U	10000	95		P
Silver	ug/L	75 - 125	327		50.0	U	380	86		P

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: <u>CHA Companies, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q3030</u>
contract: <u>CLOU03</u>		lab code: <u>ACE</u>
matrix: <u>Water</u>	sample id: <u>Q3051-02</u>	client id: <u>VNJ-223MSD</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q3051-02MSD</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Arsenic	ug/L	75 - 125	3910		100	U	4000	98		P
Barium	ug/L	75 - 125	1430		204	J	1000	123		P
Cadmium	ug/L	75 - 125	917		30.0	U	1000	92		P
Chromium	ug/L	75 - 125	1910		50.0	U	2000	96		P
Lead	ug/L	75 - 125	4390		60.0	U	5000	88		P
Mercury	ug/L	75 - 125	39.9		2.00	U	40.0	100		CV
Selenium	ug/L	75 - 125	9960		100	U	10000	100		P
Silver	ug/L	75 - 125	336		50.0	U	380	88		P

Metals

- 5b -

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

Lab Code: ACE

Matrix:

Level: LOW

Client ID:

Sample ID:

Spiked ID:

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

.....

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client:	<u>CHA Companies, Inc.</u>	Level:	<u>LOW</u>	SDG No.:	<u>Q3030</u>
Contract:	<u>CLOU03</u>			Lab Code:	<u>ACE</u>
Matrix:	<u>Water</u>	Sample ID:	<u>Q3051-02</u>	Client ID:	<u>VNJ-223DUP</u>
Percent Solids for Sample:	NA	Duplicate ID	Q3051-02DUP	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	204	J	175	J	15		P
Cadmium	ug/L	20	30.0	U	30.0	U			P
Chromium	ug/L	20	50.0	U	50.0	U			P
Lead	ug/L	20	60.0	U	60.0	U			P
Mercury	ug/L	20	2.00	U	2.00	U			CV
Selenium	ug/L	20	100	U	100	U			P
Silver	ug/L	20	50.0	U	50.0	U			P

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client:	<u>CHA Companies, Inc.</u>	Level:	<u>LOW</u>	SDG No.:	<u>Q3030</u>
Contract:	<u>CLOU03</u>			Lab Code:	<u>ACE</u>
Matrix:	<u>Water</u>	Sample ID:	<u>Q3051-02MS</u>	Client ID:	<u>VNJ-223MSD</u>
Percent Solids for Sample:	NA	Duplicate ID	Q3051-02MSD	Percent Solids for Spike Sample:	NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Arsenic	ug/L	20	3750		3910		4		P
Barium	ug/L	20	1160		1430		21	*	P
Cadmium	ug/L	20	887		917		3		P
Chromium	ug/L	20	1850		1910		3		P
Lead	ug/L	20	4280		4390		3		P
Mercury	ug/L	20	45.0		39.9		12		CV
Selenium	ug/L	20	9480		9960		5		P
Silver	ug/L	20	327		336		3		P

Metals

- 7 -

LABORATORY CONTROL SAMPLE SUMMARY

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

Lab Code: ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB169614BS Mercury	ug/L	4.0	4.48		112	80 - 120	CV

Metals

- 7 -

LABORATORY CONTROL SAMPLE SUMMARY

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

Lab Code: ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB169617BS							
Arsenic	ug/L	4000	3810		95	80 - 120	P
Barium	ug/L	1000	887		89	80 - 120	P
Cadmium	ug/L	1000	932		93	80 - 120	P
Chromium	ug/L	2000	1950		98	80 - 120	P
Lead	ug/L	5000	4690		94	80 - 120	P
Selenium	ug/L	10000	9720		97	80 - 120	P
Silver	ug/L	380	361		95	80 - 120	P

Metals
-9 -
ICP SERIAL DILUTIONS

SAMPLE NO.

VNJ-223L

Lab Name: Alliance **Contract:** CLOU03
Lab Code: ACE **Lb No.:** lb137122 **Lab Sample ID :** Q3051-02L **SDG No.:** Q3030
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	204	J	2500	U	100.0			P
Cadmium	30.0	U	150	U				P
Chromium	50.0	U	250	U				P
Lead	60.0	U	300	U				P
Mercury	2.00	U	10.0	U				CV
Selenium	100	U	500	U				P
Silver	50.0	U	250	U				P



METAL PREPARATION & INSTRUMENT DATA

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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

- 13 -

SAMPLE PREPARATION SUMMARY

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

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: PB169614							
PB169589TB	PB169589TB	MB	WATER	09/09/2025	3.0	30.0	
PB169614BL	PB169614BL	MB	WATER	09/09/2025	30.0	30.0	
PB169614BS	PB169614BS	LCS	WATER	09/09/2025	30.0	30.0	
Q3030-01	BLEECKER-082825HU01-TCLP	SAM	WATER	09/09/2025	3.0	30.0	
Q3051-02DUP	VNJ-223DUP	DUP	WATER	09/09/2025	3.0	30.0	
Q3051-02MS	VNJ-223MS	MS	WATER	09/09/2025	3.0	30.0	
Q3051-02MSD	VNJ-223MSD	MSD	WATER	09/09/2025	3.0	30.0	

Metals

- 13 -

SAMPLE PREPARATION SUMMARY

Client: CHA Companies, Inc.

SDG No.: Q3030

Contract: CLOU03

Lab Code: ACE

Method:

						Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Sample ID	Client ID	Sample Type	Matrix	Prep Date				
Batch Number: PB169617								
PB169589TB	PB169589TB	MB	WATER	09/09/2025		5.0	25.0	
PB169617BL	PB169617BL	MB	WATER	09/09/2025		5.0	25.0	
PB169617BS	PB169617BS	LCS	WATER	09/09/2025		5.0	25.0	
Q3030-01	BLEECKER-082825HU01-TCLP	SAM	WATER	09/09/2025		5.0	25.0	
Q3051-02DUP	VNJ-223DUP	DUP	WATER	09/09/2025		5.0	25.0	
Q3051-02MS	VNJ-223MS	MS	WATER	09/09/2025		5.0	25.0	
Q3051-02MSD	VNJ-223MSD	MSD	WATER	09/09/2025		5.0	25.0	

metals
- 14 -
ANALYSIS RUN LOG

Client: CHA Companies, Inc.

Contract: CLOU03

Lab code: ACE

Sdg no.: Q3030

Instrument id number: _____

Method: _____

Run number: LB137122

Start date: 09/09/2025

End date: 09/09/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1148	Ag,As,Ba,Cd,Cr,Pb,Se
S1	S1	1	1153	Ag,As,Ba,Cd,Cr,Pb,Se
S2	S2	1	1157	Ag,As,Ba,Cd,Cr,Pb,Se
S3	S3	1	1201	Ag,As,Ba,Cd,Cr,Pb,Se
S4	S4	1	1205	Ag,As,Ba,Cd,Cr,Pb,Se
S5	S5	1	1209	Ag,As,Ba,Cd,Cr,Pb,Se
ICV01	ICV01	1	1214	Ag,As,Ba,Cd,Cr,Pb,Se
LLICV01	LLICV01	1	1226	Ag,As,Ba,Cd,Cr,Pb,Se
ICB01	ICB01	1	1231	Ag,As,Ba,Cd,Cr,Pb,Se
CRI01	CRI01	1	1236	Ag,As,Ba,Cd,Cr,Pb,Se
ICSA01	ICSA01	1	1242	Ag,As,Ba,Cd,Cr,Pb,Se
ICSAB01	ICSAB01	1	1246	Ag,As,Ba,Cd,Cr,Pb,Se
CCV01	CCV01	1	1259	Ag,As,Ba,Cd,Cr,Pb,Se
CCB01	CCB01	1	1326	Ag,As,Ba,Cd,Cr,Pb,Se
CCV02	CCV02	1	1414	Ag,As,Ba,Cd,Cr,Pb,Se
CCB02	CCB02	1	1419	Ag,As,Ba,Cd,Cr,Pb,Se
Q3030-01	BLEECKER-082825HU01-TCL	1	1427	Ag,As,Ba,Cd,Cr,Pb,Se
Q3051-02DUP	VNJ-223DUP	1	1503	Ag,As,Ba,Cd,Cr,Pb,Se
Q3051-02L	VNJ-223L	5	1507	Ag,As,Ba,Cd,Cr,Pb,Se
CCV03	CCV03	1	1511	Ag,As,Ba,Cd,Cr,Pb,Se
CCB03	CCB03	1	1525	Ag,As,Ba,Cd,Cr,Pb,Se
Q3051-02MS	VNJ-223MS	1	1529	Ag,As,Ba,Cd,Cr,Pb,Se
Q3051-02MSD	VNJ-223MSD	1	1533	Ag,As,Ba,Cd,Cr,Pb,Se
PB169589TB	PB169589TB	1	1558	Ag,As,Ba,Cd,Cr,Pb,Se
PB169617BL	PB169617BL	1	1603	Ag,As,Ba,Cd,Cr,Pb,Se
CCV04	CCV04	1	1624	Ag,As,Ba,Cd,Cr,Pb,Se
CCB04	CCB04	1	1628	Ag,As,Ba,Cd,Cr,Pb,Se
CCV05	CCV05	1	1713	Ag,As,Ba,Cd,Cr,Pb,Se
CCB05	CCB05	1	1717	Ag,As,Ba,Cd,Cr,Pb,Se
PB169617BS	PB169617BS	1	1721	Ag,As,Ba,Cd,Cr,Pb,Se
CCV06	CCV06	1	1746	Ag,As,Ba,Cd,Cr,Pb,Se
CCB06	CCB06	1	1750	Ag,As,Ba,Cd,Cr,Pb,Se

metals
- 14 -
ANALYSIS RUN LOG

Client: CHA Companies, Inc.

Contract: CLOU03

Lab code: ACE

Sdg no.: Q3030

Instrument id number: _____

Method: _____

Run number: LB137126

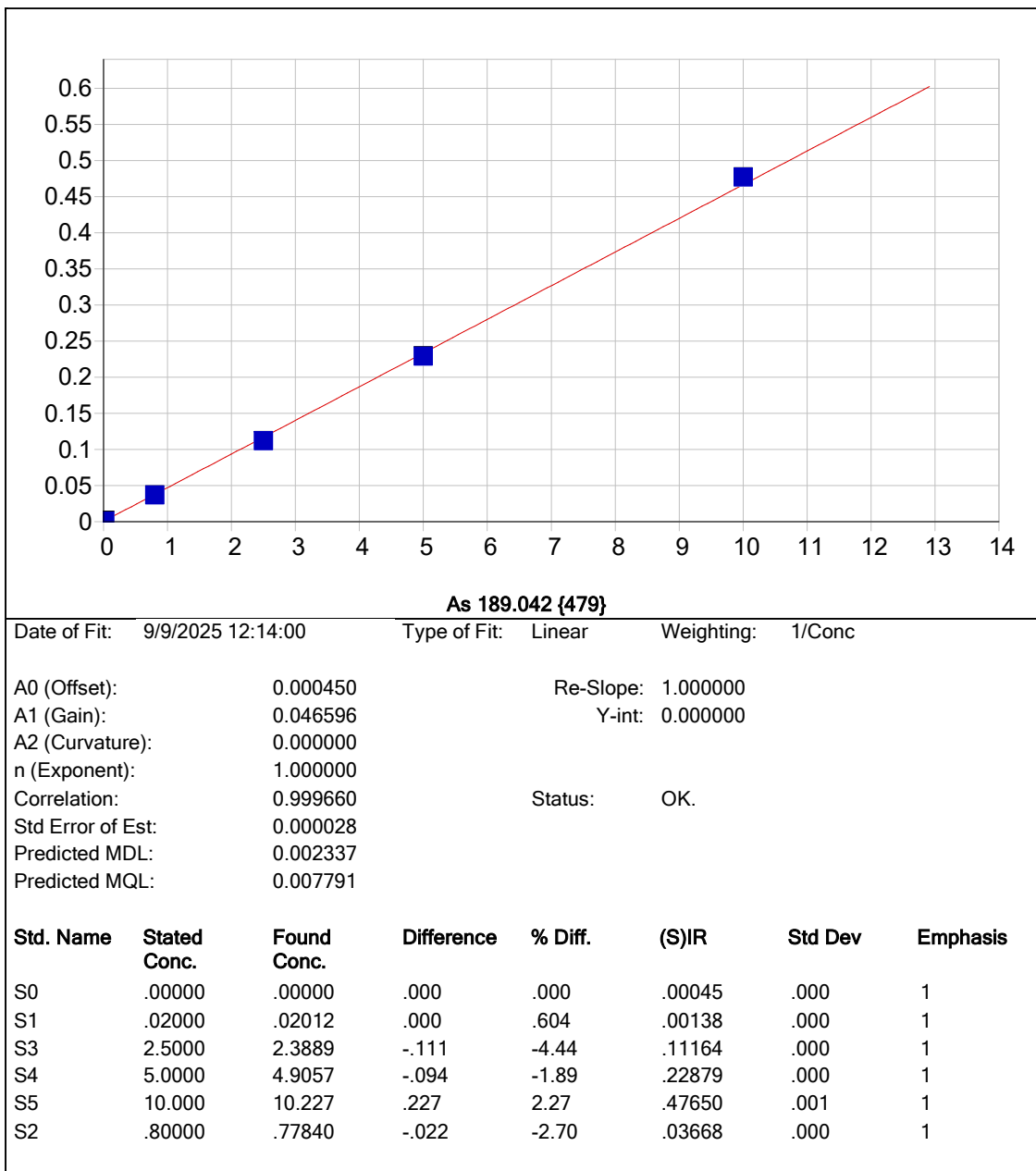
Start date: 09/10/2025

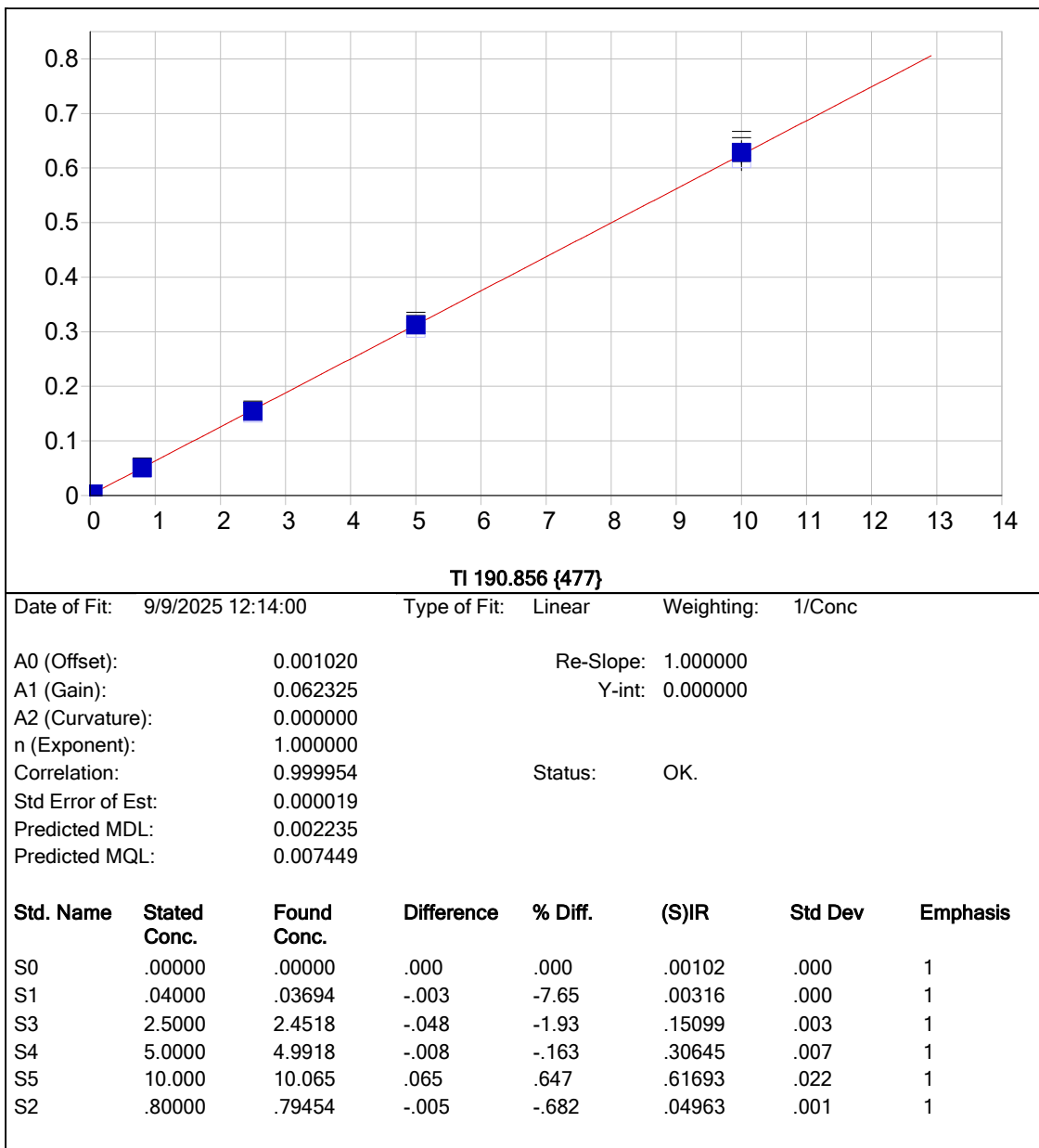
End date: 09/10/2025

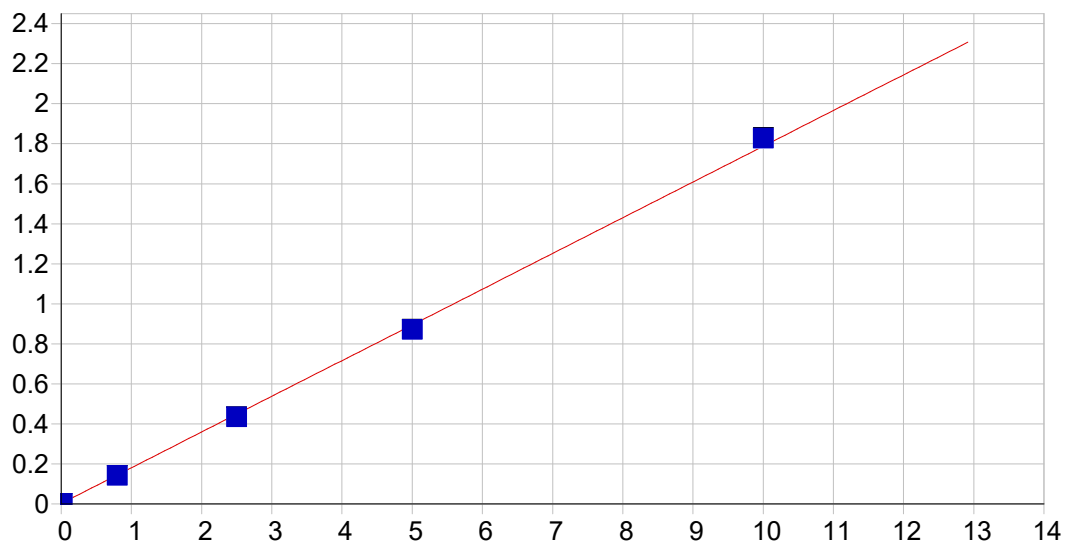
Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	0923	HG
S0.2	S0.2	1	0928	HG
S2.5	S2.5	1	0930	HG
S5	S5	1	0932	HG
S7.5	S7.5	1	0935	HG
S10	S10	1	0940	HG
ICV24	ICV24	1	0948	HG
ICB24	ICB24	1	0956	HG
CCV70	CCV70	1	1003	HG
CCB70	CCB70	1	1009	HG
CRA	CRA	1	1024	HG
PB169614BL	PB169614BL	1	1041	HG
PB169614BS	PB169614BS	1	1046	HG
Q3030-01	BLEECKER-082825HU01-TCL	1	1048	HG
CCV71	CCV71	1	1105	HG
CCB71	CCB71	1	1107	HG
Q3051-02DUP	VNJ-223DUP	1	1109	HG
Q3051-02MS	VNJ-223MS	1	1114	HG
Q3051-02MSD	VNJ-223MSD	1	1120	HG
CCV72	CCV72	1	1214	HG
CCB72	CCB72	1	1231	HG
PB169589TB	PB169589TB	1	1303	HG
CCV73	CCV73	1	1320	HG
CCB73	CCB73	1	1326	HG



METAL RAW DATA





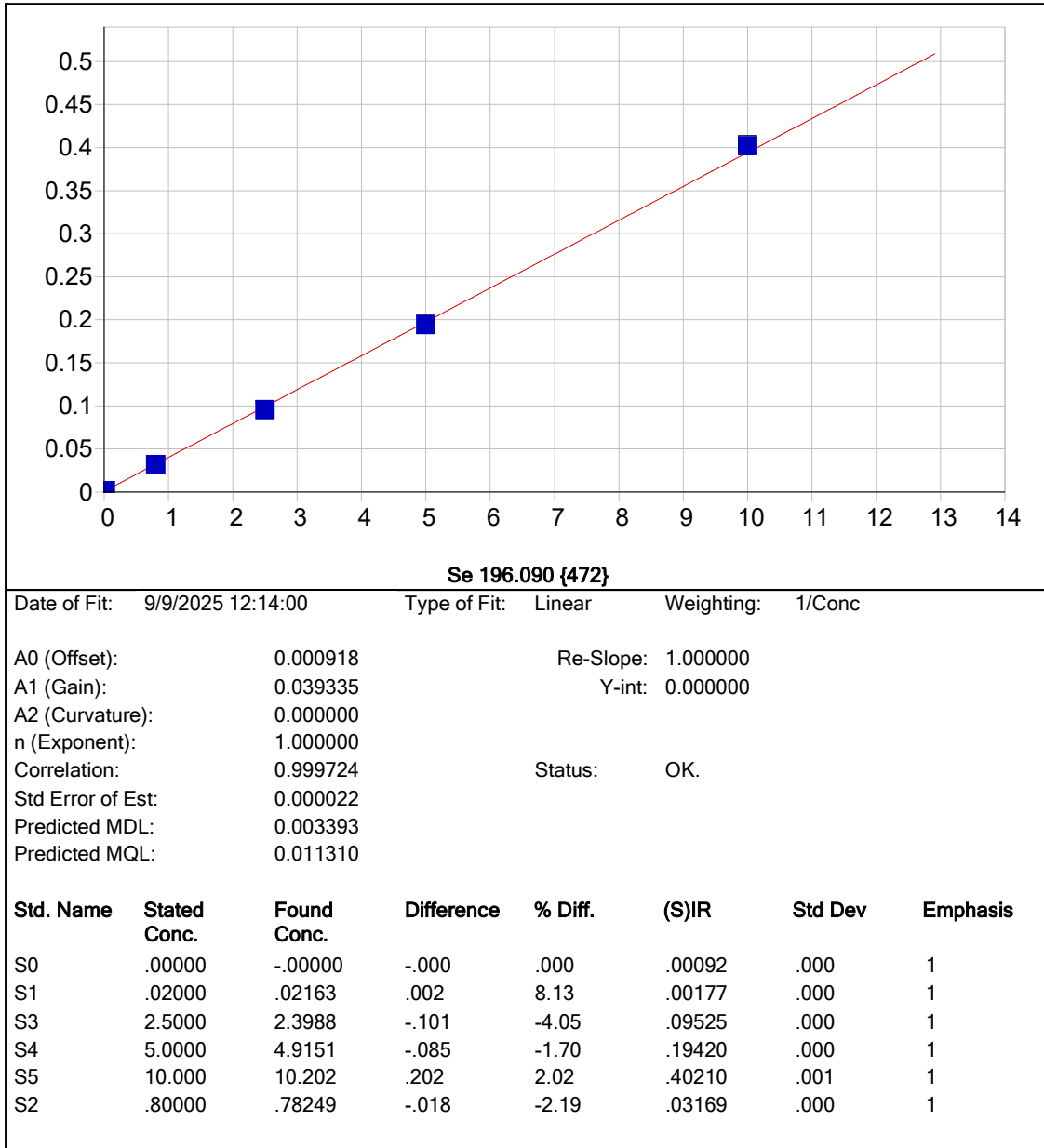


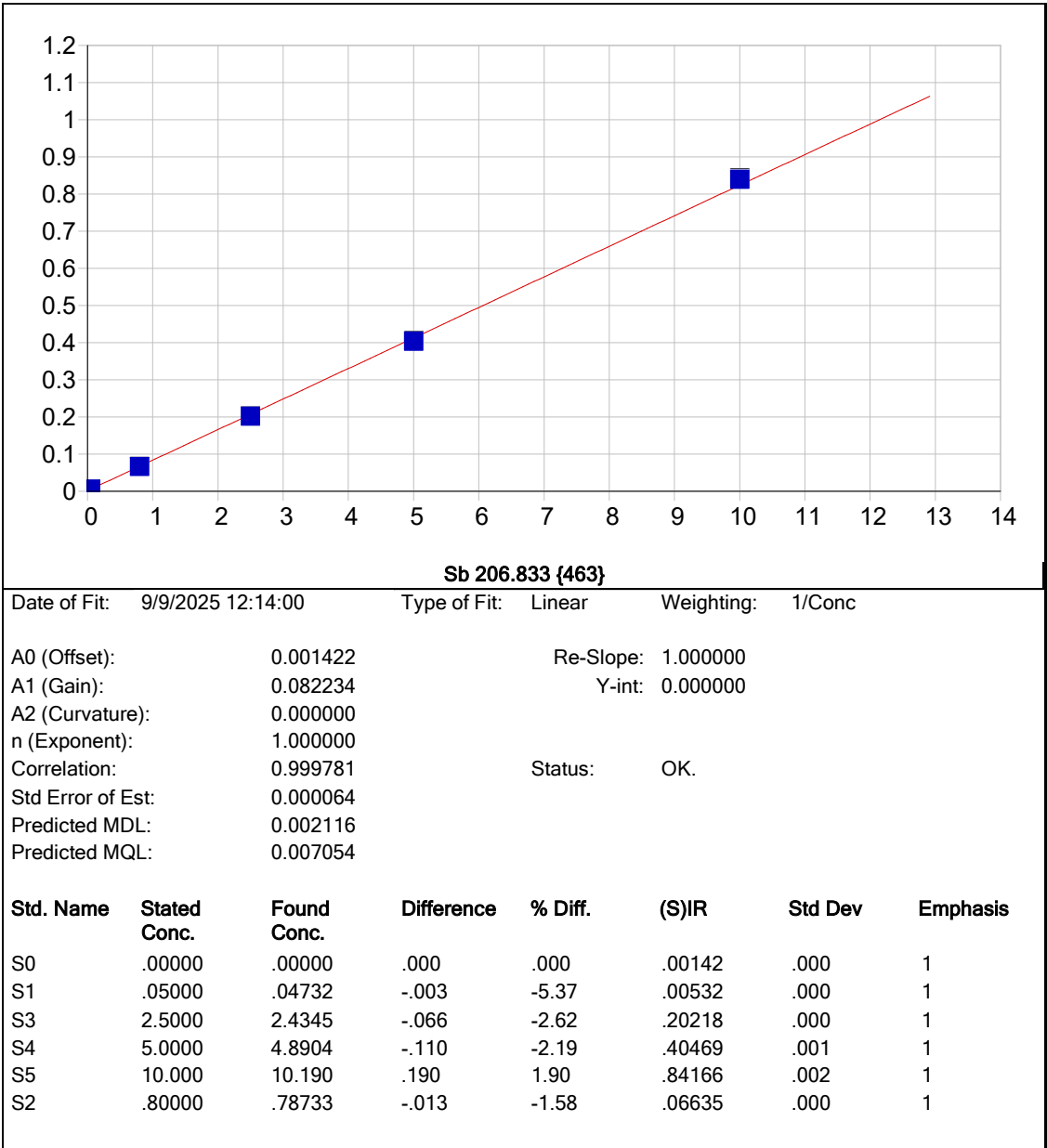
Pb 220.353 {453}

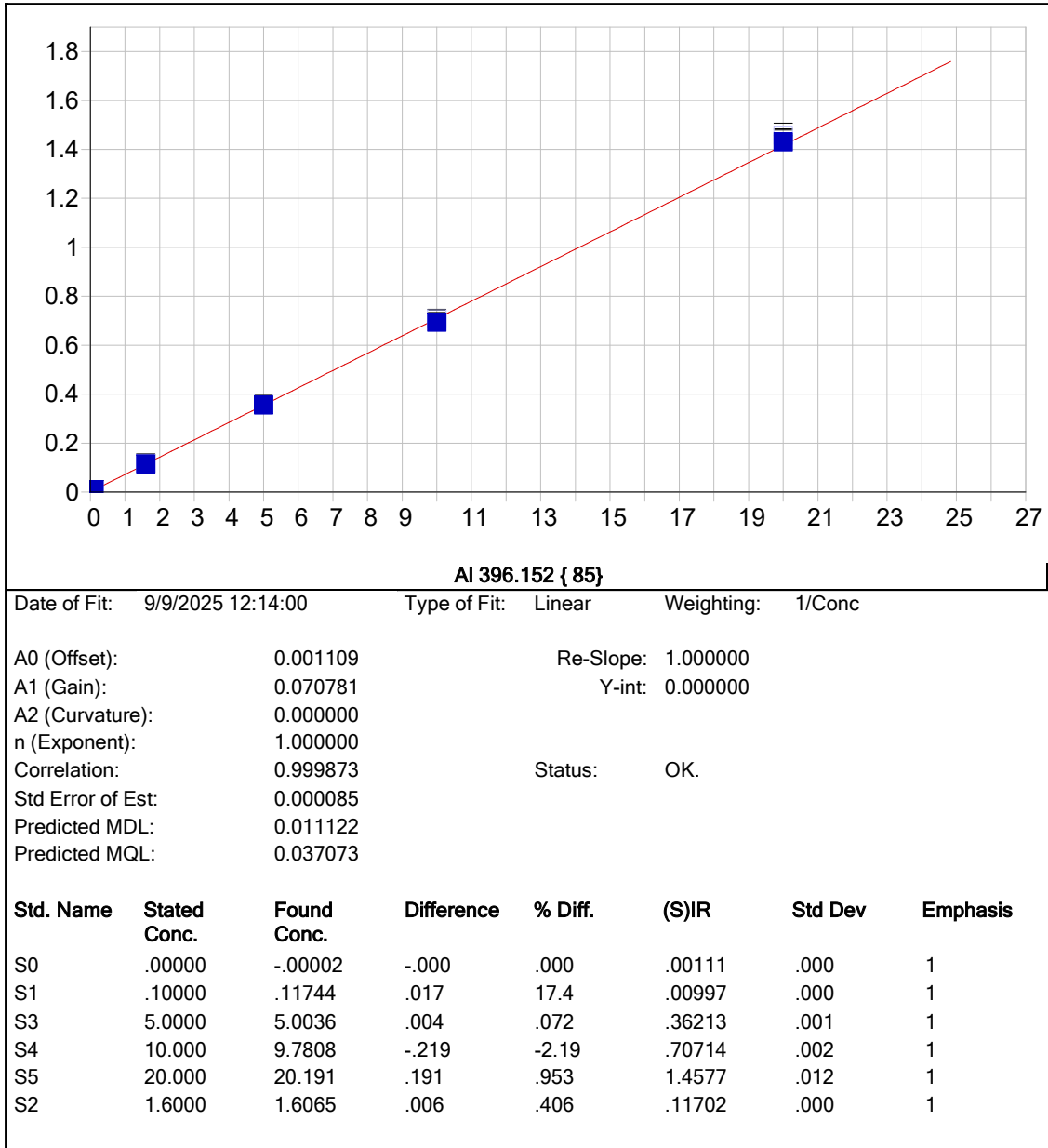
Date of Fit: 9/9/2025 12:14:00 Type of Fit: Linear Weighting: 1/Conc

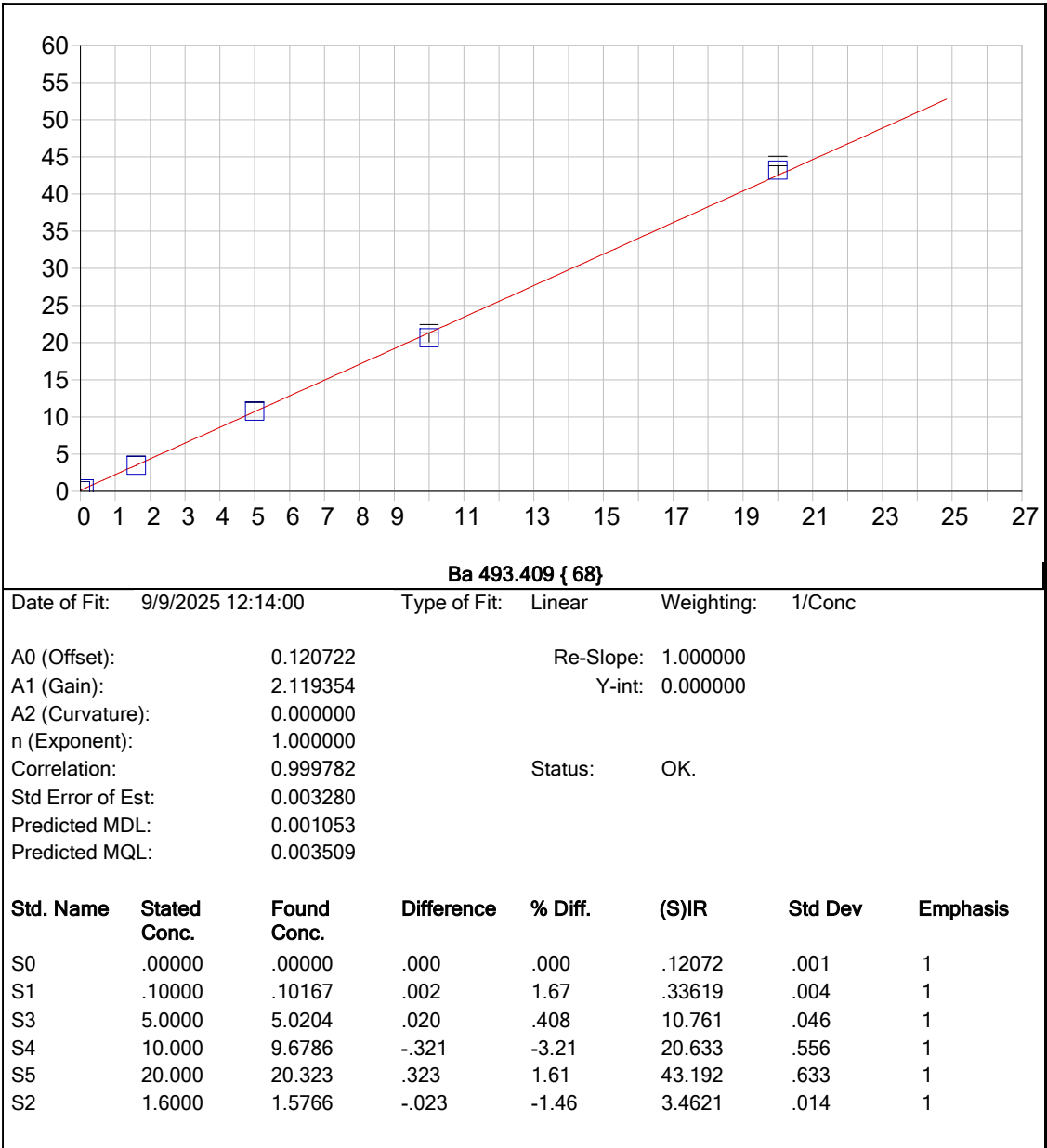
A0 (Offset): 0.002194 Re-Slope: 1.000000
A1 (Gain): 0.178495 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999692 Status: OK.
Std Error of Est: 0.000080
Predicted MDL: 0.001494
Predicted MQL: 0.004980

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00219	.000	1
S1	.01200	.01086	-.001	-9.53	.00409	.000	1
S3	2.5000	2.4204	-.080	-3.18	.43373	.000	1
S4	5.0000	4.8747	-.125	-2.51	.87132	.001	1
S5	10.000	10.225	.225	2.25	1.8253	.003	1
S2	.80000	.78135	-.019	-2.33	.14150	.000	1



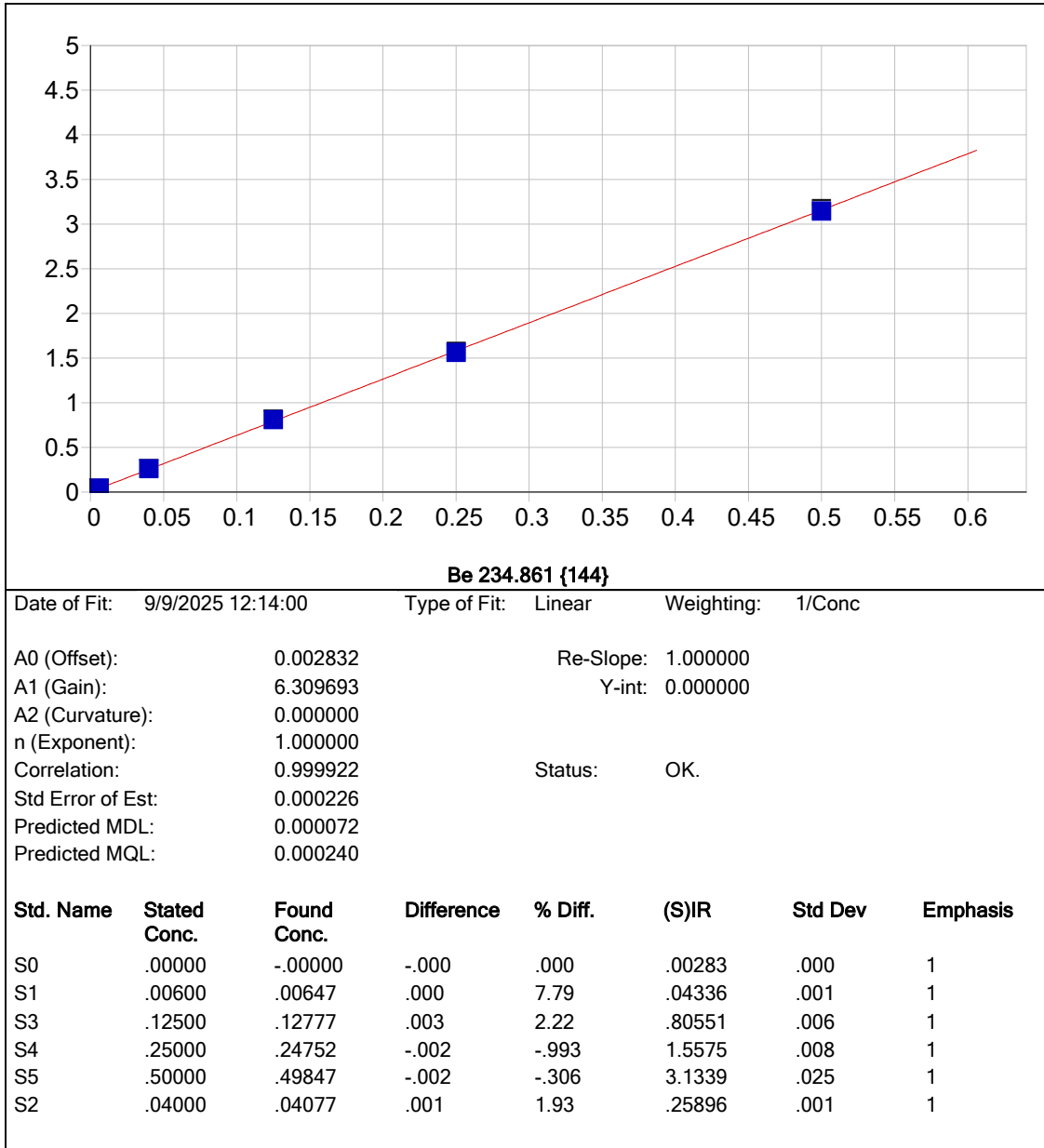


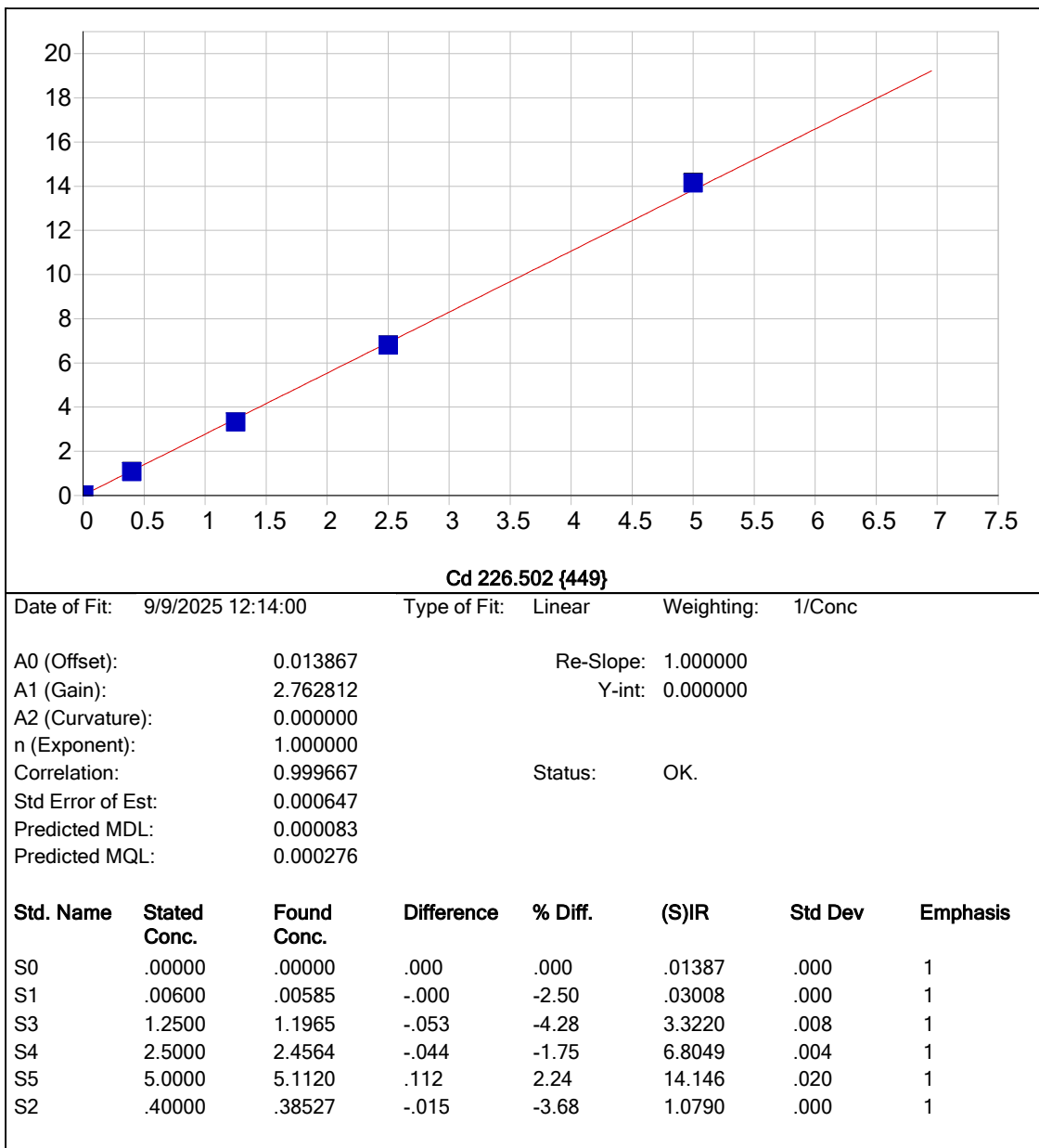


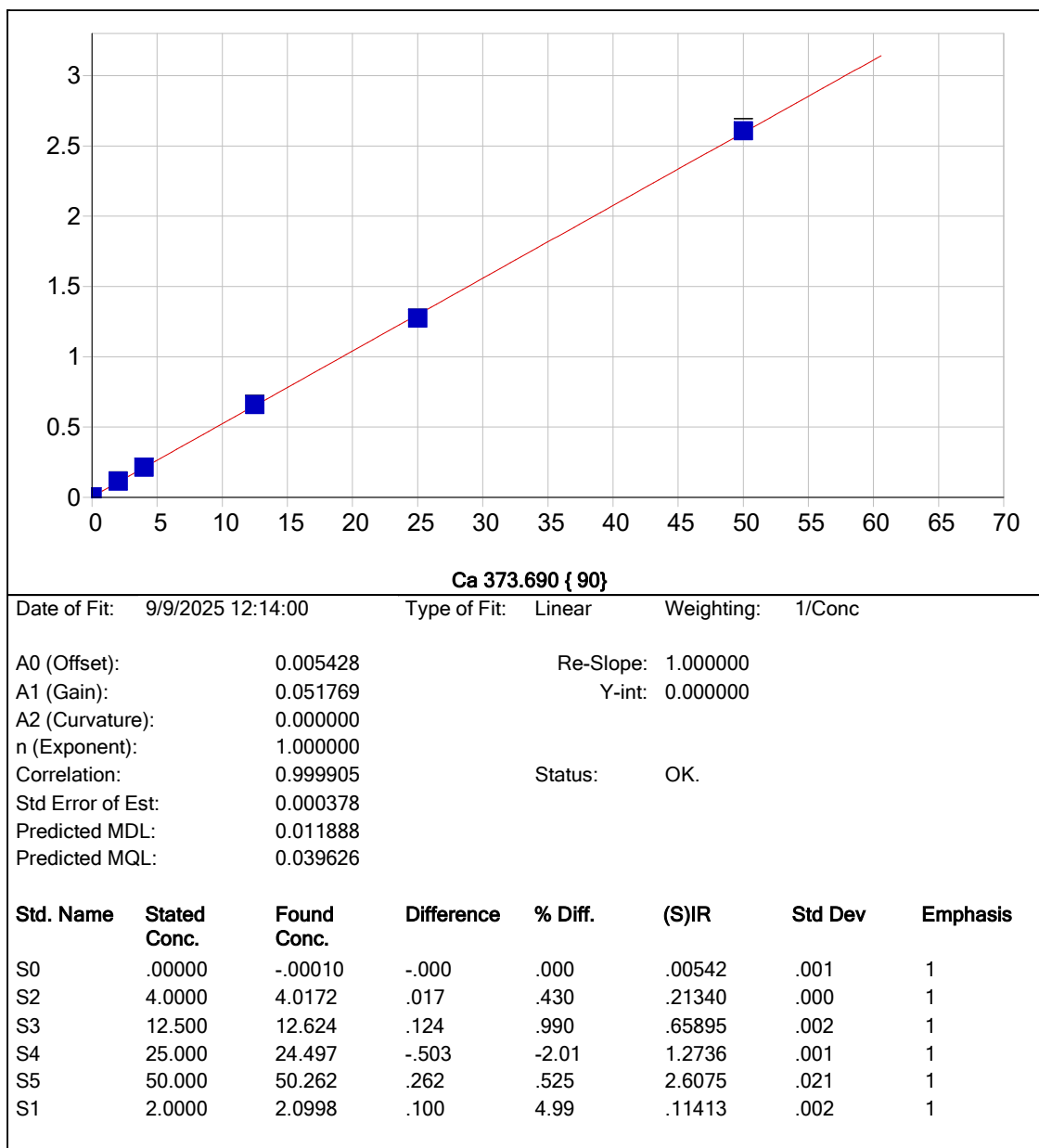


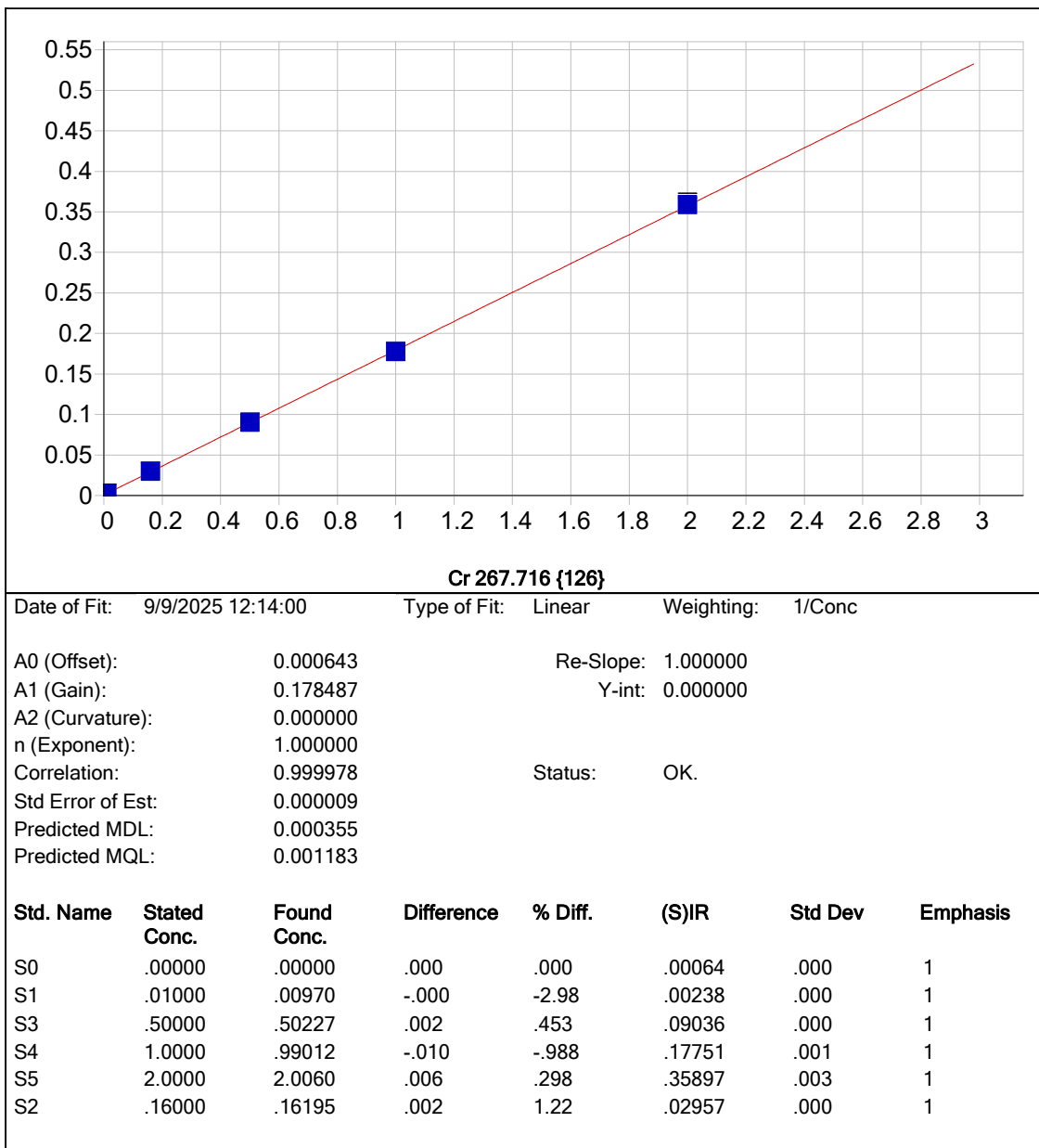
Date of Fit: 9/9/2025 12:14:00 Type of Fit: Linear Weighting: 1/Conc

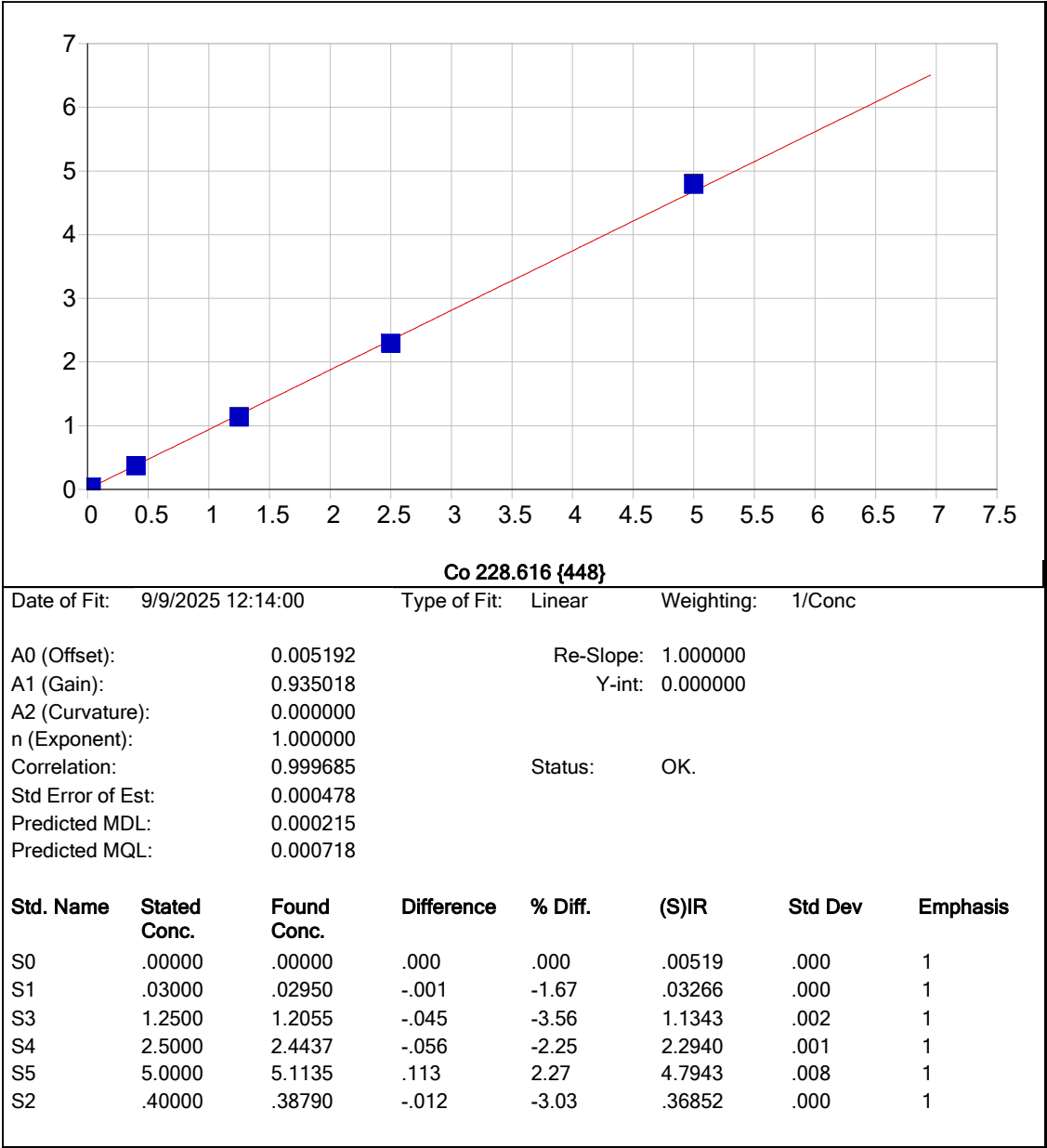
A0 (Offset): 0.120722 Re-Slope: 1.000000
A1 (Gain): 2.119354 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999782 Status: OK.
Std Error of Est: 0.003280
Predicted MDL: 0.001053
Predicted MQL: 0.003509

