

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:	Q3466	OrderDate:	10/24/2025 3:18:10 PM
Client:	HDR, Inc.	Project:	PVWC Linear Construction
Contact:	Andrew Wadden	Location:	D41,VOA Ref. #2 Soil

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q3466-02	B8-0.0-1.0-20251023	SOIL			10/23/25			10/24/25
			Mercury	7471B		10/27/25	10/28/25	
			Metals ICP-TAL	6010D		10/28/25	10/29/25	
Q3466-05	B9-0.0-1.0-20251023	SOIL			10/23/25			10/24/25
			Mercury	7471B		10/27/25	10/28/25	
			Metals ICP-TAL	6010D		10/28/25	10/29/25	
Q3466-07	B7-1.0-2.0-20251023	SOIL			10/23/25			10/24/25
			Mercury	7471B		10/27/25	10/28/25	
			Metals ICP-TAL	6010D		10/28/25	10/29/25	

Hit Summary Sheet
SW-846

SDG No.: Q3466

Order ID: Q3466

Client: HDR, Inc.

Project ID: PVWC Linear Construction

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : B8-0.0-1.0-20251023								
Q3466-02	B8-0.0-1.0-20251023	SOIL	Aluminum	5080		0.92	5.48	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Arsenic	4.12		0.21	1.10	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Barium	139		0.80	5.48	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Beryllium	0.44		0.027	0.33	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Cadmium	0.35		0.026	0.33	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Calcium	3170		12.2	110	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Chromium	14.3		0.051	0.55	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Cobalt	4.43		0.11	1.64	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Copper	40.4		0.24	1.10	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Iron	10900		4.37	5.48	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Lead	494		0.14	0.66	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Magnesium	1780		13.1	110	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Manganese	373		0.15	1.10	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Mercury	0.27		0.0090	0.015	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Nickel	12.0		0.14	2.19	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Potassium	371		30.3	110	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Silver	0.16	J	0.13	0.55	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Sodium	194		19.5	110	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Vanadium	19.2		0.27	2.19	mg/Kg
Q3466-02	B8-0.0-1.0-20251023	SOIL	Zinc	194		0.25	2.19	mg/Kg
Client ID : B9-0.0-1.0-20251023								
Q3466-05	B9-0.0-1.0-20251023	SOIL	Aluminum	7760		0.94	5.62	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Arsenic	2.90		0.21	1.12	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Barium	37.3		0.82	5.62	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Beryllium	0.62		0.028	0.34	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Cadmium	0.72		0.027	0.34	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Calcium	1260		12.5	112	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Chromium	13.1		0.053	0.56	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Cobalt	6.14		0.11	1.68	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Copper	24.0		0.25	1.12	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Iron	13300		4.48	5.62	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Lead	45.2		0.15	0.67	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Magnesium	2170		13.5	112	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Manganese	228		0.16	1.12	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Mercury	0.042		0.0080	0.015	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Nickel	11.1		0.15	2.25	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Potassium	1070		31.1	112	mg/Kg

Hit Summary Sheet
SW-846

SDG No.: Q3466

Order ID: Q3466

Client: HDR, Inc.

Project ID: PVWC Linear Construction

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Q3466-05	B9-0.0-1.0-20251023	SOIL	Silver	0.18	J	0.14	0.56	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Sodium	198		20.0	112	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Vanadium	19.1		0.28	2.25	mg/Kg
Q3466-05	B9-0.0-1.0-20251023	SOIL	Zinc	130		0.26	2.25	mg/Kg
Client ID : B7-1.0-2.0-20251023								
Q3466-07	B7-1.0-2.0-20251023	SOIL	Aluminum	3360		0.86	5.10	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Arsenic	2.24		0.19	1.02	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Barium	16.9		0.74	5.10	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Beryllium	0.39		0.025	0.31	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Cadmium	0.18	J	0.024	0.31	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Calcium	888		11.3	102	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Chromium	7.36		0.048	0.51	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Cobalt	4.02		0.10	1.53	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Copper	12.0		0.22	1.02	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Iron	8370		4.07	5.10	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Lead	21.4		0.13	0.61	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Magnesium	1250		12.2	102	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Manganese	118		0.14	1.02	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Mercury	0.016		0.0080	0.014	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Nickel	7.55		0.13	2.04	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Potassium	941		28.2	102	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Sodium	224		18.1	102	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Vanadium	10.8		0.26	2.04	mg/Kg
Q3466-07	B7-1.0-2.0-20251023	SOIL	Zinc	22.0		0.23	2.04	mg/Kg



SAMPLE DATA

Report of Analysis

Client: HDR, Inc.
Project: PVWC Linear Construction
Client Sample ID: B8-0.0-1.0-20251023
Lab Sample ID: Q3466-02
Level (low/med): low

Date Collected: 10/23/25
Date Received: 10/24/25
SDG No.: Q3466
Matrix: SOIL
% Solid: 85.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	5080		1	0.92	5.48	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-36-0	Antimony	0.24	UN	1	0.24	2.74	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-38-2	Arsenic	4.12		1	0.21	1.10	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-39-3	Barium	139		1	0.80	5.48	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-41-7	Beryllium	0.44		1	0.027	0.33	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-43-9	Cadmium	0.35		1	0.026	0.33	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-70-2	Calcium	3170		1	12.2	110	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-47-3	Chromium	14.3		1	0.051	0.55	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-48-4	Cobalt	4.43		1	0.11	1.64	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-50-8	Copper	40.4		1	0.24	1.10	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7439-89-6	Iron	10900	*	1	4.37	5.48	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7439-92-1	Lead	494		1	0.14	0.66	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7439-95-4	Magnesium	1780		1	13.1	110	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7439-96-5	Manganese	373		1	0.15	1.10	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7439-97-6	Mercury	0.27		1	0.0090	0.015	mg/Kg	10/27/25 14:40	10/28/25 13:56	7471B	7471B
7440-02-0	Nickel	12.0		1	0.14	2.19	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-09-7	Potassium	371		1	30.3	110	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7782-49-2	Selenium	0.28	U	1	0.28	1.10	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-22-4	Silver	0.16	J	1	0.13	0.55	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-23-5	Sodium	194		1	19.5	110	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-28-0	Thallium	0.25	U	1	0.25	2.19	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-62-2	Vanadium	19.2		1	0.27	2.19	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A
7440-66-6	Zinc	194	N	1	0.25	2.19	mg/Kg	10/28/25 10:40	10/29/25 15:16	6010D	SW3010A

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

D = Dilution

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

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

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

OR = Over Range

N = Spiked sample recovery not within control limits

Report of Analysis

Client: HDR, Inc.
Project: PVWC Linear Construction
Client Sample ID: B9-0.0-1.0-20251023
Lab Sample ID: Q3466-05
Level (low/med): low

Date Collected: 10/23/25
Date Received: 10/24/25
SDG No.: Q3466
Matrix: SOIL
% Solid: 83.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	7760		1	0.94	5.62	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-36-0	Antimony	0.25	UN	1	0.25	2.81	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-38-2	Arsenic	2.90		1	0.21	1.12	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-39-3	Barium	37.3		1	0.82	5.62	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-41-7	Beryllium	0.62		1	0.028	0.34	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-43-9	Cadmium	0.72		1	0.027	0.34	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-70-2	Calcium	1260		1	12.5	112	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-47-3	Chromium	13.1		1	0.053	0.56	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-48-4	Cobalt	6.14		1	0.11	1.68	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-50-8	Copper	24.0		1	0.25	1.12	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7439-89-6	Iron	13300	*	1	4.48	5.62	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7439-92-1	Lead	45.2		1	0.15	0.67	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7439-95-4	Magnesium	2170		1	13.5	112	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7439-96-5	Manganese	228		1	0.16	1.12	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7439-97-6	Mercury	0.042		1	0.0080	0.015	mg/Kg	10/27/25 14:40	10/28/25 13:58	7471B	7471B
7440-02-0	Nickel	11.1		1	0.15	2.25	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-09-7	Potassium	1070		1	31.1	112	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7782-49-2	Selenium	0.29	U	1	0.29	1.12	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-22-4	Silver	0.18	J	1	0.14	0.56	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-23-5	Sodium	198		1	20.0	112	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-28-0	Thallium	0.26	U	1	0.26	2.25	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-62-2	Vanadium	19.1		1	0.28	2.25	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A
7440-66-6	Zinc	130	N	1	0.26	2.25	mg/Kg	10/28/25 10:40	10/29/25 15:20	6010D	SW3010A

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

D = Dilution

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

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

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

OR = Over Range

N = Spiked sample recovery not within control limits

Report of Analysis

Client: HDR, Inc.
Project: PVWC Linear Construction
Client Sample ID: B7-1.0-2.0-20251023
Lab Sample ID: Q3466-07
Level (low/med): low

Date Collected: 10/23/25
Date Received: 10/24/25
SDG No.: Q3466
Matrix: SOIL
% Solid: 89.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	3360		1	0.86	5.10	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-36-0	Antimony	0.22	UN	1	0.22	2.55	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-38-2	Arsenic	2.24		1	0.19	1.02	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-39-3	Barium	16.9		1	0.74	5.10	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-41-7	Beryllium	0.39		1	0.025	0.31	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-43-9	Cadmium	0.18	J	1	0.024	0.31	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-70-2	Calcium	888		1	11.3	102	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-47-3	Chromium	7.36		1	0.048	0.51	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-48-4	Cobalt	4.02		1	0.10	1.53	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-50-8	Copper	12.0		1	0.22	1.02	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7439-89-6	Iron	8370	*	1	4.07	5.10	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7439-92-1	Lead	21.4		1	0.13	0.61	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7439-95-4	Magnesium	1250		1	12.2	102	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7439-96-5	Manganese	118		1	0.14	1.02	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7439-97-6	Mercury	0.016		1	0.0080	0.014	mg/Kg	10/27/25 14:40	10/28/25 14:06	7471B	7471B
7440-02-0	Nickel	7.55		1	0.13	2.04	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-09-7	Potassium	941		1	28.2	102	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7782-49-2	Selenium	0.27	U	1	0.27	1.02	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-22-4	Silver	0.12	U	1	0.12	0.51	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-23-5	Sodium	224		1	18.1	102	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-28-0	Thallium	0.23	U	1	0.23	2.04	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-62-2	Vanadium	10.8		1	0.26	2.04	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A
7440-66-6	Zinc	22.0	N	1	0.23	2.04	mg/Kg	10/28/25 10:40	10/29/25 15:24	6010D	SW3010A

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: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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
ICV90	Mercury	4.30	4.0	107	90 - 110	CV	10/28/2025	12:51	LB137668

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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
CCV97	Mercury	5.04	5.0	101	90 - 110	CV	10/28/2025	12:56	LB137668
CCV98	Mercury	4.77	5.0	95	90 - 110	CV	10/28/2025	13:31	LB137668
CCV99	Mercury	4.99	5.0	100	90 - 110	CV	10/28/2025	14:01	LB137668
CCV100	Mercury	4.90	5.0	98	90 - 110	CV	10/28/2025	14:23	LB137668

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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	Aluminum	7260	8000	91	90 - 110	P	10/29/2025	14:01	LB137697
	Antimony	3850	4000	96	90 - 110	P	10/29/2025	14:01	LB137697
	Arsenic	3760	4000	94	90 - 110	P	10/29/2025	14:01	LB137697
	Barium	7490	8000	94	90 - 110	P	10/29/2025	14:01	LB137697
	Beryllium	188	200	94	90 - 110	P	10/29/2025	14:01	LB137697
	Cadmium	1860	2000	93	90 - 110	P	10/29/2025	14:01	LB137697
	Calcium	18700	20000	94	90 - 110	P	10/29/2025	14:01	LB137697
	Chromium	770	800	96	90 - 110	P	10/29/2025	14:01	LB137697
	Cobalt	1880	2000	94	90 - 110	P	10/29/2025	14:01	LB137697
	Copper	961	1000	96	90 - 110	P	10/29/2025	14:01	LB137697
	Iron	3790	4000	95	90 - 110	P	10/29/2025	14:01	LB137697
	Lead	3650	4000	91	90 - 110	P	10/29/2025	14:01	LB137697
	Magnesium	18700	20000	94	90 - 110	P	10/29/2025	14:01	LB137697
	Manganese	1870	2000	93	90 - 110	P	10/29/2025	14:01	LB137697
	Nickel	1880	2000	94	90 - 110	P	10/29/2025	14:01	LB137697
	Potassium	18700	20000	93	90 - 110	P	10/29/2025	14:01	LB137697
	Selenium	3780	4000	94	90 - 110	P	10/29/2025	14:01	LB137697
	Silver	969	1000	97	90 - 110	P	10/29/2025	14:01	LB137697
	Sodium	18800	20000	94	90 - 110	P	10/29/2025	14:01	LB137697
	Thallium	3970	4000	99	90 - 110	P	10/29/2025	14:01	LB137697
	Vanadium	1860	2000	93	90 - 110	P	10/29/2025	14:01	LB137697
	Zinc	1900	2000	95	90 - 110	P	10/29/2025	14:01	LB137697

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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	Aluminum	103	100	103	80 - 120	P	10/29/2025	14:07	LB137697
	Antimony	51.5	50.0	103	80 - 120	P	10/29/2025	14:07	LB137697
	Arsenic	21.1	20.0	105	80 - 120	P	10/29/2025	14:07	LB137697
	Barium	105	100	105	80 - 120	P	10/29/2025	14:07	LB137697
	Beryllium	6.45	6.0	108	80 - 120	P	10/29/2025	14:07	LB137697
	Cadmium	5.83	6.0	97	80 - 120	P	10/29/2025	14:07	LB137697
	Calcium	2080	2000	104	80 - 120	P	10/29/2025	14:07	LB137697
	Chromium	10.3	10.0	102	80 - 120	P	10/29/2025	14:07	LB137697
	Cobalt	30.0	30.0	100	80 - 120	P	10/29/2025	14:07	LB137697
	Copper	22.0	20.0	110	80 - 120	P	10/29/2025	14:07	LB137697
	Iron	107	100	107	80 - 120	P	10/29/2025	14:07	LB137697
	Lead	11.7	12.0	98	80 - 120	P	10/29/2025	14:07	LB137697
	Magnesium	2160	2000	108	80 - 120	P	10/29/2025	14:07	LB137697
	Manganese	21.1	20.0	105	80 - 120	P	10/29/2025	14:07	LB137697
	Nickel	40.4	40.0	101	80 - 120	P	10/29/2025	14:07	LB137697
	Potassium	1880	2000	94	80 - 120	P	10/29/2025	14:07	LB137697
	Selenium	23.1	20.0	115	80 - 120	P	10/29/2025	14:07	LB137697
	Silver	10.6	10.0	106	80 - 120	P	10/29/2025	14:07	LB137697
	Sodium	2010	2000	100	80 - 120	P	10/29/2025	14:07	LB137697
	Thallium	46.3	40.0	116	80 - 120	P	10/29/2025	14:07	LB137697
	Vanadium	41.0	40.0	103	80 - 120	P	10/29/2025	14:07	LB137697
	Zinc	43.3	40.0	108	80 - 120	P	10/29/2025	14:07	LB137697

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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	Aluminum	9780	10000	98	90 - 110	P	10/29/2025	14:37	LB137697
	Antimony	4970	5000	99	90 - 110	P	10/29/2025	14:37	LB137697
	Arsenic	4960	5000	99	90 - 110	P	10/29/2025	14:37	LB137697
	Barium	9730	10000	97	90 - 110	P	10/29/2025	14:37	LB137697
	Beryllium	250	250	100	90 - 110	P	10/29/2025	14:37	LB137697
	Cadmium	2460	2500	99	90 - 110	P	10/29/2025	14:37	LB137697
	Calcium	24800	25000	99	90 - 110	P	10/29/2025	14:37	LB137697
	Chromium	1010	1000	100	90 - 110	P	10/29/2025	14:37	LB137697
	Cobalt	2460	2500	98	90 - 110	P	10/29/2025	14:37	LB137697
	Copper	1240	1250	99	90 - 110	P	10/29/2025	14:37	LB137697
	Iron	4870	5000	97	90 - 110	P	10/29/2025	14:37	LB137697
	Lead	4900	5000	98	90 - 110	P	10/29/2025	14:37	LB137697
	Magnesium	24800	25000	99	90 - 110	P	10/29/2025	14:37	LB137697
	Manganese	2460	2500	98	90 - 110	P	10/29/2025	14:37	LB137697
	Nickel	2460	2500	98	90 - 110	P	10/29/2025	14:37	LB137697
	Potassium	24100	25000	97	90 - 110	P	10/29/2025	14:37	LB137697
	Selenium	4930	5000	99	90 - 110	P	10/29/2025	14:37	LB137697
	Silver	1240	1250	99	90 - 110	P	10/29/2025	14:37	LB137697
	Sodium	24400	25000	98	90 - 110	P	10/29/2025	14:37	LB137697
	Thallium	5060	5000	101	90 - 110	P	10/29/2025	14:37	LB137697
	Vanadium	2470	2500	99	90 - 110	P	10/29/2025	14:37	LB137697
	Zinc	2490	2500	100	90 - 110	P	10/29/2025	14:37	LB137697
CCV02	Aluminum	9400	10000	94	90 - 110	P	10/29/2025	15:43	LB137697
	Antimony	4870	5000	97	90 - 110	P	10/29/2025	15:43	LB137697
	Arsenic	4840	5000	97	90 - 110	P	10/29/2025	15:43	LB137697
	Barium	9610	10000	96	90 - 110	P	10/29/2025	15:43	LB137697
	Beryllium	243	250	97	90 - 110	P	10/29/2025	15:43	LB137697
	Cadmium	2420	2500	97	90 - 110	P	10/29/2025	15:43	LB137697
	Calcium	24100	25000	96	90 - 110	P	10/29/2025	15:43	LB137697
	Chromium	988	1000	99	90 - 110	P	10/29/2025	15:43	LB137697
	Cobalt	2420	2500	97	90 - 110	P	10/29/2025	15:43	LB137697
	Copper	1220	1250	98	90 - 110	P	10/29/2025	15:43	LB137697
	Iron	4870	5000	98	90 - 110	P	10/29/2025	15:43	LB137697
	Lead	4820	5000	96	90 - 110	P	10/29/2025	15:43	LB137697

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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
CCV02	Magnesium	24200	25000	97	90 - 110	P	10/29/2025	15:43	LB137697
	Manganese	2390	2500	96	90 - 110	P	10/29/2025	15:43	LB137697
	Nickel	2430	2500	97	90 - 110	P	10/29/2025	15:43	LB137697
	Potassium	24000	25000	96	90 - 110	P	10/29/2025	15:43	LB137697
	Selenium	4790	5000	96	90 - 110	P	10/29/2025	15:43	LB137697
	Silver	1230	1250	98	90 - 110	P	10/29/2025	15:43	LB137697
	Sodium	23900	25000	96	90 - 110	P	10/29/2025	15:43	LB137697
	Thallium	4740	5000	95	90 - 110	P	10/29/2025	15:43	LB137697
	Vanadium	2400	2500	96	90 - 110	P	10/29/2025	15:43	LB137697
	Zinc	2440	2500	98	90 - 110	P	10/29/2025	15:43	LB137697
CCV03	Aluminum	9730	10000	97	90 - 110	P	10/29/2025	16:37	LB137697
	Antimony	5120	5000	102	90 - 110	P	10/29/2025	16:37	LB137697
	Arsenic	5080	5000	102	90 - 110	P	10/29/2025	16:37	LB137697
	Barium	9730	10000	97	90 - 110	P	10/29/2025	16:37	LB137697
	Beryllium	249	250	100	90 - 110	P	10/29/2025	16:37	LB137697
	Cadmium	2510	2500	100	90 - 110	P	10/29/2025	16:37	LB137697
	Calcium	25000	25000	100	90 - 110	P	10/29/2025	16:37	LB137697
	Chromium	1030	1000	103	90 - 110	P	10/29/2025	16:37	LB137697
	Cobalt	2520	2500	101	90 - 110	P	10/29/2025	16:37	LB137697
	Copper	1270	1250	102	90 - 110	P	10/29/2025	16:37	LB137697
	Iron	5080	5000	102	90 - 110	P	10/29/2025	16:37	LB137697
	Lead	5020	5000	100	90 - 110	P	10/29/2025	16:37	LB137697
	Magnesium	25000	25000	100	90 - 110	P	10/29/2025	16:37	LB137697
	Manganese	2470	2500	99	90 - 110	P	10/29/2025	16:37	LB137697
	Nickel	2510	2500	101	90 - 110	P	10/29/2025	16:37	LB137697
	Potassium	25200	25000	101	90 - 110	P	10/29/2025	16:37	LB137697
	Selenium	5070	5000	101	90 - 110	P	10/29/2025	16:37	LB137697
	Silver	1280	1250	102	90 - 110	P	10/29/2025	16:37	LB137697
	Sodium	25300	25000	101	90 - 110	P	10/29/2025	16:37	LB137697
	Thallium	4740	5000	95	90 - 110	P	10/29/2025	16:37	LB137697
	Vanadium	2500	2500	100	90 - 110	P	10/29/2025	16:37	LB137697
	Zinc	2560	2500	102	90 - 110	P	10/29/2025	16:37	LB137697
CCV04	Aluminum	9640	10000	96	90 - 110	P	10/29/2025	17:27	LB137697
	Antimony	4930	5000	99	90 - 110	P	10/29/2025	17:27	LB137697

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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
CCV04	Arsenic	4980	5000	100	90 - 110	P	10/29/2025	17:27	LB137697
	Barium	9640	10000	96	90 - 110	P	10/29/2025	17:27	LB137697
	Beryllium	262	250	105	90 - 110	P	10/29/2025	17:27	LB137697
	Cadmium	2500	2500	100	90 - 110	P	10/29/2025	17:27	LB137697
	Calcium	24600	25000	98	90 - 110	P	10/29/2025	17:27	LB137697
	Chromium	1020	1000	102	90 - 110	P	10/29/2025	17:27	LB137697
	Cobalt	2480	2500	99	90 - 110	P	10/29/2025	17:27	LB137697
	Copper	1250	1250	100	90 - 110	P	10/29/2025	17:27	LB137697
	Iron	4700	5000	94	90 - 110	P	10/29/2025	17:27	LB137697
	Lead	4950	5000	99	90 - 110	P	10/29/2025	17:27	LB137697
	Magnesium	25100	25000	101	90 - 110	P	10/29/2025	17:27	LB137697
	Manganese	2460	2500	99	90 - 110	P	10/29/2025	17:27	LB137697
	Nickel	2490	2500	100	90 - 110	P	10/29/2025	17:27	LB137697
	Potassium	23500	25000	94	90 - 110	P	10/29/2025	17:27	LB137697
	Selenium	4940	5000	99	90 - 110	P	10/29/2025	17:27	LB137697
	Silver	1250	1250	100	90 - 110	P	10/29/2025	17:27	LB137697
	Sodium	23700	25000	95	90 - 110	P	10/29/2025	17:27	LB137697
	Thallium	5310	5000	106	90 - 110	P	10/29/2025	17:27	LB137697
	Vanadium	2460	2500	98	90 - 110	P	10/29/2025	17:27	LB137697
	Zinc	2490	2500	100	90 - 110	P	10/29/2025	17:27	LB137697
CCV05	Aluminum	9470	10000	95	90 - 110	P	10/29/2025	18:03	LB137697
	Antimony	4830	5000	97	90 - 110	P	10/29/2025	18:03	LB137697
	Arsenic	4850	5000	97	90 - 110	P	10/29/2025	18:03	LB137697
	Barium	9570	10000	96	90 - 110	P	10/29/2025	18:03	LB137697
	Beryllium	252	250	101	90 - 110	P	10/29/2025	18:03	LB137697
	Cadmium	2440	2500	98	90 - 110	P	10/29/2025	18:03	LB137697
	Calcium	24400	25000	98	90 - 110	P	10/29/2025	18:03	LB137697
	Chromium	998	1000	100	90 - 110	P	10/29/2025	18:03	LB137697
	Cobalt	2430	2500	97	90 - 110	P	10/29/2025	18:03	LB137697
	Copper	1220	1250	98	90 - 110	P	10/29/2025	18:03	LB137697
	Iron	4780	5000	96	90 - 110	P	10/29/2025	18:03	LB137697
	Lead	4840	5000	97	90 - 110	P	10/29/2025	18:03	LB137697
	Magnesium	24700	25000	99	90 - 110	P	10/29/2025	18:03	LB137697
	Manganese	2440	2500	98	90 - 110	P	10/29/2025	18:03	LB137697

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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	Nickel	2430	2500	97	90 - 110	P	10/29/2025	18:03	LB137697
	Potassium	23100	25000	92	90 - 110	P	10/29/2025	18:03	LB137697
	Selenium	4830	5000	96	90 - 110	P	10/29/2025	18:03	LB137697
	Silver	1220	1250	98	90 - 110	P	10/29/2025	18:03	LB137697
	Sodium	23200	25000	93	90 - 110	P	10/29/2025	18:03	LB137697
	Thallium	5070	5000	102	90 - 110	P	10/29/2025	18:03	LB137697
	Vanadium	2430	2500	97	90 - 110	P	10/29/2025	18:03	LB137697
	Zinc	2450	2500	98	90 - 110	P	10/29/2025	18:03	LB137697
CCV06	Aluminum	9450	10000	94	90 - 110	P	10/29/2025	18:55	LB137697
	Antimony	4740	5000	95	90 - 110	P	10/29/2025	18:55	LB137697
	Arsenic	4790	5000	96	90 - 110	P	10/29/2025	18:55	LB137697
	Barium	9690	10000	97	90 - 110	P	10/29/2025	18:55	LB137697
	Beryllium	253	250	101	90 - 110	P	10/29/2025	18:55	LB137697
	Cadmium	2470	2500	99	90 - 110	P	10/29/2025	18:55	LB137697
	Calcium	24500	25000	98	90 - 110	P	10/29/2025	18:55	LB137697
	Chromium	1010	1000	101	90 - 110	P	10/29/2025	18:55	LB137697
	Cobalt	2460	2500	98	90 - 110	P	10/29/2025	18:55	LB137697
	Copper	1190	1250	95	90 - 110	P	10/29/2025	18:55	LB137697
	Iron	4860	5000	97	90 - 110	P	10/29/2025	18:55	LB137697
	Lead	4920	5000	98	90 - 110	P	10/29/2025	18:55	LB137697
	Magnesium	24800	25000	99	90 - 110	P	10/29/2025	18:55	LB137697
	Manganese	2460	2500	98	90 - 110	P	10/29/2025	18:55	LB137697
	Nickel	2470	2500	99	90 - 110	P	10/29/2025	18:55	LB137697
	Potassium	26000	25000	104	90 - 110	P	10/29/2025	18:55	LB137697
	Selenium	4770	5000	95	90 - 110	P	10/29/2025	18:55	LB137697
	Silver	1240	1250	99	90 - 110	P	10/29/2025	18:55	LB137697
	Sodium	26300	25000	105	90 - 110	P	10/29/2025	18:55	LB137697
	Thallium	5490	5000	110	90 - 110	P	10/29/2025	18:55	LB137697
	Vanadium	2450	2500	98	90 - 110	P	10/29/2025	18:55	LB137697
	Zinc	2250	2500	90	90 - 110	P	10/29/2025	18:55	LB137697



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

Metals

- 2b -

CRDL STANDARD FOR AA & ICP

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Initial Calibration Source: _____

Continuing Calibration Source: _____

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRA	Mercury	0.16	0.2	81	70 - 130	CV	10/28/2025	13:04	LB137668
CRI01	Aluminum	97.1	100	97	65 - 135	P	10/29/2025	14:16	LB137697
	Antimony	49.9	50.0	100	65 - 135	P	10/29/2025	14:16	LB137697
	Arsenic	19.9	20.0	99	65 - 135	P	10/29/2025	14:16	LB137697
	Barium	102	100	102	65 - 135	P	10/29/2025	14:16	LB137697
	Beryllium	6.41	6.0	107	65 - 135	P	10/29/2025	14:16	LB137697
	Cadmium	5.84	6.0	97	65 - 135	P	10/29/2025	14:16	LB137697
	Calcium	2050	2000	103	65 - 135	P	10/29/2025	14:16	LB137697
	Chromium	10.3	10.0	103	65 - 135	P	10/29/2025	14:16	LB137697
	Cobalt	29.6	30.0	99	65 - 135	P	10/29/2025	14:16	LB137697
	Copper	21.6	20.0	108	65 - 135	P	10/29/2025	14:16	LB137697
	Iron	98.0	100	98	65 - 135	P	10/29/2025	14:16	LB137697
	Lead	11.6	12.0	97	65 - 135	P	10/29/2025	14:16	LB137697
	Magnesium	2120	2000	106	65 - 135	P	10/29/2025	14:16	LB137697
	Manganese	22.0	20.0	110	65 - 135	P	10/29/2025	14:16	LB137697
	Nickel	40.3	40.0	101	65 - 135	P	10/29/2025	14:16	LB137697
	Potassium	1850	2000	92	65 - 135	P	10/29/2025	14:16	LB137697
	Selenium	23.0	20.0	115	65 - 135	P	10/29/2025	14:16	LB137697
	Silver	11.0	10.0	110	65 - 135	P	10/29/2025	14:16	LB137697
	Sodium	1940	2000	97	65 - 135	P	10/29/2025	14:16	LB137697
	Thallium	44.2	40.0	111	65 - 135	P	10/29/2025	14:16	LB137697
	Vanadium	43.2	40.0	108	65 - 135	P	10/29/2025	14:16	LB137697
	Zinc	42.4	40.0	106	65 - 135	P	10/29/2025	14:16	LB137697



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

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB90	Mercury	0.076	+/-0.2	U	0.20	CV	10/28/2025	12:53	LB137668

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB97	Mercury	0.076	+/-0.2	U	0.20	CV	10/28/2025	12:58	LB137668
CCB98	Mercury	0.076	+/-0.2	U	0.20	CV	10/28/2025	13:33	LB137668
CCB99	Mercury	0.076	+/-0.2	U	0.20	CV	10/28/2025	14:03	LB137668
CCB100	Mercury	0.076	+/-0.2	U	0.20	CV	10/28/2025	14:25	LB137668

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Aluminum	11.3	+/-50	U	100	P	10/29/2025	14:12	LB137697
	Antimony	6.76	+/-25	U	50.0	P	10/29/2025	14:12	LB137697
	Arsenic	5.12	+/-10	U	20.0	P	10/29/2025	14:12	LB137697
	Barium	14.6	+/-50	U	100	P	10/29/2025	14:12	LB137697
	Beryllium	0.56	+/-3	U	6.00	P	10/29/2025	14:12	LB137697
	Cadmium	0.50	+/-3	U	6.00	P	10/29/2025	14:12	LB137697
	Calcium	234	+/-1000	U	2000	P	10/29/2025	14:12	LB137697
	Chromium	2.12	+/-5	U	10.0	P	10/29/2025	14:12	LB137697
	Cobalt	2.26	+/-15	U	30.0	P	10/29/2025	14:12	LB137697
	Copper	4.60	+/-10	U	20.0	P	10/29/2025	14:12	LB137697
	Iron	23.4	+/-50	U	100	P	10/29/2025	14:12	LB137697
	Lead	2.30	+/-6	U	12.0	P	10/29/2025	14:12	LB137697
	Magnesium	244	+/-1000	U	2000	P	10/29/2025	14:12	LB137697
	Manganese	5.94	+/-10	U	20.0	P	10/29/2025	14:12	LB137697
	Nickel	3.06	+/-20	U	40.0	P	10/29/2025	14:12	LB137697
	Potassium	918	+/-1000	U	2000	P	10/29/2025	14:12	LB137697
	Selenium	9.64	+/-10	U	20.0	P	10/29/2025	14:12	LB137697
	Silver	1.62	+/-5	U	10.0	P	10/29/2025	14:12	LB137697
	Sodium	868	+/-1000	U	2000	P	10/29/2025	14:12	LB137697
	Thallium	4.38	+/-20	U	40.0	P	10/29/2025	14:12	LB137697
	Vanadium	6.26	+/-20	U	40.0	P	10/29/2025	14:12	LB137697
	Zinc	16.7	+/-20	U	40.0	P	10/29/2025	14:12	LB137697

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Aluminum	11.3	+/-50	U	100	P	10/29/2025	14:41	LB137697
	Antimony	6.76	+/-25	U	50.0	P	10/29/2025	14:41	LB137697
	Arsenic	5.12	+/-10	U	20.0	P	10/29/2025	14:41	LB137697
	Barium	14.6	+/-50	U	100	P	10/29/2025	14:41	LB137697
	Beryllium	0.56	+/-3	U	6.00	P	10/29/2025	14:41	LB137697
	Cadmium	0.50	+/-3	U	6.00	P	10/29/2025	14:41	LB137697
	Calcium	234	+/-1000	U	2000	P	10/29/2025	14:41	LB137697
	Chromium	2.12	+/-5	U	10.0	P	10/29/2025	14:41	LB137697
	Cobalt	2.26	+/-15	U	30.0	P	10/29/2025	14:41	LB137697
	Copper	4.60	+/-10	U	20.0	P	10/29/2025	14:41	LB137697
	Iron	23.4	+/-50	U	100	P	10/29/2025	14:41	LB137697
	Lead	2.30	+/-6	U	12.0	P	10/29/2025	14:41	LB137697
	Magnesium	244	+/-1000	U	2000	P	10/29/2025	14:41	LB137697
	Manganese	5.94	+/-10	U	20.0	P	10/29/2025	14:41	LB137697
	Nickel	3.06	+/-20	U	40.0	P	10/29/2025	14:41	LB137697
	Potassium	918	+/-1000	U	2000	P	10/29/2025	14:41	LB137697
	Selenium	9.64	+/-10	U	20.0	P	10/29/2025	14:41	LB137697
	Silver	1.62	+/-5	U	10.0	P	10/29/2025	14:41	LB137697
	Sodium	868	+/-1000	U	2000	P	10/29/2025	14:41	LB137697
	Thallium	4.38	+/-20	U	40.0	P	10/29/2025	14:41	LB137697
	Vanadium	6.26	+/-20	U	40.0	P	10/29/2025	14:41	LB137697
	Zinc	16.7	+/-20	U	40.0	P	10/29/2025	14:41	LB137697
CCB02	Aluminum	11.3	+/-50	U	100	P	10/29/2025	15:48	LB137697
	Antimony	6.76	+/-25	U	50.0	P	10/29/2025	15:48	LB137697
	Arsenic	5.12	+/-10	U	20.0	P	10/29/2025	15:48	LB137697
	Barium	14.6	+/-50	U	100	P	10/29/2025	15:48	LB137697
	Beryllium	0.56	+/-3	U	6.00	P	10/29/2025	15:48	LB137697
	Cadmium	0.50	+/-3	U	6.00	P	10/29/2025	15:48	LB137697
	Calcium	234	+/-1000	U	2000	P	10/29/2025	15:48	LB137697
	Chromium	2.12	+/-5	U	10.0	P	10/29/2025	15:48	LB137697
	Cobalt	2.26	+/-15	U	30.0	P	10/29/2025	15:48	LB137697
	Copper	4.60	+/-10	U	20.0	P	10/29/2025	15:48	LB137697
	Iron	23.4	+/-50	U	100	P	10/29/2025	15:48	LB137697
	Lead	2.30	+/-6	U	12.0	P	10/29/2025	15:48	LB137697
	Magnesium	244	+/-1000	U	2000	P	10/29/2025	15:48	LB137697
	Manganese	5.94	+/-10	U	20.0	P	10/29/2025	15:48	LB137697
	Nickel	3.06	+/-20	U	40.0	P	10/29/2025	15:48	LB137697
	Potassium	918	+/-1000	U	2000	P	10/29/2025	15:48	LB137697
	Selenium	9.64	+/-10	U	20.0	P	10/29/2025	15:48	LB137697