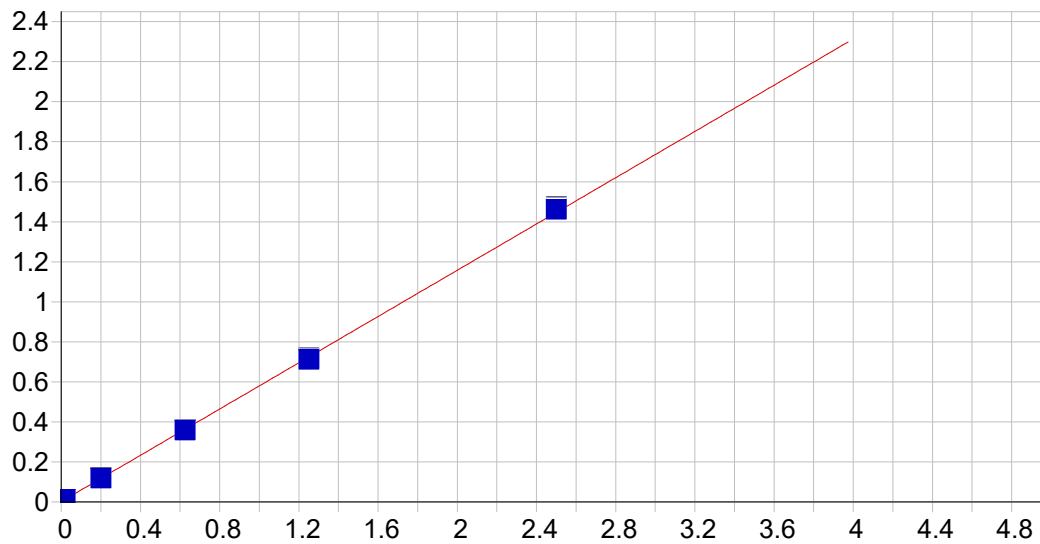










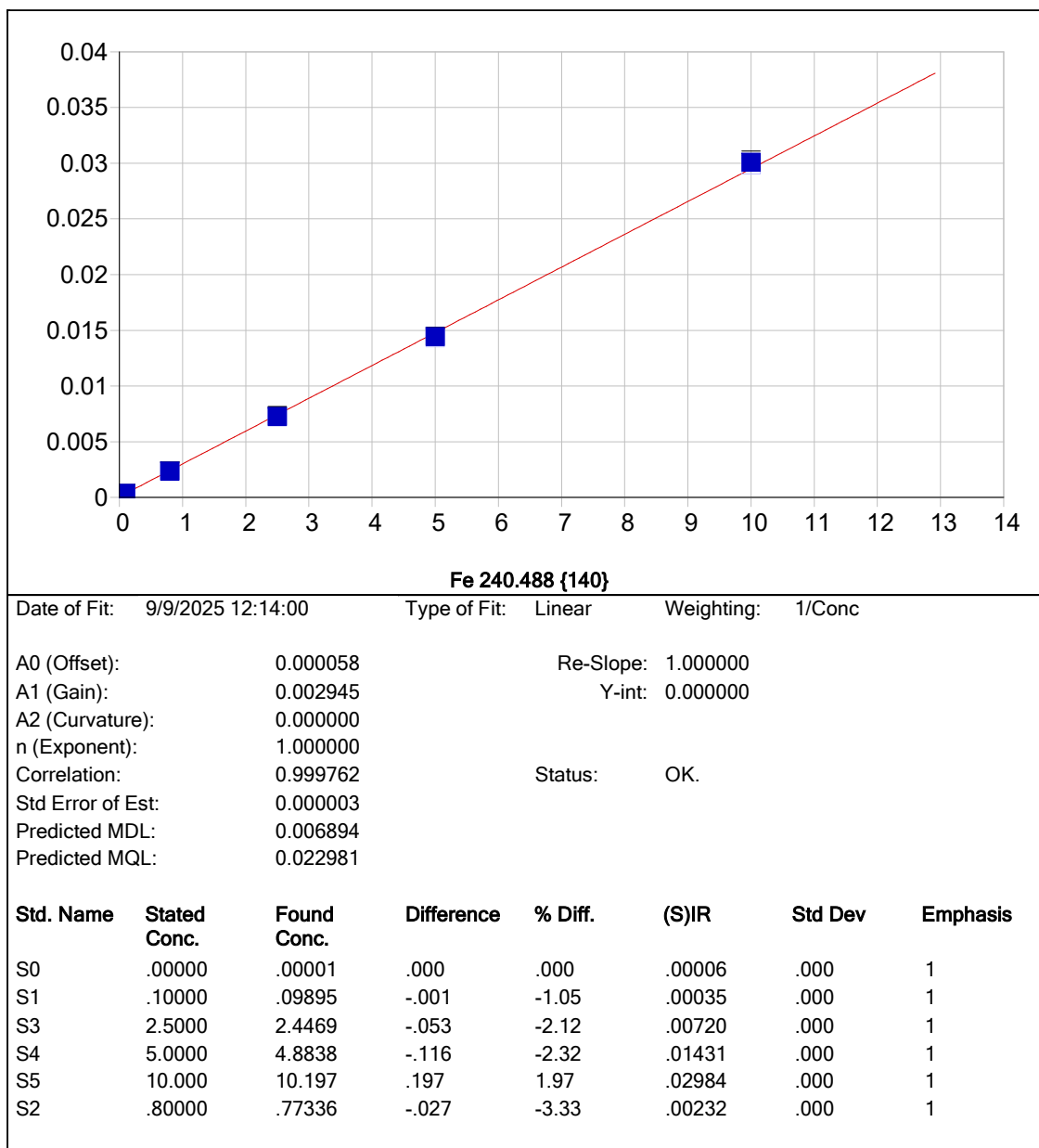


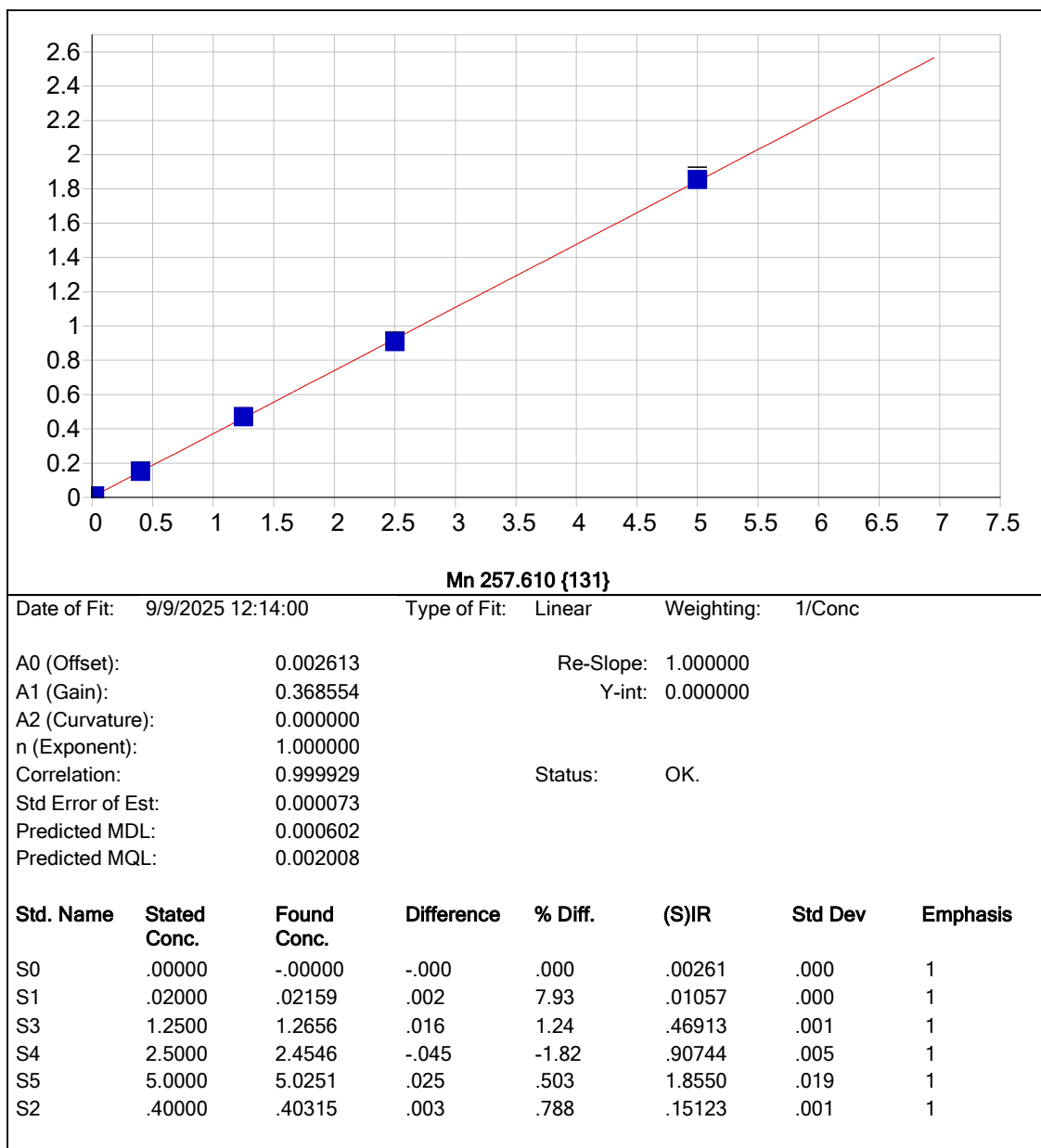
Cu 224.700 {450}

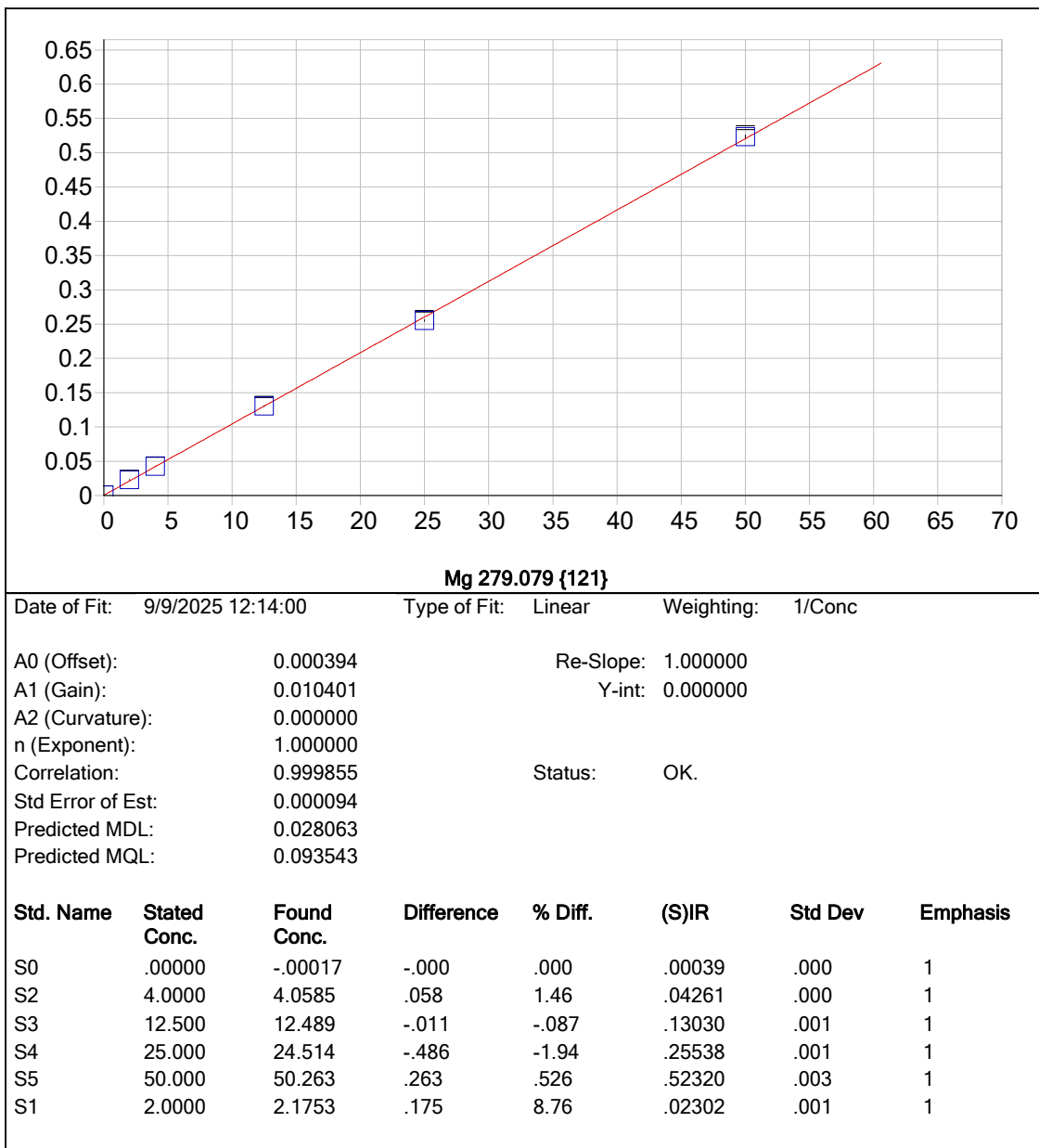
Date of Fit: 9/9/2025 12:14:00 Type of Fit: Linear Weighting: 1/Conc

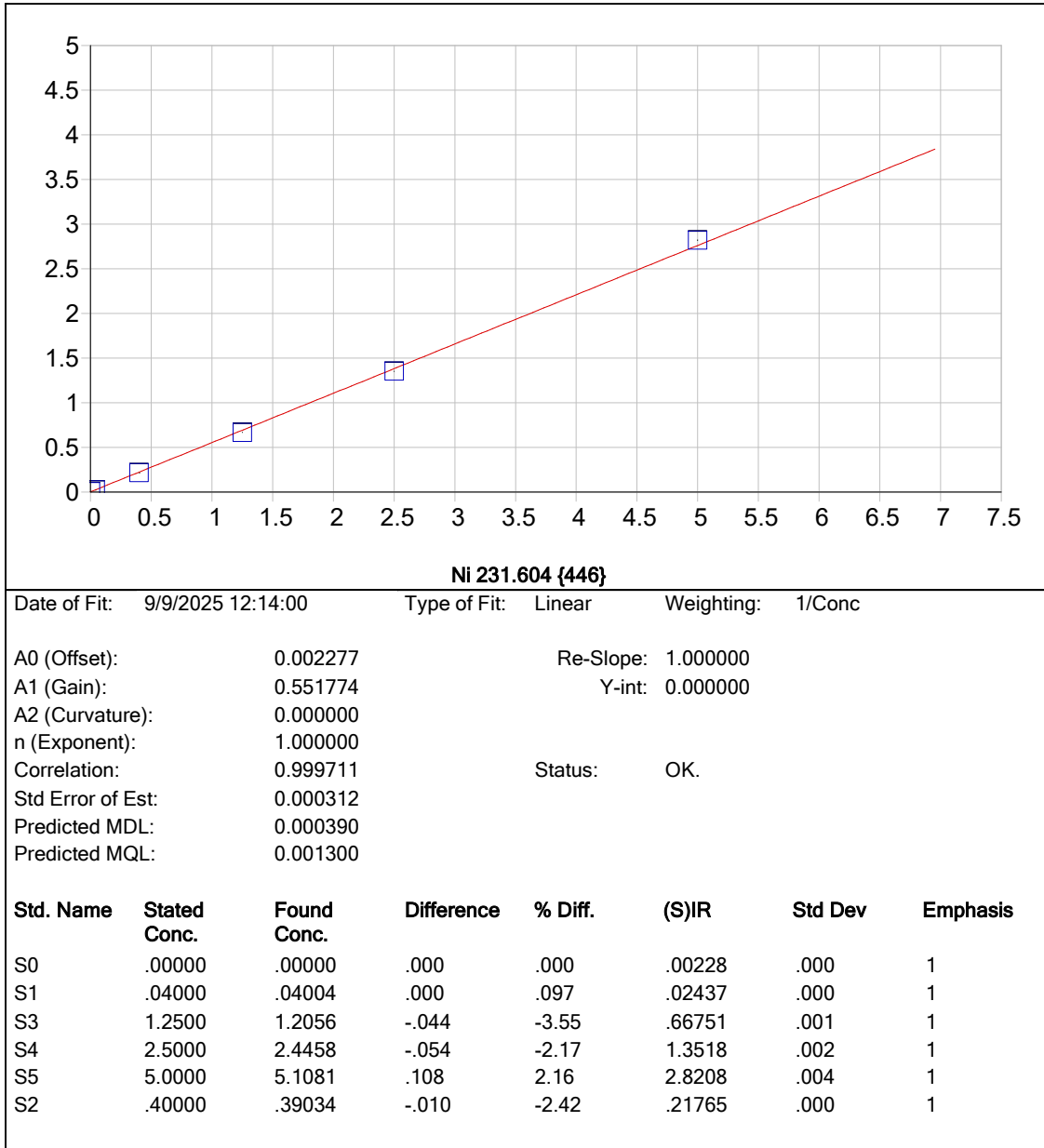
A0 (Offset):	0.001828	Re-Slope:	1.000000
A1 (Gain):	0.578014	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999903	Status:	OK.
Std Error of Est:	0.000095		
Predicted MDL:	0.000455		
Predicted MQL:	0.001518		

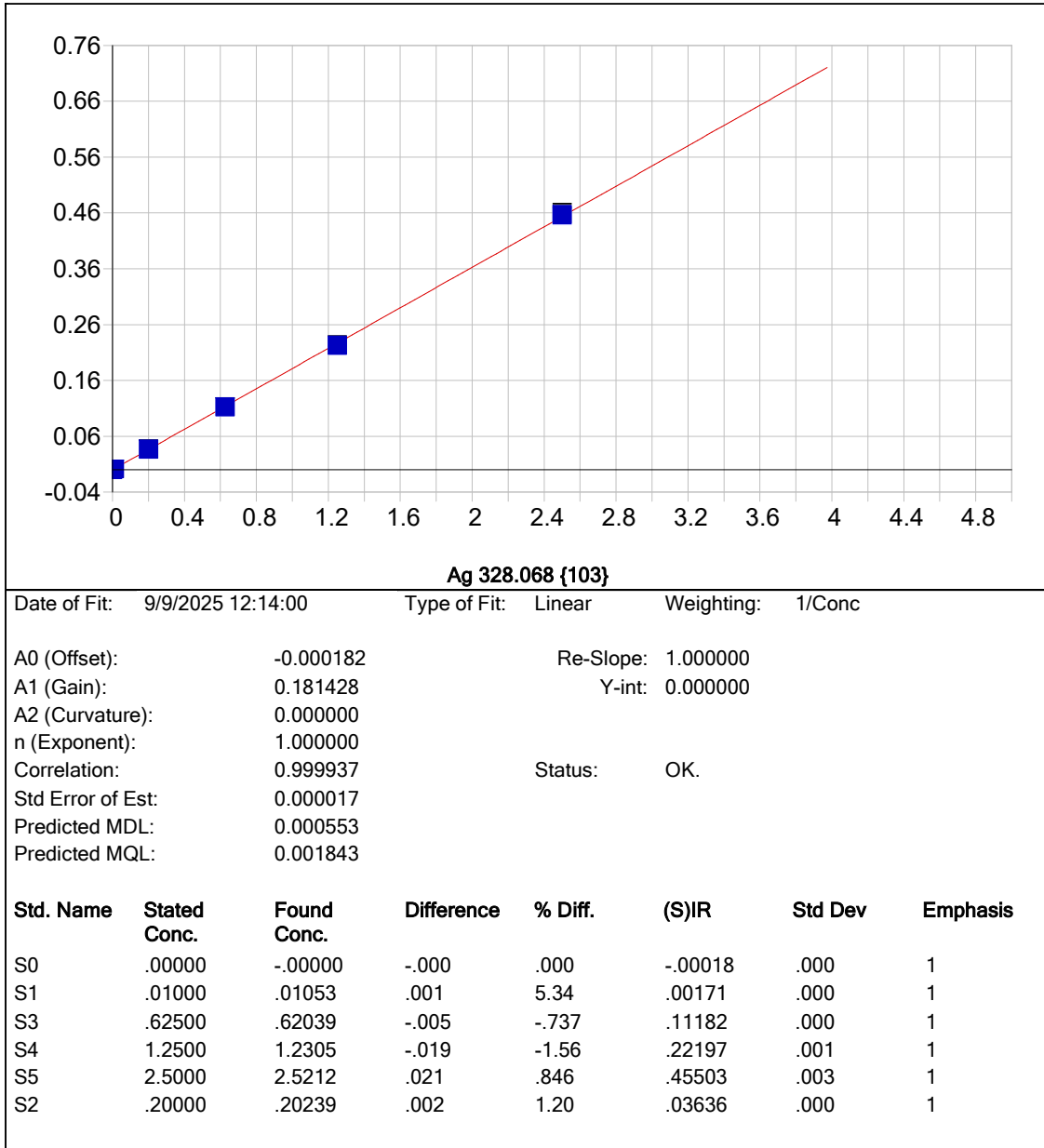
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00183	.000	1
S1	.02000	.02172	.002	8.62	.01451	.000	1
S3	.62500	.61602	-.009	-1.44	.36091	.000	1
S4	1.2500	1.2293	-.021	-1.65	.71842	.001	1
S5	2.5000	2.5251	.025	1.00	1.4734	.000	1
S2	.20000	.20282	.003	1.41	.12003	.000	1

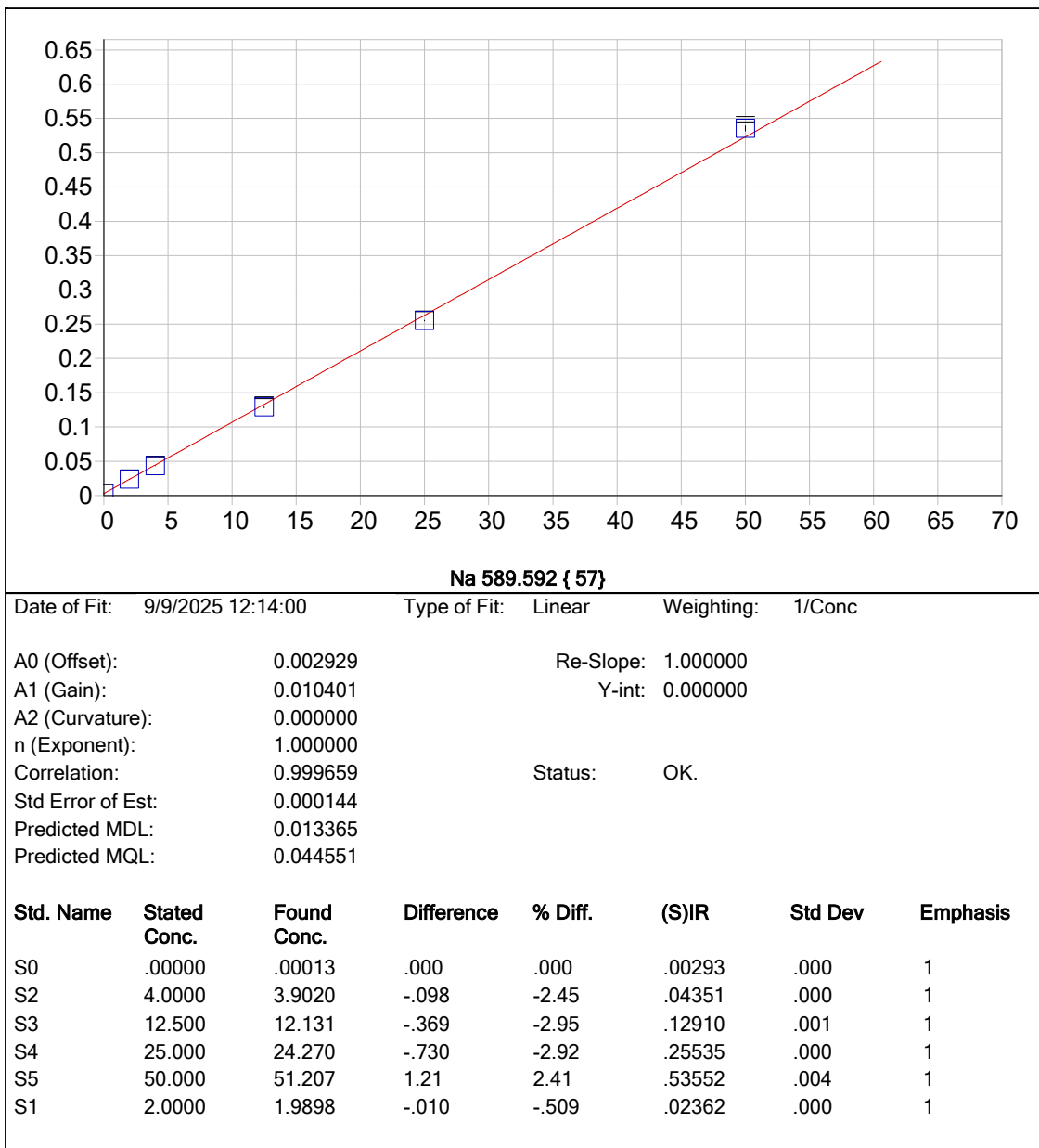


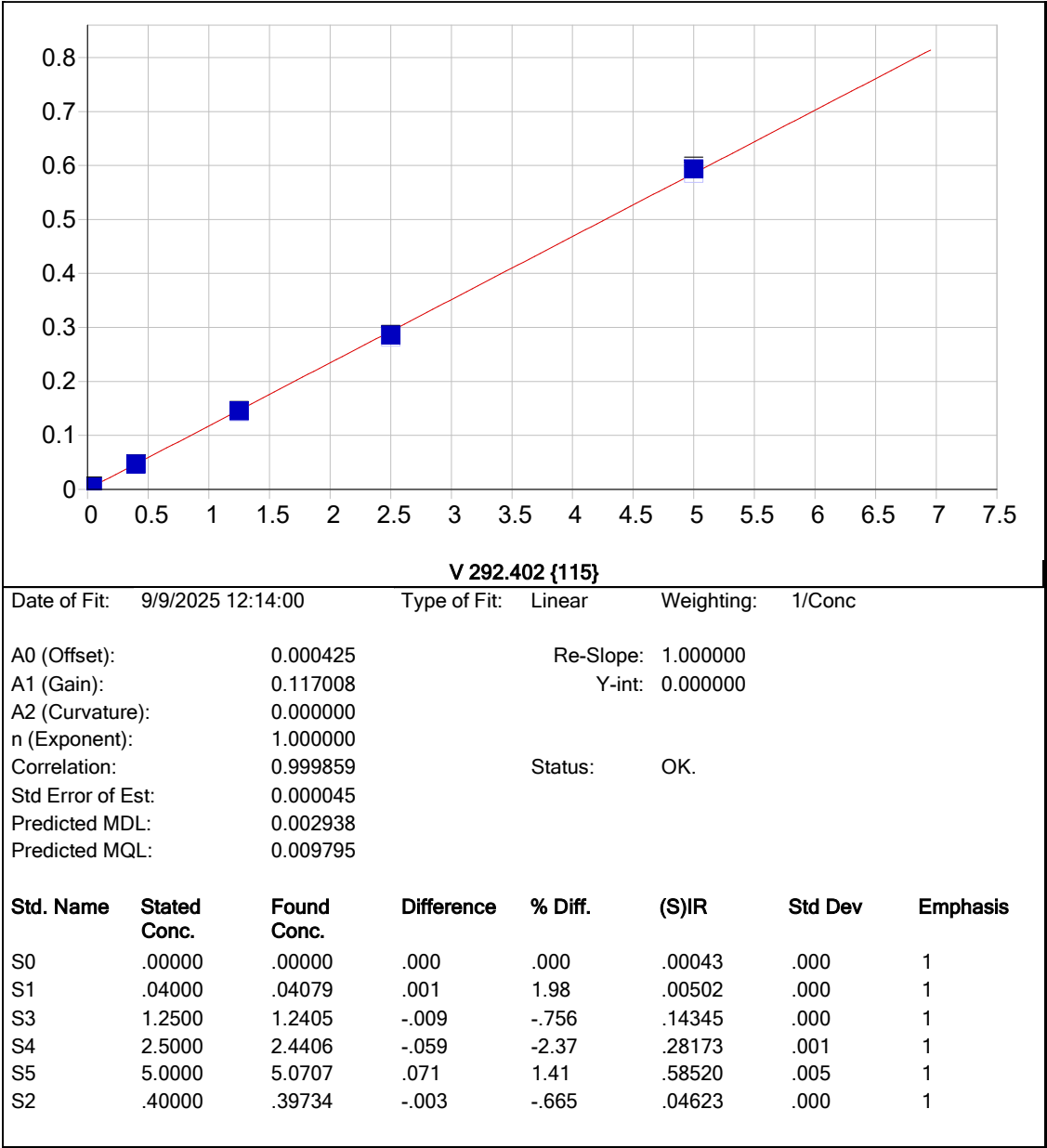


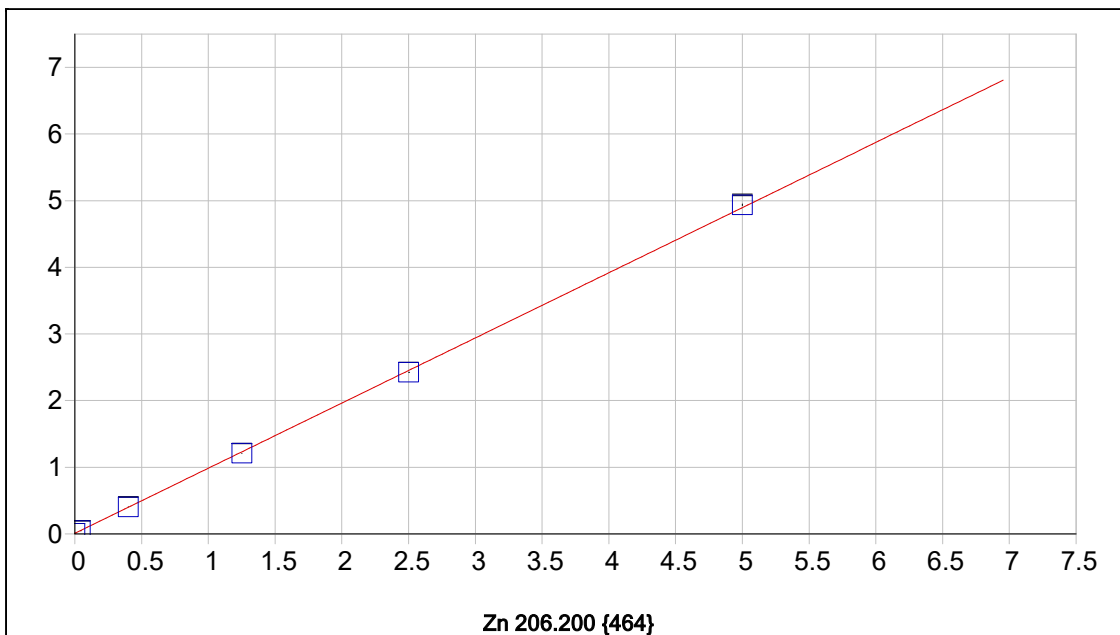




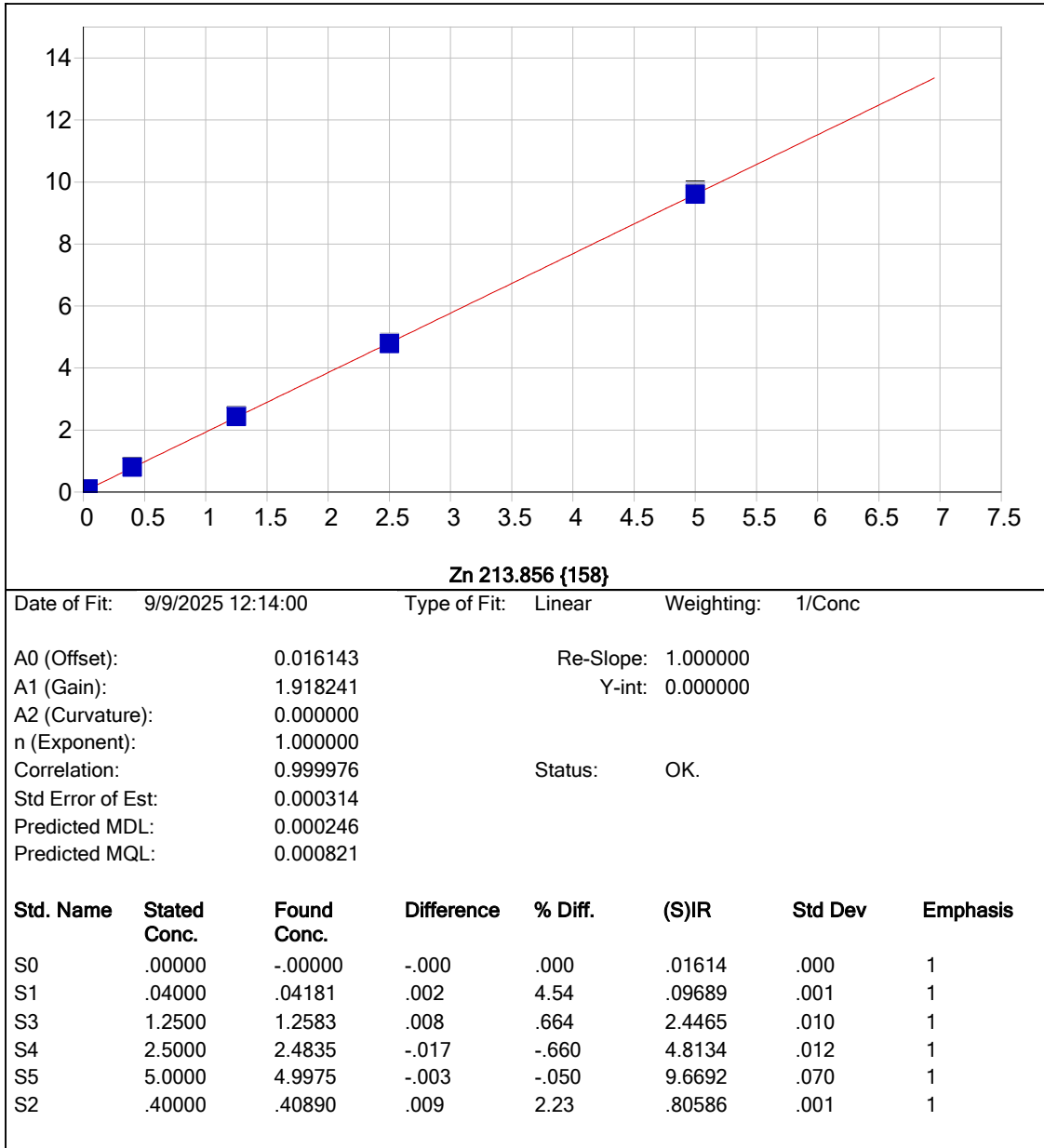


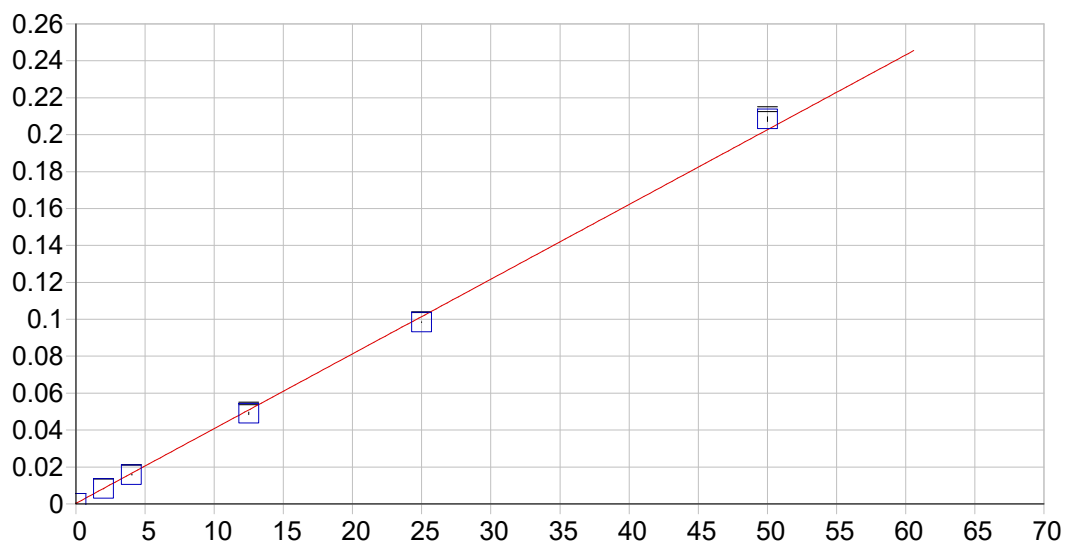






Date of Fit: 9/9/2025 12:14:00		Type of Fit: Linear		Weighting: 1/Conc			
A0 (Offset): 0.007449		Re-Slope: 1.000000					
A1 (Gain): 0.977821		Y-int: 0.000000					
A2 (Curvature): 0.000000							
n (Exponent): 1.000000							
Correlation: 0.999934		Status: OK.					
Std Error of Est: 0.000264							
Predicted MDL: 0.000157							
Predicted MQL: 0.000525							
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00745	.000	1
S1	.04000	.04157	.002	3.92	.04809	.000	1
S3	1.2500	1.2282	-.022	-1.74	1.2085	.001	1
S4	2.5000	2.4718	-.028	-1.13	2.4244	.002	1
S5	5.0000	5.0417	.042	.834	4.9373	.012	1
S2	.40000	.40672	.007	1.68	.40515	.001	1



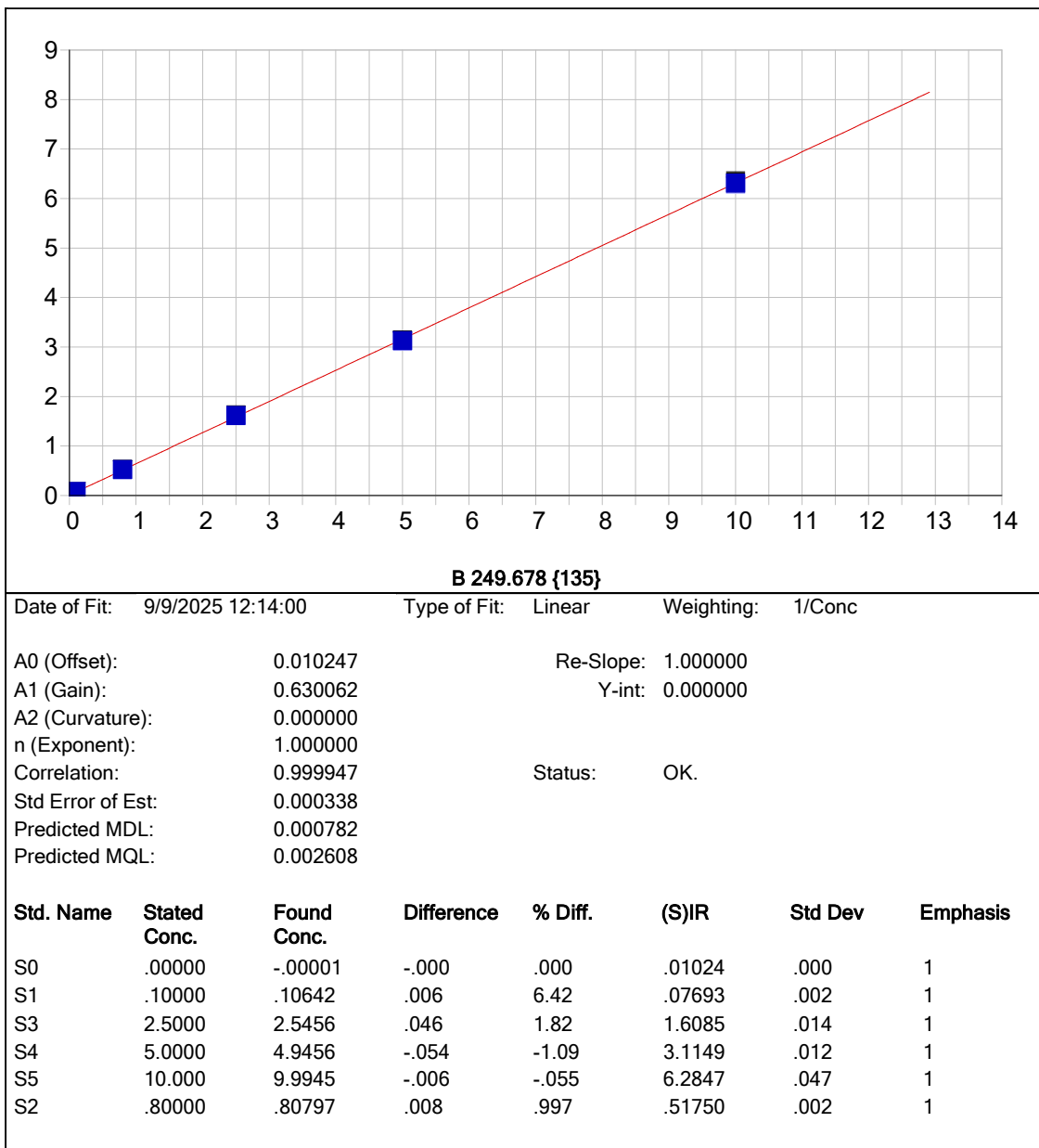


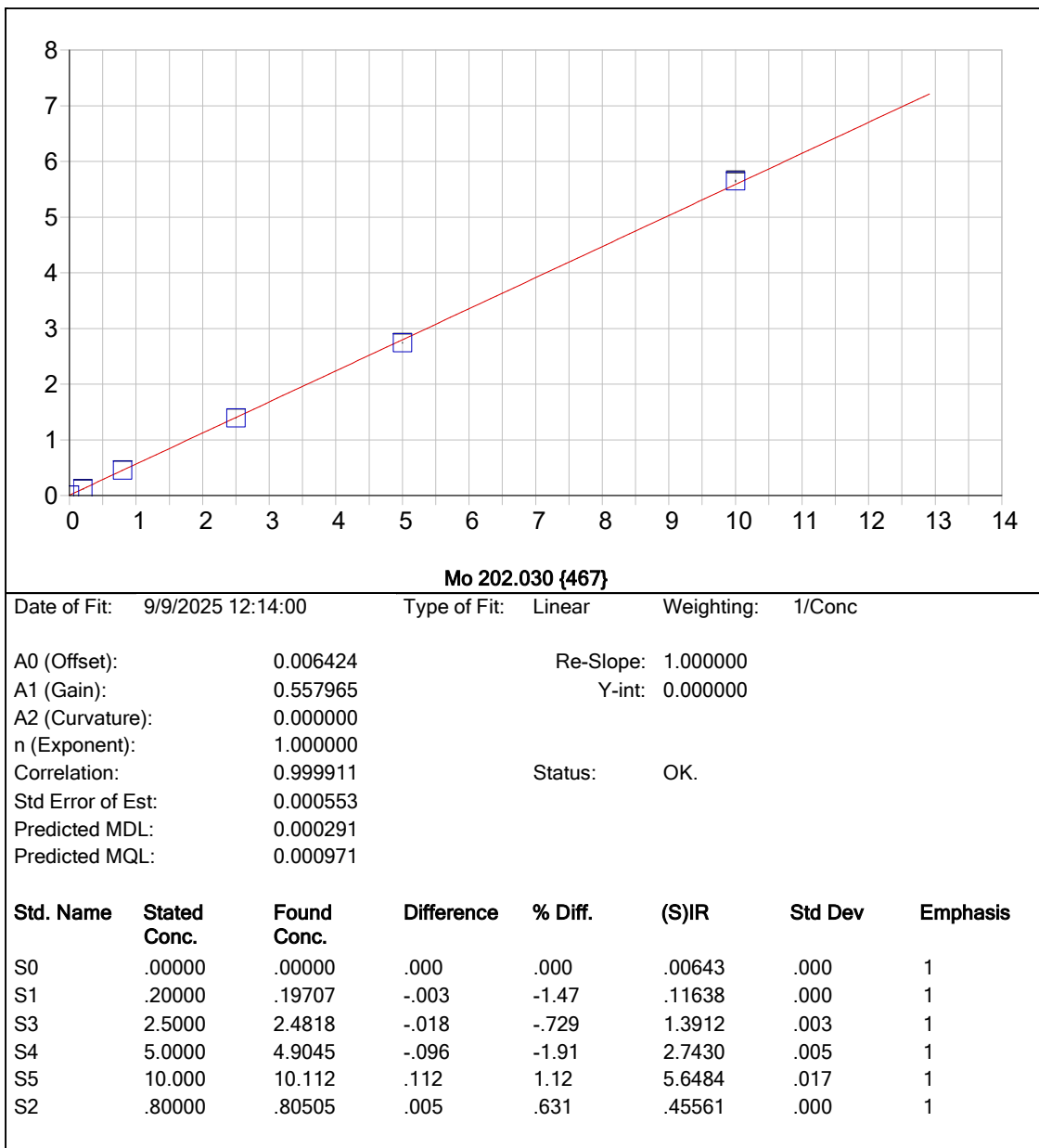
K 766.490 { 44}

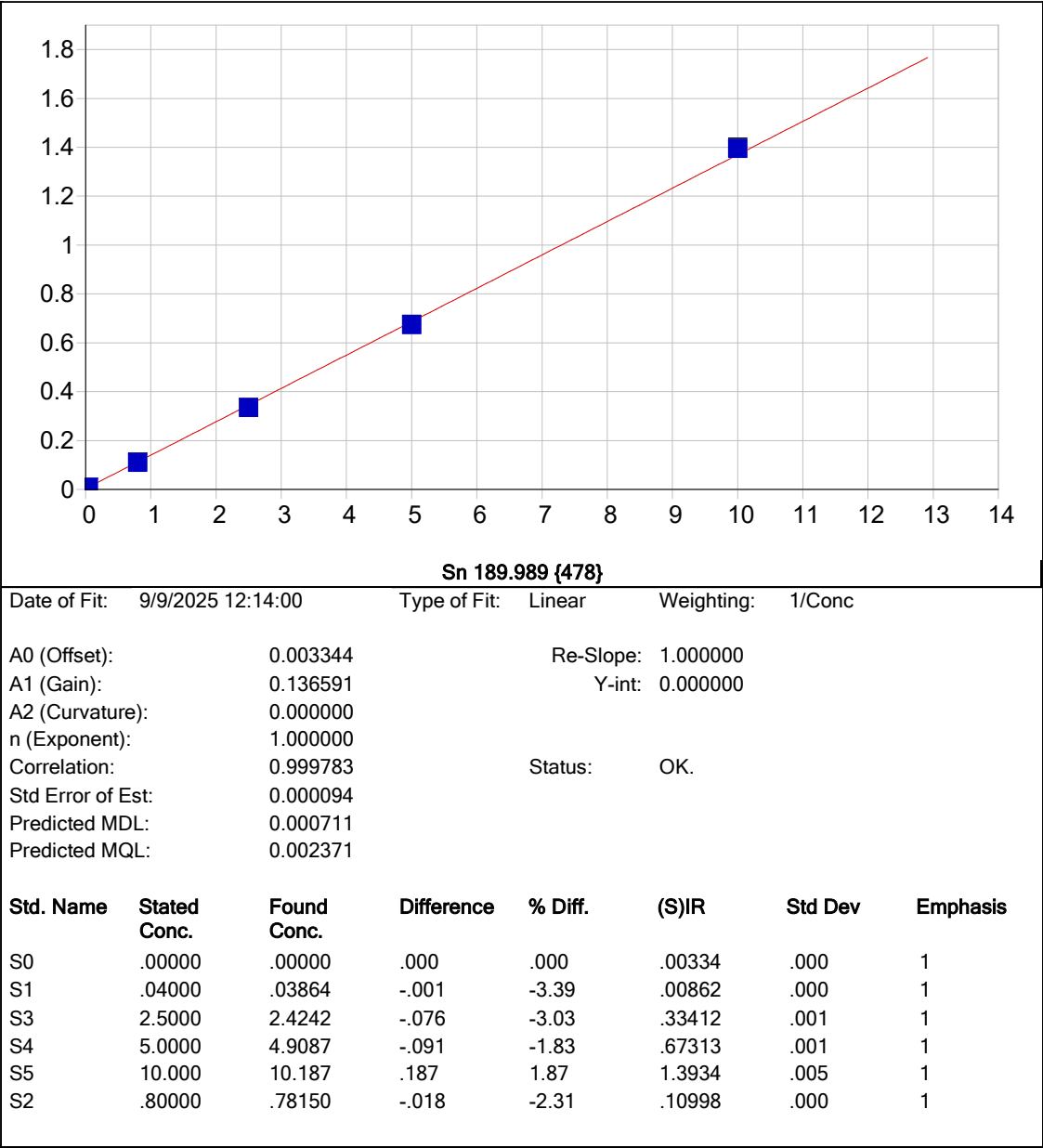
Date of Fit: 9/9/2025 12:14:00 Type of Fit: Linear Weighting: 1/Conc

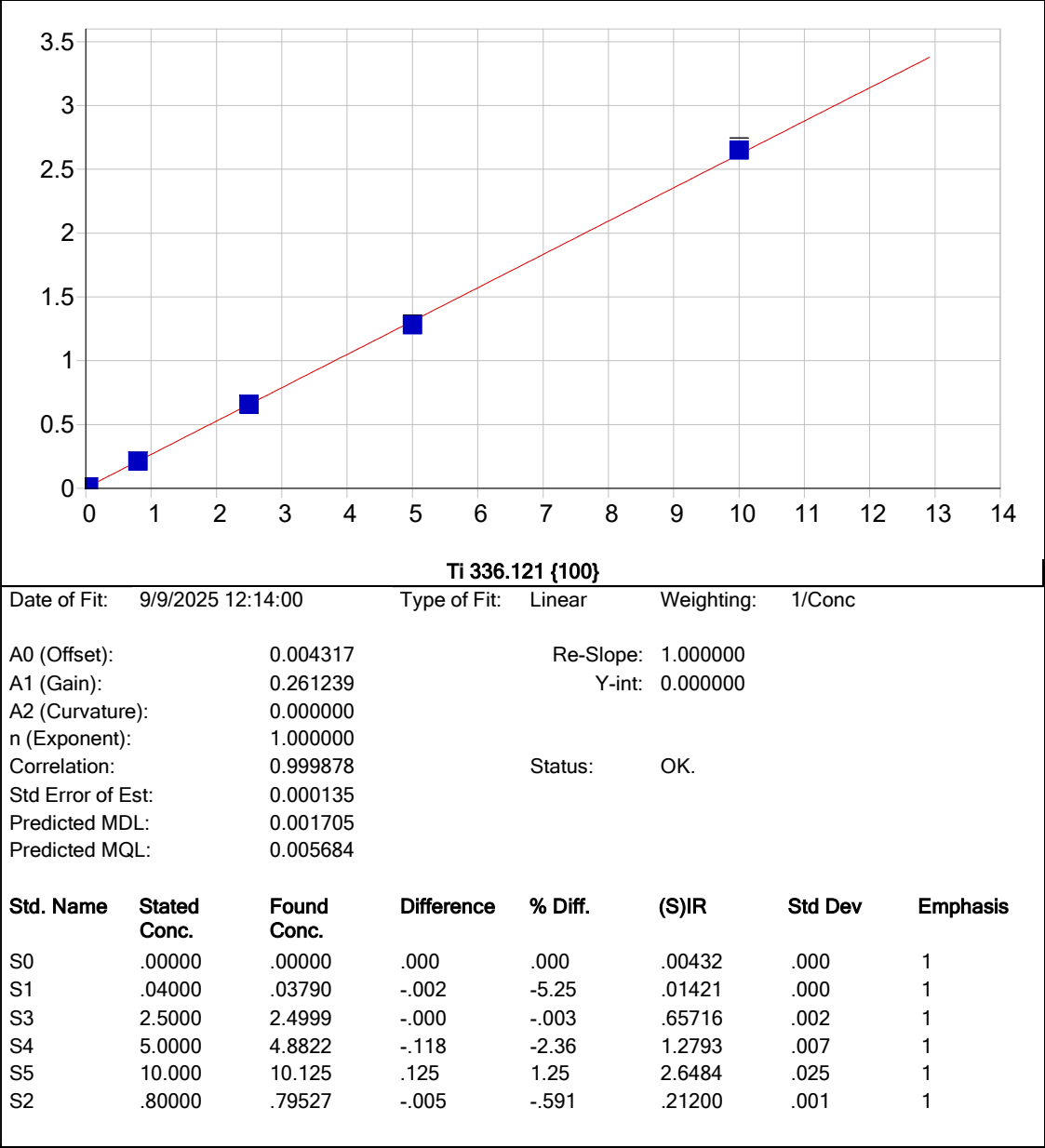
A0 (Offset): 0.000316 Re-Slope: 1.000000
A1 (Gain): 0.004047 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999522 Status: OK.
Std Error of Est: 0.000066
Predicted MDL: 0.042134
Predicted MQL: 0.140448

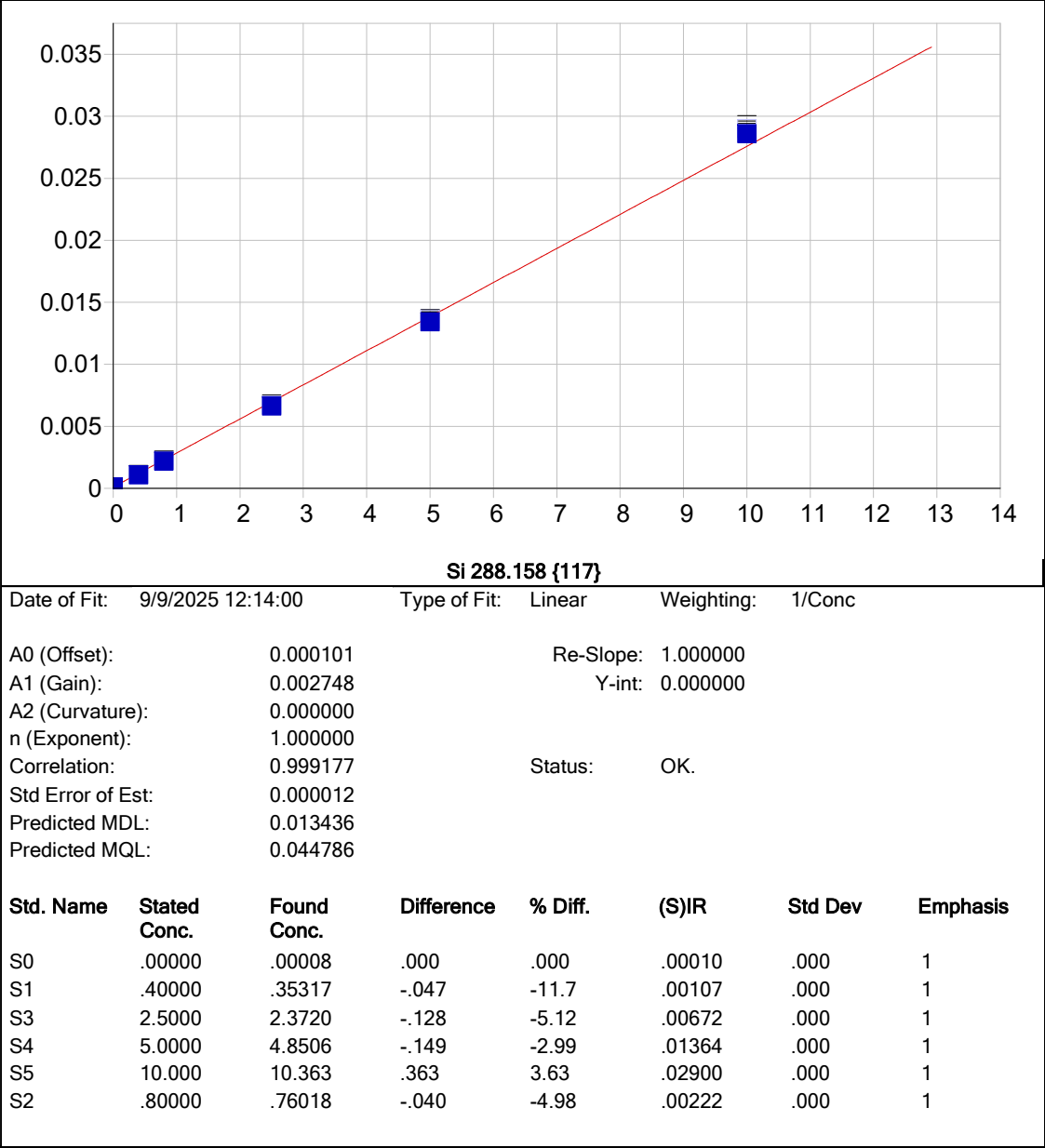
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00021	.000	.000	.00032	.000	1
S2	4.0000	3.8168	-.183	-4.58	.01576	.000	1
S3	12.500	12.040	-.460	-3.68	.04904	.001	1
S4	25.000	24.251	-.749	-3.00	.09846	.000	1
S5	50.000	51.430	1.43	2.86	.20845	.001	1
S1	2.0000	1.9624	-.038	-1.88	.00826	.000	1

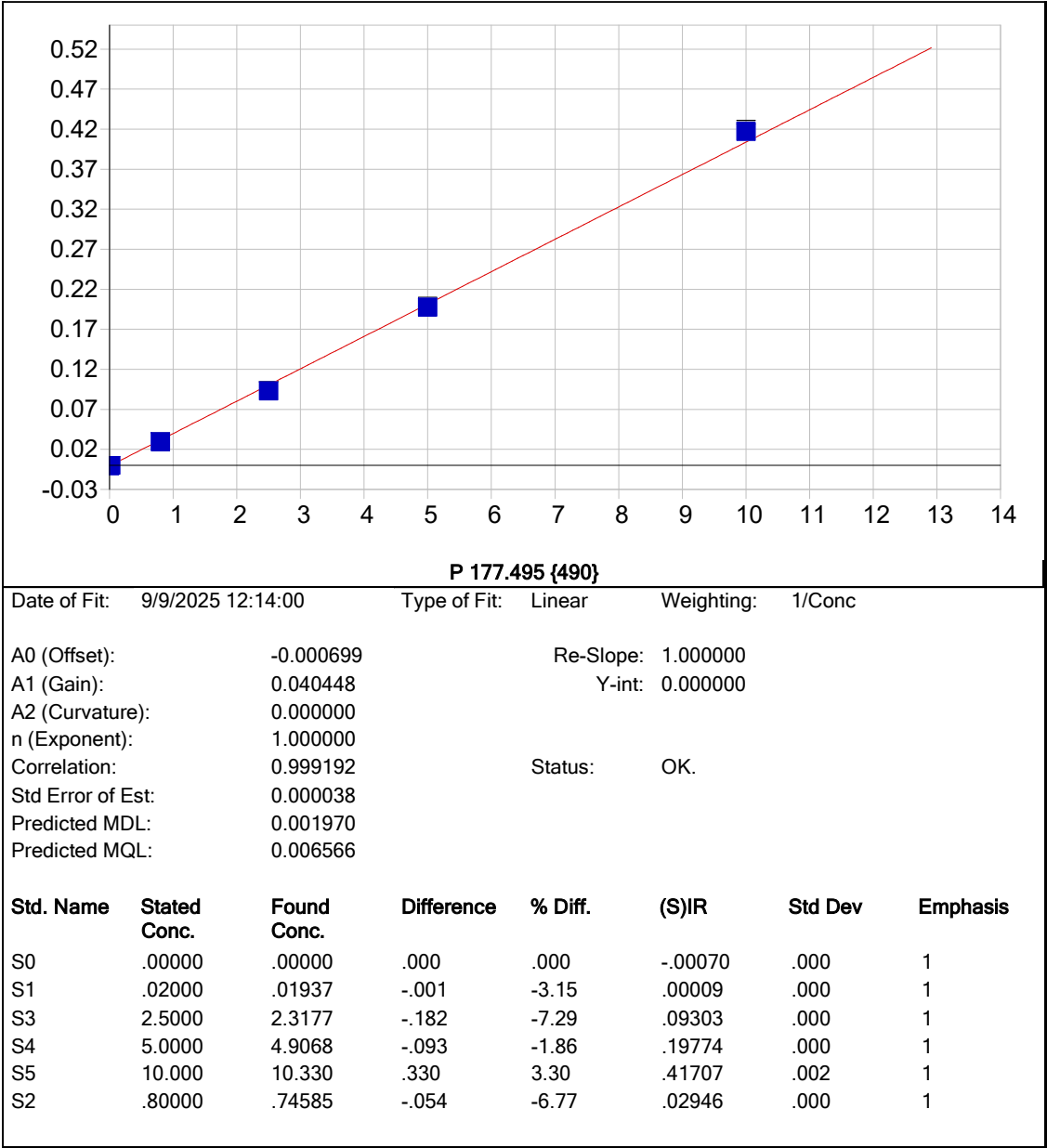


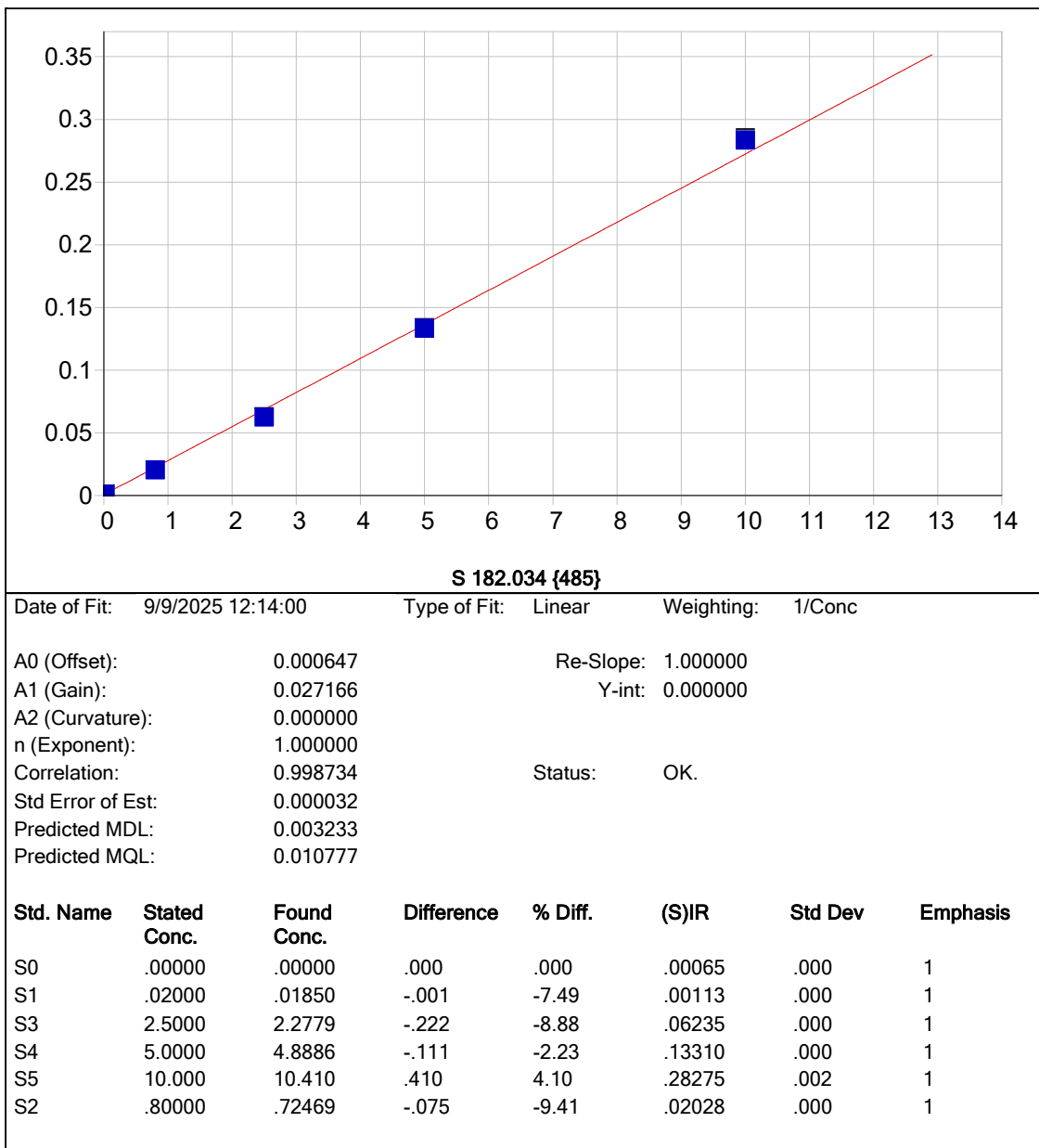


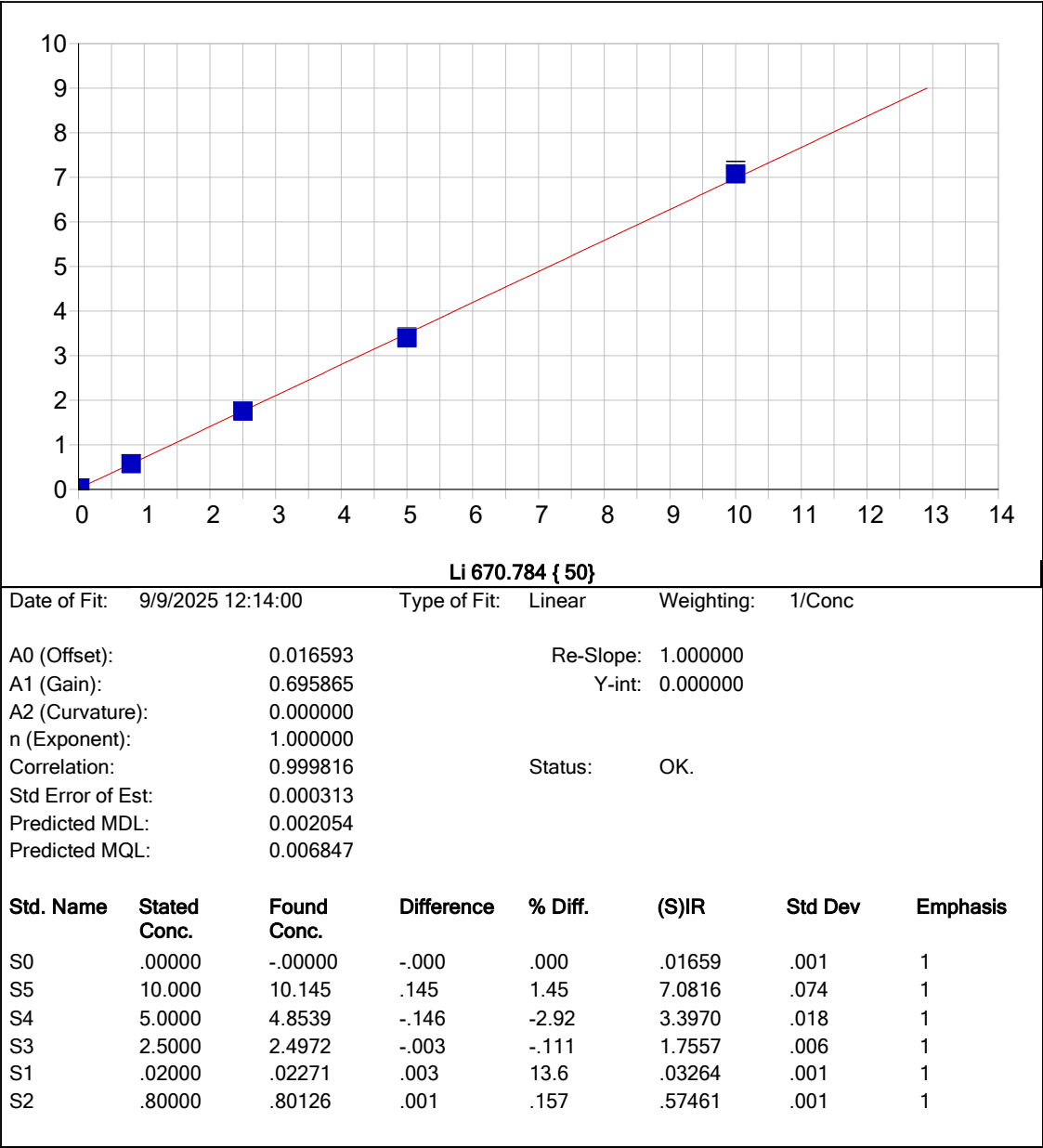


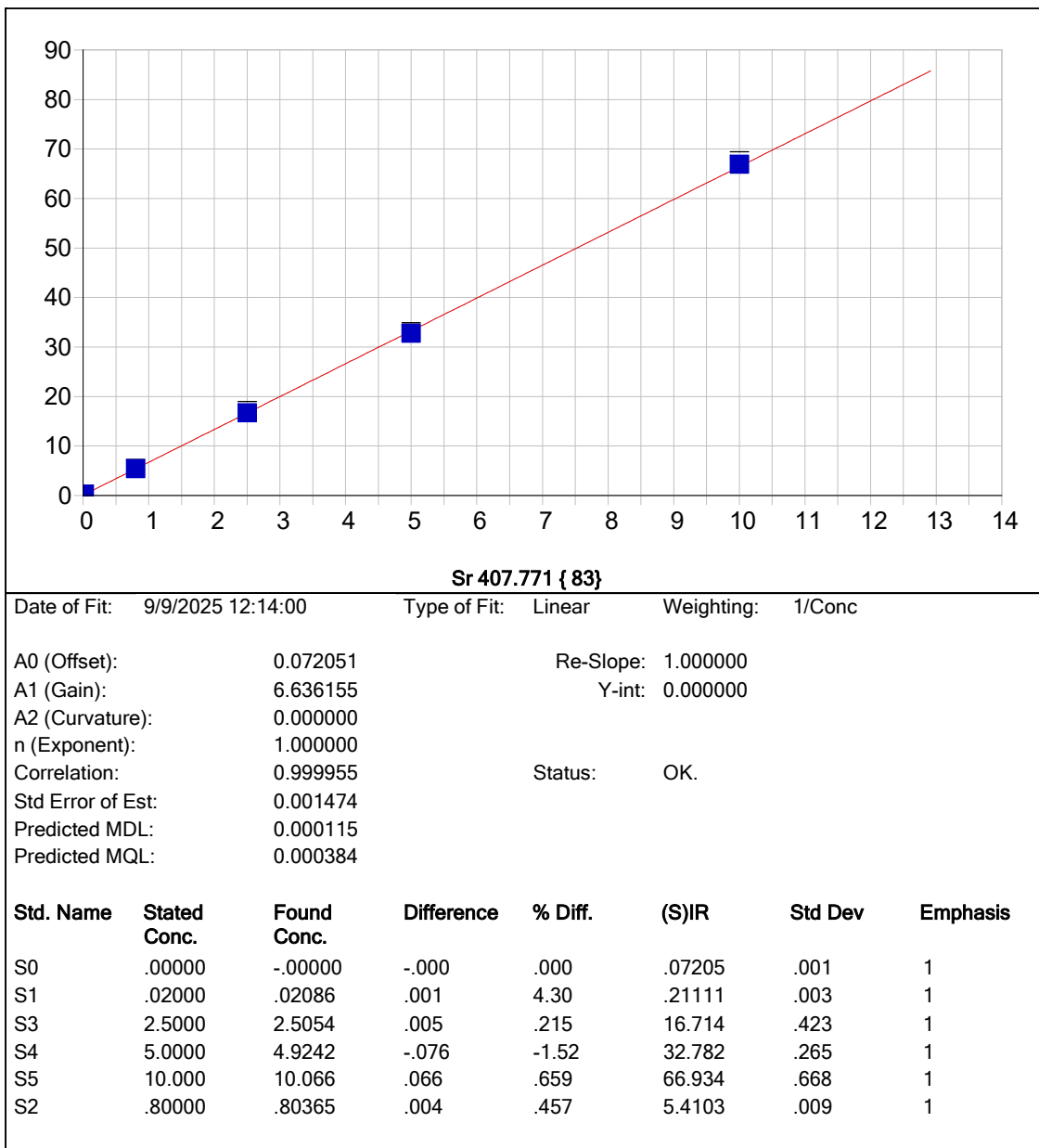


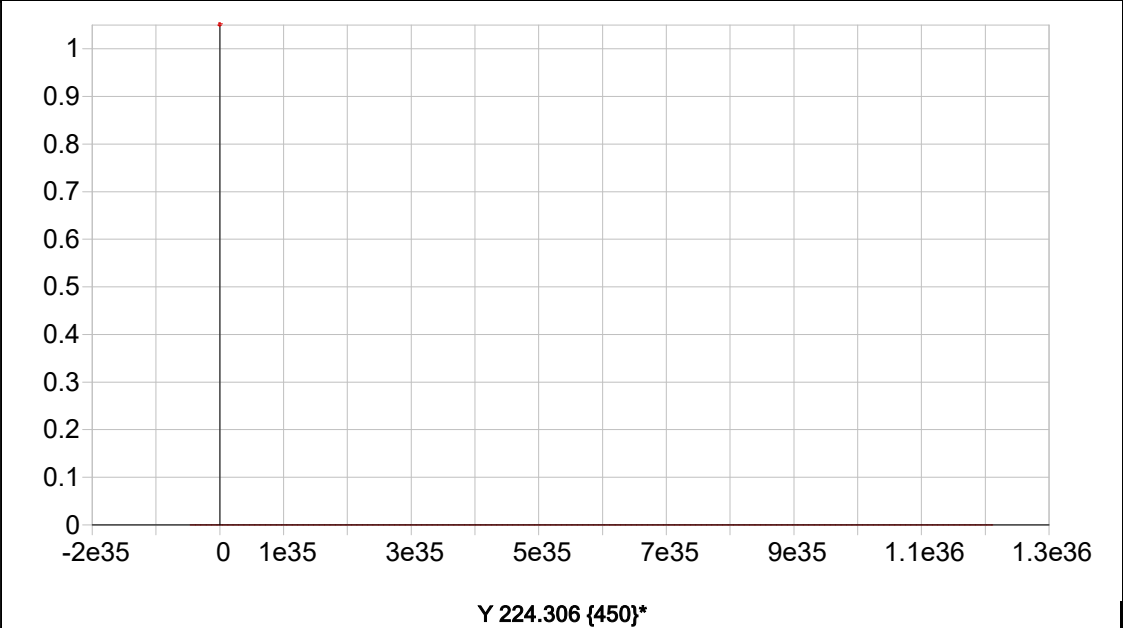






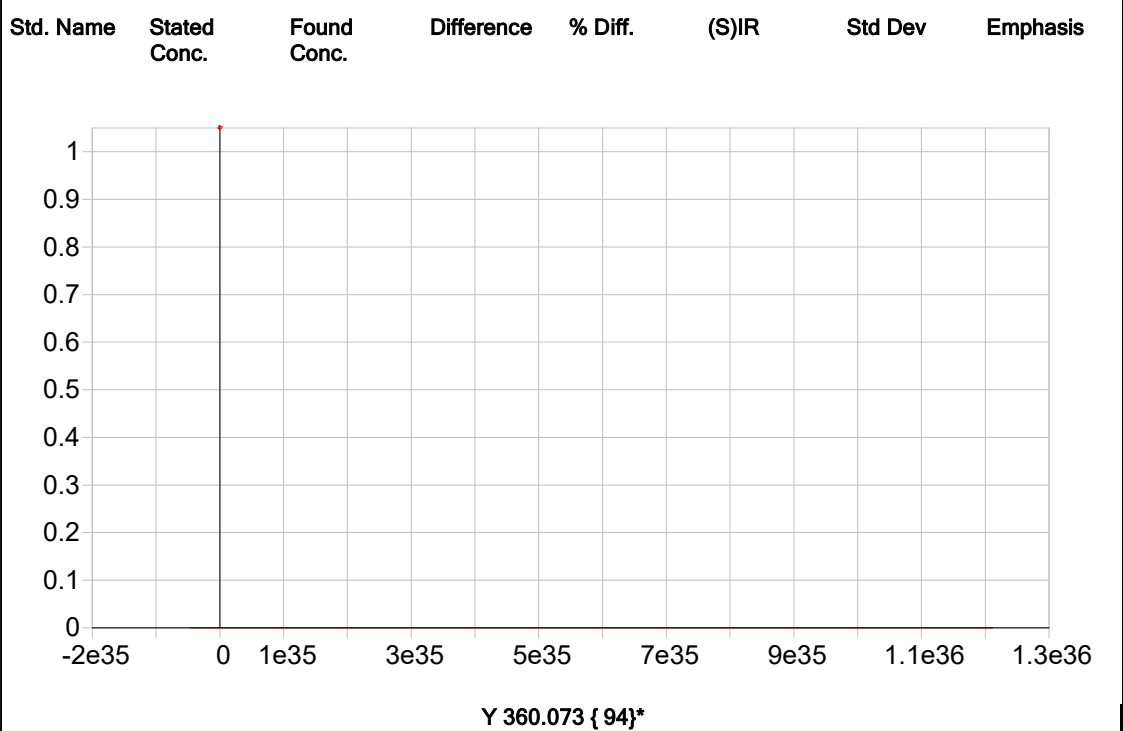






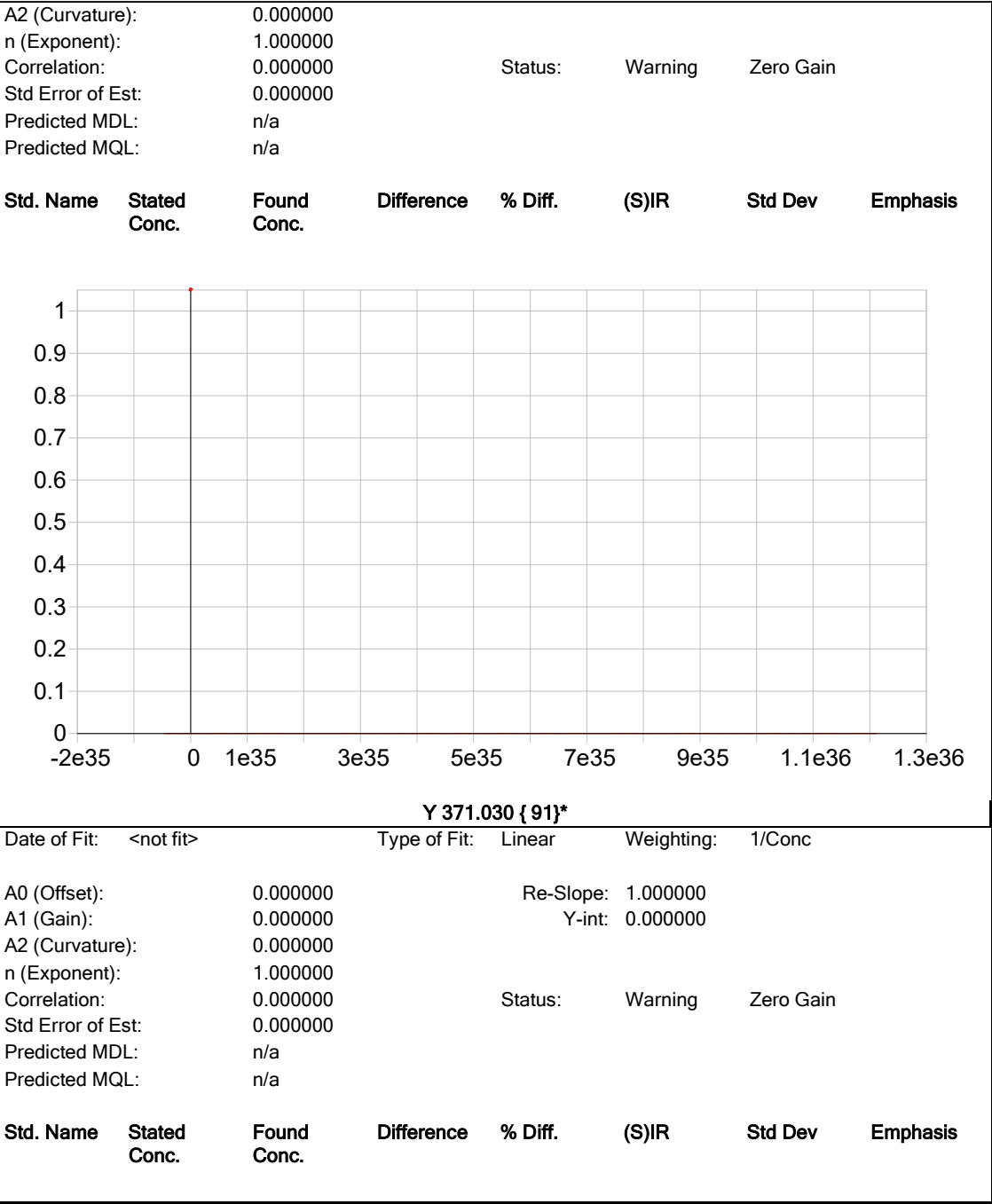
Date of Fit: 9/9/2025 11:29:00 Type of Fit: Linear Weighting: 1/Conc

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		



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: 9/9/2025 11:48:46 Type: Cal
Method: 6010-200.7 NEW(v151) 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	.00045	.00102	.00219	.00092	.00142	.00111	.12072	.00283
Stddev	.00006	.00011	.00031	.00012	.00011	.00019	.00118	.00020
%RSD	13.163	11.261	14.161	12.696	7.5746	17.021	.97431	7.1357
#1	.00040	.00089	.00193	.00096	.00133	.00128	.12088	.00304
#2	.00043	.00110	.00254	.00079	.00154	.00114	.11948	.00264
#3	.00052	.00107	.00212	.00100	.00139	.00090	.12182	.00280
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	.01387	.00542	.00064	.00519	.00183	.00006	.00261	.00039
Stddev	.00019	.00079	.00003	.00009	.00021	.00002	.00016	.00008
%RSD	1.3991	14.497	4.6609	1.6584	11.691	27.011	6.2620	21.099
#1	.01400	.00611	.00061	.00514	.00166	.00006	.00252	.00030
#2	.01365	.00457	.00066	.00529	.00175	.00004	.00251	.00046
#3	.01396	.00559	.00066	.00515	.00207	.00007	.00280	.00042
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	.00228	-.00018	.00293	.00043	.01614	.00032	.01024	.00643
Stddev	.00022	.00007	.00017	.00010	.00017	.00016	.00034	.00007
%RSD	9.4387	36.349	5.9396	22.597	1.0753	51.354	3.3010	1.0655
#1	.00251	-.00011	.00276	.00035	.01599	.00016	.01063	.00638
#2	.00209	-.00024	.00292	.00039	.01633	.00030	.01002	.00639
#3	.00222	-.00020	.00311	.00053	.01609	.00049	.01007	.00651
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	.00334	.00432	.00010	-.00070	.00065	.01659	.07205	
Stddev	.00006	.00039	.00003	.00006	.00002	.00053	.00084	
%RSD	1.7945	8.9270	29.571	8.4371	3.4175	3.2075	1.1609	
#1	.00328	.00447	.00007	-.00064	.00066	.01613	.07285	
#2	.00334	.00460	.00011	-.00076	.00066	.01647	.07211	
#3	.00340	.00388	.00012	-.00070	.00062	.01717	.07118	

Sample Name: S0 Acquired: 9/9/2025 11:48:46 Type: Cal
Method: 6010-200.7 NEW(v151) 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	ln2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6166.3	107560.	10739.	5609.0	7207.8
Stddev	9.4	529.	16.	45.6	24.3
%RSD	.15167	.49204	.14799	.81345	.33757
#1	6157.8	107810.	10738.	5661.6	7190.7
#2	6164.9	107910.	10723.	5584.7	7197.0
#3	6176.3	106950.	10755.	5580.7	7235.6

Sample Name: S1 Acquired: 9/9/2025 11:53:07 Type: Cal
Method: 6010-200.7 NEW(v151) 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	.00138	.00316	.00409	.00177	.00532	.00997	.33619	.04336	.03008
Stddev	.00007	.00005	.00015	.00007	.00009	.00019	.00371	.00068	.00018
%RSD	5.3516	1.7158	3.7399	3.9757	1.7755	1.8889	1.1034	1.5622	.60684

#1	.00144	.00311	.00391	.00174	.00528	.00989	.33614	.04356	.03004
#2	.00130	.00316	.00418	.00172	.00525	.01019	.33992	.04391	.03028
#3	.00140	.00322	.00417	.00185	.00543	.00984	.33250	.04260	.02993

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	.11413	.00238	.03266	.01451	.00035	.01057	.02302	.02437	.00171
Stddev	.00193	.00005	.00024	.00013	.00001	.00030	.00057	.00016	.00006
%RSD	1.6928	2.0163	.73663	.89433	4.0294	2.8290	2.4974	.66340	3.4743

#1	.11360	.00236	.03243	.01453	.00033	.01041	.02237	.02431	.00177
#2	.11628	.00234	.03263	.01438	.00034	.01092	.02344	.02425	.00165
#3	.11253	.00243	.03291	.01464	.00036	.01039	.02325	.02455	.00172

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	.02362	.00502	.09689	.00826	.07693	.11638	.00862	.01421	.00107
Stddev	.00025	.00038	.00087	.00012	.00175	.00049	.00005	.00014	.00002
%RSD	1.0471	7.5735	.89512	1.4915	2.2751	.42362	.57203	1.0176	1.8109

#1	.02338	.00483	.09608	.00813	.07702	.11581	.00861	.01406	.00110
#2	.02361	.00478	.09780	.00827	.07863	.11669	.00857	.01422	.00106
#3	.02388	.00546	.09679	.00837	.07513	.11663	.00867	.01435	.00106

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00009	.00113	.03264	.21111
Stddev	.00004	.00003	.00135	.00305
%RSD	48.659	2.4998	4.1407	1.4453

#1	.00011	.00115	.03416	.21040
#2	.00004	.00110	.03221	.21446
#3	.00011	.00113	.03156	.20849

Sample Name: S1 Acquired: 9/9/2025 11:53:07 Type: Cal
Method: 6010-200.7 NEW(v151) 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	6237.7	105780.	10468.	5535.6	7302.8
Stddev	24.6	706.	140.	13.6	39.4
%RSD	.39391	.66716	1.3385	.24525	.53978
#1	6266.1	105970.	10517.	5546.0	7348.3
#2	6223.2	106370.	10310.	5520.3	7280.8
#3	6223.8	105000.	10577.	5540.7	7279.3

Sample Name: S2 Acquired: 9/9/2025 11:57:25 Type: Cal
Method: 6010-200.7 NEW(v151) 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	.03668	.04963	.14150	.03169	.06635	.11702	3.4621	.25896	1.0790
Stddev	.00017	.00104	.00026	.00013	.00021	.00040	.0136	.00135	.0003
%RSD	.46492	2.0875	.18630	.39549	.31393	.34490	.39371	.52182	.02787

#1	.03685	.05048	.14156	.03183	.06655	.11738	3.4778	.25945	1.0793
#2	.03669	.04848	.14121	.03163	.06614	.11658	3.4550	.25743	1.0790
#3	.03651	.04994	.14173	.03160	.06635	.11708	3.4535	.26000	1.0787

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	.21340	.02957	.36852	.12003	.00232	.15123	.04261	.21765	.03636
Stddev	.00028	.00003	.00034	.00018	.00003	.00076	.00021	.00015	.00007
%RSD	.12899	.11335	.09272	.14790	1.3565	.50476	.49967	.06950	.18979

#1	.21371	.02954	.36817	.11982	.00235	.15210	.04260	.21754	.03628
#2	.21323	.02961	.36886	.12011	.00229	.15071	.04240	.21783	.03638
#3	.21325	.02956	.36852	.12014	.00230	.15087	.04283	.21759	.03642

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	.04351	.04623	.80586	.01576	.51750	.45561	.10998	.21200	.00222
Stddev	.00012	.00030	.00148	.00006	.00197	.00040	.00034	.00060	.00005
%RSD	.26685	.65945	.18347	.36775	.38133	.08680	.30987	.28503	2.2865

#1	.04347	.04646	.80492	.01583	.51681	.45602	.11001	.21240	.00223
#2	.04364	.04589	.80508	.01573	.51597	.45560	.10962	.21130	.00217
#3	.04342	.04635	.80756	.01573	.51973	.45523	.11030	.21229	.00227

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02946	.02028	.57461	5.4103
Stddev	.00007	.00010	.00133	.0086
%RSD	.24092	.48581	.23068	.15851

#1	.02955	.02028	.57612	5.4124
#2	.02942	.02018	.57406	5.4009
#3	.02943	.02037	.57364	5.4176

Sample Name: S2 Acquired: 9/9/2025 11:57:25 Type: Cal
Method: 6010-200.7 NEW(v151) 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	6224.7	104360.	10638.	5515.5	7212.5
Stddev	12.8	107.	30.	20.0	13.5
%RSD	.20617	.10233	.28669	.36328	.18674
#1	6231.9	104390.	10648.	5533.0	7226.0
#2	6209.9	104240.	10663.	5493.6	7199.1
#3	6232.2	104450.	10604.	5519.9	7212.3

Sample Name: S3 Acquired: 9/9/2025 12:01:29 Type: Cal
Method: 6010-200.7 NEW(v151) 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	.11164	.15099	.43373	.09525	.20218	.36213	10.761	.80551	3.3220
Stddev	.00031	.00260	.00039	.00033	.00032	.00092	.046	.00560	.0080
%RSD	.28167	1.7207	.08910	.34923	.15859	.25395	.42798	.69494	.24119

#1	.11191	.15290	.43332	.09562	.20254	.36148	10.710	.80735	3.3129
#2	.11130	.14803	.43379	.09499	.20191	.36173	10.800	.79922	3.3252
#3	.11172	.15204	.43408	.09514	.20209	.36319	10.772	.80996	3.3278

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	.65895	.09036	1.1343	.36091	.00720	.46913	.13030	.66751	.11182
Stddev	.00223	.00033	.0023	.00021	.00007	.00106	.00081	.00107	.00015
%RSD	.33906	.35995	.20274	.05888	1.0214	.22554	.61834	.16022	.13369

#1	.65784	.09002	1.1317	.36071	.00713	.46794	.13020	.66652	.11195
#2	.65749	.09039	1.1353	.36088	.00728	.46948	.12955	.66865	.11166
#3	.66152	.09067	1.1360	.36113	.00719	.46997	.13115	.66736	.11186

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	.12910	.14345	2.4465	.04904	1.6085	1.3912	.33412	.65716	.00672
Stddev	.00118	.00029	.0097	.00066	.0135	.0027	.00070	.00154	.00006
%RSD	.91423	.20014	.39656	1.3436	.84066	.19080	.20924	.23375	.91505

#1	.12830	.14312	2.4376	.04834	1.6120	1.3930	.33386	.65584	.00669
#2	.13046	.14367	2.4451	.04965	1.5935	1.3881	.33359	.65680	.00679
#3	.12855	.14354	2.4569	.04913	1.6199	1.3923	.33492	.65884	.00668

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.09303	.06235	1.7557	16.714
Stddev	.00022	.00027	.0056	.423
%RSD	.23323	.42565	.31774	2.5293

#1	.09314	.06262	1.7493	16.548
#2	.09278	.06209	1.7593	16.400
#3	.09318	.06236	1.7586	17.195

Sample Name: S3 Acquired: 9/9/2025 12:01:29 Type: Cal
Method: 6010-200.7 NEW(v151) 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	6368.0	104790.	10666.	5526.7	7273.1
Stddev	5.8	42.	91.	14.4	6.0
%RSD	.09162	.03960	.85724	.26037	.08299
#1	6361.8	104780.	10601.	5514.0	7279.8
#2	6373.4	104760.	10770.	5542.3	7268.1
#3	6368.8	104840.	10625.	5523.9	7271.5

Sample Name: S4 Acquired: 9/9/2025 12:05:36 Type: Cal
Method: 6010-200.7 NEW(v151) 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	.22879	.30645	.87132	.19420	.40469	.70714	20.633	1.5575	6.8049
Stddev	.00041	.00671	.00096	.00047	.00086	.00224	.556	.0077	.0043
%RSD	.17805	2.1911	.11066	.24191	.21267	.31616	2.6943	.49388	.06250

#1	.22887	.30447	.87183	.19381	.40385	.70573	19.992	1.5486	6.8076
#2	.22916	.31394	.87192	.19472	.40557	.70972	20.978	1.5619	6.8072
#3	.22835	.30095	.87021	.19406	.40467	.70596	20.930	1.5621	6.8000

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	1.2736	.17751	2.2940	.71842	.01431	.90744	.25538	1.3518	.22197
Stddev	.0011	.00071	.0015	.00132	.00002	.00510	.00128	.0023	.00063
%RSD	.08824	.39906	.06360	.18393	.14293	.56201	.50148	.16876	.28520

#1	1.2724	.17684	2.2953	.71734	.01434	.90193	.25390	1.3544	.22126
#2	1.2740	.17825	2.2944	.71990	.01429	.90839	.25621	1.3509	.22217
#3	1.2745	.17744	2.2924	.71804	.01431	.91200	.25601	1.3502	.22248

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	.25535	.28173	4.8134	.09846	3.1149	2.7430	.67313	1.2793	.01364
Stddev	.00046	.00090	.0116	.00019	.0116	.0047	.00149	.0068	.00004
%RSD	.18178	.32085	.24187	.19755	.37330	.17092	.22201	.53220	.31484

#1	.25562	.28069	4.8019	.09823	3.1017	2.7405	.67406	1.2726	.01359
#2	.25482	.28229	4.8131	.09860	3.1191	2.7484	.67392	1.2789	.01365
#3	.25562	.28222	4.8252	.09854	3.1238	2.7401	.67140	1.2862	.01368

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.19774	.13310	3.3970	32.782
Stddev	.00047	.00033	.0177	.265
%RSD	.23661	.24422	.52150	.80729

#1	.19762	.13294	3.3828	32.499
#2	.19826	.13347	3.3913	33.024
#3	.19734	.13288	3.4169	32.823

Sample Name: S4 Acquired: 9/9/2025 12:05:36 Type: Cal
Method: 6010-200.7 NEW(v151) 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	6128.2	103390.	10817.	5442.1	6806.3
Stddev	10.9	252.	30.	13.1	12.3
%RSD	.17704	.24353	.27309	.24091	.18059
#1	6127.6	103420.	10843.	5431.1	6796.8
#2	6117.7	103130.	10785.	5456.6	6802.0
#3	6139.4	103630.	10822.	5438.6	6820.2

Sample Name: S5 Acquired: 9/9/2025 12:09:49 Type: Cal
Method: 6010-200.7 NEW(v151) 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	.47650	.61693	1.8253	.40210	.84166	1.4577	43.192	3.1339	14.146
Stddev	.00055	.02175	.0035	.00074	.00162	.0117	.633	.0245	.020
%RSD	.11559	3.5257	.19139	.18457	.19206	.80301	1.4654	.78225	.13878

#1	.47704	.63277	1.8269	.40217	.84273	1.4654	43.909	3.1618	14.149
#2	.47652	.62590	1.8276	.40281	.84245	1.4635	42.710	3.1241	14.164
#3	.47594	.59213	1.8212	.40133	.83980	1.4442	42.957	3.1158	14.125

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	2.6075	.35897	4.7943	1.4734	.02984	1.8550	.52320	2.8208	.45503
Stddev	.0205	.00291	.0077	.0004	.00019	.0190	.00289	.0041	.00339
%RSD	.78725	.81035	.16125	.03055	.64020	1.0265	.55146	.14603	.74476

#1	2.6222	.35700	4.7987	1.4737	.02964	1.8739	.52596	2.8210	.45281
#2	2.6162	.35759	4.7988	1.4736	.02985	1.8554	.52344	2.8248	.45335
#3	2.5840	.36231	4.7854	1.4729	.03002	1.8358	.52021	2.8166	.45893

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	.53552	.58520	9.6692	.20845	6.2847	5.6484	1.3934	2.6484	.02900
Stddev	.00405	.00458	.0698	.00126	.0466	.0169	.0053	.0251	.00031
%RSD	.75594	.78338	.72233	.60668	.74177	.29849	.37868	.94958	1.0556

#1	.53100	.58824	9.6189	.20701	6.3364	5.6609	1.3971	2.6680	.02868
#2	.53676	.58744	9.6399	.20895	6.2715	5.6549	1.3957	2.6570	.02903
#3	.53880	.57993	9.7490	.20938	6.2460	5.6292	1.3873	2.6200	.02929

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.41707	.28275	7.0816	66.934
Stddev	.00240	.00173	.0735	.668
%RSD	.57623	.61012	1.0383	.99827

#1	.41917	.28426	7.1410	66.989
#2	.41759	.28312	7.1045	67.573
#3	.41445	.28087	6.9994	66.240

Sample Name: S5 Acquired: 9/9/2025 12:09:49 Type: Cal
Method: 6010-200.7 NEW(v151) 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	5817.0	99787.	10622.	5252.7	6344.0
Stddev	25.7	641.	81.	37.9	29.3
%RSD	.44196	.64266	.76123	.72065	.46218
#1	5794.3	100430.	10547.	5295.3	6319.2
#2	5811.8	99783.	10612.	5240.1	6336.5
#3	5845.0	99148.	10707.	5222.8	6376.4

Sample Name: ICV01 Acquired: 9/9/2025 12:14:01 Type: Unk
Method: 6010-200.7 NEW(v151) 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	4.031910	3.814803	3.909143	4.064250	4.131554	7.921361
Stddev	.008357	.058597	.008268	.010570	.009751	.022761
%RSD	.2072595	1.536047	.2115134	.2600839	.2360242	.2873312

#1	4.023137	3.847216	3.899616	4.055863	4.120486	7.895939
#2	4.032816	3.850033	3.914446	4.076123	4.135294	7.928297
#3	4.039776	3.747160	3.913368	4.060764	4.138882	7.939846

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.780044	.1989496	1.990885	19.68706	.8131926	2.003754
Stddev	.093073	.0009272	.004918	.03984	.0027481	.005381
%RSD	1.196306	.4660450	.2470340	.2023567	.3379362	.2685534

#1	7.818111	.1998600	1.985463	19.67000	.8160802	1.997553
#2	7.673972	.1980065	1.992133	19.65859	.8106094	2.007203
#3	7.848049	.1989823	1.995059	19.73259	.8128883	2.006505

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.027852	4.013961	1.964690	19.75568	2.008154	1.017825
Stddev	.002770	.021562	.014973	.06309	.006098	.000669
%RSD	.2694608	.5371726	.7621214	.3193716	.3036794	.0657719

#1	1.025009	3.989663	1.952675	19.76886	2.001133	1.017266
#2	1.028006	4.021408	1.959930	19.68704	2.011189	1.018567
#3	1.030542	4.030812	1.981465	19.81115	2.012140	1.017642

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	19.98338	1.975023	2.023440	19.72830	3.897732	4.039575
Stddev	.15372	.010653	.000773	.18815	.012860	.010111
%RSD	.7692219	.5393753	.0382097	.9536853	.3299365	.2503086

#1	19.80604	1.964798	2.023227	19.53201	3.911269	4.027905
#2	20.06565	1.974213	2.022797	19.74579	3.885678	4.045737
#3	20.07845	1.986057	2.024298	19.90708	3.896249	4.045082

Sample Name: ICV01 Acquired: 9/9/2025 12:14:01 Type: Unk
Method: 6010-200.7 NEW(v151) 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	3.983408	3.946045	3.751654	F .0023396	F .0178145	F -.005247
Stddev	.002128	.023680	.018437	.0019555	.0030570	.001838
%RSD	.0534270	.6001002	.4914439	83.58576	17.15992	35.02290
#1	3.980970	3.924828	3.730431	.0032194	.0143476	-.003867
#2	3.984361	3.941717	3.760809	.0037006	.0201227	-.007333
#3	3.984894	3.971591	3.763721	.0000987	.0189733	-.004542

Elem	Sr4077
Units	ppm
Avg	F -.006315
Stddev	.000049
%RSD	.7781794
#1	-.006347
#2	-.006338
#3	-.006258

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5963.317	101296.3	10846.61	5366.406	6712.227
Stddev	16.493	292.7	71.82	13.645	11.885
%RSD	.2765784	.2889089	.6621808	.2542588	.1770683
#1	5975.134	101274.2	10792.14	5376.069	6715.982
#2	5970.342	101599.4	10928.01	5372.352	6721.782
#3	5944.474	101015.3	10819.67	5350.798	6698.918

Sample Name: LLICV01 Acquired: 9/9/2025 12:26:32 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0177687	.0343672	.0121329	.0196824	.0448908	.1017879
Stddev	.0019807	.0006513	.0003032	.0001986	.0010774	.0067904
%RSD	11.14733	1.895023	2.499342	1.008834	2.400143	6.671095

#1	.0169415	.0343827	.0119082	.0198633	.0457313	.1037976
#2	.0200289	.0350106	.0120127	.0194700	.0436761	.0942195
#3	.0163356	.0337084	.0124778	.0197140	.0452649	.1073466

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0901198	.0060072	.0056843	2.026822	.0092394	.0278780
Stddev	.0005779	.0001008	.0000354	.007347	.0001963	.0002096
%RSD	.6413036	1.678597	.6227401	.3624982	2.124117	.7520013

#1	.0896540	.0060127	.0056931	2.023236	.0090595	.0279457
#2	.0899389	.0061052	.0057144	2.035273	.0092101	.0276429
#3	.0907666	.0059037	.0056453	2.021956	.0094487	.0280455

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0207617	.1034940	.0186803	2.098658	.0388975	.0099138
Stddev	.0003646	.0048154	.0005170	.030188	.0003079	.0002302
%RSD	1.756279	4.652792	2.767516	1.438456	.7916127	2.321573

#1	.0203407	.1013384	.0186835	2.095572	.0391293	.0096517
#2	.0209748	.1090106	.0191957	2.070131	.0390151	.0100828
#3	.0209697	.1001330	.0181618	2.130271	.0385481	.0100070

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.031523	.0365922	.0407590	1.967438	.0993881	.1928808
Stddev	.0111118	.0029702	.0002325	.024393	.0008082	.0009187
%RSD	.5472702	8.116896	.5703600	1.239832	.8131463	.4763326

#1	2.021922	.0386375	.0405071	1.948379	.1003173	.1919076
#2	2.043704	.0379537	.0408048	1.994928	.0989982	.1930017
#3	2.028943	.0331853	.0409652	1.959008	.0988487	.1937331

Sample Name: LLICV01 Acquired: 9/9/2025 12:26:32 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0353503	.0338871	.3748354	F .0157707	.0174494	.0164431
Stddev	.0001623	.0019063	.0033853	.0004806	.0018218	.0013260
%RSD	.4590311	5.625546	.9031501	3.047320	10.44018	8.063994
#1	.0351929	.0352186	.3775553	.0161876	.0159652	.0152299
#2	.0355171	.0317033	.3710440	.0152451	.0194825	.0162407
#3	.0353410	.0347392	.3759068	.0158795	.0169006	.0178586

Elem	Sr4077
Units	ppm
Avg	.0170654
Stddev	.0002320
%RSD	1.359370
#1	.0173273
#2	.0169832
#3	.0168857

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6272.265	105032.3	11127.89	5593.874	7262.107
Stddev	1.043	398.6	72.99	5.995	1.974
%RSD	.0166320	.3794619	.6559114	.1071775	.0271832
#1	6272.378	105069.2	11053.36	5598.329	7264.247
#2	6271.170	104616.6	11131.10	5587.058	7261.717
#3	6273.247	105411.1	11199.23	5596.236	7260.357

Sample Name: ICB01 Acquired: 9/9/2025 12:31:33 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.003354	-.001683	-.004020	-.002329	-.001853	-.014059	-.010333
Stddev	.001454	.000247	.001305	.001706	.001299	.002808	.001536
%RSD	43.35191	14.68429	32.46196	73.23095	70.10248	19.97115	14.86446

#1	-.004488	-.001857	-.003913	-.000375	-.001712	-.014647	-.011053
#2	-.003860	-.001400	-.005376	-.003519	-.003218	-.011004	-.008570
#3	-.001715	-.001791	-.002772	-.003095	-.000631	-.016526	-.011377

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000293	-.001264	-.017704	-.000999	-.001926	-.000491	-.000475
Stddev	.000023	.000503	.004794	.000064	.000409	.000239	.004436
%RSD	7.956261	39.79912	27.07802	6.425919	21.24417	48.71464	933.3656

#1	-.000291	-.001658	-.012190	-.000947	-.002220	-.000561	.004138
#2	-.000317	-.001437	-.020883	-.001071	-.002099	-.000687	-.004709
#3	-.000270	-.000697	-.020038	-.000979	-.001459	-.000225	-.000855

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002519	-.011211	-.001898	-.000704	-.063755	-.000844	-.001790
Stddev	.000122	.020322	.000335	.000454	.016635	.003527	.000173
%RSD	4.860119	181.2564	17.63358	64.54329	26.09243	417.6679	9.668199

#1	-.002531	-.034218	-.002284	-.001113	-.076275	.000580	-.001864
#2	-.002391	.004292	-.001732	-.000783	-.070112	-.004860	-.001915
#3	-.002635	-.003708	-.001679	-.000215	-.044879	.001747	-.001593

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.117132	-.002426	-.003618	-.002919	-.004573	.0067042	-.003082
Stddev	.046020	.001056	.000770	.000551	.001081	.0075887	.000768
%RSD	39.28866	43.50648	21.28773	18.87631	23.63818	113.1934	24.90340

#1	-.170003	-.002759	-.004062	-.003447	-.003397	.0002265	-.003703
#2	-.095315	-.001244	-.004065	-.002963	-.004798	.0048324	-.003319
#3	-.086079	-.003275	-.002729	-.002348	-.005523	.0150537	-.002224

Sample Name: ICB01 Acquired: 9/9/2025 12:31:33 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.007572	-.008232	-.004317
Stddev	.002142	.001149	.000067
%RSD	28.29429	13.96255	1.560939

#1	-.009110	-.007133	-.004258
#2	-.008482	-.009426	-.004390
#3	-.005125	-.008137	-.004302

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6295.185	104048.0	11034.12	5546.920	7339.457
Stddev	45.722	650.6	60.08	7.623	64.532
%RSD	.7263018	.6252908	.5444963	.1374270	.8792528

#1	6247.564	104600.9	11060.57	5538.135	7270.589
#2	6299.256	104212.0	10965.35	5551.779	7349.248
#3	6338.736	103331.1	11076.43	5550.848	7398.535

Sample Name: CRI01 Acquired: 9/9/2025 12:36:53 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0164024	.0315257	.0115939	.0199498	.0462831	.1069230	.0922164
Stddev	.0007323	.0031318	.0009962	.0024352	.0012356	.0100652	.0013870
%RSD	4.464328	9.933978	8.592272	12.20657	2.669691	9.413517	1.504022

#1	.0157036	.0350842	.0106085	.0202641	.0461318	.1038769	.0924866
#2	.0163395	.0291887	.0126005	.0173727	.0475873	.0987327	.0907142
#3	.0171640	.0303044	.0115727	.0222126	.0451300	.1181594	.0934483

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060544	.0055335	2.064924	.0094951	.0276680	.0206760	.0982989
Stddev	.0000430	.0000728	.006230	.0000799	.0001895	.0003708	.0077073
%RSD	.7097404	1.315633	.3016892	.8418196	.6847408	1.793401	7.840708

#1	.0060877	.0055842	2.064771	.0094667	.0278737	.0208908	.0903805
#2	.0060059	.0055663	2.058772	.0094332	.0276297	.0208893	.0987399
#3	.0060697	.0054501	2.071229	.0095853	.0275006	.0202478	.1057762

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0188711	2.089250	.0381187	.0096409	1.957822	.0381420	.0406450
Stddev	.0004830	.022600	.0002748	.0002495	.014980	.0034455	.0003531
%RSD	2.559478	1.081722	.7208330	2.588192	.7651355	9.033451	.8687779

#1	.0191113	2.098856	.0383699	.0094709	1.945637	.0384893	.0409149
#2	.0191870	2.063434	.0378253	.0099273	1.974547	.0345360	.0407748
#3	.0183151	2.105460	.0381609	.0095244	1.953283	.0414008	.0402454

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.922762	.1000972	.1925590	.0348765	.0354647	.3698090	.0143085
Stddev	.029131	.0012540	.0009057	.0005831	.0012846	.0018614	.0001072
%RSD	1.515058	1.252809	.4703704	1.671740	3.622154	.5033390	.7491938

#1	1.929487	.1010392	.1935361	.0349424	.0341099	.3713308	.0144237
#2	1.890857	.0986738	.1923935	.0354239	.0356191	.3703625	.0142116
#3	1.947943	.1005786	.1917475	.0342634	.0366652	.3677336	.0142902

Sample Name: CRI01 Acquired: 9/9/2025 12:36:53 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0141807	.0149101	.0176329
Stddev	.0006279	.0002276	.0001032
%RSD	4.428083	1.526662	.5850033
#1	.0143206	.0149919	.0175260
#2	.0147270	.0146529	.0177319
#3	.0134947	.0150856	.0176408

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6317.946	106905.8	11013.47	5600.150	7375.799
Stddev	6.107	70.1	57.94	16.072	6.943
%RSD	.0966680	.0655773	.5260394	.2869960	.0941279
#1	6314.575	106830.9	10963.35	5583.831	7378.923
#2	6314.268	106916.5	11076.90	5615.964	7367.843
#3	6324.996	106969.9	11000.17	5600.655	7380.631

Sample Name: ICSA01 Acquired: 9/9/2025 12:42:39 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.000298	-.007161	-.003710	.0041036	-.004633	239.7795	-.008713
Stddev	.003092	.003040	.000660	.0025453	.006305	.9250	.000716
%RSD	1039.135	42.44734	17.78199	62.02683	136.0872	.3857587	8.214087

#1	-.000727	-.004139	-.004152	.0063733	-.010536	240.4034	-.008722
#2	-.003153	-.010218	-.004026	.0045858	.002008	240.2182	-.007992
#3	.002987	-.007128	-.002951	.0013517	-.005370	238.7168	-.009424

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0012082	-.001233	227.2214	.0506395	-.000970	-.009264	95.11722
Stddev	.0000640	.000073	1.2772	.0007116	.000253	.000163	.54893
%RSD	5.294123	5.936375	.5620887	1.405184	26.11448	1.758467	.5771040

#1	.0011944	-.001148	228.5018	.0511531	-.000682	-.009449	95.11466
#2	.0011523	-.001279	227.2149	.0509382	-.001157	-.009196	94.56958
#3	.0012780	-.001271	225.9474	.0498273	-.001071	-.009146	95.66743

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003244	240.8164	.0043733	.0007958	.0947661	.0025551	.0019982
Stddev	.000451	.7260	.0004227	.0006679	.0203668	.0025209	.0003661
%RSD	13.89801	.3014677	9.666236	83.93063	21.49168	98.66095	18.32255

#1	-.002737	241.4429	.0038878	.0003224	.0799288	.0006085	.0018621
#2	-.003395	240.9856	.0045727	.0005052	.0863829	.0016542	.0024128
#3	-.003600	240.0208	.0046595	.0015597	.1179866	.0054027	.0017196

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0958032	-.059657	-.003103	-.007456	-.008651	.0288880	.0020946
Stddev	.0357447	.000837	.000592	.000320	.000332	.0125030	.0023252
%RSD	37.31060	1.403466	19.08406	4.289425	3.835584	43.28098	111.0106

#1	.0564507	-.060551	-.003217	-.007764	-.009032	.0166519	.0040624
#2	.1262600	-.058891	-.002462	-.007126	-.008501	.0416418	-.000471
#3	.1046988	-.059528	-.003629	-.007477	-.008421	.0283702	.002692

Sample Name: ICSA01 Acquired: 9/9/2025 12:42:39 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.009554	F -.034391	-.001902
Stddev	.002386	.001359	.000902
%RSD	24.96919	3.952944	47.41116

#1	-.008136	-.035742	-.002255
#2	-.008219	-.034409	-.000877
#3	-.012309	-.033023	-.002573

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6022.642	98595.22	10923.10	5274.809	6531.255
Stddev	6.499	189.35	88.90	19.270	5.662
%RSD	.1079109	.1920463	.8138730	.3653251	.0866967

#1	6030.128	98483.39	10840.93	5292.979	6537.285
#2	6018.435	98813.84	10910.90	5276.849	6530.429
#3	6019.364	98488.42	11017.47	5254.601	6526.051

Sample Name: ICSAB01 Acquired: 9/9/2025 12:46:50 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.1068113	.0928633	.0443512	.0561392	.6140589	257.4417
Stddev	.0032008	.0029511	.0030743	.0063866	.0046742	.5452
%RSD	2.996692	3.177878	6.931738	11.37635	.7611895	.2117789

#1	.1051887	.0899410	.0478461	.0635133	.6192529	256.8121
#2	.1047468	.0928066	.0420648	.0525265	.6127325	257.7617
#3	.1104985	.0958424	.0431427	.0523778	.6101913	257.7511

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4956276	.5148713	1.005352	244.5328	.6055670	.5054941
Stddev	.0012816	.0020216	.004417	.6447	.0011181	.0021851
%RSD	.2585884	.3926502	.4393403	.2636485	.1846335	.4322725

#1	.4945642	.5128684	1.009986	243.8067	.6047178	.5078592
#2	.4952679	.5169112	1.004880	245.0382	.6051495	.5050727
#3	.4970506	.5148345	1.001190	244.7534	.6068338	.5035503

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4898685	103.7474	.4977595	259.1312	1.012792	.2213218
Stddev	.0023781	.5214	.0008538	.9228	.005067	.0005008
%RSD	.4854551	.5025740	.1715372	.3561073	.5003323	.2262648

#1	.4925918	103.6122	.4975300	258.1535	1.018373	.2210407
#2	.4888115	103.3069	.4970438	259.9870	1.011523	.2210248
#3	.4882020	104.3231	.4987046	259.2529	1.008479	.2219000

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2124163	.4907659	1.093108	-.130809	.8782455	.9799371
Stddev	.0069340	.0028678	.002122	.037456	.0037222	.0055437
%RSD	3.264338	.5843494	.1941278	28.63405	.4238238	.5657209

#1	.2110249	.4880517	1.094800	-.093272	.8752442	.9863349
#2	.2062835	.4904803	1.090727	-.168183	.8824106	.9769211
#3	.2199404	.4937659	1.093795	-.130972	.8770817	.9765552

Sample Name: ICSAB01 Acquired: 9/9/2025 12:46:50 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.9711329	.9577918	1.007309	F .0049309	F .0055211	F -.038336
Stddev	.0040361	.0042305	.006501	.0015986	.0009800	.002441
%RSD	.4156091	.4416984	.6453684	32.41946	17.75007	6.367827

#1	.9756812	.9530164	.999827	.0053822	.0049717	-.040518
#2	.9697388	.9592882	1.010518	.0062554	.0049390	-.035699
#3	.9679786	.9610708	1.011581	.0031552	.0066525	-.038792

Elem	Sr4077
Units	ppm
Avg	F -.003329
Stddev	.000475
%RSD	14.27168

#1	-.003256
#2	-.002894
#3	-.003836

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5625.492	92638.03	10490.37	4925.405	6100.755
Stddev	31.539	283.42	32.80	22.827	26.969
%RSD	.5606511	.3059405	.3127065	.4634472	.4420672

#1	5590.907	92730.98	10527.61	4915.360	6074.893
#2	5632.900	92863.31	10465.73	4951.532	6098.663
#3	5652.667	92319.81	10477.77	4909.324	6128.710

Sample Name: ICSADLX20 Acquired: 9/9/2025 12:50:51 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004232	-.008370	-.007170	-.001084	-.005730	12.04302	-.012165
Stddev	.001762	.002307	.001097	.001785	.001537	.01929	.000450
%RSD	41.62665	27.56646	15.29514	164.7472	26.82146	.1601968	3.695636
#1	-.002594	-.006855	-.005929	-.000816	-.005496	12.02080	-.012597
#2	-.004007	-.007231	-.008009	.000552	-.007370	12.05282	-.011700
#3	-.006096	-.011026	-.007572	-.002987	-.004323	12.05545	-.012198
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000230	-.002638	11.88045	.0020084	-.003005	-.001674	4.675278
Stddev	.000032	.000029	.02890	.0002666	.000133	.000115	.025661
%RSD	13.69238	1.115538	.2432271	13.27563	4.423764	6.877933	.5488558
#1	-.000267	-.002671	11.85924	.0018940	-.003048	-.001711	4.646114
#2	-.000216	-.002624	11.91336	.0023132	-.002856	-.001767	4.685325
#3	-.000208	-.002617	11.86875	.0018181	-.003111	-.001545	4.694395
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003202	12.44421	-.002379	-.000939	-.153409	-.002247	-.002563
Stddev	.000422	.05847	.000149	.000434	.009678	.002118	.000204
%RSD	13.18603	.4698296	6.278071	46.26562	6.308497	94.23406	7.949903
#1	-.003577	12.38018	-.002451	-.000794	-.156519	-.001661	-.002738
#2	-.002745	12.45769	-.002480	-.001427	-.161150	-.004596	-.002339
#3	-.003284	12.49476	-.002208	-.000595	-.142559	-.000484	-.002612
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.281837	-.007774	-.005379	-.005884	-.005612	-.003493	-.006627
Stddev	.029738	.000087	.000162	.000367	.000628	.004636	.000281
%RSD	10.55145	1.120186	3.003700	6.228746	11.19653	132.7308	4.239611
#1	-.310164	-.007676	-.005309	-.006153	-.006193	-.004785	-.006332
#2	-.284483	-.007807	-.005265	-.006033	-.005698	-.007346	-.006655
#3	-.250865	-.007841	-.005564	-.005467	-.004946	.001652	-.006892

Sample Name: ICSADLX20 Acquired: 9/9/2025 12:50:51 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.007125	-.011749	-.005462
Stddev	.001161	.001989	.000018
%RSD	16.30123	16.92960	.3225332

#1	-.006570	-.013612	-.005447
#2	-.008460	-.009654	-.005458
#3	-.006345	-.011980	-.005481

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6324.764	106009.2	10932.38	5620.313	7334.613
Stddev	16.497	329.0	25.31	29.661	15.289
%RSD	.2608257	.3103925	.2315157	.5277503	.2084543

#1	6317.500	106343.2	10931.37	5586.673	7331.593
#2	6313.146	105685.3	10907.58	5642.704	7321.060
#3	6343.646	105999.0	10958.17	5631.563	7351.188

Sample Name: ICSABDLX20 Acquired: 9/9/2025 12:55:05 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.001203	-.005831	-.004747	-.000025	.0262580	12.78524	.0160737
Stddev	.002055	.001583	.000805	.003179	.0015865	.05125	.0012452
%RSD	170.7758	27.14997	16.95263	12638.28	6.041864	.4008285	7.746636

#1	-.002774	-.005251	-.005661	-.002980	.0272177	12.84087	.0155725
#2	-.001959	-.004620	-.004435	-.000435	.0244268	12.73995	.0151572
#3	.001123	-.007622	-.004145	.003339	.0271294	12.77490	.0174914

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0278972	.0495135	12.69588	.0327077	.0232636	.0255645	4.996471
Stddev	.0000786	.0000784	.07275	.0002168	.0000307	.0002368	.036716
%RSD	.2818267	.1583930	.5730431	.6627865	.1318724	.9261384	.7348485

#1	.0279865	.0495658	12.77594	.0329520	.0232990	.0257070	5.031590
#2	.0278384	.0494233	12.63381	.0326329	.0232469	.0252912	4.958342
#3	.0278666	.0495514	12.67789	.0325383	.0232449	.0256954	4.999480

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0244792	13.31119	.0501448	.0105688	-.056386	.0232493	.0541563
Stddev	.0005190	.14283	.0005663	.0004431	.011971	.0036944	.0002648
%RSD	2.120014	1.073023	1.129360	4.192511	21.23104	15.89049	.4889694

#1	.0243594	13.46238	.0499201	.0100607	-.070105	.0268115	.0544239
#2	.0240307	13.17852	.0497252	.0107708	-.048062	.0235009	.0541506
#3	.0250477	13.29268	.0507889	.0108750	-.050990	.0194355	.0538944

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.278677	-.008461	-.005661	-.006080	-.005684	.0070057	-.005321
Stddev	.010220	.000739	.000149	.000197	.002281	.0061012	.000440
%RSD	3.667170	8.735686	2.635577	3.240481	40.12804	87.08838	8.277921

#1	-.267495	-.008698	-.005604	-.006087	-.008262	.0133013	-.005178
#2	-.281005	-.009053	-.005830	-.005880	-.003928	.0011196	-.004969
#3	-.287532	-.007633	-.005549	-.006273	-.004863	.0065963	-.005815

Sample Name: ICSABDLX20 Acquired: 9/9/2025 12:55:05 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.001926	-.012205	-.005394
Stddev	.004163	.001225	.000060
%RSD	216.1302	10.03323	1.108934

#1	.002853	-.012584	-.005446
#2	-.003866	-.010836	-.005407
#3	-.004766	-.013195	-.005329

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6385.949	104841.5	10968.12	5607.572	7434.332
Stddev	7.095	464.6	65.05	13.447	4.131
%RSD	.1111067	.4431522	.5930408	.2397966	.0555662

#1	6386.461	104395.9	10897.75	5610.346	7438.164
#2	6378.612	105323.0	11026.05	5619.414	7429.956
#3	6392.775	104805.5	10980.55	5592.954	7434.877

Sample Name: CCV01 Acquired: 9/9/2025 12:59:16 Type: Unk
Method: 6010-200.7 NEW(v151) 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	4.883923	5.055956	4.897342	4.891319	4.931073	9.936727	9.858942
Stddev	.010640	.061635	.009973	.010366	.010064	.030502	.073620
%RSD	.2178496	1.219065	.2036439	.2119284	.2040909	.3069606	.7467368
#1	4.895639	5.069817	4.906934	4.894851	4.941899	9.968644	9.943133
#2	4.881266	5.109482	4.898064	4.899457	4.922002	9.933664	9.806655
#3	4.874864	4.988571	4.887027	4.879648	4.929318	9.907872	9.827037
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.538063	2.444175	24.93822	1.003795	2.437905	1.228258	4.959681
Stddev	.0007405	.003930	.12976	.003422	.002057	.002096	.038831
%RSD	.2917625	.1608030	.5203221	.3408903	.0843744	.1706376	.7829236
#1	.2543825	2.448593	25.08455	1.002577	2.440224	1.230512	4.976225
#2	.2540653	2.442865	24.83716	1.001148	2.436303	1.227896	4.915318
#3	.2529710	2.441068	24.89294	1.007659	2.437187	1.226368	4.987499
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.487201	24.87025	2.444883	1.248385	24.84533	2.489934	2.503712
Stddev	.018649	.13701	.002854	.000691	.12358	.011956	.009181
%RSD	.7498151	.5509030	.1167523	.0553775	.4973790	.4801831	.3666906
#1	2.504378	25.02841	2.448157	1.248264	24.84482	2.503650	2.496305
#2	2.467365	24.79431	2.443570	1.247763	24.72202	2.481713	2.500849
#3	2.489859	24.78802	2.442920	1.249129	24.96917	2.484438	2.513984
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.52906	5.053195	4.894971	4.884296	4.939375	4.916415	4.902555
Stddev	.11659	.021491	.008202	.011005	.017730	.026177	.007898
%RSD	.4753174	.4252927	.1675634	.2253101	.3589471	.5324441	.1610906
#1	24.54109	5.064074	4.902498	4.895057	4.957978	4.896418	4.903488
#2	24.40692	5.067072	4.896187	4.884769	4.922671	4.906783	4.909945
#3	24.63916	5.028440	4.886229	4.873063	4.937475	4.946044	4.894233

Sample Name: CCV01 Acquired: 9/9/2025 12:59:16 Type: Unk
Method: 6010-200.7 NEW(v151) 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	4.712694	4.916549	4.954474
Stddev	.004365	.023498	.053882
%RSD	.0926327	.4779293	1.087541

#1	4.717648	4.940741	5.010948
#2	4.711023	4.893814	4.903625
#3	4.709411	4.915091	4.948850

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6205.981	102701.2	10780.02	5498.300	6926.060
Stddev	26.807	389.4	69.35	22.875	29.167
%RSD	.4319612	.3791513	.6432920	.4160322	.4211129

#1	6178.916	102331.1	10704.74	5496.480	6895.105
#2	6206.502	103107.4	10794.04	5522.031	6930.047
#3	6232.524	102664.9	10841.29	5476.390	6953.028

Sample Name: CCB01 Acquired: 9/9/2025 13:26:10 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.005139	-.010109	-.000194	-.003919	-.006958	-.004309	-.015021
Stddev	.000525	.001561	.000519	.000731	.001254	.007239	.000849
%RSD	10.21209	15.44168	267.2441	18.65888	18.02576	168.0008	5.651299

#1	-.005333	-.010772	-.000336	-.003736	-.005610	-.009924	-.015539
#2	-.005539	-.008326	-.000627	-.004725	-.008090	.003862	-.014041
#3	-.004545	-.011229	.000381	-.003297	-.007174	-.006866	-.015483

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000360	-.002819	-.057945	-.001247	-.002944	-.001445	-.010189
Stddev	.000042	.000036	.005351	.000233	.000051	.000037	.001605
%RSD	11.67293	1.268025	9.234332	18.71996	1.718388	2.585759	15.75137

#1	-.000337	-.002779	-.053124	-.001320	-.002927	-.001467	-.011439
#2	-.000334	-.002848	-.057008	-.000986	-.003001	-.001465	-.008379
#3	-.000408	-.002831	-.063702	-.001435	-.002904	-.001402	-.010749

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003317	-.032530	-.002657	-.001127	-.181575	-.001955	-.003760
Stddev	.000259	.025755	.000391	.000384	.008202	.002131	.000097
%RSD	7.800255	79.17489	14.70892	34.02245	4.517174	109.0323	2.584321

#1	-.003267	-.059323	-.002415	-.001506	-.184249	.000398	-.003697
#2	-.003597	-.030311	-.002447	-.000739	-.188107	-.003756	-.003711
#3	-.003087	-.007956	-.003107	-.001137	-.172370	-.002506	-.003872

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.263938	-.007309	-.005720	-.000451	-.007147	.0050734	-.006573
Stddev	.006656	.000623	.000508	.000707	.000833	.0033927	.001714
%RSD	2.521920	8.523001	8.882770	156.8402	11.65411	66.87210	26.07279

#1	-.271368	-.007373	-.005946	.000359	-.007445	.0089186	-.006537
#2	-.258520	-.007898	-.006075	-.000763	-.007789	.0038000	-.004878
#3	-.261925	-.006657	-.005138	-.000948	-.006206	.0025017	-.008305

Sample Name: CCB01 Acquired: 9/9/2025 13:26:10 Type: Unk
Method: 6010-200.7 NEW(v151) 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	F -.011504	F -.011290	-.005978
Stddev	.001403	.000208	.000063
%RSD	12.19754	1.845523	1.056041