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB02	Silver	1.62	+/-5	U	10.0	P	10/29/2025	15:48	LB137697
	Sodium	868	+/-1000	U	2000	P	10/29/2025	15:48	LB137697
	Thallium	4.38	+/-20	U	40.0	P	10/29/2025	15:48	LB137697
	Vanadium	6.26	+/-20	U	40.0	P	10/29/2025	15:48	LB137697
	Zinc	16.7	+/-20	U	40.0	P	10/29/2025	15:48	LB137697
CCB03	Aluminum	11.3	+/-50	U	100	P	10/29/2025	16:41	LB137697
	Antimony	6.76	+/-25	U	50.0	P	10/29/2025	16:41	LB137697
	Arsenic	5.12	+/-10	U	20.0	P	10/29/2025	16:41	LB137697
	Barium	14.6	+/-50	U	100	P	10/29/2025	16:41	LB137697
	Beryllium	0.56	+/-3	U	6.00	P	10/29/2025	16:41	LB137697
	Cadmium	0.50	+/-3	U	6.00	P	10/29/2025	16:41	LB137697
	Calcium	234	+/-1000	U	2000	P	10/29/2025	16:41	LB137697
	Chromium	2.12	+/-5	U	10.0	P	10/29/2025	16:41	LB137697
	Cobalt	2.26	+/-15	U	30.0	P	10/29/2025	16:41	LB137697
	Copper	4.60	+/-10	U	20.0	P	10/29/2025	16:41	LB137697
	Iron	29.0	+/-50	J	100	P	10/29/2025	16:41	LB137697
	Lead	2.30	+/-6	U	12.0	P	10/29/2025	16:41	LB137697
	Magnesium	244	+/-1000	U	2000	P	10/29/2025	16:41	LB137697
	Manganese	5.94	+/-10	U	20.0	P	10/29/2025	16:41	LB137697
	Nickel	3.06	+/-20	U	40.0	P	10/29/2025	16:41	LB137697
	Potassium	918	+/-1000	U	2000	P	10/29/2025	16:41	LB137697
	Selenium	9.64	+/-10	U	20.0	P	10/29/2025	16:41	LB137697
	Silver	1.62	+/-5	U	10.0	P	10/29/2025	16:41	LB137697
	Sodium	868	+/-1000	U	2000	P	10/29/2025	16:41	LB137697
	Thallium	4.38	+/-20	U	40.0	P	10/29/2025	16:41	LB137697
	Vanadium	6.26	+/-20	U	40.0	P	10/29/2025	16:41	LB137697
	Zinc	16.7	+/-20	U	40.0	P	10/29/2025	16:41	LB137697
CCB04	Aluminum	11.3	+/-50	U	100	P	10/29/2025	17:31	LB137697
	Antimony	6.76	+/-25	U	50.0	P	10/29/2025	17:31	LB137697
	Arsenic	5.12	+/-10	U	20.0	P	10/29/2025	17:31	LB137697
	Barium	14.6	+/-50	U	100	P	10/29/2025	17:31	LB137697
	Beryllium	0.56	+/-3	U	6.00	P	10/29/2025	17:31	LB137697
	Cadmium	0.50	+/-3	U	6.00	P	10/29/2025	17:31	LB137697
	Calcium	234	+/-1000	U	2000	P	10/29/2025	17:31	LB137697
	Chromium	2.12	+/-5	U	10.0	P	10/29/2025	17:31	LB137697
	Cobalt	2.26	+/-15	U	30.0	P	10/29/2025	17:31	LB137697
	Copper	4.60	+/-10	U	20.0	P	10/29/2025	17:31	LB137697
	Iron	23.4	+/-50	U	100	P	10/29/2025	17:31	LB137697
	Lead	2.30	+/-6	U	12.0	P	10/29/2025	17:31	LB137697

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB04	Magnesium	244	+/-1000	U	2000	P	10/29/2025	17:31	LB137697
	Manganese	5.94	+/-10	U	20.0	P	10/29/2025	17:31	LB137697
	Nickel	3.06	+/-20	U	40.0	P	10/29/2025	17:31	LB137697
	Potassium	918	+/-1000	U	2000	P	10/29/2025	17:31	LB137697
	Selenium	9.64	+/-10	U	20.0	P	10/29/2025	17:31	LB137697
	Silver	1.62	+/-5	U	10.0	P	10/29/2025	17:31	LB137697
	Sodium	868	+/-1000	U	2000	P	10/29/2025	17:31	LB137697
	Thallium	4.38	+/-20	U	40.0	P	10/29/2025	17:31	LB137697
	Vanadium	6.26	+/-20	U	40.0	P	10/29/2025	17:31	LB137697
	Zinc	16.7	+/-20	U	40.0	P	10/29/2025	17:31	LB137697
CCB05	Aluminum	12.2	+/-50	J	100	P	10/29/2025	18:07	LB137697
	Antimony	6.76	+/-25	U	50.0	P	10/29/2025	18:07	LB137697
	Arsenic	5.12	+/-10	U	20.0	P	10/29/2025	18:07	LB137697
	Barium	14.6	+/-50	U	100	P	10/29/2025	18:07	LB137697
	Beryllium	0.56	+/-3	U	6.00	P	10/29/2025	18:07	LB137697
	Cadmium	0.50	+/-3	U	6.00	P	10/29/2025	18:07	LB137697
	Calcium	234	+/-1000	U	2000	P	10/29/2025	18:07	LB137697
	Chromium	2.12	+/-5	U	10.0	P	10/29/2025	18:07	LB137697
	Cobalt	2.26	+/-15	U	30.0	P	10/29/2025	18:07	LB137697
	Copper	4.60	+/-10	U	20.0	P	10/29/2025	18:07	LB137697
	Iron	23.4	+/-50	U	100	P	10/29/2025	18:07	LB137697
	Lead	2.30	+/-6	U	12.0	P	10/29/2025	18:07	LB137697
	Magnesium	244	+/-1000	U	2000	P	10/29/2025	18:07	LB137697
	Manganese	5.94	+/-10	U	20.0	P	10/29/2025	18:07	LB137697
	Nickel	3.06	+/-20	U	40.0	P	10/29/2025	18:07	LB137697
	Potassium	918	+/-1000	U	2000	P	10/29/2025	18:07	LB137697
	Selenium	9.64	+/-10	U	20.0	P	10/29/2025	18:07	LB137697
	Silver	1.62	+/-5	U	10.0	P	10/29/2025	18:07	LB137697
	Sodium	868	+/-1000	U	2000	P	10/29/2025	18:07	LB137697
	Thallium	4.38	+/-20	U	40.0	P	10/29/2025	18:07	LB137697
	Vanadium	6.26	+/-20	U	40.0	P	10/29/2025	18:07	LB137697
	Zinc	16.7	+/-20	U	40.0	P	10/29/2025	18:07	LB137697
CCB06	Aluminum	11.3	+/-50	U	100	P	10/29/2025	19:04	LB137697
	Antimony	6.76	+/-25	U	50.0	P	10/29/2025	19:04	LB137697
	Arsenic	5.12	+/-10	U	20.0	P	10/29/2025	19:04	LB137697
	Barium	14.6	+/-50	U	100	P	10/29/2025	19:04	LB137697
	Beryllium	0.56	+/-3	U	6.00	P	10/29/2025	19:04	LB137697
	Cadmium	0.50	+/-3	U	6.00	P	10/29/2025	19:04	LB137697
	Calcium	234	+/-1000	U	2000	P	10/29/2025	19:04	LB137697

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB06	Chromium	2.12	+/-5	U	10.0	P	10/29/2025	19:04	LB137697
	Cobalt	2.26	+/-15	U	30.0	P	10/29/2025	19:04	LB137697
	Copper	4.60	+/-10	U	20.0	P	10/29/2025	19:04	LB137697
	Iron	23.4	+/-50	U	100	P	10/29/2025	19:04	LB137697
	Lead	2.30	+/-6	U	12.0	P	10/29/2025	19:04	LB137697
	Magnesium	244	+/-1000	U	2000	P	10/29/2025	19:04	LB137697
	Manganese	5.94	+/-10	U	20.0	P	10/29/2025	19:04	LB137697
	Nickel	3.06	+/-20	U	40.0	P	10/29/2025	19:04	LB137697
	Potassium	918	+/-1000	U	2000	P	10/29/2025	19:04	LB137697
	Selenium	9.64	+/-10	U	20.0	P	10/29/2025	19:04	LB137697
	Silver	1.62	+/-5	U	10.0	P	10/29/2025	19:04	LB137697
	Sodium	868	+/-1000	U	2000	P	10/29/2025	19:04	LB137697
	Thallium	4.38	+/-20	U	40.0	P	10/29/2025	19:04	LB137697
	Vanadium	6.26	+/-20	U	40.0	P	10/29/2025	19:04	LB137697
	Zinc	16.7	+/-20	U	40.0	P	10/29/2025	19:04	LB137697

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Instrument: CV1

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB170271BL		SOLID		Batch Number:	PB170271		Prep Date:	10/27/2025	
	Mercury	0.0080	<0.014	U	0.014	CV	10/28/2025	13:11	LB137668

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Instrument: P4

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB170288BL	SOLID			Batch Number:	PB170288		Prep Date:	10/28/2025	
	Aluminum	0.84	<2.5	U	5.00	P	10/29/2025	15:04	LB137697
	Antimony	0.22	<1.25	U	2.50	P	10/29/2025	15:04	LB137697
	Arsenic	0.19	<0.5	U	1.00	P	10/29/2025	15:04	LB137697
	Barium	0.73	<2.5	U	5.00	P	10/29/2025	15:04	LB137697
	Beryllium	0.025	<0.15	U	0.30	P	10/29/2025	15:04	LB137697
	Cadmium	0.024	<0.15	U	0.30	P	10/29/2025	15:04	LB137697
	Calcium	11.1	<50	U	100	P	10/29/2025	15:04	LB137697
	Chromium	0.047	<0.25	U	0.50	P	10/29/2025	15:04	LB137697
	Cobalt	0.10	<0.75	U	1.50	P	10/29/2025	15:04	LB137697
	Copper	0.22	<0.5	U	1.00	P	10/29/2025	15:04	LB137697
	Iron	3.99	<2.5	U	5.00	P	10/29/2025	15:04	LB137697
	Lead	0.13	<0.3	U	0.60	P	10/29/2025	15:04	LB137697
	Magnesium	12.0	<50	U	100	P	10/29/2025	15:04	LB137697
	Manganese	0.14	<0.5	U	1.00	P	10/29/2025	15:04	LB137697
	Nickel	0.13	<1	U	2.00	P	10/29/2025	15:04	LB137697
	Potassium	27.7	<50	U	100	P	10/29/2025	15:04	LB137697
	Selenium	0.26	<0.5	U	1.00	P	10/29/2025	15:04	LB137697
	Silver	0.12	<0.25	U	0.50	P	10/29/2025	15:04	LB137697
	Sodium	17.8	<50	U	100	P	10/29/2025	15:04	LB137697
	Thallium	0.23	<1	U	2.00	P	10/29/2025	15:04	LB137697
	Vanadium	0.25	<1	U	2.00	P	10/29/2025	15:04	LB137697
	Zinc	0.23	<1	U	2.00	P	10/29/2025	15:04	LB137697

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: <u>HDR, Inc.</u>	SDG No.: <u>Q3466</u>
Contract: <u>HDRI08</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	Aluminum	238000	255000	93	216000	294000	10/29/2025	14:21	LB137697
	Antimony	-3.02			-50	50	10/29/2025	14:21	LB137697
	Arsenic	4.77			-20	20	10/29/2025	14:21	LB137697
	Barium	5.72	6.0	95	-94	106	10/29/2025	14:21	LB137697
	Beryllium	1.70			-6	6	10/29/2025	14:21	LB137697
	Cadmium	0.66	1.0	66	-5	7	10/29/2025	14:21	LB137697
	Calcium	231000	245000	94	208000	282000	10/29/2025	14:21	LB137697
	Chromium	48.9	52.0	94	42	62	10/29/2025	14:21	LB137697
	Cobalt	1.62			-30	30	10/29/2025	14:21	LB137697
	Copper	14.1	2.0	705	-18	22	10/29/2025	14:21	LB137697
	Iron	95000	101000	94	85600	116500	10/29/2025	14:21	LB137697
	Lead	0.038			-12	12	10/29/2025	14:21	LB137697
	Magnesium	246000	255000	96	216000	294000	10/29/2025	14:21	LB137697
	Manganese	7.78	7.0	111	-13	27	10/29/2025	14:21	LB137697
	Nickel	4.85	2.0	242	-38	42	10/29/2025	14:21	LB137697
	Potassium	22.1			0	0	10/29/2025	14:21	LB137697
	Selenium	1.76			-20	20	10/29/2025	14:21	LB137697
	Silver	0.89			-10	10	10/29/2025	14:21	LB137697
	Sodium	125			0	0	10/29/2025	14:21	LB137697
	Thallium	10.3			-40	40	10/29/2025	14:21	LB137697
	Vanadium	4.98			-40	40	10/29/2025	14:21	LB137697
	Zinc	3.72			-40	40	10/29/2025	14:21	LB137697
ICSAB01	Aluminum	236000	247000	96	209000	285000	10/29/2025	14:25	LB137697
	Antimony	580	618	94	525	711	10/29/2025	14:25	LB137697
	Arsenic	105	104	101	88.4	120	10/29/2025	14:25	LB137697
	Barium	478	537	89	437	637	10/29/2025	14:25	LB137697
	Beryllium	501	495	101	420	570	10/29/2025	14:25	LB137697
	Cadmium	963	972	99	826	1120	10/29/2025	14:25	LB137697
	Calcium	229000	235000	97	199000	271000	10/29/2025	14:25	LB137697
	Chromium	538	542	99	460	624	10/29/2025	14:25	LB137697
	Cobalt	486	476	102	404	548	10/29/2025	14:25	LB137697
	Copper	474	511	93	434	588	10/29/2025	14:25	LB137697
	Iron	94700	99300	95	84400	114500	10/29/2025	14:25	LB137697
	Lead	47.4	49.0	97	37	61	10/29/2025	14:25	LB137697
	Magnesium	244000	248000	98	210000	286000	10/29/2025	14:25	LB137697
	Manganese	479	507	94	430	584	10/29/2025	14:25	LB137697
	Nickel	968	954	102	810	1100	10/29/2025	14:25	LB137697
	Potassium	-81.1			0	0	10/29/2025	14:25	LB137697
	Selenium	51.1	46.0	111	26	66	10/29/2025	14:25	LB137697
	Silver	202	201	100	170	232	10/29/2025	14:25	LB137697
	Sodium	95.8			0	0	10/29/2025	14:25	LB137697
	Thallium	105	108	97	68	148	10/29/2025	14:25	LB137697

Metals

- 4 -

INTERFERENCE CHECK SAMPLE

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

ICS Source: EPA

Instrument ID: P4

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSAB01	Vanadium	469	491	96	417	565	10/29/2025	14:25	LB137697
	Zinc	999	952	105	809	1095	10/29/2025	14:25	LB137697



METAL QC DATA

metals
- 5a -
MATRIX SPIKE SUMMARY

client:	<u>HDR, Inc.</u>	level:	<u>low</u>	sdg no.:	<u>Q3466</u>
contract:	<u>HDRI08</u>			lab code:	<u>ACE</u>
matrix:	<u>Solid</u>	sample id:	<u>Q3451-01</u>	client id:	<u>TP-11MS</u>
Percent Solids for Sample:	89.8	Spiked ID:	Q3451-01MS	Percent Solids for Spike Sample:	89.8

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	80 - 120	0.31		0.014	U	0.31	101		CV

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client:	<u>HDR, Inc.</u>	level:	<u>low</u>	sdg no.:	<u>Q3466</u>
contract:	<u>HDRI08</u>			lab code:	<u>ACE</u>
matrix:	<u>Solid</u>	sample id:	<u>Q3451-01</u>	client id:	<u>TP-11MSD</u>
Percent Solids for Sample:	89.8	Spiked ID:	Q3451-01MSD	Percent Solids for Spike Sample:	89.8

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	80 - 120	0.29		0.014	U	0.28	104		CV

metals
- 5a -
MATRIX SPIKE SUMMARY

client: HDR, Inc. **level:** low **sdg no.:** Q3466
contract: HDRI08 **lab code:** ACE
matrix: Solid **sample id:** Q3469-01 **client id:** TP-13MS

Percent Solids for Sample: 91.1 **Spiked ID:** Q3469-01MS **Percent Solids for Spike Sample:** 91.1

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	5060		4010		97.6	1074		P
Antimony	mg/Kg	75 - 125	17.8		2.39	U	39.0	46	N	P
Arsenic	mg/Kg	75 - 125	34.8		1.48		39.0	85		P
Barium	mg/Kg	75 - 125	23.8		14.2		9.8	98		P
Beryllium	mg/Kg	75 - 125	8.81		0.35		9.8	86		P
Cadmium	mg/Kg	75 - 125	9.63		0.064	J	9.8	98		P
Calcium	mg/Kg	75 - 125	683		554		48.8	263		P
Chromium	mg/Kg	75 - 125	23.9		5.56		19.5	94		P
Cobalt	mg/Kg	75 - 125	13.6		3.16		9.8	107		P
Copper	mg/Kg	75 - 125	31.1		16.0		14.6	103		P
Iron	mg/Kg	75 - 125	9800		7710		150	1393		P
Lead	mg/Kg	75 - 125	52.8		5.18		48.8	97		P
Magnesium	mg/Kg	75 - 125	1310		1130		97.6	180		P
Manganese	mg/Kg	75 - 125	213		192		9.8	213		P
Nickel	mg/Kg	75 - 125	31.8		6.36		24.4	104		P
Potassium	mg/Kg	75 - 125	951		413		490	110		P
Selenium	mg/Kg	75 - 125	79.7		0.96	U	97.6	82		P
Silver	mg/Kg	75 - 125	3.42		0.12	J	3.7	89		P
Sodium	mg/Kg	75 - 125	484		321		150	109		P
Thallium	mg/Kg	75 - 125	95.9		1.91	U	97.6	98		P
Vanadium	mg/Kg	75 - 125	22.6		8.79		14.6	95		P
Zinc	mg/Kg	75 - 125	23.8		13.4		9.8	106		P

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: <u>HDR, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q3466</u>
contract: <u>HDRI08</u>		lab code: <u>ACE</u>
matrix: <u>Solid</u>	sample id: <u>Q3469-01</u>	client id: <u>TP-13MSD</u>

Percent Solids for Sample: 91.1	Spiked ID: Q3469-01MSD	Percent Solids for Spike Sample: 91.1
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Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	4210		4010		96.3	206		P
Antimony	mg/Kg	75 - 125	17.4		2.39	U	38.5	45	N	P
Arsenic	mg/Kg	75 - 125	32.8		1.48		38.5	81		P
Barium	mg/Kg	75 - 125	21.4		14.2		9.6	76		P
Beryllium	mg/Kg	75 - 125	8.08		0.35		9.6	81		P
Cadmium	mg/Kg	75 - 125	8.83		0.064	J	9.6	91		P
Calcium	mg/Kg	75 - 125	568		554		48.1	29		P
Chromium	mg/Kg	75 - 125	21.4		5.56		19.3	82		P
Cobalt	mg/Kg	75 - 125	12.2		3.16		9.6	94		P
Copper	mg/Kg	75 - 125	27.2		16.0		14.4	78		P
Iron	mg/Kg	75 - 125	7310		7710		140	-287		P
Lead	mg/Kg	75 - 125	48.0		5.18		48.1	89		P
Magnesium	mg/Kg	75 - 125	1110		1130		96.3	-29		P
Manganese	mg/Kg	75 - 125	190		192		9.6	-17		P
Nickel	mg/Kg	75 - 125	28.3		6.36		24.1	91		P
Potassium	mg/Kg	75 - 125	847		413		480	91		P
Selenium	mg/Kg	75 - 125	76.2		0.96	U	96.3	79		P
Silver	mg/Kg	75 - 125	3.19		0.12	J	3.6	85		P
Sodium	mg/Kg	75 - 125	425		321		140	75		P
Thallium	mg/Kg	75 - 125	87.8		1.91	U	96.3	91		P
Vanadium	mg/Kg	75 - 125	20.0		8.79		14.4	78		P
Zinc	mg/Kg	75 - 125	20.4		13.4		9.6	73	N	P

Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Matrix: Solid

Level: LOW

Client ID: TP-13A

Sample ID: Q3469-01

Spiked ID: Q3469-01A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	mg/Kg	75 - 125	31.3		2.39	U	38.2	82		P
Zinc	mg/Kg	75 - 125	21.4		13.4		9.50	84		P

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client:	<u>HDR, Inc.</u>	Level:	<u>LOW</u>	SDG No.:	<u>Q3466</u>
Contract:	<u>HDRI08</u>			Lab Code:	<u>ACE</u>
Matrix:	<u>Solid</u>	Sample ID:	<u>Q3451-01</u>	Client ID:	<u>TP-11DUP</u>
Percent Solids for Sample:	89.8	Duplicate ID	Q3451-01DUP	Percent Solids for Spike Sample:	89.8

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.014	U	0.014	U			CV

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client:	<u>HDR, Inc.</u>	Level:	<u>LOW</u>	SDG No.:	<u>Q3466</u>
Contract:	<u>HDRI08</u>			Lab Code:	<u>ACE</u>
Matrix:	<u>Solid</u>	Sample ID:	<u>Q3451-01MS</u>	Client ID:	<u>TP-11MSD</u>
Percent Solids for Sample:	89.8	Duplicate ID	Q3451-01MSD	Percent Solids for Spike Sample:	89.8

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.31		0.29		7		CV

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client: HDR, Inc. **Level:** LOW **SDG No.:** Q3466
Contract: HDRI08 **Lab Code:** ACE
Matrix: Solid **Sample ID:** Q3469-01 **Client ID:** TP-13DUP

Percent Solids for Sample: 91.1 **Duplicate ID** Q3469-01DUP **Percent Solids for Spike Sample:** 91.1

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	4010		3830		5		P
Antimony	mg/Kg	20	2.39	U	2.45	U			P
Arsenic	mg/Kg	20	1.48		1.50		1		P
Barium	mg/Kg	20	14.2		13.2		7		P
Beryllium	mg/Kg	20	0.35		0.33		5		P
Cadmium	mg/Kg	20	0.064	J	0.045	J	35		P
Calcium	mg/Kg	20	554		541		2		P
Chromium	mg/Kg	20	5.56		6.20		11		P
Cobalt	mg/Kg	20	3.16		3.21		2		P
Copper	mg/Kg	20	16.0		16.1		1		P
Iron	mg/Kg	20	7710		7810		1		P
Lead	mg/Kg	20	5.18		5.11		1		P
Magnesium	mg/Kg	20	1130		1030		9		P
Manganese	mg/Kg	20	192		176		9		P
Nickel	mg/Kg	20	6.36		6.27		1		P
Potassium	mg/Kg	20	413		447		8		P
Selenium	mg/Kg	20	0.96	U	0.98	U			P
Silver	mg/Kg	20	0.12	J	0.15	J	24		P
Sodium	mg/Kg	20	321		314		2		P
Thallium	mg/Kg	20	1.91	U	1.96	U			P
Vanadium	mg/Kg	20	8.79		9.48		8		P
Zinc	mg/Kg	20	13.4		12.9		4		P

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client:	<u>HDR, Inc.</u>	Level:	<u>LOW</u>	SDG No.:	<u>Q3466</u>
Contract:	<u>HDRI08</u>			Lab Code:	<u>ACE</u>
Matrix:	<u>Solid</u>	Sample ID:	<u>Q3469-01MS</u>	Client ID:	<u>TP-13MSD</u>
Percent Solids for Sample:	91.1	Duplicate ID	Q3469-01MSD	Percent Solids for Spike Sample:	91.1

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	5060		4210		18		P
Antimony	mg/Kg	20	17.8		17.4		2		P
Arsenic	mg/Kg	20	34.8		32.8		6		P
Barium	mg/Kg	20	23.8		21.4		11		P
Beryllium	mg/Kg	20	8.81		8.08		9		P
Cadmium	mg/Kg	20	9.63		8.83		9		P
Calcium	mg/Kg	20	683		568		18		P
Chromium	mg/Kg	20	23.9		21.4		11		P
Cobalt	mg/Kg	20	13.6		12.2		11		P
Copper	mg/Kg	20	31.1		27.2		13		P
Iron	mg/Kg	20	9800		7310		29	*	P
Lead	mg/Kg	20	52.8		48.0		10		P
Magnesium	mg/Kg	20	1310		1110		17		P
Manganese	mg/Kg	20	213		190		11		P
Nickel	mg/Kg	20	31.8		28.3		12		P
Potassium	mg/Kg	20	951		847		12		P
Selenium	mg/Kg	20	79.7		76.2		4		P
Silver	mg/Kg	20	3.42		3.19		7		P
Sodium	mg/Kg	20	484		425		13		P
Thallium	mg/Kg	20	95.9		87.8		9		P
Vanadium	mg/Kg	20	22.6		20.0		12		P
Zinc	mg/Kg	20	23.8		20.4		15		P

Metals

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LABORATORY CONTROL SAMPLE SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB170271BS Mercury	mg/Kg	0.28	0.28		99	80 - 120	CV

Metals

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LABORATORY CONTROL SAMPLE SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB170288BS							
Aluminum	mg/Kg	100	93.0		93	80 - 120	P
Antimony	mg/Kg	40.0	39.5		99	80 - 120	P
Arsenic	mg/Kg	40.0	38.1		95	80 - 120	P
Barium	mg/Kg	10.0	9.56		96	80 - 120	P
Beryllium	mg/Kg	10.0	9.94		99	80 - 120	P
Cadmium	mg/Kg	10.0	9.14		91	80 - 120	P
Calcium	mg/Kg	50.0	48.9	J	98	80 - 120	P
Chromium	mg/Kg	20.0	19.8		99	80 - 120	P
Cobalt	mg/Kg	10.0	9.39		94	80 - 120	P
Copper	mg/Kg	15.0	15.0		100	80 - 120	P
Iron	mg/Kg	150	143		95	80 - 120	P
Lead	mg/Kg	50.0	45.7		91	80 - 120	P
Magnesium	mg/Kg	100	97.2	J	97	80 - 120	P
Manganese	mg/Kg	10.0	9.70		97	80 - 120	P
Nickel	mg/Kg	25.0	23.6		94	80 - 120	P
Potassium	mg/Kg	500	464		93	80 - 120	P
Selenium	mg/Kg	100	94.6		95	80 - 120	P
Silver	mg/Kg	3.8	3.72		98	80 - 120	P
Sodium	mg/Kg	150	144		96	80 - 120	P
Thallium	mg/Kg	100	84.7		85	80 - 120	P
Vanadium	mg/Kg	15.0	14.5		97	80 - 120	P
Zinc	mg/Kg	10.0	9.93		99	80 - 120	P

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

TP-11L

Lab Name: Alliance

Contract: HDRI08

Lab Code: ACE

Lb No.: lb137668

Lab Sample ID : Q3451-01L

SDG No.: Q3466

Matrix (soil/water): Solid

Level (low/med): LOW

Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Differ- ence	Q	M
	C		C				
Mercury	0.014	U	0.071	U			CV

Metals
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ICP SERIAL DILUTIONS

SAMPLE NO.

TP-13L

Lab Name: Alliance **Contract:** HDRI08
Lab Code: ACE **Lb No.:** lb137697 **Lab Sample ID :** Q3469-01L **SDG No.:** Q3466
Matrix (soil/water): Solid **Level (low/med):** LOW
Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Differ- ence	Q	M
Aluminum	4010		4630		15		P
Antimony	2.39	U	11.9	U			P
Arsenic	1.48		1.52	J	2		P
Barium	14.2		16.8	J	18		P
Beryllium	0.35		0.41	J	19		P
Cadmium	0.064	J	1.43	U	100.0		P
Calcium	554		641		16		P
Chromium	5.56		6.24		12		P
Cobalt	3.16		3.21	J	2		P
Copper	16.0		19.5		22		P
Iron	7710		8790		14		P
Lead	5.18		5.45		5		P
Magnesium	1130		1300		15		P
Manganese	192		224		17		P
Nickel	6.36		6.52	J	3		P
Potassium	413		433	J	5		P
Selenium	0.96	U	4.77	U			P
Silver	0.12	J	2.39	U	100.0		P
Sodium	321		345	J	7		P
Thallium	1.91	U	9.55	U			P
Vanadium	8.79		10.9		24		P
Zinc	13.4		15.4		14		P



METAL PREPARATION & INSTRUMENT DATA

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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
Aluminum	396.100	0.0000000	-0.0002060	0.0000000	0.0000000	0.0000000
Antimony	206.833	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
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
Beryllium	234.861	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000930	0.0000000	0.0000000
Calcium	373.690	0.0000000	0.0000000	-0.0075970	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	224.700	0.0000000	0.0000000	0.0007850	0.0000000	0.0000000
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.0000920	0.0000000	0.0000380	0.0000000	0.0000000
Magnesium	279.079	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	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
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.856	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0000000	0.0001050	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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
Aluminum	396.100	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.833	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
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
Beryllium	234.861	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0002870
Calcium	373.690	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	224.700	0.0000000	0.0000000	0.0000000	0.0000000	0.0009530
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	-0.0039600
Lead	220.353	0.0000000	0.0003170	0.0000000	0.0000000	0.0000000
Magnesium	279.079	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	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
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.856	0.0000000	0.0000000	0.0000000	0.0000000	0.0054900
Vanadium	292.402	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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
Aluminum	396.100	0.0000000	0.0000000	0.0000590	0.0000000	0.0396900
Antimony	206.833	0.0122000	0.0000000	0.0000000	0.0000000	0.0000000
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
Beryllium	234.861	0.0000000	0.0000000	0.0000000	-0.0000710	-0.0003400
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Calcium	373.690	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000070	0.0002200	0.0000000
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000	-0.0007860
Copper	224.700	0.0000000	0.0000000	0.0000000	0.0006510	0.0020500
Iron	240.488	0.0000000	0.0000000	0.0000730	0.0000000	-0.0015250
Lead	220.353	0.0000000	0.0000000	0.0000000	0.0001400	-0.0008600
Magnesium	279.079	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
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
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.856	0.0000000	0.0000000	0.0000000	0.0017400	-0.0100400
Vanadium	292.402	-0.0025100	0.0000000	0.0000000	0.0000000	-0.0072000
Zinc	213.800	0.0000000	0.0009010	0.0000000	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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
Aluminum	396.100	0.0000000	0.0000000	0.0012800	0.0000000	0.0000000
Antimony	206.833	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
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
Beryllium	234.861	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Calcium	373.690	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	224.700	0.0000000	-0.0047000	0.0036100	0.0000000	0.0000000
Iron	240.488	0.0000000	-0.0017000	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	0.0006580	0.0000000	0.0000000	0.0001290
Magnesium	279.079	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
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
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.856	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0067600	0.0000000	0.0000000	0.0000000

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

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
Aluminum	396.100	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.833	-0.0035600	-0.0007970	0.0000000	-0.0018900	0.0000000
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
Beryllium	234.861	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000630	0.0001280	0.0000000	0.0000000
Calcium	373.690	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0001110	0.0000000
Cobalt	228.616	0.0000000	0.0018800	0.0000000	0.0000000	0.0000000
Copper	224.700	0.0000000	0.0003840	0.0000000	0.0000000	0.0000000
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	-0.0003610	0.0000000	0.0000000	0.0000000
Magnesium	279.079	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	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
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.856	0.0000000	-0.0039700	0.0000000	-0.0115600	0.0000000
Vanadium	292.402	0.0000000	0.0005320	0.0000000	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000



METAL PREPARATION & ANALYICAL SUMMARY

Metals

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SAMPLE PREPARATION SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Method:

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB170271							
PB170271BL	PB170271BL	MB	SOLID	10/27/2025	0.50	35.0	100.00
PB170271BS	PB170271BS	LCS	SOLID	10/27/2025	0.50	35.0	100.00
Q3451-01DUP	TP-11DUP	DUP	SOLID	10/27/2025	0.56	35.0	89.80
Q3451-01MS	TP-11MS	MS	SOLID	10/27/2025	0.50	35.0	89.80
Q3451-01MSD	TP-11MSD	MSD	SOLID	10/27/2025	0.55	35.0	89.80
Q3466-02	B8-0.0-1.0-20251023	SAM	SOLID	10/27/2025	0.53	35.0	85.30
Q3466-05	B9-0.0-1.0-20251023	SAM	SOLID	10/27/2025	0.56	35.0	83.20
Q3466-07	B7-1.0-2.0-20251023	SAM	SOLID	10/27/2025	0.57	35.0	89.20

Metals

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SAMPLE PREPARATION SUMMARY

Client: HDR, Inc.

SDG No.: Q3466

Contract: HDRI08

Lab Code: ACE

Method:

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB170288							
PB170288BL	PB170288BL	MB	SOLID	10/28/2025	2.00	100.0	100.00
PB170288BS	PB170288BS	LCS	SOLID	10/28/2025	2.00	100.0	100.00
Q3466-02	B8-0.0-1.0-20251023	SAM	SOLID	10/28/2025	2.14	100.0	85.30
Q3466-05	B9-0.0-1.0-20251023	SAM	SOLID	10/28/2025	2.14	100.0	83.20
Q3466-07	B7-1.0-2.0-20251023	SAM	SOLID	10/28/2025	2.20	100.0	89.20
Q3469-01DUP	TP-13DUP	DUP	SOLID	10/28/2025	2.24	100.0	91.10
Q3469-01MS	TP-13MS	MS	SOLID	10/28/2025	2.25	100.0	91.10
Q3469-01MSD	TP-13MSD	MSD	SOLID	10/28/2025	2.28	100.0	91.10

metals
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ANALYSIS RUN LOG

Client: HDR, Inc.

Contract: HDRI08

Lab code: ACE

Sdg no.: Q3466

Instrument id number: _____

Method: _____

Run number: LB137668

Start date: 10/28/2025

End date: 10/28/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1232	HG
S0.2	S0.2	1	1235	HG
S2.5	S2.5	1	1237	HG
S5	S5	1	1239	HG
S7.5	S7.5	1	1242	HG
S10	S10	1	1245	HG
ICV90	ICV90	1	1251	HG
ICB90	ICB90	1	1253	HG
CCV97	CCV97	1	1256	HG
CCB97	CCB97	1	1258	HG
CRA	CRA	1	1304	HG
PB170271BL	PB170271BL	1	1311	HG
PB170271BS	PB170271BS	1	1314	HG
Q3451-01DUP	TP-11DUP	1	1321	HG
Q3451-01MS	TP-11MS	1	1324	HG
Q3451-01MSD	TP-11MSD	1	1326	HG
CCV98	CCV98	1	1331	HG
CCB98	CCB98	1	1333	HG
Q3466-02	B8-0.0-1.0-20251023	1	1356	HG
Q3466-05	B9-0.0-1.0-20251023	1	1358	HG
CCV99	CCV99	1	1401	HG
CCB99	CCB99	1	1403	HG
Q3466-07	B7-1.0-2.0-20251023	1	1406	HG
Q3451-01L	TP-11L	5	1411	HG
CCV100	CCV100	1	1423	HG
CCB100	CCB100	1	1425	HG

metals
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ANALYSIS RUN LOG

Client: HDR, Inc.