#1	-.010406	-.011103	-.005917
#2	-.011022	-.011515	-.006043
#3	-.013085	-.011251	-.005973

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6772.832	114782.9	11681.95	5998.197	8024.390
Stddev	5.761	729.2	115.68	24.808	6.181
%RSD	.0850673	.6353111	.9902129	.4135927	.0770247

#1	6766.735	113948.6	11559.88	5975.919	8025.566
#2	6773.574	115101.5	11696.04	6024.931	8017.706
#3	6778.186	115298.7	11789.94	5993.742	8029.898

Sample Name: LR-1 Acquired: 9/9/2025 13:30:27 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.003354	.0016958	.0082608	-.002577	.0050561	.2337947	-.022272
Stddev	.002335	.0035165	.0014596	.005772	.0012500	.0257409	.000206
%RSD	69.63910	207.3716	17.66878	223.9556	24.72336	11.01006	.9257933

#1	-.001003	-.002074	.0092642	.002144	.0054545	.2096544	-.022036
#2	-.003385	.002275	.0089316	-.000864	.0060585	.2608825	-.022368
#3	-.005673	.004887	.0065864	-.009012	.0036555	.2308471	-.022413

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000182	-.002252	2416.793	.0242271	-.002636	.0013166	.4895028
Stddev	.000040	.000060	30.610	.0002156	.000336	.0004622	.0063426
%RSD	21.93583	2.683300	1.266549	.8899909	12.75691	35.10533	1.295726

#1	-.000139	-.002192	2424.357	.0240493	-.003005	.0009468	.4821866
#2	-.000218	-.002252	2383.111	.0241651	-.002346	.0011683	.4934510
#3	-.000189	-.002313	2442.912	.0244669	-.002558	.0018348	.4928707

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0120526	2198.275	.0149561	-.002867	2460.282	.0032265	.2285720
Stddev	.0003399	15.924	.0009205	.000739	22.799	.0041312	.0064434
%RSD	2.820163	.7243744	6.154883	25.77318	.9266640	128.0374	2.818970

#1	.0121038	2182.635	.0158311	-.002669	2452.391	-.000685	.2215786
#2	.0116900	2197.723	.0150413	-.002247	2442.477	.007547	.2298694
#3	.0123640	2214.468	.0139960	-.003684	2485.977	.002817	.2342679

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.461589	.0022568	-.001378	-.017625	-.119179	-.035950	.0118851
Stddev	.791122	.0011724	.000274	.001626	.000342	.021386	.0036292
%RSD	17.73185	51.94782	19.86232	9.226572	.2871979	59.48687	30.53555

#1	3.633591	.0011562	-.001298	-.017000	-.118810	-.018642	.0143667
#2	4.541390	.0034897	-.001154	-.019471	-.119240	-.059858	.0077199
#3	5.209787	.0021244	-.001683	-.016404	-.119487	-.029352	.0135686

Sample Name: LR-1 Acquired: 9/9/2025 13:30:27 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.2116440	-.380697	.0553923
Stddev	.0081136	.004719	.0007402
%RSD	3.833587	1.239664	1.336255
#1	.2024512	-.383773	.0545402
#2	.2146755	-.375264	.0557598
#3	.2178054	-.383055	.0558768

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4252.809	74545.56	9883.185	3740.985	4355.675
Stddev	13.267	15.00	38.969	24.177	7.544
%RSD	.3119636	.0201277	.3942912	.6462623	.1731999
#1	4240.088	74551.90	9840.417	3715.906	4352.513
#2	4266.563	74528.43	9892.456	3742.903	4364.285
#3	4251.776	74556.35	9916.682	3764.145	4350.226

Sample Name: LR-2 Acquired: 9/9/2025 13:35:02 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0855545	-.172133	.0872010	-.264405	-.077944	1745.876	.0074204
Stddev	.0033807	.002479	.0064836	.024653	.005889	17.216	.0015503
%RSD	3.951495	1.440123	7.435243	9.324041	7.555173	.9861232	20.89253

#1	.0892833	-.169713	.0804355	-.258202	-.078502	1738.986	.0056667
#2	.0846906	-.172019	.0933601	-.243446	-.083533	1765.471	.0086083
#3	.0826896	-.174667	.0878075	-.291568	-.071796	1733.172	.0079862

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0368226	.0184724	^ *****	-.240273	.0516533	-.203430	2504.249
Stddev	.0003832	.0029636	-----	.003210	.0003255	.016829	24.380
%RSD	1.040553	16.04321	-----	1.335907	.6301120	8.272753	.9735538

#1	.0364622	.0197744	^ -----	-.238098	.0512781	-.193516	2487.717
#2	.0372251	.0150807	^ -----	-.243960	.0518216	-.222861	2532.249
#3	.0367804	.0205621	^ -----	-.238762	.0518601	-.193912	2492.781

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.426061	1.229189	.0455008	^ *****	3.810013	.0321388	.0727919
Stddev	.002808	.029772	.0008182	-----	.028148	.0009754	.0031110
%RSD	.6589540	2.422116	1.798299	-----	.7387889	3.035078	4.273848

#1	-.424869	1.199091	.0457640	^ -----	3.785662	.0313614	.0738514
#2	-.424046	1.258624	.0445834	^ -----	3.803546	.0332333	.0692895
#3	-.429267	1.229853	.0461551	^ -----	3.840832	.0318217	.0752348

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1732.051	5.620948	-.019379	.0089496	-.003060	.4547240	.0685439
Stddev	13.225	.062516	.001482	.0019444	.001140	.0054411	.0054431
%RSD	.7635729	1.112200	7.647158	21.72599	37.27210	1.196583	7.941089

#1	1722.718	5.586318	-.021034	.0069926	-.002316	.4597621	.0668441
#2	1726.248	5.693116	-.018174	.0108811	-.002490	.4554559	.0641535
#3	1747.186	5.583409	-.018930	.0089751	-.004373	.4489539	.0746341

Sample Name: LR-2 Acquired: 9/9/2025 13:35:02 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-453446	k .2395045	-2.40657
Stddev	.013693	.0030805	.02338
%RSD	3.019756	1.286197	.9716858

#1	-437771	k .2360683	-2.39073
#2	-463079	k .2420187	-2.43343
#3	-459488	k .2404265	-2.39556

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5390.904	86285.29	11039.07	4708.271	5582.814
Stddev	5.387	93.86	40.79	19.110	7.404
%RSD	.0999358	.1087838	.3695028	.4058760	.1326258

#1	5389.803	86177.73	11073.87	4693.772	5575.012
#2	5396.757	86350.59	10994.18	4729.926	5589.744
#3	5386.152	86327.57	11049.15	4701.115	5583.684

Sample Name: LR-3 Acquired: 9/9/2025 13:39:30 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0945413	-.000429	226.3925	.0132478	.1788992	.2186216
Stddev	.0007392	.005242	.5595	.0029465	.0049522	.0035086
%RSD	.7818622	1220.752	.2471367	22.24117	2.768170	1.604873
#1	.0953882	-.005008	225.8908	.0111399	.1755512	.2191838
#2	.0942101	-.001569	226.2908	.0166145	.1845879	.2148658
#3	.0940257	.005289	226.9959	.0119888	.1765585	.2218151
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.014346	-.004451	-.004731	.1499023	22.69263	.0036345
Stddev	.000527	.000095	.000096	.0013877	.34301	.0001318
%RSD	3.673361	2.134133	2.025685	.9257479	1.511562	3.626281
#1	-.014904	-.004476	-.004637	.1483395	22.84484	.0037703
#2	-.014278	-.004347	-.004728	.1503771	22.29985	.0035070
#3	-.013856	-.004532	-.004828	.1509903	22.93320	.0036263
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 56.78428	.2920979	48.42630	-.186233	23.63897	.0021198
Stddev	.23859	.0266603	.46436	.014860	.09505	.0000865
%RSD	.4201684	9.127171	.9588957	7.979115	.4021001	4.079143
#1	56.57368	.2766467	48.15757	-.169177	23.56147	.0021778
#2	56.73576	.2767646	48.96250	-.196384	23.61041	.0021611
#3	57.04340	.3228825	48.15884	-.193137	23.74503	.0020204
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1530390	-.046076	31.52777	.4147305	-.017097	-.024670
Stddev	.0239783	.001864	.72258	.0027400	.000195	.000527
%RSD	15.66812	4.046468	2.291870	.6606656	1.141545	2.135564
#1	.1416132	-.047771	32.06669	.4120659	-.016877	-.024509
#2	.1369104	-.044079	30.70669	.4145855	-.017250	-.025258
#3	.1805933	-.046378	31.80994	.4175401	-.017163	-.024242

Sample Name: LR-3 Acquired: 9/9/2025 13:39:30 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.011718	-.050517	-.095040	.0979370	.0488598	-.008993
Stddev	.000394	.000877	.007665	.0025897	.0028576	.001233
%RSD	3.363189	1.735308	8.065501	2.644249	5.848577	13.71377
#1	-.011487	-.051501	-.086956	.0953866	.0477580	-.010214
#2	-.012173	-.049819	-.095962	.0978601	.0467171	-.009016
#3	-.011495	-.050231	-.102204	.1005642	.0521042	-.007748

Elem	Sr4077
Units	ppm
Avg	-.005922
Stddev	.000184
%RSD	3.113476
#1	-.006050
#2	-.005711
#3	-.006006

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5507.085	110787.6	11485.01	5646.035	7349.538
Stddev	28.998	2056.1	35.74	115.776	34.977
%RSD	.5265533	1.855892	.3111926	2.050575	.4759066
#1	5498.205	110000.1	11526.28	5594.416	7339.740
#2	5539.484	113121.1	11464.28	5778.642	7388.369
#3	5483.566	109241.7	11464.46	5565.047	7320.504

Sample Name: Q3027-01 Acquired: 9/9/2025 13:44:23 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0302419	-.055084	.2039975	-.038575	-.016316	199.3154
Stddev	.0014007	.000222	.0020694	.002939	.000863	1.0173
%RSD	4.631544	.4038086	1.014401	7.619761	5.288639	.5103877

#1	.0287042	-.055194	.2063706	-.041029	-.015325	198.7736
#2	.0305767	-.054828	.2025687	-.035317	-.016720	198.6836
#3	.0314448	-.055230	.2030533	-.039379	-.016903	200.4888

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8227291	.0173258	.0249939	27.56062	.1752936	.2125282
Stddev	.0050146	.0000646	.0006648	.07585	.0002757	.0007022
%RSD	.6095130	.3730289	2.659977	.2752161	.1572825	.3303883

#1	.8172287	.0172585	.0256345	27.47951	.1751342	.2129986
#2	.8239121	.0173874	.0243072	27.57252	.1756120	.2117210
#3	.8270465	.0173315	.0250400	27.62981	.1751346	.2128649

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1168467	269.9297	3.639778	28.18947	.2008416	.0023642
Stddev	.0019965	3.6906	.017699	.06444	.0005419	.0011656
%RSD	1.708670	1.367259	.4862659	.2285826	.2698048	49.30293

#1	.1188959	266.6033	3.626270	28.17770	.2008533	.0012709
#2	.1149074	273.8999	3.633249	28.13173	.2013776	.0035907
#3	.1167366	269.2860	3.659813	28.25898	.2002940	.0022311

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.446030	.3380627	.4582600	9.985225	.6748878	-.003050
Stddev	.058042	.0015849	.0021052	.100291	.0108653	.000163
%RSD	.6144628	.4688260	.4593945	1.004393	1.609947	5.340945

#1	9.379050	.3366254	.4597681	9.869483	.6647339	-.003166
#2	9.481578	.3378002	.4558548	10.04641	.6863467	-.003121
#3	9.477461	.3397625	.4591570	10.03978	.6735829	-.002864

Sample Name: Q3027-01 Acquired: 9/9/2025 13:44:23 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0095411	6.904910	6.238131	F 10.16523	3.723457	.0633156
Stddev	.0010119	.028795	.038252	.04171	.033151	.0009180
%RSD	10.60550	.4170264	.6131969	.4103547	.8903326	1.449908
#1	.0094080	6.877489	6.193963	10.20074	3.728420	.0622673
#2	.0106130	6.902334	6.260587	10.11929	3.688104	.0639757
#3	.0086024	6.934906	6.259843	10.17567	3.753847	.0637039

Elem	Sr4077
Units	ppm
Avg	-.167217
Stddev	.003480
%RSD	2.080853
#1	-.164181
#2	-.171014
#3	-.166456

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	12445.23	208324.0	24322.75	10958.19	6609.316
Stddev	6.60	588.8	42.98	59.95	2.339
%RSD	.0530689	.2826221	.1767199	.5471036	.0353883
#1	12438.17	208964.8	24305.57	10924.29	6611.968
#2	12446.27	207807.0	24371.66	11027.41	6608.431
#3	12451.26	208200.0	24291.01	10922.87	6607.549

Sample Name: Q3027-01DUP Acquired: 9/9/2025 13:48:47 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0340510	-.061760	.2113301	-.040482	-.017421	202.3776
Stddev	.0009573	.002012	.0018522	.001731	.000578	1.3719
%RSD	2.811337	3.257383	.8764485	4.275745	3.318873	.6778907

#1	.0344047	-.062427	.2131120	-.039523	-.017045	201.0909
#2	.0347811	-.063354	.2114634	-.042481	-.018087	202.2206
#3	.0329672	-.059499	.2094148	-.039444	-.017131	203.8212

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8089838	.0183958	.0296740	32.40886	.1867453	.2327598
Stddev	.0012238	.0000565	.0003701	.02082	.0001033	.0003682
%RSD	.1512806	.3069377	1.247036	.0642514	.0553071	.1581756

#1	.8075733	.0184542	.0300773	32.38665	.1867452	.2323541
#2	.8096132	.0183917	.0293502	32.42794	.1868486	.2328526
#3	.8097648	.0183415	.0295944	32.41199	.1866421	.2330726

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1207226	283.6497	3.784606	31.63395	.2317519	.0029599
Stddev	.0006973	1.8776	.001889	.03185	.0002313	.0009782
%RSD	.5776423	.6619429	.0499056	.1006978	.0997857	33.04865

#1	.1201848	283.7942	3.784229	31.61742	.2317400	.0030602
#2	.1204726	285.4509	3.786655	31.67067	.2319888	.0038841
#3	.1215105	281.7041	3.782934	31.61375	.2315268	.0019354

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.773159	.3586763	.4497814	8.630552	.7042637	-.002129
Stddev	.044225	.0014433	.0004015	.039389	.0049472	.000232
%RSD	.4525118	.4023954	.0892638	.4563845	.7024643	10.88322

#1	9.766703	.3596463	.4501726	8.635456	.7046990	-.002240
#2	9.732516	.3570177	.4493703	8.588941	.7089788	-.002284
#3	9.820256	.3593650	.4498013	8.667259	.6991132	-.001862

Sample Name: Q3027-01DUP Acquired: 9/9/2025 13:48:47 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0089843	6.765359	2.757550	F 11.43055	4.366827	.0618344
Stddev	.0010830	.008770	.020166	.08699	.030483	.0002925
%RSD	12.05441	.1296247	.7313169	.7610657	.6980641	.4730874

#1	.0091453	6.756898	2.769611	11.51742	4.394981	.0615987
#2	.0099778	6.764772	2.734268	11.43080	4.371046	.0617428
#3	.0078298	6.774408	2.768769	11.34343	4.334454	.0621618

Elem	Sr4077
Units	ppm
Avg	-.173121
Stddev	.002123
%RSD	1.226502

#1	-.173312
#2	-.175142
#3	-.170909

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	13370.55	226221.2	26731.29	11801.16	6637.229
Stddev	16.57	639.1	31.48	57.44	7.160
%RSD	.1238952	.2825164	.1177597	.4867222	.1078817

#1	13353.82	225779.7	26695.49	11759.51	6628.961
#2	13370.87	226954.0	26743.75	11866.69	6641.406
#3	13386.95	225929.7	26754.63	11777.28	6641.320

Sample Name: Q3027-01LX5 Acquired: 9/9/2025 13:53:11 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0055445	-.021878	.0398596	-.014519	-.009808	67.42595	.2650290
Stddev	.0025257	.001541	.0008088	.003013	.002222	.24254	.0012300
%RSD	45.55417	7.042956	2.029050	20.75272	22.65605	.3597152	.4640999

#1	.0057543	-.020536	.0394875	-.017229	-.011997	67.22196	.2644381
#2	.0029204	-.021537	.0407875	-.011274	-.007554	67.36176	.2642059
#3	.0079588	-.023561	.0393039	-.015054	-.009873	67.69413	.2664429

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0058724	-.001187	9.606470	.0600260	.0382631	.0445234	91.12290
Stddev	.0000821	.000070	.064477	.0005698	.0003183	.0004069	.23819
%RSD	1.397519	5.875772	.6711812	.9492902	.8318014	.9139068	.2613965

#1	.0057896	-.001236	9.553284	.0606462	.0381137	.0440607	90.86003
#2	.0058739	-.001107	9.587945	.0595257	.0380470	.0448251	91.32439
#3	.0059537	-.001219	9.678182	.0599059	.0386285	.0446846	91.18429

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.272452	9.861703	.0390281	-.000018	3.012260	.1131088	.1539118
Stddev	.006319	.019843	.0001540	.000130	.022162	.0036917	.0004801
%RSD	.4965806	.2012154	.3944658	714.8750	.7357339	3.263886	.3119484

#1	1.271227	9.858297	.0388587	.000109	2.986828	.1093934	.1533895
#2	1.266835	9.883029	.0390661	-.000013	3.027440	.1131567	.1540119
#3	1.279293	9.843784	.0391595	-.000151	3.022512	.1167764	.1543339

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.117564	.2215864	-.005431	.0023993	2.358029	2.021367	2.072737
Stddev	.050451	.0004000	.000041	.0007552	.010763	.005888	.027198
%RSD	1.618267	.1805217	.7514332	31.47783	.4564602	.2912840	1.312190

#1	3.061466	.2211979	-.005396	.0023781	2.351444	2.015689	2.041738
#2	3.159217	.2219970	-.005423	.0016549	2.352192	2.020967	2.083870
#3	3.132008	.2215641	-.005476	.0031649	2.370450	2.027445	2.092602

Sample Name: Q3027-01LX5 Acquired: 9/9/2025 13:53:11 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.7203808	.0136181	-.060390
Stddev	.0137581	.0005383	.000154
%RSD	1.909832	3.952766	.2554695
#1	.7046684	.0135766	-.060397
#2	.7262057	.0131018	-.060541
#3	.7302682	.0141759	-.060232

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7641.230	129909.0	14381.31	6885.069	7144.560
Stddev	24.911	246.6	87.02	25.045	28.184
%RSD	.3260119	.1898399	.6051087	.3637592	.3944809
#1	7669.941	129645.8	14365.21	6912.917	7176.394
#2	7628.403	130134.8	14475.26	6864.392	7134.499
#3	7625.346	129946.4	14303.46	6877.896	7122.787

Sample Name: Q3027-01MS Acquired: 9/9/2025 13:57:16 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.3663712	1.667922	1.056682	.7834921	.0982911	195.6872
Stddev	.0027165	.028771	.001403	.0032759	.0014542	3.1668
%RSD	.7414695	1.724975	.1327831	.4181171	1.479443	1.618310

#1	.3647677	1.697007	1.055064	.7837658	.0993006	195.1903
#2	.3695077	1.667283	1.057418	.7866227	.0966243	192.7982
#3	.3648382	1.639475	1.057564	.7800880	.0989484	199.0731

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9744940	.0961178	.1983735	41.61632	.3621839	.4916688
Stddev	.0054928	.0006709	.0006245	.08341	.0018134	.0005574
%RSD	.5636606	.6980191	.3148152	.2004332	.5006970	.1133625

#1	.9807624	.0965696	.1977514	41.70768	.3640030	.4917906
#2	.9705223	.0953469	.1983686	41.54424	.3621724	.4910606
#3	.9721972	.0964369	.1990004	41.59704	.3603762	.4921552

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2503730	265.8528	5.172489	38.94344	.6750102	.0345247
Stddev	.0017122	2.6871	.023485	.10387	.0009529	.0009049
%RSD	.6838418	1.010729	.4540320	.2667301	.1411616	2.620900

#1	.2486414	268.8028	5.198674	39.03795	.6742208	.0355574
#2	.2520650	263.5450	5.153290	38.83223	.6747411	.0338709
#3	.2504128	265.2106	5.165504	38.96013	.6760687	.0341458

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.32738	.4862048	.5938845	13.66709	.7689149	.1613103
Stddev	.07423	.0012150	.0009380	.06861	.0081733	.0000369
%RSD	.6552871	.2498989	.1579489	.5020161	1.062971	.0228467

#1	11.36158	.4873524	.5928711	13.69585	.7776659	.1613285
#2	11.37834	.4863299	.5947223	13.71665	.7614787	.1612679
#3	11.24221	.4849321	.5940601	13.58878	.7676000	.1613346

Sample Name: Q3027-01MS Acquired: 9/9/2025 13:57:16 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.5874283	6.756942	4.795902	F 15.63839	4.415438	.1502714
Stddev	.0012329	.016861	.029287	.03524	.024290	.0008911
%RSD	.2098787	.2495418	.6106687	.2253260	.5501207	.5929726
#1	.5888409	6.776085	4.800984	15.66909	4.439860	.1511513
#2	.5865687	6.744291	4.822315	15.64616	4.415172	.1502932
#3	.5868754	6.750451	4.764406	15.59991	4.391282	.1493696

Elem	Sr4077
Units	ppm
Avg	-.062554
Stddev	.002579
%RSD	4.122576
#1	-.065361
#2	-.060289
#3	-.062012

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	12752.04	214451.9	25488.21	11347.20	6691.959
Stddev	15.24	1105.9	158.75	34.09	4.199
%RSD	.1195347	.5157066	.6228528	.3004009	.0627443
#1	12742.66	213361.2	25340.84	11374.85	6695.502
#2	12743.84	214422.0	25656.32	11309.12	6693.052
#3	12769.63	215572.5	25467.48	11357.64	6687.321

Sample Name: Q3027-01MSD Acquired: 9/9/2025 14:01:37 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.3541661	1.686123	1.088419	.7451654	.0944746	203.4662
Stddev	.0028309	.018351	.003973	.0033695	.0019543	1.6233
%RSD	.7993158	1.088332	.3650302	.4521812	2.068618	.7978472
#1	.3540921	1.696080	1.088297	.7428562	.0965668	204.8784
#2	.3513729	1.664946	1.084508	.7490319	.0941609	201.6927
#3	.3570332	1.697344	1.092451	.7436082	.0926961	203.8276
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8897285	.0975954	.2154611	32.39341	.4255490	.4332046
Stddev	.0042191	.0000818	.0002345	.07401	.0001056	.0004284
%RSD	.4741960	.0838674	.1088162	.2284736	.0248052	.0989029
#1	.8912797	.0976695	.2156149	32.36120	.4254554	.4330488
#2	.8849534	.0975075	.2155772	32.34096	.4256634	.4336891
#3	.8929524	.0976092	.2151913	32.47807	.4255283	.4328758
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2552659	306.5952	3.743937	31.15438	.7106049	.0337639
Stddev	.0015428	2.7766	.014637	.02331	.0006217	.0009336
%RSD	.6044108	.9056141	.3909604	.0748063	.0874893	2.764921
#1	.2554566	306.3472	3.745962	31.14617	.7105531	.0337706
#2	.2567045	303.9509	3.728392	31.13630	.7112509	.0328271
#3	.2536366	309.4874	3.757456	31.18068	.7100107	.0346941
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.14422	.5442701	.5816676	12.49800	.8517868	.1542228
Stddev	.03938	.0016264	.0003412	.06521	.0082121	.0001498
%RSD	.3533453	.2988189	.0586631	.5217826	.9641005	.0971369
#1	11.14111	.5454102	.5814541	12.49219	.8508569	.1540500
#2	11.10649	.5424077	.5814877	12.43589	.8440793	.1543165
#3	11.18506	.5449923	.5820612	12.56593	.8604243	.1543018

Sample Name: Q3027-01MSD Acquired: 9/9/2025 14:01:37 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.6108720	8.650454	4.838260	F 17.55930	4.260057	.1529925
Stddev	.0020742	.025472	.021142	.05749	.022173	.0006007
%RSD	.3395440	.2944631	.4369789	.3273990	.5204819	.3926055
#1	.6129205	8.661371	4.847628	17.61289	4.283212	.1533100
#2	.6109225	8.621343	4.814052	17.49858	4.239018	.1522997
#3	.6087731	8.668648	4.853099	17.56642	4.257940	.1533678

Elem	Sr4077
Units	ppm
Avg	-.077981
Stddev	.002837
%RSD	3.638586
#1	-.077632
#2	-.075335
#3	-.080977

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	13390.57	228582.0	26403.13	11831.11	6502.629
Stddev	26.84	805.9	51.17	34.45	13.242
%RSD	.2004603	.3525822	.1938151	.2912123	.2036449
#1	13397.41	228813.7	26421.17	11822.47	6502.394
#2	13360.97	229246.6	26442.85	11869.06	6489.505
#3	13413.33	227685.5	26345.38	11801.80	6515.987

Sample Name: Q3027-01A Acquired: 9/9/2025 14:05:58 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.3941281	1.698854	1.044701	.8599352	.3551712	198.8427
Stddev	.0013461	.034265	.005070	.0044094	.0011526	.8611
%RSD	.3415440	2.016944	.4852945	.5127594	.3245204	.4330585

#1	.3929980	1.705246	1.039311	.8549142	.3538514	199.7855
#2	.3956174	1.661843	1.045419	.8617142	.3559795	198.0976
#3	.3937688	1.729473	1.049374	.8631773	.3556829	198.6451

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9396549	.1022716	.1996566	27.33082	.3457184	.3845612
Stddev	.0027549	.0003547	.0014578	.08286	.0020015	.0023793
%RSD	.2931792	.3468134	.7301699	.3031647	.5789356	.6187037

#1	.9427776	.1023423	.1982059	27.40668	.3438701	.3819375
#2	.9386183	.1018869	.1996424	27.34337	.3454410	.3851672
#3	.9375686	.1025856	.2011214	27.24240	.3478442	.3865789

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2447702	270.1283	3.714974	28.57390	.6395011	.0396667
Stddev	.0007791	.8505	.012066	.01164	.0031362	.0005528
%RSD	.3182954	.3148473	.3247937	.0407373	.4904131	1.393555

#1	.2446081	269.3768	3.728783	28.57795	.6362240	.0398597
#2	.2440850	271.0516	3.709672	28.56078	.6398052	.0400971
#3	.2456177	269.9564	3.706466	28.58297	.6424742	.0390433

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.80815	.4642549	.5475336	15.31418	.7951091	.1818116
Stddev	.04143	.0005889	.0010473	.02861	.0018957	.0007306
%RSD	.3833239	.1268404	.1912667	.1868068	.2384133	.4018382

#1	10.76178	.4642216	.5482186	15.28446	.7938317	.1814974
#2	10.84152	.4648597	.5463281	15.31654	.7972871	.1812908
#3	10.82115	.4636834	.5480541	15.34153	.7942083	.1826468

Sample Name: Q3027-01A Acquired: 9/9/2025 14:05:58 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.6310641	7.261480	8.678945	F 14.83224	3.640182	.1622607
Stddev	.0022832	.020105	.034059	.05003	.015094	.0008008
%RSD	.3617995	.2768732	.3924353	.3372884	.4146490	.4934945
#1	.6287933	7.284260	8.647626	14.81550	3.632260	.1631510
#2	.6310394	7.253964	8.715205	14.79273	3.630699	.1620316
#3	.6333595	7.246216	8.674005	14.88849	3.657588	.1615995

Elem	Sr4077
Units	ppm
Avg	-.080398
Stddev	.000834
%RSD	1.037729
#1	-.079559
#2	-.081227
#3	-.080408

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	12110.26	205692.4	23874.66	10734.28	6626.215
Stddev	29.04	619.7	87.58	23.90	34.125
%RSD	.2398050	.3012805	.3668456	.2226327	.5150053
#1	12134.20	206287.8	23807.03	10722.00	6661.802
#2	12118.62	205738.6	23973.60	10761.82	6623.076
#3	12077.95	205051.0	23843.36	10719.01	6593.768

Sample Name: Q2982-10 Acquired: 9/9/2025 14:10:11 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.008321	-.011541	.0209457	.0003075	-.005781	.2719732	.1952221
Stddev	.001128	.002989	.0020072	.0011388	.000590	.0060972	.0009213
%RSD	13.55631	25.90108	9.582664	370.3527	10.21417	2.241825	.4719452

#1	-.007312	-.008645	.0198940	.0015829	-.005134	.2744057	.1962128
#2	-.009539	-.011363	.0232601	-.000053	-.006291	.2650353	.1950626
#3	-.008112	-.014615	.0196829	-.000607	-.005917	.2764787	.1943909

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000530	-.003181	190.9295	.0007035	-.003159	.0209927	.0194111
Stddev	.000058	.000038	.1207	.0001381	.000218	.0003786	.0036694
%RSD	10.97896	1.201980	.0632101	19.62340	6.906202	1.803348	18.90383

#1	-.000481	-.003221	191.0561	.0008435	-.003236	.0206406	.0151816
#2	-.000594	-.003145	190.9166	.0006997	-.003328	.0213931	.0213070
#3	-.000514	-.003178	190.8157	.0005675	-.002912	.0209443	.0217448

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002110	-.014729	-.002614	-.002132	346.8087	-.001570	.0090275
Stddev	.000407	.032867	.000095	.000411	.7678	.002799	.0001715
%RSD	19.30123	223.1396	3.644080	19.25940	.2213967	178.2879	1.900144

#1	-.002262	.021343	-.002505	-.002069	346.0191	-.002939	.0088958
#2	-.002420	-.042980	-.002681	-.001756	347.5527	.001650	.0092215
#3	-.001649	-.022551	-.002655	-.002570	346.8544	-.003422	.0089653

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	16.66274	-.005111	-.004557	-.011884	-.014296	.2696237	.0019104
Stddev	.05159	.000633	.000084	.000668	.000591	.0070241	.0009342
%RSD	.3096172	12.37697	1.837349	5.622720	4.136413	2.605136	48.89845

#1	16.60435	-.005822	-.004651	-.011112	-.014405	.2646801	.0029465
#2	16.68172	-.004610	-.004532	-.012277	-.014825	.2665270	.0016521
#3	16.70216	-.004900	-.004490	-.012262	-.013657	.2776640	.0011325

Sample Name: Q2982-10 Acquired: 9/9/2025 14:10:11 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.9946515	-.001427	3.293241
Stddev	.0100544	.000879	.038437
%RSD	1.010848	61.59649	1.167143
#1	.9831510	-.001720	3.305079
#2	1.001778	-.000439	3.324368
#3	.999025	-.002123	3.250278

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6047.416	103123.3	11371.98	5384.879	6630.360
Stddev	7.269	221.4	22.69	12.334	4.893
%RSD	.1201920	.2147037	.1995060	.2290488	.0737980
#1	6054.069	103335.2	11346.22	5371.471	6633.018
#2	6048.520	102893.5	11380.71	5395.742	6633.349
#3	6039.658	103141.3	11389.00	5387.424	6624.714

Sample Name: CCV02 Acquired: 9/9/2025 14:14:45 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.695984	4.825431	4.653394	4.697913	4.782010	9.535185
Stddev	.013883	.055383	.014782	.024564	.023921	.058763
%RSD	.2956304	1.147730	.3176682	.5228702	.5002201	.6162802

#1	4.702740	4.808980	4.659857	4.713541	4.805389	9.518838
#2	4.680017	4.780137	4.636480	4.669600	4.757583	9.486326
#3	4.705196	4.887175	4.663844	4.710597	4.783058	9.600391

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.676031	.2346016	2.333781	23.97192	.9543553	2.356130
Stddev	.091111	.0011952	.008584	.13801	.0012272	.009143
%RSD	.9416134	.5094401	.3678020	.5757161	.1285922	.3880607

#1	9.651610	.2356668	2.336930	23.96237	.9545159	2.361913
#2	9.599619	.2333091	2.324068	23.83894	.9554943	2.345589
#3	9.776864	.2348289	2.340346	24.11446	.9530557	2.360888

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.185882	4.885034	2.405835	23.66603	2.345063	1.193674
Stddev	.005070	.039539	.015180	.11776	.007859	.001576
%RSD	.4275457	.8093915	.6309596	.4975709	.3351162	.1320378

#1	1.188651	4.840882	2.402606	23.73250	2.348603	1.192756
#2	1.180030	4.897047	2.392529	23.53007	2.336057	1.195494
#3	1.188965	4.917173	2.422370	23.73552	2.350529	1.192771

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.23795	2.402965	2.401527	24.15036	4.698988	4.805302
Stddev	.11984	.012170	.000941	.20478	.027087	.017003
%RSD	.4944215	.5064688	.0391814	.8479289	.5764384	.3538339

#1	24.12126	2.399168	2.402014	23.96782	4.718972	4.818036
#2	24.23189	2.393147	2.400442	24.11147	4.668159	4.785994
#3	24.36070	2.416582	2.402123	24.37180	4.709832	4.811877

Sample Name: CCV02 Acquired: 9/9/2025 14:14:45 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.654750	4.781392	4.808513	4.625231	F 4.464961	4.677438
Stddev	.015469	.032361	.041131	.016798	.014527	.038672
%RSD	.3323201	.6768168	.8553880	.3631710	.3253564	.8267747
#1	4.660294	4.776116	4.765572	4.633616	4.462948	4.665480
#2	4.637273	4.751993	4.812410	4.605891	4.451545	4.646157
#3	4.666682	4.816067	4.847557	4.636184	4.480389	4.720676

Elem	Sr4077
Units	ppm
Avg	4.774811
Stddev	.013192
%RSD	.2762883
#1	4.763821
#2	4.789441
#3	4.771171

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6563.271	109619.2	11689.00	5694.827	7403.714
Stddev	20.392	118.7	71.00	22.757	21.148
%RSD	.3106952	.1082391	.6074426	.3996116	.2856411
#1	6541.657	109624.1	11635.94	5683.539	7384.782
#2	6582.167	109735.3	11769.66	5721.022	7426.538
#3	6565.990	109498.1	11661.39	5679.921	7399.822

Sample Name: CCB02 Acquired: 9/9/2025 14:19:32 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.007860	-.005150	-.003296	-.005241	-.006154	-.012105	-.016227
Stddev	.001195	.000906	.000741	.001111	.001872	.004701	.000637
%RSD	15.20787	17.58860	22.47396	21.19484	30.42305	38.83277	3.922619

#1	-.009004	-.006160	-.003342	-.006118	-.004585	-.007114	-.015609
#2	-.006619	-.004408	-.002534	-.005614	-.005651	-.012752	-.016881
#3	-.007957	-.004883	-.004013	-.003992	-.008226	-.016449	-.016191

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000408	-.002879	-.062292	-.001556	-.003594	-.001762	-.008806
Stddev	.000084	.000059	.003000	.000283	.000078	.000138	.003453
%RSD	20.51197	2.050734	4.816516	18.17127	2.155954	7.835181	39.21940

#1	-.000312	-.002813	-.065749	-.001650	-.003655	-.001736	-.005573
#2	-.000444	-.002925	-.060362	-.001781	-.003507	-.001639	-.008399
#3	-.000467	-.002900	-.060765	-.001239	-.003622	-.001911	-.012444

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004003	-.030584	-.003313	-.001342	-.007932	-.002573	-.004142
Stddev	.000433	.029479	.000168	.000133	.026931	.001519	.000125
%RSD	10.82175	96.38936	5.059678	9.916173	339.5244	59.05716	3.020883

#1	-.003684	-.018194	-.003197	-.001495	-.038755	-.001128	-.004244
#2	-.003828	-.064236	-.003505	-.001280	.003906	-.002433	-.004002
#3	-.004496	-.009321	-.003237	-.001251	.011053	-.004157	-.004179

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.061999	-.005215	-.006581	-.000405	-.006252	.0006804	-.004475
Stddev	.029460	.000459	.000347	.000640	.000161	.0097758	.000242
%RSD	47.51620	8.793563	5.274712	157.8929	2.572289	1436.867	5.410884

#1	-.089192	-.005071	-.006190	-.001052	-.006434	.0004362	-.004676
#2	-.066102	-.004846	-.006855	-.000391	-.006192	.0105760	-.004206
#3	-.030703	-.005728	-.006697	.000227	-.006130	-.008971	-.004542

Sample Name: CCB02 Acquired: 9/9/2025 14:19:32 Type: Unk
Method: 6010-200.7 NEW(v151) 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	F -.010590	-.009427	-.006619
Stddev	.001524	.000649	.000048
%RSD	14.39071	6.881896	.7180231
#1	-.012333	-.009748	-.006624
#2	-.009514	-.008680	-.006569
#3	-.009921	-.009852	-.006664

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6558.420	112272.6	11481.86	5847.046	7748.495
Stddev	5.017	555.2	42.57	37.999	7.078
%RSD	.0764983	.4944751	.3707185	.6498846	.0913519
#1	6556.749	112429.0	11433.32	5827.248	7753.169
#2	6564.059	112732.7	11499.42	5823.034	7751.964
#3	6554.452	111656.0	11512.83	5890.856	7740.351

Sample Name: Q3030-01 Acquired: 9/9/2025 14:27:59 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.007905	-.011714	.0708642	-.003442	-.005880	.1189055	.2205884
Stddev	.000613	.001108	.0005663	.001416	.002829	.0027115	.0004353
%RSD	7.758545	9.454580	.7990772	41.13813	48.10912	2.280364	.1973372

#1	-.008529	-.011356	.0712814	-.004822	-.008718	.1183054	.2205696
#2	-.007303	-.012957	.0710916	-.003513	-.005863	.1218667	.2201629
#3	-.007885	-.010831	.0702196	-.001992	-.003060	.1165443	.2210329

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000587	-.003332	.5866690	-.001030	-.003813	-.000850	.0305884
Stddev	.000066	.000045	.0029509	.000242	.000033	.000226	.0021620
%RSD	11.21051	1.352830	.5029936	23.54138	.8767256	26.54218	7.067958

#1	-.000605	-.003282	.5870557	-.001068	-.003848	-.000802	.0308934
#2	-.000514	-.003369	.5835438	-.000770	-.003812	-.001096	.0282901
#3	-.000642	-.003344	.5894075	-.001250	-.003781	-.000653	.0325816

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002348	-.019698	-.002253	-.001630	369.3203	.0001886	.1322692
Stddev	.000215	.019425	.000396	.000146	5.5882	.0026134	.0003545
%RSD	9.134952	98.61158	17.56310	8.959824	1.513111	1385.828	.2679909

#1	-.002374	-.012894	-.001856	-.001618	365.0472	-.002543	.1320765
#2	-.002549	-.004591	-.002257	-.001782	367.2693	.000444	.1326783
#3	-.002122	-.041609	-.002647	-.001490	375.6442	.002665	.1320528

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1828416	.0191310	-.006371	-.018290	-.006581	.2673972	.0824788
Stddev	.0244705	.0007486	.000206	.000169	.000633	.0064508	.0013478
%RSD	13.38345	3.912832	3.239927	.9252578	9.617292	2.412425	1.634092

#1	.1588113	.0197193	-.006552	-.018094	-.005930	.2711042	.0814487
#2	.2077298	.0182884	-.006146	-.018381	-.006618	.2599485	.0840041
#3	.1819839	.0193852	-.006415	-.018393	-.007194	.2711389	.0819835

Sample Name: Q3030-01 Acquired: 9/9/2025 14:27:59 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.1923629	-.014696	.0250112
Stddev	.0042662	.002185	.0000801
%RSD	2.217766	14.87028	.3204741
#1	.1941761	-.015303	.0249775
#2	.1954230	-.012271	.0249535
#3	.1874897	-.016514	.0251027

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6202.711	102171.6	11661.87	5391.224	6909.630
Stddev	17.550	198.2	77.75	28.790	18.811
%RSD	.2829363	.1939550	.6666831	.5340111	.2722375
#1	6220.024	102152.8	11585.85	5394.396	6922.782
#2	6203.175	102378.5	11741.24	5360.980	6918.025
#3	6184.934	101983.5	11658.53	5418.297	6888.084

Sample Name: Q3032-02 Acquired: 9/9/2025 14:32:24 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.007514	-.012399	-.005137	-.000769	-.004433	.1038083	.1093276
Stddev	.000771	.001040	.000909	.003593	.000954	.0045968	.0007306
%RSD	10.26025	8.387294	17.70454	466.9972	21.51400	4.428153	.6682402

#1	-.007475	-.011269	-.004479	.000829	-.004139	.1090987	.1089834
#2	-.008304	-.012614	-.004757	.001747	-.003661	.1015362	.1101667
#3	-.006764	-.013315	-.006174	-.004885	-.005499	.1007900	.1088327

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000511	-.002896	39.12297	-.001573	.0047780	.0031503	.0340019
Stddev	.000042	.000029	.07802	.000115	.0000860	.0000913	.0029975
%RSD	8.195489	.9915719	.1994251	7.320837	1.799246	2.898986	8.815670

#1	-.000557	-.002921	39.20113	-.001702	.0046938	.0030614	.0373318
#2	-.000502	-.002865	39.04509	-.001482	.0047746	.0032439	.0331548
#3	-.000475	-.002904	39.12267	-.001533	.0048656	.0031455	.0315191

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9480159	7.277023	.0017346	-.001578	369.0036	-.002995	.0305543
Stddev	.0038537	.034998	.0002994	.000208	2.5483	.002041	.0002246
%RSD	.4065057	.4809368	17.25910	13.16919	.6905894	68.14085	.7352005

#1	.9486215	7.257172	.0020789	-.001734	368.7131	-.001528	.0306454
#2	.9438952	7.256463	.0015354	-.001342	366.6130	-.002131	.0307192
#3	.9515310	7.317433	.0015896	-.001657	371.6847	-.005326	.0302985

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.043135	-.001121	-.006335	-.020578	-.008688	2.382291	.0050437
Stddev	.013011	.000491	.000108	.001019	.001126	.037250	.0018185
%RSD	1.247285	43.82707	1.704748	4.953116	12.95663	1.563617	36.05444

#1	1.029153	-.001003	-.006454	-.021748	-.007586	2.367759	.0031304
#2	1.054885	-.001660	-.006242	-.019879	-.009836	2.424616	.0067496
#3	1.045368	-.000699	-.006310	-.020108	-.008641	2.354497	.0052510

Sample Name: Q3032-02 Acquired: 9/9/2025 14:32:24 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.5090678	-.021510	.1249814
Stddev	.0052619	.001227	.0003319
%RSD	1.033630	5.705027	.2655531

#1	.5051897	-.020486	.1246575
#2	.5150575	-.021174	.1253207
#3	.5069563	-.022870	.1249659

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6309.534	106235.6	11906.84	5555.007	6989.706
Stddev	11.087	488.0	135.67	25.350	9.802
%RSD	.1757135	.4593391	1.139415	.4563389	.1402370

#1	6318.056	105724.6	11795.02	5526.191	6991.087
#2	6313.546	106285.5	12057.76	5564.962	6998.745
#3	6297.000	106696.7	11867.74	5573.868	6979.287

Sample Name: Q3032-05 Acquired: 9/9/2025 14:36:49 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.008569	-.013803	.0012962	-.002164	-.006233	.0750939	.1636887
Stddev	.002618	.001095	.0012271	.000585	.001173	.0060023	.0000370
%RSD	30.55812	7.932085	94.66805	27.05381	18.82079	7.993081	.0226291

#1	-.010859	-.014716	.0024915	-.001661	-.007180	.0817121	.1637076
#2	-.005714	-.014105	.0000396	-.002806	-.006599	.0700023	.1637126
#3	-.009133	-.012590	.0013576	-.002024	-.004921	.0735673	.1636461

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000543	-.002784	19.85754	-.000485	.0047013	.0080942	.0287920
Stddev	.000035	.000047	.04008	.001124	.0001055	.0001062	.0048838
%RSD	6.508916	1.686897	.2018265	231.5631	2.243145	1.312595	16.96232

#1	-.000584	-.002759	19.81772	-.001035	.0046297	.0080136	.0330209
#2	-.000522	-.002838	19.85703	.000808	.0048224	.0082146	.0234467
#3	-.000523	-.002755	19.89787	-.001228	.0046518	.0080544	.0299085

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6695383	2.579330	.0006519	-.001981	402.3893	-.005292	.0818571
Stddev	.0045202	.019970	.0003035	.000127	2.7063	.002139	.0004682
%RSD	.6751232	.7742238	46.55720	6.407755	.6725580	40.42605	.5719791

#1	.6716719	2.557589	.0008945	-.002126	402.3383	-.003283	.0813232
#2	.6643463	2.596856	.0003116	-.001931	405.1207	-.007541	.0820506
#3	.6725969	2.583546	.0007496	-.001887	399.7088	-.005052	.0821976

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.218304	.0074623	-.006389	-.019559	-.007311	1.461230	.0125632
Stddev	.044289	.0007045	.000147	.000510	.001190	.002363	.0004905
%RSD	3.635297	9.440549	2.308200	2.605684	16.28070	.1616856	3.903905

#1	1.176213	.0066589	-.006506	-.019856	-.006703	1.459636	.0129367
#2	1.214193	.0077535	-.006223	-.019851	-.006547	1.460109	.0120077
#3	1.264504	.0079744	-.006437	-.018971	-.008682	1.463944	.0127450

Sample Name: Q3032-05 Acquired: 9/9/2025 14:36:49 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.4097871	-.018791	.0758679
Stddev	.0064454	.000792	.0004015
%RSD	1.572867	4.215396	.5292056

#1	.4166805	-.018895	.0754166
#2	.4039105	-.019526	.0760018
#3	.4087704	-.017952	.0761854

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6212.462	105791.7	12096.50	5527.872	6878.891
Stddev	4.286	271.0	28.24	17.386	5.771
%RSD	.0689909	.2561464	.2334588	.3145097	.0838875

#1	6207.514	105478.8	12078.31	5532.583	6872.238
#2	6215.042	105943.6	12129.04	5542.417	6882.533
#3	6214.830	105952.6	12082.17	5508.617	6881.903

Sample Name: Q3045-05 Acquired: 9/9/2025 14:41:13 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.001696	-.013628	-.007109	-.002354	-.003317	-.008457	.0232308
Stddev	.001862	.002367	.000779	.002566	.000737	.005687	.0009209
%RSD	109.7261	17.37181	10.95641	108.9947	22.21155	67.24193	3.964022

#1	-.003729	-.010895	-.006284	-.005156	-.003079	-.002484	.0225791
#2	-.000075	-.015007	-.007212	-.001789	-.004144	-.009082	.0242843
#3	-.001286	-.014983	-.007831	-.000118	-.002729	-.013806	.0228290

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000557	-.003379	.2881206	.6606064	-.003283	.0004017	.0235921
Stddev	.000010	.000051	.0097272	.0050093	.000072	.0003133	.0033435
%RSD	1.845141	1.523175	3.376092	.7582930	2.206749	77.99795	14.17217

#1	-.000568	-.003337	.2865370	.6594250	-.003254	.0003969	.0197381
#2	-.000555	-.003363	.2792824	.6562934	-.003366	.0007173	.0253216
#3	-.000548	-.003437	.2985425	.6661009	-.003230	.0000908	.0257166

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0057346	3.155327	-.000753	-.001642	376.3239	-.003599	.0339667
Stddev	.0002527	.035183	.000082	.000254	3.2523	.001693	.0002122
%RSD	4.405864	1.115050	10.84059	15.45836	.8642302	47.02927	.6246015

#1	.0060081	3.122066	-.000763	-.001897	374.7232	-.004353	.0338919
#2	.0055100	3.151755	-.000830	-.001389	374.1822	-.004784	.0342061
#3	.0056856	3.192161	-.000667	-.001640	380.0663	-.001660	.0338021

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.080507	.0324595	-.006119	-.018668	-.007025	.1367274	.0002890
Stddev	.026540	.0002785	.000099	.000263	.000313	.0087354	.0011523
%RSD	1.275659	.8579647	1.625758	1.409432	4.454772	6.388908	398.7288

#1	2.104012	.0324754	-.006118	-.018958	-.007151	.1284490	-.000714
#2	2.051724	.0321734	-.006219	-.018601	-.006669	.1358756	.001548
#3	2.085785	.0327297	-.006020	-.018445	-.007255	.1458574	.000034

Sample Name: Q3045-05 Acquired: 9/9/2025 14:41:13 Type: Unk
Method: 6010-200.7 NEW(v151) 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	5.221572	-.016363	-.004845
Stddev	.030877	.000440	.000091
%RSD	.5913375	2.690696	1.873682

#1	5.257122	-.015965	-.004760
#2	5.201443	-.016836	-.004834
#3	5.206151	-.016289	-.004940

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6402.682	107064.0	12038.44	5634.486	7194.324
Stddev	13.308	389.1	41.02	9.201	21.035
%RSD	.2078546	.3634273	.3407739	.1633022	.2923788

#1	6391.317	106996.6	11991.92	5634.155	7173.363
#2	6417.322	107482.4	12053.95	5625.455	7215.432
#3	6399.406	106713.1	12069.45	5643.849	7194.178

Sample Name: Q3046-02 Acquired: 9/9/2025 14:45:38 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.008731	-.012212	-.008684	-.000505	-.003972	.4980960	.1439017
Stddev	.000526	.003342	.000526	.003621	.000932	.0192689	.0010239
%RSD	6.026044	27.36440	6.062309	717.1154	23.47853	3.868503	.7114999

#1	-.008142	-.008440	-.008084	.003575	-.004408	.4807003	.1438074
#2	-.009155	-.013393	-.009071	-.001752	-.004606	.4947799	.1449695
#3	-.008897	-.014803	-.008896	-.003338	-.002901	.5188076	.1429283

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000634	-.003390	294.7441	.0036332	-.003835	-.000415	.0057636
Stddev	.000018	.000070	1.1709	.0002053	.000097	.000313	.0198450
%RSD	2.850461	2.061660	.3972508	5.650475	2.532710	75.38024	344.3185

#1	-.000631	-.003338	293.4640	.0037759	-.003940	-.000397	-.004670
#2	-.000617	-.003469	295.7609	.0037258	-.003816	-.000111	-.006689
#3	-.000653	-.003362	295.0075	.0033979	-.003748	-.000736	.028649

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001966	-.000093	-.003313	-.002051	537.0353	-.001818	.0031129
Stddev	.000723	.023870	.000209	.000227	3.7139	.001006	.0003713
%RSD	36.75064	25608.95	6.302191	11.07142	.6915472	55.31719	11.92632

#1	-.002642	-.024819	-.003465	-.001856	541.1531	-.001718	.0034847
#2	-.002051	.022817	-.003075	-.001997	536.0134	-.000866	.0031117
#3	-.001205	.001722	-.003399	-.002300	533.9393	-.002870	.0027422

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.543786	.0194250	-.004232	-.013850	-.019897	2.847420	.0086390
Stddev	.046108	.0006483	.000149	.000310	.001369	.030506	.0003967
%RSD	1.301099	3.337452	3.514671	2.237690	6.879257	1.071354	4.592357

#1	3.578930	.0193858	-.004083	-.014037	-.020468	2.882435	.0089138
#2	3.560849	.0200920	-.004380	-.014022	-.018336	2.833244	.0081842
#3	3.491578	.0187972	-.004235	-.013493	-.020888	2.826582	.0088191

Sample Name: Q3046-02 Acquired: 9/9/2025 14:45:38 Type: Unk
Method: 6010-200.7 NEW(v151) 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	7.047786	-.054283	2.653898
Stddev	.054696	.000283	.025963
%RSD	.7760686	.5221760	.9783142
#1	7.110902	-.054596	2.640420
#2	7.014251	-.054044	2.637446
#3	7.018206	-.054209	2.683829

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5863.864	100194.9	11641.34	5194.529	6427.021
Stddev	19.081	768.3	78.17	2.576	21.553
%RSD	.3253928	.7668178	.6715016	.0495947	.3353550
#1	5844.805	99617.9	11706.85	5192.986	6402.140
#2	5863.819	99899.8	11554.81	5193.097	6438.963
#3	5882.966	101067.1	11662.36	5197.503	6439.961

Sample Name: Q3050-01 Acquired: 9/9/2025 14:50:11 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0180674	-.011290	-.010059	.0014201	.0310747	.2011046
Stddev	.0046369	.001249	.000609	.0007599	.0011562	.0114322
%RSD	25.66468	11.06686	6.049734	53.51073	3.720858	5.684684

#1	.0179103	-.012731	-.010065	.0022864	.0324069	.2017425
#2	.0227810	-.010516	-.009448	.0008664	.0303325	.1893669
#3	.0135110	-.010622	-.010665	.0011075	.0304845	.2122045

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1605824	-.000878	-.003292	233.9992	.0003001	.0065727
Stddev	.0067655	.000045	.000070	6.2236	.0003169	.0001835
%RSD	4.213121	5.128701	2.114231	2.659665	105.6043	2.791491

#1	.1529203	-.000886	-.003291	226.8869	.0003759	.0065228
#2	.1630939	-.000919	-.003223	236.6639	.0005722	.0067759
#3	.1657331	-.000830	-.003363	238.4467	-.000048	.0064193

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0085186	.2623076	4.564846	27.41705	.0157657	-.001221
Stddev	.0004920	.0061911	.120137	.68358	.0003348	.000166
%RSD	5.775995	2.360238	2.631792	2.493280	2.123888	13.62848

#1	.0089852	.2666213	4.428436	26.63269	.0159297	-.001029
#2	.0080046	.2650877	4.611209	27.73260	.0159869	-.001314
#3	.0085661	.2552138	4.654894	27.88587	.0153805	-.001321

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	496.6261	-.001707	.3269052	116.6749	.0889618	.0012383
Stddev	4.1716	.002151	.0025367	1.0223	.0034960	.0002223
%RSD	.8399946	126.0482	.7759894	.8762123	3.929765	17.94939

#1	499.7778	-.000119	.3242353	116.1516	.0853574	.0010425
#2	491.8955	-.004155	.3292836	117.8529	.0891898	.0011924
#3	498.2050	-.000846	.3271969	116.0201	.0923382	.0014799

Sample Name: Q3050-01 Acquired: 9/9/2025 14:50:11 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.018148	-.009923	4.376892	2.194891	F 42.77337	-.050616
Stddev	.000253	.001747	.037990	.012384	.28754	.000875
%RSD	1.393037	17.60978	.8679690	.5642261	.6722496	1.729465

#1	-.018373	-.009887	4.376840	2.197273	42.68004	-.049683
#2	-.018196	-.008194	4.414909	2.205912	43.09599	-.051419
#3	-.017874	-.011688	4.338928	2.181489	42.54409	-.050747

Elem	Sr4077
Units	ppm
Avg	.6562954
Stddev	.0181037
%RSD	2.758464

#1	.6354358
#2	.6655419
#3	.6679086

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6046.310	101594.3	11944.84	5255.612	6602.848
Stddev	35.065	733.7	276.71	32.153	33.935
%RSD	.5799448	.7221919	2.316554	.6117846	.5139501

#1	6043.095	101741.3	12261.14	5282.116	6605.746
#2	6012.963	100798.3	11825.88	5219.844	6567.557
#3	6082.872	102243.4	11747.50	5264.875	6635.242

Sample Name: Q3045-06 Acquired: 9/9/2025 14:54:29 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0406662	-.012946	-.004949	-.001157	.0121827	-.004275
Stddev	.0009391	.000577	.002228	.002733	.0095318	.007123
%RSD	2.309293	4.460198	45.02052	236.2134	78.24028	166.6250

#1	.0410830	-.012282	-.006311	-.003838	.0118121	.000022
#2	.0413247	-.013331	-.006159	.001625	.0028416	-.012497
#3	.0395908	-.013224	-.002378	-.001257	.0218943	-.000350

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0208317	-.000617	-.002954	2.559990	5.216001	.0006927
Stddev	.0004583	.000030	.000027	.027040	.556011	.0000646
%RSD	2.199748	4.785477	.9193526	1.056260	10.65972	9.326885

#1	.0203090	-.000583	-.002982	2.530012	5.350566	.0007630
#2	.0211642	-.000639	-.002951	2.567419	5.692380	.0006359
#3	.0210220	-.000627	-.002928	2.582539	4.605057	.0006792

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0089684	.0155395	.0814014	26.25042	.0109738	-.002067
Stddev	.0003371	.0057651	.0010114	.16058	.0001561	.000247
%RSD	3.758906	37.09998	1.242538	.6117221	1.422610	11.93117

#1	.0092710	.0221297	.0802516	26.06828	.0109345	-.001783
#2	.0090293	.0130585	.0821538	26.31142	.0111458	-.002190
#3	.0086050	.0114301	.0817989	26.37157	.0108411	-.002228

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	801.0539	-.009682	.0269063	20.02240	.2299140	-.002204
Stddev	73.0081	.001588	.0035631	1.80737	.0033158	.000156
%RSD	9.114009	16.39689	13.24247	9.026760	1.442180	7.096970

#1	811.7985	-.008787	.0276895	20.11938	.2312920	-.002071
#2	868.0944	-.008743	.0300126	21.77934	.2323186	-.002164
#3	723.2690	-.011515	.0230168	18.16849	.2261315	-.002376

Sample Name: Q3045-06 Acquired: 9/9/2025 14:54:29 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.012354	-.008404	1.077968	-.001525	F 43.48201	-.010625
Stddev	.000348	.001730	.102252	.001074	.15113	.000293
%RSD	2.820537	20.58061	9.485659	70.42938	.3475637	2.756446

#1	-.012547	-.007083	1.076102	-.002745	43.65295	-.010423
#2	-.011952	-.007767	1.181141	-.001111	43.42697	-.010490
#3	-.012563	-.010362	.976662	-.000720	43.36612	-.010961

Elem	Sr4077
Units	ppm
Avg	.0037012
Stddev	.0000844
%RSD	2.279046

#1	.0036561
#2	.0037985
#3	.0036489

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6045.792	100782.5	11615.73	5294.442	6721.480
Stddev	41.001	9438.5	29.07	501.814	43.768
%RSD	.6781822	9.365179	.2502753	9.478128	.6511697

#1	5998.633	98335.4	11644.32	5170.742	6672.478
#2	6065.749	92808.6	11616.67	4866.046	6735.267
#3	6072.994	111203.5	11586.20	5846.537	6756.694

Sample Name: Q3051-02 Acquired: 9/9/2025 14:58:52 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.008701	-.011218	-.003422	-.003712	-.007149	.1723940
Stddev	.001348	.004358	.000203	.002633	.001944	.0294535
%RSD	15.49097	38.84489	5.925752	70.93245	27.19852	17.08501

#1	-.009726	-.007505	-.003228	-.001491	-.008103	.1554952
#2	-.007174	-.016016	-.003405	-.003025	-.008432	.1552829
#3	-.009203	-.010135	-.003633	-.006620	-.004912	.2064038

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0408563	-.000505	-.002832	23.41629	-.000799	.0029892
Stddev	.0013749	.000043	.000068	.04696	.000086	.0002210
%RSD	3.365272	8.545364	2.386122	.2005231	10.82011	7.391942

#1	.0403711	-.000513	-.002858	23.43833	-.000748	.0032439
#2	.0397897	-.000459	-.002884	23.44817	-.000751	.0028495
#3	.0424080	-.000544	-.002756	23.36237	-.000899	.0028741

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000830	.1427341	1.042976	9.811056	.0076455	-.001443
Stddev	.000394	.0554803	.000389	.052289	.0001191	.000323
%RSD	47.44208	38.86974	.0373401	.5329635	1.557865	22.38130

#1	-.000434	.1115057	1.042527	9.761657	.0075538	-.001764
#2	-.000835	.1099059	1.043181	9.865822	.0077801	-.001448
#3	-.001221	.2067906	1.043220	9.805691	.0076025	-.001118

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	276.0768	-.003363	.1743090	8.145569	.0349603	-.006853
Stddev	3.3642	.000342	.0003635	.023177	.0002194	.000070
%RSD	1.218559	10.16095	.2085146	.2845290	.6276554	1.027916

#1	273.5971	-.003543	.1744810	8.171304	.0352020	-.006914
#2	274.7271	-.003578	.1745546	8.126343	.0349053	-.006776
#3	279.9062	-.002969	.1738915	8.139059	.0347737	-.006871

Sample Name: Q3051-02 Acquired: 9/9/2025 14:58:52 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.019667	-.003887	2.222610	.0562945	F 15.44629	-.004567
Stddev	.000224	.000729	.061945	.0009455	.17699	.001114
%RSD	1.139252	18.76325	2.787016	1.679571	1.145821	24.40445
#1	-.019746	-.004710	2.204619	.0573288	15.63612	-.005533
#2	-.019840	-.003323	2.171654	.0554747	15.28582	-.003347
#3	-.019414	-.003626	2.291559	.0560798	15.41693	-.004820