Contract: HDRI08

Lab code: ACE

Sdg no.: Q3466

Instrument id number: _____

Method: _____

Run number: LB137697

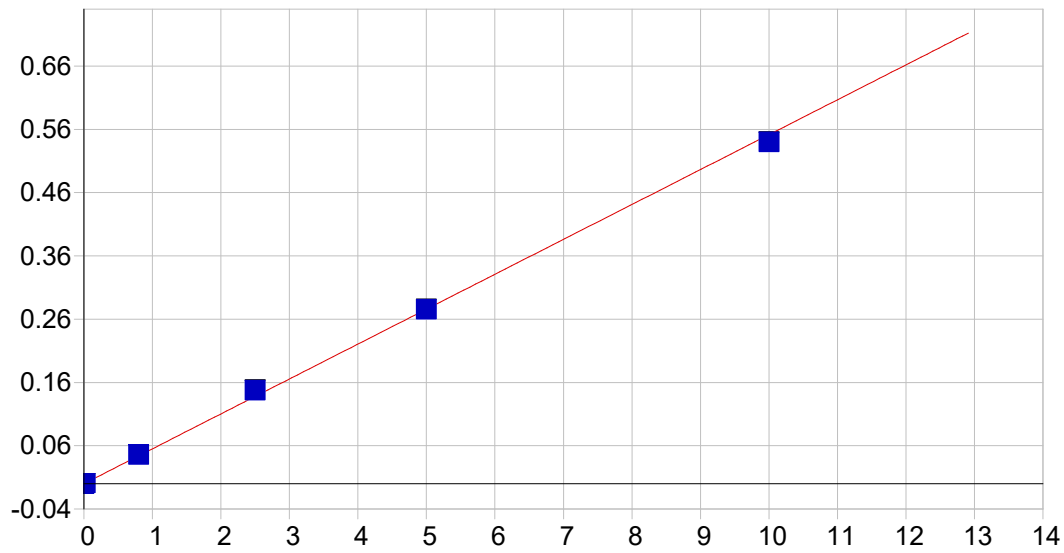
Start date: 10/29/2025

End date: 10/29/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1336	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S1	S1	1	1340	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S2	S2	1	1344	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S3	S3	1	1349	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S4	S4	1	1353	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S5	S5	1	1357	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICV01	ICV01	1	1401	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
LLICV01	LLICV01	1	1407	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICB01	ICB01	1	1412	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CRI01	CRI01	1	1416	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICSA01	ICSA01	1	1421	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICSAB01	ICSAB01	1	1425	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV01	CCV01	1	1437	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB01	CCB01	1	1441	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
PB170288BL	PB170288BL	1	1504	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
PB170288BS	PB170288BS	1	1508	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3466-02	B8-0.0-1.0-20251023	1	1516	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3466-05	B9-0.0-1.0-20251023	1	1520	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3466-07	B7-1.0-2.0-20251023	1	1524	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV02	CCV02	1	1543	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB02	CCB02	1	1548	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3469-01DUP	TP-13DUP	1	1556	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3469-01L	TP-13L	5	1600	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3469-01MS	TP-13MS	1	1604	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3469-01MSD	TP-13MSD	1	1608	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3469-01A	TP-13A	1	1612	Sb,Zn
CCV03	CCV03	1	1637	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB03	CCB03	1	1641	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV04	CCV04	1	1727	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB04	CCB04	1	1731	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV05	CCV05	1	1803	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB05	CCB05	1	1807	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV06	CCV06	1	1855	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB06	CCB06	1	1904	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn



METAL RAW DATA

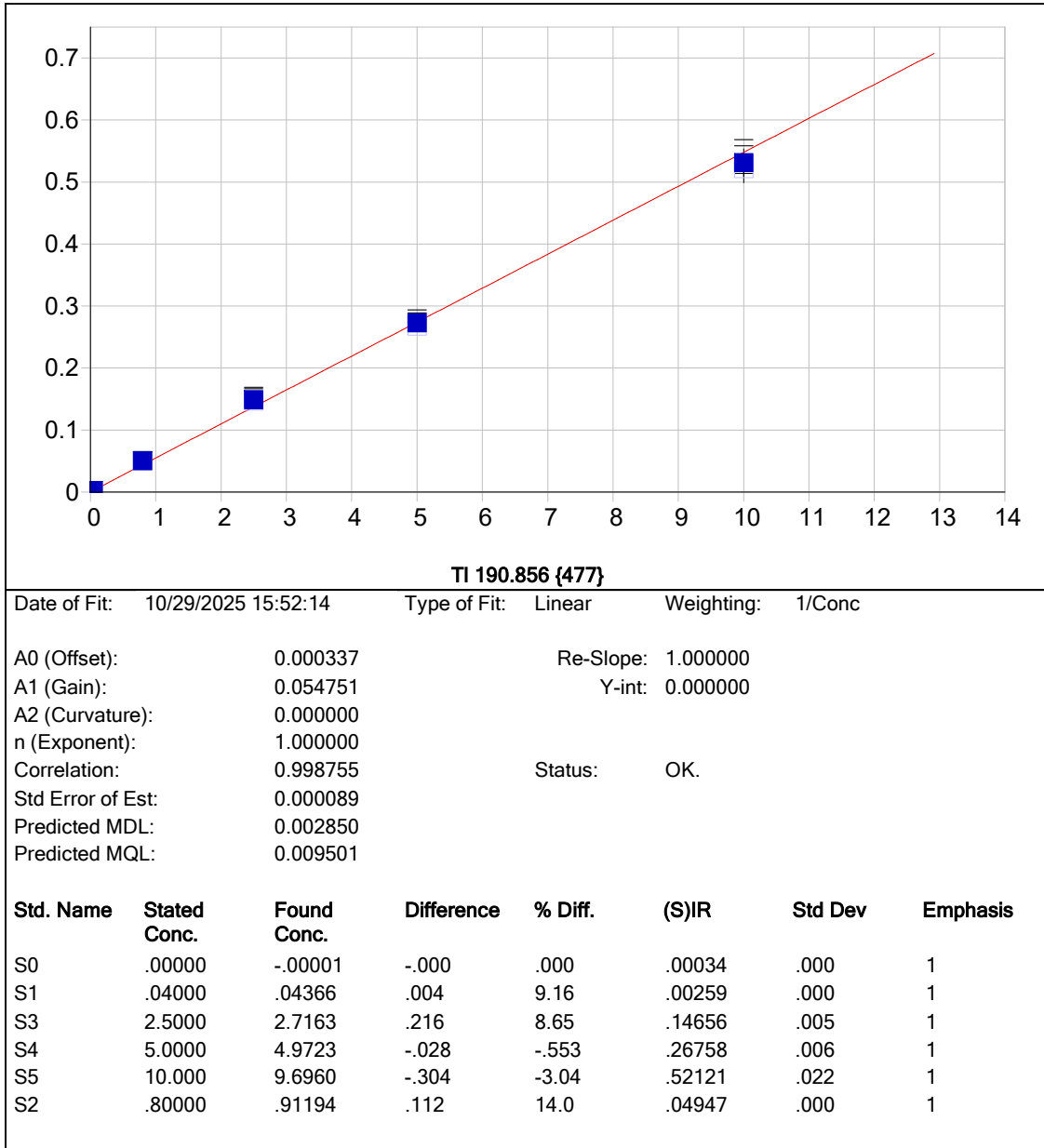


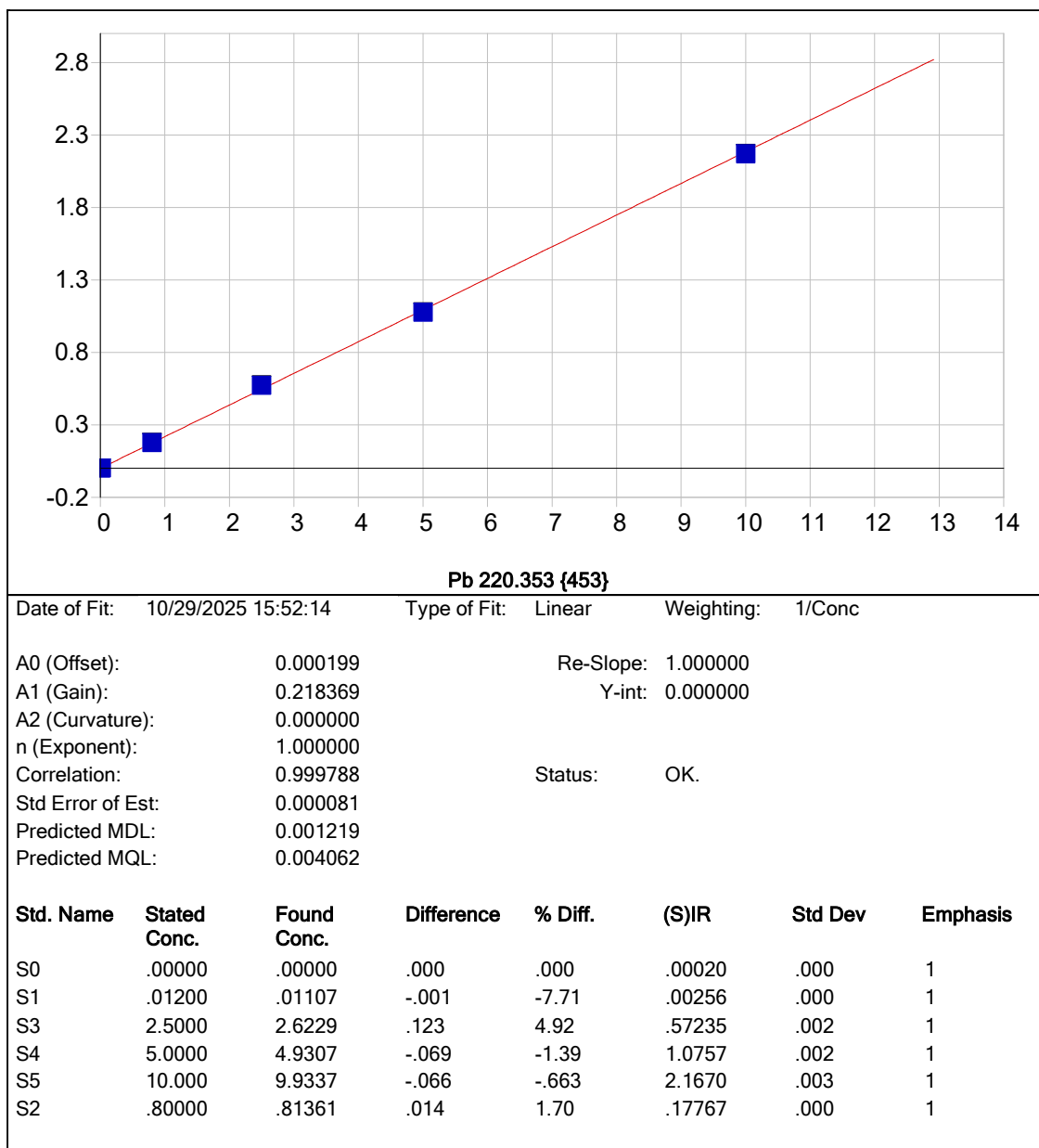
As 189.042 {479}

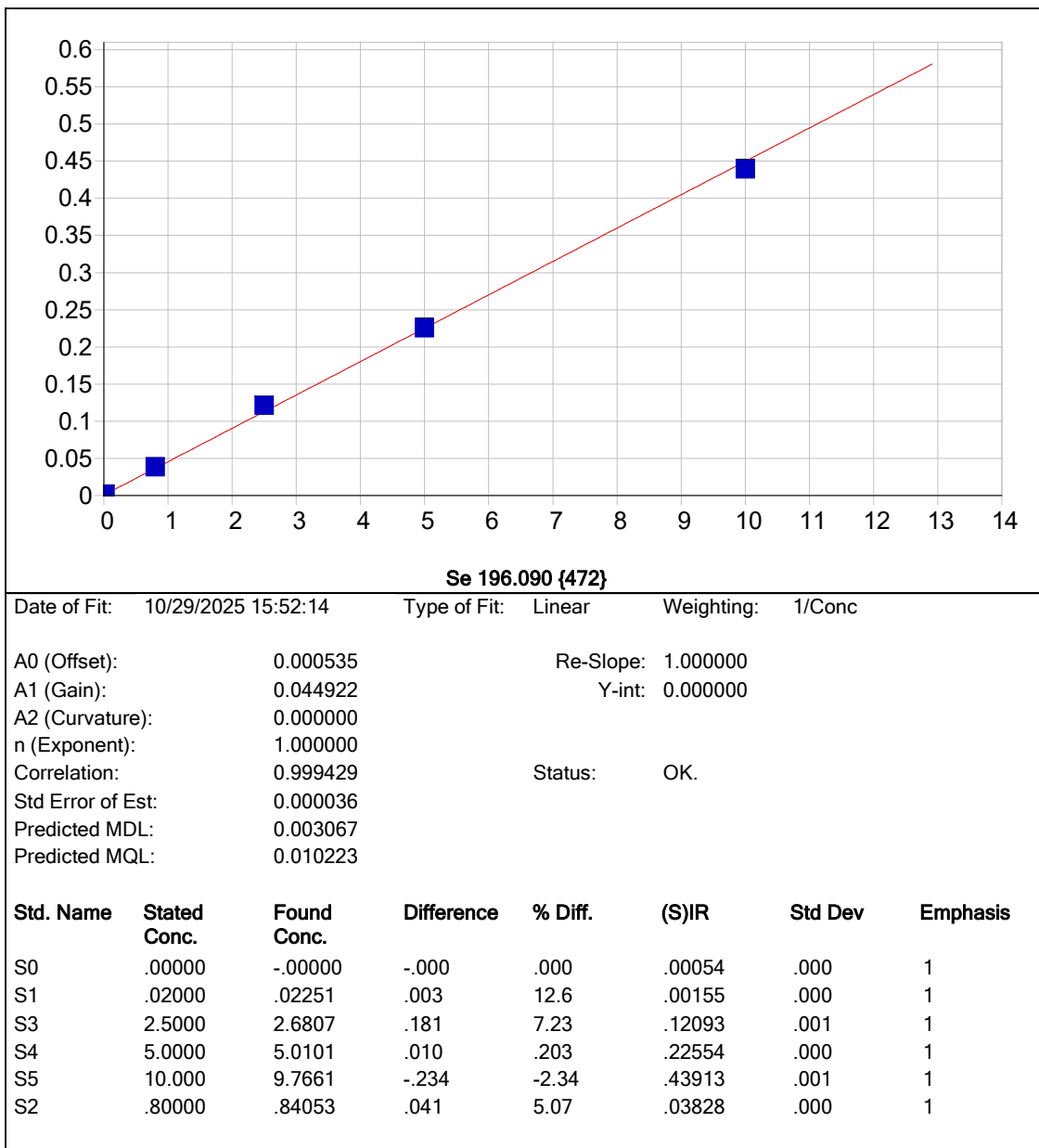
Date of Fit: 10/29/2025 15:52:14 Type of Fit: Linear Weighting: 1/Conc

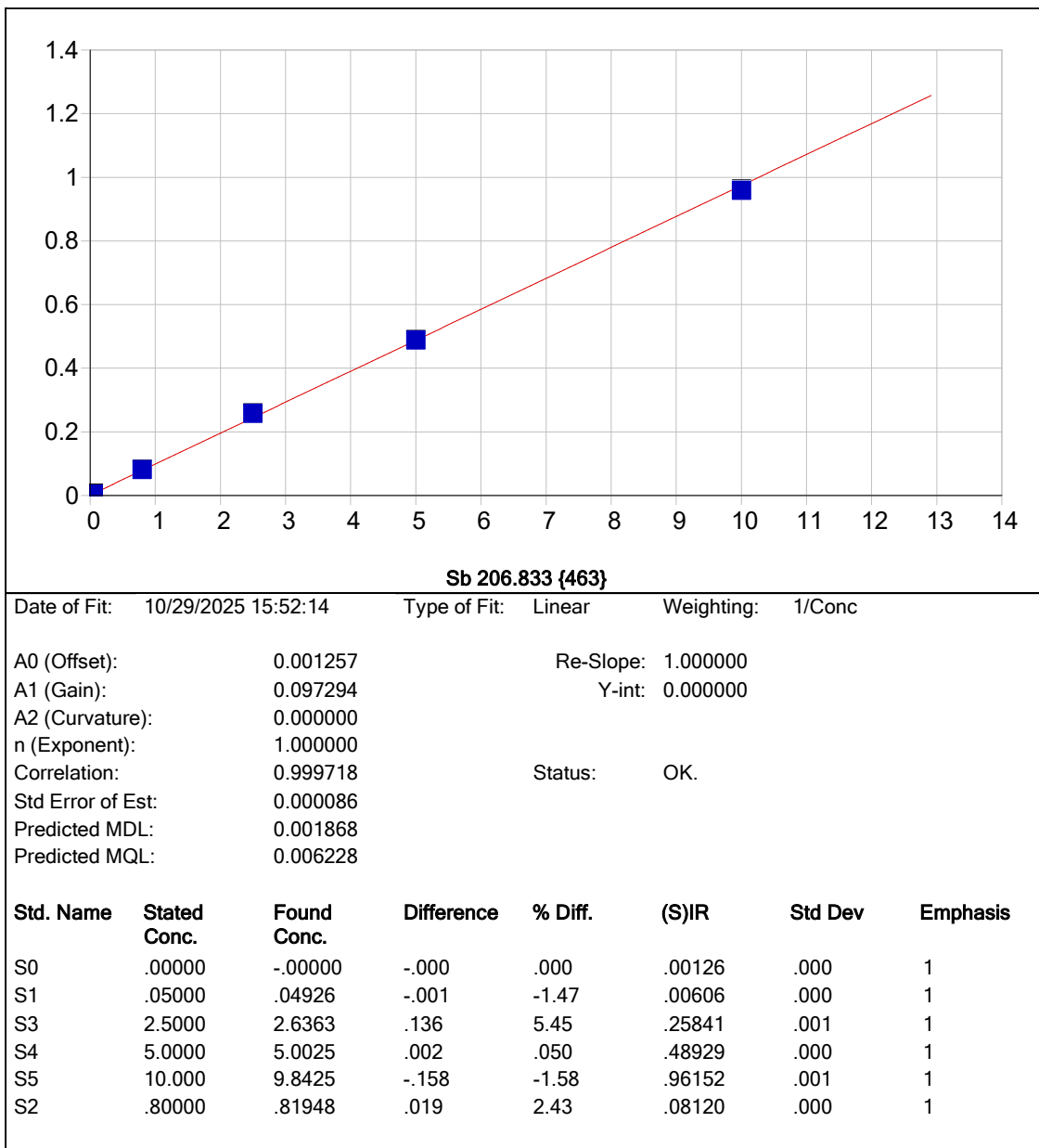
A0 (Offset): -0.000009 Re-Slope: 1.000000
A1 (Gain): 0.055160 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999483 Status: OK.
Std Error of Est: 0.000042
Predicted MDL: 0.002032
Predicted MQL: 0.006774

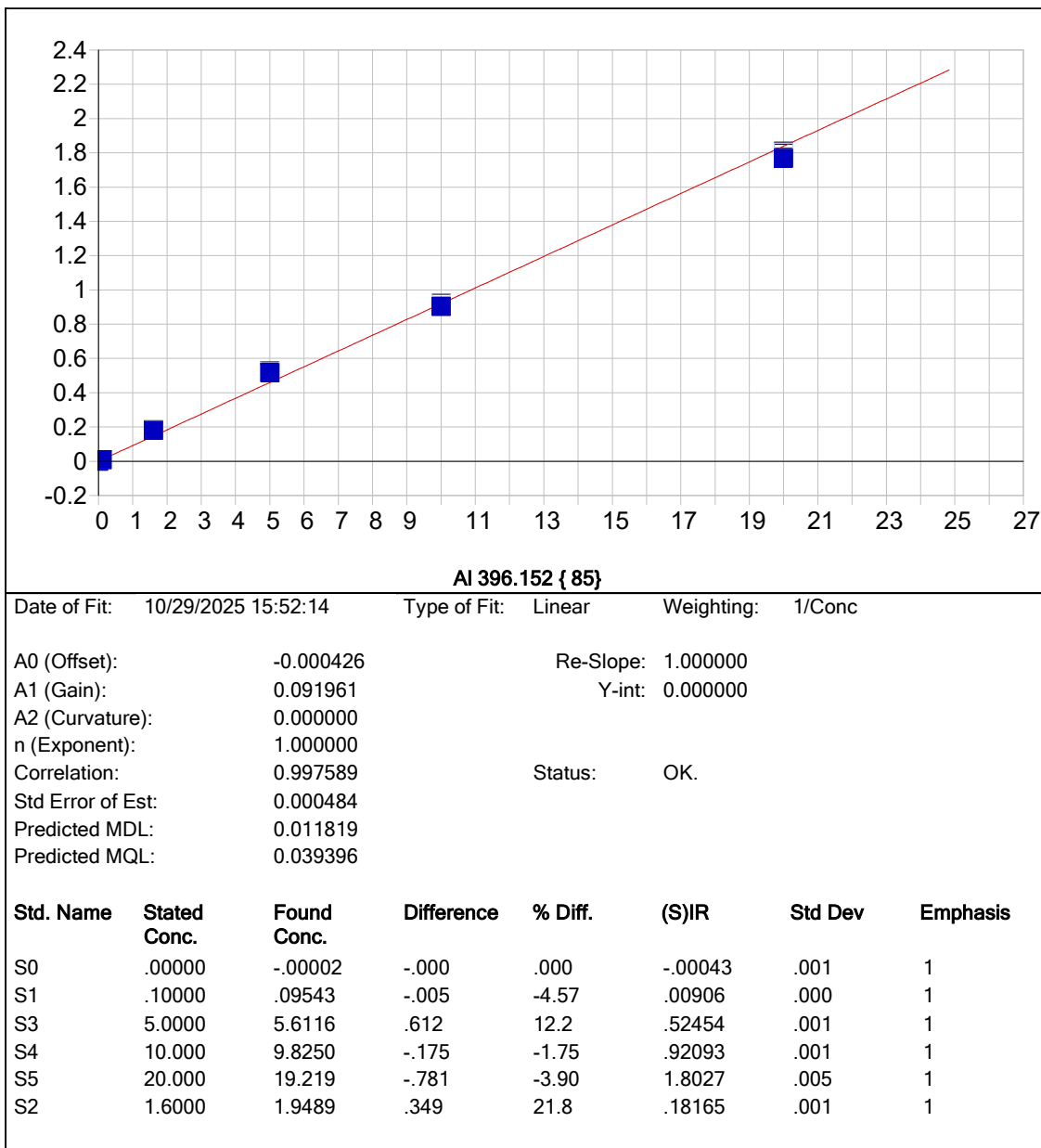
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00001	.000	1
S1	.02000	.02050	.000	2.48	.00112	.000	1
S3	2.5000	2.6805	.180	7.22	.14771	.001	1
S4	5.0000	4.9947	-.005	-.106	.27522	.001	1
S5	10.000	9.7900	-.210	-2.10	.53944	.001	1
S2	.80000	.83436	.034	4.29	.04597	.000	1





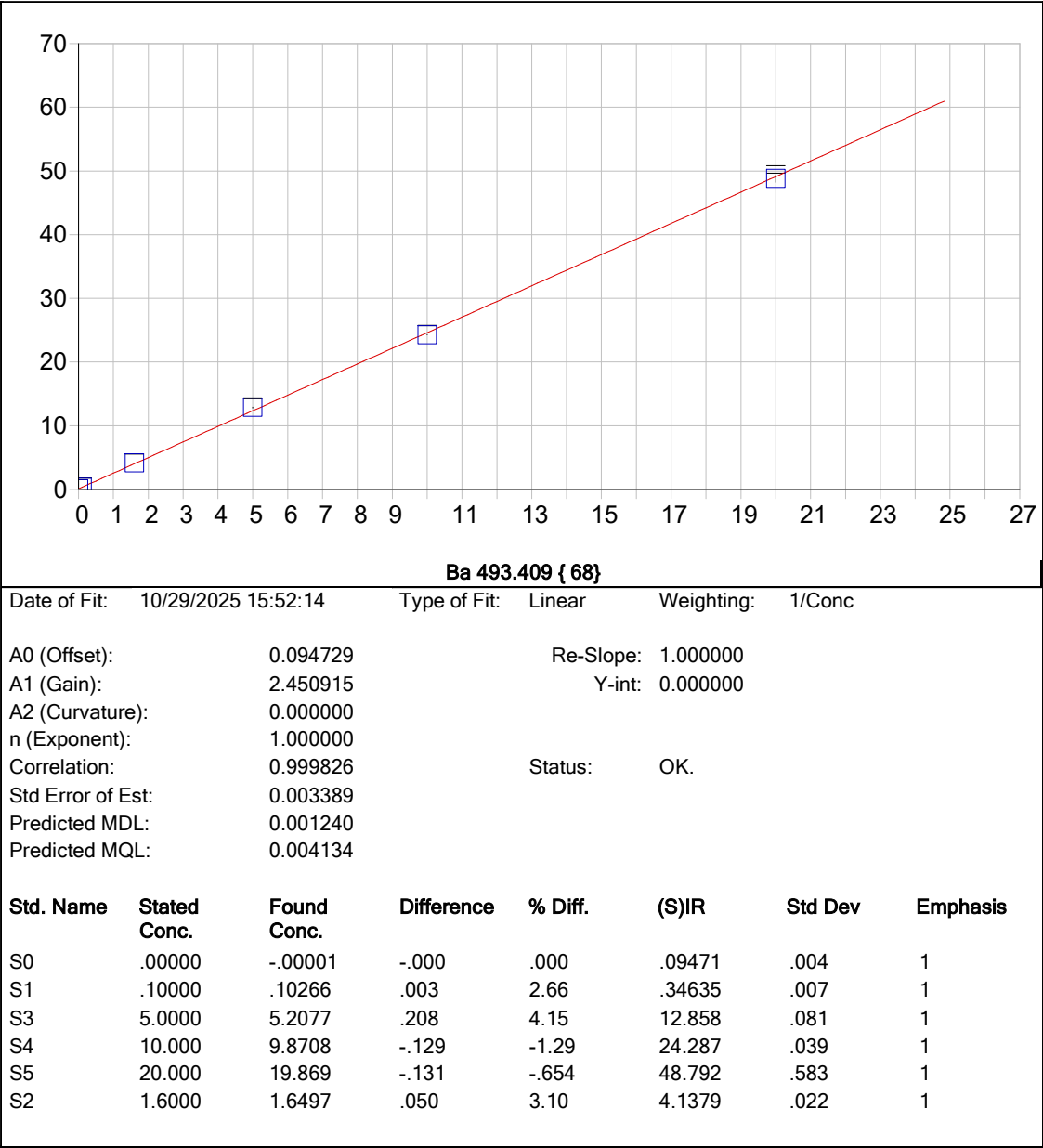


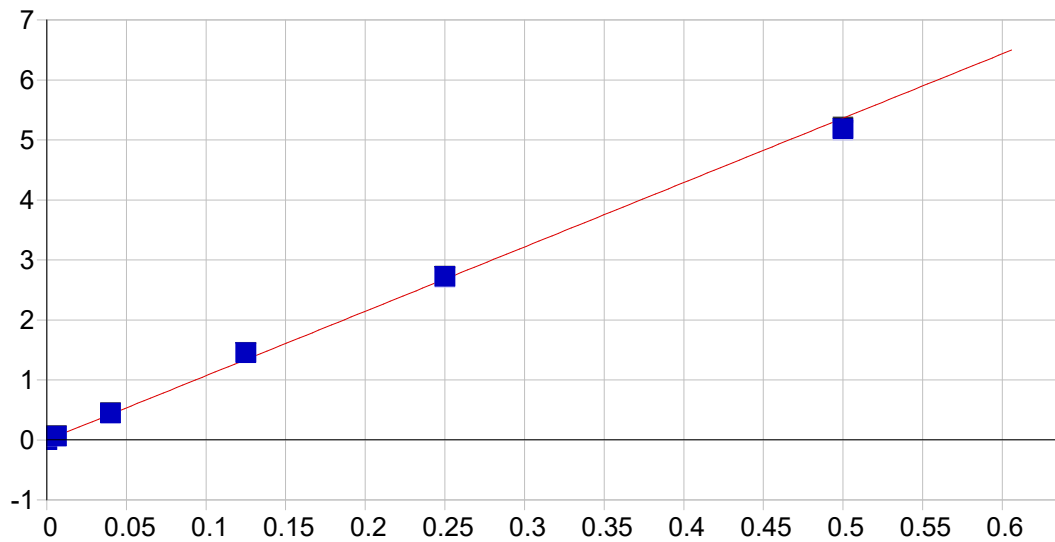




Date of Fit: 10/29/2025 15:52:14 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset): -0.000426 Re-Slope: 1.000000
A1 (Gain): 0.091961 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.997589 Status: OK.
Std Error of Est: 0.000484
Predicted MDL: 0.011819
Predicted MQL: 0.039396



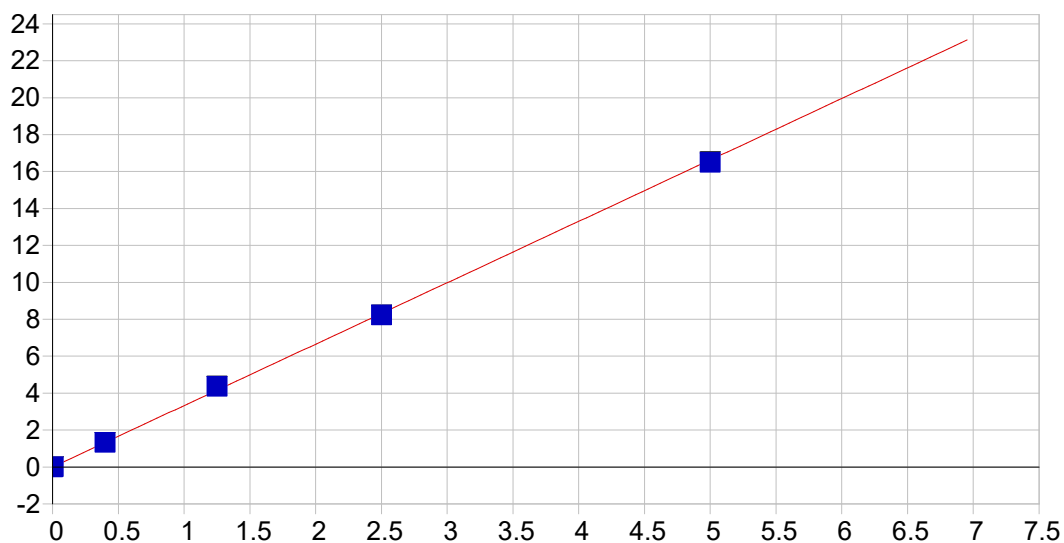


Be 234.861 {144}

Date of Fit: 10/29/2025 15:52:14 Type of Fit: Linear Weighting: 1/Conc

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A1 (Gain): 10.729807 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999108 Status: OK.
Std Error of Est: 0.001299
Predicted MDL: 0.000067
Predicted MQL: 0.000222

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00266	.000	1
S1	.00600	.00614	.000	2.36	.06277	.001	1
S3	.12500	.13582	.011	8.66	1.4487	.005	1
S4	.25000	.25381	.004	1.52	2.7087	.006	1
S5	.50000	.48342	-.017	-3.32	5.1603	.029	1
S2	.04000	.04181	.002	4.52	.44403	.003	1

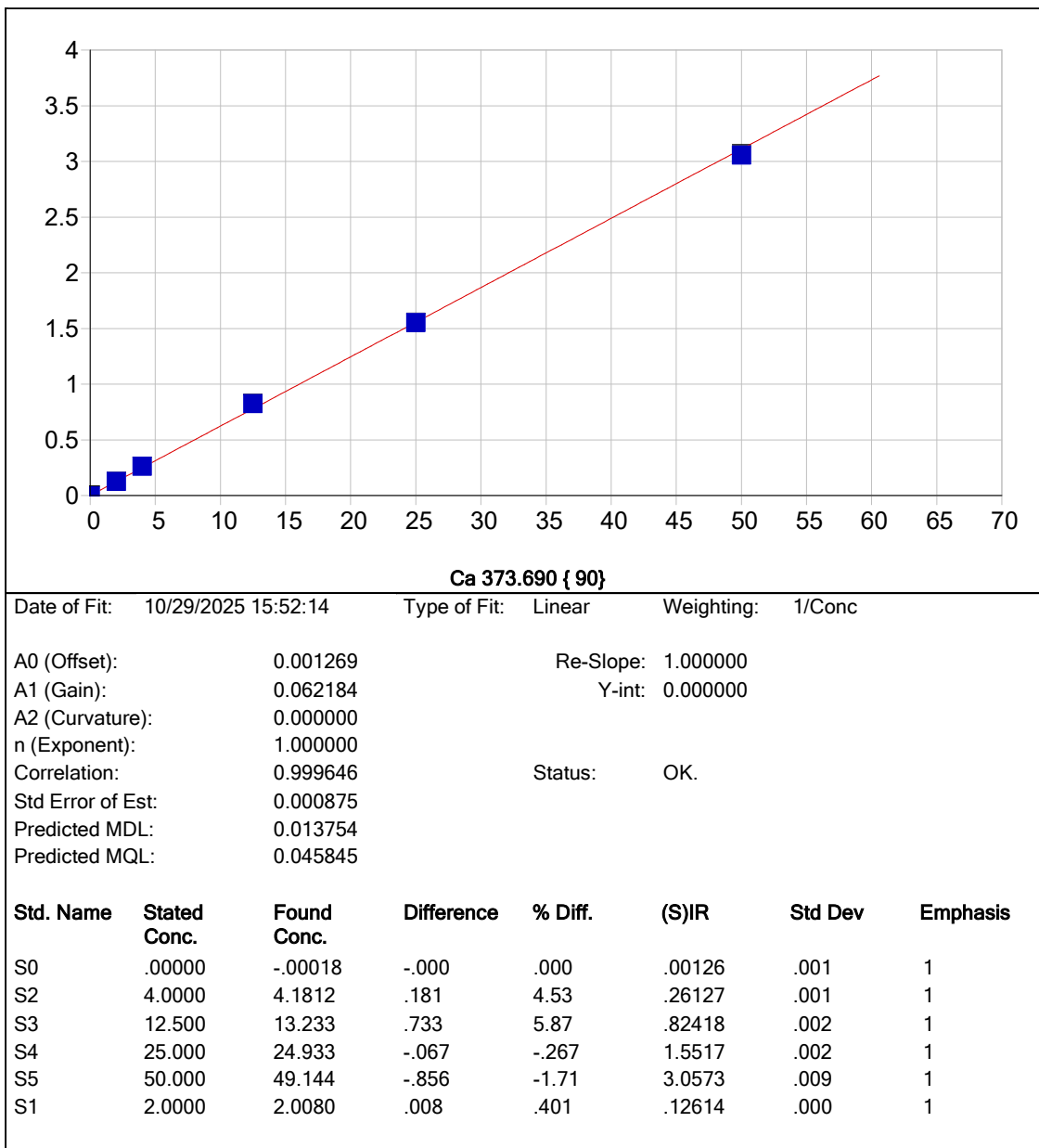


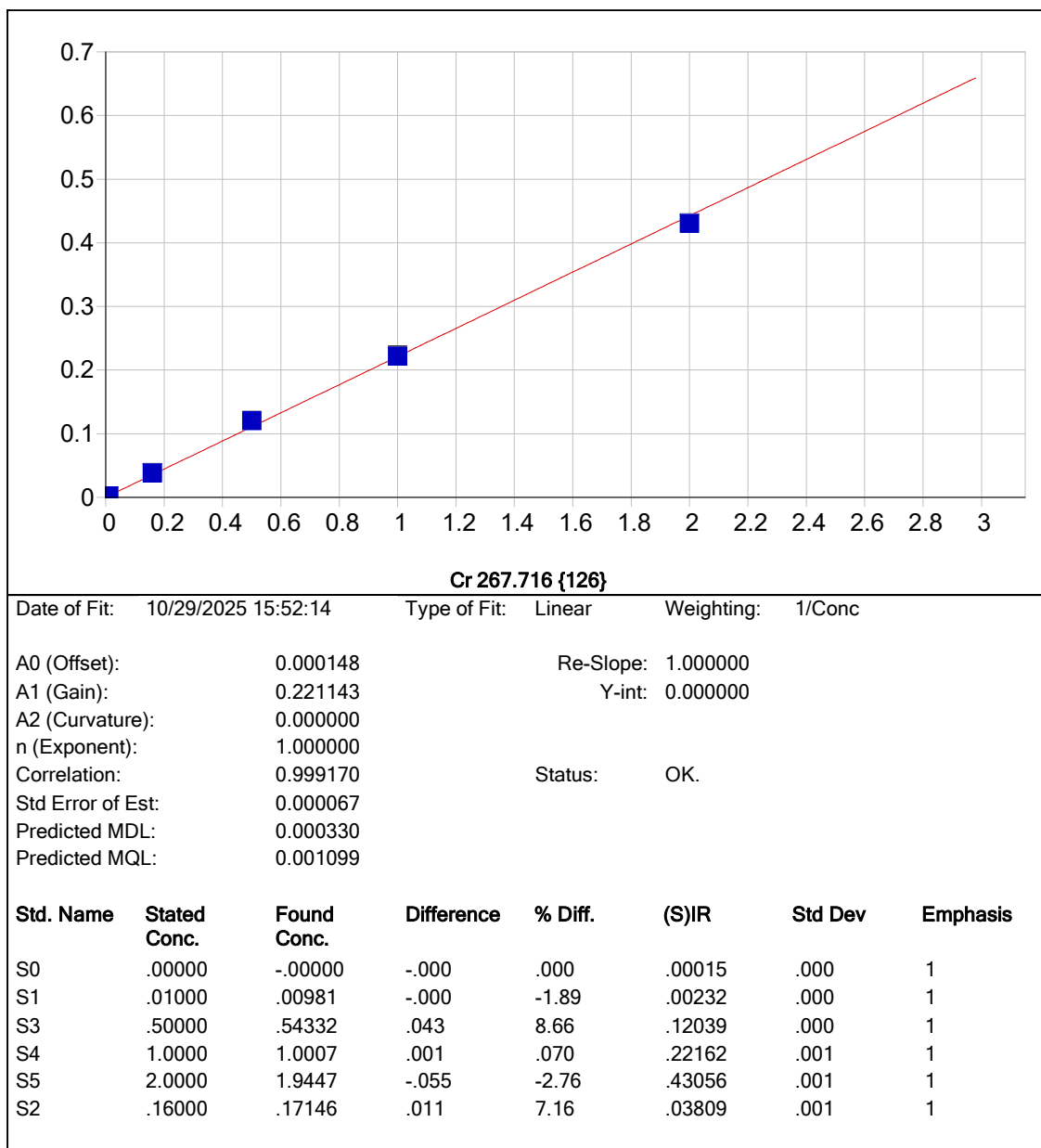
Cd 226.502 {449}

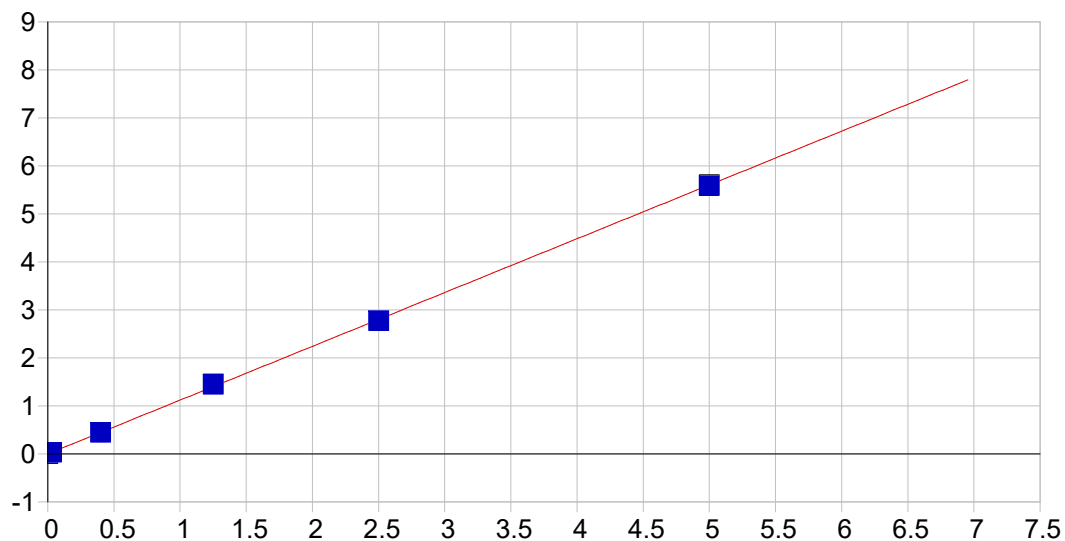
Date of Fit: 10/29/2025 15:52:14 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset): -0.000620 Re-Slope: 1.000000
A1 (Gain): 3.325994 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999791 Status: OK.
Std Error of Est: 0.000617
Predicted MDL: 0.000068
Predicted MQL: 0.000227

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00062	.000	1
S1	.00600	.00569	-.000	-5.23	.01836	.000	1
S3	1.2500	1.3138	.064	5.10	4.3717	.005	1
S4	2.5000	2.4759	-.024	-.965	8.2396	.007	1
S5	5.0000	4.9600	-.040	-.800	16.507	.038	1
S2	.40000	.40068	.001	.169	1.3329	.002	1