Elem	Sr4077
Units	ppm
Avg	.2918512
Stddev	.0002677
%RSD	.0917292
#1	.2921099
#2	.2915753
#3	.2918684

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6518.896	108600.4	12406.34	5667.395	7278.633
Stddev	67.318	98.1	49.64	7.233	81.306
%RSD	1.032654	.0903163	.4001436	.1276248	1.117052
#1	6441.329	108681.9	12459.88	5663.639	7185.456
#2	6562.054	108627.7	12361.83	5662.813	7335.182
#3	6553.306	108491.6	12397.31	5675.733	7315.261

Sample Name: Q3051-02DUP Acquired: 9/9/2025 15:03:13 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.008397	-.014869	-.004495	-.004511	-.005517	.1516714
Stddev	.001507	.002429	.001548	.000540	.001634	.0042133
%RSD	17.94925	16.33297	34.44318	11.96823	29.62309	2.777886

#1	-.009391	-.012074	-.006200	-.004770	-.004995	.1487058
#2	-.006663	-.016066	-.003177	-.004874	-.004207	.1564942
#3	-.009137	-.016466	-.004108	-.003891	-.007348	.1498143

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0349156	-.000489	-.002831	21.83160	-.000679	.0027250
Stddev	.0003010	.000062	.000027	.05846	.000182	.0001946
%RSD	.8619499	12.61271	.9400824	.2677685	26.81381	7.141677

#1	.0346656	-.000424	-.002848	21.81484	-.000490	.0026962
#2	.0352497	-.000497	-.002845	21.78335	-.000853	.0025464
#3	.0348315	-.000547	-.002800	21.89660	-.000695	.0029324

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001006	.1043624	.9667130	9.157025	.0072010	-.001758
Stddev	.000066	.0025261	.0023648	.026099	.0001905	.000569
%RSD	6.585646	2.420527	.2446253	.2850214	2.645294	32.35511

#1	-.001031	.1033893	.9693547	9.170856	.0073273	-.001793
#2	-.000931	.1072303	.9647934	9.126921	.0069819	-.002308
#3	-.001057	.1024675	.9659909	9.173299	.0072938	-.001172

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	253.5307	-.003061	.1612724	7.328194	.0327910	-.006722
Stddev	1.9779	.001676	.0009584	.051713	.0010619	.000108
%RSD	.7801431	54.74944	.5942842	.7056705	3.238498	1.600716

#1	255.8132	-.003730	.1612543	7.352573	.0318894	-.006785
#2	252.3216	-.004298	.1603232	7.268797	.0325221	-.006784
#3	252.4572	-.001154	.1622397	7.363211	.0339615	-.006598

Sample Name: Q3051-02DUP Acquired: 9/9/2025 15:03:13 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.020162	-.004066	2.020653	.0530909	F 14.05853	-.004072
Stddev	.000755	.000955	.012577	.0009685	.05029	.000186
%RSD	3.742939	23.48040	.6224165	1.824325	.3577139	4.557759

#1	-.019658	-.002965	2.013613	.0525182	14.01688	-.003979
#2	-.019798	-.004573	2.013172	.0542092	14.04432	-.004286
#3	-.021029	-.004661	2.035173	.0525454	14.11440	-.003951

Elem	Sr4077
Units	ppm
Avg	.2740257
Stddev	.0011086
%RSD	.4045516

#1	.2740974
#2	.2728830
#3	.2750967

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6423.172	109096.5	12233.37	5687.871	7213.557
Stddev	18.892	309.8	18.28	11.186	15.637
%RSD	.2941234	.2839359	.1493934	.1966675	.2167699

#1	6444.776	108739.0	12254.38	5687.568	7230.610
#2	6414.988	109266.2	12221.14	5699.205	7210.172
#3	6409.752	109284.3	12224.60	5676.839	7199.891

Sample Name: Q3051-02LX5 Acquired: 9/9/2025 15:07:34 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.007370	-.011654	-.007496	-.005413	-.008372	.0312522	-.006499
Stddev	.001978	.000807	.001196	.001565	.000395	.0049701	.000809
%RSD	26.84068	6.927587	15.95009	28.90889	4.718187	15.90333	12.44257

#1	-.007201	-.012444	-.006268	-.003624	-.008395	.0302274	-.006188
#2	-.009427	-.010831	-.007565	-.006087	-.007965	.0366549	-.007417
#3	-.005481	-.011687	-.008656	-.006528	-.008754	.0268744	-.005892

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000430	-.003372	5.165344	-.001480	-.002340	-.001650	.0140070
Stddev	.000043	.000038	.013109	.000239	.000027	.000407	.0062639
%RSD	10.01779	1.117259	.2537957	16.15776	1.141752	24.67730	44.71973

#1	-.000473	-.003337	5.172510	-.001308	-.002315	-.001834	.0146471
#2	-.000429	-.003412	5.150214	-.001379	-.002337	-.001183	.0199263
#3	-.000387	-.003368	5.173310	-.001753	-.002368	-.001933	.0074477

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2262110	2.172725	-.001029	-.001607	57.68946	-.004783	.0334964
Stddev	.0013141	.012278	.000075	.000445	.39938	.002643	.0004687
%RSD	.5809073	.5651197	7.332903	27.70640	.6922986	55.25000	1.399236

#1	.2277278	2.158936	-.001116	-.001230	57.84152	-.004727	.0340144
#2	.2254890	2.182474	-.000986	-.002098	57.99048	-.002169	.0333733
#3	.2254162	2.176766	-.000986	-.001493	57.23638	-.007453	.0331015

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.989541	.0008457	-.007297	-.005024	-.009170	.4414720	.0086848
Stddev	.060149	.0002617	.000022	.000456	.000928	.0101286	.0009224
%RSD	3.023249	30.94102	.2992758	9.077745	10.12356	2.294282	10.62069

#1	1.920619	.0010995	-.007313	-.004986	-.008715	.4308238	.0093367
#2	2.016576	.0005768	-.007305	-.004588	-.008557	.4426068	.0076294
#3	2.031429	.0008607	-.007272	-.005498	-.010238	.4509854	.0090883

Sample Name: Q3051-02LX5 Acquired: 9/9/2025 15:07:34 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.259339	-.004173	.0592133
Stddev	.020332	.002546	.0000878
%RSD	.6238177	61.00396	.1482893
#1	3.272974	-.006917	.0592577
#2	3.235969	-.003713	.0592701
#3	3.269072	-.001889	.0591122

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6718.296	112996.0	12020.18	5874.971	7759.200
Stddev	13.394	439.8	66.90	9.735	13.886
%RSD	.1993666	.3892390	.5565936	.1657096	.1789681
#1	6720.812	112577.1	11971.90	5865.218	7759.102
#2	6730.253	112956.6	12096.55	5875.007	7773.136
#3	6703.822	113454.2	11992.08	5884.689	7745.363

Sample Name: CCV03 Acquired: 9/9/2025 15:11:50 Type: Unk
Method: 6010-200.7 NEW(v151) 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	4.750736	5.239182	4.628899	4.778930	4.807182	9.466232	9.519102
Stddev	.008962	.053355	.003787	.009773	.009038	.019507	.191713
%RSD	.1886465	1.018386	.0818072	.2045112	.1880009	.2060647	2.013982

#1	4.755881	5.188146	4.628276	4.782296	4.809114	9.487869	9.594589
#2	4.755941	5.294587	4.625463	4.786576	4.815097	9.460837	9.661582
#3	4.740388	5.234813	4.632959	4.767919	4.797335	9.449991	9.301136

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2342372	2.326108	23.58472	.9403489	2.343821	1.188709	4.752425
Stddev	.0012932	.002669	.04874	.0016311	.002741	.001663	.042419
%RSD	.5520732	.1147246	.2066801	.1734593	.1169352	.1399060	.8925688

#1	.2340072	2.328836	23.64092	.9415266	2.346128	1.189508	4.800800
#2	.2356299	2.323503	23.55383	.9410329	2.340791	1.189822	4.734886
#3	.2330745	2.325985	23.55942	.9384871	2.344543	1.186798	4.721588

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.354154	23.39778	2.332485	1.189162	24.10952	2.375690	2.397281
Stddev	.011814	.02411	.001012	.003317	.12170	.009231	.010722
%RSD	.5018180	.1030507	.0433839	.2789708	.5047717	.3885465	.4472675

#1	2.366909	23.39380	2.333290	1.192978	24.17942	2.385350	2.409093
#2	2.351965	23.42364	2.331349	1.187543	23.96899	2.374761	2.388163
#3	2.343588	23.37591	2.332816	1.186964	24.18015	2.366959	2.394586

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.10071	4.702537	4.777185	4.656908	4.737494	4.691090	4.643147
Stddev	.17578	.025572	.002923	.007513	.012679	.022116	.016279
%RSD	.7293657	.5438004	.0611956	.1613273	.2676376	.4714446	.3506094

#1	24.18596	4.691803	4.779662	4.663525	4.750790	4.707124	4.660260
#2	23.89856	4.731727	4.777932	4.648741	4.736155	4.665859	4.641329
#3	24.21761	4.684081	4.773960	4.658457	4.725538	4.700285	4.627854

Sample Name: CCV03 Acquired: 9/9/2025 15:11:50 Type: Unk
Method: 6010-200.7 NEW(v151) 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	4.626000	4.695759	4.833168
Stddev	.008277	.012047	.016158
%RSD	.1789298	.2565585	.3343111
#1	4.632006	4.708797	4.845502
#2	4.629437	4.693442	4.839125
#3	4.616558	4.685039	4.814877

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6576.539	112322.5	11906.25	5823.661	7404.745
Stddev	12.635	389.2	83.87	30.064	10.334
%RSD	.1921287	.3465013	.7044382	.5162360	.1395547
#1	6587.836	111939.3	11886.70	5789.506	7410.740
#2	6562.894	112310.9	11833.88	5835.362	7392.813
#3	6578.886	112717.4	11998.17	5846.115	7410.683

Sample Name: CCB03 Acquired: 9/9/2025 15:25:32 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.005709	-.012044	.0004706	-.007344	-.006367	-.014380	-.019735
Stddev	.000759	.001750	.0005287	.001008	.000859	.001862	.000361
%RSD	13.29173	14.53403	112.3593	13.72385	13.49046	12.95148	1.831606

#1	-.005143	-.010044	.0003938	-.006278	-.005919	-.012683	-.019600
#2	-.005412	-.012789	-.000016	-.007472	-.007357	-.016372	-.019461
#3	-.006571	-.013298	.001034	-.008282	-.005824	-.014084	-.020145

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000422	-.000428	-.077738	-.001699	-.003859	-.002113	-.005664
Stddev	.000038	.000052	.003658	.000179	.000118	.000101	.001272
%RSD	9.039814	12.26151	4.705674	10.51807	3.052127	4.796694	22.45580

#1	-.000429	-.000450	-.078645	-.001500	-.003935	-.002201	-.006946
#2	-.000380	-.000466	-.080858	-.001752	-.003723	-.002002	-.005642
#3	-.000455	-.000368	-.073712	-.001845	-.003918	-.002136	-.004402

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004896	-.020875	-.003455	-.001667	.1951302	-.004361	.0060438
Stddev	.000185	.007034	.000043	.000514	.0369575	.000913	.0002719
%RSD	3.782715	33.69621	1.247503	30.87043	18.93990	20.92404	4.498275

#1	-.004697	-.013390	-.003416	-.001085	.1545042	-.003695	.0058203
#2	-.005064	-.021888	-.003501	-.002062	.2041295	-.005401	.0063465
#3	-.004925	-.027348	-.003447	-.001853	.2267569	-.003988	.0059646

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2179490	-.009507	-.007537	-.001492	-.007766	-.002256	-.003717
Stddev	.0333121	.000339	.000261	.000126	.000523	.008002	.000201
%RSD	15.28435	3.564902	3.459584	8.472016	6.740335	354.6602	5.401099

#1	.2022069	-.009890	-.007737	-.001434	-.007165	.006341	-.003555
#2	.1954254	-.009381	-.007633	-.001637	-.008014	-.003623	-.003654
#3	.2562147	-.009248	-.007242	-.001406	-.008120	-.009486	-.003941

Sample Name: CCB03 Acquired: 9/9/2025 15:25:32 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.009755	-.006595	-.007449
Stddev	.000628	.001609	.000057
%RSD	6.441176	24.40352	.7630503

#1	-.009060	-.008279	-.007388
#2	-.010282	-.006435	-.007500
#3	-.009923	-.005072	-.007459

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6812.685	115344.0	12068.57	5975.325	8171.311
Stddev	92.759	1425.9	47.38	48.223	110.908
%RSD	1.361569	1.236238	.3925944	.8070379	1.357290

#1	6741.962	116895.7	12029.55	6024.909	8077.534
#2	6917.710	114091.2	12121.29	5928.589	8293.732
#3	6778.384	115045.1	12054.86	5972.478	8142.668

Sample Name: Q3051-02MS Acquired: 9/9/2025 15:29:49 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.7509827	2.012226	.8550480	1.896928	.7419220	2.019136
Stddev	.0015327	.031141	.0023136	.008244	.0009270	.003375
%RSD	.2040919	1.547570	.2705797	.4346100	.1249455	.1671629

#1	.7515379	2.045651	.8524295	1.900508	.7409141	2.017533
#2	.7492498	2.006995	.8568159	1.887499	.7421139	2.023014
#3	.7521604	1.984032	.8558986	1.902777	.7427380	2.016862

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2319498	.1710693	.1773214	29.07678	.3692663	.1875566
Stddev	.0005994	.0015177	.0002997	.06916	.0014195	.0003018
%RSD	.2584250	.8871624	.1690273	.2378697	.3844210	.1609164

#1	.2322279	.1728105	.1771138	29.13287	.3708525	.1872129
#2	.2312618	.1703703	.1776650	28.99950	.3681154	.1877786
#3	.2323597	.1700271	.1771854	29.09798	.3688311	.1876782

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2699094	3.069472	1.428341	13.57894	.4642794	.0653244
Stddev	.0001443	.019210	.003746	.04452	.0002199	.0000808
%RSD	.0534624	.6258288	.2622398	.3278893	.0473570	.1236795

#1	.2698608	3.051653	1.432596	13.63034	.4642786	.0654149
#2	.2697957	3.089821	1.425543	13.55388	.4644996	.0652596
#3	.2700718	3.066941	1.426884	13.55258	.4640599	.0652987

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	331.6306	.2720055	.4140469	19.37979	.2903360	.3850445
Stddev	6.5474	.0009595	.0016449	.17400	.0024890	.0006234
%RSD	1.974302	.3527452	.3972722	.8978458	.8572967	.1619045

#1	332.6038	.2724260	.4157053	19.19196	.2931583	.3843641
#2	324.6511	.2709076	.4140195	19.41194	.2893952	.3855882
#3	337.6369	.2726829	.4124158	19.53548	.2884545	.3851813

Sample Name: Q3051-02MS Acquired: 9/9/2025 15:29:49 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.6220119	.1802309	3.519730	5.459920	F 18.99022	.1846284
Stddev	.0016598	.0015649	.012513	.017565	.05865	.0011464
%RSD	.2668443	.8682978	.3555216	.3217040	.3088455	.6209330
#1	.6222475	.1816564	3.518517	5.477937	19.05119	.1851853
#2	.6235413	.1785564	3.532806	5.442846	18.93420	.1853900
#3	.6202469	.1804798	3.507867	5.458976	18.98526	.1833099

Elem	Sr4077
Units	ppm
Avg	.5402025
Stddev	.0002788
%RSD	.0516017
#1	.5398846
#2	.5403180
#3	.5404050

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6248.003	106969.3	12038.46	5608.721	6942.674
Stddev	9.482	271.1	104.42	2.250	11.864
%RSD	.1517550	.2533973	.8673601	.0401249	.1708859
#1	6241.929	106671.1	11918.27	5608.135	6938.397
#2	6243.151	107200.7	12090.30	5606.821	6933.542
#3	6258.929	107036.1	12106.82	5611.206	6956.084

Sample Name: Q3051-02MSD Acquired: 9/9/2025 15:33:55 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.7825298	1.979074	.8782410	1.991636	.7720219	2.249706
Stddev	.0019659	.071833	.0033693	.005970	.0029425	.010077
%RSD	.2512212	3.629642	.3836443	.2997595	.3811454	.4479202
#1	.7802678	1.901002	.8752619	1.986921	.7725297	2.245528
#2	.7838259	1.993848	.8775636	1.989638	.7688586	2.261200
#3	.7834956	2.042372	.8818976	1.998349	.7746775	2.242391
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2863020	.1763355	.1833544	47.26905	.3813396	.1989994
Stddev	.0041139	.0006990	.0005516	.19586	.0020726	.0004979
%RSD	1.436925	.3963763	.3008609	.4143514	.5434942	.2501946
#1	.2872931	.1769528	.1829742	47.26815	.3793938	.1986858
#2	.2898298	.1764771	.1831019	47.46536	.3811059	.1987389
#3	.2817830	.1755766	.1839871	47.07365	.3835191	.1995735
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2754594	3.364101	2.240320	21.26832	.4864155	.0671785
Stddev	.0006747	.013010	.018378	.06835	.0009382	.0003681
%RSD	.2449346	.3867408	.8203390	.3213516	.1928834	.5479894
#1	.2757077	3.357121	2.250257	21.26605	.4853885	.0668681
#2	.2746957	3.379112	2.251590	21.33778	.4866305	.0670821
#3	.2759747	3.356070	2.219113	21.20114	.4872276	.0675852
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	558.1957	.2833117	.5729516	27.57574	.3321394	.3979726
Stddev	6.3043	.0020946	.0010666	.14961	.0016341	.0011679
%RSD	1.129399	.7393198	.1861639	.5425526	.4919855	.2934702
#1	552.5329	.2826893	.5720145	27.48186	.3338859	.3967610
#2	557.0657	.2815989	.5727279	27.74827	.3318847	.3980653
#3	564.9886	.2856470	.5741123	27.49707	.3306477	.3990914

Sample Name: Q3051-02MSD Acquired: 9/9/2025 15:33:55 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.6370273	.1890433	5.479791	5.722630	F 31.21483	.2051465
Stddev	.0030468	.0025043	.058649	.025235	.17376	.0022678
%RSD	.4782848	1.324741	1.070283	.4409701	.5566452	1.105437
#1	.6338000	.1913797	5.429856	5.706118	31.06702	.2059188
#2	.6374281	.1893507	5.465140	5.710093	31.17123	.2069273
#3	.6398539	.1863994	5.544377	5.751678	31.40623	.2025935

Elem	Sr4077
Units	ppm
Avg	.7888198
Stddev	.0013426
%RSD	.1702091
#1	.7872726
#2	.7896794
#3	.7895072

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6216.020	104687.2	12167.19	5439.307	6832.231
Stddev	12.581	352.8	51.51	3.059	18.840
%RSD	.2023910	.3370091	.4233314	.0562346	.2757568
#1	6226.666	104993.7	12111.99	5435.842	6849.782
#2	6219.256	104766.4	12175.62	5441.633	6834.587
#3	6202.137	104301.5	12213.96	5440.446	6812.323

Sample Name: Q3051-02A Acquired: 9/9/2025 15:38:01 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.7500581	1.992152	.8747678	1.902203	.7522271	1.986483
Stddev	.0038692	.054059	.0014357	.006863	.0013565	.008609
%RSD	.5158514	2.713613	.1641265	.3607721	.1803347	.4333768

#1	.7512020	2.041983	.8749807	1.909845	.7522615	1.990435
#2	.7532263	1.999797	.8760852	1.896567	.7535661	1.976607
#3	.7457459	1.934678	.8732375	1.900197	.7508537	1.992406

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2209853	.1763325	.1801859	23.37213	.3793416	.1891242
Stddev	.0015744	.0008637	.0005494	.03347	.0007970	.0004604
%RSD	.7124538	.4897902	.3049199	.1431940	.2100920	.2434418

#1	.2192091	.1773221	.1807892	23.34837	.3799781	.1896483
#2	.2222090	.1759448	.1800541	23.41040	.3784478	.1887851
#3	.2215378	.1757306	.1797143	23.35760	.3795990	.1889390

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2739969	3.120157	1.179443	11.27058	.4692903	.0689906
Stddev	.0009997	.022899	.001120	.04355	.0011172	.0005783
%RSD	.3648540	.7338920	.0949949	.3863753	.2380629	.8381715

#1	.2751351	3.099809	1.178758	11.30686	.4705103	.0689295
#2	.2735946	3.115708	1.180736	11.28259	.4690433	.0695970
#3	.2732611	3.144953	1.178835	11.22229	.4683172	.0684453

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	269.4090	.2791217	.3781213	17.53265	.2873932	.3914666
Stddev	2.4673	.0014698	.0018308	.03990	.0011423	.0014101
%RSD	.9158295	.5265913	.4841873	.2275817	.3974797	.3602164

#1	267.1442	.2786571	.3775834	17.50989	.2877161	.3930948
#2	269.0445	.2807677	.3801608	17.50934	.2883393	.3906425
#3	272.0383	.2779403	.3766196	17.57873	.2861242	.3906624

Sample Name: Q3051-02A Acquired: 9/9/2025 15:38:01 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.6358834	.1795283	3.008274	5.461484	F 14.58692	.1851101
Stddev	.0014771	.0023521	.033203	.031839	.13856	.0020286
%RSD	.2322886	1.310147	1.103707	.5829820	.9498783	1.095876

#1	.6371928	.1815924	2.970526	5.496642	14.72619	.1865925
#2	.6361753	.1800249	3.021342	5.453214	14.58548	.1859395
#3	.6342822	.1769676	3.032955	5.434595	14.44909	.1827982

Elem	Sr4077
Units	ppm
Avg	.4692583
Stddev	.0004644
%RSD	.0989613

#1	.4687500
#2	.4693644
#3	.4696604

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6385.610	105854.3	12021.34	5580.857	7125.469
Stddev	13.955	283.9	34.67	5.495	18.805
%RSD	.2185312	.2682260	.2883892	.0984567	.2639085

#1	6375.836	106085.8	11989.29	5582.817	7113.546
#2	6379.403	105939.5	12058.14	5585.104	7115.715
#3	6401.591	105537.5	12016.58	5574.651	7147.147

Sample Name: PB169589TBRE Acquired: 9/9/2025 15:49:50 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.011450	-.013665	.0007167	-.005552	-.005532	-.005406	-.020109
Stddev	.000761	.002425	.0014038	.002592	.000468	.006644	.000887
%RSD	6.649832	17.74758	195.8604	46.68294	8.466650	122.8985	4.409548

#1	-.012170	-.015716	.0001957	-.003230	-.005995	.000193	-.019094
#2	-.011527	-.010988	-.000352	-.005078	-.005059	-.003663	-.020734
#3	-.010653	-.014291	.002307	-.008349	-.005543	-.012748	-.020499

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000568	.0001876	-.030624	-.001276	-.003953	-.001775	.0222846
Stddev	.000011	.0000296	.003965	.000251	.000078	.000354	.0078315
%RSD	1.890612	15.75476	12.94576	19.71196	1.968761	19.93259	35.14290

#1	-.000556	.0002040	-.027918	-.001565	-.004029	-.001527	.0201004
#2	-.000574	.0002053	-.028780	-.001107	-.003957	-.002180	.0309763
#3	-.000575	.0001535	-.035175	-.001155	-.003873	-.001618	.0157772

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001770	-.034215	-.002472	-.001620	340.9964	-.003988	.0096224
Stddev	.000225	.009754	.000306	.000212	1.8837	.001541	.0000530
%RSD	12.72825	28.50657	12.39521	13.09763	.5524183	38.63016	.5505409

#1	-.001612	-.040352	-.002351	-.001518	342.9202	-.002774	.0096730
#2	-.001671	-.022968	-.002821	-.001479	339.1555	-.003468	.0096268
#3	-.002028	-.039325	-.002245	-.001864	340.9135	-.005721	.0095673

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.298010	-.010486	-.007338	-.019117	-.007887	.0094053	-.000803
Stddev	.024679	.000431	.000153	.000835	.002194	.0077684	.001627
%RSD	8.281419	4.109445	2.089576	4.365339	27.81910	82.59508	202.6225

#1	-.311082	-.010373	-.007481	-.018582	-.007864	.0045490	.000924
#2	-.269544	-.010122	-.007176	-.020079	-.010093	.0053021	-.001026
#3	-.313404	-.010962	-.007358	-.018691	-.005705	.0183649	-.002306

Sample Name: PB169589TBRE Acquired: 9/9/2025 15:49:50 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0406659	-.015641	-.007626
Stddev	.0041663	.001059	.000048
%RSD	10.24526	6.772447	.6279359
#1	.0368470	-.014726	-.007635
#2	.0451092	-.016801	-.007574
#3	.0400414	-.015397	-.007669

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6369.679	107465.6	11840.95	5643.858	7090.293
Stddev	5.248	396.0	41.39	7.057	10.511
%RSD	.0823909	.3685071	.3495572	.1250387	.1482454
#1	6374.733	107306.8	11794.31	5639.803	7100.083
#2	6370.047	107916.4	11855.23	5652.007	7091.611
#3	6364.256	107173.7	11873.31	5639.765	7079.185

Sample Name: PB169621TB Acquired: 9/9/2025 15:54:17 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.008299	-.014340	.0016683	-.005534	-.006293	-.010218	-.020928
Stddev	.000803	.001290	.0003740	.000424	.002693	.008939	.000122
%RSD	9.677987	8.994600	22.41957	7.659248	42.79641	87.48211	.5850339

#1	-.008309	-.012967	.0016582	-.005177	-.005601	-.004983	-.020824
#2	-.009098	-.015527	.0012994	-.005423	-.004013	-.020539	-.020899
#3	-.007491	-.014527	.0020473	-.006003	-.009264	-.005131	-.021063

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000535	.0001551	-.031656	-.001120	-.004067	-.001846	.0188314
Stddev	.000063	.0000618	.011796	.000089	.000091	.000318	.0043863
%RSD	11.75489	39.84177	37.26186	7.939160	2.237404	17.24412	23.29222

#1	-.000468	.0001465	-.039639	-.001216	-.004093	-.001966	.0222278
#2	-.000544	.0002208	-.018107	-.001105	-.003966	-.001485	.0138794
#3	-.000593	.0000981	-.037223	-.001040	-.004143	-.002087	.0203871

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002029	-.026152	-.002779	-.001704	333.4149	-.004566	.0094864
Stddev	.000154	.029474	.000159	.000469	3.3582	.001780	.0002597
%RSD	7.583401	112.6998	5.736913	27.49856	1.007208	38.99199	2.737123

#1	-.002042	.007728	-.002640	-.002245	331.6770	-.006621	.0091918
#2	-.001870	-.040300	-.002952	-.001415	337.2859	-.003519	.0095852
#3	-.002177	-.045885	-.002743	-.001453	331.2818	-.003557	.0096821

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.249150	-.010399	-.007252	-.019328	-.007366	.0025106	-.000518
Stddev	.020835	.000173	.000063	.000304	.000593	.0060523	.000459
%RSD	8.362471	1.664333	.8685826	1.575146	8.049823	241.0705	88.55700

#1	-.265591	-.010475	-.007184	-.019679	-.007262	.0070300	-.000364
#2	-.256141	-.010201	-.007308	-.019137	-.008005	-.004366	-.001034
#3	-.225718	-.010520	-.007265	-.019168	-.006833	.004867	-.000156

Sample Name: PB169621TB Acquired: 9/9/2025 15:54:17 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0357356	-.014463	-.007672
Stddev	.0031584	.001236	.000065
%RSD	8.838230	8.545139	.8536853

#1	.0386410	-.015885	-.007627
#2	.0361919	-.013859	-.007641
#3	.0323738	-.013646	-.007747

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6635.827	109680.7	12049.60	5795.435	7438.447
Stddev	30.086	319.4	15.60	11.906	30.576
%RSD	.4533865	.2912503	.1294412	.2054291	.4110488

#1	6603.633	109994.3	12064.39	5782.765	7405.562
#2	6640.615	109692.1	12051.11	5806.390	7443.762
#3	6663.231	109355.7	12033.31	5797.151	7466.016

Sample Name: PB169589TB Acquired: 9/9/2025 15:58:53 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.008616	-.011187	.0015675	-.003018	-.006065	-.007044	-.019826
Stddev	.001162	.001219	.0010695	.000914	.001157	.008812	.000239
%RSD	13.48407	10.89939	68.22874	30.29377	19.08586	125.0998	1.204871

#1	-.009725	-.011416	.0027305	-.003380	-.006735	-.003343	-.019993
#2	-.007408	-.012276	.0013456	-.001978	-.006731	-.000686	-.019932
#3	-.008715	-.009870	.0006264	-.003696	-.004728	-.017102	-.019552

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000534	.0003258	-.025719	-.000753	-.003941	-.001604	.0198667
Stddev	.000028	.0000222	.001461	.000119	.000307	.000189	.0064821
%RSD	5.190788	6.808024	5.680641	15.79837	7.791479	11.80829	32.62803

#1	-.000520	.0003004	-.024599	-.000881	-.004078	-.001748	.0268972
#2	-.000515	.0003412	-.027372	-.000731	-.003589	-.001676	.0141272
#3	-.000565	.0003358	-.025187	-.000646	-.004155	-.001390	.0185757

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001679	-.039182	-.002756	-.001958	345.8515	-.003785	.0102206
Stddev	.000305	.008549	.000271	.000289	3.8753	.002199	.0001642
%RSD	18.17583	21.81915	9.831204	14.74424	1.120516	58.09859	1.606656

#1	-.001667	-.035267	-.002636	-.002238	345.7681	-.006294	.0103707
#2	-.001990	-.033291	-.002566	-.001974	349.7679	-.002867	.0100452
#3	-.001380	-.048987	-.003066	-.001661	342.0186	-.002193	.0102459

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.283242	-.010286	-.007242	-.019379	-.008683	-.002296	-.001633
Stddev	.011557	.000484	.000126	.000973	.000807	.006028	.001267
%RSD	4.080411	4.702575	1.735782	5.021580	9.295678	262.5651	77.59524

#1	-.280953	-.009734	-.007170	-.019772	-.009615	.004587	-.001957
#2	-.273000	-.010491	-.007387	-.018271	-.008209	-.006637	-.002707
#3	-.295773	-.010634	-.007168	-.020094	-.008225	-.004838	-.000235

Sample Name: PB169589TB Acquired: 9/9/2025 15:58:53 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0383921	-.015079	-.007655
Stddev	.0001697	.000421	.000098
%RSD	.4419763	2.790935	1.277913
#1	.0385217	-.014986	-.007723
#2	.0382000	-.015539	-.007543
#3	.0384545	-.014713	-.007699

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6240.118	105628.2	11722.00	5580.302	6900.243
Stddev	13.316	450.0	239.26	19.393	22.619
%RSD	.2133883	.4260214	2.041150	.3475301	.3277984
#1	6248.172	106083.3	11793.53	5587.550	6908.204
#2	6247.434	105183.4	11917.34	5558.328	6917.805
#3	6224.748	105618.0	11455.13	5595.026	6874.720

Sample Name: PB169617BL Acquired: 9/9/2025 16:03:21 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.006368	-.012140	-.000254	-.008806	-.008795	-.009899	-.016361
Stddev	.002221	.001593	.001044	.001355	.000757	.007770	.000955
%RSD	34.87456	13.11865	410.7387	15.39182	8.609509	78.48898	5.837053

#1	-.008265	-.013926	.000905	-.010077	-.009344	-.018004	-.017426
#2	-.006914	-.011627	-.001123	-.007380	-.009111	-.002515	-.016074
#3	-.003925	-.010867	-.000545	-.008961	-.007931	-.009178	-.015582

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000440	.0000147	-.067283	-.001787	-.003885	-.001717	-.010057
Stddev	.000076	.0000416	.006514	.000161	.000182	.000484	.006176
%RSD	17.26501	282.8649	9.680819	9.019546	4.688190	28.19961	61.41389

#1	-.000443	-.000019	-.059763	-.001896	-.004090	-.001567	-.010347
#2	-.000362	.000001	-.070903	-.001864	-.003824	-.001326	-.003741
#3	-.000514	.000061	-.071181	-.001602	-.003741	-.002259	-.016084

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004560	-.036427	-.003610	-.001626	.9541502	-.002094	.0072650
Stddev	.000194	.017774	.000197	.000535	.0638295	.000156	.0000864
%RSD	4.254317	48.79443	5.449837	32.90988	6.689668	7.456869	1.189478

#1	-.004631	-.020149	-.003632	-.001195	.8828568	-.001998	.0071858
#2	-.004341	-.033740	-.003403	-.001458	.9736059	-.002275	.0073572
#3	-.004709	-.055391	-.003795	-.002225	1.005988	-.002011	.0072518

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4802683	-.010011	-.007740	-.001291	-.008285	-.004706	-.006811
Stddev	.0685575	.000798	.000119	.000421	.001480	.005324	.001046
%RSD	14.27483	7.972278	1.542768	32.62996	17.86114	113.1151	15.36502

#1	.4011291	-.009091	-.007840	-.001029	-.006646	-.010737	-.006080
#2	.5215322	-.010426	-.007608	-.001777	-.008687	-.000658	-.008010
#3	.5181435	-.010516	-.007773	-.001067	-.009522	-.002725	-.006343

Sample Name: PB169617BL Acquired: 9/9/2025 16:03:21 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0013247	-.003092	-.007589
Stddev	.0010613	.001036	.000086
%RSD	80.11487	33.49567	1.136330

#1	.0006562	-.004286	-.007585
#2	.0007694	-.002432	-.007504
#3	.0025484	-.002558	-.007677

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6497.669	107885.0	10992.79	5717.662	7662.235
Stddev	18.290	297.9	114.31	13.274	23.342
%RSD	.2814911	.2760954	1.039852	.2321618	.3046370

#1	6479.343	108108.4	10936.33	5711.725	7636.530
#2	6497.739	107546.8	10917.69	5708.392	7668.067
#3	6515.924	107999.8	11124.34	5732.868	7682.108

Sample Name: PB169618BL Acquired: 9/9/2025 16:11:58 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.008539	-.010280	.0002785	-.007863	-.007591	-.013000	-.018176
Stddev	.001922	.003233	.0004940	.001892	.001710	.008073	.001052
%RSD	22.51233	31.44671	177.3935	24.05742	22.53126	62.10305	5.787464

#1	-.008035	-.006548	.0008160	-.005853	-.009193	-.021640	-.017101
#2	-.006919	-.012103	-.000156	-.008128	-.005790	-.005649	-.018223
#3	-.010663	-.012190	.000175	-.009608	-.007791	-.011711	-.019203

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000401	-.000040	-.043536	-.001569	-.003878	-.001916	-.006096
Stddev	.000060	.000042	.002396	.000248	.000067	.000253	.003895
%RSD	15.04403	106.1158	5.504220	15.80280	1.718479	13.22007	63.89456

#1	-.000461	-.000035	-.046301	-.001295	-.003807	-.002045	-.009809
#2	-.000340	-.000085	-.042063	-.001636	-.003939	-.002078	-.006437
#3	-.000402	-.000000	-.042244	-.001777	-.003888	-.001624	-.002042

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004509	-.024987	-.003697	-.001611	.3416220	-.002058	.0077246
Stddev	.000433	.009601	.000098	.000497	.0223866	.001803	.0002354
%RSD	9.603143	38.42280	2.644843	30.83524	6.553034	87.58898	3.047268

#1	-.004988	-.013955	-.003654	-.002172	.3219894	-.003326	.0075000
#2	-.004145	-.029557	-.003628	-.001226	.3368753	-.002854	.0077043
#3	-.004395	-.031449	-.003809	-.001435	.3660013	.000006	.0079695

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3908651	-.010358	-.007642	-.001593	-.007142	-.001103	-.007739
Stddev	.0469622	.000169	.000247	.000358	.001853	.006673	.000625
%RSD	12.01493	1.630601	3.236623	22.47748	25.94073	604.8178	8.078192

#1	.3409232	-.010436	-.007367	-.001598	-.005871	.005182	-.008236
#2	.3975385	-.010164	-.007844	-.001948	-.006288	-.008105	-.007945
#3	.4341336	-.010474	-.007716	-.001232	-.009268	-.000387	-.007037

Sample Name: PB169618BL Acquired: 9/9/2025 16:11:58 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.007516	-.006505	-.007768
Stddev	.001164	.002365	.000097
%RSD	15.48885	36.35839	1.250589

#1	-.007421	-.007526	-.007704
#2	-.008725	-.003801	-.007720
#3	-.006402	-.008188	-.007880

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6638.394	111995.5	11384.25	5919.698	7910.630
Stddev	17.934	336.9	149.71	32.624	26.348
%RSD	.2701609	.3008567	1.315050	.5511154	.3330725

#1	6623.615	112186.1	11435.24	5935.508	7883.190
#2	6633.219	112193.8	11215.71	5941.404	7912.970
#3	6658.346	111606.4	11501.81	5882.181	7935.730

Sample Name: Q3040-01 Acquired: 9/9/2025 16:20:17 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0217972	-.017025	.2793083	-.009912	.0874603	23.14348
Stddev	.0016190	.001582	.0009194	.000894	.0015317	.08399
%RSD	7.427369	9.292807	.3291815	9.023038	1.751284	.3629130

#1	.0212170	-.017821	.2782498	-.010177	.0875747	23.22666
#2	.0205483	-.015203	.2799088	-.008916	.0889317	23.05870
#3	.0236263	-.018051	.2797663	-.010645	.0858747	23.14509

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6012116	.0006559	-.000468	86.08494	.1387386	.0132991
Stddev	.0049262	.0000058	.000057	.22497	.0004942	.0001328
%RSD	.8193819	.8760022	12.10244	.2613401	.3562215	.9981470

#1	.6068152	.0006612	-.000469	86.32675	.1388466	.0133679
#2	.5975628	.0006567	-.000523	85.88181	.1391699	.0133834
#3	.5992567	.0006498	-.000410	86.04628	.1381994	.0131461

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5445602	48.29952	.4995223	10.50212	.0566325	.0004048
Stddev	.0029092	.13789	.0030465	.02698	.0001171	.0004504
%RSD	.5342303	.2854795	.6098803	.2569434	.2067154	111.2819

#1	.5412416	48.26766	.5030400	10.52016	.0565390	.0009028
#2	.5457683	48.18035	.4977665	10.51511	.0565947	.0002855
#3	.5466707	48.45055	.4977603	10.47110	.0567638	.0000260

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.273394	.0491581	28.93637	6.905847	.2368631	-.005657
Stddev	.036633	.0038487	.16713	.036712	.0005612	.000144
%RSD	.4427760	7.829306	.5775652	.5316118	.2369184	2.547789

#1	8.243359	.0505817	28.74370	6.868970	.2372855	-.005754
#2	8.262616	.0520923	29.02321	6.942392	.2370775	-.005726
#3	8.314206	.0448004	29.04220	6.906178	.2362263	-.005492

Sample Name: Q3040-01 Acquired: 9/9/2025 16:20:17 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.001375	.8851569	F 29.60788	7.036407	8.952397	-.001488
Stddev	.000492	.0118276	.10856	.011364	.023535	.000301
%RSD	35.78739	1.336213	.3666684	.1615096	.2628956	20.25535

#1	-.000857	.8929320	29.52063	7.044472	8.977188	-.001673
#2	-.001433	.8715455	29.57354	7.023410	8.930359	-.001652
#3	-.001836	.8909930	29.72945	7.041339	8.949644	-.001140

Elem	Sr4077
Units	ppm
Avg	.4888126
Stddev	.0020524
%RSD	.4198776

#1	.4909301
#2	.4868322
#3	.4886755

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6537.561	112637.3	12186.36	5802.472	7476.677
Stddev	22.048	317.4	50.95	11.416	10.089
%RSD	.3372513	.2817540	.4180537	.1967507	.1349330

#1	6562.208	112931.2	12132.54	5789.516	7488.308
#2	6530.761	112300.8	12192.72	5806.844	7471.414
#3	6519.714	112679.8	12233.83	5811.057	7470.307

Sample Name: CCV04 Acquired: 9/9/2025 16:24:37 Type: Unk
Method: 6010-200.7 NEW(v151) 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	4.750914	5.005681	4.669858	4.772388	4.777278	9.365886	9.410118
Stddev	.008210	.059112	.006963	.010873	.010144	.023154	.047155
%RSD	.1728027	1.180900	.1491009	.2278368	.2123411	.2472163	.5011146

#1	4.757896	4.959674	4.665938	4.772791	4.766352	9.368250	9.357012
#2	4.741869	4.985019	4.665739	4.761318	4.779084	9.387768	9.426257
#3	4.752976	5.072351	4.677897	4.783054	4.786398	9.341641	9.447085

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2353598	2.347667	23.45919	.9412704	2.348122	1.189733	4.748503
Stddev	.0017540	.003271	.07453	.0023397	.002813	.001340	.019290
%RSD	.7452241	.1393507	.3176936	.2485680	.1197882	.1126173	.4062409

#1	.2364740	2.345777	23.41440	.9399290	2.345603	1.189055	4.745706
#2	.2362672	2.345780	23.54522	.9399102	2.347606	1.188868	4.730764
#3	.2333380	2.351445	23.41795	.9439721	2.351157	1.191277	4.769040

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.349349	23.31459	2.346259	1.181252	23.40653	2.350669	2.353738
Stddev	.013810	.00335	.003640	.002572	.20818	.011062	.003838
%RSD	.5878026	.0143819	.1551384	.2177768	.8894021	.4705962	.1630428

#1	2.350227	23.31397	2.343725	1.182861	23.32551	2.348101	2.349426
#2	2.362698	23.31821	2.344621	1.178285	23.25105	2.362789	2.355008
#3	2.335121	23.31159	2.350430	1.182610	23.64304	2.341116	2.356779

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.51339	4.699908	4.738602	4.683072	4.686106	4.719696	4.815553
Stddev	.16858	.034739	.006265	.008592	.017836	.028858	.019746
%RSD	.7169349	.7391481	.1322042	.1834799	.3806240	.6114333	.4100374

#1	23.42051	4.716348	4.734897	4.680212	4.683958	4.705084	4.796766
#2	23.41167	4.723375	4.735074	4.676275	4.704920	4.701067	4.813759
#3	23.70798	4.660000	4.745835	4.692730	4.669441	4.752937	4.836135

Sample Name: CCV04 Acquired: 9/9/2025 16:24:37 Type: Unk
Method: 6010-200.7 NEW(v151) 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	4.635532	4.596249	4.756810
Stddev	.017507	.019732	.013747
%RSD	.3776662	.4292979	.2889866
#1	4.632632	4.584911	4.764483
#2	4.619656	4.619033	4.765007
#3	4.654307	4.584802	4.740940

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6387.850	109353.2	11578.58	5738.578	7150.214
Stddev	15.961	625.6	47.30	26.973	18.083
%RSD	.2498587	.5721141	.4084818	.4700321	.2529024
#1	6397.789	109791.5	11583.33	5754.218	7164.809
#2	6396.322	109631.5	11529.08	5754.083	7155.848
#3	6369.440	108636.7	11623.32	5707.432	7129.984

Sample Name: CCB04 Acquired: 9/9/2025 16:28:48 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.005855	-.010716	.0007309	-.008111	-.007644	-.016966	-.017496
Stddev	.000520	.000944	.0005994	.002563	.001599	.008195	.000065
%RSD	8.874629	8.807800	82.00400	31.59674	20.92128	48.30296	.3709975

#1	-.006325	-.010456	.0013785	-.005495	-.007235	-.025367	-.017455
#2	-.005942	-.009929	.0006184	-.010618	-.006289	-.016537	-.017570
#3	-.005297	-.011763	.0001957	-.008220	-.009408	-.008994	-.017462

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000454	-.000140	-.064902	-.001733	-.003945	-.001930	-.011684
Stddev	.000015	.000044	.008303	.000294	.000137	.000283	.005206
%RSD	3.241215	31.54023	12.79276	16.94911	3.472990	14.67419	44.55850

#1	-.000468	-.000090	-.074400	-.002067	-.003873	-.002166	-.007127
#2	-.000456	-.000175	-.061281	-.001620	-.004103	-.002007	-.017359
#3	-.000439	-.000155	-.059024	-.001513	-.003859	-.001616	-.010568

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004821	-.029225	-.003646	-.000877	.1522370	-.004710	.0065537
Stddev	.000398	.012057	.000273	.000323	.0268431	.004816	.0001435
%RSD	8.251217	41.25395	7.481859	36.83142	17.63245	102.2670	2.189990

#1	-.004811	-.017140	-.003347	-.000512	.1223438	-.007325	.0064472
#2	-.004428	-.041253	-.003711	-.001124	.1600880	.000849	.0067169
#3	-.005223	-.029282	-.003881	-.000996	.1742793	-.007653	.0064970

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2438608	-.004894	-.007515	-.001308	-.006846	.0118256	-.005869
Stddev	.0673448	.000044	.000154	.000558	.002755	.0049517	.001613
%RSD	27.61608	.9023545	2.052561	42.64091	40.23883	41.87266	27.48731

#1	.1819887	-.004850	-.007664	-.001279	-.007296	.0174247	-.005977
#2	.2340022	-.004894	-.007523	-.000765	-.003894	.0100296	-.004205
#3	.3155915	-.004939	-.007356	-.001880	-.009348	.0080225	-.007426

Sample Name: CCB04 Acquired: 9/9/2025 16:28:48 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.009052	-.008191	-.007719
Stddev	.000960	.000568	.000048
%RSD	10.60193	6.939465	.6237852
#1	-.007999	-.007786	-.007671
#2	-.009877	-.008841	-.007718
#3	-.009280	-.007947	-.007767

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6688.337	113708.2	11402.94	5941.028	7956.752
Stddev	3.107	244.2	70.94	17.511	1.477
%RSD	.0464572	.2147506	.6220805	.2947526	.0185645
#1	6691.639	113884.8	11337.97	5944.269	7956.904
#2	6685.471	113429.5	11478.62	5922.122	7958.148
#3	6687.900	113810.2	11392.24	5956.692	7955.205

Sample Name: Q3040-02 Acquired: 9/9/2025 16:39:40 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0281547	-.019657	.3515120	-.007786	.0978953	28.65764
Stddev	.0026425	.000865	.0009489	.002500	.0020983	.05012
%RSD	9.385618	4.402750	.2699363	32.10724	2.143447	.1748762

#1	.0265032	-.020636	.3511454	-.004987	.0987912	28.62082
#2	.0267586	-.018992	.3508011	-.009797	.0954977	28.71472
#3	.0312025	-.019343	.3525895	-.008573	.0993970	28.63740

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7051626	.0008808	.0001889	96.97206	.1704362	.0169223
Stddev	.0040339	.0000376	.0000797	.24644	.0008902	.0001346
%RSD	.5720518	4.270215	42.18561	.2541387	.5222846	.7953163

#1	.7032390	.0008374	.0001166	96.93799	.1707376	.0168158
#2	.7097983	.0009007	.0001757	97.23377	.1694344	.0170736
#3	.7024506	.0009044	.0002743	96.74442	.1711365	.0168775

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6330987	59.51774	.6076931	12.40661	.0688937	.0009570
Stddev	.0005147	.06953	.0043299	.03523	.0005064	.0004097
%RSD	.0812962	.1168300	.7125176	.2839396	.7350324	42.80545

#1	.6334171	59.58583	.6091207	12.36786	.0689723	.0008328
#2	.6325049	59.44684	.6111289	12.43669	.0683526	.0014145
#3	.6333740	59.52055	.6028296	12.41528	.0693562	.0006239

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.121733	.0603871	F 32.40695	7.742170	.2864370	-.006521
Stddev	.030648	.0036332	.43955	.016278	.0004028	.000200
%RSD	.3359933	6.016524	1.356341	.2102458	.1406071	3.066280

#1	9.089409	.0583360	32.21259	7.726331	.2865350	-.006714
#2	9.125417	.0645820	32.09810	7.758853	.2867817	-.006534
#3	9.150373	.0582433	32.91018	7.741324	.2859943	-.006315

Sample Name: Q3040-02 Acquired: 9/9/2025 16:39:40 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0064359	1.051760	F 34.36872	8.175646	F 10.61857	-.001613
Stddev	.0011048	.013991	.08352	.015443	.01789	.000893
%RSD	17.16608	1.330233	.2430010	.1888858	.1684325	55.37336
#1	.0068426	1.036732	34.30174	8.165850	10.59868	-.001896
#2	.0051854	1.064408	34.34212	8.167640	10.63333	-.002330
#3	.0072797	1.054140	34.46230	8.193447	10.62371	-.000612

Elem	Sr4077
Units	ppm
Avg	.5355130
Stddev	.0017309
%RSD	.3232210
#1	.5335157
#2	.5365762
#3	.5364471

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6284.078	108942.2	11898.87	5654.454	7132.138
Stddev	7.542	264.4	20.83	11.169	6.560
%RSD	.1200223	.2426587	.1750340	.1975327	.0919799
#1	6275.386	108933.8	11885.55	5656.751	7124.700
#2	6288.898	109210.6	11888.20	5642.315	7137.098
#3	6287.949	108682.1	11922.87	5664.296	7134.615

Sample Name: Q3041-01 Acquired: 9/9/2025 16:44:00 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0516234	-.024156	.6028661	-.012885	.1210619	51.30825
Stddev	.0017133	.002815	.0041347	.002547	.0005227	.16728
%RSD	3.318767	11.65425	.6858328	19.76654	.4317608	.3260265

#1	.0522452	-.027407	.6000813	-.010117	.1207090	51.39662
#2	.0529389	-.022524	.6076169	-.013409	.1216624	51.11532
#3	.0496860	-.022537	.6009001	-.015129	.1208142	51.41282

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7755318	.0021045	.0039492	123.0690	.3063286	.0362529
Stddev	.0033404	.0000472	.0001141	.2250	.0010844	.0002093
%RSD	.4307279	2.243472	2.888981	.1827871	.3540110	.5773856

#1	.7769558	.0020504	.0038454	123.3065	.3070331	.0361758
#2	.7779243	.0021254	.0039307	122.8592	.3068729	.0360930
#3	.7717154	.0021376	.0040714	123.0414	.3050799	.0364898

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.153996	106.6046	.9622018	21.58612	.1205629	.0033108
Stddev	.002256	.9402	.0027408	.05981	.0003287	.0004965
%RSD	.1954744	.8819522	.2848450	.2770928	.2726263	14.99559

#1	1.151431	106.7850	.9645148	21.56913	.1209024	.0035435
#2	1.155670	107.4415	.9629159	21.53663	.1205399	.0036482
#3	1.154887	105.5872	.9591746	21.65259	.1202462	.0027407

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	36.70663	.1119224	F 36.74565	16.23505	.4161104	-.005352
Stddev	.26534	.0011845	.30166	.17308	.0019701	.000302
%RSD	.7228629	1.058334	.8209392	1.066093	.4734599	5.644487

#1	36.82009	.1132647	36.74870	16.24199	.4172592	-.005356
#2	36.89638	.1114788	36.44248	16.40456	.4172363	-.005653
#3	36.40343	.1110237	37.04577	16.05861	.4138355	-.005048

Sample Name: Q3041-01 Acquired: 9/9/2025 16:44:00 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0178242	1.743771	F 53.08553	F 12.00380	F 18.08252	.0110347
Stddev	.0009097	.008140	.31085	.03446	.07262	.0025325
%RSD	5.103964	.4667772	.5855640	.2870738	.4015842	22.95004
#1	.0167881	1.752720	53.38958	11.97250	18.03562	.0123443
#2	.0181924	1.736808	53.09870	11.99817	18.04578	.0081156
#3	.0184921	1.741785	52.76830	12.04072	18.16617	.0126443

Elem	Sr4077
Units	ppm
Avg	.4031951
Stddev	.0026359
%RSD	.6537561
#1	.4039614
#2	.4002610
#3	.4053630

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6408.487	110323.6	12219.46	5708.842	7072.415
Stddev	17.885	193.8	80.91	7.833	12.576
%RSD	.2790759	.1756375	.6621104	.1372019	.1778119
#1	6408.970	110136.8	12214.16	5717.034	7079.184
#2	6390.365	110310.4	12302.88	5708.067	7057.905
#3	6426.125	110523.6	12141.33	5701.426	7080.156

Sample Name: Q3041-04 Acquired: 9/9/2025 16:48:17 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0107546	-.018471	.1614204	-.005713	.0446589	15.44277
Stddev	.0017158	.002376	.0013512	.001111	.0016932	.02493
%RSD	15.95395	12.86118	.8370779	19.44268	3.791399	.1614113

#1	.0121259	-.019164	.1612069	-.004485	.0444428	15.43336
#2	.0088306	-.020424	.1628657	-.006005	.0464497	15.47104
#3	.0113072	-.015826	.1601886	-.006648	.0430841	15.42393

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2834239	.0003216	-.001606	89.21403	.0885594	.0064591
Stddev	.0006272	.0000891	.000023	.20237	.0011308	.0000575
%RSD	.2212977	27.70965	1.446935	.2268352	1.276928	.8894539

#1	.2827258	.0003646	-.001613	89.32265	.0875284	.0065151
#2	.2839400	.0003810	-.001580	89.33890	.0883809	.0064003
#3	.2836059	.0002191	-.001625	88.98055	.0897688	.0064618

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3571589	33.43894	.4801254	10.02960	.0358328	-.000469
Stddev	.0006896	.19256	.0016400	.05565	.0001179	.000575
%RSD	.1930678	.5758640	.3415811	.5548330	.3289155	122.6637

#1	.3573827	33.49069	.4819466	9.96566	.0359666	-.000064
#2	.3577089	33.22580	.4796642	10.05606	.0357444	-.000215
#3	.3563853	33.60035	.4787653	10.06709	.0357873	-.001127

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	36.80690	.0324021	21.84309	12.93773	.1637610	-.007844
Stddev	.18610	.0022114	.08231	.03467	.0007351	.000370
%RSD	.5056238	6.824942	.3768393	.2680118	.4489003	4.720331

#1	36.87838	.0302193	21.93608	12.93605	.1638715	-.008183
#2	36.59565	.0346411	21.81361	12.90393	.1629768	-.007900
#3	36.94667	.0323459	21.77958	12.97322	.1644346	-.007449

Sample Name: Q3041-04 Acquired: 9/9/2025 16:48:17 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.004007	.6930319	F 24.31457	5.386443	6.969851	-.009796
Stddev	.000613	.0150783	.17928	.003335	.018219	.001174
%RSD	15.30845	2.175696	.7373395	.0619185	.2613924	11.98375

#1	-.003604	.6924403	24.42410	5.382592	6.951941	-.008565
#2	-.003704	.7083972	24.10768	5.388409	6.969251	-.010903
#3	-.004713	.6782581	24.41194	5.388328	6.988363	-.009919

Elem	Sr4077
Units	ppm
Avg	.3179557
Stddev	.0002168
%RSD	.0681686

#1	.3179467
#2	.3181768
#3	.3177435

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6330.972	110053.0	11940.22	5683.248	7158.423
Stddev	2.295	381.0	30.99	27.316	4.092
%RSD	.0362473	.3462366	.2595151	.4806471	.0571631

#1	6330.985	109822.9	11933.27	5654.044	7159.062
#2	6333.260	110492.8	11913.30	5687.531	7162.157
#3	6328.671	109843.3	11974.09	5708.171	7154.049

Sample Name: Q3041-04DUP Acquired: 9/9/2025 16:52:30 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.0073150	-.015226	.1587193	-.005961	.0429696	14.50936
Stddev	.0001836	.003307	.0010023	.002171	.0019576	.01723
%RSD	2.509706	21.71908	.6314689	36.41280	4.555671	.1187352

#1	.0073814	-.011512	.1592991	-.007939	.0414453	14.49547
#2	.0074560	-.016315	.1575620	-.006307	.0422862	14.50397
#3	.0071074	-.017851	.1592967	-.003639	.0451772	14.52864

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2758935	.0002192	-.001779	87.23029	.0831815	.0065755
Stddev	.0021738	.0000271	.000050	.05825	.0002247	.0001331
%RSD	.7879036	12.35682	2.791451	.0667787	.2700977	2.023394

#1	.2779665	.0001994	-.001837	87.28993	.0833867	.0067245
#2	.2760827	.0002501	-.001749	87.22740	.0829414	.0064684
#3	.2736313	.0002081	-.001752	87.17353	.0832162	.0065337

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3412420	33.06028	.4657114	9.784752	.0334816	.0001017
Stddev	.0008005	.10034	.0014574	.023599	.0003827	.0000574
%RSD	.2345894	.3034984	.3129421	.2411772	1.143115	56.47336

#1	.3421483	33.17166	.4673348	9.803971	.0338750	.0001631
#2	.3406312	33.03222	.4652838	9.791872	.0334593	.0000493
#3	.3409466	32.97695	.4645157	9.758413	.0331105	.0000927

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	37.10012	.0305177	22.08417	12.87536	.1610670	-.008252
Stddev	.02583	.0014117	.20066	.02473	.0003572	.000267
%RSD	.0696290	4.625881	.9086348	.1920538	.2217859	3.229977

#1	37.12845	.0314788	22.10143	12.89700	.1614556	-.008546
#2	37.07788	.0288969	22.27565	12.88067	.1609925	-.008184
#3	37.09403	.0311773	21.87543	12.84841	.1607530	-.008026

Sample Name: Q3041-04DUP Acquired: 9/9/2025 16:52:30 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.008878	.4796252	F 23.30154	5.095768	6.639031	-.008898
Stddev	.000587	.0156121	.01659	.014324	.018069	.000924
%RSD	6.614853	3.255053	.0711829	.2810898	.2721663	10.38830

#1	-.008467	.4734166	23.29785	5.111717	6.656937	-.008293
#2	-.008616	.4973864	23.31966	5.083999	6.620803	-.008439
#3	-.009551	.4680724	23.28710	5.091588	6.639354	-.009962

Elem	Sr4077
Units	ppm
Avg	.3087251
Stddev	.0012438
%RSD	.4028947

#1	.3075624
#2	.3085762
#3	.3100367

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6383.783	106823.8	11901.80	5576.700	7244.770
Stddev	29.048	73.0	7.21	22.154	41.382
%RSD	.4550213	.0683272	.0605796	.3972612	.5711983

#1	6351.154	106747.6	11894.46	5581.144	7197.162
#2	6393.371	106830.9	11902.07	5552.661	7265.030
#3	6406.825	106893.0	11908.87	5596.295	7272.119

Sample Name: Q3041-04LX5 Acquired: 9/9/2025 16:56:44 Type: Unk
Method: 6010-200.7 NEW(v151) 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	-.007322	-.013881	.0254750	-.007329	.0054916	3.148915	.0416727
Stddev	.001924	.001712	.0010852	.003164	.0014573	.006358	.0004306
%RSD	26.27284	12.33247	4.259984	43.17740	26.53592	.2019000	1.033388

#1	-.006139	-.015337	.0242656	-.005130	.0061309	3.145967	.0418608
#2	-.006285	-.014311	.0257957	-.010955	.0038240	3.156211	.0419773
#3	-.009541	-.011995	.0263638	-.005901	.0065200	3.144566	.0411800

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000313	-.003256	18.39871	.0161683	-.001844	.0728407	6.620990
Stddev	.000043	.000009	.02608	.0003591	.000242	.0007641	.029361
%RSD	13.78681	.2758078	.1417452	2.221242	13.14799	1.049002	.4434512

#1	-.000265	-.003247	18.39229	.0162340	-.001907	.0720824	6.653674
#2	-.000349	-.003255	18.37644	.0164900	-.002049	.0728293	6.596844
#3	-.000326	-.003265	18.42740	.0157808	-.001577	.0736105	6.612453

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0947533	2.062551	.0042415	-.001589	7.300552	.0045045	5.613712
Stddev	.0007223	.016866	.0001501	.000440	.032989	.0014841	.020233
%RSD	.7623016	.8177220	3.540116	27.68234	.4518767	32.94758	.3604168

#1	.0951632	2.075034	.0042332	-.001598	7.300409	.0061454	5.621138
#2	.0939193	2.069256	.0040957	-.002025	7.267635	.0041123	5.590816
#3	.0951775	2.043364	.0043956	-.001145	7.333613	.0032559	5.629182

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.504486	.0266950	-.008052	-.002468	.1447355	4.694986	1.071727
Stddev	.026383	.0002295	.000094	.000165	.0106096	.023337	.011130
%RSD	1.053416	.8596544	1.172568	6.669357	7.330333	.4970694	1.038534

#1	2.499861	.0265957	-.008079	-.002382	.1567670	4.721568	1.059320
#2	2.480722	.0269574	-.007948	-.002658	.1407185	4.685529	1.075028
#3	2.532875	.0265319	-.008131	-.002365	.1367209	4.677861	1.080833