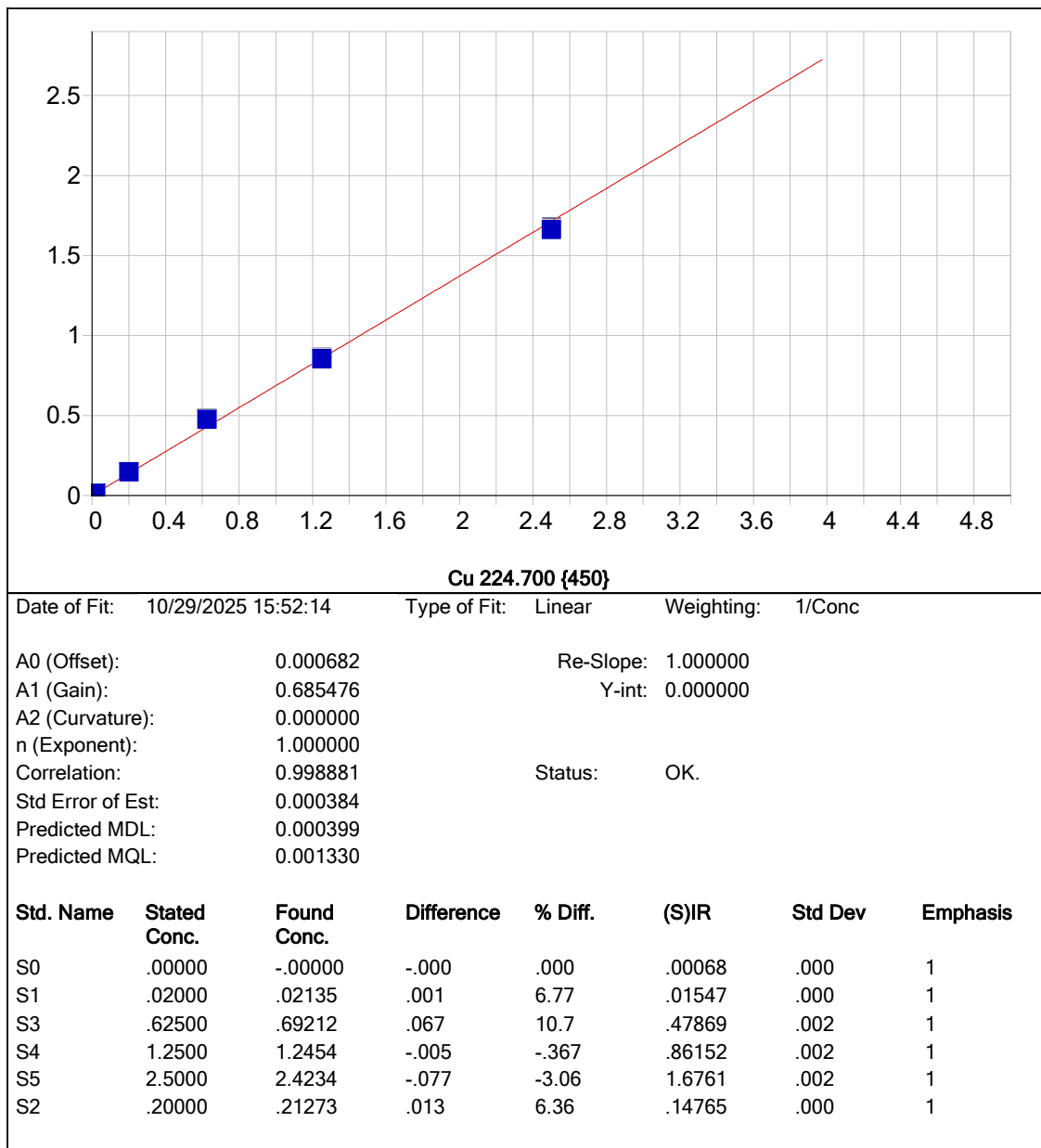


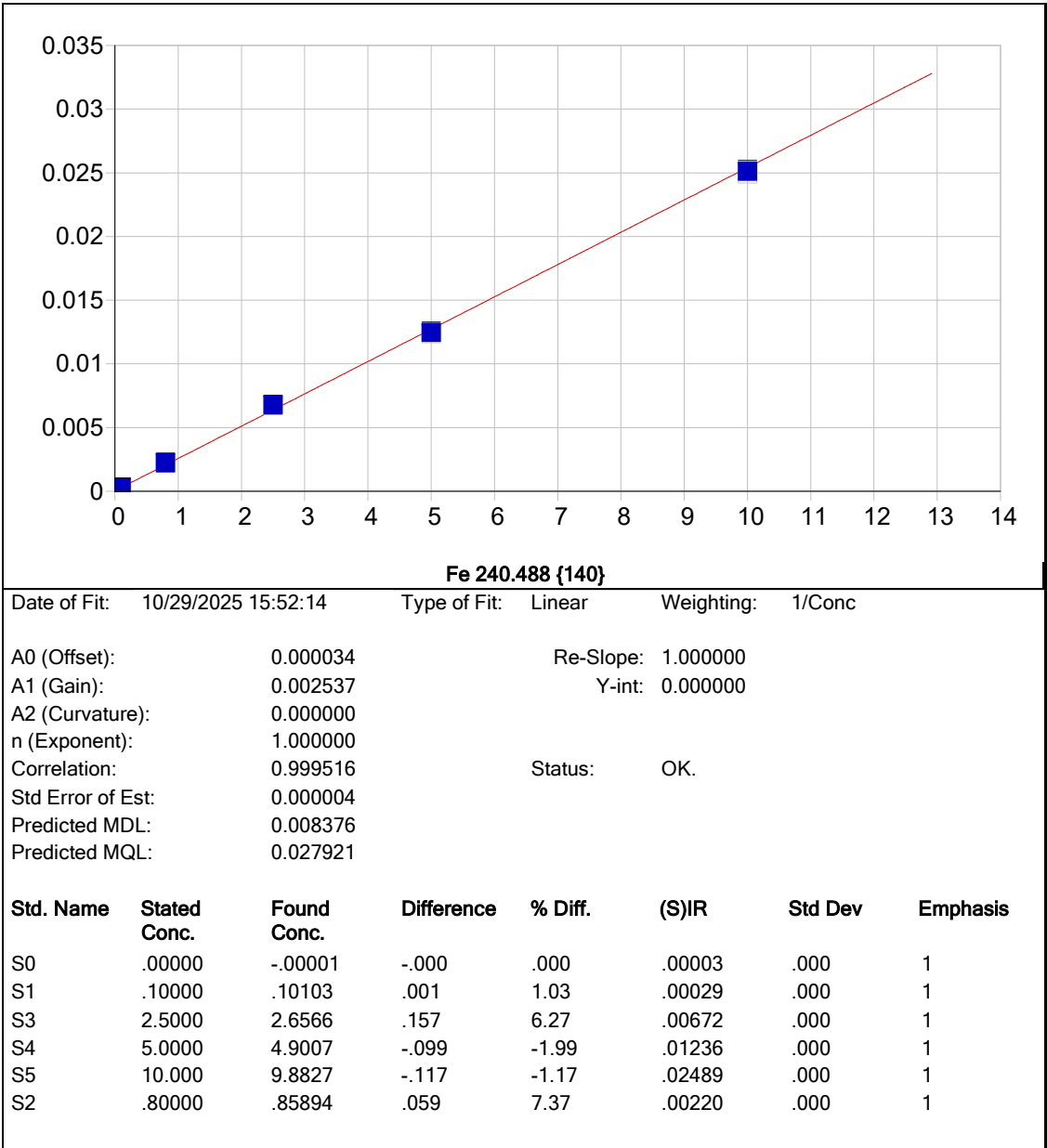
Co 228.616 {448}

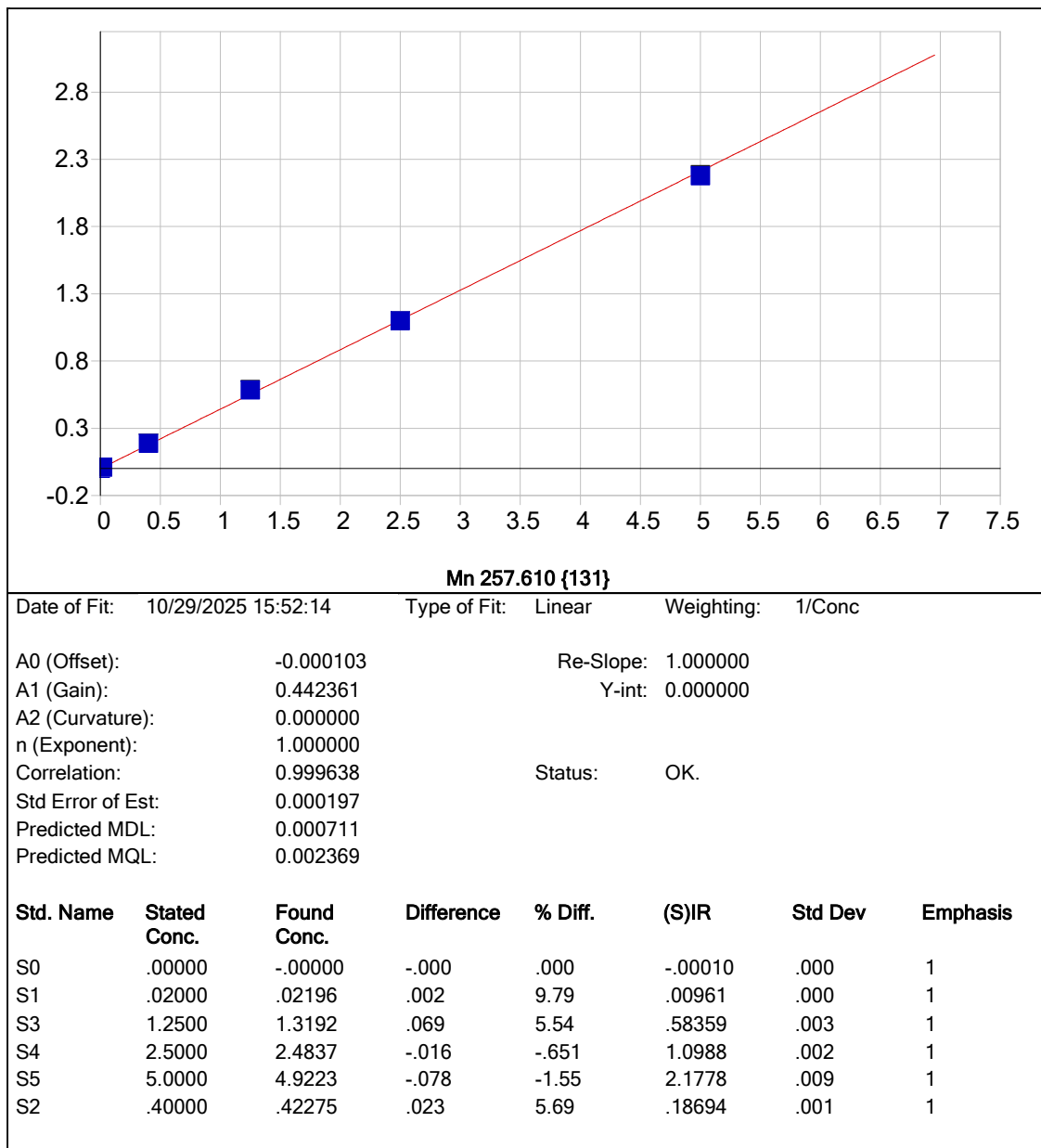
Date of Fit: 10/29/2025 15:52:14 Type of Fit: Linear Weighting: 1/Conc

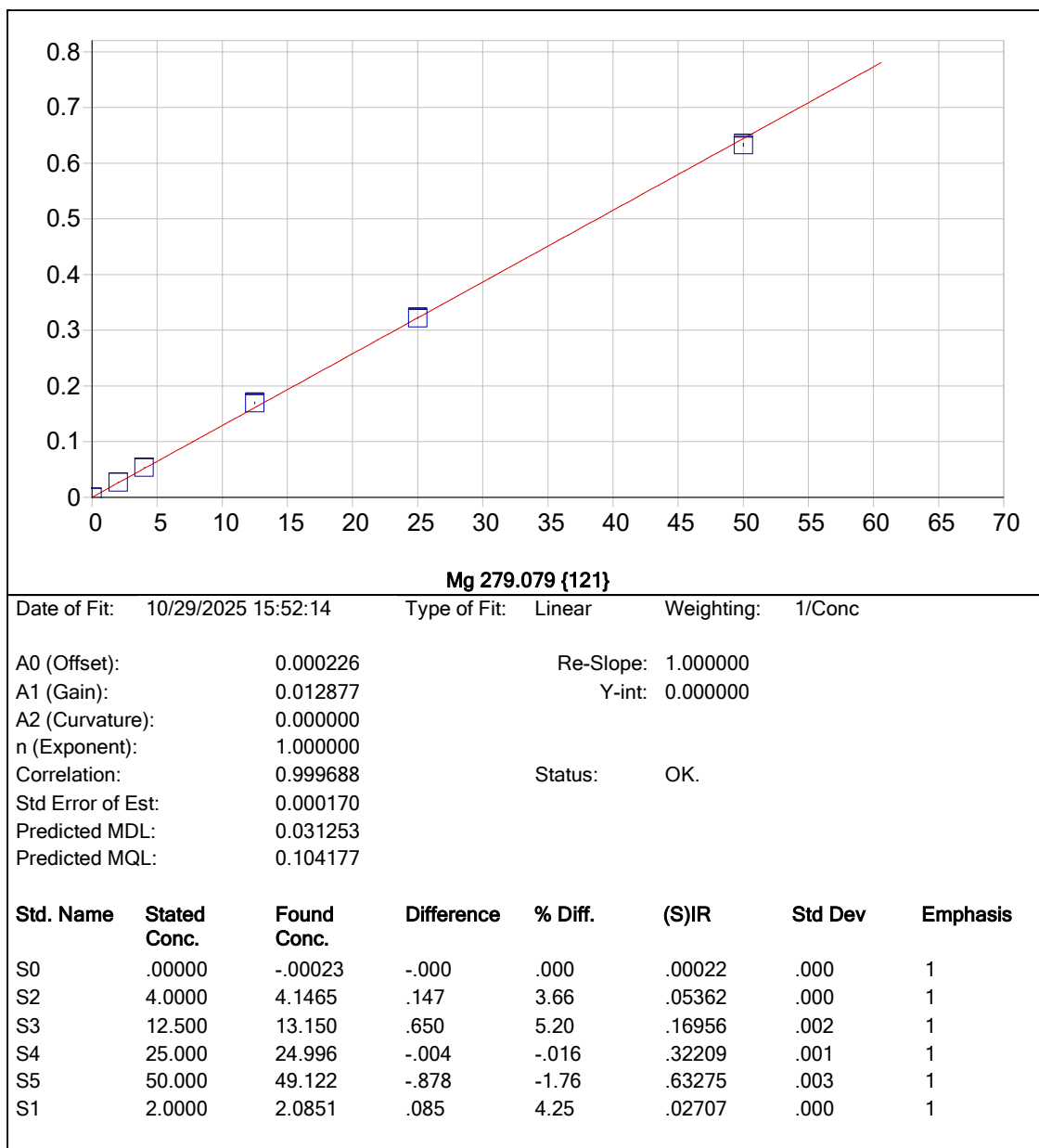
A0 (Offset): 0.000080 Re-Slope: 1.000000
A1 (Gain): 1.120655 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999901 Status: OK.
Std Error of Est: 0.000321
Predicted MDL: 0.000179
Predicted MQL: 0.000596

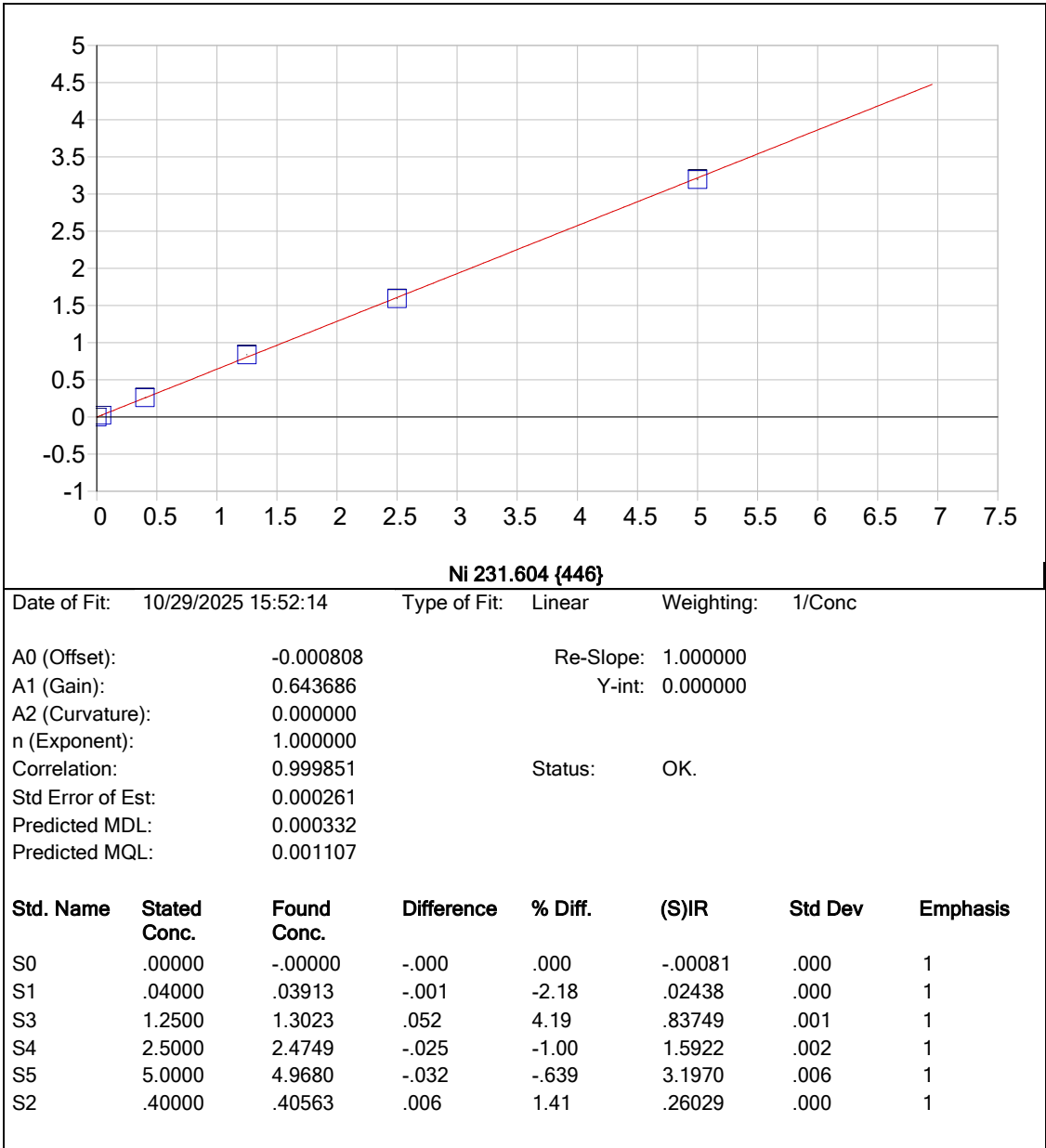
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00008	.000	1
S1	.03000	.02916	-.001	-2.80	.03262	.000	1
S3	1.2500	1.2931	.043	3.45	1.4516	.003	1
S4	2.5000	2.4742	-.026	-1.03	2.7776	.005	1
S5	5.0000	4.9847	-.015	-.307	5.5957	.009	1
S2	.40000	.39880	-.001	-.299	.44776	.001	1

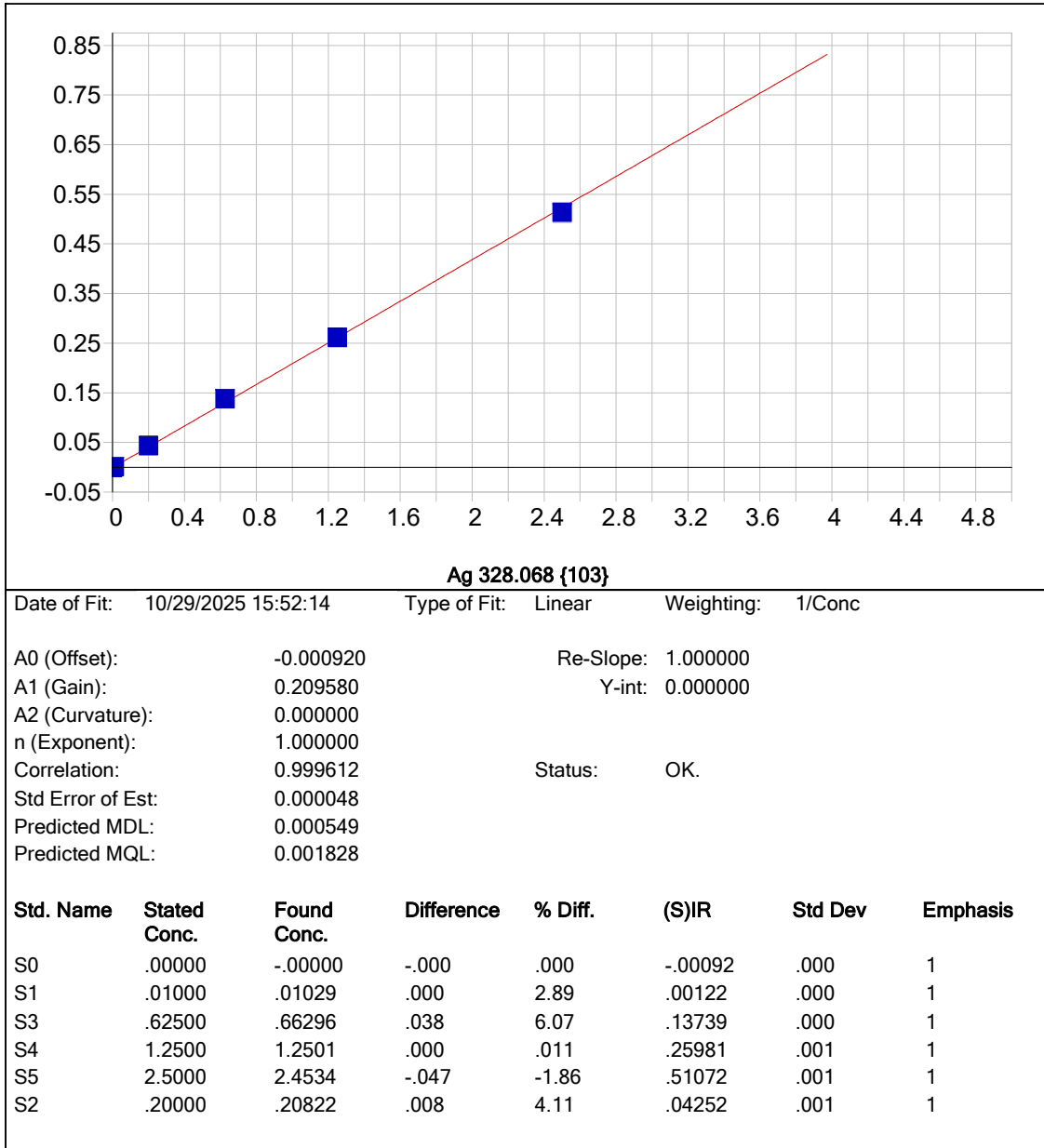






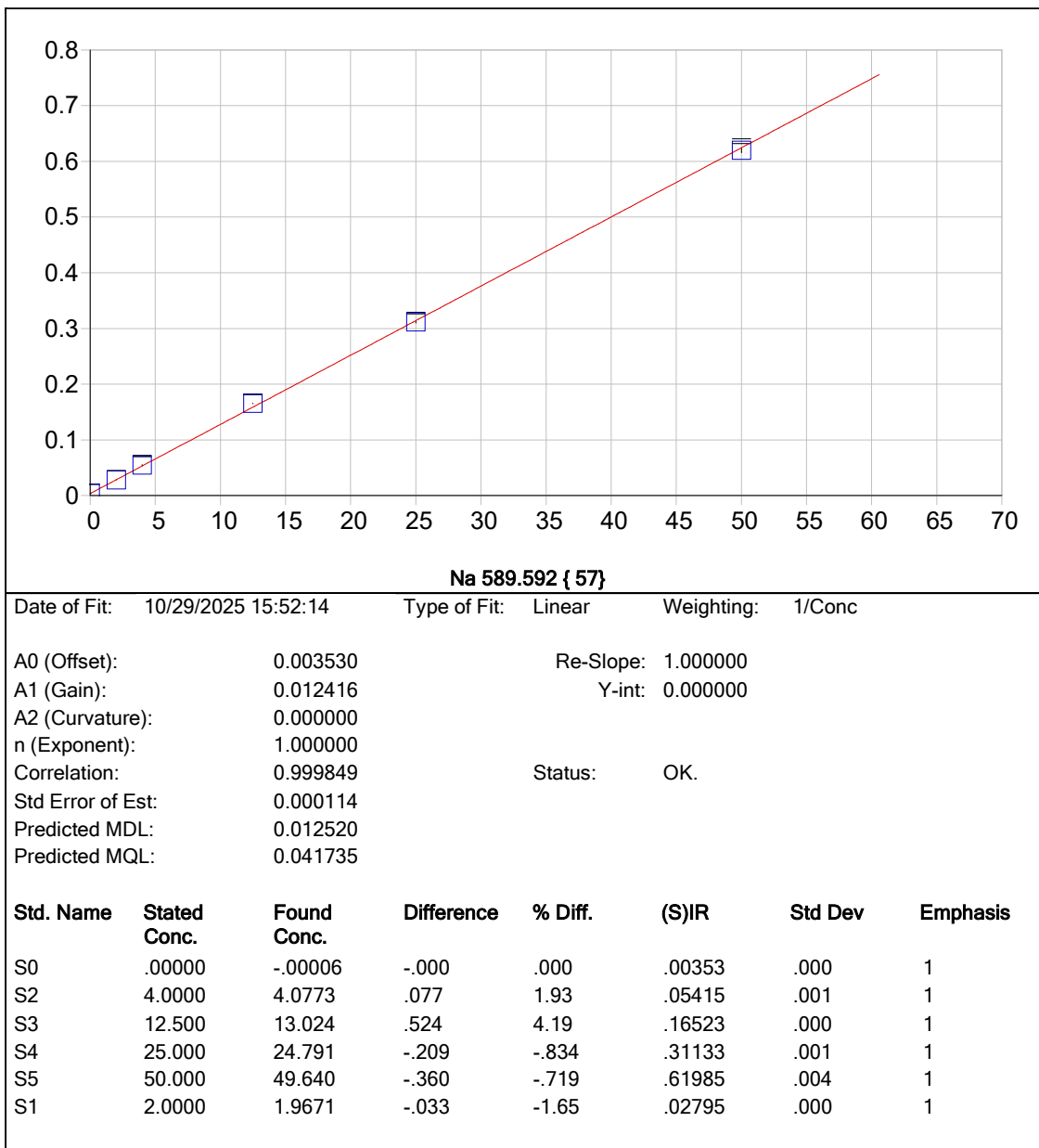


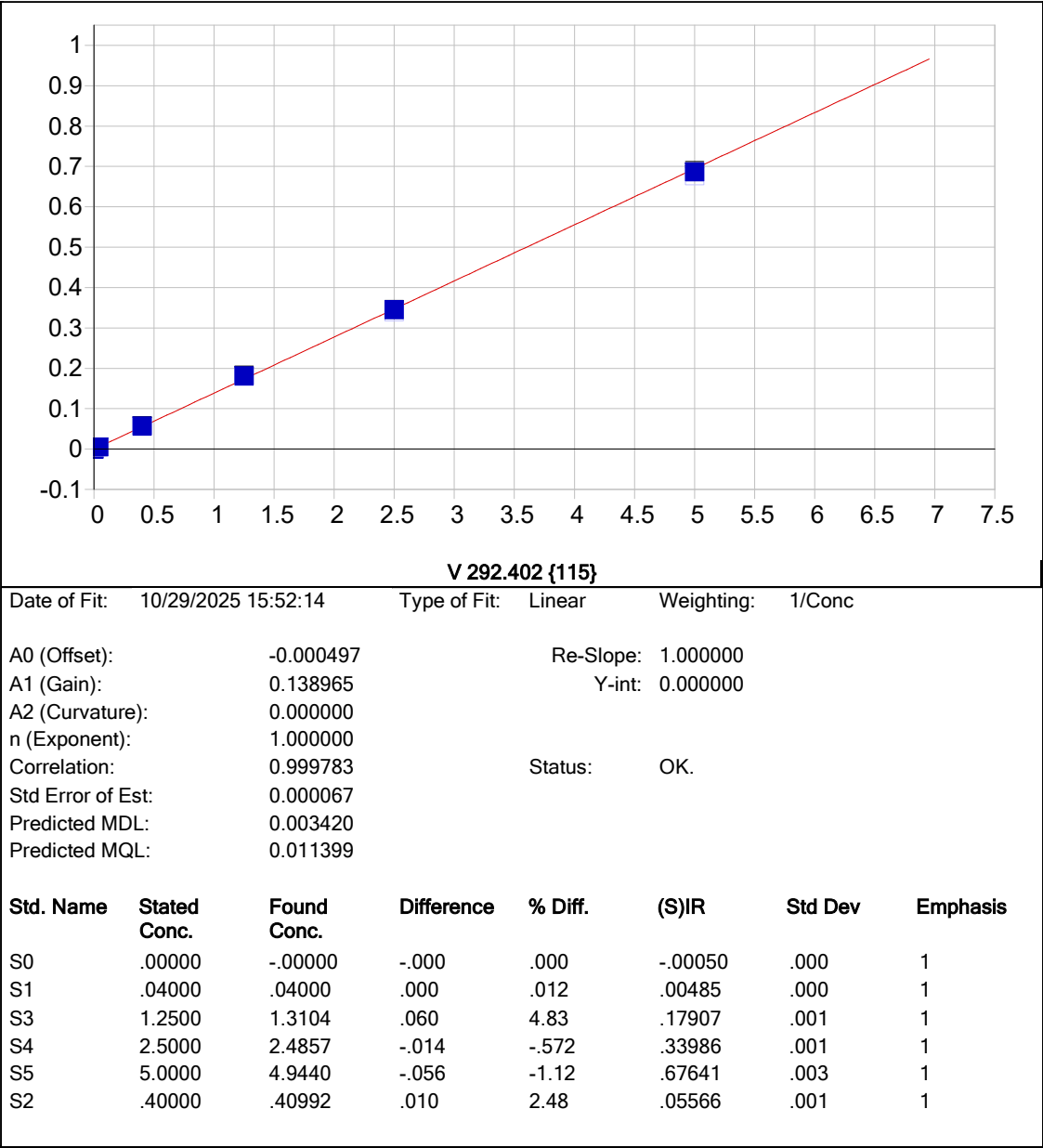


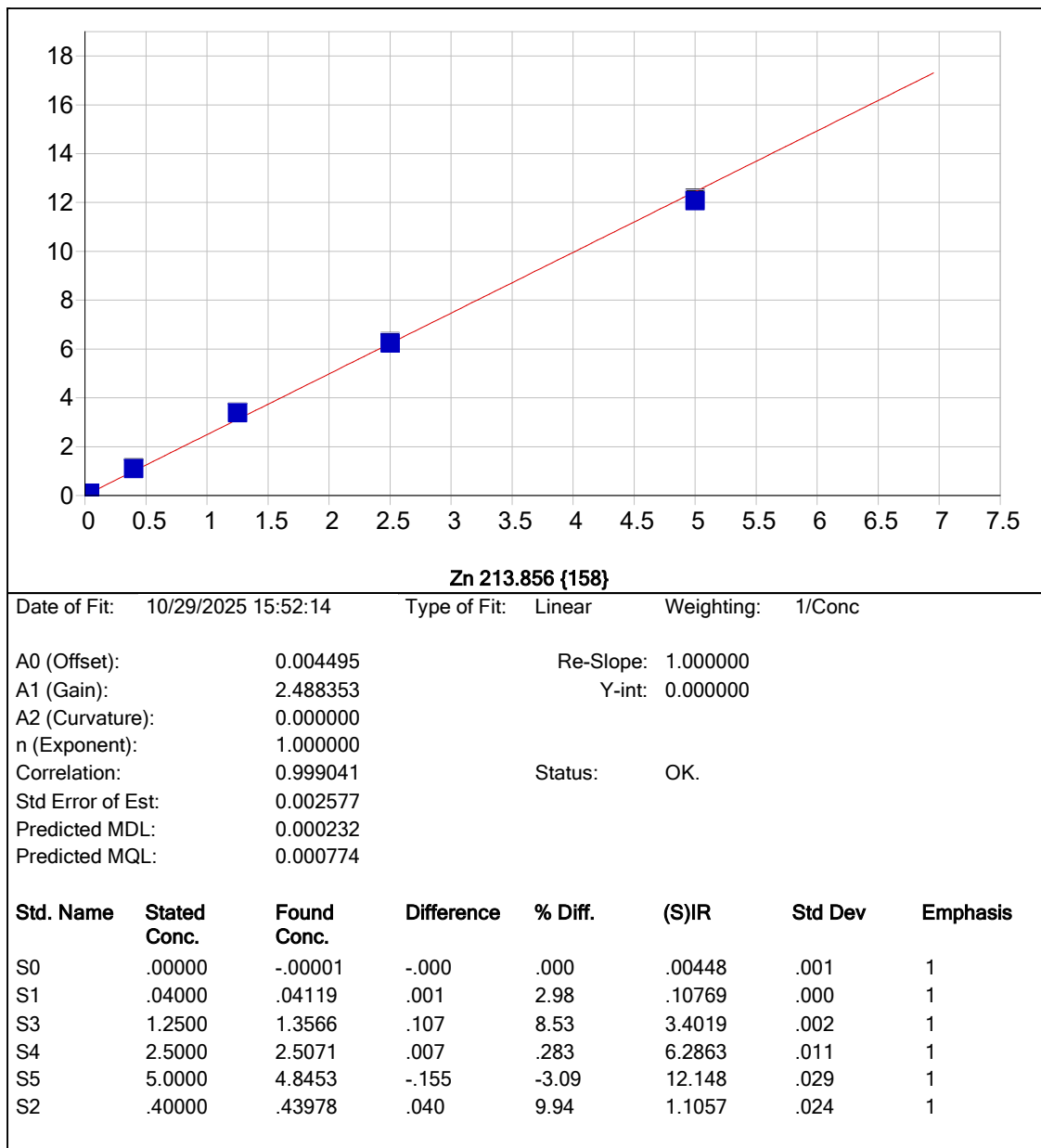


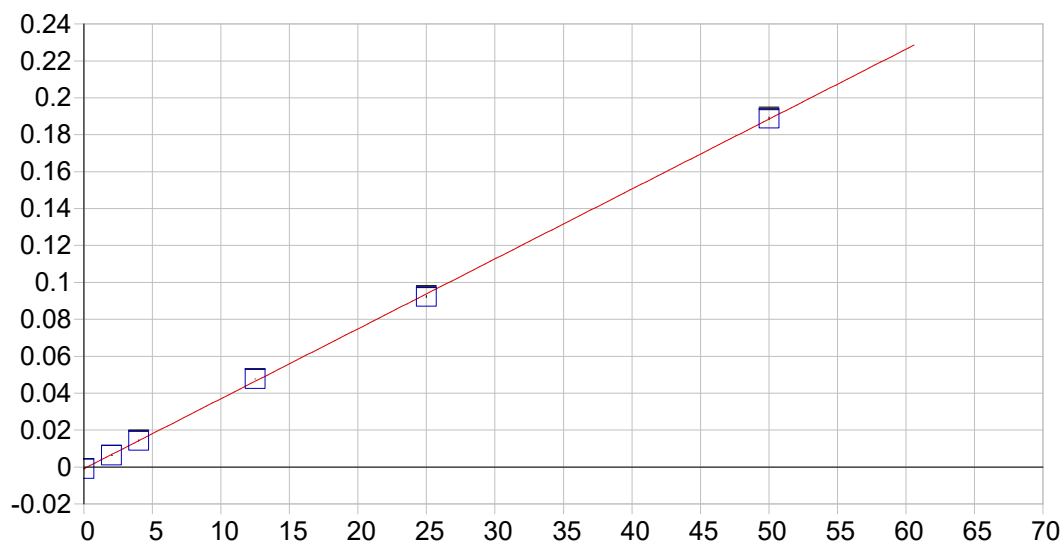
Date of Fit: 10/29/2025 15:52:14 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset): -0.000920 Re-Slope: 1.000000
A1 (Gain): 0.209580 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999612 Status: OK.
Std Error of Est: 0.000048
Predicted MDL: 0.000549
Predicted MQL: 0.001828