Sample Name: Q3041-04LX5 Acquired: 9/9/2025 16:56:44 Type: Unk
Method: 6010-200.7 NEW(v151) 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	1.384149	-.009042	.0586499
Stddev	.018554	.001545	.0005444
%RSD	1.340457	17.08947	.9281712
#1	1.362725	-.010696	.0580292
#2	1.394779	-.007636	.0588746
#3	1.394943	-.008795	.0590460

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6502.782	111312.4	11643.08	5822.879	7561.754
Stddev	19.442	360.6	71.09	14.576	27.479
%RSD	.2989841	.3239521	.6105726	.2503253	.3634001
#1	6519.590	111238.0	11687.19	5820.199	7588.197
#2	6507.267	110994.8	11561.07	5809.829	7563.722
#3	6481.489	111704.3	11680.98	5838.609	7533.344

Sample Name: Q3041-04MS Acquired: 9/9/2025 17:00:56 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.7723669	1.936478	1.042601	1.860312	.7719067	16.74622
Stddev	.0018294	.032821	.000468	.002667	.0026678	.02563
%RSD	.2368534	1.694881	.0449211	.1433497	.3456149	.1530625

#1	.7733010	1.967659	1.042252	1.860753	.7715997	16.77518
#2	.7735406	1.902232	1.043133	1.857452	.7694057	16.72643
#3	.7702590	1.939541	1.042418	1.862731	.7747148	16.73707

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4650381	.1868678	.1816676	87.97224	.4709290	.1956298
Stddev	.0017499	.0003829	.0002327	.30936	.0019084	.0006480
%RSD	.3762983	.2049203	.1280713	.3516548	.4052316	.3312584

#1	.4668804	.1872923	.1819285	88.32784	.4716427	.1959698
#2	.4633981	.1865485	.1814815	87.76503	.4723777	.1948825
#3	.4648357	.1867625	.1815930	87.82385	.4687667	.1960371

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6009269	34.76935	.6566067	11.55151	.5027447	.0694211
Stddev	.0011837	.07357	.0038589	.02950	.0006977	.0003967
%RSD	.1969832	.2116038	.5876986	.2553513	.1387811	.5714133

#1	.5997750	34.85146	.6594433	11.57852	.5034079	.0690640
#2	.6008657	34.74721	.6522125	11.52003	.5020170	.0698480
#3	.6021401	34.70940	.6581643	11.55597	.5028093	.0693512

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	39.33001	.3183690	21.71789	22.62386	.4220889	.3876769
Stddev	.16274	.0013227	.24153	.11044	.0007826	.0001196
%RSD	.4137752	.4154607	1.112138	.4881546	.1854197	.0308597

#1	39.45861	.3187069	21.58259	22.70997	.4229731	.3877652
#2	39.38437	.3194900	21.57433	22.66226	.4214851	.3877247
#3	39.14705	.3169102	21.99674	22.49935	.4218086	.3875407

Sample Name: Q3041-04MS Acquired: 9/9/2025 17:00:56 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.3454705	.7772251	F 24.64958	9.887409	6.068036	.1925394
Stddev	.0006174	.0052942	.12415	.022884	.018129	.0019026
%RSD	.1787132	.6811626	.5036639	.2314470	.2987623	.9881848

#1	.3461386	.7831324	24.78932	9.903492	6.088160	.1909480
#2	.3453517	.7756336	24.60739	9.861210	6.052980	.1920233
#3	.3449211	.7729092	24.55201	9.897525	6.062969	.1946468

Elem	Sr4077
Units	ppm
Avg	.4965143
Stddev	.0018134
%RSD	.3652175

#1	.4977384
#2	.4973734
#3	.4944310

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6461.328	108920.6	11886.63	5662.355	7340.795
Stddev	4.096	16.3	30.64	13.941	10.642
%RSD	.0633964	.0149539	.2578060	.2462047	.1449710

#1	6458.392	108911.8	11873.30	5660.102	7329.072
#2	6459.585	108910.5	11921.68	5677.285	7343.466
#3	6466.008	108939.4	11864.91	5649.678	7349.847

Sample Name: Q3041-04MSD Acquired: 9/9/2025 17:05:02 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.7893784	2.040819	1.067595	1.903223	.7872857	17.17563
Stddev	.0023176	.029067	.004055	.006382	.0016531	.02648
%RSD	.2935993	1.424265	.3798317	.3353080	.2099718	.1541952

#1	.7867649	2.014794	1.064833	1.909811	.7884707	17.14513
#2	.7901866	2.035478	1.065701	1.897070	.7853973	17.18895
#3	.7911837	2.072186	1.072251	1.902789	.7879893	17.19282

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4710566	.1858459	.1849467	88.94395	.4798169	.1992881
Stddev	.0023806	.0011160	.0006240	.20032	.0011233	.0005742
%RSD	.5053754	.6005130	.3374060	.2252165	.2341158	.2881019

#1	.4683405	.1846265	.1845569	88.71268	.4810639	.1988283
#2	.4720482	.1860944	.1846168	89.05616	.4795023	.1991043
#3	.4727812	.1868167	.1856664	89.06302	.4788844	.1999316

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6229418	35.99189	.6632355	11.80578	.5127392	.0712482
Stddev	.0011997	.07391	.0023578	.07097	.0019857	.0004059
%RSD	.1925787	.2053656	.3555000	.6011452	.3872692	.5697094

#1	.6225619	36.07591	.6605998	11.72460	.5123933	.0707863
#2	.6219780	35.96287	.6639625	11.85606	.5109493	.0714100
#3	.6242853	35.93689	.6651442	11.83668	.5148752	.0715482

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	40.03106	.3237767	21.90594	22.97070	.4258165	.3998454
Stddev	.11911	.0028366	.17519	.06523	.0028046	.0006556
%RSD	.2975455	.8760910	.7997363	.2839688	.6586468	.1639656

#1	40.16584	.3205723	21.79828	23.01028	.4229279	.3990884
#2	39.98742	.3259662	21.81145	23.00641	.4259926	.4002267
#3	39.93993	.3247916	22.10809	22.89541	.4285289	.4002211

Sample Name: Q3041-04MSD Acquired: 9/9/2025 17:05:02 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.3464320	.6607307	F 25.05453	F 10.25628	6.451212	.1921021
Stddev	.0019584	.0018865	.10518	.04274	.014822	.0017246
%RSD	.5653137	.2855151	.4198112	.4166873	.2297494	.8977557
#1	.3464503	.6617856	25.17469	10.22592	6.443299	.1901313
#2	.3444645	.6618537	25.00973	10.23777	6.442027	.1928402
#3	.3483812	.6585527	24.97916	10.30515	6.468311	.1933348

Elem	Sr4077
Units	ppm
Avg	.5045548
Stddev	.0011821
%RSD	.2342837
#1	.5031925
#2	.5053098
#3	.5051622

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6382.163	108110.8	11949.99	5649.288	7241.799
Stddev	9.703	79.8	63.54	19.136	15.238
%RSD	.1520340	.0738189	.5316998	.3387309	.2104131
#1	6390.324	108019.1	12022.06	5670.981	7251.179
#2	6384.729	108164.9	11925.89	5642.078	7250.001
#3	6371.434	108148.3	11902.03	5634.804	7224.217

Sample Name: Q3041-04A Acquired: 9/9/2025 17:09:06 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.7797571	1.959952	1.057745	1.908443	.8372758	16.41856
Stddev	.0021496	.036961	.001623	.007953	.0015388	.01661
%RSD	.2756826	1.885793	.1534322	.4167361	.1837918	.1011636

#1	.7820493	1.929691	1.056567	1.907456	.8376834	16.43350
#2	.7777861	2.001145	1.057072	1.901029	.8355741	16.40067
#3	.7794359	1.949019	1.059596	1.916844	.8385698	16.42149

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4627852	.1829329	.1826190	87.47804	.4697977	.1957888
Stddev	.0023997	.0000109	.0000824	.06781	.0010717	.0002378
%RSD	.5185426	.0059440	.0451138	.0775118	.2281119	.1214333

#1	.4607527	.1829450	.1825981	87.46089	.4706799	.1956548
#2	.4621702	.1829238	.1827098	87.42046	.4701081	.1960633
#3	.4654325	.1829300	.1825490	87.55278	.4686051	.1956482

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6281337	35.90039	.6547974	11.57686	.5053625	.0707831
Stddev	.0007046	.17123	.0013280	.02794	.0004707	.0011140
%RSD	.1121757	.4769634	.2028081	.2413101	.0931499	1.573787

#1	.6288771	35.90578	.6533370	11.55624	.5049303	.0720062
#2	.6280481	35.72653	.6551224	11.60866	.5058640	.0705161
#3	.6274757	36.06886	.6559326	11.56570	.5052931	.0698268

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	39.60663	.3202879	21.99996	22.63864	.4216711	.4076210
Stddev	.06332	.0005164	.05066	.03159	.0009564	.0002902
%RSD	.1598810	.1612195	.2302697	.1395322	.2268094	.0712044

#1	39.60917	.3198966	22.04044	22.61292	.4222688	.4073235
#2	39.54207	.3208732	21.94315	22.62910	.4205681	.4076361
#3	39.66864	.3200940	22.01629	22.67390	.4221765	.4079035

Sample Name: Q3041-04A Acquired: 9/9/2025 17:09:06 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.6672920	.7328648	F 24.33973	F 10.44547	6.626036	.1893023
Stddev	.0005102	.0074583	.06357	.03186	.022981	.0018393
%RSD	.0764615	1.017692	.2611923	.3050314	.3468245	.9716423
#1	.6667617	.7255857	24.27433	10.41064	6.603886	.1893413
#2	.6677795	.7404902	24.40131	10.47315	6.649766	.1874437
#3	.6673348	.7325185	24.34354	10.45262	6.624457	.1911218

Elem	Sr4077
Units	ppm
Avg	.4932913
Stddev	.0001459
%RSD	.0295696
#1	.4931542
#2	.4934446
#3	.4932752

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6287.917	107032.6	11867.68	5594.242	7115.742
Stddev	20.558	196.9	16.60	17.187	23.300
%RSD	.3269505	.1839315	.1398457	.3072178	.3274438
#1	6271.680	106814.3	11850.74	5603.802	7098.639
#2	6281.037	107196.7	11868.40	5604.522	7106.306
#3	6311.033	107086.7	11883.91	5574.401	7142.280

Sample Name: CCV05 Acquired: 9/9/2025 17:13:10 Type: Unk
Method: 6010-200.7 NEW(v151) 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	4.885626	5.229960	4.784519	4.912286	4.908576	9.631782	9.664792
Stddev	.004601	.096308	.003560	.009629	.007182	.050951	.160803
%RSD	.0941781	1.841465	.0744112	.1960169	.1463058	.5289866	1.663805

#1	4.885808	5.257280	4.781921	4.903144	4.905815	9.687213	9.547394
#2	4.880936	5.122943	4.783059	4.911378	4.903184	9.621139	9.598909
#3	4.890133	5.309656	4.788577	4.922337	4.916728	9.586993	9.848074

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2434225	2.404485	24.18758	.9675545	2.405532	1.219139	4.882900
Stddev	.0010075	.003984	.07311	.0019866	.003398	.001673	.001442
%RSD	.4138911	.1657093	.3022529	.2053252	.1412733	.1372226	.0295222

#1	.2442645	2.401574	24.27118	.9693359	2.402709	1.217719	4.881373
#2	.2436966	2.402856	24.15593	.9654121	2.404583	1.218716	4.884237
#3	.2423063	2.409026	24.13563	.9679155	2.409304	1.220983	4.883091

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.426760	23.98241	2.408951	1.213045	24.05538	2.422300	2.273984
Stddev	.017346	.10042	.002147	.000420	.03691	.013534	.008304
%RSD	.7147859	.4187415	.0891358	.0346372	.1534335	.5587268	.3651832

#1	2.444438	24.09818	2.406979	1.212884	24.06789	2.436970	2.264755
#2	2.426074	23.91889	2.408635	1.212730	24.01384	2.419631	2.276345
#3	2.409766	23.93014	2.411239	1.213522	24.08440	2.410299	2.280852

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.10531	4.861176	4.871977	4.802433	4.838369	4.825442	4.943905
Stddev	.13027	.012862	.006622	.010903	.017453	.017504	.016763
%RSD	.5404172	.2645800	.1359155	.2270283	.3607284	.3627494	.3390570

#1	23.98593	4.866453	4.871267	4.794899	4.858469	4.811682	4.932742
#2	24.08574	4.870561	4.865739	4.797464	4.829587	4.819500	4.935794
#3	24.24426	4.846515	4.878926	4.814935	4.827051	4.845143	4.963181

Sample Name: CCV05 Acquired: 9/9/2025 17:13:10 Type: Unk
Method: 6010-200.7 NEW(v151) 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	4.781910	4.766458	4.857246
Stddev	.023230	.014253	.039043
%RSD	.4857838	.2990180	.8038114

#1	4.770003	4.782914	4.898699
#2	4.767048	4.758027	4.851870
#3	4.808679	4.758434	4.821170

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6255.255	107211.7	11264.09	5633.920	7008.557
Stddev	7.201	100.4	48.54	17.568	3.967
%RSD	.1151214	.0936411	.4309247	.3118205	.0565952

#1	6247.291	107243.5	11235.08	5643.312	7005.384
#2	6261.307	107099.3	11237.06	5613.653	7013.004
#3	6257.167	107292.5	11320.13	5644.796	7007.284

Sample Name: CCB05 Acquired: 9/9/2025 17:17:21 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.006406	-.009267	.0000995	-.003708	-.007503	-.017155	-.019157
Stddev	.001535	.001621	.0012793	.002315	.001119	.006175	.001712
%RSD	23.97003	17.49572	1285.753	62.41509	14.90811	35.99306	8.935632
#1	-.005277	-.010202	-.000545	-.002584	-.007715	-.011772	-.017272
#2	-.005786	-.007395	-.000729	-.006370	-.008501	-.015797	-.020614
#3	-.008154	-.010204	.001573	-.002171	-.006294	-.023895	-.019586
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000434	-.000044	-.069635	-.001816	-.004007	-.001750	-.008170
Stddev	.000026	.000018	.011859	.000083	.000186	.000363	.005917
%RSD	5.927986	41.75502	17.02998	4.558993	4.643676	20.71927	72.41818
#1	-.000409	-.000032	-.075120	-.001786	-.004027	-.002152	-.001786
#2	-.000461	-.000035	-.077758	-.001909	-.004183	-.001651	-.009255
#3	-.000431	-.000065	-.056027	-.001751	-.003812	-.001448	-.013469
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004612	-.050565	-.003931	-.001552	.1538278	-.002170	.0069228
Stddev	.000430	.011633	.000441	.000704	.0308349	.003275	.0000364
%RSD	9.321845	23.00604	11.20780	45.39125	20.04508	150.9393	.5257347
#1	-.005083	-.049699	-.004167	-.002004	.1184222	.001396	.0069178
#2	-.004241	-.062607	-.004203	-.001910	.1682713	-.002862	.0069615
#3	-.004511	-.039389	-.003423	-.000740	.1747900	-.005044	.0068892
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2552548	-.005006	-.007751	-.000316	-.008228	.0113330	-.006624
Stddev	.0499327	.000106	.000050	.000484	.001362	.0095980	.001169
%RSD	19.56190	2.119093	.6487109	153.1747	16.55172	84.69098	17.64332
#1	.2011332	-.005062	-.007732	-.000394	-.006668	.0007363	-.007260
#2	.2650989	-.004883	-.007713	.000202	-.009180	.0138198	-.007337
#3	.2995323	-.005072	-.007808	-.000757	-.008836	.0194429	-.005275

Sample Name: CCB05 Acquired: 9/9/2025 17:17:21 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.004743	-.006716	-.007871
Stddev	.002463	.002684	.000074
%RSD	51.93555	39.96525	.9423794

#1	-.004489	-.007669	-.007905
#2	-.002417	-.003685	-.007921
#3	-.007323	-.008793	-.007785

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6454.398	110739.9	11392.21	5819.409	7569.556
Stddev	11.112	203.9	20.64	28.569	8.915
%RSD	.1721665	.1841533	.1811695	.4909227	.1177754

#1	6456.948	110883.0	11415.92	5852.363	7569.822
#2	6464.015	110506.4	11382.49	5804.242	7578.335
#3	6442.233	110830.3	11378.23	5801.622	7560.511

Sample Name: PB169617BS Acquired: 9/9/2025 17:21:40 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.7628374	2.097313	.9379974	1.944194	.7758109	1.940392	.1774305
Stddev	.0020901	.076759	.0041858	.008676	.0029609	.004809	.0007966
%RSD	.2739855	3.659885	.4462523	.4462644	.3816566	.2478501	.4489810

#1	.7611665	2.014724	.9336200	1.934269	.7738616	1.942350	.1783476
#2	.7651810	2.110744	.9384113	1.950338	.7743530	1.943913	.1769096
#3	.7621647	2.166470	.9419609	1.947976	.7792181	1.934912	.1770344

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2018341	.1863928	.9185447	.3896873	.1892663	.3007673	2.894545
Stddev	.0016672	.0007108	.0039445	.0009860	.0005693	.0011394	.030137
%RSD	.8260120	.3813633	.4294287	.2530126	.3007732	.3788327	1.041169

#1	.2037238	.1856491	.9225634	.3899778	.1886110	.2996200	2.869434
#2	.2012073	.1864639	.9146788	.3885887	.1895488	.3007832	2.886235
#3	.2005712	.1870654	.9183920	.3904954	.1896390	.3018986	2.927965

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1981451	1.950010	.4806744	.0721901	2.959379	.2895896	.1999572
Stddev	.0006158	.030293	.0014452	.0003653	.052150	.0018259	.0005432
%RSD	.3107844	1.553484	.3006656	.5059771	1.762202	.6305067	.2716760

#1	.1986535	1.918425	.4790057	.0724538	2.899820	.2914825	.1993846
#2	.1974604	1.952782	.4814928	.0723434	2.981463	.2878390	.2000218
#3	.1983215	1.978821	.4815248	.0717732	2.996853	.2894473	.2004653

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.581633	.2999041	.3906871	.6631870	.1847167	.8457220	5.465505
Stddev	.083302	.0031026	.0015505	.0026914	.0016344	.0154279	.044508
%RSD	.8693933	1.034530	.3968700	.4058298	.8848175	1.824228	.8143453

#1	9.491498	.3034358	.3889129	.6601195	.1834059	.8379504	5.418763
#2	9.597616	.2976171	.3913661	.6642889	.1841963	.8634902	5.470374
#3	9.655786	.2986595	.3917823	.6651527	.1865479	.8357254	5.507378

Sample Name: PB169617BS Acquired: 9/9/2025 17:21:40 Type: Unk
Method: 6010-200.7 NEW(v151) 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 -.008723	.1955545	.1851512
Stddev	.001418	.0017262	.0002328
%RSD	16.25391	.8827242	.1257430
#1	-.007478	.1937740	.1852200
#2	-.010266	.1956686	.1853419
#3	-.008424	.1972208	.1848918

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6562.607	112176.7	11389.62	5862.982	7680.459
Stddev	23.041	208.5	74.32	26.327	26.366
%RSD	.3510918	.1858399	.6525041	.4490368	.3432923
#1	6573.574	112413.6	11305.39	5881.745	7691.408
#2	6578.116	112095.2	11417.57	5832.887	7699.587
#3	6536.132	112021.2	11445.92	5874.315	7650.382

Sample Name: PB169618BS Acquired: 9/9/2025 17:25:40 Type: Unk
Method: 6010-200.7 NEW(v151) 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	.7643979	2.044306	.9390673	1.945305	.7816715	1.936220	.1752966
Stddev	.0015093	.013660	.0024603	.005800	.0019230	.002668	.0005247
%RSD	.1974497	.6681884	.2619933	.2981592	.2460157	.1378031	.2993234

#1	.7635811	2.038832	.9386837	1.943426	.7827588	1.935971	.1755405
#2	.7661396	2.059854	.9368214	1.940678	.7828046	1.939004	.1756549
#3	.7634731	2.034232	.9416969	1.951812	.7794511	1.933685	.1746943

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2027958	.1876230	.9023313	.3926492	.1894199	.3007202	2.891510
Stddev	.0002592	.0004254	.0165834	.0011058	.0002514	.0011376	.018056
%RSD	.1277919	.2267522	1.837834	.2816121	.1326929	.3782970	.6244442

#1	.2025187	.1876055	.9135993	.3936101	.1896429	.3005054	2.878885
#2	.2028363	.1872067	.9101055	.3914406	.1891475	.2997053	2.912191
#3	.2030323	.1880570	.8832890	.3928970	.1894693	.3019499	2.883452

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1947318	1.948483	.4812793	.0725155	2.953858	.2900384	.2021740
Stddev	.0011680	.034053	.0008614	.0004923	.019965	.0015125	.0007000
%RSD	.5997745	1.747643	.1789867	.6788442	.6759072	.5214715	.3462541

#1	.1941877	1.913755	.4814875	.0721804	2.937650	.2895120	.2019139
#2	.1960725	1.949876	.4803329	.0722854	2.947765	.2917437	.2016414
#3	.1939351	1.981818	.4820176	.0730807	2.976160	.2888594	.2029669

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.554377	.2992885	.3900159	.6711965	.1849826	.8543599	5.555487
Stddev	.035733	.0009031	.0004534	.0000885	.0021346	.0077196	.006714
%RSD	.3739979	.3017625	.1162490	.0131885	1.153928	.9035529	.1208570

#1	9.587815	.2984692	.3901347	.6711922	.1828378	.8455124	5.551161
#2	9.558594	.2991394	.3895150	.6711102	.1871068	.8578438	5.552079
#3	9.516723	.3002570	.3903981	.6712871	.1850033	.8597235	5.563222

Sample Name: PB169618BS Acquired: 9/9/2025 17:25:40 Type: Unk
Method: 6010-200.7 NEW(v151) 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 -.010680	.1964957	.1829856
Stddev	.000775	.0013614	.0004876
%RSD	7.254525	.6928561	.2664518
#1	-.010726	.1950459	.1825085
#2	-.011430	.1977469	.1829651
#3	-.009883	.1966944	.1834830

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6427.564	109593.0	11214.90	5804.098	7449.924
Stddev	7.712	179.7	37.17	19.067	4.351
%RSD	.1199888	.1639555	.3314059	.3285070	.0583987
#1	6429.282	109735.8	11245.37	5824.870	7450.968
#2	6434.273	109651.9	11225.84	5787.393	7453.658
#3	6419.137	109391.2	11173.49	5800.030	7445.146

Sample Name: CCV06 Acquired: 9/9/2025 17:46:17 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.845749	5.078773	4.800945	4.861581	4.886171	9.715217	9.717738
Stddev	.002764	.035570	.008047	.005546	.002338	.051269	.264335
%RSD	.0570303	.7003682	.1676078	.1140750	.0478439	.5277140	2.720127

#1	4.847843	5.099938	4.810006	4.867766	4.883953	9.772559	9.911256
#2	4.846788	5.098674	4.798198	4.859927	4.888612	9.699285	9.416563
#3	4.842617	5.037707	4.794632	4.857051	4.885948	9.673805	9.825396

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2455305	2.408703	24.27372	.9768922	2.410483	1.217931	4.875387
Stddev	.0033816	.003426	.17564	.0033582	.001263	.002685	.045223
%RSD	1.377263	.1422157	.7235606	.3437678	.0523803	.2204669	.9275718

#1	.2493458	2.412602	24.47363	.9730745	2.411674	1.219807	4.824120
#2	.2429030	2.407328	24.14419	.9793902	2.410615	1.219131	4.909617
#3	.2443429	2.406178	24.20333	.9782118	2.409159	1.214855	4.892422

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.422471	24.28522	2.409339	1.222056	24.16860	2.431988	2.393792
Stddev	.017623	.25657	.001207	.002828	.32573	.008725	.003442
%RSD	.7274753	1.056486	.0501152	.2313834	1.347750	.3587422	.1437880

#1	2.442032	24.55600	2.410676	1.218924	23.79656	2.441996	2.392621
#2	2.407833	24.25394	2.409015	1.224421	24.40250	2.425985	2.397667
#3	2.417548	24.04573	2.408327	1.222823	24.30673	2.427982	2.391088

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.11820	4.906139	4.865476	4.806663	4.846039	4.860206	5.005925
Stddev	.31625	.066505	.001485	.011354	.023229	.065673	.022056
%RSD	1.311264	1.355544	.0305196	.2362187	.4793332	1.351238	.4405899

#1	23.76693	4.982299	4.865313	4.819743	4.872861	4.787203	5.028149
#2	24.38030	4.859534	4.867037	4.800899	4.832474	4.878938	5.005584
#3	24.20736	4.876584	4.864080	4.799347	4.832783	4.914479	4.984042

Sample Name: CCV06 Acquired: 9/9/2025 17:46:17 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.723918	4.735892	4.892214
Stddev	.010593	.016112	.093571
%RSD	.2242432	.3402063	1.912648

#1	4.735696	4.754494	4.999754
#2	4.720887	4.726852	4.829393
#3	4.715171	4.726330	4.847496

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6263.204	105529.3	11113.09	5586.679	7005.793
Stddev	6.111	246.3	181.46	14.822	4.296
%RSD	.0975622	.2333790	1.632843	.2653012	.0613256

#1	6264.209	105635.1	10910.16	5572.219	7000.840
#2	6256.653	105704.9	11259.75	5601.838	7008.521
#3	6268.750	105247.7	11169.36	5585.981	7008.017

Sample Name: CCB06 Acquired: 9/9/2025 17:50:30 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.006325	-.009942	-.000344	-.008930	-.006223	-.012553	-.018048
Stddev	.001659	.001667	.000419	.001560	.001787	.006321	.001288
%RSD	26.22883	16.77100	121.7417	17.47375	28.71930	50.35681	7.137208

#1	-.007742	-.008110	-.000118	-.007174	-.007307	-.010241	-.016752
#2	-.004500	-.010345	-.000087	-.009455	-.004160	-.007713	-.018064
#3	-.006734	-.011371	-.000828	-.010160	-.007202	-.019705	-.019328

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000497	-.000332	-.069460	-.001837	-.004108	-.001894	-.007270
Stddev	.000052	.000025	.012630	.000316	.000140	.000366	.005634
%RSD	10.37241	7.379764	18.18282	17.19703	3.407562	19.33404	77.50046

#1	-.000458	-.000327	-.055017	-.001943	-.004255	-.002264	-.005598
#2	-.000477	-.000359	-.078430	-.001482	-.004090	-.001885	-.013551
#3	-.000556	-.000311	-.074933	-.002086	-.003977	-.001532	-.002661

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004511	-.023665	-.003692	-.001352	-.005190	-.006132	-.004415
Stddev	.000256	.008745	.000268	.000442	.016874	.002699	.000087
%RSD	5.684891	36.95579	7.269584	32.68025	325.1295	44.00828	1.980685

#1	-.004371	-.014960	-.003934	-.000913	-.024664	-.003208	-.004507
#2	-.004354	-.023583	-.003738	-.001797	.004004	-.008528	-.004333
#3	-.004807	-.032451	-.003403	-.001347	.005090	-.006660	-.004406

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0314191	-.001894	-.007804	-.001510	-.008316	.0087045	-.008600
Stddev	.0352316	.000473	.000058	.000785	.001134	.0050232	.001034
%RSD	112.1341	24.98447	.7452329	51.96416	13.63681	57.70783	12.01856

#1	.0216169	-.001350	-.007750	-.000630	-.007651	.0081833	-.008787
#2	.0021266	-.002122	-.007797	-.002137	-.009625	.0039623	-.009528
#3	.0705138	-.002209	-.007866	-.001762	-.007671	.0139680	-.007486

Sample Name: CCB06 Acquired: 9/9/2025 17:50:30 Type: Unk
Method: 6010-200.7 NEW(v151) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	F -.010558	-.009028	-.007826
Stddev	.003635	.000755	.000113
%RSD	34.42518	8.363561	1.439670

#1	-.012546	-.008435	-.007712
#2	-.012765	-.009878	-.007829
#3	-.006363	-.008771	-.007937

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6605.631	112791.6	10914.85	5879.638	7856.493
Stddev	13.164	340.9	56.90	14.707	13.946
%RSD	.1992852	.3022094	.5213275	.2501335	.1775142

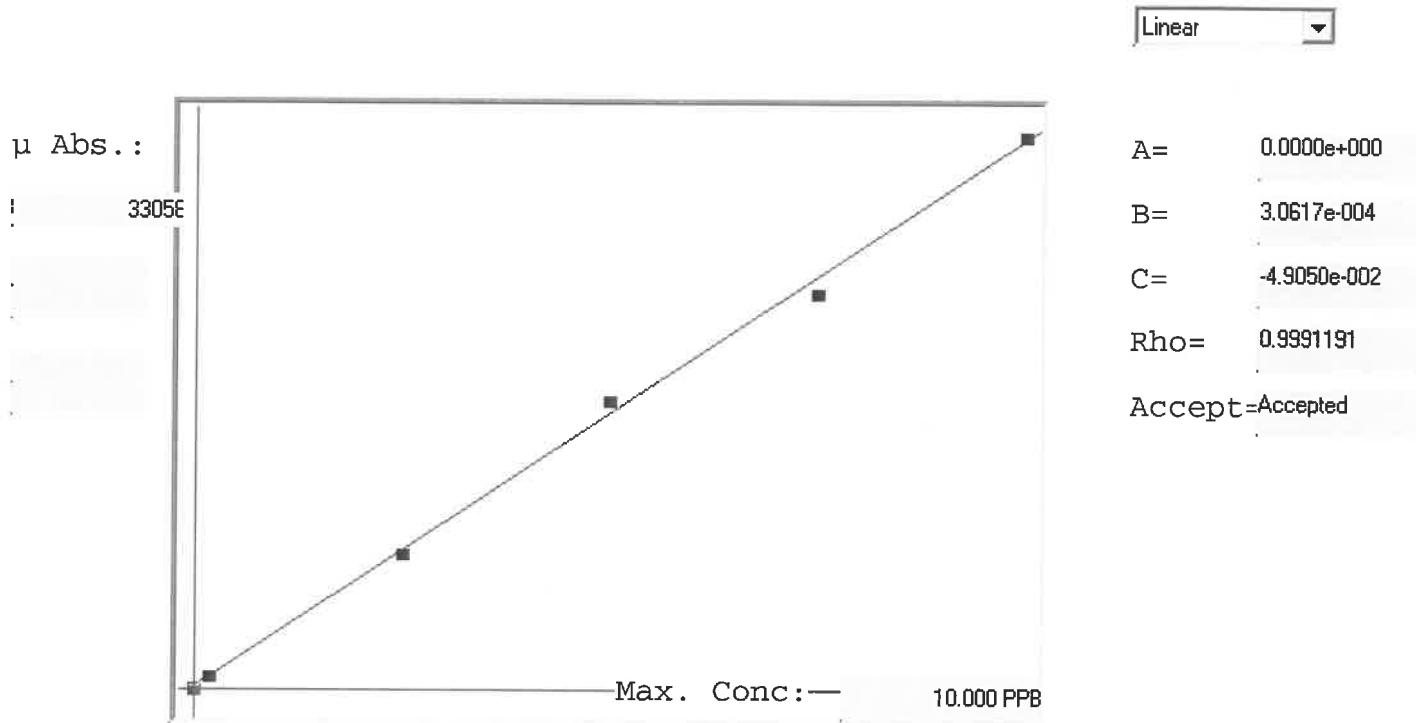
#1	6590.948	112526.7	10867.48	5863.022	7840.397
#2	6616.378	113176.1	10899.10	5890.983	7864.099
#3	6609.568	112671.9	10977.97	5884.910	7864.983

LB137126

INSTRUMENT ID: CV1

Reviewed By: jaswal
On: 9/10/2025 11:43:30 PM
Inst Id: CV1
LB: LB137126

7470A



Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%D
0.0	0.000	-0.028	-0.028	69	0.000	69	0				
0.2	0.200	0.218	0.018	872	0.0 %	872	0				
2.5	2.500	2.455	-0.045	8178	0.0 %	8178	0				
5.0	5.000	5.252	0.252	17313	0.0 %	17313					
7.5	7.500	7.231	-0.269	23779	0.0 %	23779					
10.0	10.000	10.072	0.072	33058	0.0 %	33058					

LB137126 INSTRUMENT ID CV:1

Method: 7470A Operator: Admin Date of Analysis: 10 Sep 2025 09:19:57

Type	Sample ID	Extended ID	Conc.	µ Abs	Units	Type	Strnd ConcMethod	Date
S	0.0 - 1	50	-	69	PPB	Std	0.00007470A	10 Sep 2025 09:23:11
S	0.2 - 1	50.2	-	872	PPB	Std	0.20007470A	10 Sep 2025 09:28:08
S	2.5 - 1	52.5	-	8178	PPB	Std	2.50007470A	10 Sep 2025 09:30:25
S	5.0 - 1	52.5	-	17313	PPB	Std	5.00007470A	10 Sep 2025 09:32:41
S	7.5 - 1	55.0	-	23779	PPB	Std	7.50007470A	10 Sep 2025 09:35:00
S	10.0 - 1	57.5	-	33058	PPB	Std	10.00007470A	10 Sep 2025 09:40:29
U	ICV24 - 1	ICV24	4.3117	14243	PPB	SMPL	-7470A	10 Sep 2025 09:48:25
U	ICB24 - 1	ICB24	0.0048	176	PPB	SMPL	-7470A	10 Sep 2025 09:56:19
U	CCV70 - 1	CCV70	5.1279	16909	PPB	SMPL	-7470A	10 Sep 2025 10:03:56
U	CCB70 - 1	CCB70	-0.0224	87	PPB	SMPL	-7470A	10 Sep 2025 10:09:02
U	CRA - 1	CRA	0.2139	859	PPB	SMPL	-7470A	10 Sep 2025 10:24:16
U	HighStd - 1	HighStd	9.7961	32156	PPB	SMPL	-7470A	10 Sep 2025 10:33:59
U	ChkStd - 1	ChkStd	8.2888	27233	PPB	SMPL	-7470A	10 Sep 2025 10:36:16
U	PB169614BL - 1	PBW	-0.0298	63	PPB	SMPL	-7470A	10 Sep 2025 10:41:14
U	PB169614BS - 1	LCSW	4.4801	14793	PPB	SMPL	-7470A	10 Sep 2025 10:46:25
U	Q3030-01 - 1	BLEECKER-082825HU01-TCLP	-0.1443	-311	PPB	SMPL	-7470A	10 Sep 2025 10:48:41
U	Q3032-02 - 1	SOIL-PILE-1	-0.1133	-210	PPB	SMPL	-7470A	10 Sep 2025 10:51:00
U	Q3032-05 - 1	SOIL-PILE-2	-0.1069	-189	PPB	SMPL	-7470A	10 Sep 2025 10:53:17
U	Q3050-01 - 1	72-11939	-0.0791	-98	PPB	SMPL	-7470A	10 Sep 2025 10:55:33
U	Q3051-02 - 1	VNJ-223	-0.0659	-55	PPB	SMPL	-7470A	10 Sep 2025 10:57:49
U	CCV71 - 1	CCV71	4.7951	15822	PPB	SMPL	-7470A	10 Sep 2025 11:05:11
U	CCB71 - 1	CCB71	-0.0080	134	PPB	SMPL	-7470A	10 Sep 2025 11:07:26
U	Q3051-02DUP - 1	VNJ-223DUP	-0.0126	119	PPB	SMPL	-7470A	10 Sep 2025 11:09:44
U	Q3051-02MS - 1	VNJ-223MS	4.4991	14855	PPB	SMPL	-7470A	10 Sep 2025 11:14:39
U	Q3051-02MSD - 1	VNJ-223MSD	3.9856	13178	PPB	SMPL	-7470A	10 Sep 2025 11:20:02
U	PB169616BL - 1	PBW	-0.0460	10	PPB	SMPL	-7470A	10 Sep 2025 11:24:57
U	PB169616BS - 1	LCSW	3.3855	11218	PPB	SMPL	-7470A	10 Sep 2025 11:30:01
U	Q3033-01 - 1	BUR-25-0077	0.4803	1729	PPB	SMPL	-7470A	10 Sep 2025 11:32:19
U	Q3033-01DUP - 1	BUR-25-0077DUP	0.2152	863	PPB	SMPL	-7470A	10 Sep 2025 11:43:03
U	Q3033-01MS - 1	BUR-25-0077MS	4.3934	14510	PPB	SMPL	-7470A	10 Sep 2025 11:45:20
U	Q3033-01MSD - 1	BUR-25-0077MSD	3.4324	11371	PPB	SMPL	-7470A	10 Sep 2025 11:47:37
U	Q3036-03DLX25 - 1	EGR-2	-0.1614	-367	PPB	SMPL	-7470A	10 Sep 2025 11:49:58
U	CCV72 - 1	CCV72	4.6411	15319	PPB	SMPL	-7470A	10 Sep 2025 12:14:07
U	CCB72 - 1	CCB72	-0.0490	0	PPB	SMPL	-7470A	10 Sep 2025 12:31:05
U	Q3045-02 - 1	DNAPL	-0.2845	-769	PPB	SMPL	-7470A	10 Sep 2025 12:58:24
U	P169589TB - 1	P169589TB	-0.0490	0	PPB	SMPL	-7470A	10 Sep 2025 13:03:47
U	Q3051-02LX5 - 1		-0.2517	-662	PPB	SMPL	-7470A	10 Sep 2025 13:06:40
U	Q3051-02A - 1		3.9134	12942	PPB	SMPL	-7470A	10 Sep 2025 13:09:30
U	Q3033-01LX5 - 1		-0.1574	-354	PPB	SMPL	-7470A	10 Sep 2025 13:12:09
U	Q3033-01A - 1		3.6740	12160	PPB	SMPL	-7470A	10 Sep 2025 13:14:37
U	CCV73 - 1	CCV73	4.7256	15595	PPB	SMPL	-7470A	10 Sep 2025 13:20:48
U	CCB73 - 1	CCB73	0.0107	195	PPB	SMPL	-7470A	10 Sep 2025 13:26:03

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: 09/09/2025 Time : 12:30 Temp : 96 °C

End Digest Date: 09/09/2025 Time : ~~15:32~~ Temp : 96 °C

Digestion tube ID: M5595 14:15

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: *S/28*

Supervisor Signature: *[Signature]*

Temp : 1. 96°C 2. N/A

JS
09/11/25

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 HCL	5.00	MP87148
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK#1 CELL#50 96C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
09/09/25 14:20 14:20	<i>SPS. met dig</i> Preparation Group	<i>SPS (10-11-25) (ab)</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
PB169589TB	PB169589TB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	1
PB169617BL	PBW617	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	2
PB169617BS	LCS617	<2	5	25	Colorless	Colorless	Clear	Clear	M6180,M6181	3
PB169621TB	PB169621TB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	4
Q2982-10	MOO-25-0236	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	5
Q3030-01	BLEECKER-082825HU01-TCL	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	6
Q3032-02	SOIL-PILE-1	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	7
Q3032-05	SOIL-PILE-2	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	8
Q3045-05	DNAPL-OIL	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	9
Q3045-06	DNAPL	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	10
Q3046-02	IRV-CONCRETE	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	11
Q3050-01	72-11939	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	12
Q3051-02	VNJ-223	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	13
Q3051-02MS	VNJ-223MS	<2	5	25	Colorless	Colorless	Clear	Clear	M6180,M6181	15
Q3051-02MSD	VNJ-223MSD	<2	5	25	Colorless	Colorless	Clear	Clear	M6180,M6181	16
Q3051-02DUP	VNJ-223DUP	<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
PB169589TB	LEB589	N/A	N/A	2000	N/A	N/A	N/A	4.93	1.5	T-1
Q2982-10	MOO-25-0236	01	100.02	2000	N/A	N/A	N/A	11.0	1.0	T-1
Q3030-01	BLEECKER-082825HU01-TCLP	02	100.01	2000	N/A	N/A	N/A	4.0	1.5	T-1
Q3032-02	SOIL-PILE-1	03	100.02	2000	N/A	N/A	N/A	7.2	1.5	T-1
Q3032-05	SOIL-PILE-2	04	100.03	2000	N/A	N/A	N/A	7.0	1.0	T-1
Q3045-05	DNAPL-OIL	N/A	N/A	N/A	N/A	N/A	N/A	5.8	1.5	N/A
Q3046-02	IRV-CONCRETE	05	100.01	2000	N/A	N/A	N/A	11.0	1.0	T-1
Q3050-01	72-11939	06	100.02	2000	N/A	N/A	N/A	7.6	1.5	T-1
Q3051-02	VNJ-223	07	100.03	2000	N/A	N/A	N/A	4.0	1.0	T-1

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
PB169621TB	LEB621	N/A	N/A	N/A	N/A	N/A	N/A	4.93	1.0	N/A
Q3045-06	DNAPL	N/A	N/A	N/A	N/A	N/A	N/A	9.0	1.5	N/A

SOP ID : M7470A-Mercury-20

SDG No : N/A

Matrix : WATER

Pipette ID: HG A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #1

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

Start Digest Date: 09/09/2025 Time : 10:15 Temp : 95 °C

End Digest Date: 09/09/2025 Time : 12:20 Temp : 95 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: *MB*

Supervisor Signature: *R*

Temp : 1. 95°C 2. N/A

Standardized Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP87139
CCV	30mL	MP87141
CRA	30mL	MP87143
Blank Spike	0.48mL	MP87132
Matrix Spike	0.48mL	MP87132

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	2.25mL	MP87071
KMnO4 (5%)	4.5mL	MP87072
K2S2O8 (5%)	2.4mL	MP87073
Hydroxylamine HCL (12%)	1.8mL	MP85895
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
0.0 ppb	S0	30MI	MP87133
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30MI	MP87134
2.5 ppb	S2.5	30MI	MP87135
5.0 ppb	S5.0	30MI	MP87136
7.5 ppb	S7.5	30MI	MP87137
10.0 ppb	S10.0	30MI	MP87138
ICV	ICV	30MI	MP87139
ICB	ICB	30MI	MP87140
CCV	CCV	30MI	MP87141
CCB	CCB	30MI	MP87142
CRI	CRI	30MI	MP87143
CHK STD	CHK STD	30MI	MP87144

Extraction Conformance/Non-Conformance Comments:

N/A		
Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
9/9/25 12:40	<i>MB - Dig, Lab</i>	<i>MB - Metal Lab</i>
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB169589TB	PB169589TB	3	30	<2	N/A	3-1
PB169614BL	PBW614	30	30	<2	N/A	2
PB169614BS	LCS614	30	30	<2	MP87132	3
Q3030-01	BLEECKER-082825HU01-TCLP	3	30	<2	N/A	4
Q3032-02	SOIL-PILE-1	3	30	<2	N/A	5
Q3032-05	SOIL-PILE-2	3	30	<2	N/A	6
Q3050-01	72-11939	3	30	<2	N/A	7
Q3051-02	VNJ-223	3	30	<2	N/A	8
Q3051-02DUP	VNJ-223DUP	3	30	<2	N/A	9
Q3051-02MS	VNJ-223MS	3	30	<2	MP87132	10
Q3051-02MSD	VNJ-223MSD	3	30	<2	MP87132	11

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Pre Pos
PB169589TB	LEB589	N/A	N/A	2000	N/A	N/A	N/A	4.93	1.5	T-1
Q2982-10	MOO-25-0236 ✕	01	100.02	2000	N/A	N/A	N/A	11.0	1.0	T-1
Q3030-01	BLEECKER-082825HU01-TCLP	02	100.01	2000	N/A	N/A	N/A	4.0	1.5	T-1
Q3032-02	SOIL-PILE-1	03	100.02	2000	N/A	N/A	N/A	7.2	1.5	T-1
Q3032-05	SOIL-PILE-2	04	100.03	2000	N/A	N/A	N/A	7.0	1.0	T-1
Q3045-05	DNAPL-OIL ✕	N/A	N/A	N/A	N/A	N/A	N/A	5.8	1.5	N/A
Q3046-02	IRV-CONCRETE ✕	05	100.01	2000	N/A	N/A	N/A	11.0	1.0	T-1
Q3050-01	72-11939	06	100.02	2000	N/A	N/A	N/A	7.6	1.5	T-1
Q3051-02	VNJ-223	07	100.03	2000	N/A	N/A	N/A	4.0	1.0	T-1

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137122

Review By	Janvi	Review On	9/10/2025 11:55:53 AM
Supervise By	jaswal	Supervise On	9/10/2025 11:43:17 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	09/09/25 11:48		Jaswal	OK
2	S1	S1	CAL2	09/09/25 11:53		Jaswal	OK
3	S2	S2	CAL3	09/09/25 11:57		Jaswal	OK
4	S3	S3	CAL4	09/09/25 12:01		Jaswal	OK
5	S4	S4	CAL5	09/09/25 12:05		Jaswal	OK
6	S5	S5	CAL6	09/09/25 12:09		Jaswal	OK
7	ICV01	ICV01	ICV	09/09/25 12:14		Jaswal	OK
8	LLICV01	LLICV01	LLICV	09/09/25 12:26		Jaswal	OK
9	ICB01	ICB01	ICB	09/09/25 12:31		Jaswal	OK
10	CRI01	CRI01	CRDL	09/09/25 12:36		Jaswal	OK
11	ICSA01	ICSA01	ICSA	09/09/25 12:42		Jaswal	OK
12	ICSAB01	ICSAB01	ICSAB	09/09/25 12:46		Jaswal	OK
13	ICSADL	ICSADL	ICSA	09/09/25 12:50		Jaswal	OK
14	ICSABDL	ICSABDL	ICSAB	09/09/25 12:55		Jaswal	OK
15	CCV01	CCV01	CCV	09/09/25 12:59		Jaswal	OK
16	CCB01	CCB01	CCB	09/09/25 13:26		Jaswal	OK
17	LR-1	LR-1	HIGH STD	09/09/25 13:30		Jaswal	OK
18	LR-2	LR-2	HIGH STD	09/09/25 13:35		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137122

Review By	Janvi	Review On	9/10/2025 11:55:53 AM
Supervise By	jaswal	Supervise On	9/10/2025 11:43:17 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	LR-3	LR-3	HIGH STD	09/09/25 13:39		Jaswal	OK
20	Q3027-01	HD-01-09042025	SAM	09/09/25 13:44		Jaswal	OK
21	Q3027-01DUP	HD-01-09042025DUP	DUP	09/09/25 13:48		Jaswal	OK
22	Q3027-01L	HD-01-09042025L	SD	09/09/25 13:53		Jaswal	OK
23	Q3027-01MS	HD-01-09042025MS	MS	09/09/25 13:57		Jaswal	OK
24	Q3027-01MSD	HD-01-09042025MSD	MSD	09/09/25 14:01		Jaswal	OK
25	Q3027-01A	HD-01-09042025A	PS	09/09/25 14:05	0.1 ML OF EACH M6008 AND M6017 IN 10ML SAMPLE.	Jaswal	OK
26	Q2982-10	MOO-25-0236	SAM	09/09/25 14:10		Jaswal	OK
27	CCV02	CCV02	CCV	09/09/25 14:14		Jaswal	OK
28	CCB02	CCB02	CCB	09/09/25 14:19		Jaswal	OK
29	Q3030-01	BLEECKER-082825H	SAM	09/09/25 14:27		Jaswal	OK
30	Q3032-02	SOIL-PILE-1	SAM	09/09/25 14:32		Jaswal	OK
31	Q3032-05	SOIL-PILE-2	SAM	09/09/25 14:36		Jaswal	OK
32	Q3045-05	DNAPL-OIL	SAM	09/09/25 14:41		Jaswal	OK
33	Q3046-02	IRV-CONCRETE	SAM	09/09/25 14:45		Jaswal	OK
34	Q3050-01	72-11939	SAM	09/09/25 14:50		Jaswal	OK
35	Q3045-06	DNAPL	SAM	09/09/25 14:54		Jaswal	OK
36	Q3051-02	VNJ-223	SAM	09/09/25 14:58		Jaswal	OK
37	Q3051-02DUP	VNJ-223DUP	DUP	09/09/25 15:03		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137122

Review By	Janvi	Review On	9/10/2025 11:55:53 AM
Supervise By	jaswal	Supervise On	9/10/2025 11:43:17 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	Q3051-02L	VNJ-223L	SD	09/09/25 15:07		Jaswal	OK
39	CCV03	CCV03	CCV	09/09/25 15:11		Jaswal	OK
40	CCB03	CCB03	CCB	09/09/25 15:25		Jaswal	OK
41	Q3051-02MS	VNJ-223MS	MS	09/09/25 15:29		Jaswal	OK
42	Q3051-02MSD	VNJ-223MSD	MSD	09/09/25 15:33		Jaswal	OK
43	Q3051-02A	VNJ-223A	PS	09/09/25 15:38	0.1 ML OF EACH M6008 AND M6017 IN 10ML SAMPLE.	Jaswal	OK
44	PB169589TBRE	PB169589TBRE	MB	09/09/25 15:49		Jaswal	OK
45	PB169621TB	PB169621TB	MB	09/09/25 15:54		Jaswal	OK
46	PB169589TB	PB169589TB	MB	09/09/25 15:58		Jaswal	OK
47	PB169617BL	PB169617BL	MB	09/09/25 16:03		Jaswal	OK
48	PB169618BL	PB169618BL	MB	09/09/25 16:11		Jaswal	OK
49	Q3040-01	001 willets Pt Blvd(july	SAM	09/09/25 16:20		Jaswal	OK
50	CCV04	CCV04	CCV	09/09/25 16:24		Jaswal	OK
51	CCB04	CCB04	CCB	09/09/25 16:28		Jaswal	OK
52	Q3040-02	002 35th Ave (JULY)	SAM	09/09/25 16:39		Jaswal	OK
53	Q3041-01	001 Willets Pt Blvd (S	SAM	09/09/25 16:44		Jaswal	OK
54	Q3041-04	002 35th Ave(sep)	SAM	09/09/25 16:48		Jaswal	OK
55	Q3041-04DUP	002 35th Ave(sep)DU	DUP	09/09/25 16:52		Jaswal	OK
56	Q3041-04L	002 35th Ave(sep)L	SD	09/09/25 16:56		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137122

Review By	Janvi	Review On	9/10/2025 11:55:53 AM
Supervise By	jaswal	Supervise On	9/10/2025 11:43:17 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	Q3041-04MS	002 35th Ave(sep)MS	MS	09/09/25 17:00		Jaswal	OK
58	Q3041-04MSD	002 35th Ave(sep)MS	MSD	09/09/25 17:05		Jaswal	OK
59	Q3041-04A	002 35th Ave(sep)A	PS	09/09/25 17:09	0.1 ML OF EACH M6008 AND M6017 IN 10ML SAMPLE.	Jaswal	OK
60	CCV05	CCV05	CCV	09/09/25 17:13		Jaswal	OK
61	CCB05	CCB05	CCB	09/09/25 17:17		Jaswal	OK
62	PB169617BS	PB169617BS	LCS	09/09/25 17:21		Jaswal	OK
63	PB169618BS	PB169618BS	LCS	09/09/25 17:25		Jaswal	OK
64	CCV06	CCV06	CCV	09/09/25 17:46		Jaswal	OK
65	CCB06	CCB06	CCB	09/09/25 17:50		Jaswal	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137126

Review By	mohan	Review On	9/10/2025 4:12:02 PM
Supervise By	jaswal	Supervise On	9/10/2025 11:43:30 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87132,MP87133,MP87134,MP87135,MP87136,MP87137,MP87138		
ICV Standard	MP87139		
CCV Standard	MP87141		
ICSA Standard			
CRI Standard	MP87143		
LCS Standard			
Chk Standard	MP87140,MP87142,MP87144,MP87146		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	09/10/25 09:23		mohan	OK
2	S0.2	S0.2	CAL2	09/10/25 09:28		mohan	OK
3	S2.5	S2.5	CAL3	09/10/25 09:30		mohan	OK
4	S5	S5	CAL4	09/10/25 09:32		mohan	OK
5	S7.5	S7.5	CAL5	09/10/25 09:35		mohan	OK
6	S10	S10	CAL6	09/10/25 09:40		mohan	OK
7	ICV24	ICV24	ICV	09/10/25 09:48		mohan	OK
8	ICB24	ICB24	ICB	09/10/25 09:56		mohan	OK
9	CCV70	CCV70	CCV	09/10/25 10:03		mohan	OK
10	CCB70	CCB70	CCB	09/10/25 10:09		mohan	OK
11	CRA	CRA	CRDL	09/10/25 10:24		mohan	OK
12	HighStd	HighStd	HIGH STD	09/10/25 10:33		mohan	OK
13	ChkStd	ChkStd	SAM	09/10/25 10:36		mohan	OK
14	PB169614BL	PB169614BL	MB	09/10/25 10:41		mohan	OK
15	PB169614BS	PB169614BS	LCS	09/10/25 10:46		mohan	OK
16	Q3030-01	BLEECKER-082825H	SAM	09/10/25 10:48		mohan	OK
17	Q3032-02	SOIL-PILE-1	SAM	09/10/25 10:51		mohan	OK
18	Q3032-05	SOIL-PILE-2	SAM	09/10/25 10:53		mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137126

Review By	mohan	Review On	9/10/2025 4:12:02 PM
Supervise By	jaswal	Supervise On	9/10/2025 11:43:30 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87132,MP87133,MP87134,MP87135,MP87136,MP87137,MP87138		
ICV Standard	MP87139		
CCV Standard	MP87141		
ICSA Standard			
CRI Standard	MP87143		
LCS Standard			
Chk Standard	MP87140,MP87142,MP87144,MP87146		

19	Q3050-01	72-11939	SAM	09/10/25 10:55		mohan	OK
20	Q3051-02	VNJ-223	SAM	09/10/25 10:57		mohan	OK
21	CCV71	CCV71	CCV	09/10/25 11:05		mohan	OK
22	CCB71	CCB71	CCB	09/10/25 11:07		mohan	OK
23	Q3051-02DUP	VNJ-223DUP	DUP	09/10/25 11:09		mohan	OK
24	Q3051-02MS	VNJ-223MS	MS	09/10/25 11:14		mohan	OK
25	Q3051-02MSD	VNJ-223MSD	MSD	09/10/25 11:20		mohan	OK
26	PB169616BL	PB169616BL	MB	09/10/25 11:24		mohan	OK
27	PB169616BS	PB169616BS	LCS	09/10/25 11:30		mohan	OK
28	Q3033-01	BUR-25-0077	SAM	09/10/25 11:32		mohan	OK
29	Q3033-01DUP	BUR-25-0077DUP	DUP	09/10/25 11:43		mohan	OK
30	Q3033-01MS	BUR-25-0077MS	MS	09/10/25 11:45		mohan	OK
31	Q3033-01MSD	BUR-25-0077MSD	MSD	09/10/25 11:47		mohan	OK
32	Q3036-03DL	EGR-2DL	SAM	09/10/25 11:49	25X Report Straight Dilution, pls confirm	mohan	OK
33	CCV72	CCV72	CCV	09/10/25 12:14		mohan	OK
34	CCB72	CCB72	CCB	09/10/25 12:31		mohan	OK
35	Q3045-02	DNAPL	SAM	09/10/25 12:58		mohan	OK
36	PB169589TB	PB169589TB	MB	09/10/25 13:03		mohan	OK
37	Q3051-02L	VNJ-223L	SD	09/10/25 13:06		mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137126

Review By	mohan	Review On	9/10/2025 4:12:02 PM
Supervise By	jaswal	Supervise On	9/10/2025 11:43:30 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87132,MP87133,MP87134,MP87135,MP87136,MP87137,MP87138		
ICV Standard	MP87139		
CCV Standard	MP87141		
ICSA Standard			
CRI Standard	MP87143		
LCS Standard			
Chk Standard	MP87140,MP87142,MP87144,MP87146		

38	Q3051-02A	VNJ-223A	PS	09/10/25 13:09		mohan	OK
39	Q3033-01L	BUR-25-0077L	SD	09/10/25 13:12		mohan	OK
40	Q3033-01A	BUR-25-0077A	PS	09/10/25 13:14		mohan	OK
41	CCV73	CCV73	CCV	09/10/25 13:20		mohan	OK
42	CCB73	CCB73	CCB	09/10/25 13:26		mohan	OK

SOP ID : M1311-TCLP-16
SDG No : N/A
Weigh By : JP
Balance ID : WC SC-7
pH Meter ID : WC PH METER-1
Extraction By : JP
Filter By : JP
Pipette ID : WC
Tumbler ID : T-1
TCLP Filter ID : 40819719

Start Prep Date : 09/08/2025 **Time :** 16:00
End Prep Date : 09/09/2025 **Time :** 09:30
Combination Ratio : 20
ZHE Cleaning Batch : N/A
Initial Room Temperature: 23 °C
Final Room Temperature: 22 °C
TCLP Technician Signature : *[Signature]*
Supervisor By : 12

Standard Name	MLS USED	STD REF. # FROM LOG
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE U	Lot Number
TCLP-FLUID-1	N/A	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 checked,30 rpm. q3045-05 is oil sample so no fluid determination and % is <0.5 so consider as water sample. q3051-02 is used for MS-MSD.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
09/09/25 10:40	<i>[Signature]</i> 120 Room	<i>[Signature]</i> RI/EXT
	Preparation Group	Analysis Group <i>[Signature]</i>

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
PB169589TB	LEB589	N/A	N/A	N/A	N/A	N/A	N/A
Q2982-10	MOO-25-0236	N/A	N/A	N/A	N/A	100	N/A
Q3030-01	BLEECKER-082825HU01-TCLP	N/A	N/A	N/A	N/A	100	N/A
Q3032-02	SOIL-PILE-1	N/A	N/A	N/A	N/A	100	N/A
Q3032-05	SOIL-PILE-2	N/A	N/A	N/A	N/A	100	N/A
Q3045-05	DNAPL-OIL	N/A	N/A	N/A	N/A	<0.5	N/A
Q3046-02	IRV-CONCRETE	N/A	N/A	N/A	N/A	100	N/A
Q3050-01	72-11939	N/A	N/A	N/A	N/A	100	N/A
Q3051-02	VNJ-223	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
PB169589TB	LEB589	N/A	N/A	N/A	N/A	#1	4.93
Q2982-10	MOO-25-0236	5.02	96.5	11.5	4.5	#1	4.93
Q3030-01	BLEECKER-082825HU01-TCLP	5.00	96.5	6.0	2.5	#1	4.93
Q3032-02	SOIL-PILE-1	5.01	96.5	9.0	3.5	#1	4.93
Q3032-05	SOIL-PILE-2	5.02	96.5	8.6	3.5	#1	4.93
Q3045-05	DNAPL-OIL	N/A	N/A	N/A	N/A	N/A	N/A
Q3046-02	IRV-CONCRETE	5.02	96.5	11.5	4.5	#1	4.93
Q3050-01	72-11939	5.02	96.5	8.2	3.5	#1	4.93
Q3051-02	VNJ-223	5.02	96.5	5.6	2.0	#1	4.93

Prep Standard - Chemical Standard Summary

Order ID : Q3030

Test : TCLP ICP Metals,TCLP Mercury

Prepbatch ID : PB169614,PB169617,

Sequence ID/Qc Batch ID: LB137122,LB137122,LB137122,LB137126,

Standard ID :

MP85895,MP87031,MP87032,MP87033,MP87034,MP87035,MP87036,MP87038,MP87040,MP87042,MP87043,MP87044,MP87045,MP87046,MP87047,MP87048,MP87049,MP87071,MP87072,MP87073,MP87132,MP87133,MP87134,MP87135,MP87136,MP87137,MP87138,MP87139,MP87140,MP87141,MP87142,MP87143,MP87144,MP87146,MP87148,

Chemical ID :

M4371,M4397,M4916,M5062,M5467,M5658,M5748,M5751,M5798,M5799,M5800,M5801,M5814,M5820,M5882,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,W 3112,



<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	MP85895	06/05/2025	09/30/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
FROM 2000.00000ml of W3112 + 240.00000gram of M4371 + 240.00000gram of M5884 = 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>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP87031	09/02/2025	10/03/2025	Sarabjit Jaswal	None	None	Janvi Patel
<u>FROM</u> 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
<u>FROM</u>	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							

<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
<u>FROM</u> 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>
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							

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4227	LR-3	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>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP87132	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/10/2025

A)

FROM 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	MP87133	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/10/2025
<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>
1341	Hg 0.2 PPB STD	MP87134	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/10/2025
FROM 2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87132 = 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>
1342	Hg 2.5 PPB STD	MP87135	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
A) FROM 2.50000ml of M6187 + 245.00000ml of W3112 + 2.50000ml of MP87132 = 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	MP87136	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/10/2025
FROM 2.50000ml of M6187 + 242.50000ml of W3112 + 5.00000ml of MP87132 = 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	MP87137	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
A) FROM 2.50000ml of M6187 + 240.00000ml of W3112 + 7.50000ml of MP87132 = 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	MP87138	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
A) FROM 2.50000ml of M6187 + 237.50000ml of W3112 + 10.00000ml of MP87132 = 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	MP87139	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/10/2025
<u>FROM</u>	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)	MP87140	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
FROM 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)	MP87141	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 09/10/2025
<u>FROM</u>	485.00000ml of W3112 + 5.00000ml of M6187 + 10.00000ml of MP87132 = 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)	MP87142	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
FROM 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)	MP87143	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/10/2025
<u>FROM</u>	2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87132 = 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)	MP87144	09/09/2025	09/10/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 09/10/2025
<u>FROM</u>	2.50000ml of M6187 + 240.50000ml of W3112 + 7.00000ml of MP87132 = 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>
68	STANNOUS CHLORIDE SOLUTION	MP87146	09/09/2025	09/10/2025	Mohan Bera	None	Glass Pipette-A	Sarabjit Jaswal 09/10/2025
<u>FROM</u> 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6151 = Final Quantity: 500.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
170	1:1HCL	MP87148	09/09/2025	02/17/2026	Sagar Kanani	None	None	Sarabjit Jaswal
								09/10/2025

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2196-01 / Hydroxylamine Hydrochloride, Crystal (cs/4x500g)	0000215387	06/25/2025	07/01/2019 / RICHARD	06/07/2019 / RICHARD	M4371

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ Nickel (Ni) 1000PPM	091223	09/12/2026	01/02/2024 / bin	12/20/2023 / jaswal	M5748

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58029 / Cu, 1000 PPM, 500 ml	071723	07/17/2026	10/01/2024 / Jaswal	08/25/2023 / jaswal	M5751

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57005 / B, 1000 PPM, 125 ml	071123	07/11/2026	03/26/2024 / Sohil	01/03/2024 / jaswal	M5814

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	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-3980-01 / Stannous Chloride (cs/4x500g)	232820	08/31/2028	04/30/2024 / mohan	04/25/2024 / mohan	M5882

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3624-05 / Sodium Chloride, Crystal (cs/4x2.5kg)	0000281938	07/06/2026	04/30/2024 / mohan	04/25/2024 / mohan	M5884

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

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Li, 1000 PPM, 125 ml	061224	06/21/2027	06/06/2025 / Janvi	07/01/2024 / Jaswal	M5971

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

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

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

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

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

CHEMICAL RECEIPT LOG BOOK

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

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

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

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

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

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	V2-MEB746762	01/01/2026	01/01/2025 / kareem	09/19/2024 / kareem	M6076

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	V2-MEB746762	09/06/2029	01/23/2025 / kareem	09/19/2024 / kareem	M6077

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

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58111 / Na, 10000 PPM, 500 ml	072424	07/24/2027	01/23/2025 / kareem	01/13/2025 / Jaswal	M6144

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	121724	12/17/2027	02/04/2025 /	01/13/2025 / Jaswal	M6145

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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

CHEMICAL RECEIPT LOG BOOK

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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

CHEMICAL RECEIPT LOG BOOK

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Mo, 1000 PPM, 125 ml	080528	08/05/2028	08/06/2025 / Janvi	08/06/2025 / Janvi	M6178

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-1 / Laboratory Fortified Stock Solution 1, 125 ml	W2-MEB752149	02/05/2026	08/06/2025 / Janvi	07/22/2025 / Janvi	M6180

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	V2-MEB7433480	02/05/2026	08/06/2025 / Janvi	07/22/2025 / Janvi	M6181

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

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

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

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

M5882
 M3

Certificate of Analysis

1 Reagent Lane
 Fair Lawn, NJ 07410
 201.796.7100 tel
 201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	T142	Quality Test / Release Date	08/17/2023
Lot Number	232820		
Description	STANNOUS CHLORIDE, DIHYDRATE CERTIFIED ACS (Suitable for Mercury Determination)		
Country of Origin	United States	Suggested Retest Date	Aug/2028
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear crystals
ASSAY	%	Inclusive Between 98 - 103	100.65
CALCIUM	%	<= 0.005	0.0017
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	%	<= 0.003	0.0011
LEAD (Pb)	%	<= 0.01	0.0006
MERCURY (Hg)	ppm	<= 0.05	<0.05
POTASSIUM (K)	%	<= 0.005	0.0001
SODIUM (Na)	%	<= 0.01	<0.01
SOLUBILITY IN HCL	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	PASS/FAIL	= P.T. (ABOUT 0.003%)	P.T. (ABOUT 0.003%)



Harout Sahagian - Quality Control Supervisor - Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.