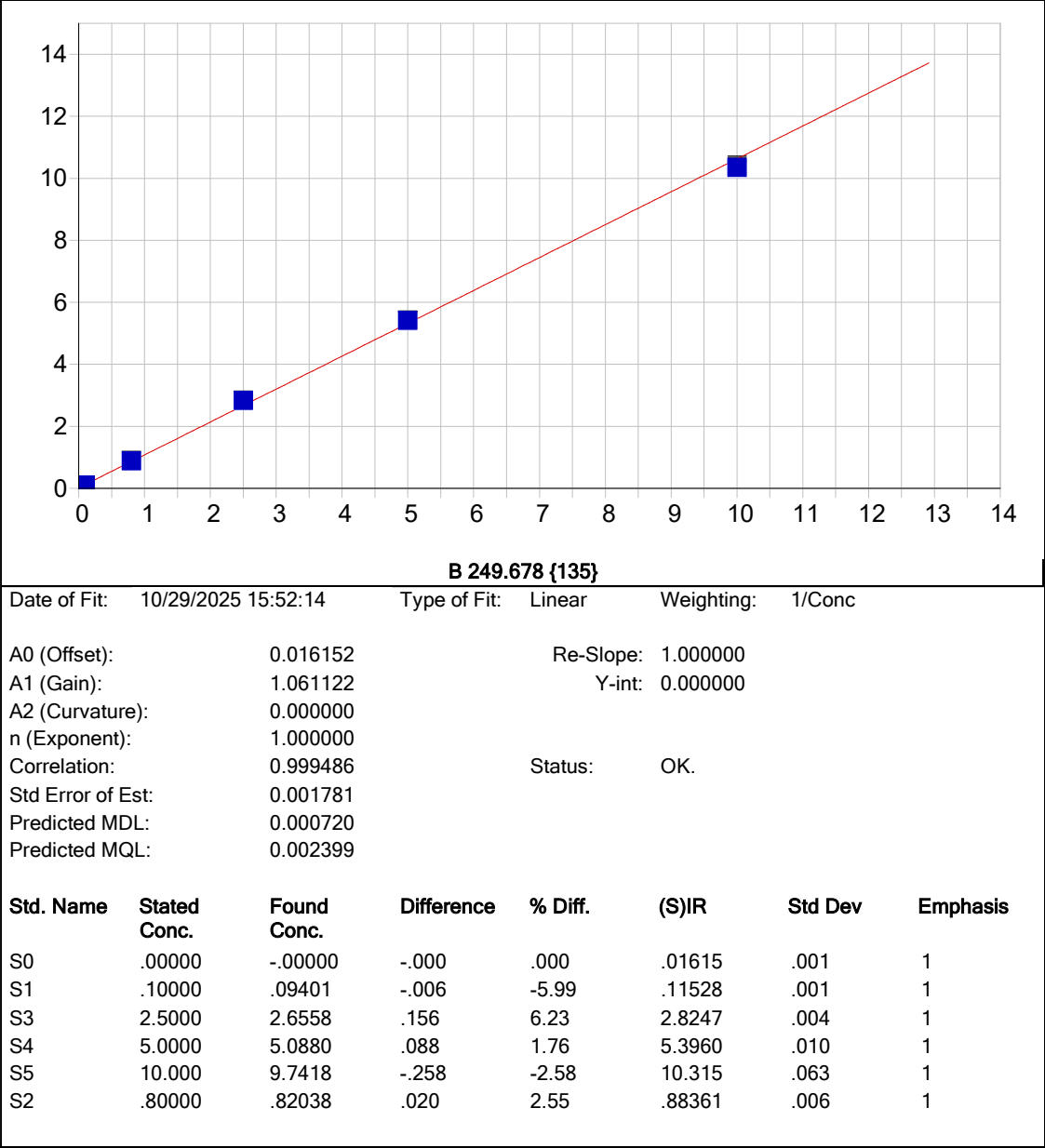


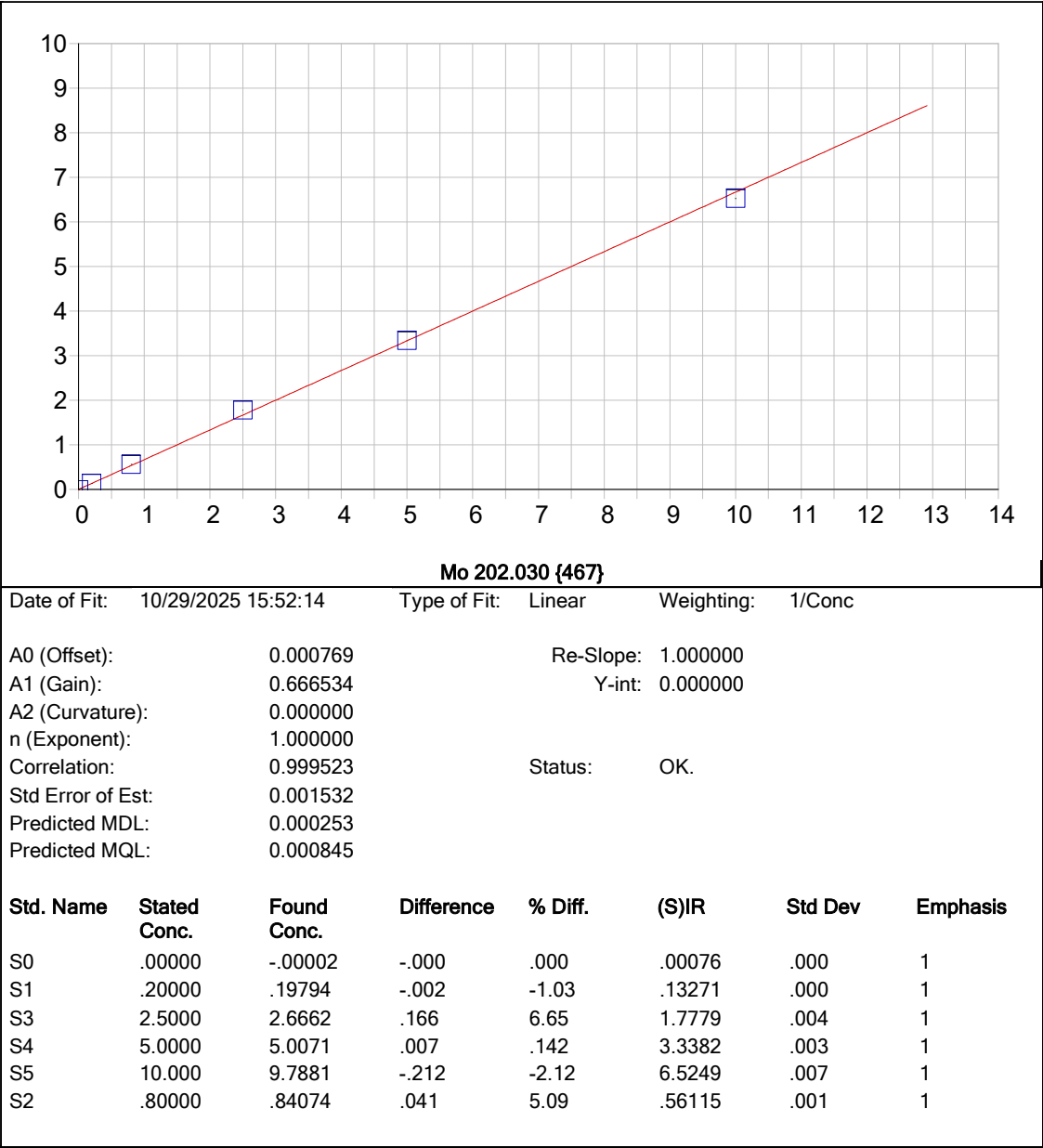
K 766.490 { 44}

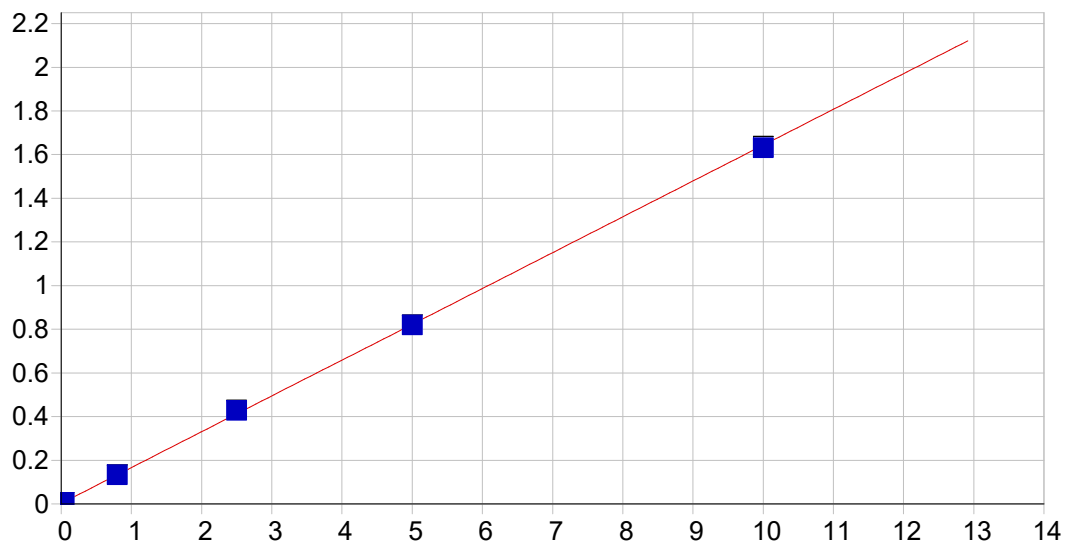
Date of Fit: 10/29/2025 15:52:14 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset): -0.000899 Re-Slope: 1.000000
A1 (Gain): 0.003787 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999901 Status: OK.
Std Error of Est: 0.000028
Predicted MDL: 0.048042
Predicted MQL: 0.160141

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00005	.000	.000	-.00090	.000	1
S2	4.0000	4.0035	.004	.088	.01426	.000	1
S3	12.500	12.839	.339	2.71	.04772	.000	1
S4	25.000	24.623	-.377	-1.51	.09235	.001	1
S5	50.000	50.117	.117	.233	.18889	.001	1
S1	2.0000	1.9182	-.082	-4.09	.00637	.000	1





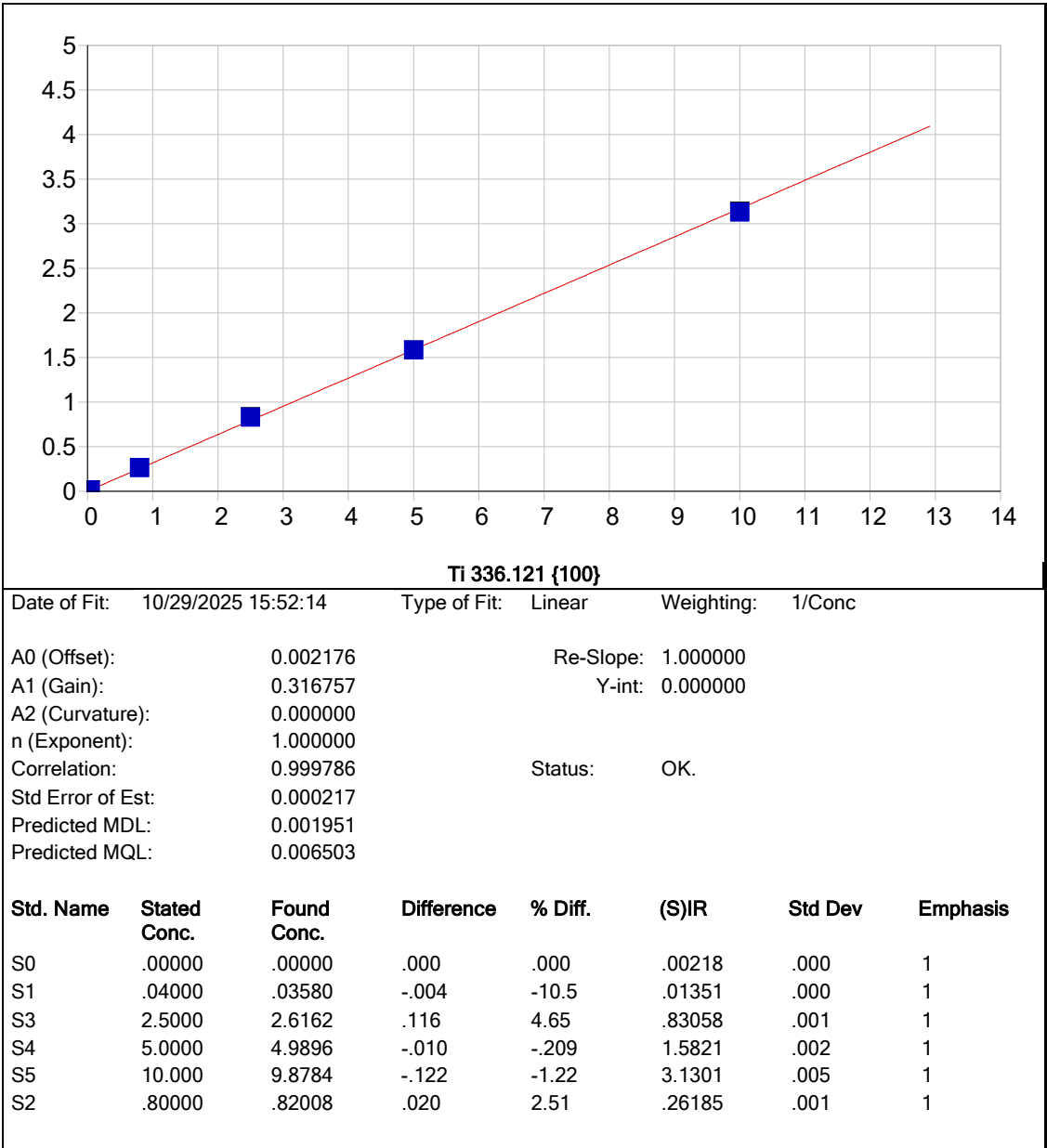


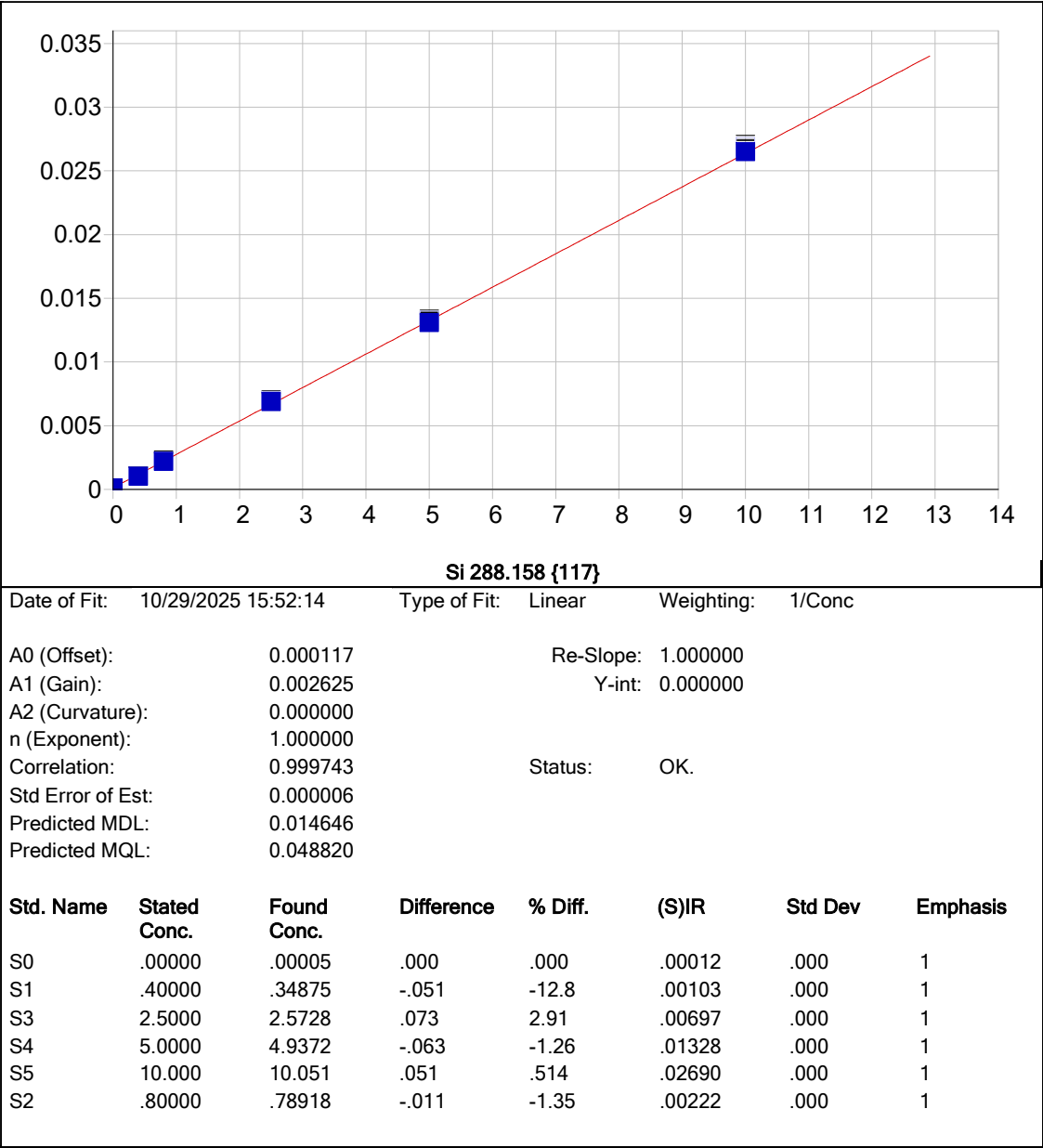
Sn 189.989 {478}

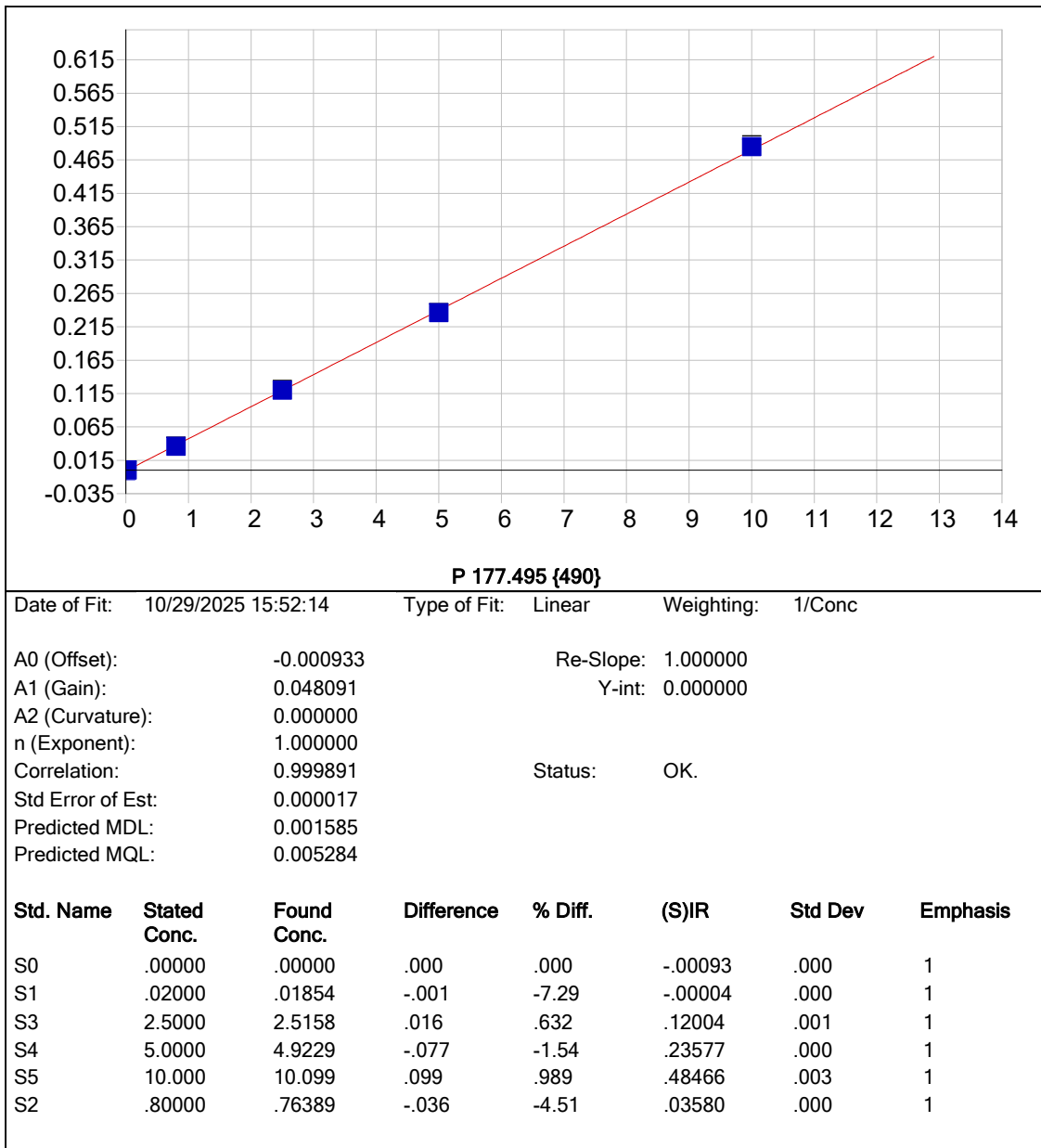
Date of Fit: 10/29/2025 15:52:14 Type of Fit: Linear Weighting: 1/Conc

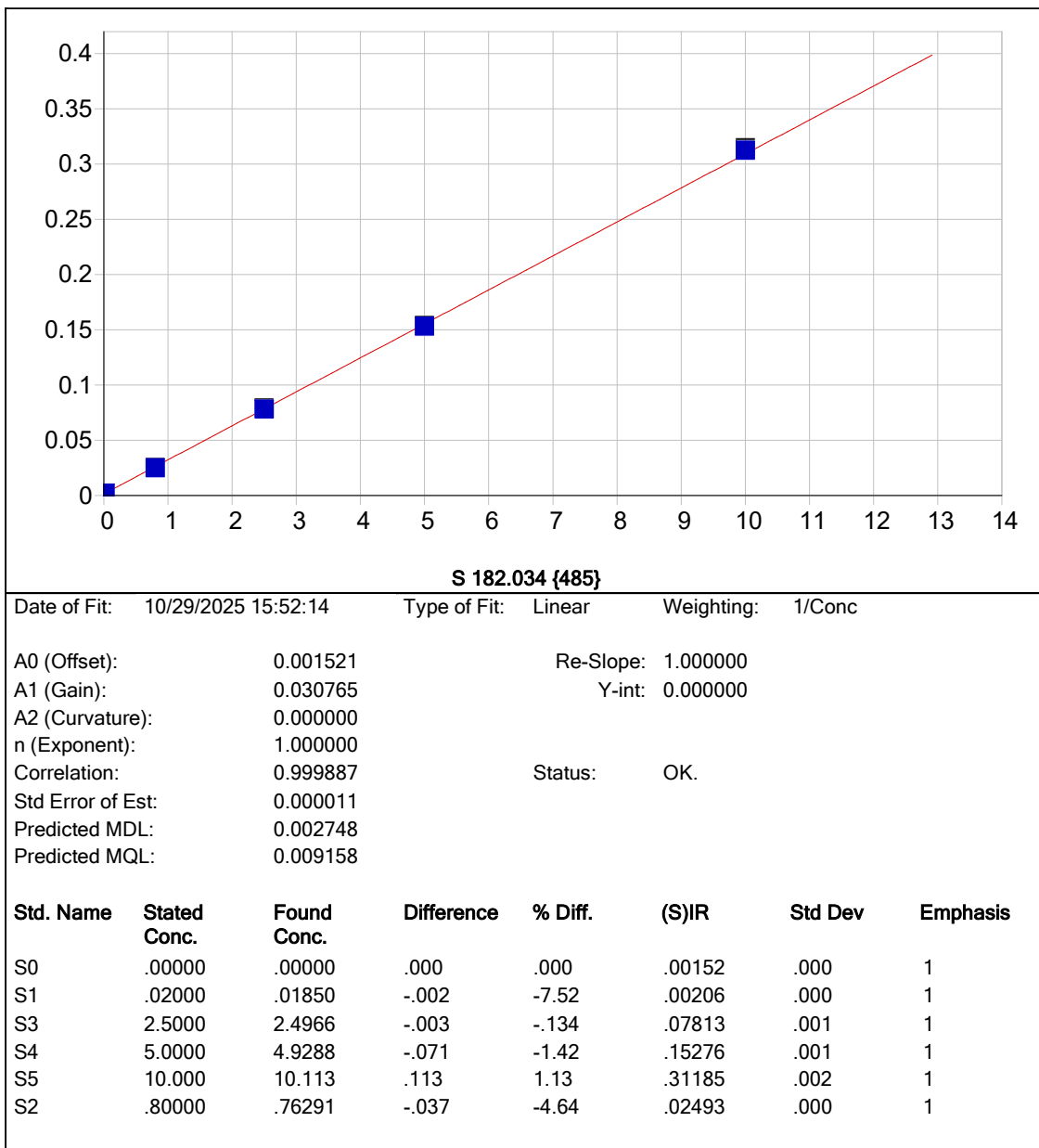
A0 (Offset):	0.002422	Re-Slope:	1.000000
A1 (Gain):	0.164066	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999887	Status:	OK.
Std Error of Est:	0.000082		
Predicted MDL:	0.000575		
Predicted MQL:	0.001918		

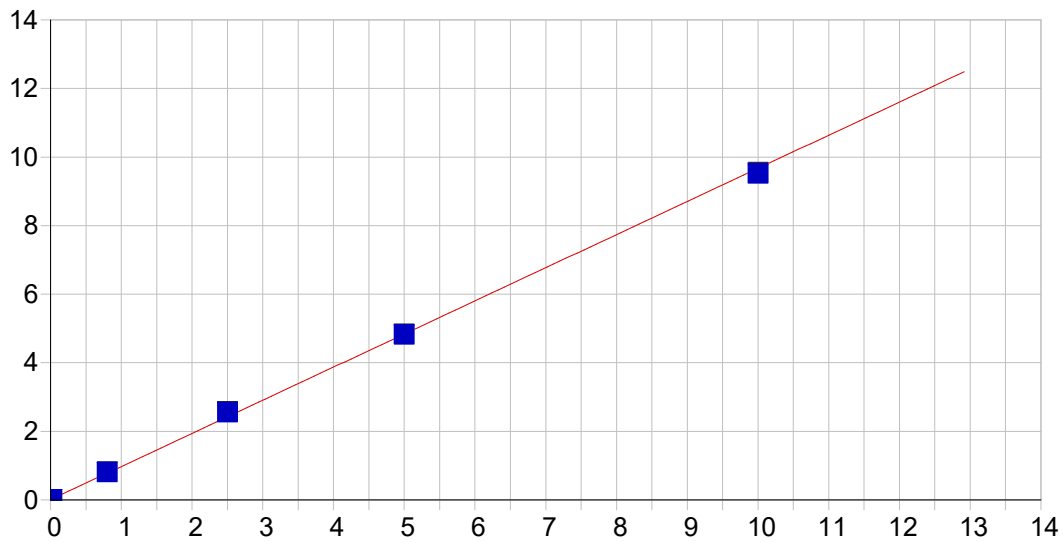
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00242	.000	1
S1	.04000	.03819	-.002	-4.52	.00868	.000	1
S3	2.5000	2.5933	.093	3.73	.42748	.001	1
S4	5.0000	4.9818	-.018	-.364	.81893	.002	1
S5	10.000	9.9328	-.067	-.672	1.6304	.007	1
S2	.80000	.79392	-.006	-.760	.13254	.000	1









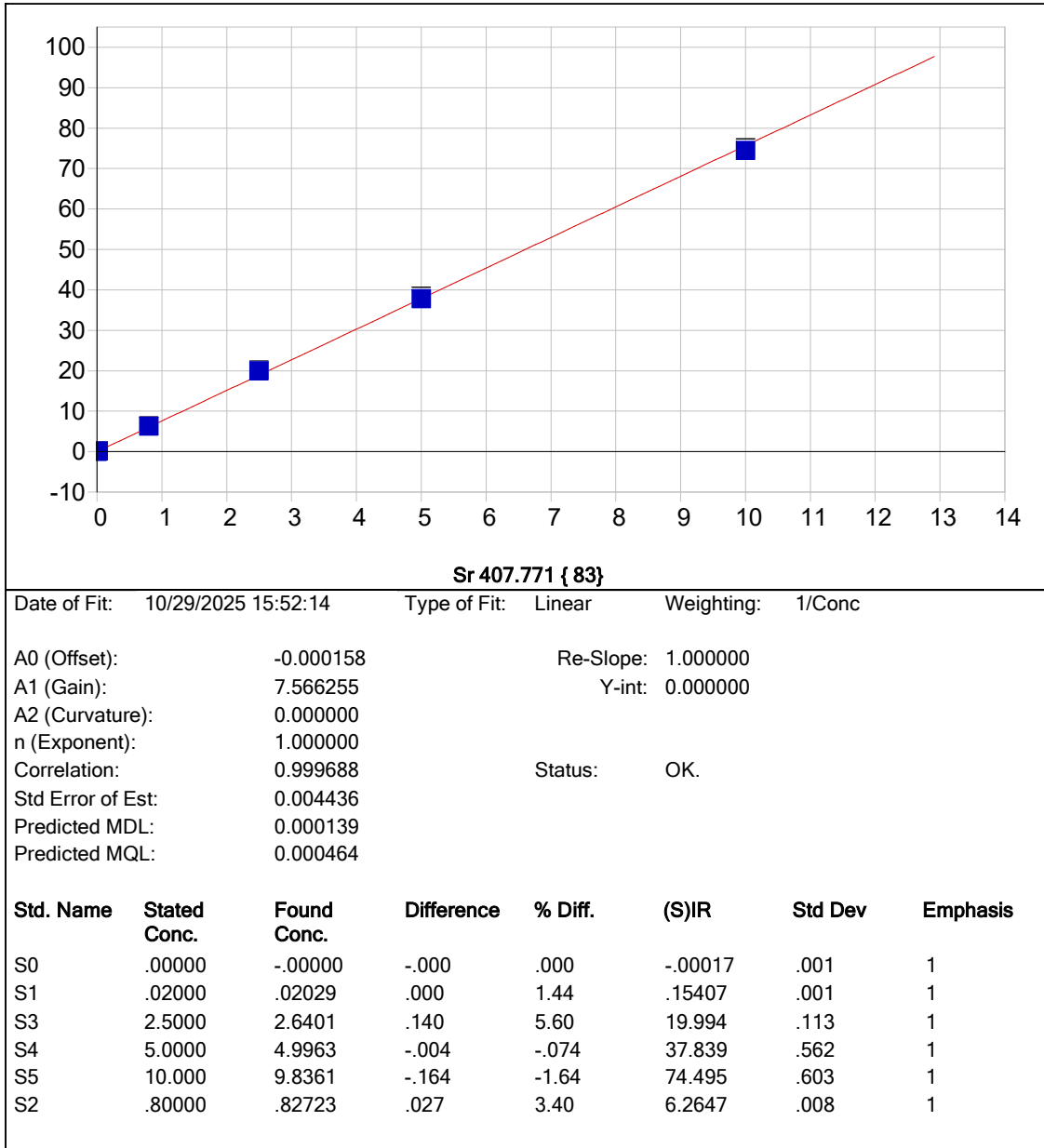


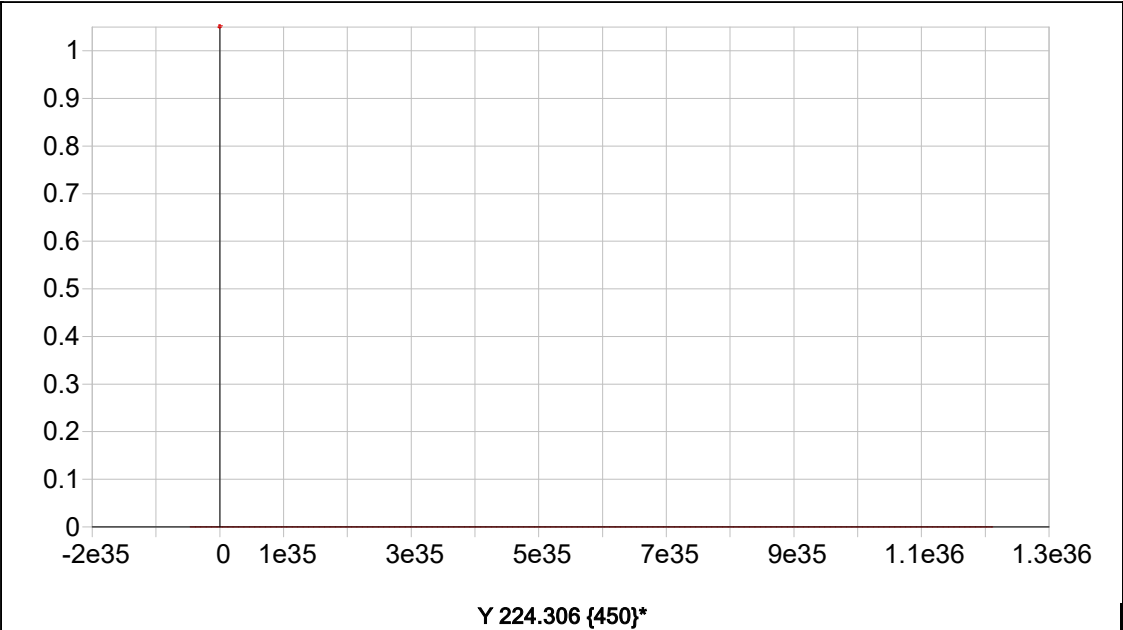
Li 670.784 { 50}

Date of Fit: 10/29/2025 15:52:14 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset): 0.006936 Re-Slope: 1.000000
A1 (Gain): 0.966393 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999671 Status: OK.
Std Error of Est: 0.000582
Predicted MDL: 0.002094
Predicted MQL: 0.006981

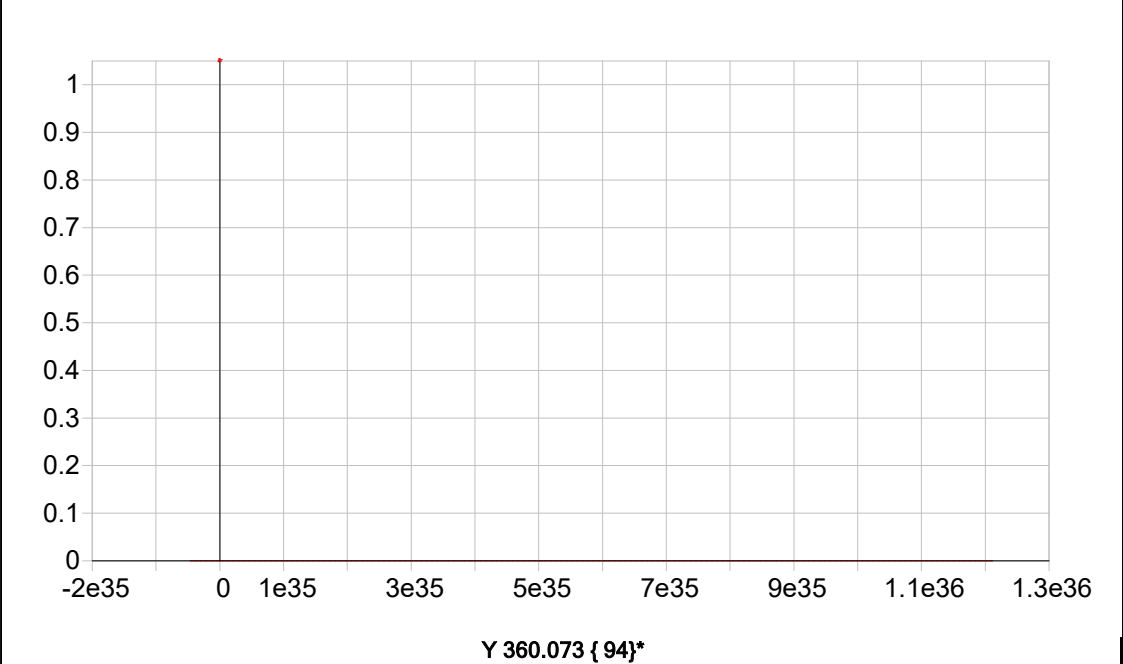
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00694	.002	1
S5	10.000	9.8448	-.155	-1.55	9.5286	.029	1
S4	5.0000	4.9811	-.019	-.377	4.8245	.014	1
S3	2.5000	2.6410	.141	5.64	2.5611	.019	1
S1	.02000	.01830	-.002	-8.52	.02496	.002	1
S2	.80000	.83481	.035	4.35	.81430	.002	1