If there are any questions with this certificate, please call at (800) 227-6701.

*Based on suggested storage condition.



CERTIFIED WEIGHT REPORT:

Part Number:	57056	Lot #	
Lot Number:	010924	Solvent:	Nitric Acid
Description:	Barium (Ba)		
Expiration Date:	010927	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):	2000.02	0.058	Flask Uncertainty

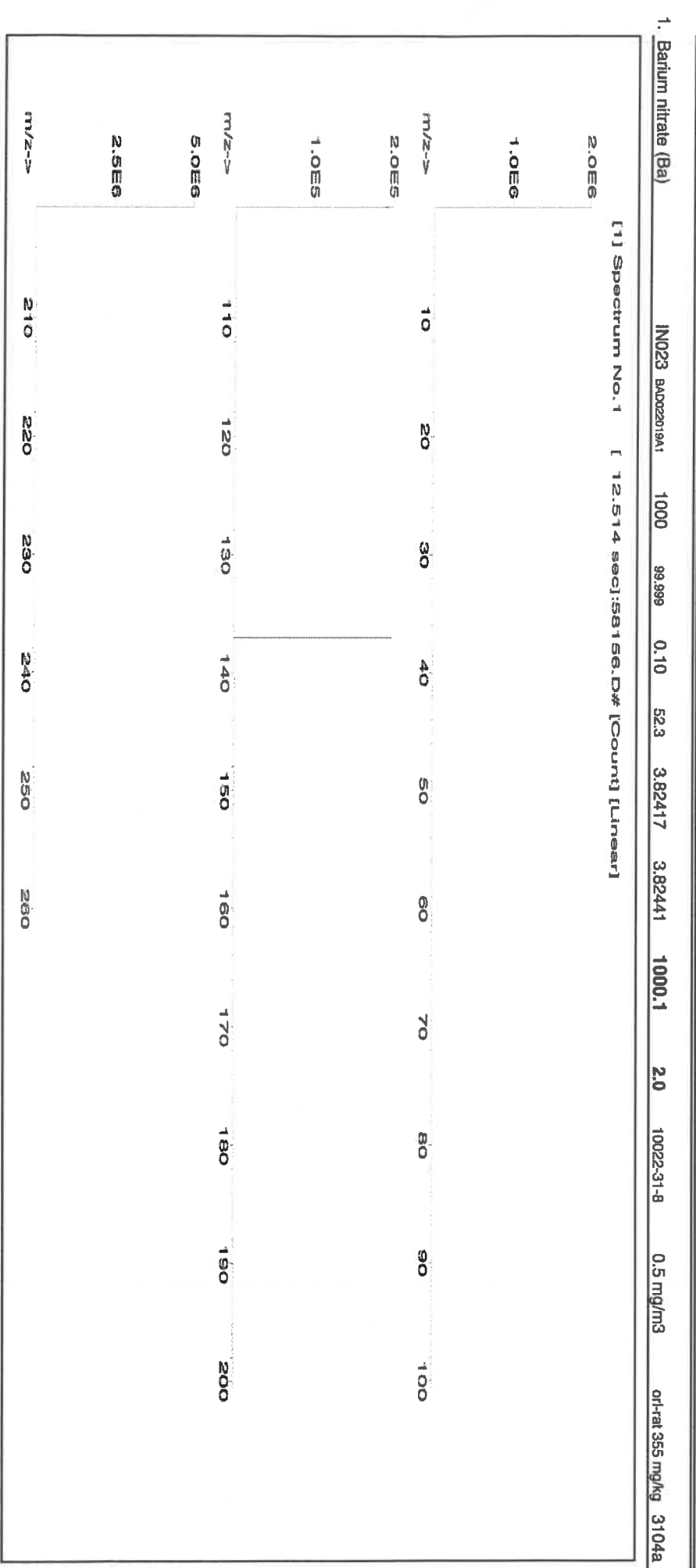
Formulated By: Giovanni Esposito

010924

Reviewed By: Pedro L. Renteria

010924

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
1. Barium nitrate (Ba)	IN023	BA0022019A1	1000	99.999	0.10	52.3	3.82417	3.82441	1000.1





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57048
070124
Cadmium (Cd)

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

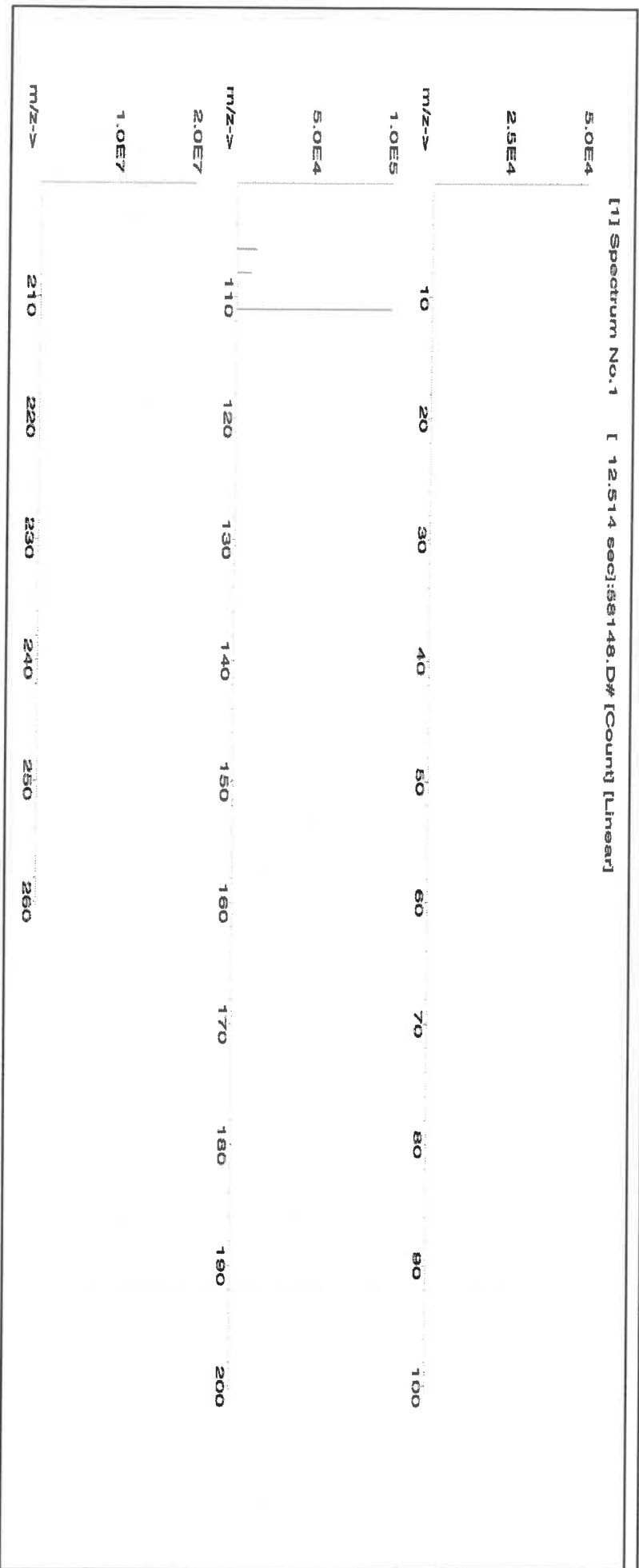
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	070124
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	070124

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 WEIGHT REPORT:

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

Solvent: **24002546**
Nitric Acid

Lot #

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

2% **40.0**
(mL) **Nitric Acid**

Weight shown below was diluted to (mL): **2000.02**

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

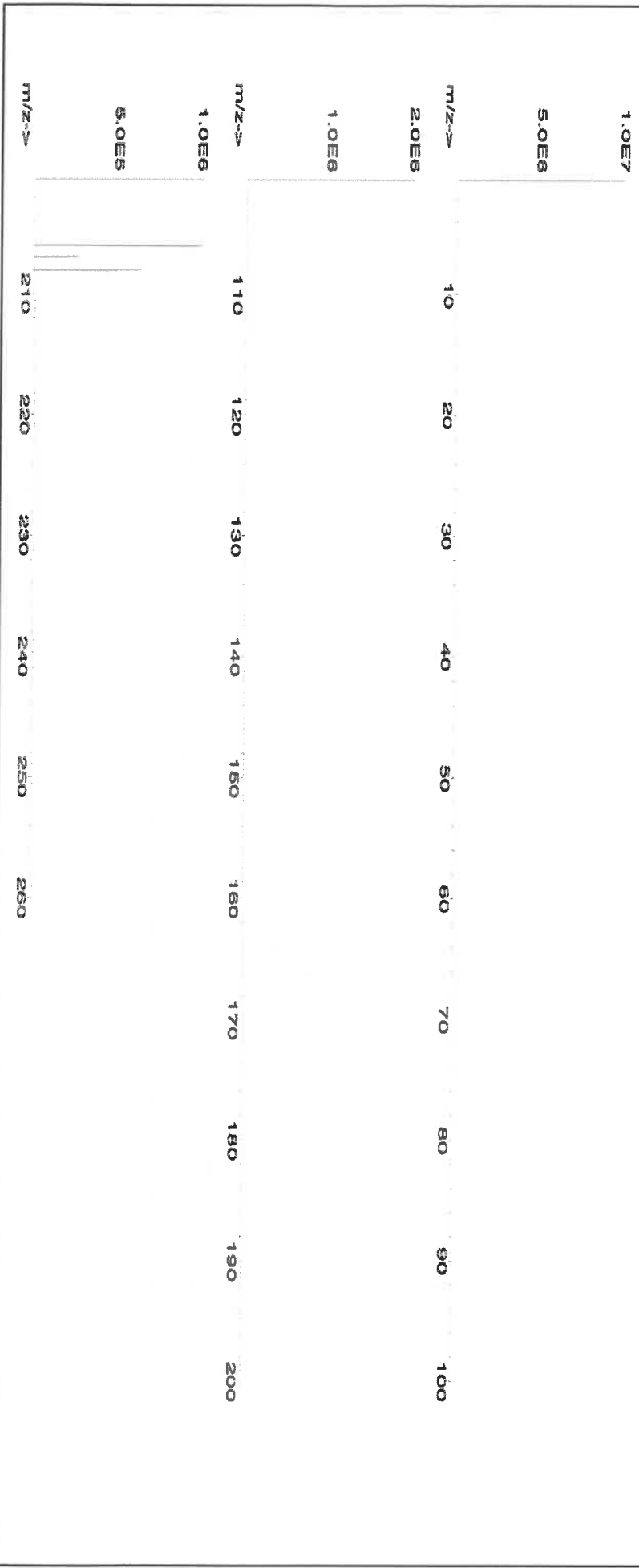
Formulated By:	Lawrence Barry
110923	
Reviewed By:	Pedro L. Rentas
110923	

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. **Lead(II) nitrate (Pb)** IN029 PED122016A1 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).

M4371

Hydroxylamine Hydrochloride, Crystal
BAKER ANALYZED® A.C.S. Reagent
Suitable for Mercury Determination
(hydroxylammonium chloride)

Rec - 06.07.19



avantortm

Material No.: 2196-01
Batch No.: 0000215387
Manufactured Date: 2018/06/27
Retest Date: 2025/06/25
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (NH ₂ OH · HCl) (by KMnO ₄ titrn)	>= 96.0 %	99.1
Clarity of Alcohol Solution	Passes Test	PT
Residue after Ignition	<= 0.050 %	0.017
Titrate Free Acid (meq/g)	<= 0.25	0.19
Ammonium (NH ₄)	Passes Test	PT
Sulfur Compounds (as SO ₄)	<= 0.005 %	< 0.003
Trace Impurities - ACS - Heavy Metals (as Pb)	<= 5 ppm	4
Trace Impurities - Iron (Fe)	<= 5 ppm	< 3
Trace Impurities - Mercury (Hg)	<= 0.050 ppm	< 0.005

For Laboratory, Research or Manufacturing Use

Country of Origin: CN
Packaging Site: Paris Mfg Ctr & DC

ISO

Phillipsburg, NJ 9001:2015, FSSC22000
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Gliwice, Poland 9001:2015, 13485:2012
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2015, 17025:2005
Panoli, India 9001:2015

James Ethier

Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

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

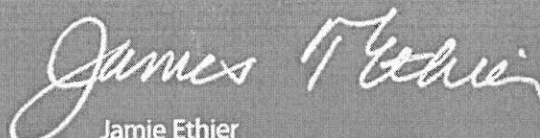
Meets ACS Reagent Chemical Requirements,

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

M4913-16

MS

Certificate of Analysis

1 Reagent Lane
 Fair Lawn, NJ 07410
 201.796.7100 tel
 201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120632

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	P279	Quality Test / Release Date	01/12/2021
Lot Number	210306		
Description	POTASSIUM PERMANGANATE, A.C.S.		
Country of Origin	United States	Suggested Retest Date	Jan/2026

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Dark purple to purple green crystals
ASSAY	%	>= 99	99.3
CHLORIDE & CHLORATE	%	<= 0.005	<0.005
IDENTIFICATION	PASS/FAIL	= PASS TEST	pass test
INSOLUBLE MATTER	%	<= 0.2	<0.2
MERCURY (Hg)	ppm	<= 0.05	<0.004
SULFATE (SO4)	%	<= 0.02	<0.02

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
 If there are any questions with this certificate, please call at (800) 227-6701.

*Based on suggested storage condition.

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
MB

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Mass Spec Solution
Catalog Number: MSHG-10PPM
Lot Number: S2-HG709270
Matrix: 10% (v/v) HCl
Value / Analyte(s): 10 µg/mL ea:
Mercury
Starting Material: Hg metal
Starting Material Lot#: 1959
Starting Material Purity: 99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL
Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
Hg	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance.

$$w_i = (1/u_{char i}^2) / (\sum (1/u_{char i}^2))$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

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

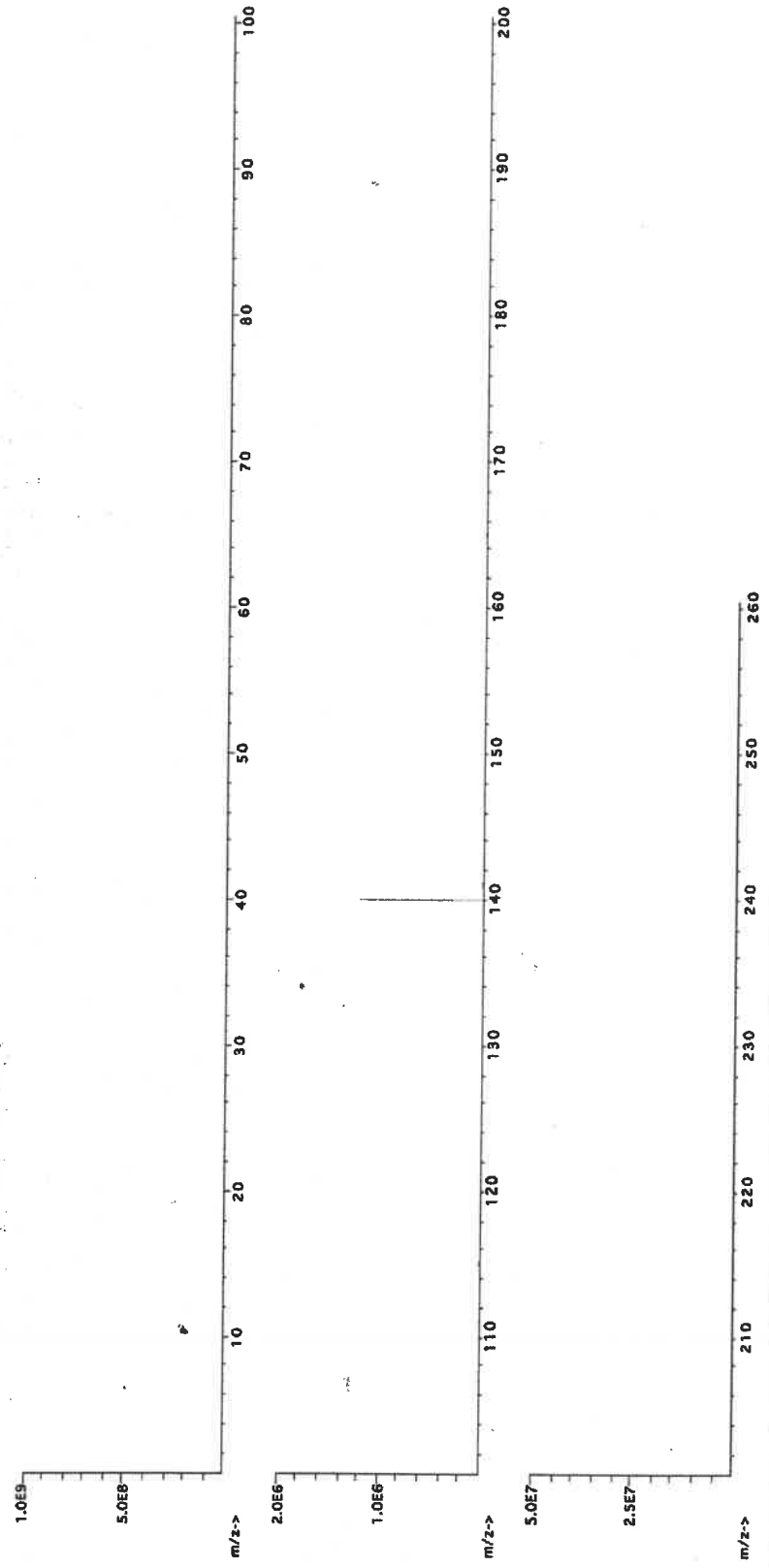
SDS Information

Expanded Uncertainty
Actual Weight (g)
Actual Conc. (µg/mL)
CAS#
OSHA PEL (TWA)
LD50
SRM
NA
NA
10294-41-4
2.0
1000.0
3.04921
3.04919
32.8
0.10
99.999
1000
Z512CEB1
IN146

Compound

1. Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.8	3.04919	3.04921	1000.0	2.0	10294-41-4	NA	NA	NA
------------------------------------	-------	----------	------	--------	------	------	---------	---------	--------	-----	------------	----	----	----

[1] Spectrum No.1 [43.472 sec]58158.D# [Count] [Linear]





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.2	Ce	T	Eu	<0.02	In	<0.02	Mg	<0.01	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**

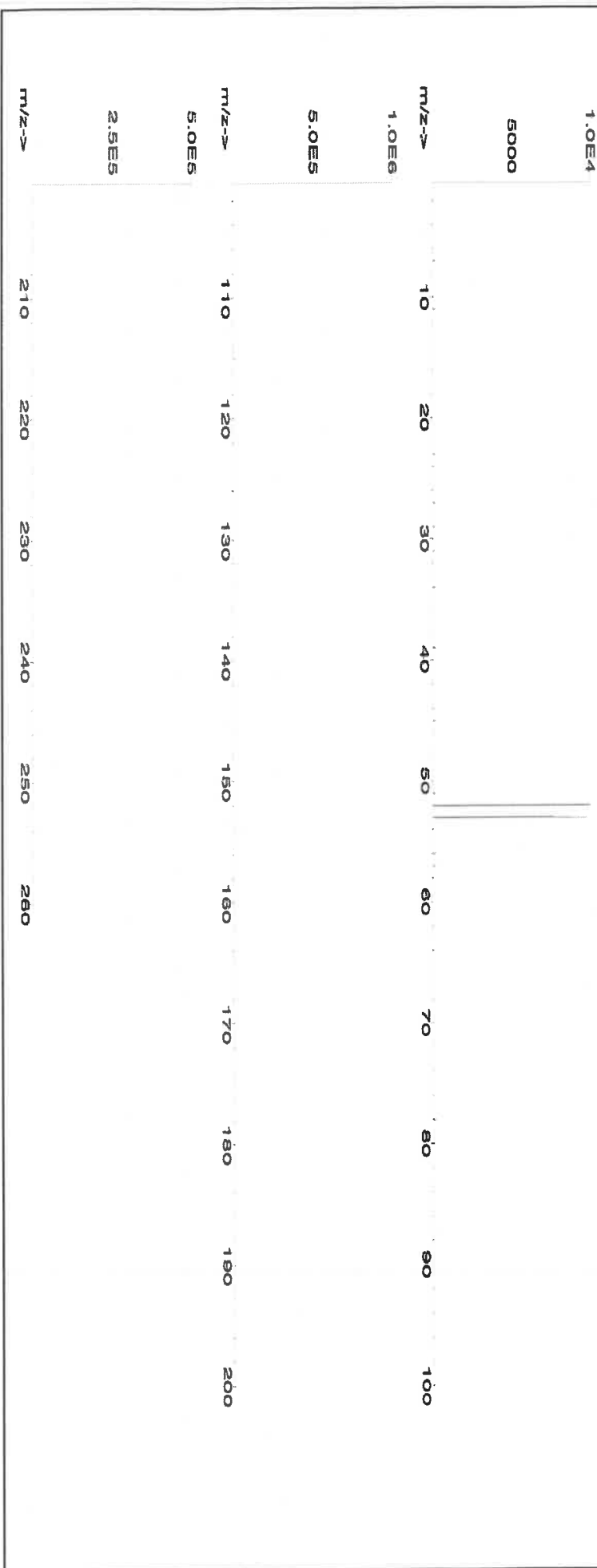
Formulated By:	Lawrence Barry
	060523
Reviewed By:	Pedro L. Ruelas
	060523

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 0.058 Balance Uncertainty
Flask Uncertainty

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	-------------	------------	-----------------	-------------------	------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

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**

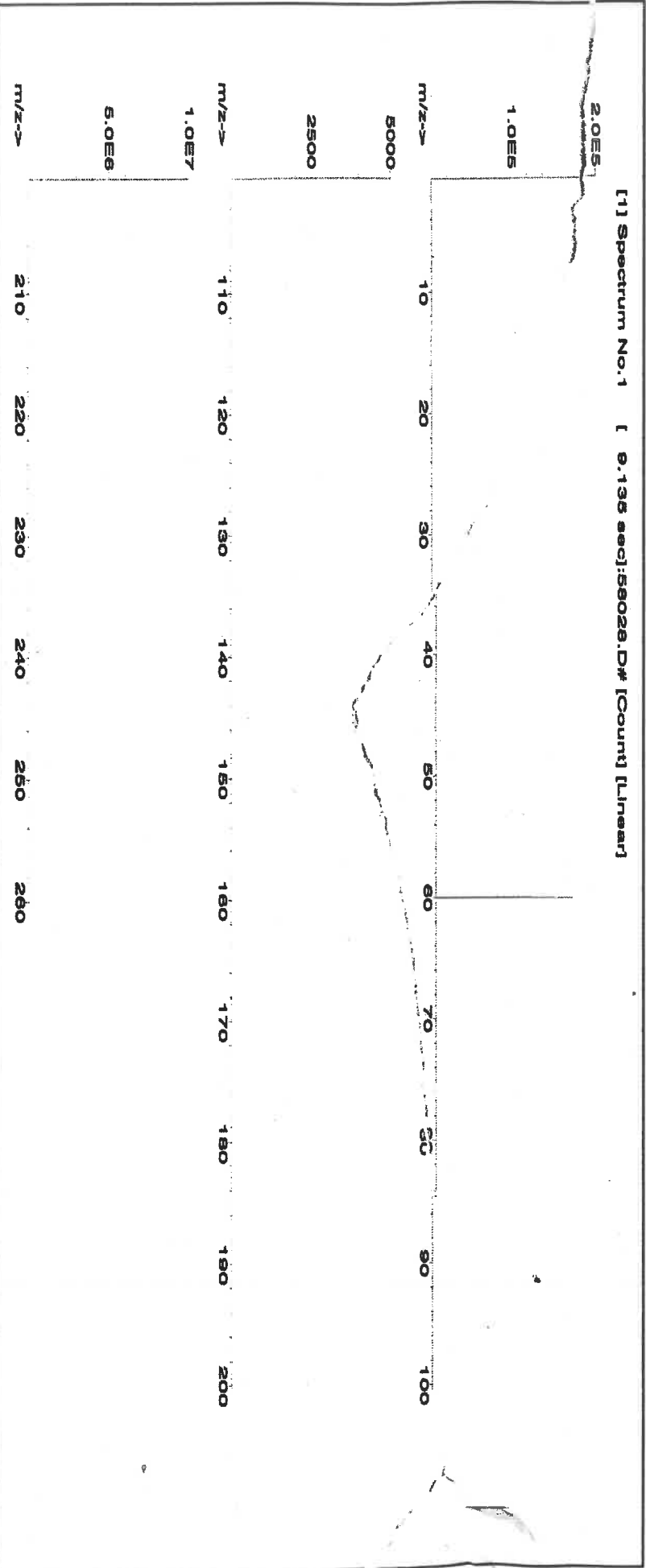
2.0% 40.0 (mL) Nitric Acid

Formulated By:	<i>Lawrence Barry</i>	091223
Reviewed By:	<i>Pedro L. Renteria</i>	091223

NIST Test Number: **6U7B**
Volume shown below was diluted to (mL): **2000.02** Balance Uncertainty: **5E-05** Flask Uncertainty: **0.056**

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	-------------	------------	-----------------	-------------------	------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. 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 Reference Material CRM



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
----------	-------------	------------	-----------------	-------------------	------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

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:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

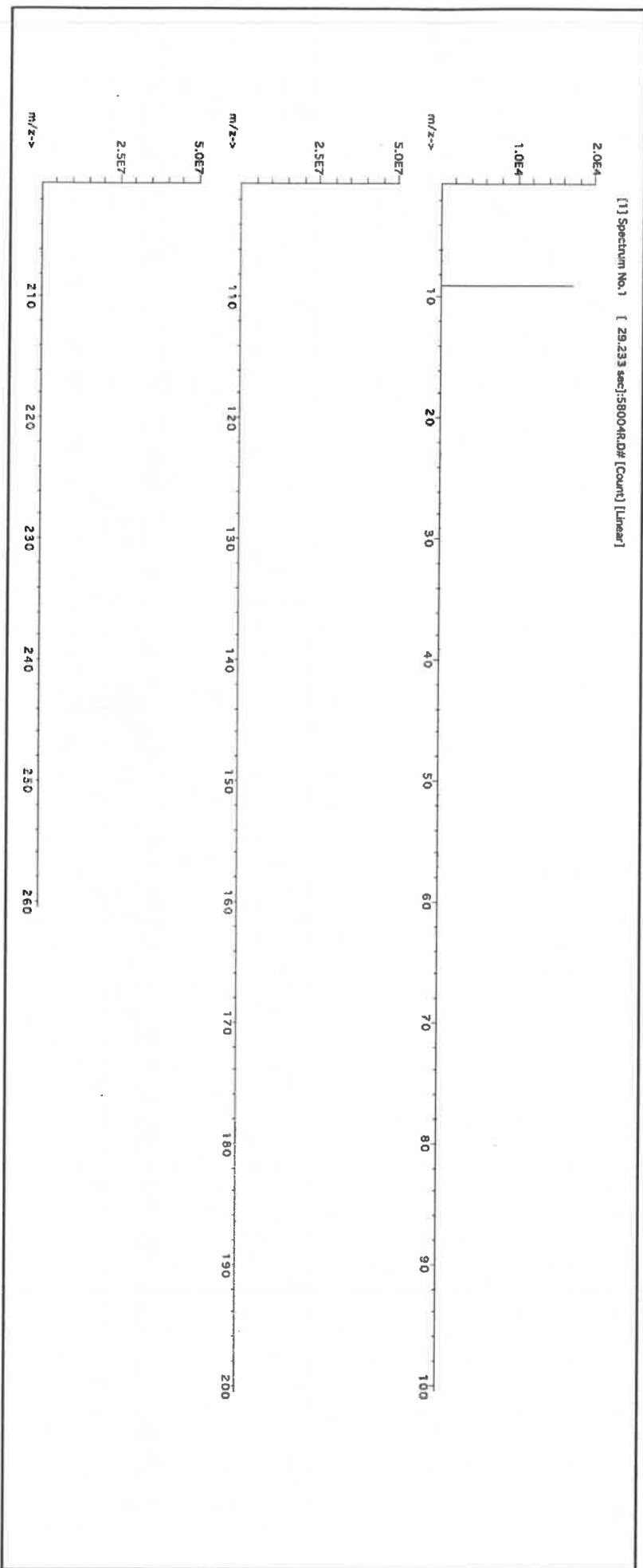
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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
----------	-------------	------------	-----------------	-------------------	--------------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

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
---------------------------	-------	--------	--------	-------	-------	------	---------	--------	-----	------------	----------	------------------------	----





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:

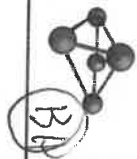
Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

Solvents: 21110221 Nitric Acid
22D0562008 Hydrochloric acid

Lot #

R-02509124

M599



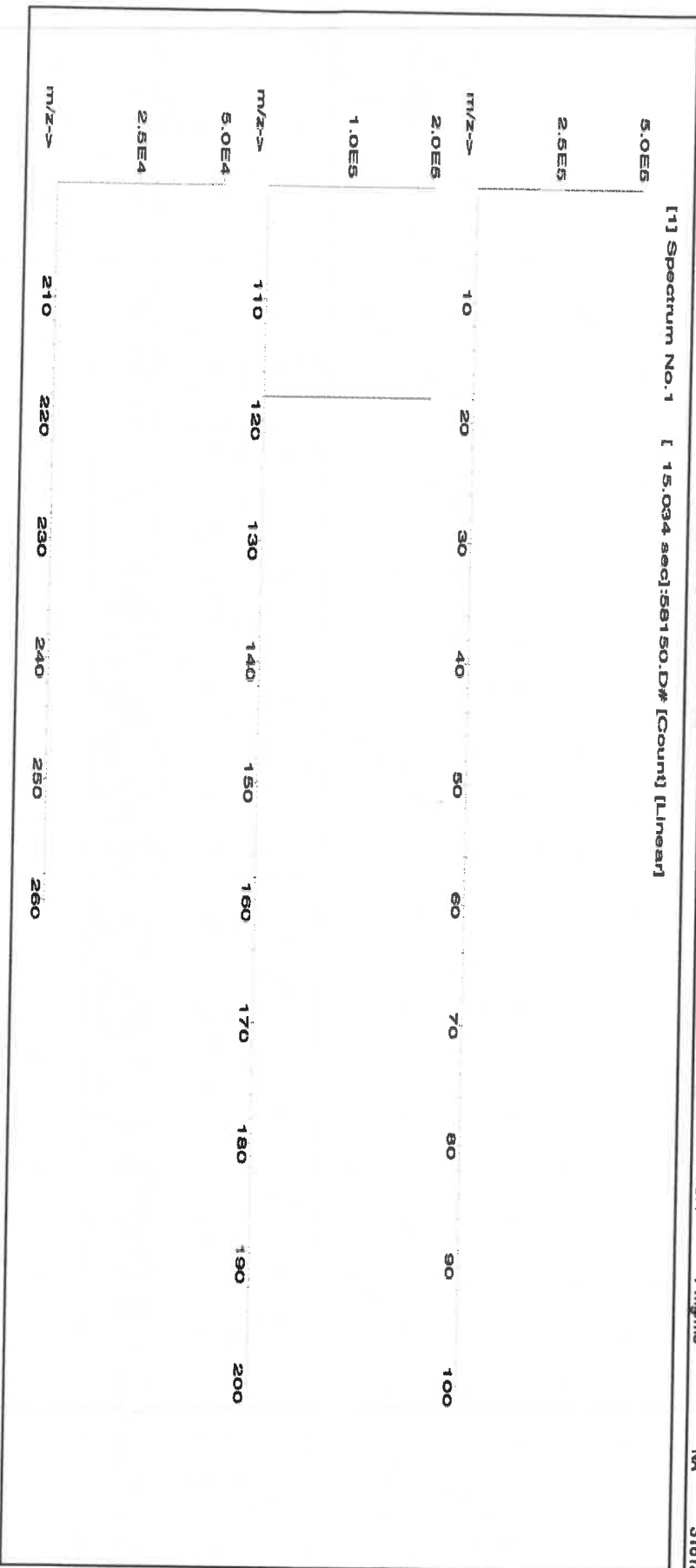
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By: Benson Chan		071123
Reviewed By: Pedro L. Rientas		071123

SDS Information												
Compound	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty (%)	NIST		
										(Solvent Safety Info. On Attached pg.)		
RM#	Number											

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	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).



R: 02/09/24 115800 (54)

CERTIFIED WEIGHT REPORT:

Part Number: 57027
Lot Number: 091923
Description: Cobalt (Co)

Expiration Date: 091926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.02

Lot # 24002546
Solvent: Nitric Acid

2.0% Nitric Acid
40.0 (mL)

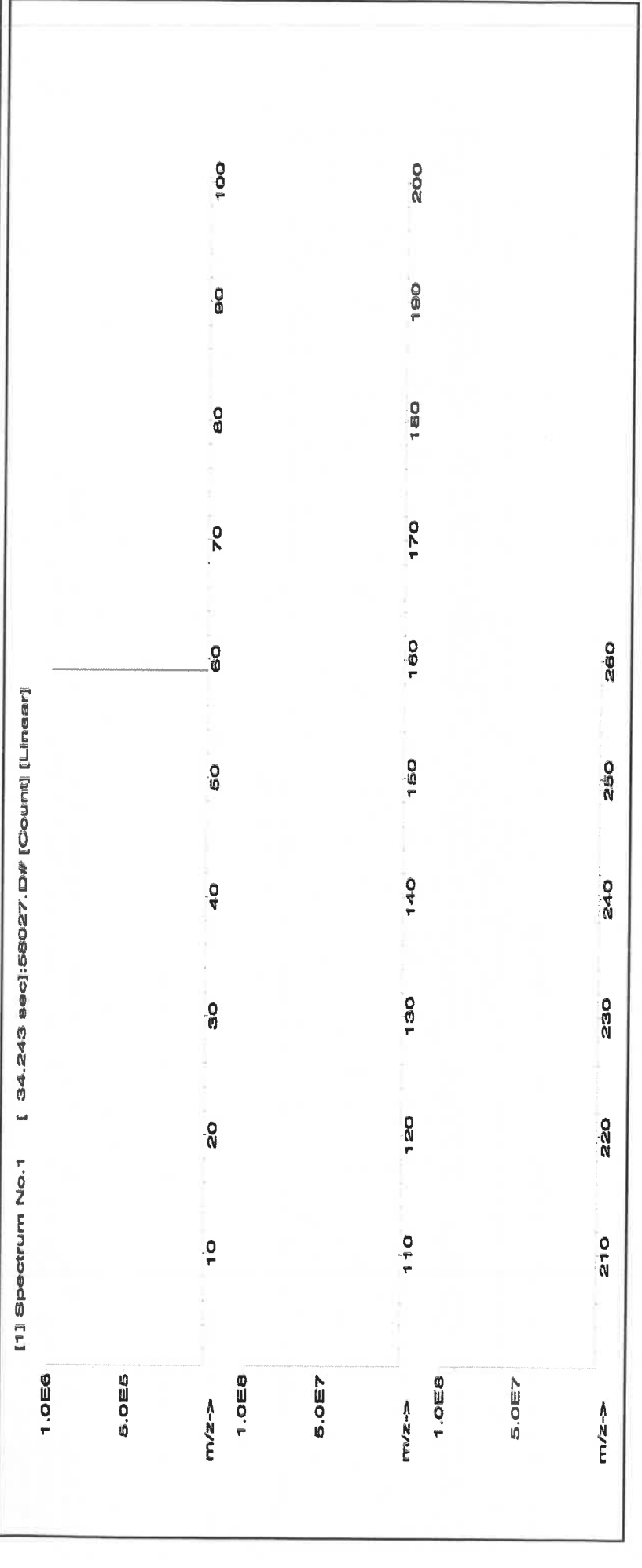
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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	<0.2	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57033
111323
Arsenic (As)

Lot #
Solvent:

24002546
Nitric Acid

2.0%
80.0 (mL)

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

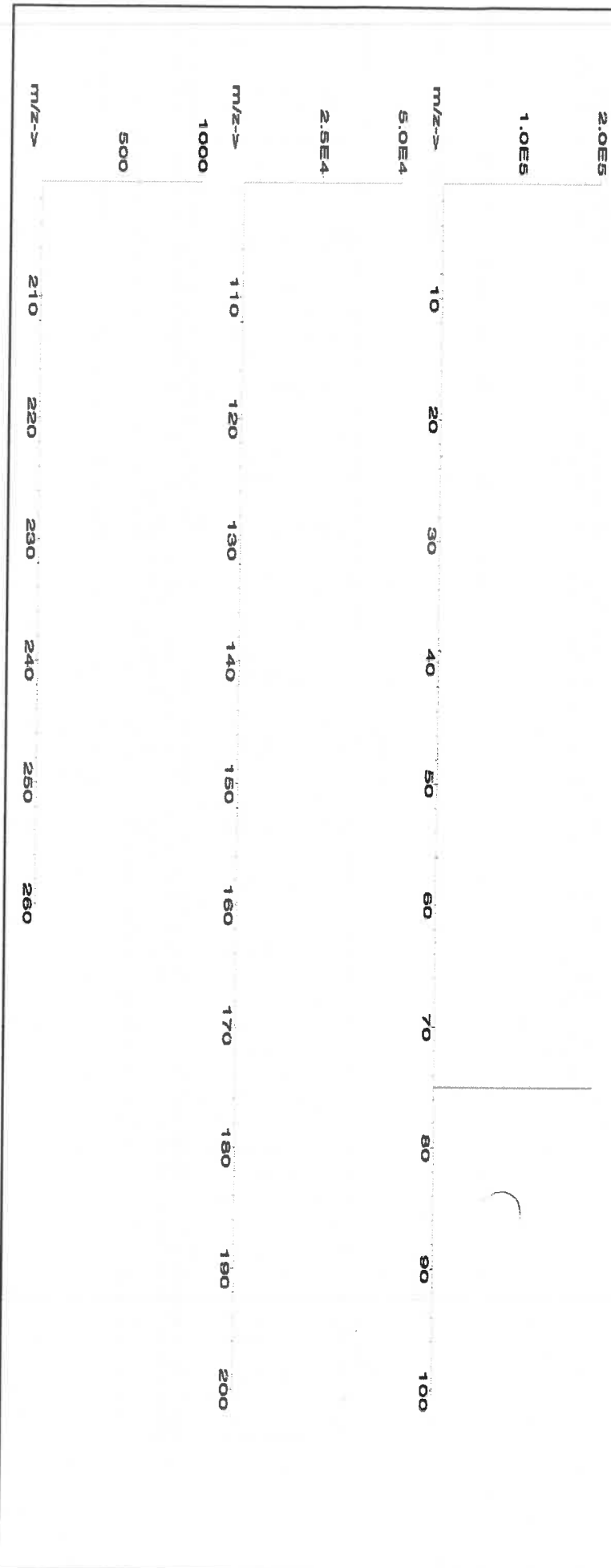
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rendas
	111323

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
-------------	------------	-----------------	-------------------	--------------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. Arsenic (As) 58133 020522 0.1000 400.0 0.084 1000 10001.0 1000.0 2.0 7440-38-2 0.5 mg/m3 or-lat 500 mg/kg 3103a

[1] Spectrum No.1 [34.433 sec]:57033.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

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	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 _n	<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: **57005**
Lot Number: **071123**
Description: **Boron (B)**

Solvent: MKB8697V Ammonium hydroxide

Lot #

AI: 021009124 M5814

Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rientas
071123	

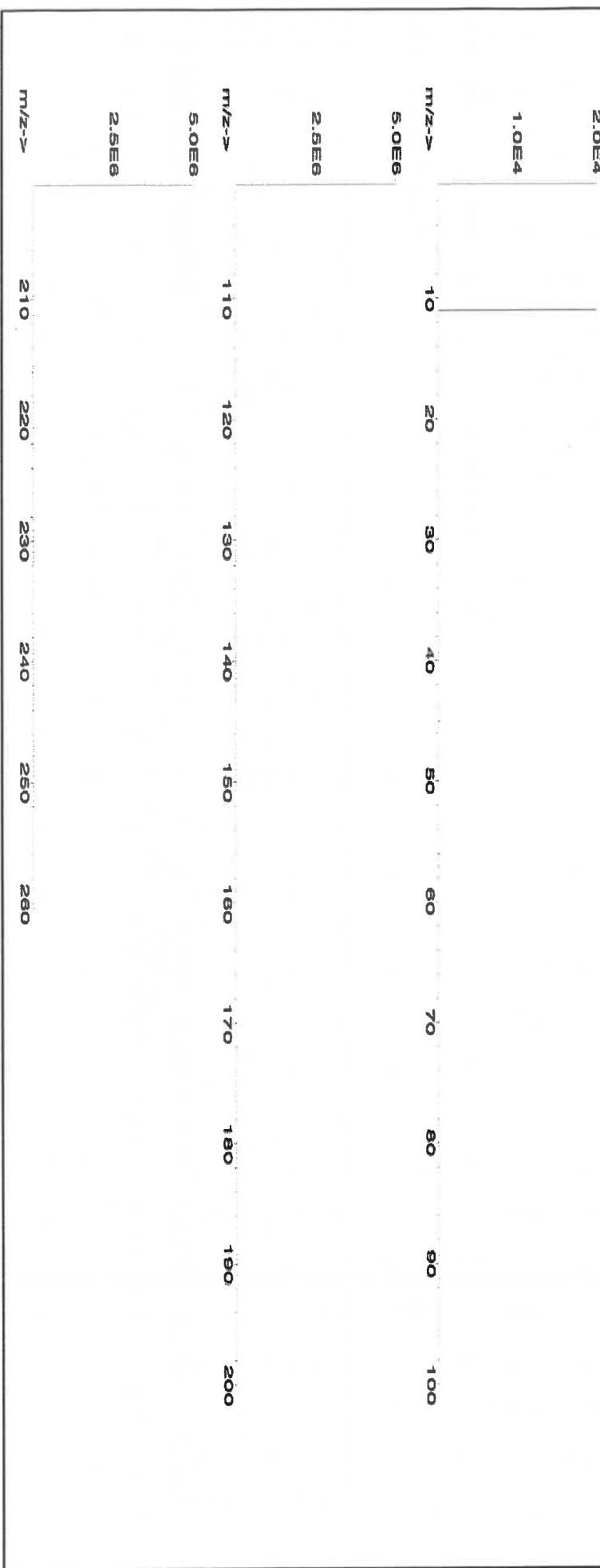
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1999.48
5E-05 Balance Uncertainty
0.058 Flask Uncertainty
2.0% 40.0 Ammonium hydroxide (mL)

SDS Information

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

1. Boric acid (B) IN018 BV082018A1 1000 99.999 0.10 17.3 11.55772 11.56201 1000.4 2.0 10043-35-3 2 mg/m3 or-nat 2660 mg/kg 3107

[1] Spectrum No. 1 [12.275 sec]:56105.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * 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

Expiration Date: **091126**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6LJB**

2% 40.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): **2000.02** 5E-05 Balance Uncertainty
0.058 Flask Uncertainty

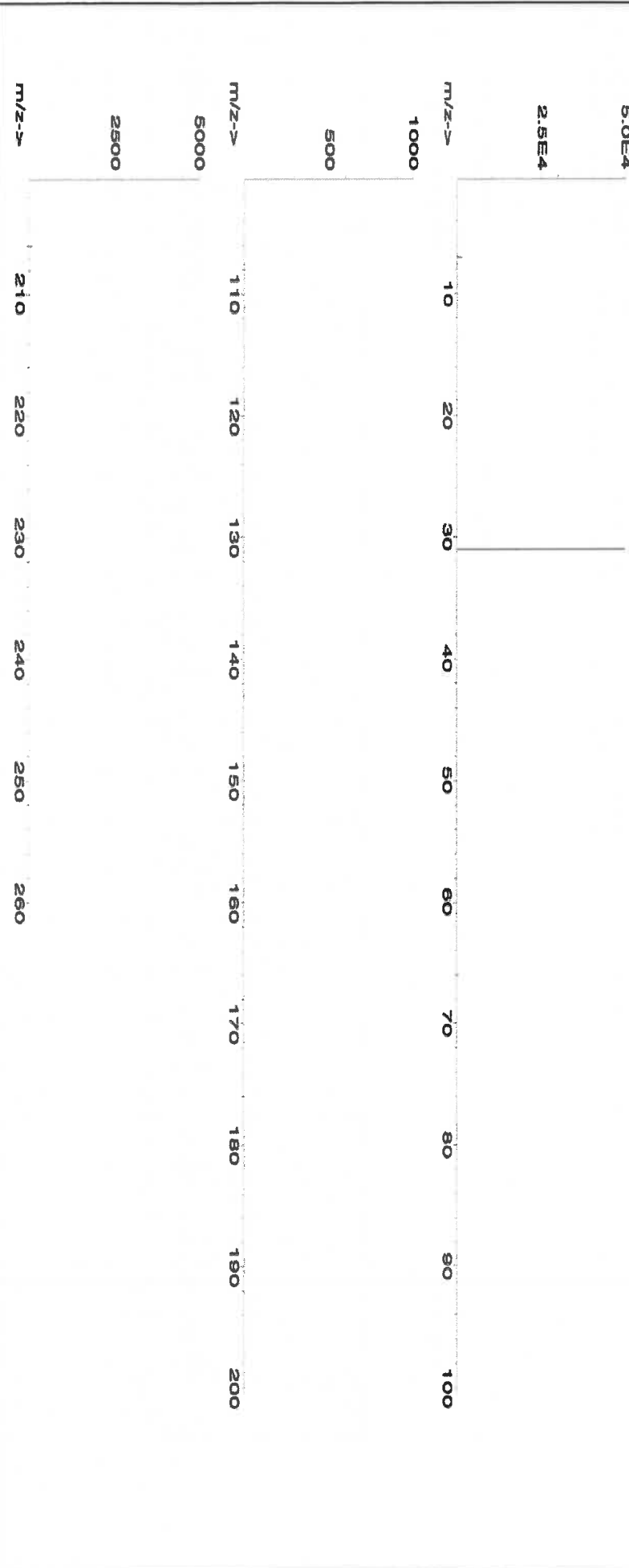
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas
091123	

Compound

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

1. Ammonium dihydrogen phosphate (P) IN008 PY062019A1 1000 99.999 0.10 27.5 7.2729 7.2730 1000.0 2.0 7722-76-1 5 mg/m3 xH-rat >2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	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).
- * 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).

Sodium Chloride, Crystal
BAKER ANALYZED® A.C.S. Reagent



MS824
MB

Material No.: 3624-01

Batch No.: 0000281938

Manufactured Date: 2021-06-07

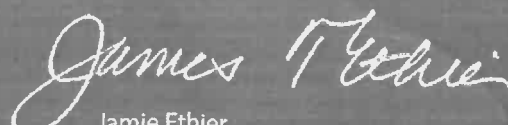
Retest Date: 2026-06-07

Revision No.: 1

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	$\geq 99.0 \%$	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)	≤ 5 ppm	< 5 ppm
Sulfate (SO ₄)	$\leq 0.004 \%$	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	≤ 5 ppm	< 5 ppm
Iron (Fe)	≤ 2 ppm	< 1 ppm
Calcium (Ca)	$\leq 0.002 \%$	< 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 Reference Material CRM
M5962 **R10614124**



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57034
Lot Number: 060624
Description: Selenium (Se)

Lot # 24002546
Solvent: Nitric Acid

2.0% 40.0 (mL) Nitric Acid

Expiration Date: 060627

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

Volume shown below was diluted to (mL): 2000.07

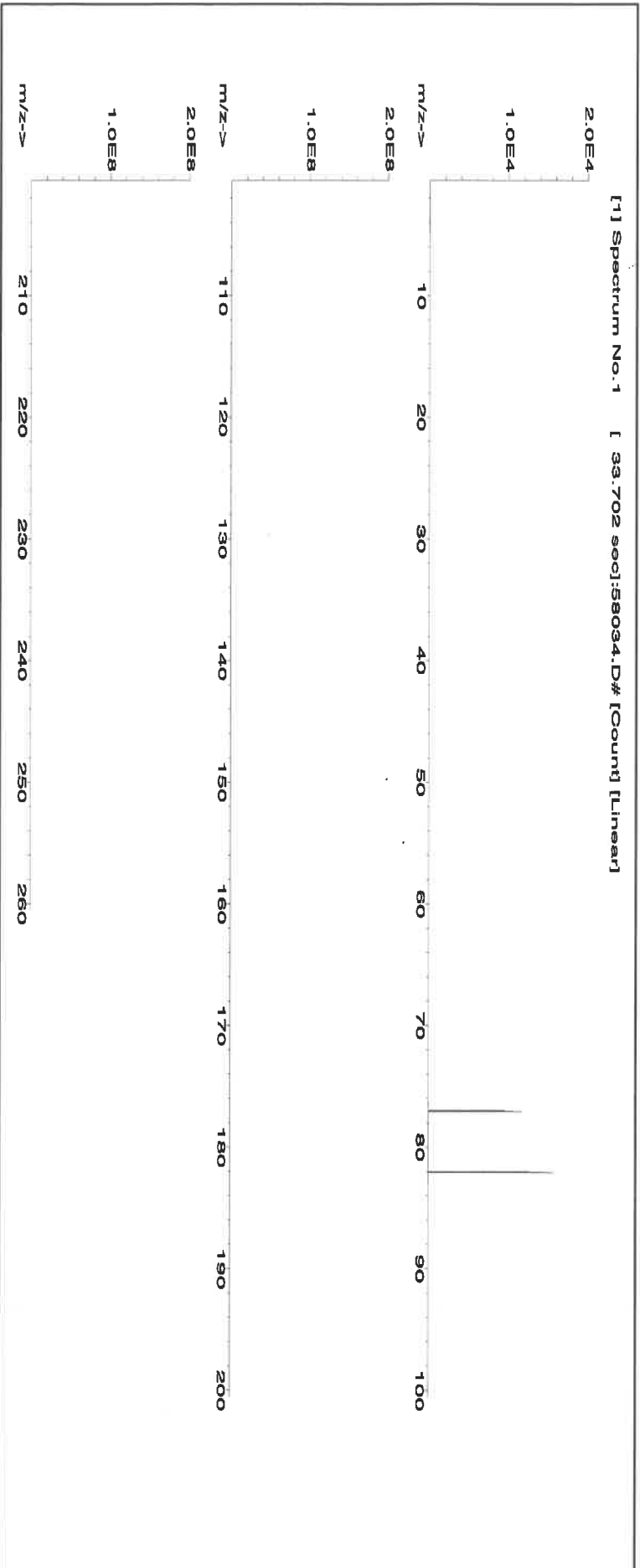
SE-05 Balance Uncertainty
0.100 Flask Uncertainty

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
----------	-------------	------------	-----------------	-------------------	--------------	-----------------------	-----------------------	---------------------	----------------------------------	--	------	----------------	------	----------

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
------------------	-------	--------	--------	-------	-------	------	---------	--------	-----	-----------	-----------	--------------------	------





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	<0.02	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	Fe	<0.2	Hg	<0.2	P	<0.02	Sr	<0.02	S	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02			Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

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: 57016
Lot Number: 122923
Description: Sulfur (S)

Lot #
Solvent: 122923
ASTM Type 1 Water

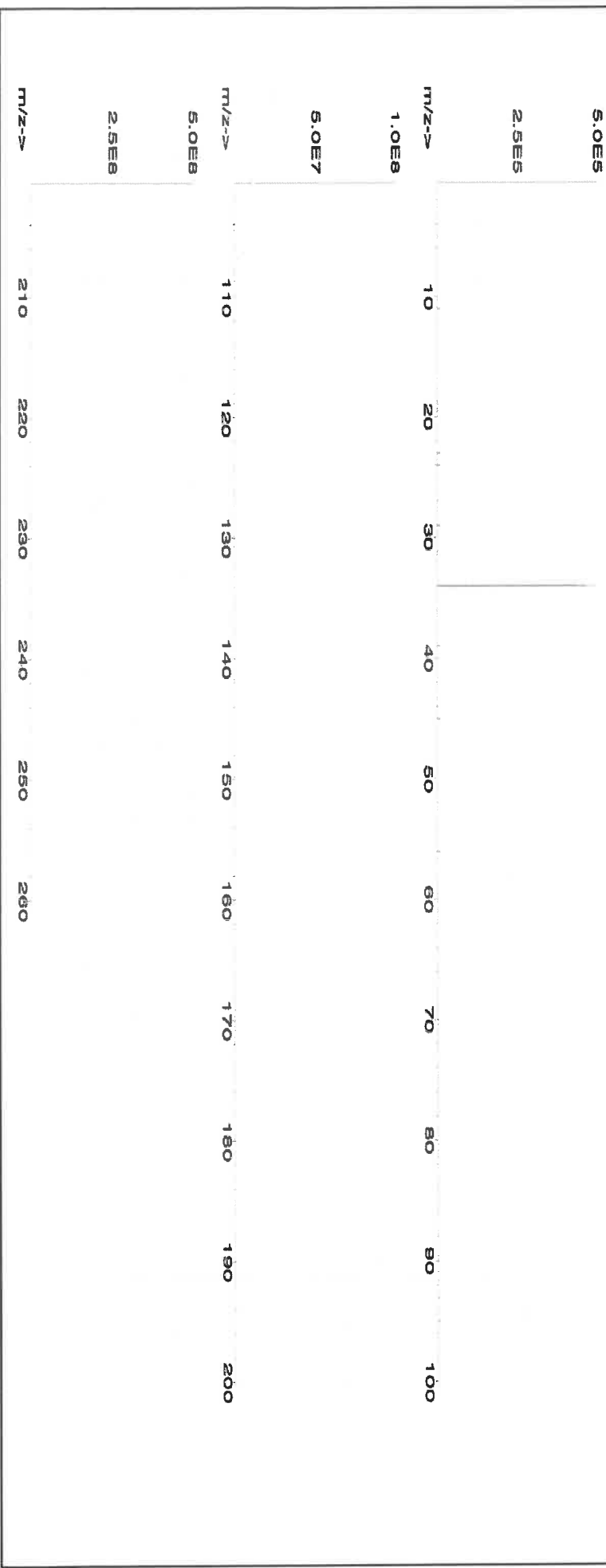
Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas

Expiration Date: 122926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.0
5E-05 Balance Uncertainty
0.06 Flask Uncertainty

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

1. Ammonium sulfate (S) IN117 SLBR725V 1000 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]



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com



Certified Reference Material CRM

M5970 M5971



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: **06/12/27**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Volume shown below was diluted to (mL): **250.11**
SE-05 Balance Uncertainty
0.016 Flask Uncertainty

Lot # **24002546**
Solvent: **Nitric Acid**

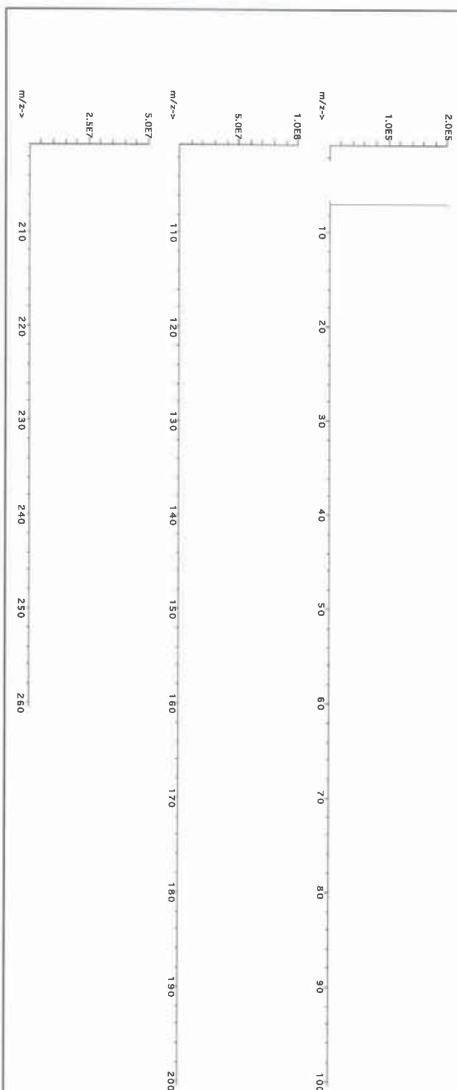
2.0% 5.0 (mL) Nitric Acid

Microvial Capable	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Parias
CAS#	OSHA PEL (TWA)
LD50	
SN#	062124

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	SN#

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	01-hal 1428 mg/kg	NA
-------------------------	-------	--------	--------	------	-------	------	---------	--------	-----	-----------	---------	-------------------	----

[1] Spectrum No. 1 [32.093 sec; 15000.00# Count; 1.00e4]





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

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Ca	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pb	<0.02	Sc	<0.02	Tb	<0.02
Sb	<0.02	Ce	<0.02	Er	<0.02	In	<0.02	Mg	<0.02	Nb	<0.02	Rh	<0.02	Si	<0.02	Te	<0.02
As	<0.2	Co	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Os	<0.02	Ru	<0.02	Ag	<0.02	Ti	<0.02
Ba	<0.02	Cr	<0.02	Ga	<0.02	La	<0.2	Hg	<0.2	Pd	<0.02	Sn	<0.02	Nd	<0.2	Th	<0.02
Be	<0.01	Cu	<0.02	Ge	<0.02	Nd	<0.02	K	<0.2	Pt	<0.02	Sr	<0.02	S	<0.02	Tm	<0.02
Bi	<0.02	Fe	<0.02	Ag	<0.02	Mo	<0.02	Se	<0.02	Te	<0.02	Sn	<0.02	Ta	<0.02	Tl	<0.02
B	<0.02	Ca	<0.02	Au	<0.02	Th	<0.02	Na	<0.02	U	<0.02	W	<0.02	Zn	<0.02		

(T) = Target analyte

Physical Characterization:

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

Certified by:

[Signature]

- * 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

MS978, MS979



Refine your results. Redefine your industry.