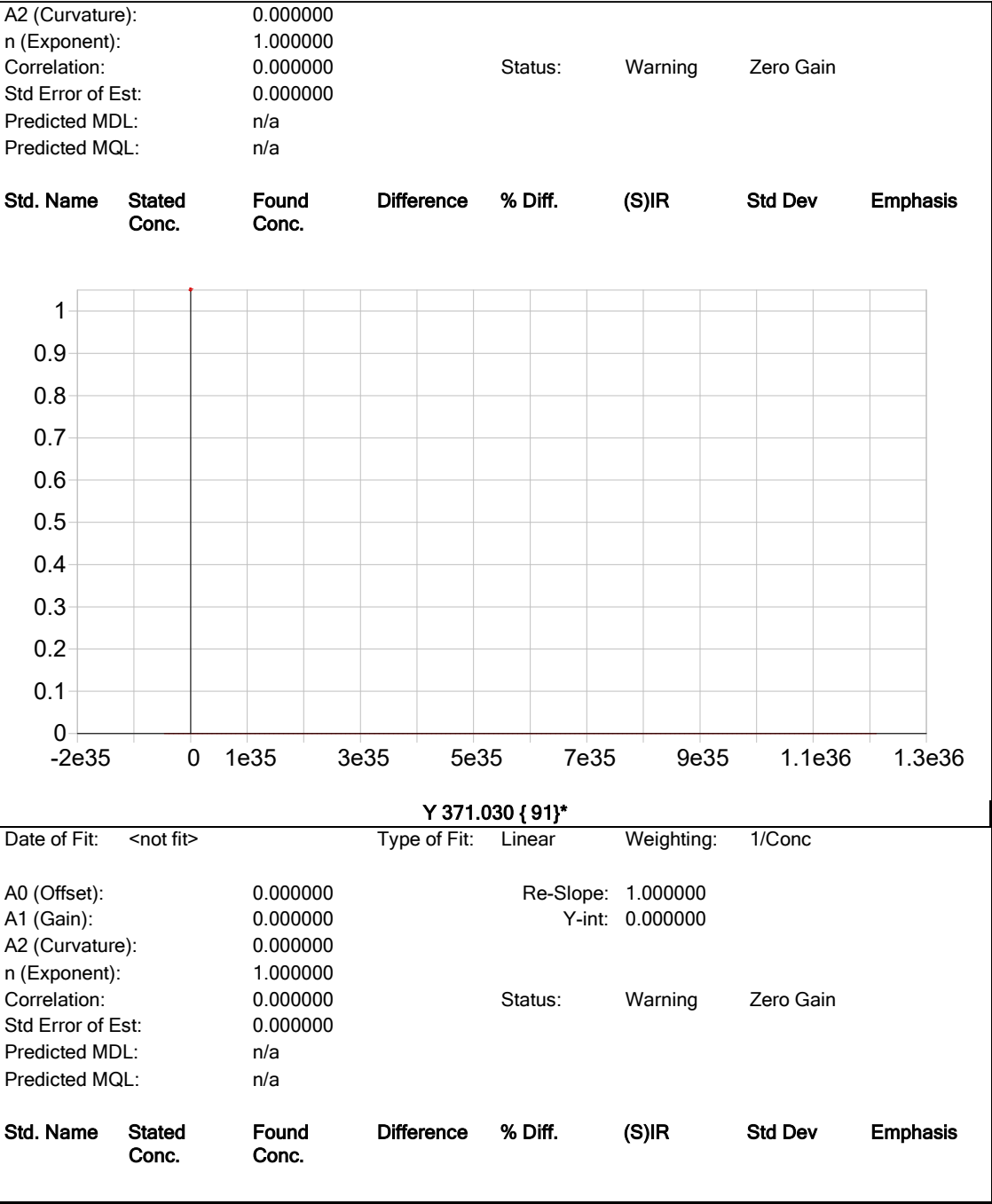


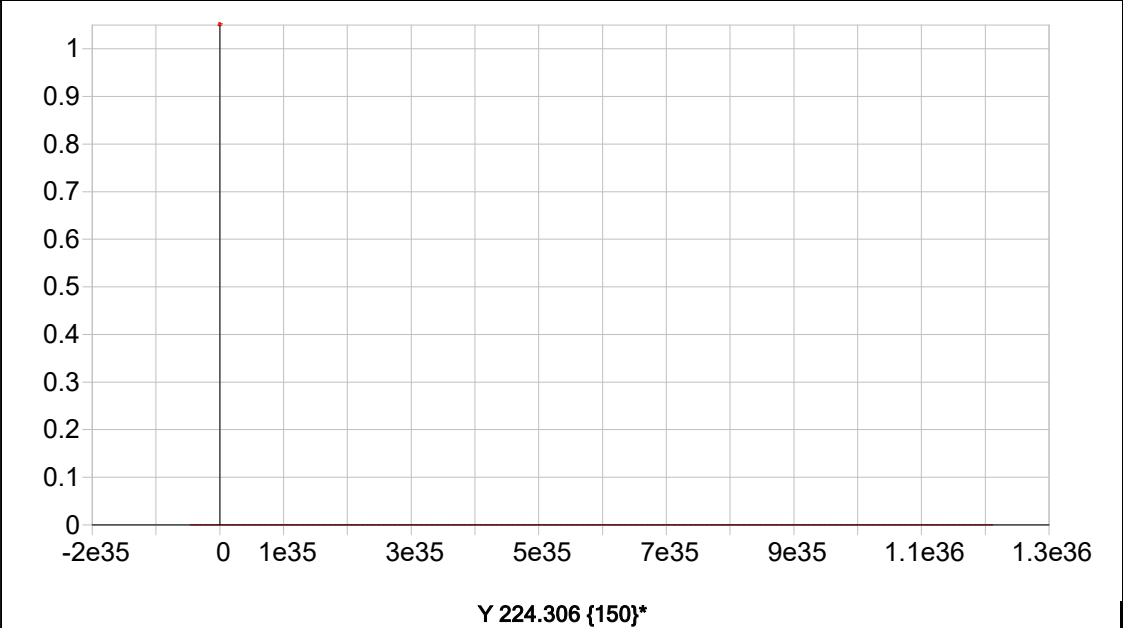
Date of Fit:	10/29/2025 15:52:14	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

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





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

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
In 230.606 {446}*							

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

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: 10/29/2025 13:36:14 Type: Cal
Method: 6010-200.7 NEW(v324) 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	-.00001	.00034	.00020	.00054	.00126	-.00043	.09471	-.00266
Stddev	.00013	.00007	.00028	.00008	.00016	.00070	.00367	.00050
%RSD	1479.1	22.231	140.93	14.783	12.447	162.31	3.8712	18.702
#1	.00007	.00034	-.00004	.00060	.00118	.00037	.09873	-.00320
#2	.00007	.00041	.00012	.00056	.00115	-.00076	.09384	-.00222
#3	-.00016	.00026	.00051	.00045	.00144	-.00089	.09155	-.00256
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	-.00062	.00126	.00015	.00008	.00068	.00003	-.00010	.00022
Stddev	.00016	.00071	.00006	.00012	.00028	.00001	.00022	.00020
%RSD	26.619	56.076	43.194	153.23	41.932	39.679	209.10	89.365
#1	-.00072	.00206	.00007	.00001	.00044	.00004	-.00003	.00022
#2	-.00043	.00076	.00019	.00000	.00100	.00002	-.00035	.00042
#3	-.00071	.00095	.00018	.00022	.00060	.00004	.00007	.00002
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00081	-.00092	.00353	-.00050	.00448	-.00090	.01615	.00076
Stddev	.00002	.00005	.00002	.00026	.00074	.00002	.00107	.00007
%RSD	1.8862	5.0510	.52916	51.384	16.582	1.6935	6.6317	9.0802
#1	-.00080	-.00087	.00352	-.00079	.00464	-.00090	.01730	.00076
#2	-.00080	-.00092	.00351	-.00040	.00367	-.00091	.01519	.00083
#3	-.00083	-.00097	.00355	-.00030	.00513	-.00088	.01596	.00069
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	.00242	.00218	.00012	-.00093	.00152	.00694	-.00017	
Stddev	.00009	.00011	.00003	.00006	.00008	.00159	.00095	
%RSD	3.6371	5.2838	28.266	6.9618	5.4496	22.885	556.65	
#1	.00232	.00223	.00008	-.00098	.00161	.00780	.00092	
#2	.00245	.00204	.00013	-.00095	.00145	.00790	-.00082	
#3	.00249	.00225	.00014	-.00086	.00150	.00510	-.00062	

Sample Name: S0 Acquired: 10/29/2025 13:36:14 Type: Cal
Method: 6010-200.7 NEW(v324) 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	6261.7	98570.	7232.0	4986.8	7788.7
Stddev	2.2	1272.	55.7	64.5	3.7
%RSD	.03481	1.2906	.77048	1.2930	.04744
#1	6259.7	98029.	7178.6	4943.9	7792.7
#2	6261.4	100020.	7289.8	5060.9	7787.9
#3	6264.0	97658.	7227.6	4955.5	7785.5

Sample Name: S1 Acquired: 10/29/2025 13:40:38 Type: Cal
Method: 6010-200.7 NEW(v324) 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	.00112	.00259	.00256	.00155	.00606	.00906	.34635	.06277
Stddev	.00005	.00012	.00022	.00003	.00007	.00036	.00694	.00081
%RSD	4.4177	4.6992	8.6155	2.0844	1.2217	3.9836	2.0038	1.2873
#1	.00115	.00263	.00233	.00158	.00602	.00867	.34115	.06295
#2	.00106	.00245	.00260	.00155	.00615	.00913	.34367	.06347
#3	.00113	.00268	.00277	.00151	.00602	.00939	.35423	.06189
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	.01836	.12614	.00232	.03262	.01547	.00029	.00961	.02707
Stddev	.00015	.00050	.00005	.00028	.00035	.00002	.00024	.00009
%RSD	.82614	.39612	2.1344	.84426	2.2527	6.6332	2.4721	.34171
#1	.01824	.12646	.00227	.03270	.01508	.00028	.00981	.02718
#2	.01830	.12556	.00237	.03285	.01559	.00031	.00968	.02705
#3	.01853	.12638	.00232	.03231	.01575	.00027	.00935	.02700
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	.02438	.00122	.02795	.00485	.10769	.00637	.11528	.13271
Stddev	.00013	.00006	.00017	.00014	.00009	.00006	.00101	.00039
%RSD	.54780	5.1416	.60941	2.8107	.08174	.96727	.87953	.29144
#1	.02453	.00129	.02803	.00501	.10760	.00634	.11411	.13266
#2	.02430	.00121	.02807	.00482	.10770	.00644	.11583	.13234
#3	.02430	.00116	.02776	.00474	.10778	.00632	.11591	.13311
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	.00868	.01351	.00103	-.00004	.00206	.02496	.15407	
Stddev	.00012	.00027	.00002	.00006	.00004	.00184	.00099	
%RSD	1.3589	2.0073	1.8909	139.86	2.0965	7.3888	.64436	
#1	.00873	.01369	.00105	.00000	.00211	.02511	.15307	
#2	.00877	.01319	.00101	-.00002	.00202	.02304	.15408	
#3	.00855	.01364	.00105	-.00010	.00206	.02672	.15506	

Sample Name: S1 Acquired: 10/29/2025 13:40:38 Type: Cal
Method: 6010-200.7 NEW(v324) 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	6155.7	96062.	7188.0	4869.7	7568.9
Stddev	12.7	167.	33.2	18.9	8.7
%RSD	.20607	.17424	.46169	.38810	.11535
#1	6166.7	95967.	7196.7	4856.5	7577.4
#2	6158.5	96255.	7216.0	4891.3	7569.2
#3	6141.8	95964.	7151.4	4861.2	7559.9

Sample Name: S2 Acquired: 10/29/2025 13:44:57 Type: Cal
Method: 6010-200.7 NEW(v324) 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	.04597	.04947	.17767	.03828	.08120	.18165	4.1379	.44403	1.3329
Stddev	.00010	.00029	.00024	.00011	.00018	.00079	.0222	.00350	.0019
%RSD	.21916	.57693	.13566	.28871	.22691	.43698	.53644	.78772	.14206
#1	.04601	.04953	.17747	.03816	.08109	.18092	4.1509	.44766	1.3311
#2	.04585	.04971	.17794	.03838	.08109	.18250	4.1506	.44374	1.3328
#3	.04605	.04915	.17761	.03832	.08141	.18154	4.1123	.44068	1.3349
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	.26127	.03809	.44776	.14765	.00220	.18694	.05362	.26029	.04252
Stddev	.00114	.00084	.00088	.00035	.00005	.00143	.00029	.00033	.00098
%RSD	.43779	2.1971	.19659	.23383	2.0599	.76570	.54532	.12674	2.3129
#1	.26224	.03842	.44703	.14725	.00221	.18831	.05383	.25998	.04295
#2	.26156	.03714	.44752	.14779	.00215	.18705	.05374	.26025	.04139
#3	.26001	.03872	.44874	.14790	.00224	.18546	.05329	.26064	.04321
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	.05415	.05566	1.1057	.01426	.88361	.56115	.13254	.26185	.00222
Stddev	.00106	.00057	.0239	.00036	.00572	.00088	.00029	.00057	.00006
%RSD	1.9512	1.0163	2.1565	2.5306	.64734	.15659	.21547	.21733	2.7087
#1	.05430	.05631	1.1212	.01434	.89016	.56156	.13235	.26228	.00221
#2	.05303	.05541	1.0783	.01387	.88107	.56015	.13287	.26206	.00217
#3	.05513	.05526	1.1177	.01458	.87960	.56176	.13241	.26120	.00228
Elem	P_1774	S_1820	Li6707	Sr4077					
Units	Cts/S	Cts/S	Cts/S	Cts/S					
Avg	.03580	.02493	.81430	6.2647					
Stddev	.00009	.00005	.00223	.0079					
%RSD	.24339	.21859	.27390	.12605					
#1	.03570	.02496	.81658	6.2580					
#2	.03586	.02487	.81420	6.2734					
#3	.03583	.02496	.81212	6.2627					

Sample Name: S2 Acquired: 10/29/2025 13:44:57 Type: Cal
Method: 6010-200.7 NEW(v324) 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	6203.2	96049.	7166.8	4845.7	7438.5
Stddev	8.0	1863.	52.6	100.5	6.6
%RSD	.12952	1.9394	.73453	2.0745	.08815
#1	6209.3	95316.	7110.8	4789.3	7443.5
#2	6206.1	98167.	7174.3	4961.7	7441.0
#3	6194.1	94664.	7215.3	4786.0	7431.1

Sample Name: S3 Acquired: 10/29/2025 13:49:02 Type: Cal
Method: 6010-200.7 NEW(v324) 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	.14771	.14656	.57235	.12093	.25841	.52454	12.858	1.4487	4.3717
Stddev	.00068	.00518	.00152	.00069	.00080	.00129	.081	.0052	.0052
%RSD	.46012	3.5348	.26543	.56766	.30817	.24670	.63031	.36193	.11887
#1	.14780	.15254	.57091	.12108	.25778	.52307	12.884	1.4466	4.3689
#2	.14698	.14361	.57221	.12018	.25815	.52551	12.923	1.4546	4.3686
#3	.14833	.14353	.57393	.12153	.25931	.52504	12.767	1.4448	4.3777
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	.82418	.12039	1.4516	.47869	.00672	.58359	.16956	.83749	.13739
Stddev	.00228	.00009	.0027	.00188	.00003	.00281	.00159	.00133	.00012
%RSD	.27653	.07213	.18871	.39263	.40544	.48099	.93659	.15915	.08484
#1	.82267	.12029	1.4503	.47708	.00669	.58392	.16773	.83605	.13743
#2	.82680	.12045	1.4498	.47822	.00673	.58622	.17059	.83773	.13748
#3	.82306	.12042	1.4548	.48075	.00674	.58064	.17036	.83868	.13726
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	.16523	.17907	3.4019	.04772	2.8247	1.7779	.42748	.83058	.00697
Stddev	.00042	.00081	.0020	.00012	.0043	.0035	.00136	.00140	.00005
%RSD	.25337	.45452	.05819	.24435	.15158	.19735	.31799	.16915	.75744
#1	.16480	.17839	3.4014	.04785	2.8225	1.7765	.42801	.82967	.00692
#2	.16564	.17886	3.4041	.04770	2.8297	1.7752	.42593	.83220	.00703
#3	.16524	.17997	3.4003	.04761	2.8220	1.7818	.42849	.82988	.00696
Elem	P_1774	S_1820	Li6707	Sr4077					
Units	Cts/S	Cts/S	Cts/S	Cts/S					
Avg	.12004	.07813	2.5611	19.994					
Stddev	.00073	.00068	.0193	.113					
%RSD	.61196	.87374	.75495	.56718					
#1	.12077	.07876	2.5618	19.999					
#2	.11931	.07741	2.5801	20.105					
#3	.12003	.07822	2.5414	19.878					

Sample Name: S3 Acquired: 10/29/2025 13:49:02 Type: Cal
Method: 6010-200.7 NEW(v324) 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	5884.9	90456.	6762.3	4527.6	6846.5
Stddev	6.0	327.	24.7	21.0	2.9
%RSD	.10274	.36177	.36574	.46484	.04249
#1	5891.1	90834.	6786.4	4551.5	6848.0
#2	5884.7	90281.	6737.0	4511.8	6848.4
#3	5879.0	90254.	6763.6	4519.6	6843.2

Sample Name: S4 Acquired: 10/29/2025 13:53:02 Type: Cal
Method: 6010-200.7 NEW(v324) 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	.27522	.26758	1.0757	.22554	.48929	.92093	24.287	2.7087	8.2396
Stddev	.00054	.00645	.0021	.00047	.00044	.00111	.039	.0061	.0071
%RSD	.19554	2.4111	.19013	.20722	.09009	.12048	.16240	.22362	.08629

#1	.27565	.27075	1.0750	.22608	.48978	.92120	24.259	2.7087	8.2365
#2	.27461	.27184	1.0741	.22525	.48893	.91971	24.270	2.7026	8.2346
#3	.27539	.26016	1.0780	.22529	.48916	.92188	24.332	2.7148	8.2477

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	1.5517	.22162	2.7776	.86152	.01236	1.0988	.32209	1.5922	.25981
Stddev	.0019	.00148	.0051	.00173	.00008	.0020	.00137	.0022	.00056
%RSD	.12188	.66610	.18438	.20076	.61183	.18603	.42678	.13639	.21376

#1	1.5495	.21998	2.7756	.85999	.01231	1.0984	.32099	1.5923	.25918
#2	1.5528	.22204	2.7737	.86117	.01245	1.0970	.32166	1.5900	.26021
#3	1.5529	.22285	2.7834	.86339	.01233	1.1010	.32363	1.5944	.26005

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	.31133	.33986	6.2863	.09235	5.3960	3.3382	.81893	1.5821	.01328
Stddev	.00140	.00062	.0110	.00056	.0101	.0025	.00169	.0021	.00007
%RSD	.44968	.18214	.17566	.60803	.18795	.07551	.20661	.13188	.52793

#1	.30974	.33926	6.2736	.09172	5.3921	3.3383	.82035	1.5800	.01320
#2	.31192	.34050	6.2915	.09280	5.3885	3.3356	.81706	1.5821	.01329
#3	.31235	.33983	6.2937	.09253	5.4076	3.3406	.81937	1.5841	.01334

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.23577	.15276	4.8245	37.839
Stddev	.00024	.00052	.0141	.562
%RSD	.10159	.33985	.29227	1.4855

#1	.23587	.15336	4.8090	37.396
#2	.23595	.15246	4.8281	37.650
#3	.23550	.15245	4.8365	38.472

Sample Name: S4 Acquired: 10/29/2025 13:53:02 Type: Cal
Method: 6010-200.7 NEW(v324) 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	6043.2	92917.	6979.1	4633.1	6838.9
Stddev	8.9	623.	39.9	35.3	8.8
%RSD	.14745	.67085	.57170	.76186	.12935
#1	6053.4	93557.	7001.2	4665.8	6848.8
#2	6036.8	92883.	7003.0	4637.8	6836.1
#3	6039.5	92311.	6933.0	4595.7	6831.8

Sample Name: S5 Acquired: 10/29/2025 13:57:06 Type: Cal
Method: 6010-200.7 NEW(v324) 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	.53944	.52121	2.1670	.43913	.96152	1.8027	48.792	5.1603	16.507
Stddev	.00053	.02243	.0033	.00095	.00127	.0055	.583	.0291	.038
%RSD	.09871	4.3032	.15282	.21556	.13235	.30490	1.1953	.56319	.23123

#1	.53934	.54710	2.1708	.44020	.96121	1.8000	49.342	5.1522	16.551
#2	.54001	.50905	2.1651	.43883	.96042	1.7990	48.180	5.1361	16.481
#3	.53896	.50749	2.1651	.43838	.96291	1.8090	48.855	5.1925	16.490

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	3.0573	.43056	5.5957	1.6761	.02489	2.1778	.63275	3.1970	.51072
Stddev	.0086	.00066	.0091	.0024	.00013	.0087	.00274	.0056	.00054
%RSD	.27959	.15279	.16263	.14054	.50644	.39914	.43230	.17516	.10571

#1	3.0487	.43006	5.6061	1.6740	.02478	2.1680	.62972	3.2033	.51104
#2	3.0573	.43131	5.5895	1.6758	.02503	2.1807	.63349	3.1925	.51102
#3	3.0658	.43032	5.5914	1.6786	.02488	2.1846	.63504	3.1953	.51010

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	.61985	.67641	12.148	.18889	10.315	6.5249	1.6304	3.1301	.02690
Stddev	.00418	.00272	.029	.00074	.063	.0074	.0071	.0049	.00016
%RSD	.67431	.40207	.23975	.38946	.60704	.11358	.43697	.15736	.58849

#1	.61924	.67478	12.177	.18890	10.316	6.5329	1.6384	3.1267	.02676
#2	.62431	.67489	12.119	.18962	10.252	6.5184	1.6278	3.1278	.02707
#3	.61601	.67955	12.148	.18815	10.377	6.5233	1.6249	3.1357	.02688

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.48466	.31185	9.5286	74.495
Stddev	.00271	.00214	.0287	.603
%RSD	.55824	.68641	.30135	.81003

#1	.48745	.31432	9.5000	73.807
#2	.48205	.31059	9.5283	74.937
#3	.48446	.31065	9.5575	74.740

Sample Name: S5 Acquired: 10/29/2025 13:57:06 Type: Cal
Method: 6010-200.7 NEW(v324) 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	5875.5	91326.	6979.0	4568.2	6441.5
Stddev	6.0	114.	34.8	16.2	15.8
%RSD	.10261	.12473	.49834	.35397	.24512
#1	5874.4	91323.	6983.6	4550.8	6423.7
#2	5882.0	91215.	7011.2	4571.0	6453.7
#3	5870.1	91442.	6942.1	4582.8	6447.2

Sample Name: ICV01 Acquired: 10/29/2025 14:01:20 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.764472	3.970815	3.650856	3.778692	3.849122	7.263235
Stddev	.011409	.180168	.002956	.011344	.008908	.017926
%RSD	.3030705	4.537303	.0809774	.3002040	.2314306	.2467982

#1	3.777515	4.175769	3.651200	3.791645	3.840079	7.247701
#2	3.756346	3.899256	3.647743	3.770529	3.849397	7.282849
#3	3.759554	3.837421	3.653625	3.773902	3.857889	7.259155

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.487683	1.1881639	1.862307	18.70695	.7699359	1.875550
Stddev	.049400	.0009678	.000434	.04867	.0030423	.001489
%RSD	.6597489	.5143534	.0233292	.2601712	.3951424	.0793711

#1	7.542885	.1892763	1.862761	18.68787	.7716792	1.874476
#2	7.472526	.1876998	1.862264	18.67071	.7717055	1.874925
#3	7.447637	.1875155	1.861896	18.76227	.7664229	1.877250

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9610564	3.786311	1.868415	18.73602	1.878021	.9692426
Stddev	.0016789	.016832	.010398	.05769	.002945	.0021427
%RSD	.1746968	.4445517	.5564882	.3078932	.1567929	.2210650

#1	.9594709	3.802844	1.880413	18.71298	1.876160	.9716508
#2	.9608829	3.786895	1.862794	18.69341	1.876487	.9685301
#3	.9628153	3.769195	1.862038	18.80166	1.881416	.9675470

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	18.81848	1.857929	1.895587	18.67690	3.681743	3.830986
Stddev	.03370	.000942	.004979	.08402	.013962	.005317
%RSD	.1791032	.0507016	.2626650	.4498493	.3792102	.1387798

#1	18.80498	1.857032	1.899038	18.76565	3.697722	3.835078
#2	18.85684	1.857844	1.897843	18.66645	3.671900	3.824976
#3	18.79361	1.858911	1.889879	18.59859	3.675607	3.832903

Sample Name: ICV01 Acquired: 10/29/2025 14:01:20 Type: Unk
Method: 6010-200.7 NEW(v324) 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	3.785073	3.739621	F 3.519975	F .0046740	F .0237317	F -.003574
Stddev	.009537	.010622	.014784	.0005223	.0040319	.000801
%RSD	.2519527	.2840317	.4199964	11.17563	16.98936	22.41756
#1	3.795718	3.751374	3.518672	.0044311	.0218097	-.002802
#2	3.777309	3.736783	3.535367	.0052735	.0210205	-.004401
#3	3.782194	3.730707	3.505885	.0043173	.0283650	-.003519

Elem	Sr4077
Units	ppm
Avg	F -.003012
Stddev	.000039
%RSD	1.297532
#1	-.002992
#2	-.003057
#3	-.002986

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6160.555	94534.31	7292.244	4753.560	7075.244
Stddev	13.466	452.47	24.421	32.183	14.889
%RSD	.2185893	.4786252	.3348928	.6770307	.2104437
#1	6150.465	94377.41	7271.953	4738.281	7064.475
#2	6175.846	94181.18	7285.432	4731.862	7092.235
#3	6155.354	95044.34	7319.348	4790.536	7069.022

Sample Name: LLICV01 Acquired: 10/29/2025 14:07:40 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0210553	.0463144	.0117190	.0230825	.0515223	.1029837
Stddev	.0014325	.0025064	.0008309	.0013781	.0024293	.0123891
%RSD	6.803670	5.411758	7.089969	5.970439	4.715092	12.03014

#1	.0204275	.0484053	.0122790	.0216436	.0487232	.1079356
#2	.0226946	.0435359	.0107644	.0243905	.0530810	.1121309
#3	.0200439	.0470019	.0121137	.0232134	.0527627	.0888845

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1050841	.0064481	.0058332	2.078907	.0102518	.0299516
Stddev	.0013103	.0000890	.0000236	.020677	.0002611	.0001269
%RSD	1.246910	1.380818	.4054114	.9946140	2.546500	.4236405

#1	.1051304	.0065029	.0058215	2.102651	.0100041	.0299958
#2	.1037513	.0063453	.0058605	2.069208	.0102268	.0300505
#3	.1063706	.0064960	.0058178	2.064862	.0105244	.0298085

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0220424	.1072966	.0210845	2.155099	.0403917	.0105850
Stddev	.0001332	.0048316	.0001135	.044564	.0003182	.0003705
%RSD	.6042516	4.503024	.5380973	2.067859	.7877895	3.500245

#1	.0218950	.1093583	.0210226	2.199856	.0404934	.0108615
#2	.0221542	.1017762	.0212155	2.110730	.0400351	.0101640
#3	.0220779	.1107554	.0210155	2.154710	.0406466	.0107295

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.007426	.0410484	.0432694	1.878880	.1022255	.2051291
Stddev	.021428	.0040720	.0001427	.028995	.0014037	.0004649
%RSD	1.067449	9.920067	.3298594	1.543208	1.373133	.2266342

#1	1.997762	.0453110	.0433745	1.905244	.1024884	.2056629
#2	2.031984	.0371983	.0433267	1.883572	.1007090	.2048131
#3	1.992532	.0406360	.0431069	1.847826	.1034792	.2049113

Sample Name: LLICV01 Acquired: 10/29/2025 14:07:40 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0398141	.0382810	.3638532	.0189381	F .0124239	.0219099
Stddev	.0001082	.0020525	.0154514	.0020620	.0029877	.0027384
%RSD	.2716296	5.361733	4.246606	10.88804	24.04839	12.49839
#1	.0398197	.0399014	.3584293	.0168767	.0096052	.0244641
#2	.0397033	.0359730	.3812852	.0189370	.0155560	.0190186
#3	.0399194	.0389687	.3518449	.0210006	.0121104	.0222470

Elem	Sr4077
Units	ppm
Avg	.0213964
Stddev	.0001493
%RSD	.6978913
#1	.0212878
#2	.0215667
#3	.0213347

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5992.948	92800.84	7016.174	4584.937	7401.945
Stddev	4.907	281.97	61.465	2.637	5.512
%RSD	.0818816	.3038419	.8760514	.0575063	.0744705
#1	5989.741	92967.47	7009.725	4586.606	7401.234
#2	5998.597	92475.28	7080.610	4581.898	7407.778
#3	5990.506	92959.76	6958.188	4586.308	7396.823

Sample Name: ICB01 Acquired: 10/29/2025 14:12:28 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000192	-.001332	.0000368	.0016523	-.003057	.0003858
Stddev	.000787	.001046	.0005023	.0008440	.000979	.0072532
%RSD	410.1887	78.53132	1365.005	51.07542	32.01522	1879.993

#1	-.000201	-.000727	.0005504	.0007453	-.002924	.0087098
#2	.000600	-.000729	.0000134	.0024143	-.002152	-.004578
#3	-.000975	-.002540	-.000453	.0017975	-.004095	-.002975

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0035380	.0000412	-.000062	.0010978	.0000599	-.000035
Stddev	.0025030	.0000721	.000054	.0082217	.0000459	.000031
%RSD	70.74690	174.8109	87.61879	748.9517	76.63327	89.95037

#1	.0042512	.0001137	-.000061	-.006887	.0000990	-.000013
#2	.0056070	.0000405	-.000117	.009538	.0000094	-.000071
#3	.0007558	-.000030	-.000008	.000642	.0000712	-.000021

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000516	-.006560	.0005152	-.024158	.0002702	.0003049
Stddev	.000200	.005761	.0007034	.022326	.0002685	.0005840
%RSD	38.83250	87.81276	136.5371	92.41517	99.35831	191.5602

#1	-.000559	-.013210	-.000252	-.046185	.0002335	-.000240
#2	-.000691	-.003379	.000669	-.001544	.0000220	.000233
#3	-.000297	-.003091	.001129	-.024746	.0005552	.000922

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.061099	.0030227	-.000323	-.117359	-.002559	.0005143
Stddev	.007193	.0019150	.000224	.022375	.000422	.0001096
%RSD	11.77305	63.35504	69.12205	19.06515	16.48106	21.30741

#1	-.065231	.0040296	-.000483	-.135626	-.002508	.0006028
#2	-.065274	.0008143	-.000419	-.092402	-.002165	.0003917
#3	-.052793	.0042242	-.000068	-.124047	-.003004	.0005485

Sample Name: ICB01 Acquired: 10/29/2025 14:12:28 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0221066	-.000413	-.014888	-.000708	-.005562	.0003302
Stddev	.0005889	.000623	.013234	.000877	.001726	.0008800
%RSD	2.663777	150.9524	88.88871	123.8989	31.02370	266.5366
#1	.0215687	.000286	-.009134	-.001373	-.007446	.0007728
#2	.0220154	-.000911	-.030026	-.001038	-.004057	-.000683
#3	.0227358	-.000614	-.005505	.000286	-.005184	.000901

Elem	Sr4077
Units	ppm
Avg	.0000605
Stddev	.0001189
%RSD	196.6178
#1	-.000032
#2	.000195
#3	.000018

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6130.168	95144.69	7278.849	4650.652	7739.233
Stddev	.991	99.26	40.738	16.040	.602
%RSD	.0161591	.1043274	.5596724	.3449073	.0077807
#1	6131.055	95240.90	7313.596	4669.094	7739.250
#2	6129.099	95150.54	7234.015	4639.941	7739.826
#3	6130.350	95042.63	7288.935	4642.921	7738.622

Sample Name: CRI01 Acquired: 10/29/2025 14:16:49 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0198693	.0442487	.0115949	.0229665	.0499050	.0970909
Stddev	.0010023	.0029648	.0004578	.0029018	.0008476	.0057034
%RSD	5.044226	6.700347	3.948342	12.63508	1.698511	5.874257

#1	.0191181	.0429587	.0112327	.0263172	.0507946	.1036746
#2	.0194824	.0476400	.0114426	.0213138	.0491066	.0939383
#3	.0210073	.0421474	.0121095	.0212686	.0498139	.0936598

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1017535	.0064134	.0058416	2.053676	.0103176	.0295674
Stddev	.0009582	.0000319	.0000096	.014919	.0001461	.0000869
%RSD	.9416558	.4980086	.1645031	.7264683	1.415942	.2938956

#1	.1027274	.0064493	.0058312	2.044484	.0102900	.0295266
#2	.1017211	.0063880	.0058501	2.045654	.0101873	.0295084
#3	.1008119	.0064030	.0058436	2.070890	.0104755	.0296672

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0216022	.0979502	.0219929	2.124475	.0402649	.0110273
Stddev	.0004109	.0059532	.0007662	.014744	.0001548	.0001768
%RSD	1.902249	6.077745	3.483662	.6939900	.3844968	1.603149

#1	.0218966	.0928396	.0223495	2.110218	.0401327	.0110620
#2	.0217772	.0965242	.0211134	2.139661	.0402267	.0108357
#3	.0211327	.1044869	.0225157	2.123546	.0404352	.0111841

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.942506	.0432077	.0423786	1.846613	.0968181	.2024829
Stddev	.019562	.0017844	.0003747	.008586	.0009023	.0005072
%RSD	1.007071	4.129839	.8840905	.4649635	.9319336	.2504645

#1	1.921664	.0449517	.0426670	1.856408	.0978592	.2023076
#2	1.960470	.0432860	.0419551	1.840388	.0962650	.2030544
#3	1.945384	.0413854	.0425136	1.843043	.0963300	.2020866

Sample Name: CRI01 Acquired: 10/29/2025 14:16:49 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0391850	.0365897	.3647980	.0188387	F .0132147	.0223118
Stddev	.0002582	.0002898	.0160803	.0016612	.0024170	.0007715
%RSD	.6588787	.7919785	4.408008	8.817919	18.28988	3.458057

#1	.0388915	.0362727	.3531115	.0203445	.0150982	.0214565
#2	.0393770	.0366556	.3581454	.0170567	.0140565	.0229554
#3	.0392864	.0368410	.3831371	.0191150	.0104894	.0225235

Elem	Sr4077
Units	ppm
Avg	.0211336
Stddev	.0001324
%RSD	.6262824

#1	.0212356
#2	.0209840
#3	.0211811

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6030.828	93745.77	7039.782	4650.586	7429.757
Stddev	8.698	94.60	57.706	8.457	9.180
%RSD	.1442275	.1009139	.8197062	.1818490	.1235624

#1	6040.353	93806.04	6977.212	4644.273	7440.345
#2	6023.306	93794.55	7090.909	4660.194	7424.013
#3	6028.826	93636.74	7051.223	4647.290	7424.913

Sample Name: ICSA01 Acquired: 10/29/2025 14:21:04 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0047665	.0103026	.0000376	.0017615	-.003016	238.2085	.0057226
Stddev	.0002845	.0015953	.0007812	.0034386	.000976	.3389	.0015002
%RSD	5.967714	15.48478	2078.874	195.2076	32.33993	.1422873	26.21530

#1	.0048312	.0117855	.0006006	-.001982	-.002079	238.4740	.0070367
#2	.0044553	.0105076	-.000854	.004780	-.004026	237.8267	.0040881
#3	.0050130	.0086147	.000366	.002486	-.002945	238.3249	.0060431

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016957	.0006609	230.9623	.0488980	.0016167	.0140734	95.03462
Stddev	.0001226	.0001396	.2804	.0004734	.0001400	.0005527	1.17085
%RSD	7.232254	21.11586	.1213882	.9681616	8.658784	3.927532	1.232020

#1	.0016641	.0008172	231.2405	.0483724	.0017553	.0146067	93.71110
#2	.0018310	.0006170	230.9665	.0490309	.0014754	.0135031	95.93534
#3	.0015920	.0005486	230.6798	.0492908	.0016194	.0141103	95.45743

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0077844	245.6645	.0048467	.0008880	.1253627	.0049808	.0037220
Stddev	.0002441	.8170	.0003438	.0002663	.0203736	.0001946	.0001891
%RSD	3.135587	.3325618	7.093516	29.98755	16.25170	3.907096	5.081219

#1	.0078965	246.5715	.0048733	.0006838	.1031716	.0047609	.0039315
#2	.0075044	245.4359	.0051765	.0007909	.1432221	.0050507	.0036708
#3	.0079522	244.9862	.0044904	.0011891	.1296944	.0051308	.0035638

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0221409	.0569306	.0012487	.0184667	-.004641	.0039121	.0077631
Stddev	.0479267	.0044004	.0002403	.0004087	.000730	.0185462	.0014627
%RSD	216.4625	7.729464	19.24449	2.213104	15.71957	474.0713	18.84096

#1	-.016778	.0518552	.0013893	.0180122	-.003955	-.009617	.0076516
#2	.075673	.0592582	.0009713	.0188040	-.005408	.025053	.0063595
#3	.007527	.0596784	.0013857	.0185840	-.004561	-.003700	.0092784

Sample Name: ICSA01 Acquired: 10/29/2025 14:21:04 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.000657	F -.023720	.0050392
Stddev	.000825	.001308	.0015227
%RSD	125.6119	5.515234	30.21710

#1	-.000903	-.023133	.0067079
#2	-.001331	-.025219	.0037252
#3	.000263	-.022808	.0046843

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5744.452	86600.78	6866.950	4410.128	6201.587
Stddev	10.769	121.63	72.056	.767	11.309
%RSD	.1874622	.1404476	1.049314	.0173846	.1823490

#1	5749.754	86741.19	6783.859	4409.326	6207.645
#2	5751.541	86527.72	6904.758	4410.202	6208.577
#3	5732.060	86533.44	6912.233	4410.854	6188.541

Sample Name: ICSAB01 Acquired: 10/29/2025 14:25:16 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.1048885	.1051475	.0473592	.0510748	.5796515	236.4256
Stddev	.0010388	.0020074	.0043663	.0037338	.0001643	.3401
%RSD	.9903834	1.909160	9.219611	7.310416	.0283462	.1438382