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

R: 2/22/24

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution

Catalog Number: 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%

Certified Value: 1002 ± 5 µg/mL

Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 1002 ± 4 µg/mL

ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods
Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \sum (X_i / U_i)$
 X_i = mean of Assay Method i with standard uncertainty $U_{CRM,i}$
 U_i = the weighting factors for each method calculated using the inverse square of the variance

$U_i = (U_{CRM,i} / \sum (U_{CRM,i}^2 / (U_{CRM,i}^2)))^{1/2}$
CRM/RM Expanded Uncertainty (95%) = $(U_{CRM,i}^2 + U_{lab}^2 + U_{tr}^2 + U_{st}^2)^{1/2}$

k = coverage factor = 2
 $U_{CRM,i} = (2/(n_i))^{1/2} (U_{CRM,i}^2)^{1/2}$ where $U_{CRM,i}$ are the errors from each characterization method
 U_{lab} = bottle to bottle homogeneity standard uncertainty
 U_{tr} = long term stability standard uncertainty (storage)
 U_{st} = 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 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
O Al	<	0.000872	O Fe	<	0.003225	O Nb	<	0.043560	O Si	<	0.004735	O Zr	<	0.043560
M As	<	0.008586	M Ga	<	0.000268	M Nd	<	0.000268	M Sm	<	0.000268			
M Au	<	0.004577	M Gd	<	0.000268	O Ni	<	0.010890	M Sn	<	0.000986			
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 Tl	<	0.053663			
M Cd	<	0.000268	M Ir	<	0.000269	M Pt	<	0.000536	S Tl	<				
M Co	<	0.000268	M K	<	0.001172	M Rb	<	0.000268	M Ti	<	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	<							

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.	Order	Interferences (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N,
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	14N17N ₂ , 36Ar12C,
ICP-OES 334.941 nm	0.0038 / 0.00028 µg/mL	1	48Ca, 196X=2
ICP-OES 336.121 nm	0.0053 / 0.00034 µg/mL	1	14N17N ₂ , 36Ar12C,
HF Note: This standard should not be prepared or stored in glass.			48Ca, 196X=2
			(where X = Zr, Mo,
			Ru)
			Ce, Ar, Ni
			Nb, Ta, Cr, U
			W, Mo, Co

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: 800.868.6786; 540.565.3030; Fax: 540.565.3030; Email: info@inorganicventures.com

11.0

CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- June 17, 2027

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date:

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0

NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozlikowski
Manager, Quality Control

TD9784

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Paul Gaines

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

M5985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGIN10
Lot Number: U2-IN729349
Matrix: 5% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Indium
Starting Material: Indium Metal
Starting Material Lot#: 2511
Starting Material Purity: 99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL
Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10021 ± 56 µg/mL ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	10035 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	10001 ± 33 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{char i}^2) / (\sum (1/u_{char i}^2))$$

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum (w_i)^2 (u_{char i}^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = (X_a) (u_{char a})$$

X_a = mean of Assay Method A with

$u_{char a}$ = the standard uncertainty of characterization Method A

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000760	M	Eu	<	0.000760	O	Na	0.012771	M	Se	<	0.023000	M	Zn	<	0.006100
M	Al	0.003385	O	Fe	0.004462	M	Nb	<	0.000760	O	Si	0.024619	M	Zr	<	0.000760		
M	As	<	0.004600	M	Ga	<	0.000760	M	Nd	<	0.000760	M	Sm	<	0.000760			
M	Au	<	0.002300	M	Gd	<	0.000760	O	Ni	<	0.005100	M	Sn	<	0.000760			
O	B	0.003692	M	Ge	<	0.001600	M	Os	<	0.000760	O	Sr	<	0.000610				
M	Ba	<	0.001600	M	Hf	<	0.000760	n	P	<		M	Ta	<	0.000760			
O	Be	<	0.000130	M	Hg	<	0.003100	M	Pb	0.001400	M	Tb	<	0.000760				
M	Bi	<	0.000760	M	Ho	<	0.000760	M	Pd	<	0.001600	M	Te	<	0.000760			
O	Ca	0.004616	s	In	<			M	Pr	<	0.000760	M	Th	<	0.000760			
M	Cd	<	0.000760	M	Ir	<	0.000760	M	Pt	<	0.000760	O	Ti	<	0.001100			
M	Ce	<	0.000760	O	K	0.007078	M	Rb	<	0.000760	M	Tl	<	0.000760				
M	Co	<	0.000760	M	La	<	0.000760	M	Re	<	0.000760	M	Tm	<	0.000760			
O	Cr	<	0.001300	O	Li	<	0.000130	M	Rh	<	0.000760	M	U	<	0.000760			
M	Cs	<	0.000760	M	Lu	<	0.000760	M	Ru	<	0.000760	M	V	<	0.001600			
M	Cu	<	0.003800	O	Mg	0.000707	n	S	<		M	W	<	0.001600				
M	Dy	<	0.000760	O	Mn	0.000149	M	Sb	<	0.000760	M	Y	<	0.000760				
M	Er	<	0.000760	M	Mo	<	0.002300	M	Sc	<	0.000760	M	Yb	<	0.000760			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 114.82 +3 6 In(H₂O)₆+3

Chemical Compatibility -Soluble in HCl, HNO₃, and H₂SO₄. Avoid neutral and basic media. Stable with most metals and inorganic anions. The oxalate, sulfide, carbonate, hydroxide and phosphate are insoluble in water.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

In Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO₃); Oxide (Soluble in mineral acids); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in dilute HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 115 amu	1 ppt	n/a	115Sn, 99Ru16O
ICP-OES 158.583 nm	0.05 / 0.002 µg/mL	1	
ICP-OES 230.606 nm	0.1 / 0.03 µg/mL	1	Ni, Os
ICP-OES 325.609 nm	0.2 / 0.05 µg/mL	1	Mn, Mo, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; Info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 21, 2023

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- February 21, 2028

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

R: 2/22/24
MS-997

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories".

Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CLPP-CAL-3
Lot Number: T2-MEB727800
Matrix: 7% (v/v) HNO₃
Value / Analyte(s):
1 000 µg/mL ea:
Arsenic, Lead,
Selenium, Thallium,
500 µg/mL ea:
Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	1 000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 2.2 µg/mL
Lead, Pb	1 000 ± 4 µg/mL	Selenium, Se	1 000 ± 6 µg/mL
Thallium, Tl	1 000 ± 7 µg/mL		

Density: 1.042 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
As	Calculated		See Sec. 4.2
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i})^2 / (\sum (1/u_{\text{char } i})^2)$$

$$\text{CRM/RM Expanded Uncertainty } (Z) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i})^2]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (Z) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 21, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **December 21, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

*R: 08/22/24 M6058, M6059*300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.comP: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com**1.0 ACCREDITATION / REGISTRATION**

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

**2.0 PRODUCT DESCRIPTION**

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746172
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 5 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 000 ± 6 µg/mL		

Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum(w_i)(X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum(1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$$u_{\text{char}} = [\sum(w_i)^2 (u_{\text{char } i})^2]^{1/2} \text{ where } u_{\text{char } i} \text{ are the errors from each characterization method}$$

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™)

see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale).

<https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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.

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

M6074
M6075
M6076
M6077

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

EXP: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746762
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 5 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 000 ± 6 µg/mL		

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum (1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 06, 2029**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

M6074
M6075
M6076
M6077

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

EXP: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746762
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 5 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 000 ± 6 µg/mL		

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum(w_i)(X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum(1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2(u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a)(u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 06, 2029**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58025
101124
Manganese (Mn)

R-71113128

Lot #
Solvent: 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

SE-05 Balance Uncertainty

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
-----	------------	-----------------------	------------	------------------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

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->	110	120	130	140	150	160	170	180	190	200
2.5E6	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
5.0E7	m/z->	110	120	130	140	150	160	170	180	190	200
5.0E7	m/z->	210	220	230	240	250	260				



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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

M6137
R-71013124

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGSI1
Lot Number: V2-SI744713
Matrix: tr. HNO₃
tr. HF
Value / Analyte(s): 1 000 µg/mL ea:
Silicon
Starting Material: Silica
Starting Material Lot#: 1771
Starting Material Purity: 99.9981%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 999 ± 6 µg/mL
Density: 1.003 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	999 ± 5 µg/mL ICP Assay NIST SRM Traceable to 3150 Lot Number: S2-SI702546
Assay Method #2	1000 ± 7 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{char i}^2) / (\sum (1/u_{char i}^2))$$

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum (w_i)^2 (u_{char i}^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = (X_a) (u_{char a})$$

X_a = mean of Assay Method A with

$u_{char a}$ = the standard uncertainty of characterization Method A

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag <	0.000310	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

R → 11/13/25



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58120
121824
Calcium (Ca)

Solvent: Nitric Acid

Lot #

24012496

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

121827
Ambient (20 °C)
10000
6UTB

2%
80.0 (mL)
Nitric Acid
5E-05 Balance Uncertainty
0.15 Flask Uncertainty

Weight shown below was diluted to (mL):

4000.1

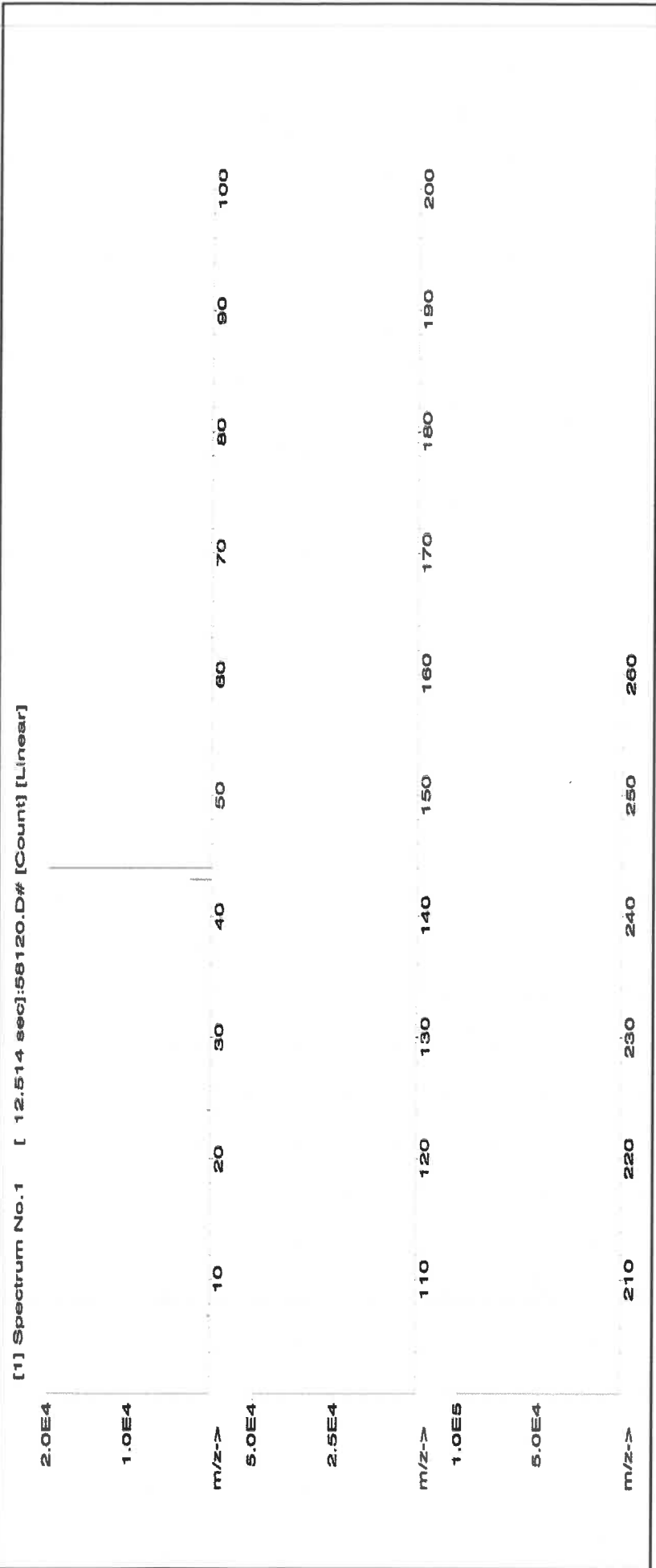
Weight shown below was diluted to (mL):

4000.1

Giovanni Esposito	
Formulated By:	Giovanni Esposito
Pedro L. Rentas	
Reviewed By:	Pedro L. Rentas

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.)	CAS#	LD50
1. Calcium carbonate (Ca)	IN014	CAD032023B3	10000	99.999	0.10	39.9	100.2537	100.2677	10001.4	20.0	471-34-1	5 mg/m3	onl-rat >2000mg/kg 3109a

[1] Spectrum No. 1 [12.514 sec]:58120.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	T	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	30	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:
Lot Number:
Description:

58126
011025
Iron (Fe)

R-113125
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

Weight shown below was diluted to (mL):

2000.07

5E-05 Balance Uncertainty
0.100 Flask Uncertainty

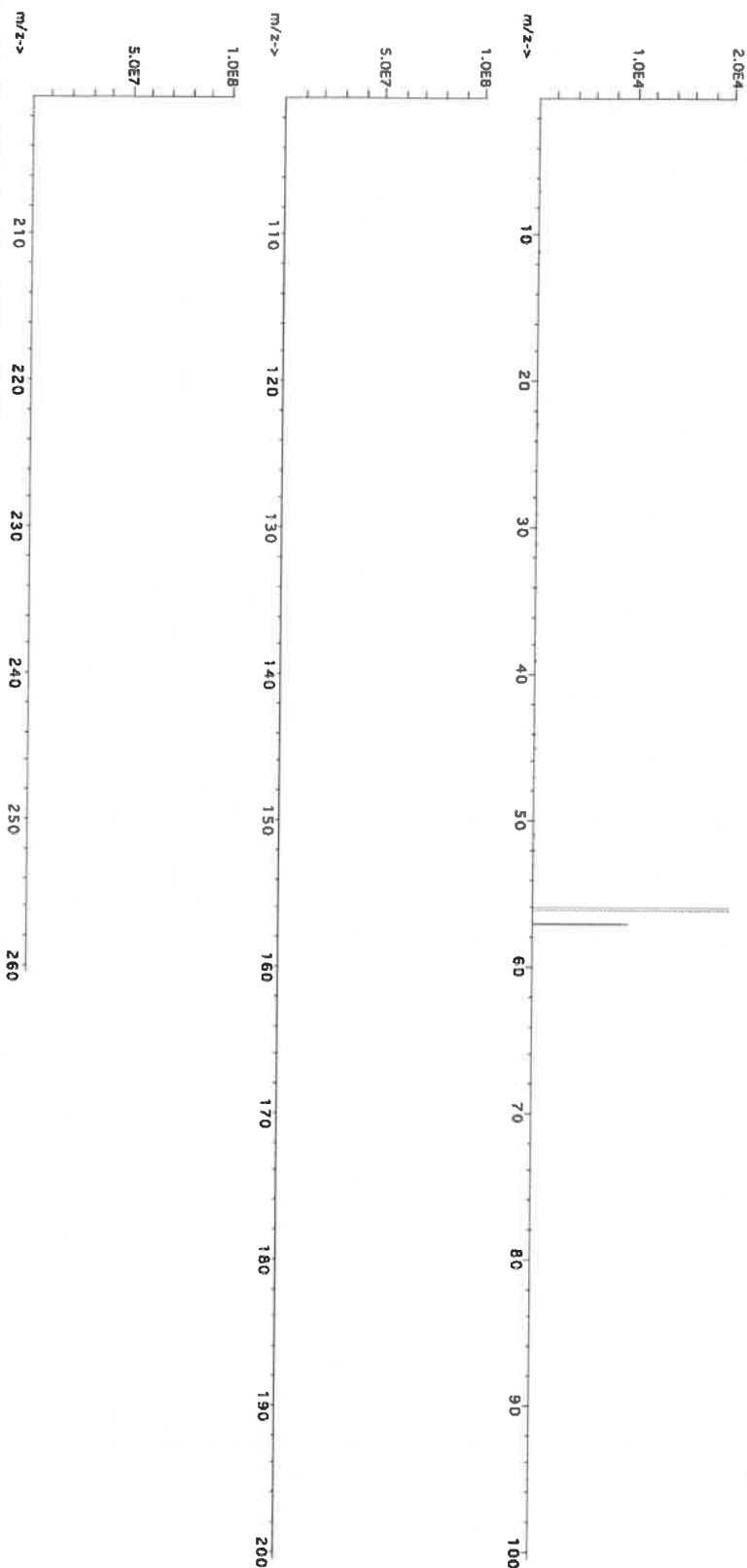
Formulated By:	Benson Chan	011025
Reviewed By:	Pedro L. Renteria	011025

Compound

Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	SDS Information	NIST
Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	± (µg/mL)	(Solvent Safety Info. On Attached pg.)	SFM

1. Iron(III) nitrate nonahydrate (Fe) IN028 FED082023A1 10000 99.999 0.10 13.0 153.8534 ##### 10000.2 20.0 7782-61-8 1 mg/m³ or-rel 3250mg/kg 3126A

[1] Spectrum No.1 [30.763 sec]58126.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02
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
Weight shown below was diluted to (mL): 4000.1
SE-05 Balance Uncertainty 0.15 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Renteria
	103024

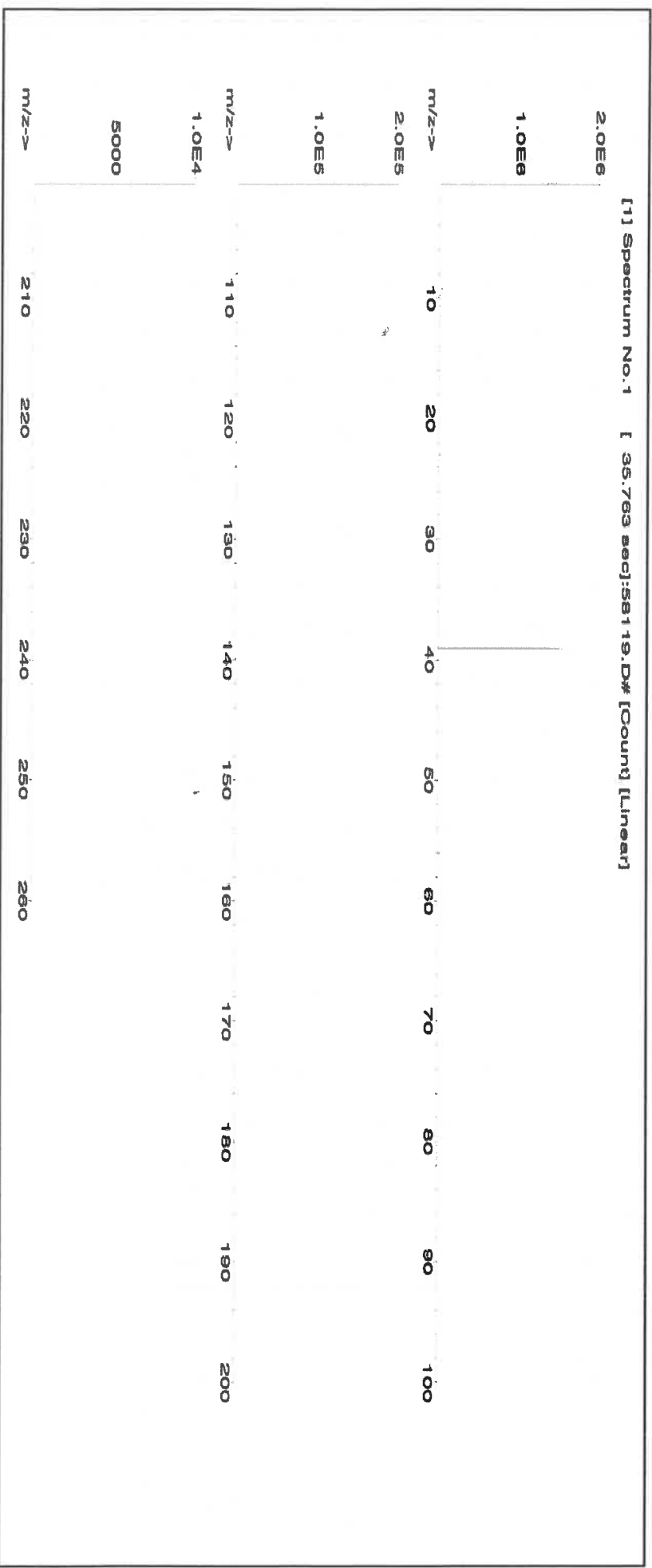
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM

SDS Information

(Solvent Safety Info. On Attached pg.)

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 Number: 072424
Description: Sodium (Na)

Lot # R-1113125
Solvent: 24002546 Nitric Acid

Expiration Date: 072427
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

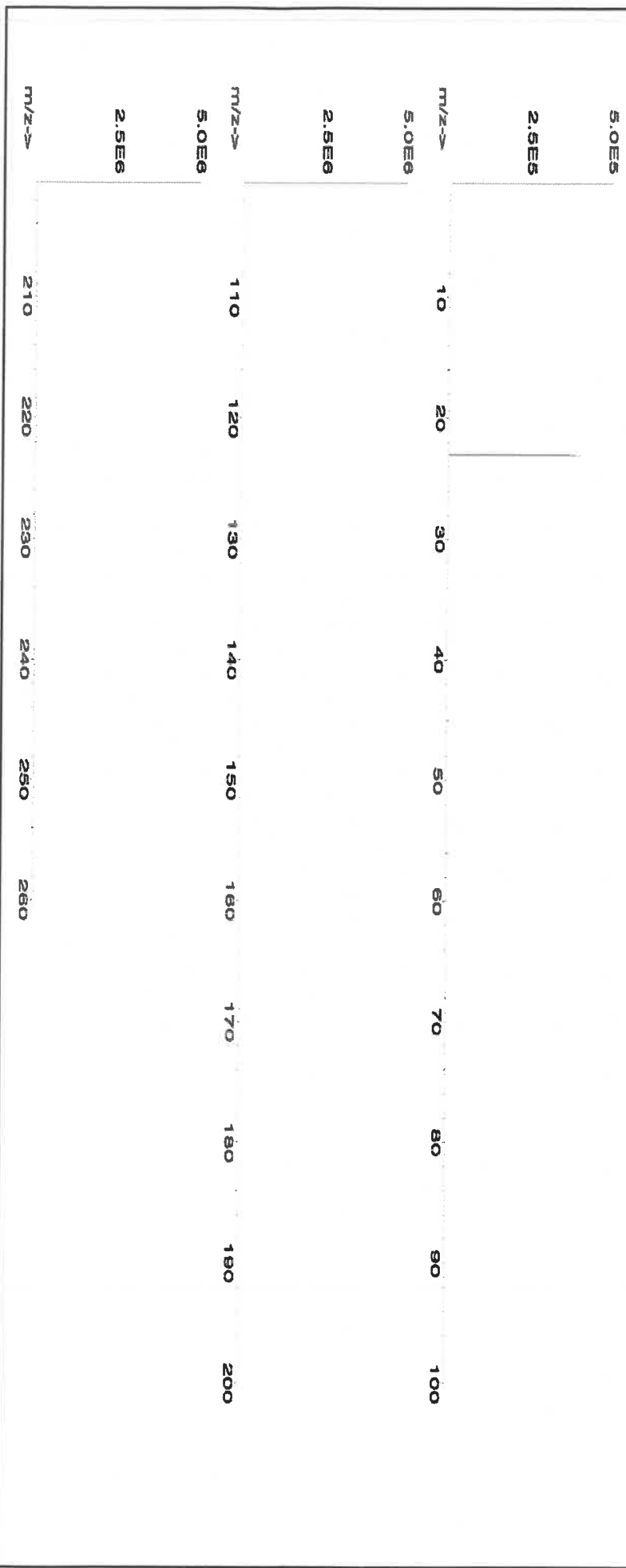
Formulated By:	Benson Chan	072424
Reviewed By:	Pedro L. Renteria	072424

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

SDS Information

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	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **58030** Lot # **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

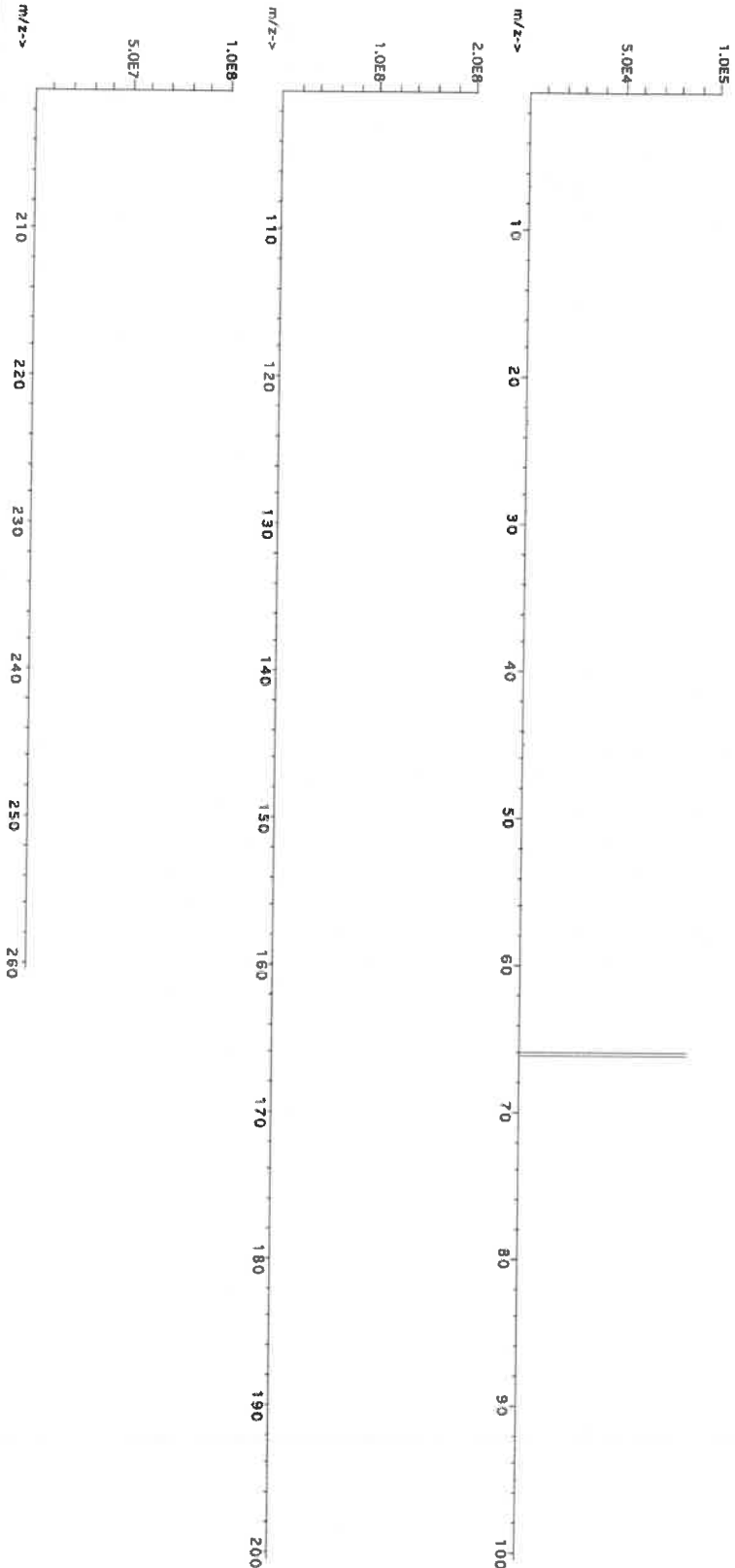
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
Reviewed By:	<i>Pedro L. Rentias</i>
	Pedro L. Rentias
	121724

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

 **avantor™**



M6151

R → 11/15/25

Material No.: 9530-33
Batch No.: 22G2862015
Manufactured Date: 2022-06-15
Retest Date: 2027-06-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid–base titrn)	36.5 – 38.0 %	37.9 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.191
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	1.3 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	163.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.7 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	0.6 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

 **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
------	---------------	--------

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™



MG157
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

 **avantor**™



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

 **avantorsTM**



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
------	---------------	--------

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



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-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

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 01, 2023

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **June 01, 2028**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

P: 800-669-6799/540-585-3030
 F: 540-585-3012
 info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: QCP-CICV-3
 Lot Number: V2-MEB749572
 Matrix: 7% (v/v) HNO₃
 Value / Analyte(s):
 500 µg/mL ea:
 Arsenic, Lead,
 Selenium, Thallium,
 250 µg/mL ea:
 Cadmium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	500.0 ± 3.1 µg/mL	Cadmium, Cd	250.1 ± 1.1 µg/mL
Lead, Pb	500.0 ± 2.3 µg/mL	Selenium, Se	500.0 ± 3.2 µg/mL
Thallium, Tl	500.0 ± 3.0 µg/mL		

Density: 1.040 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum (1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i})^2]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

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

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 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:

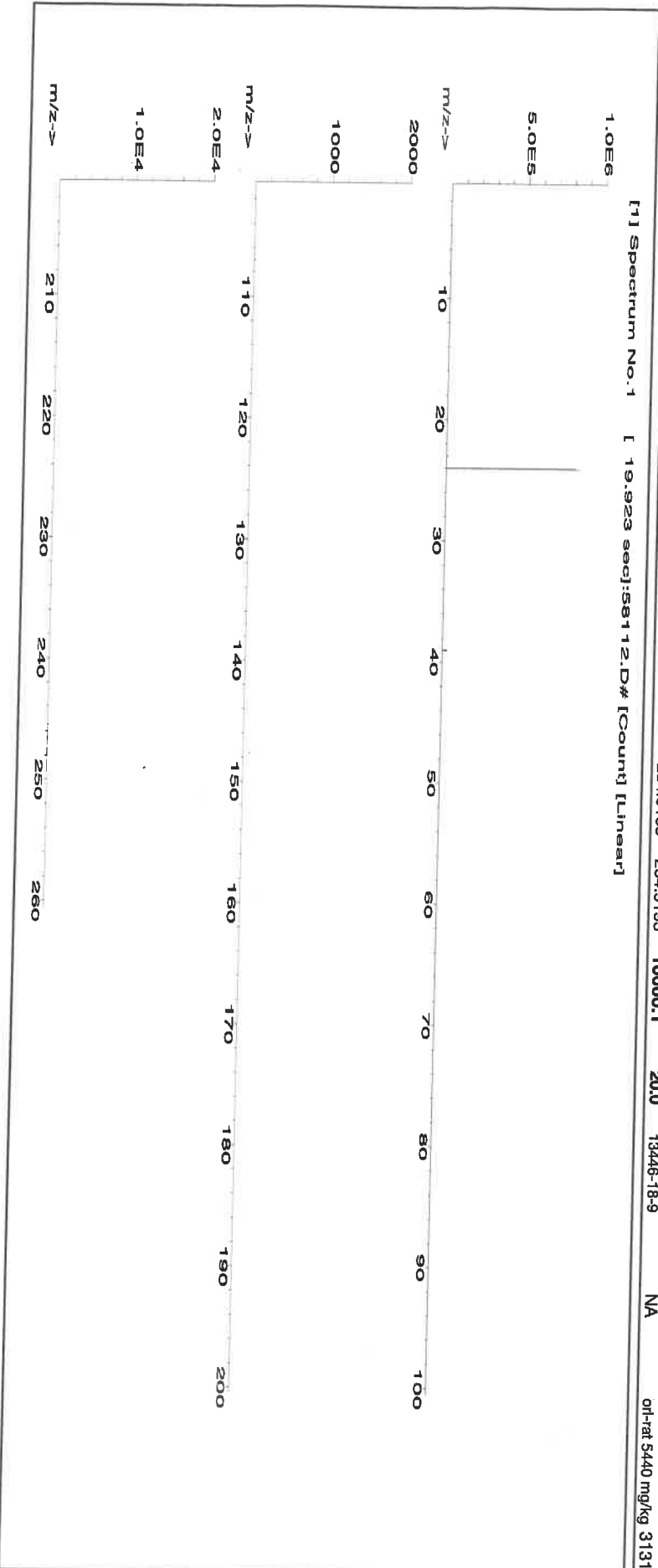
Part Number: 58112
Lot Number: 011525
Description: Magnesium (Mg)
Solvent: 24012496 Nitric Acid

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

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

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

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





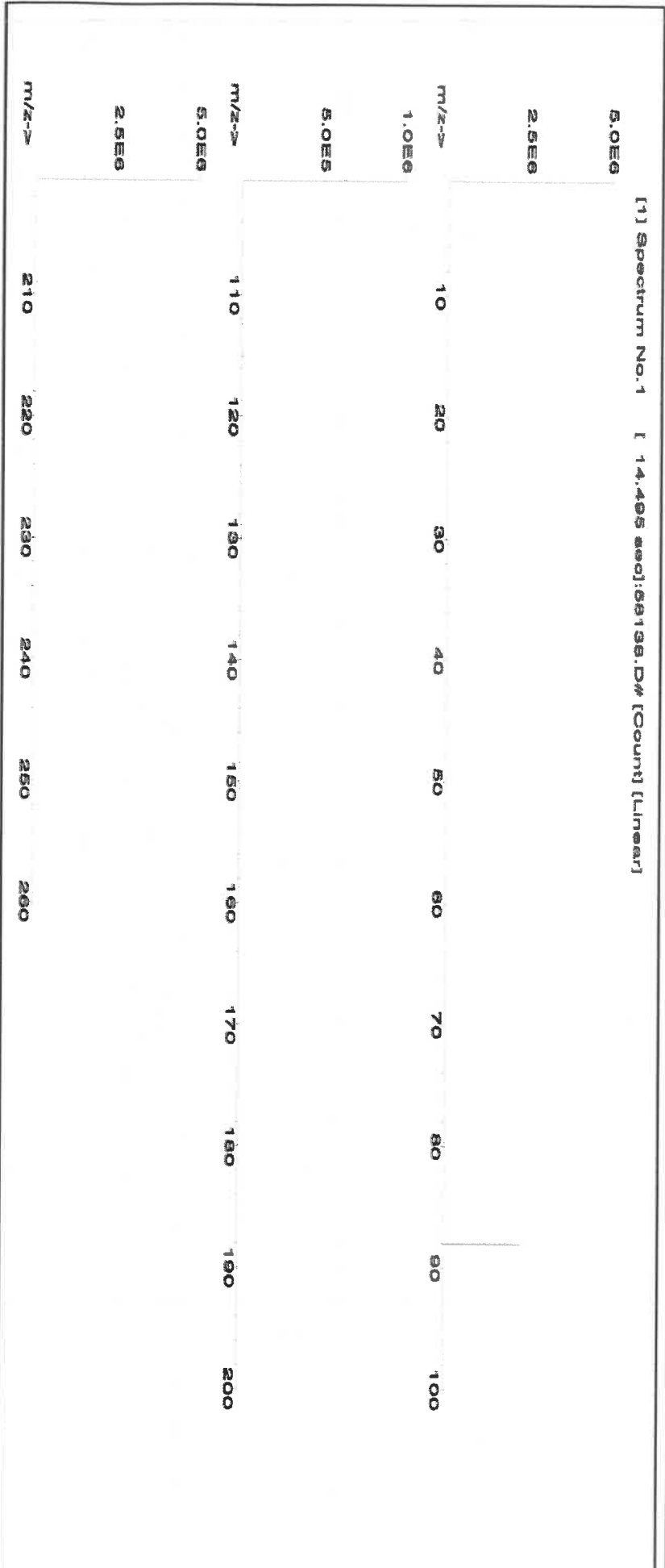
CERTIFIED WEIGHT REPORT:

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.)
									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)

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

57042
080525
Molybdenum (Mo)

Expiration Date:

080528

080528

080528

080528

080528

080528

080528

080528

080528

080528

080528

Recommended Storage:

Ambient (15 - 30 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

1999.41

5E-05

Balance Uncertainty
0.058

Flask Uncertainty

10.0

Ammonium hydroxide

Formulated By:

Benson Chan

080525

080525

Expanded

Uncertainty (Solvent Safety Info. On Attached pg.)

SDS Information

NIST

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

SDS Information

CAS#

OSHA PEL (TWA)

LD50

SRM

SRM

1. Ammonium molybdate (Mo)

58142

112322

0.1000

200.0

0.084

1000

10001.4

1000.5

2.2

13106-76-8

5 mg(Mo)/mL

or cal 383 mg/kg

3134

3134

[1] Spectrum No. 1 [8.594 sec]:57042.D# [Count] [Linear]

2.0E5

1.0E5

m/z->

10

20

30

40

50

60

70

80

90

100

2000

1000

m/z->

110

120

130

140

150

160

170

180

190

200

2.0E6

1.0E6

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
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02
Ba	<0.02	Ce	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	T	Pt	<0.02	Sm	<0.02	S	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Te	<0.02
														Tb	<0.02
														Te	<0.02
														Tl	<0.02
														Tm	<0.02
														Sn	<0.02
														Tl	<0.02
														U	<0.02
														V	<0.02
														Yb	<0.02
														Y	<0.02
														Zn	<0.02
														Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware, and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated by an ISO17025 certified organization with weights traceable through NIST to the SI kilogram (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).
- Rev 1.0, 2/25/2025



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57082
031525
Lead (Pb)

Lot #

Nitric Acid

Expiration Date:

031528

2%

40.0

Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

2000.07

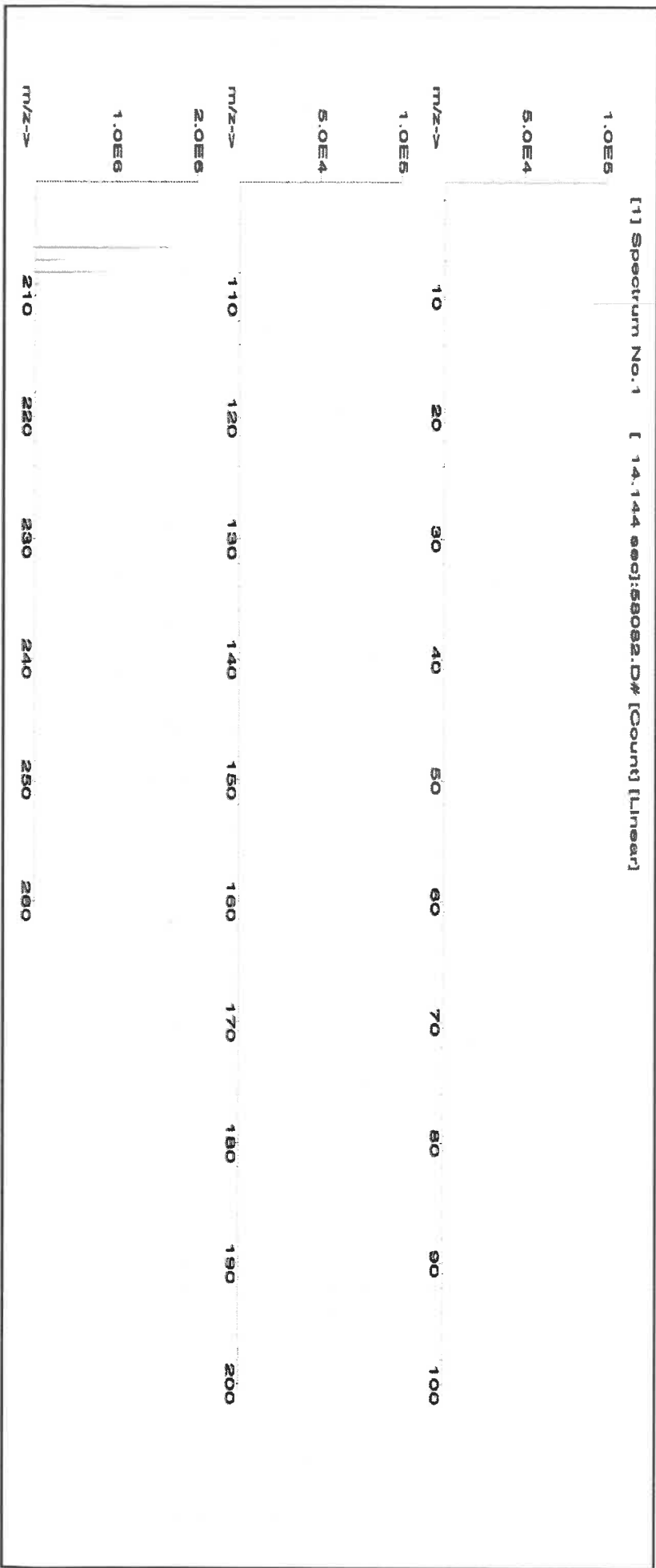
0.10 Flask Uncertainty

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. **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



Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	WW-LFS-1
Lot Number:	W2-MEB752149
Matrix:	5% (v/v) 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

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

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



300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

M6181
R → 7/22/28

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

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 07, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 07, 2029**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Thomas Kozikowski
Stock VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





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.



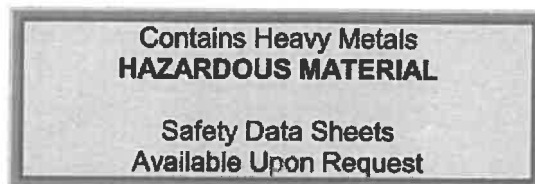
Instructions for QATS Reference Material: ICP-AES ICS

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

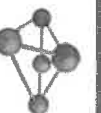
Test	Specification	Result
------	---------------	--------

For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



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

Nitric Acid

Recommended Storage:

Ambient (20 °C)

(mL)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

5E-05 Balance Uncertainty

Volume shown below was diluted to (mL):

2000.07

0.100 Flask Uncertainty

Reviewed By: *Pedro L. Rentes*

Pedro L. Rentes

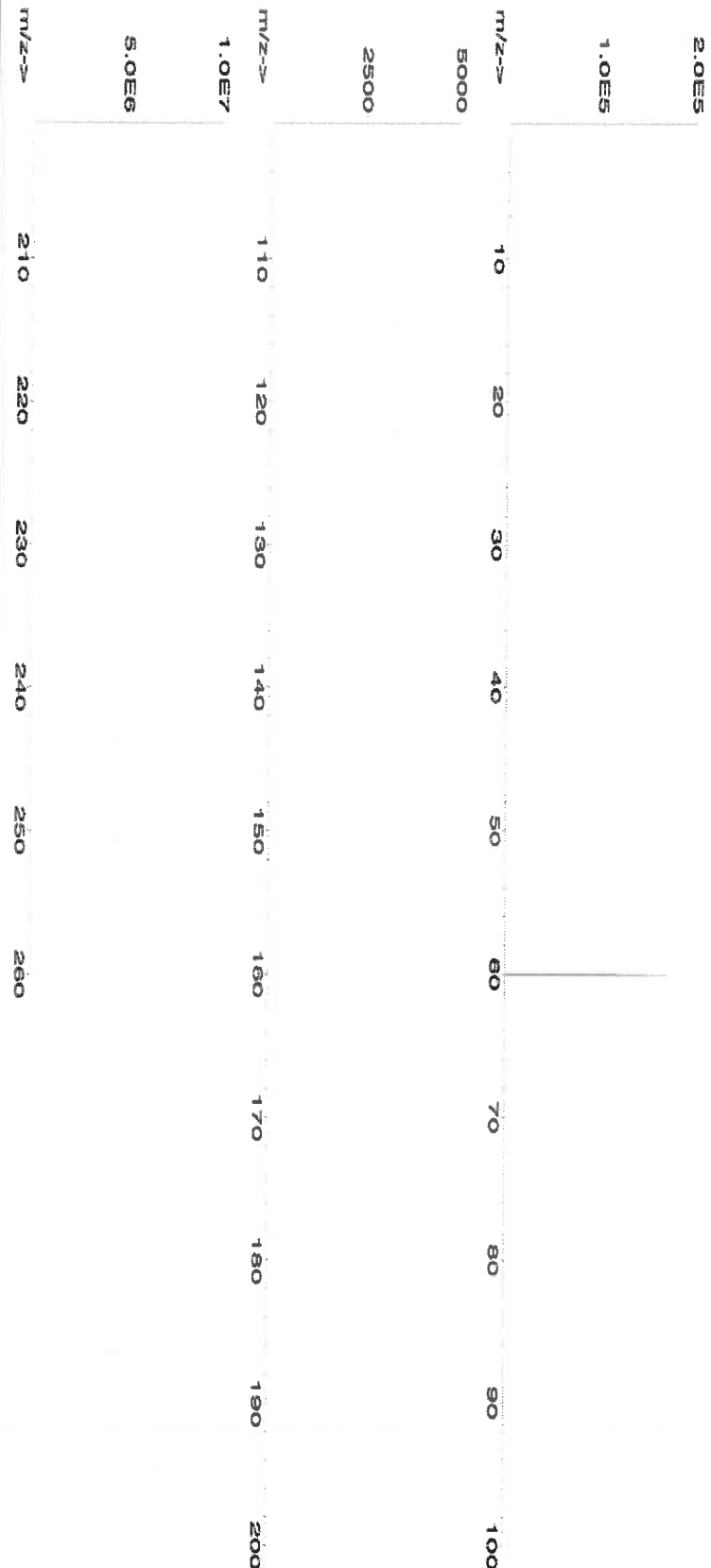
062024

SDS Information

Compound: **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/rat 1620 mg/kg 3136

Part Number Lot Number Dilution Factor Vol. (mL) Uncertainty (mL) Conc. (µg/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] 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



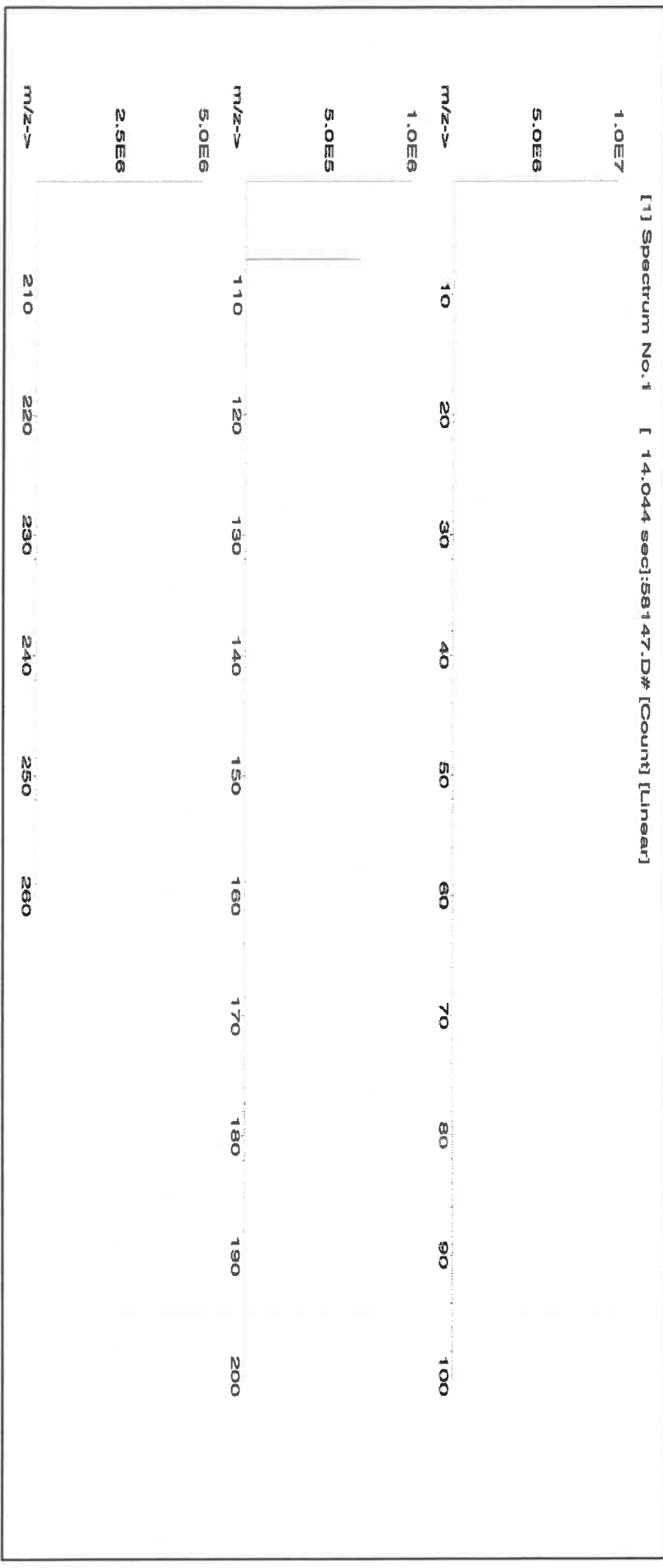
CERTIFIED WEIGHT REPORT:

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	J0612AGA1	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)

MG160

Lot # 24002546
Solvent: Nitric Acid

Expiration Date: 071727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Formulated By: Giovanni Esposito
Reviewed By: Pedro L. Rentas

071724

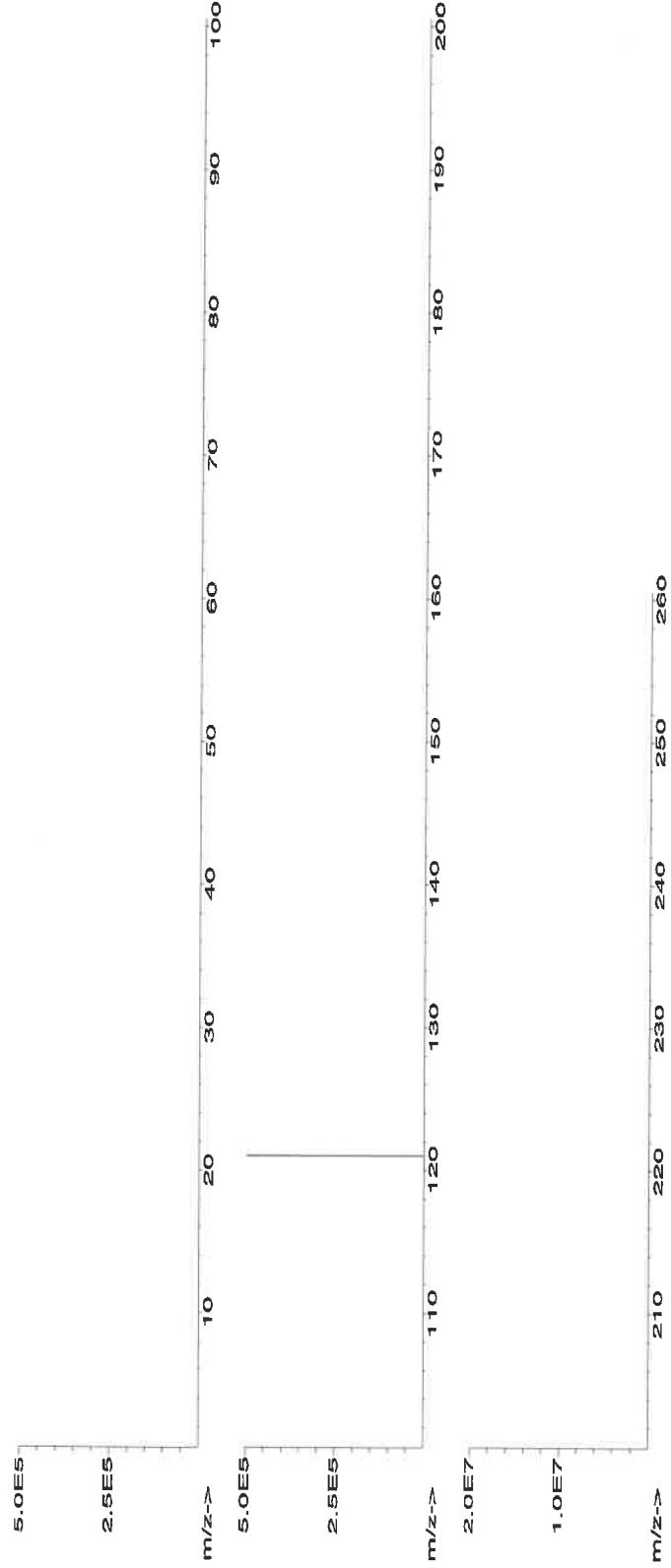
Volume shown below was diluted to (mL): 2000.26
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

SDS Information

Expanded Uncertainty (Solvent Safety Info. On Attached pg.)
Conc. (µg/mL) **Final Conc. (µg/mL)** **Initial Conc. (µg/mL)** **NIST SRM**
+/- (µg/mL) **CAS#** **OSHA PEL (TWA)** **LD50**

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 (µg/mL)																			
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.02	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	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 57081
Lot Number: 062724
Description: Thallium (TI)

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

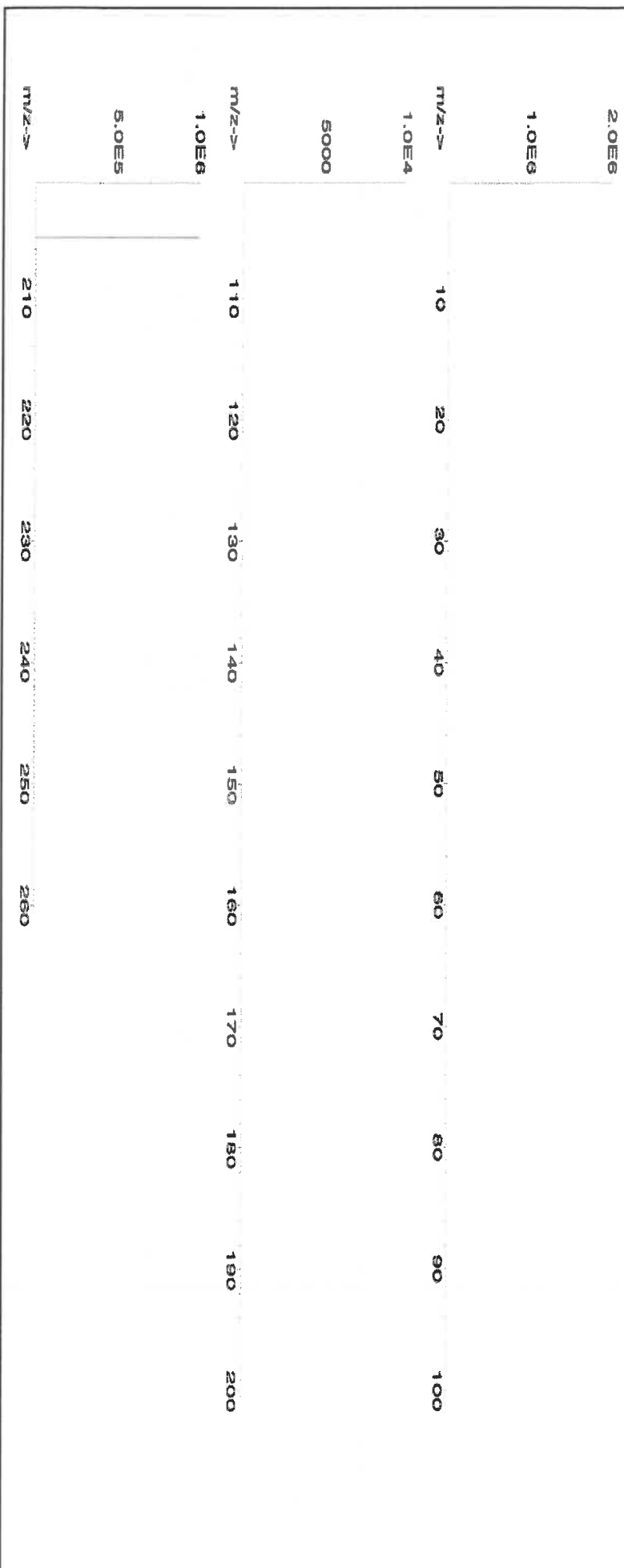
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	062724
Reviewed By:	<i>Pedro L. Renias</i>
	Pedro L. Renias
	062724

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
----------	------------	-----------------------	------------	-----------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. Thallium nitrate (TI) IN037 BCCF4399 1000 99.999 0.10 77.0 2.5975 2.5977 1000.1 2.0 10102-45-1 0.1 mg/m3 or-mus 15mg/kg 3158

[1] Spectrum No.1 [14.044 sec]:57081.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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



Certified Reference Material CRM

M6021



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
<https://absolutestandards.com>

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**

Volume shown below was diluted to (mL): **2000.3**
0.06 Balance Uncertainty
0.06 Flask Uncertainty

Compound		Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. 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	10	20	30	40	50	60	70	80	90	100
1.0E6	10	20	30	40	50	60	70	80	90	100
2.0E7	10	20	30	40	50	60	70	80	90	100
1.0E7	10	20	30	40	50	60	70	80	90	100
5.0E8	110	120	130	140	150	160	170	180	190	200
2.5E8	110	120	130	140	150	160	170	180	190	200
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
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Sr	<0.02	S	<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
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ti	<0.02
														Tb	<0.02
														Te	<0.02
														Tl	<0.02
														Tm	<0.02
														Sn	<0.02
														Ti	<0.02
														W	<0.02
														U	<0.02
														V	T
														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).



SHIPPING DOCUMENTS



284 Sheffield Street, Mountainside, NJ 07092

(908) 789-8900 Fax: (908) 788-9222

www.chemtech.net

CHAIN OF CUSTODY RECORD

Alliance Project Number:

Q 3030

COC Number:

CLIENT INFORMATION

COMPANY: CHA CONSULTING, INC.
ADDRESS: 3 WINNERS CIRCLE
CITY: ALBANY STATE: NY ZIP: 12205
ATTENTION: hnhlig@chasolutions.com
PHONE: 518-461-4303 FAX: -

PROJECT INFORMATION

PROJECT NAME: ALBANY: BLEECKER HALL
PROJECT #: 100131 LOCATION: ALBANY NY
PROJECT MANAGER: H. CAPASSO
E-MAIL: hncapasso@chasolutions.com
PHONE: 518-453-8114 FAX: -

BILLING INFORMATION

BILL TO: CHA COMPANIES PO# 100131.000-03
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: INVOICES@CHASOLUTIONS.COM

DATA TURNAROUND INFORMATION

FAX: EMAIL 5 DAYS*
HARD COPY: DAYS*
EDD: DAYS*
* TO BE APPROVED BY ALLIANCE
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☒ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD Format _____

ANALYSIS

TCLP	GOI	PCRA	MTAUS						
1	2	3	4	5	6	7	8	9	

PRESERVATIVES

COMMENTS

← Specify Preservatives
A-HCl B-HNO3
C-H2SO4 D-NaOH
E-ICE F-Other

CHEMTECH
SAMPLE
IDPROJECT
SAMPLE IDENTIFICATIONSAMPLE
MATRIXSAMPLE
TYPESAMPLE
COLLECTION

of Bottles

COMP

GRAB

DATE

TIME

of Bottles

1

2

3

4

5

6

7

8

9

PORCELAIN
TOILET DEBRIS

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER

DATE/TIME

RECEIVED BY

1. H. UHLIG - CHA

9/2/25 9:43 AM

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant ☐ Cooler Temp 5.7°C
MeOH extraction requires an additional 4oz. Jar for percent solid

☒ Ice in Cooler?

RELINQUISHED BY

DATE/TIME

RECEIVED BY

2. FedEx

9-6-25 1000

Comments:

TCLP - WASTE CHARACTERIZATION - PCRA

RELINQUISHED BY

DATE/TIME

RECEIVED FOR LAB BY

3.

3.

Page 1 of 1

SHIPPED VIA: CLIENT: ☐ Hand Delivered ☒ Overnight
ALLIANCE: ☐ Picked Up ☐ Overnight

Shipment Complete

☐ YES ☐ NO

WHITE - ALLIANCE COPY FOR RETURN TO CLIENT

YELLOW - ALLIANCE COPY

PINK - SAMPLER COPY

Laboratory Certification

Certified By	License No.
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255425
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	TX-C25-00189
Virginia	460312