#1	.1037896	.1071244	.0522342	.0506302	.5795937	236.5936
#2	.1058544	.1052073	.0438079	.0475831	.5798369	236.0342
#3	.1050214	.1031108	.0460353	.0550109	.5795239	236.6490

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4776329	.5012885	.9630589	229.1758	.5378894	.4855431
Stddev	.0014894	.0038676	.0021894	.4851	.0023629	.0013611
%RSD	.3118325	.7715291	.2273337	.2116513	.4392988	.2803184

#1	.4779745	.5055038	.9605313	229.4406	.5363130	.4839767
#2	.4760023	.4979036	.9642811	228.6160	.5367488	.4862159
#3	.4789217	.5004579	.9643644	229.4708	.5406062	.4864367

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4744475	94.74832	.4787434	243.6830	.9675804	.2016066
Stddev	.0003112	.61266	.0019324	.6744	.0031255	.0007886
%RSD	.0655997	.6466143	.4036302	.2767429	.3230166	.3911365

#1	.4744804	94.04300	.4767579	244.2082	.9640857	.2006961
#2	.4747409	95.05370	.4788547	242.9225	.9701081	.2020531
#3	.4741211	95.14827	.4806178	243.9184	.9685472	.2020705

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0957745	.4686423	.9985241	-.081141	.9770021	.9592048
Stddev	.0103290	.0028354	.0031765	.022695	.0050716	.0026737
%RSD	10.78471	.6050269	.3181169	27.96943	.5190984	.2787405

#1	.0882389	.4719086	.9961576	-.061379	.9827084	.9562226
#2	.0915360	.4672045	1.002134	-.105927	.9752893	.9600044
#3	.1075485	.4668138	.997280	-.076118	.9730087	.9613875

Sample Name: ICSAB01 Acquired: 10/29/2025 14:25:16 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.9869540	.9362467	.9435175	F .0054394	F -.000250	F -.026015
Stddev	.0047679	.0032878	.0137496	.0011088	.001046	.001625
%RSD	.4830914	.3511728	1.457271	20.38434	418.3625	6.246951
#1	.9814678	.9400417	.9293980	.0065814	-.001377	-.026720
#2	.9900957	.9344415	.9568646	.0053697	-.000063	-.027169
#3	.9892985	.9342569	.9442899	.0043671	.000690	-.024156

Elem	Sr4077
Units	ppm
Avg	F .0057269
Stddev	.0005373
%RSD	9.381916
#1	.0063469
#2	.0054369
#3	.0053969

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5762.989	87568.42	7006.970	4436.006	6219.246
Stddev	12.298	498.13	49.829	23.534	14.845
%RSD	.2133911	.5688512	.7111397	.5305129	.2386980
#1	5769.996	87923.45	6973.170	4453.063	6233.279
#2	5770.182	87782.84	7064.195	4445.797	6220.755
#3	5748.789	86998.98	6983.546	4409.157	6203.704

Sample Name: ICSA01DLX20 Acquired: 10/29/2025 14:29:18 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0009044	-.000900	.0003351	.0012199	-.003677	12.31525	.0048630
Stddev	.0034133	.002138	.0004213	.0015117	.001423	.06372	.0006907
%RSD	377.4326	237.6385	125.7039	123.9178	38.69061	.5173682	14.20256
#1	.0048457	-.003338	.0003714	.0011874	-.003389	12.31374	.0050383
#2	-.001047	.000657	-.000103	.0027475	-.005222	12.25230	.0054491
#3	-.001086	-.000018	.000737	-.000275	-.002420	12.37971	.0041015
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001980	.0000106	12.35909	.0026705	.0001976	.0008388	4.845437
Stddev	.0000284	.0000260	.01881	.0001026	.0001938	.0000683	.022234
%RSD	14.34718	245.1430	.1521554	3.840195	98.07029	8.143741	.4588620
#1	.0002244	.0000384	12.36983	.0025548	.0004060	.0008069	4.821005
#2	.0001680	-.000013	12.33738	.0027063	.0001638	.0009173	4.850823
#3	.0002017	.000007	12.37006	.0027503	.0000229	.0007923	4.864484
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007371	13.01796	.0002100	.0002555	-.071760	.0033852	.0009943
Stddev	.0002747	.06860	.0002079	.0003978	.011145	.0042590	.0002185
%RSD	37.27421	.5270023	98.99385	155.7241	15.53030	125.8113	21.97025
#1	.0008683	13.00761	.0002346	.0000027	-.084330	.0063658	.0008787
#2	.0009215	12.95511	.0004045	.0007141	-.063088	.0052825	.0008579
#3	.0004213	13.09115	-.000009	.0000496	-.067862	-.001493	.0012462
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.156821	-.002799	.0007575	.0225842	-.000017	-.009802	.0000709
Stddev	.034389	.000170	.0002129	.0000952	.000588	.008258	.0012017
%RSD	21.92865	6.077914	28.10665	.4217310	3467.525	84.24199	1694.704
#1	-.124073	-.002953	.0005758	.0224746	-.000330	-.003102	.0011125
#2	-.192644	-.002829	.0007049	.0226476	-.000382	-.019028	-.001244
#3	-.153748	-.002616	.0009917	.0226302	.000661	-.007278	.000344

Sample Name: ICSA01DLX20 Acquired: 10/29/2025 14:29:18 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.003515	-.001623	.0004696
Stddev	.002816	.003190	.0000586
%RSD	80.11826	196.6044	12.47923
#1	-.000521	.002021	.0004929
#2	-.006111	-.002979	.0004029
#3	-.003912	-.003910	.0005129

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5990.179	91678.18	6913.860	4553.141	7203.995
Stddev	11.618	198.59	40.362	10.196	19.529
%RSD	.1939567	.2166145	.5837836	.2239392	.2710898
#1	6003.300	91451.71	6908.949	4557.909	7220.096
#2	5981.196	91760.30	6956.453	4560.079	7182.271
#3	5986.041	91822.55	6876.179	4541.434	7209.619

Sample Name: ICSAB01DLX20 Acquired: 10/29/2025 14:33:36 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0052736	.0073892	.0021516	-.000471	.0241661	11.98651	.0272352
Stddev	.0000844	.0015872	.0014590	.001747	.0006888	.05714	.0009537
%RSD	1.599962	21.47962	67.80957	370.7459	2.850269	.4767057	3.501790

#1	.0053498	.0080972	.0030589	-.002196	.0235887	12.02155	.0283303
#2	.0051829	.0055713	.0004686	-.000515	.0239810	11.92057	.0265869
#3	.0052882	.0084992	.0029273	.001297	.0249285	12.01740	.0267884

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0258138	.0472794	11.99267	.0283545	.0238628	.0256302	4.709760
Stddev	.0001762	.0000697	.02698	.0002373	.0000698	.0003466	.030184
%RSD	.6824601	.1473299	.2249887	.8368478	.2923524	1.352345	.6408901

#1	.0258823	.0473468	12.02067	.0284500	.0238153	.0252817	4.742831
#2	.0256137	.0472838	11.99050	.0280844	.0239429	.0259748	4.702754
#3	.0259454	.0472077	11.96684	.0285292	.0238301	.0256340	4.683694

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0253892	12.63393	.0485147	.0099117	-.076021	.0258093	.0509310
Stddev	.0002415	.06328	.0003676	.0008431	.017625	.0016628	.0002904
%RSD	.9512072	.5008489	.7576204	8.506398	23.18474	6.442479	.5702647

#1	.0256345	12.63704	.0485912	.0097914	-.090317	.0268619	.0512127
#2	.0251517	12.56915	.0481149	.0108085	-.081417	.0266736	.0506325
#3	.0253815	12.69559	.0488380	.0091352	-.056328	.0238924	.0509478

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.160009	.0440944	.0502341	.0682637	.0480353	.0317824	-.001046
Stddev	.006146	.0001809	.0002373	.0003815	.0005686	.0104979	.000305
%RSD	3.841329	.4101785	.4724698	.5588807	1.183754	33.03054	29.20122

#1	-.153715	.0440340	.0500400	.0686395	.0473909	.0228846	-.001193
#2	-.165997	.0439514	.0504987	.0682750	.0482487	.0433607	-.000695
#3	-.160315	.0442977	.0501634	.0678767	.0484663	.0291019	-.001251

Sample Name: ICSAB01DLX20 Acquired: 10/29/2025 14:33:36 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.005708	-.000159	.0003990
Stddev	.003055	.001244	.0000706
%RSD	53.51476	783.9823	17.68822

#1	-.002748	.001256	.0004388
#2	-.008849	-.000650	.0003175
#3	-.005526	-.001082	.0004407

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6159.626	94240.54	7115.829	4673.100	7404.922
Stddev	3.650	204.94	25.672	18.153	4.409
%RSD	.0592497	.2174686	.3607757	.3884507	.0595395

#1	6160.504	94016.01	7105.309	4654.878	7409.454
#2	6155.617	94288.03	7145.090	4673.238	7404.666
#3	6162.756	94417.56	7097.088	4691.183	7400.647

Sample Name: CCV01 Acquired: 10/29/2025 14:37:48 Type: Unk
Method: 6010-200.7 NEW(v324) 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	4.957138	5.060443	4.903376	4.934411	4.972114	9.776444	9.728464
Stddev	.007026	.195596	.005323	.013644	.006278	.023980	.034312
%RSD	.1417338	3.865199	.1085673	.2765109	.1262695	.2452873	.3526956

#1	4.952393	4.834681	4.901674	4.922670	4.979260	9.803490	9.754453
#2	4.953811	5.178926	4.899111	4.931183	4.967480	9.757779	9.741367
#3	4.965209	5.167722	4.909342	4.949380	4.969603	9.768062	9.689571

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2503138	2.463746	24.78163	1.005040	2.458061	1.240384	4.872119
Stddev	.0017743	.002497	.05823	.002870	.002486	.001175	.034838
%RSD	.7088176	.1013415	.2349804	.2855575	.1011562	.0947035	.7150461

#1	.2497109	2.460871	24.83363	1.003061	2.455674	1.241604	4.881042
#2	.2489195	2.465367	24.71871	1.003729	2.457873	1.239261	4.901628
#3	.2523109	2.465001	24.79255	1.008332	2.460636	1.240287	4.833688

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.457644	24.79424	2.459419	1.237425	24.41683	2.473843	2.490215
Stddev	.007220	.09678	.002454	.002159	.13595	.002847	.006902
%RSD	.2937875	.3903401	.0997795	.1744873	.5567933	.1151031	.2771714

#1	2.464802	24.81503	2.456647	1.237239	24.46229	2.473734	2.486716
#2	2.457769	24.68875	2.460295	1.235365	24.52422	2.476744	2.485763
#3	2.450363	24.87893	2.461314	1.239671	24.26397	2.471052	2.498166

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.14600	4.970874	5.009337	4.978538	4.931139	4.868154	4.954822
Stddev	.19127	.033620	.005952	.012831	.013800	.026663	.023072
%RSD	.7921380	.6763403	.1188153	.2577319	.2798567	.5477003	.4656387

#1	24.23486	4.950665	5.005513	4.964374	4.945780	4.888098	4.929634
#2	24.27669	4.952274	5.006305	4.981856	4.929266	4.878493	4.959904
#3	23.92647	5.009684	5.016195	4.989385	4.918371	4.837869	4.974929

Sample Name: CCV01 Acquired: 10/29/2025 14:37:48 Type: Unk
Method: 6010-200.7 NEW(v324) 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	4.873408	4.869970	5.010995
Stddev	.039422	.012003	.022453
%RSD	.8089147	.2464663	.4480651

#1	4.831551	4.883097	5.034878
#2	4.878842	4.867257	5.007791
#3	4.909831	4.859556	4.990317

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6003.411	92866.52	6993.625	4622.969	6805.371
Stddev	2.611	133.25	34.405	13.516	5.061
%RSD	.0434995	.1434875	.4919447	.2923584	.0743692

#1	6000.587	92972.24	7006.446	4616.497	6811.079
#2	6005.738	92716.84	7019.779	4638.504	6803.598
#3	6003.909	92910.48	6954.651	4613.907	6801.434

Sample Name: CCB01 Acquired: 10/29/2025 14:41:52 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.000089	.0020637	.0001839	.0009606	-.003328	.0051323	.0048770
Stddev	.001927	.0000888	.0006252	.0019061	.001391	.0020775	.0022777
%RSD	2168.944	4.304286	340.0043	198.4193	41.78192	40.48001	46.70376

#1	.002105	.0020866	-.000534	.0013259	-.004934	.0053047	.0048606
#2	-.000869	.0021389	.000609	.0026577	-.002547	.0029739	.0071629
#3	-.001503	.0019657	.000477	-.001102	-.002504	.0071182	.0026075

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000169	.0000070	-.005077	-.000099	-.000027	.0010626	.0094098
Stddev	.0000489	.0000529	.003226	.000094	.000120	.0002476	.0029690
%RSD	289.8309	756.1371	63.53779	94.90667	440.2030	23.30414	31.55192

#1	.0000168	.0000618	-.007013	-.000199	-.000155	.0012703	.0062106
#2	-.000032	.0000031	-.006866	-.000011	-.000009	.0011290	.0120765
#3	.000066	-.000044	-.001353	-.000088	.000082	.0007885	.0099422

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005314	-.029931	-.000014	-.000176	-.069724	.0010150	.0001486
Stddev	.0001874	.015724	.000158	.000196	.019499	.0039694	.0001140
%RSD	35.26485	52.53545	1140.095	111.4220	27.96569	391.0580	76.73664

#1	.0005366	-.046890	-.000057	-.000009	-.082117	.0022654	.0002735
#2	.0007162	-.015834	.000162	-.000127	-.079807	.0042087	.0000501
#3	.0003415	-.027069	-.000146	-.000391	-.047248	-.003429	.0001221

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.167364	-.000404	.0000060	.0012732	-.000554	.0042277	-.000664
Stddev	.005673	.000520	.0000801	.0003337	.001047	.0015168	.000249
%RSD	3.389601	128.6589	1327.686	26.21086	189.1534	35.87690	37.48074

#1	-.170112	.000146	-.000026	.0012301	-.000022	.0056634	-.000377
#2	-.171140	-.000887	-.000053	.0016263	-.001760	.0043787	-.000826
#3	-.160840	-.000470	.000097	.0009631	.000121	.0026411	-.000788

Sample Name: CCB01 Acquired: 10/29/2025 14:41:52 Type: Unk
Method: 6010-200.7 NEW(v324) 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 -.015075	.0007996	.0000687
Stddev	.002050	.0014807	.0001335
%RSD	13.59988	185.1904	194.3856

#1	-.013629	.0024107	-.000020
#2	-.017421	.0004897	.000222
#3	-.014175	-.000502	.000003

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5986.348	92642.15	6684.943	4551.774	7533.523
Stddev	15.600	445.49	53.677	19.825	18.373
%RSD	.2605955	.4808697	.8029597	.4355421	.2438814

#1	5976.801	92456.74	6676.321	4558.603	7531.679
#2	5977.894	93150.40	6636.098	4567.281	7516.142
#3	6004.351	92319.31	6742.409	4529.437	7552.748

Sample Name: LR-1 Acquired: 10/29/2025 14:46:13 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0037872	.0109073	.0233735	-.017244	.0153631	.5206618	.0176998
Stddev	.0027997	.0016254	.0017148	.004456	.0008356	.0127968	.0007456
%RSD	73.92746	14.90162	7.336589	25.84093	5.438791	2.457790	4.212699

#1	.0006511	.0119072	.0214053	-.014579	.0160283	.5332180	.0183991
#2	.0060353	.0090319	.0245458	-.014765	.0156357	.5211302	.0177852
#3	.0046750	.0117829	.0241692	-.022389	.0144253	.5076373	.0169151

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011089	.0014728	2161.947	.1055668	.0078365	.0122446	1.137518
Stddev	.0000444	.0000980	14.166	.0007521	.0001576	.0005554	.027897
%RSD	4.007912	6.653173	.6552376	.7124764	2.011182	4.535933	2.452423

#1	.0011445	.0014710	2178.008	.1054853	.0077412	.0117751	1.110132
#2	.0011231	.0013757	2151.233	.1063564	.0077498	.0121010	1.165899
#3	.0010591	.0015717	2156.599	.1048588	.0080184	.0128577	1.136524

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0582312	2244.548	.0722934	.0028764	2335.241	.0142018	.0872567
Stddev	.0040772	6.922	.0001649	.0005645	13.249	.0008283	.0001353
%RSD	7.001669	.3083902	.2280873	19.62535	.5673331	5.832055	.1550205

#1	.0610859	2252.148	.0721047	.0035242	2323.229	.0151565	.0871894
#2	.0535618	2238.603	.0723655	.0026154	2349.451	.0137731	.0871683
#3	.0600460	2242.895	.0724100	.0024896	2333.043	.0136758	.0874124

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.629128	.0058814	.0178279	.0012194	-.094672	-.023546	.0197037
Stddev	.375064	.0010779	.0003237	.0003059	.003852	.044307	.0018202
%RSD	14.26571	18.32650	1.815738	25.08317	4.069052	188.1693	9.238021

#1	2.220491	.0071237	.0181175	.0012420	-.096825	-.016224	.0215202
#2	2.709209	.0051953	.0178880	.0009029	-.090224	-.071058	.0197113
#3	2.957683	.0053251	.0174784	.0015134	-.096966	.016643	.0178797

Sample Name: LR-1 Acquired: 10/29/2025 14:46:13 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.2367036	-.318499	.0604631
Stddev	.0054746	.005018	.0003503
%RSD	2.312845	1.575413	.5793138
#1	.2426672	-.324193	.0606102
#2	.2319057	-.314724	.0600632
#3	.2355380	-.316580	.0607158

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4116.067	64891.82	6413.679	3115.266	4325.405
Stddev	2.734	342.04	36.583	5.939	7.192
%RSD	.0664339	.5270857	.5703956	.1906422	.1662699
#1	4116.865	65160.47	6385.905	3122.101	4329.160
#2	4118.313	64506.78	6455.130	3111.361	4329.942
#3	4113.022	65008.21	6400.002	3112.336	4317.113

Sample Name: LR-2 Acquired: 10/29/2025 14:50:42 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.1128259	-.141600	.1084931	.0087550	-.130729	1771.920	.0238778
Stddev	.0061776	.008453	.0057146	.0080619	.002706	16.136	.0008975
%RSD	5.475329	5.969451	5.267257	92.08299	2.069589	.9106769	3.758883

#1	.1109730	-.134395	.1074918	.0121031	-.133846	1758.130	.0240629
#2	.1077869	-.150905	.1033453	-.000441	-.129351	1767.963	.0246683
#3	.1197179	-.139502	.1146422	.014603	-.128989	1789.666	.0229021

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0428260	-.015535	9.185660	-.250080	.0564313	.2485702	2617.321
Stddev	.0006790	.002521	.100066	.003127	.0007497	.0192752	33.283
%RSD	1.585570	16.22531	1.089373	1.250485	1.328473	7.754432	1.271641

#1	.0423611	-.015094	9.203745	-.249887	.0568787	.2417045	2615.219
#2	.0425116	-.013264	9.077784	-.247053	.0555658	.2703383	2585.139
#3	.0436052	-.018247	9.275450	-.253299	.0568494	.2336679	2651.605

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.209804	1.779590	.0474439	^ *****	4.722407	.0517681	.0523104
Stddev	.002211	.016078	.0013391	-----	.067283	.0019461	.0030135
%RSD	1.054022	.9034661	2.822558	-----	1.424758	3.759198	5.760865

#1	-.208718	1.773750	.0459864	^ -----	4.743646	.0497218	.0534248
#2	-.212349	1.767248	.0486200	^ -----	4.776506	.0519872	.0546079
#3	-.208346	1.797772	.0477252	^ -----	4.647067	.0535954	.0488983

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1877.299	^ *****	-.013767	.0272855	.0025876	.4767761	.0740899
Stddev	8.195	-----	.000740	.0001517	.0009429	.0160119	.0049848
%RSD	.4365459	-----	5.373748	.5559506	36.43989	3.358376	6.728091

#1	1884.693	^ -----	-.012919	.0271374	.0035791	.4709538	.0797707
#2	1868.487	^ -----	-.014107	.0272785	.0017023	.4948845	.0704464
#3	1878.715	^ -----	-.014276	.0274405	.0024813	.4644899	.0720526

Sample Name: LR-2 Acquired: 10/29/2025 14:50:42 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.497999	.2703556	-2.50896
Stddev	.008594	.0030014	.03194
%RSD	1.725743	1.110172	1.272848
#1	-.500797	.2681952	-2.50685
#2	-.488355	.2690889	-2.47813
#3	-.504846	.2737827	-2.54190

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5275.670	76303.30	6839.565	3909.493	5343.213
Stddev	11.130	60.42	59.683	11.464	6.277
%RSD	.2109729	.0791893	.8726183	.2932243	.1174841
#1	5281.413	76262.62	6855.330	3903.059	5344.257
#2	5282.755	76274.55	6889.783	3922.728	5348.903
#3	5262.841	76372.73	6773.582	3902.691	5336.479

Sample Name: LR-3 Acquired: 10/29/2025 14:55:11 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0966074	.0234001	223.7055	.0054031	.1230352	.8461527	.0030886
Stddev	.0044955	.0071466	.7976	.0023554	.0044259	.0059325	.0009812
%RSD	4.653346	30.54102	.3565370	43.59290	3.597276	.7011107	31.76939

#1	.0932243	.0257550	222.8250	.0078549	.1278098	.8469569	.0020272
#2	.1017085	.0153732	223.9118	.0031578	.1190696	.8398591	.0032759
#3	.0948893	.0290721	224.3797	.0051965	.1222261	.8516420	.0039627

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.005439	-.001326	.3079158	23.87427	.0066285	50.85704	13.61354
Stddev	.000083	.000020	.0034554	.03673	.0001932	.02577	.17020
%RSD	1.534678	1.484544	1.122202	.1538303	2.914608	.0506723	1.250259

#1	-.005361	-.001310	.3109713	23.87888	.0064491	50.82762	13.79664
#2	-.005527	-.001321	.3086102	23.90847	.0066034	50.87562	13.46014
#3	-.005428	-.001348	.3041659	23.83546	.0068331	50.86789	13.58385

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	52.85785	2.030827	23.45541	.0046128	.9181123	-.032388	30.34369
Stddev	.69038	.037489	.00250	.0004812	.0126641	.001323	.20465
%RSD	1.306106	1.845986	.0106648	10.43103	1.379360	4.084866	.6744329

#1	53.07271	2.073338	23.45666	.0048804	.9287946	-.033452	30.15181
#2	53.41525	2.002498	23.45704	.0040573	.9214195	-.030906	30.55907
#3	52.08559	2.016644	23.45253	.0049007	.9041227	-.032805	30.32019

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6312314	.0023431	-.015926	.0117927	-.043006	-.113250	.1678201
Stddev	.0285033	.0017072	.000467	.0008278	.001212	.012997	.0027769
%RSD	4.515504	72.86132	2.934161	7.019527	2.819269	11.47600	1.654688

#1	.6638105	.0039987	-.016296	.0120400	-.041627	-.107101	.1647925
#2	.6108935	.0024419	-.016082	.0124686	-.043489	-.128180	.1684194
#3	.6189901	.0005886	-.015401	.0108694	-.043903	-.104469	.1702484

Sample Name: LR-3 Acquired: 10/29/2025 14:55:11 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0661793	.0043583	-.012199
Stddev	.0092252	.0013768	.000138
%RSD	13.93978	31.59111	1.134964
#1	.0614691	.0059297	-.012358
#2	.0602600	.0033638	-.012133
#3	.0768088	.0037813	-.012105

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5688.750	94984.42	7230.140	4495.520	7306.704
Stddev	5.939	155.22	46.136	15.385	9.307
%RSD	.1043997	.1634129	.6381104	.3422209	.1273737
#1	5690.957	94906.27	7280.329	4477.933	7304.802
#2	5693.269	94883.81	7189.574	4506.484	7316.814
#3	5682.023	95163.18	7220.518	4502.144	7298.494

Sample Name: Q3465-01 Acquired: 10/29/2025 15:00:05 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0493948	-.033701	.1655942	.0037305	-.015435	138.5256	.5546026
Stddev	.0008885	.001771	.0031544	.0052269	.000992	.3252	.0028919
%RSD	1.798771	5.254697	1.904887	140.1135	6.429477	.2347516	.5214307

#1	.0502892	-.032537	.1691998	.0091658	-.016229	138.8990	.5571827
#2	.0485124	-.032827	.1642385	-.001260	-.015753	138.3052	.5551484
#3	.0493829	-.035739	.1633442	.003285	-.014322	138.3725	.5514767

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0108712	.0055136	34.03086	.2625610	.1304296	.2482509	268.9536
Stddev	.0001271	.0000667	.10357	.0013066	.0001363	.0010097	1.6328
%RSD	1.169307	1.210401	.3043304	.4976396	.1044938	.4067142	.6070871

#1	.0107317	.0055395	34.11762	.2613921	.1304880	.2491347	269.0591
#2	.0109805	.0055635	34.05877	.2623192	.1305270	.2471505	267.2706
#3	.0109015	.0054378	33.91620	.2639716	.1302739	.2484675	270.5310

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.662832	42.74497	.2109911	.0029603	4.387566	.4912163	.4378360
Stddev	.014196	.05971	.0011584	.0004615	.036669	.0035902	.0009766
%RSD	.5330997	.1396837	.5490408	15.58930	.8357508	.7308714	.2230599

#1	2.673199	42.74248	.2122171	.0026669	4.376206	.4945269	.4388648
#2	2.668645	42.80588	.2108414	.0027217	4.357921	.4874002	.4377219
#3	2.646653	42.68654	.2099148	.0034922	4.428570	.4917220	.4369215

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.72114	.2412975	.0063326	.0089735	7.425778	4.333754	6.902574
Stddev	.09463	.0112381	.0001240	.0013725	.028041	.040335	.007783
%RSD	.8826281	4.657370	1.958394	15.29532	.3776156	.9307115	.1127617

#1	10.73977	.2426493	.0064664	.0104223	7.456644	4.372522	6.906003
#2	10.61858	.2294447	.0063099	.0088055	7.418817	4.292017	6.893664
#3	10.80507	.2517986	.0062215	.0076927	7.401873	4.336722	6.908054

Sample Name: Q3465-01 Acquired: 10/29/2025 15:00:05 Type: Unk
Method: 6010-200.7 NEW(v324) 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	1.974484	.1043353	-.130359
Stddev	.007770	.0006537	.001376
%RSD	.3935306	.6265179	1.055640
#1	1.965565	.1037484	-.130224
#2	1.979788	.1042175	-.129055
#3	1.978099	.1050398	-.131797

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7689.028	117007.6	9247.576	5829.477	6580.797
Stddev	14.537	453.6	52.256	12.684	4.854
%RSD	.1890584	.3876830	.5650804	.2175811	.0737571
#1	7674.251	117270.3	9239.598	5819.226	6575.438
#2	7703.312	117268.7	9199.768	5843.662	6582.054
#3	7689.522	116483.8	9303.363	5825.543	6584.898

Sample Name: PB170288BL Acquired: 10/29/2025 15:04:07 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.002318	-.000050	.0004078	.0023764	-.002672	.0086511
Stddev	.000839	.000921	.0008279	.0011825	.001015	.0064302
%RSD	36.20721	1825.030	203.0208	49.75857	37.98846	74.32785

#1	-.003166	.000756	.0010353	.0037357	-.003395	.0024962
#2	-.001487	-.001054	-.000531	.0015852	-.001512	.0081320
#3	-.002302	.000146	.000719	.0018083	-.003109	.0153252

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045987	-.000021	-.000022	-.003315	.0001667	-.000135
Stddev	.0016273	.000014	.000055	.002750	.0004160	.000166
%RSD	35.38624	67.41069	252.0484	82.95655	249.6128	122.6564

#1	.0061031	-.000027	.000025	-.005273	.0003063	-.000316
#2	.0048216	-.000031	-.000082	-.000171	.0004949	.000010
#3	.0028714	-.000005	-.000008	-.004500	-.000301	-.000099

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000510	.0147515	.0007066	-.020291	-.000018	-.000054
Stddev	.000533	.0037776	.0004054	.035405	.000130	.000197
%RSD	104.4872	25.60799	57.37624	174.4816	712.2234	363.5605

#1	-.000348	.0184781	.0006965	-.047466	.000055	-.000049
#2	-.000077	.0148514	.0011169	.019747	.000059	-.000253
#3	-.001104	.0109250	.0003063	-.033156	-.000169	.000140

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0923677	-.001522	.0001948	.1307896	-.008169	.0006468
Stddev	.0102671	.000477	.0001082	.0415615	.000240	.0001601
%RSD	11.11551	31.37608	55.56677	31.77740	2.934113	24.74720

#1	.0828895	-.001854	.0000711	.1422611	-.008322	.0006106
#2	.0909395	-.000975	.0002720	.0846971	-.007893	.0005079
#3	.1032742	-.001736	.0002413	.1654106	-.008293	.0008218

Sample Name: PB170288BL Acquired: 10/29/2025 15:04:07 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0223766	-.000951	-.008247	-.001376	F -.012442	-.001859
Stddev	.0002259	.000588	.007540	.000794	.001836	.001726
%RSD	1.009701	61.78572	91.43066	57.73086	14.75993	92.85903

#1	.0221915	-.000931	-.002577	-.001011	-.014487	-.000790
#2	.0223101	-.000374	-.005360	-.000829	-.010935	-.003850
#3	.0226284	-.001548	-.016804	-.002286	-.011903	-.000936

Elem	Sr4077
Units	ppm
Avg	.0000608
Stddev	.0000348
%RSD	57.19485

#1	.0000632
#2	.0000249
#3	.0000944

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6043.569	93742.16	6943.594	4670.690	7635.322
Stddev	9.167	293.63	9.530	17.655	16.361
%RSD	.1516765	.3132268	.1372419	.3779973	.2142771

#1	6046.870	93671.77	6935.328	4653.708	7623.545
#2	6050.628	93490.14	6941.437	4669.415	7654.003
#3	6033.209	94064.59	6954.017	4688.949	7628.417

Sample Name: PB170288BS Acquired: 10/29/2025 15:08:28 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.7620905	1.694395	.9137911	1.892373	.7905048	1.860064	.1912345
Stddev	.0014477	.029061	.0009404	.009317	.0018772	.006285	.0007233
%RSD	.1899627	1.715137	.1029118	.4923334	.2374691	.3379035	.3782285

#1	.7604512	1.660922	.9129682	1.883573	.7906337	1.855715	.1905894
#2	.7631933	1.709083	.9148161	1.891414	.7885664	1.857206	.1920164
#3	.7626272	1.713181	.9135888	1.902132	.7923142	1.867270	.1910975

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1987431	.1827363	.9770242	.3951942	.1878646	.2995271	2.853953
Stddev	.0003698	.0003951	.0065194	.0006361	.0006768	.0005024	.014568
%RSD	.1860504	.2161997	.6672750	.1609588	.3602354	.1677439	.5104428

#1	.1984909	.1823875	.9698112	.3949696	.1871326	.2993356	2.855081
#2	.1991676	.1826562	.9787647	.3959121	.1884674	.2991486	2.838855
#3	.1985708	.1831653	.9824968	.3947008	.1879938	.3000971	2.867925

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1940979	1.944071	.4729017	.0744888	2.888597	.2906033	.1985527
Stddev	.0007159	.015311	.0010776	.0003871	.014612	.0051351	.0007022
%RSD	.3688457	.7875828	.2278626	.5196620	.5058442	1.767064	.3536496

#1	.1934038	1.943797	.4716977	.0749356	2.872477	.2965294	.1984896
#2	.1940562	1.928899	.4732319	.0742532	2.892342	.2874646	.1978843
#3	.1948338	1.959517	.4737755	.0742777	2.900971	.2878160	.1992844

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.284039	.2835702	.3977337	.6779923	.1893814	.8279406	5.425842
Stddev	.025860	.0007978	.0013365	.0018924	.0023967	.0107503	.015342
%RSD	.2785406	.2813419	.3360239	.2791112	1.265525	1.298435	.2827597

#1	9.258881	.2831863	.3965792	.6759227	.1868087	.8266448	5.409320
#2	9.282688	.2844874	.3974241	.6796343	.1897844	.8178970	5.439639
#3	9.310548	.2830370	.3991979	.6784198	.1915510	.8392801	5.428567

Sample Name: PB170288BS Acquired: 10/29/2025 15:08:28 Type: Unk
Method: 6010-200.7 NEW(v324) 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 -.012574	.1829055	.1883175
Stddev	.002259	.0010211	.0006620
%RSD	17.96707	.5582531	.3515262

#1	-.011999	.1830327	.1875907
#2	-.015066	.1818269	.1888859
#3	-.010659	.1838571	.1884760

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6182.525	95636.54	7158.427	4750.042	7493.713
Stddev	3.976	226.62	26.618	22.693	9.601
%RSD	.0643087	.2369564	.3718411	.4777328	.1281181

#1	6186.767	95896.65	7186.391	4756.270	7502.347
#2	6178.883	95531.24	7133.398	4768.970	7483.374
#3	6181.924	95481.73	7155.493	4724.885	7495.418

Sample Name: Q3447-05DL2X10 Acquired: 10/29/2025 15:12:31 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0728251	-.003256	172.3876	-.003353	1.892524	2.973401
Stddev	.0026063	.001403	1.1196	.001960	.006698	.018362
%RSD	3.578920	43.10720	.6494931	58.46747	.3538993	.6175258

#1	.0703795	-.004471	172.8042	-.003458	1.891486	2.955011
#2	.0755669	-.003577	173.2392	-.001342	1.899680	2.991734
#3	.0725287	-.001720	171.1194	-.005258	1.886406	2.973459

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1486370	.0013312	.0186095	3.849986	.0233770	.0173752
Stddev	.0006879	.0000223	.0001123	.017657	.0003645	.0001299
%RSD	.4627862	1.677211	.6034957	.4586278	1.559002	.7476440

#1	.1483783	.0013347	.0186131	3.857462	.0230238	.0175252
#2	.1481161	.0013074	.0187199	3.862675	.0233555	.0172983
#3	.1494168	.0013516	.0184954	3.829821	.0237517	.0173021

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	48.21511	68.05977	.3041705	.7795179	.1807148	.0297758
Stddev	.06448	.59186	.0019827	.0180466	.0005495	.0002241
%RSD	.1337358	.8696142	.6518496	2.315102	.3040807	.7524498

#1	48.22806	67.85032	.3064519	.7959092	.1809639	.0299988
#2	48.27214	67.60111	.3028636	.7601789	.1810956	.0295507
#3	48.14514	68.72787	.3031960	.7824656	.1800848	.0297777

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7090567	.1972214	2.538196	.7013034	.0330450	.0042226
Stddev	.0194778	.0038443	.010692	.0251248	.0036753	.0002308
%RSD	2.746999	1.949224	.4212555	3.582590	11.12203	5.464719

#1	.6911270	.1978910	2.539985	.6785465	.0322657	.0044420
#2	.7062623	.1930863	2.526722	.6970982	.0298219	.0042438
#3	.7297808	.2006869	2.547881	.7282655	.0370475	.0039820

Sample Name: Q3447-05DL2X10 Acquired: 10/29/2025 15:12:31 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 55.04298	.0725388	.4409335	.2556666	F 10.08136	.0043978
Stddev	.05580	.0011335	.0144138	.0041697	.03409	.0006741
%RSD	.1013681	1.562668	3.268929	1.630911	.3381101	15.32882
#1	55.10186	.0723277	.4281714	.2528872	10.04833	.0051439
#2	54.99089	.0737630	.4380622	.2536515	10.07935	.0042168
#3	55.03619	.0715256	.4565668	.2604610	10.11641	.0038326

Elem	Sr4077
Units	ppm
Avg	-.043224
Stddev	.000667
%RSD	1.543409
#1	-.043194
#2	-.042572
#3	-.043905

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5993.420	94112.27	7325.048	4536.424	7306.697
Stddev	21.753	936.87	33.706	57.481	18.181
%RSD	.3629547	.9954824	.4601432	1.267107	.2488220
#1	5979.246	94425.94	7286.927	4539.775	7293.525
#2	5982.548	94852.07	7350.905	4592.157	7299.127
#3	6018.466	93058.82	7337.310	4477.341	7327.440

Sample Name: Q3466-02 Acquired: 10/29/2025 15:16:45 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0752489	-.010458	9.012527	.0031142	.0003314	92.66910	2.544743
Stddev	.0022087	.003284	.004037	.0015893	.0013667	1.21273	.034490
%RSD	2.935155	31.39978	.0447905	51.03406	412.4062	1.308664	1.355351

#1	.0777014	-.011753	9.014138	.0018973	.0016144	91.46259	2.505668
#2	.0734166	-.012896	9.015510	.0049122	.0004856	93.88795	2.570944
#3	.0746287	-.006724	9.007934	.0025329	-.001106	92.65678	2.557618

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0079671	.0064320	57.87402	.2615824	.0808045	.7377949	198.5194
Stddev	.0003395	.0009702	.63825	.0019828	.0001381	.0042105	9.5176
%RSD	4.261609	15.08370	1.102824	.7580017	.1708662	.5706820	4.794268

#1	.0083533	.0075441	57.18724	.2636797	.0808752	.7426475	187.6523
#2	.0078327	.0059928	58.44896	.2613290	.0806454	.7356265	202.5340
#3	.0077154	.0057591	57.98588	.2597385	.0808929	.7351105	205.3718

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.806034	32.41049	.2199112	.0028436	3.534835	.3497669	3.538784
Stddev	.057594	.29579	.0001996	.0037384	.189139	.0051813	.003841
%RSD	.8462228	.9126387	.0907822	131.4671	5.350706	1.481365	.1085442

#1	6.742746	32.17644	.2197851	-.001460	3.316464	.3439007	3.543217
#2	6.855372	32.74294	.2198070	.004699	3.641042	.3537185	3.536439
#3	6.819982	32.31208	.2201413	.005292	3.647000	.3516815	3.536696

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.767600	.1286760	.0089992	.0957109	2.386504	3.135220	7.913166
Stddev	.350015	.0498245	.0001225	.0017319	.026956	.165543	.032001
%RSD	5.171929	38.72089	1.361260	1.809467	1.129528	5.280093	.4044060

#1	6.363569	.0724977	.0091374	.0976975	2.357762	2.944170	7.947712
#2	6.978588	.1460190	.0089038	.0949153	2.411223	3.225343	7.884534
#3	6.960641	.1675113	.0089565	.0945197	2.390528	3.236148	7.907254

Sample Name: Q3466-02 Acquired: 10/29/2025 15:16:45 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.907847	.1382513	.1211008
Stddev	.038123	.0037936	.0050230
%RSD	.7767749	2.743984	4.147793
#1	4.949603	.1338963	.1256722
#2	4.874899	.1400200	.1219066
#3	4.899040	.1408375	.1157236

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6591.010	100543.9	7673.486	5026.836	6790.072
Stddev	10.706	519.2	290.427	19.754	8.654
%RSD	.1624264	.5163704	3.784807	.3929640	.1274568
#1	6597.833	101075.9	7358.474	5040.432	6794.980
#2	6578.671	100038.6	7731.378	5035.899	6780.079
#3	6596.525	100517.3	7930.607	5004.177	6795.156

Sample Name: Q3466-05 Acquired: 10/29/2025 15:20:49 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0515651	-.025703	.8044800	.0043777	-.012417	138.1328
Stddev	.0009804	.004976	.0017027	.0044882	.001056	.0782
%RSD	1.901264	19.35969	.2116554	102.5257	8.506176	.0566183

#1	.0514231	-.031413	.8063022	.0043878	-.013454	138.2130
#2	.0526088	-.023396	.8029295	.0088608	-.011342	138.1287
#3	.0506635	-.022299	.8042082	-.000116	-.012454	138.0567

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6647035	.0110206	.0127478	22.48433	.2334810	.1093119
Stddev	.0025625	.0000292	.0000949	.02194	.0007413	.0002199
%RSD	.3855172	.2652855	.7443425	.0975674	.3174808	.2011890

#1	.6650997	.0110118	.0128408	22.50883	.2337347	.1095463
#2	.6619659	.0109969	.0127516	22.46650	.2340621	.1091101
#3	.6670449	.0110533	.0126511	22.47767	.2326462	.1092793

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4274742	236.6259	4.066119	38.63285	.1970919	.0031669
Stddev	.0022607	1.9051	.009054	.04166	.0005452	.0005856
%RSD	.5288405	.8051060	.2226604	.1078233	.2766002	18.49126

#1	.4300513	234.5922	4.061540	38.60603	.1966815	.0026703
#2	.4258259	236.9165	4.060269	38.61168	.1977105	.0030177
#3	.4265454	238.3689	4.076547	38.68084	.1968838	.0038126

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.523897	.3392549	2.321817	19.03700	.1427700	.0619914
Stddev	.019528	.0032361	.006362	.13034	.0071337	.0001084
%RSD	.5541687	.9538808	.2740256	.6846405	4.996664	.1749005

#1	3.502650	.3357895	2.321258	18.92234	.1353146	.0620285
#2	3.527979	.3421981	2.328441	19.00992	.1434641	.0618693
#3	3.541061	.3397770	2.315753	19.17875	.1495313	.0620764

Sample Name: Q3466-05 Acquired: 10/29/2025 15:20:49 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0324300	5.433753	2.547040	F 11.76285	2.891994	.1691617
Stddev	.0002464	.010663	.029748	.03973	.018655	.0015471
%RSD	.7598506	.1962288	1.167929	.3377588	.6450435	.9145430
#1	.0322169	5.426055	2.513161	11.72597	2.874315	.1698698
#2	.0326999	5.429280	2.568885	11.75766	2.890175	.1673874
#3	.0323732	5.445923	2.559075	11.80492	2.911491	.1702281

Elem	Sr4077
Units	ppm
Avg	-.135708
Stddev	.001700
%RSD	1.252459
#1	-.133883
#2	-.135995
#3	-.137246

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7257.662	109815.9	8591.798	5521.034	6846.258
Stddev	6.501	435.4	31.809	40.749	10.590
%RSD	.0895763	.3964883	.3702291	.7380674	.1546815
#1	7259.170	110263.7	8572.828	5534.009	6847.818
#2	7263.278	109394.0	8574.046	5475.377	6855.982
#3	7250.540	109790.1	8628.522	5553.715	6834.975

Sample Name: Q3466-07 Acquired: 10/29/2025 15:24:52 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0440045	-.019433	.4197015	-.002383	-.012071	65.85381	.3309380
Stddev	.0016359	.000721	.0019238	.002716	.000510	.18121	.0021394
%RSD	3.717476	3.711285	.4583682	113.9614	4.222251	.2751744	.6464522

#1	.0440800	-.019608	.4174813	-.004324	-.012659	65.78013	.3329508
#2	.0456012	-.018641	.4207492	.000721	-.011800	66.06026	.3311719
#3	.0423321	-.020051	.4208741	-.003546	-.011754	65.72105	.3286913

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0075825	.0034629	17.42254	.1445281	.0788312	.2350582	164.2035
Stddev	.0000296	.0000177	.03704	.0007176	.0002621	.0003328	.2824
%RSD	.3902671	.5101502	.2125840	.4964971	.3324495	.1415721	.1719634

#1	.0076132	.0034505	17.42184	.1453111	.0785476	.2347400	164.2597
#2	.0075802	.0034831	17.45992	.1439018	.0790644	.2350308	163.8973
#3	.0075542	.0034550	17.38586	.1443715	.0788815	.2354038	164.4536

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.319732	24.56933	.1481224	.0004227	4.399251	.2116453	.4312487
Stddev	.013026	.06632	.0005220	.0006669	.032239	.0037468	.0005625
%RSD	.5615373	.2699455	.3523923	157.7668	.7328320	1.770307	.1304282

#1	2.334081	24.63512	.1476172	-.000343	4.377286	.2123184	.4306106
#2	2.316466	24.57038	.1486596	.000874	4.384204	.2150100	.4316726
#3	2.308650	24.50249	.1480903	.000737	4.436262	.2076077	.4314629

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	18.45641	.1073746	.0076800	.0095998	5.291564	2.115245	4.013358
Stddev	.07867	.0003683	.0001169	.0006525	.021356	.027915	.004188
%RSD	.4262735	.3430038	1.521907	6.796695	.4035941	1.319694	.1043462

#1	18.51003	.1075781	.0075913	.0090824	5.310330	2.091108	4.013863
#2	18.36609	.1069494	.0076364	.0103328	5.296036	2.108812	4.008940
#3	18.49311	.1075962	.0078125	.0093843	5.268325	2.145814	4.017270

Sample Name: Q3466-07 Acquired: 10/29/2025 15:24:52 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.468878	.1454791	-.106594
Stddev	.008398	.0013748	.000524
%RSD	.3401638	.9450237	.4918592

#1	2.459256	.1469358	-.106992
#2	2.474736	.1452971	-.106000
#3	2.472641	.1442043	-.106790

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7708.335	118467.4	9266.770	5923.323	6979.042
Stddev	8.431	232.3	48.321	17.730	3.967
%RSD	.1093743	.1960781	.5214469	.2993260	.0568373

#1	7702.389	118336.6	9218.905	5902.853	6975.096
#2	7704.632	118735.6	9265.870	5933.248	6979.002
#3	7717.984	118330.0	9315.534	5933.868	6983.029

Sample Name: CCV02 Acquired: 10/29/2025 15:43:38 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.836340	4.744967	4.821642	4.785505	4.870936	9.401027	9.613775
Stddev	.002590	.199782	.005902	.014926	.009062	.005114	.060084
%RSD	.0535450	4.210404	.1224113	.3118990	.1860413	.0543941	.6249755

#1	4.833373	4.883857	4.824210	4.782721	4.864066	9.406883	9.545153
#2	4.838146	4.835037	4.814891	4.801627	4.867535	9.398753	9.639234
#3	4.837501	4.516006	4.825826	4.772167	4.881206	9.397445	9.656938

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2431206	2.417618	24.06137	.9878131	2.421261	1.222553	4.872745
Stddev	.0018012	.002658	.08231	.0008249	.004142	.002304	.016055
%RSD	.7408870	.1099509	.3420818	.0835063	.1710483	.1884386	.3294760

#1	.2435360	2.418817	24.01992	.9883405	2.421603	1.221866	4.888845
#2	.2446778	2.414572	24.15617	.9882363	2.416959	1.220671	4.856736
#3	.2411479	2.419466	24.00803	.9868625	2.425221	1.225123	4.872654

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.393808	24.19286	2.426560	1.226314	23.91114	2.402141	2.443836
Stddev	.016795	.09014	.003842	.002422	.08743	.004116	.006247
%RSD	.7015906	.3726051	.1583457	.1974810	.3656288	.1713654	.2556277

#1	2.391798	24.22759	2.427096	1.229079	23.91463	2.401819	2.449153
#2	2.411518	24.26047	2.422478	1.225293	23.82203	2.406409	2.436956
#3	2.378109	24.09051	2.430106	1.224569	23.99678	2.398195	2.445400

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.96085	4.846944	4.908345	4.861885	4.810688	4.854844	4.933835
Stddev	.02377	.043453	.002899	.007640	.021624	.015962	.004640
%RSD	.0991925	.8965049	.0590673	.1571446	.4494895	.3287791	.0940463

#1	23.93405	4.865140	4.907512	4.870172	4.809104	4.848237	4.938369
#2	23.97939	4.878341	4.905954	4.860360	4.833061	4.843246	4.934041
#3	23.96910	4.797351	4.911570	4.855122	4.789901	4.873048	4.929096

Sample Name: CCV02 Acquired: 10/29/2025 15:43:38 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.679236	4.530873	4.915666
Stddev	.031406	.024765	.085150
%RSD	.6711813	.5465862	1.732220
#1	4.705606	4.518197	4.850031
#2	4.687610	4.559410	5.011884
#3	4.644491	4.515012	4.885084

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6149.065	94368.34	7240.876	4756.792	6967.700
Stddev	14.948	118.71	40.016	24.570	20.427
%RSD	.2430858	.1257906	.5526451	.5165182	.2931678
#1	6146.809	94234.18	7241.373	4766.918	6956.735
#2	6165.012	94459.73	7200.614	4774.680	6991.269
#3	6135.374	94411.12	7280.642	4728.777	6955.098

Sample Name: CCB02 Acquired: 10/29/2025 15:48:10 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.000715	.0014658	-.000296	.0045006	-.003702	.0090276	.0048320
Stddev	.002065	.0008647	.000363	.0021339	.000891	.0055134	.0003441
%RSD	288.9552	58.99358	122.8645	47.41415	24.06726	61.07256	7.121105

#1	-.000198	.0009897	.000000	.0022677	-.002685	.0026692	.0047489
#2	.001043	.0024639	-.000701	.0047145	-.004078	.0119325	.0052100
#3	-.002989	.0009437	-.000186	.0065195	-.004343	.0124812	.0045370

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000017	-.000015	-.004068	-.000116	-.000035	-.000263	-.005172
Stddev	.000013	.000054	.011968	.000248	.000221	.000566	.001722
%RSD	78.70182	370.4984	294.1817	212.9815	626.1105	215.6007	33.29562

#1	-.000019	-.000071	.008312	-.000370	.000140	-.000177	-.005569
#2	-.000029	-.000009	-.015577	.000126	-.000283	-.000867	-.003286
#3	-.000003	.000036	-.004940	-.000105	.000038	.000256	-.006661

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007553	-.010144	-.000212	-.000038	-.044270	-.001983	-.000033
Stddev	.0000789	.016958	.000218	.000463	.020864	.000728	.000136
%RSD	10.43865	167.1716	102.7107	1211.221	47.12946	36.68485	409.2418

#1	.0008152	-.029362	-.000118	.000486	-.059297	-.001789	.000124
#2	.0007849	.002717	-.000462	-.000390	-.053065	-.002789	-.000104
#3	.0006660	-.003787	-.000057	-.000210	-.020448	-.001373	-.000120

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0332867	.0008584	.0000666	.0020162	-.001045	.0040230	-.001149
Stddev	.0136254	.0002425	.0001115	.0002929	.000313	.0059908	.001383
%RSD	40.93358	28.24445	167.3966	14.52717	29.96341	148.9154	120.4045

#1	.0221149	.0007833	.0001919	.0020982	-.000690	.0080647	-.002377
#2	.0292785	.0006624	.0000295	.0016911	-.001284	.0068641	-.001418
#3	.0484666	.0011295	-.000022	.0022594	-.001160	-.002860	.000349

Sample Name: CCB02 Acquired: 10/29/2025 15:48:10 Type: Unk
Method: 6010-200.7 NEW(v324) 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 -.015940	-.004259	.0001563
Stddev	.001863	.001272	.0000661
%RSD	11.68813	29.85613	42.26385
#1	-.017153	-.003153	.0002296
#2	-.016873	-.003975	.0001378
#3	-.013795	-.005648	.0001014

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6103.046	94045.97	7130.710	4686.791	7643.851
Stddev	10.424	465.67	40.756	19.469	15.454
%RSD	.1708070	.4951548	.5715606	.4154029	.2021774
#1	6091.438	94506.74	7084.872	4680.980	7627.573
#2	6106.089	93575.54	7144.395	4670.890	7645.659
#3	6111.610	94055.63	7162.862	4708.505	7658.322

Sample Name: Q3469-01 Acquired: 10/29/2025 15:52:04 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0310667	-.026951	.1084932	-.001212	-.013828	83.98836	.2972025
Stddev	.0009530	.001749	.0010596	.001839	.000478	.22007	.0001545
%RSD	3.067535	6.489336	.9766723	151.7861	3.454209	.2620290	.0519957

#1	.0301358	-.028779	.1095739	-.002170	-.013842	83.76061	.2973801
#2	.0310238	-.026779	.1074560	-.002374	-.014299	84.19985	.2970985
#3	.0320403	-.025294	.1084498	.000909	-.013344	84.00461	.2971289

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0072587	.0013395	11.60874	.1165181	.0661841	.3357299	161.4979
Stddev	.0000093	.0001049	.01802	.0002355	.0002019	.0014339	1.3128
%RSD	.1278973	7.832491	.1552464	.2021057	.3050052	.4271031	.8128618

#1	.0072670	.0012876	11.62947	.1165913	.0660435	.3359068	161.8554
#2	.0072605	.0014602	11.59997	.1167083	.0664154	.3370671	160.0434
#3	.0072487	.0012706	11.59679	.1162547	.0660935	.3342157	162.5948

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.019007	23.75261	.1331860	.0024432	6.719669	.1842745	.2817567
Stddev	.003111	.03343	.0006825	.0007196	.044274	.0006712	.0001592
%RSD	.0774047	.1407602	.5124473	29.45103	.6588727	.3642395	.0564994

#1	4.020694	23.76594	.1324243	.0026980	6.725021	.1846487	.2818829
#2	4.015417	23.77732	.1337420	.0016309	6.672963	.1834996	.2818093
#3	4.020910	23.71457	.1333917	.0030007	6.761024	.1846751	.2815778

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.649012	.1292403	.0003448	.0048394	1.932659	2.883241	4.379914
Stddev	.039532	.0068385	.0000648	.0000954	.002534	.015131	.006791
%RSD	.4570678	5.291307	18.79385	1.972047	.1310903	.5247930	.1550398

#1	8.663630	.1296692	.0003159	.0048474	1.930520	2.898047	4.376223
#2	8.604253	.1221975	.0004190	.0047402	1.932000	2.867805	4.375768
#3	8.679153	.1358543	.0002994	.0049306	1.935457	2.883871	4.387751

Sample Name: Q3469-01 Acquired: 10/29/2025 15:52:04 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0605778	.1224124	-.012424
Stddev	.0028291	.0022734	.001350
%RSD	4.670107	1.857189	10.86655
#1	.0573828	.1232641	-.013499
#2	.0615858	.1241371	-.010909
#3	.0627647	.1198362	-.012864

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7141.975	108531.1	8412.121	5410.749	7144.832
Stddev	10.932	707.4	53.356	26.229	6.637
%RSD	.1530660	.6517667	.6342782	.4847651	.0928958
#1	7149.354	107757.0	8371.262	5399.845	7151.996
#2	7129.416	109144.0	8392.617	5440.671	7138.892
#3	7147.156	108692.1	8472.486	5391.730	7143.607

Sample Name: Q3469-01DUP Acquired: 10/29/2025 15:56:07 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0305610	-.027726	.1042898	-.000776	-.013809	78.05788	.2687169
Stddev	.0003714	.004535	.0016545	.002148	.001482	.11655	.0010919
%RSD	1.215184	16.35542	1.586425	276.5670	10.72885	.1493133	.4063223
#1	.0301584	-.023952	.1058642	-.002291	-.012296	77.97551	.2694683
#2	.0308902	-.032756	.1025655	-.001720	-.013874	78.00690	.2692181
#3	.0306345	-.026468	.1044397	.001681	-.015256	78.19124	.2674645
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0066985	.0009264	11.03025	.1265985	.0655448	.3282785	159.4195
Stddev	.0000585	.0000498	.02937	.0002824	.0001470	.0014363	1.0916
%RSD	.8731238	5.376163	.2662767	.2230324	.2242955	.4375276	.6847495
#1	.0066328	.0008798	11.01188	.1267005	.0657014	.3268261	160.6800
#2	.0067449	.0009207	11.06413	.1268156	.0654098	.3283111	158.7858
#3	.0067179	.0009789	11.01476	.1262793	.0655232	.3296982	158.7928
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.601633	20.98043	.1279151	.0030304	6.399305	.1934698	.2631251
Stddev	.007217	.07349	.0002424	.0005705	.038206	.0021803	.0013515
%RSD	.2003705	.3502839	.1895183	18.82438	.5970350	1.126923	.5136285
#1	3.605809	20.91272	.1279613	.0035884	6.437906	.1935047	.2626163
#2	3.605791	21.05859	.1281311	.0024483	6.361507	.1912723	.2621019
#3	3.593300	20.96997	.1276529	.0030544	6.398500	.1956324	.2646572
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.125374	.1492471	.0006037	.0103018	1.817762	3.334136	4.344155
Stddev	.047436	.0062704	.0000206	.0001198	.002213	.044750	.020126
%RSD	.5198284	4.201377	3.405779	1.162523	.1217256	1.342175	.4632927
#1	9.179569	.1562391	.0005851	.0101640	1.817843	3.385039	4.320952
#2	9.091393	.1441226	.0006004	.0103802	1.819933	3.316380	4.356896
#3	9.105159	.1473794	.0006258	.0103613	1.815510	3.300989	4.354616

Sample Name: Q3469-01DUP Acquired: 10/29/2025 15:56:07 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0362037	.1089733	-.012185
Stddev	.0011013	.0019061	.001169
%RSD	3.042006	1.749168	9.595688

#1	.0351096	.1068735	-.013488
#2	.0361894	.1105945	-.011841
#3	.0373121	.1094519	-.011227

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6991.532	107030.8	8637.944	5309.210	7013.448
Stddev	3.419	565.4	10.521	26.029	1.817
%RSD	.0489043	.5282195	.1218042	.4902529	.0259127

#1	6992.989	106409.0	8650.093	5315.003	7013.685
#2	6993.981	107513.8	8631.895	5331.854	7015.135
#3	6987.626	107169.6	8631.844	5280.773	7011.523

Sample Name: Q3469-01LX5 Acquired: 10/29/2025 16:00:11 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0063650	-.015802	.0228306	-.000180	-.005640	19.39392	.0703860
Stddev	.0005257	.002620	.0015269	.001807	.001357	.02396	.0001767
%RSD	8.258831	16.58013	6.687836	1006.290	24.06665	.1235525	.2509971

#1	.0059452	-.014928	.0210680	.000548	-.005302	19.37387	.0704403
#2	.0069546	-.013731	.0237488	.001151	-.004484	19.42046	.0701886
#3	.0061953	-.018747	.0236749	-.002237	-.007135	19.38743	.0705292

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017224	-.000181	2.684956	.0261354	.0134616	.0816593	36.82972
Stddev	.0000634	.000080	.004105	.0003044	.0000360	.0003065	.10560
%RSD	3.682341	44.08381	.1529015	1.164851	.2677452	.3752984	.2867329

#1	.0017943	-.000252	2.688618	.0264807	.0134227	.0817663	36.84504
#2	.0016746	-.000196	2.685731	.0259059	.0134682	.0813136	36.71730
#3	.0016981	-.000094	2.680518	.0260195	.0134938	.0818978	36.92683

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9388466	5.456988	.0273160	.0004564	1.443745	.0455311	.0644101
Stddev	.0052277	.037814	.0003216	.0001976	.006734	.0044273	.0003252
%RSD	.5568268	.6929461	1.177325	43.29641	.4664030	9.723648	.5049411

#1	.9387806	5.448414	.0275051	.0006685	1.443185	.0460674	.0646197
#2	.9441070	5.498352	.0269447	.0004232	1.437308	.0496658	.0640354
#3	.9336521	5.424197	.0274982	.0002775	1.450741	.0408601	.0645752

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.816279	.0263040	.0005741	.0196440	.4428385	.7109243	.8947018
Stddev	.009420	.0007273	.0001804	.0004684	.0087465	.0031051	.0002748
%RSD	.5186347	2.764825	31.42908	2.384682	1.975098	.4367679	.0307106

#1	1.806693	.0268011	.0005163	.0201559	.4423272	.7073392	.8948685
#2	1.825523	.0266416	.0004296	.0192366	.4518295	.7127627	.8948523
#3	1.816621	.0254693	.0007763	.0195397	.4343589	.7126709	.8943847

Sample Name: Q3469-01LX5 Acquired: 10/29/2025 16:00:11 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0005063	.0290125	-.001884
Stddev	.0030265	.0007190	.000060
%RSD	597.7739	2.478327	3.162027

#1	-.002092	.0295782	-.001832
#2	-.000219	.0282034	-.001872
#3	.003830	.0292559	-.001949

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6316.071	97520.28	7418.537	4885.111	7337.762
Stddev	11.799	291.23	20.339	21.783	7.413
%RSD	.1868129	.2986345	.2741579	.4459036	.1010292

#1	6326.720	97347.49	7411.707	4860.721	7341.544
#2	6318.106	97856.52	7402.492	4902.628	7342.521
#3	6303.386	97356.82	7441.411	4891.985	7329.220

Sample Name: Q3469-01MS Acquired: 10/29/2025 16:04:21 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.7135194	1.966248	1.081277	1.634370	.3649145	103.6441
Stddev	.0032607	.051475	.002974	.008047	.0034799	.3341
%RSD	.4569842	2.617933	.2750425	.4923666	.9536256	.3223391

#1	.7103336	1.955642	1.084065	1.635162	.3663130	103.3685
#2	.7168501	1.920902	1.078146	1.625957	.3674776	104.0156
#3	.7133746	2.022200	1.081620	1.641993	.3609529	103.5481

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4875541	.1805190	.1974433	13.99095	.4890866	.2790142
Stddev	.0021963	.0010801	.0001153	.03639	.0007156	.0004504
%RSD	.4504641	.5983419	.0583826	.2601192	.1463183	.1614236

#1	.4896607	.1806616	.1975380	13.96721	.4893009	.2790574
#2	.4877234	.1815207	.1973149	14.03285	.4882883	.2785438
#3	.4852780	.1793746	.1974769	13.97280	.4896706	.2794415

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6379783	200.8170	4.359948	26.83800	.6518982	.0701248
Stddev	.0011151	.8072	.019721	.05938	.0017079	.0000788
%RSD	.1747900	.4019569	.4523195	.2212479	.2619902	.1123156

#1	.6367189	201.1455	4.377117	26.77883	.6509137	.0701622
#2	.6383758	199.8973	4.364320	26.83757	.6509105	.0700343
#3	.6388403	201.4081	4.338409	26.89759	.6538703	.0701778

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.922557	.4640863	.4880631	19.50244	.4047170	.3469124
Stddev	.030343	.0025871	.0014745	.07813	.0028893	.0007332
%RSD	.3057980	.5574515	.3021157	.4006238	.7139069	.2113408

#1	9.903765	.4648339	.4866852	19.56222	.4035138	.3462434
#2	9.906343	.4662173	.4878858	19.41403	.4026238	.3467975
#3	9.957562	.4612078	.4896182	19.53108	.4080135	.3476962

Sample Name: Q3469-01MS Acquired: 10/29/2025 16:04:21 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6766249	2.255553	4.545537	F 11.37902	.0265100	.3029559
Stddev	.0033942	.004648	.024318	.04693	.0017610	.0014557
%RSD	.5016305	.2060832	.5349850	.4124501	6.642597	.4805091

#1	.6731329	2.256285	4.538631	11.40477	.0254615	.3032180
#2	.6768298	2.259792	4.525419	11.32484	.0285430	.3042628
#3	.6799120	2.250582	4.572561	11.40743	.0255254	.3013869

Elem	Sr4077
Units	ppm
Avg	.1456602
Stddev	.0024318
%RSD	1.669528

#1	.1435610
#2	.1483250
#3	.1450945

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6957.894	106972.5	8335.869	5367.083	6713.758
Stddev	6.499	103.1	48.961	22.220	.321
%RSD	.0934076	.0963380	.5873546	.4140115	.0047782

#1	6961.439	107090.9	8334.435	5386.897	6713.902
#2	6950.393	106923.4	8287.640	5371.292	6713.981
#3	6961.849	106903.2	8385.531	5343.059	6713.391

Sample Name: Q3469-01MSD Acquired: 10/29/2025 16:08:18 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6805368	1.824388	.9970367	1.582292	.3618266	87.38679	.4454181
Stddev	.0011970	.045557	.0045718	.007903	.0020208	.17082	.0007301
%RSD	.1758840	2.497114	.4585366	.4994647	.5584902	.1954726	.1639086

#1	.6791656	1.816590	.9926768	1.574377	.3598673	87.34415	.4458468
#2	.6810725	1.873340	.9966389	1.590183	.3639036	87.24134	.4458325
#3	.6813724	1.783233	1.001794	1.582317	.3617088	87.57489	.4445751

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1678131	.1833750	11.79773	.4448912	.2524160	.5658101	151.7563
Stddev	.0017612	.0008577	.01831	.0003837	.0009672	.0018089	.8415
%RSD	1.049475	.4677218	.1551804	.0862500	.3831681	.3197102	.5545328

#1	.1681254	.1827332	11.77945	.4445800	.2514264	.5649170	151.5495
#2	.1659167	.1830428	11.79765	.4453199	.2524623	.5646214	152.6819
#3	.1693973	.1843491	11.81607	.4447736	.2533591	.5678919	151.0374

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.949773	22.96023	.5867921	.0663400	8.828360	.4155361	.4241587
Stddev	.015024	.14064	.0023274	.0008472	.074643	.0025293	.0016499
%RSD	.3803805	.6125211	.3966331	1.277096	.8454933	.6086756	.3889841

#1	3.948110	22.97274	.5847589	.0665092	8.823198	.4136250	.4228624
#2	3.935650	22.81376	.5862868	.0670898	8.905449	.4145792	.4260159
#3	3.965559	23.09420	.5893306	.0654209	8.756431	.4184043	.4235979

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.59844	.3477325	.3345149	.6361364	1.995133	4.134667	9.679777
Stddev	.05663	.0024125	.0007812	.0021982	.003385	.031916	.023519
%RSD	.3217635	.6937793	.2335244	.3455536	.1696475	.7719219	.2429683

#1	17.55608	.3457083	.3336569	.6336688	1.998059	4.110488	9.653155
#2	17.66275	.3504020	.3347028	.6368548	1.991426	4.170844	9.697733
#3	17.57647	.3470872	.3351849	.6378854	1.995914	4.122669	9.688443

Sample Name: Q3469-01MSD Acquired: 10/29/2025 16:08:18 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0699930	.2604958	.1581644
Stddev	.0066762	.0004525	.0010393
%RSD	9.538452	.1737127	.6570743

#1	.0630146	.2604066	.1573371
#2	.0706451	.2609862	.1578252
#3	.0763192	.2600944	.1593309

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7008.112	107848.3	8567.294	5373.050	6986.242
Stddev	18.637	235.1	65.323	2.548	33.227
%RSD	.2659320	.2179630	.7624748	.0474187	.4756060

#1	7028.759	107746.1	8549.555	5373.969	7019.881
#2	7003.041	107681.6	8639.655	5375.011	6985.404
#3	6992.535	108117.1	8512.672	5370.170	6953.443

Sample Name: Q3469-01A Acquired: 10/29/2025 16:12:16 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6780338	1.776430	.9907441	1.588780	.6560559	84.51206	.4476528
Stddev	.0012714	.025050	.0035863	.003952	.0020192	.12615	.0013516
%RSD	.1875080	1.410112	.3619804	.2487725	.3077782	.1492641	.3019189

#1	.6778475	1.792358	.9919158	1.592980	.6552448	84.39208	.4488625
#2	.6768658	1.789375	.9867185	1.585134	.6583545	84.50052	.4461941
#3	.6793880	1.747556	.9935980	1.588225	.6545684	84.64358	.4479017

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1655419	.1814620	12.32376	.4492782	.2525412	.5783726	165.1321
Stddev	.0005165	.0001879	.03983	.0006559	.0002827	.0013540	1.0352
%RSD	.3120041	.1035684	.3231911	.1459865	.1119231	.2340970	.6268829

#1	.1652017	.1816691	12.31484	.4492586	.2527722	.5770062	165.3152
#2	.1661363	.1813023	12.28915	.4499437	.2522260	.5797138	164.0176
#3	.1652878	.1814146	12.36730	.4486324	.2526254	.5783979	166.0636

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.102007	24.97734	.5959312	.0655533	9.186949	.4222035	.4485398
Stddev	.021592	.06978	.0016962	.0003876	.027273	.0023177	.0005590
%RSD	.5263864	.2793620	.2846211	.5913173	.2968639	.5489640	.1246372

#1	4.090258	24.97266	.5971103	.0653575	9.197059	.4209758	.4479178
#2	4.088837	24.91002	.5939873	.0653026	9.156065	.4248768	.4490004
#3	4.126926	25.04933	.5966958	.0659997	9.207723	.4207578	.4487011

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	16.74277	.3662408	.3452134	.6666863	2.057517	3.957980	9.560356
Stddev	.05535	.0030578	.0005157	.0017469	.007168	.020887	.066797
%RSD	.3305807	.8349011	.1493911	.2620220	.3483850	.5277220	.6986842

#1	16.75265	.3661558	.3446661	.6673246	2.051329	3.977760	9.635559
#2	16.68314	.3632264	.3456902	.6647101	2.055850	3.936138	9.507915
#3	16.79250	.3693402	.3452839	.6680242	2.065372	3.960040	9.537595

Sample Name: Q3469-01A Acquired: 10/29/2025 16:12:16 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0523935	.2696831	.1500770
Stddev	.0016084	.0031661	.0006381
%RSD	3.069892	1.174006	.4251800
#1	.0539070	.2716463	.1498765
#2	.0525690	.2660306	.1507913
#3	.0507046	.2713723	.1495632

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6992.242	107230.5	8500.574	5292.304	6969.377
Stddev	15.780	301.3	20.812	14.277	7.362
%RSD	.2256825	.2809925	.2448286	.2697742	.1056377
#1	7010.288	106906.6	8504.171	5301.084	6974.655
#2	6981.034	107282.7	8478.198	5275.830	6972.510
#3	6985.404	107502.4	8519.353	5299.998	6960.967

Sample Name: PB170264BL Acquired: 10/29/2025 16:16:14 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.000643	-.011750	-.000398	.0013259	-.003898	-.003703
Stddev	.001524	.003760	.000349	.0038558	.000598	.008004
%RSD	237.0931	31.99694	87.83928	290.8028	15.34700	216.1724

#1	-.001121	-.011826	-.000024	.0057694	-.003397	.005056
#2	-.001871	-.007953	-.000716	-.000652	-.003737	-.010637
#3	.001063	-.015471	-.000453	-.001139	-.004560	-.005526

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016283	.0000871	-.000007	-.002481	-.000004	.0002240
Stddev	.0011883	.0000080	.000030	.010460	.000334	.0000654
%RSD	72.97987	9.138621	427.1990	421.6001	9047.183	29.21550

#1	.0021606	.0000954	-.000041	-.013398	-.000303	.0002238
#2	.0024575	.0000863	.000015	.007453	.000357	.0001586
#3	.0002669	.0000795	.000006	-.001499	-.000065	.0002895

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000018	.0000047	.0000725	-.015001	.0000521	-.000428
Stddev	.000109	.0133829	.0001012	.011204	.0001799	.000278
%RSD	594.9250	284323.1	139.4998	74.69106	345.2601	64.92893

#1	-.000064	.0154514	.0000363	-.023260	-.000148	-.000711
#2	.000106	-.007331	-.000006	-.019495	.000201	-.000418
#3	-.000097	-.008106	.000187	-.002247	.000103	-.000155

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.076153	.0035786	.0000115	-.123973	-.007818	.0007962
Stddev	.003360	.0034516	.0002087	.022740	.000135	.0002195
%RSD	4.412704	96.45105	1822.735	18.34280	1.732137	27.57368

#1	-.079276	.0067298	.0000573	-.135973	-.007875	.0005999
#2	-.072597	.0041163	-.000216	-.097746	-.007915	.0007553
#3	-.076586	-.000110	.000193	-.138199	-.007663	.0010332

Sample Name: PB170264BL Acquired: 10/29/2025 16:16:14 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0238592	-.001040	-.006796	.0002561	F -.012513	.0009423
Stddev	.0004768	.000966	.006358	.0014037	.001991	.0010674
%RSD	1.998386	92.89903	93.55296	548.1571	15.91538	113.2760
#1	.0241628	-.002015	.000501	-.000952	-.011662	.0009624
#2	.0241052	-.000083	-.009750	-.000075	-.014788	-.000135
#3	.0233097	-.001021	-.011139	.001796	-.011087	.002000

Elem	Sr4077
Units	ppm
Avg	-.000072
Stddev	.000067
%RSD	92.63933
#1	-.000020
#2	-.000147
#3	-.000049

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6041.030	93707.72	7190.715	4622.753	7606.533
Stddev	14.423	37.49	111.912	9.541	4.726
%RSD	.2387456	.0400076	1.556334	.2063893	.0621359
#1	6055.844	93741.01	7164.472	4631.242	7611.965
#2	6040.213	93715.06	7094.257	4624.590	7604.273
#3	6027.033	93667.11	7313.416	4612.428	7603.360

Sample Name: PB170264BS Acquired: 10/29/2025 16:24:59 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.7661496	1.980723	.9136034	1.929093	.7901148	1.853911	.1869534
Stddev	.0009825	.077745	.0036848	.004864	.0018739	.011317	.0010518
%RSD	.1282419	3.925058	.4033214	.2521640	.2371618	.6104584	.5625930

#1	.7660351	2.045131	.9097110	1.934222	.7879533	1.845831	.1864083
#2	.7671844	2.002675	.9170377	1.928511	.7911104	1.849055	.1862861
#3	.7652294	1.894362	.9140616	1.924546	.7912806	1.866845	.1881659

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1946297	.1826937	.9578718	.3949964	.1880636	.3001500	2.895481
Stddev	.0020997	.0001542	.0097624	.0013200	.0005124	.0005086	.013064
%RSD	1.078823	.0843906	1.019177	.3341813	.2724798	.1694509	.4511694

#1	.1924790	.1825158	.9473232	.3934830	.1875198	.2999799	2.898380
#2	.1947358	.1827773	.9597039	.3955963	.1885375	.2997483	2.906851
#3	.1966744	.1827881	.9665884	.3959098	.1881334	.3007219	2.881211

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1940175	1.940805	.4712709	.0736812	2.781062	.2900542	.1994921
Stddev	.0010984	.037991	.0011917	.0001737	.019159	.0018054	.0004008
%RSD	.5661533	1.957473	.2528644	.2357236	.6889161	.6224519	.2008960

#1	.1936966	1.897277	.4699528	.0738230	2.794299	.2916924	.1992893
#2	.1931152	1.957846	.4715878	.0734875	2.789796	.2903517	.1992332
#3	.1952406	1.967291	.4722721	.0737331	2.759093	.2881185	.1999537

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.188352	.2775951	.4004902	.6828530	.1877773	.8378389	5.441819
Stddev	.041265	.0031075	.0009266	.0017836	.0006375	.0084424	.020192
%RSD	.4490966	1.119424	.2313584	.2611960	.3395092	1.007639	.3710473

#1	9.215429	.2741022	.4006513	.6843421	.1876354	.8475860	5.462341
#2	9.208768	.2786301	.4013256	.6833404	.1872227	.8328258	5.441141
#3	9.140859	.2800529	.3994936	.6808763	.1884738	.8331049	5.421974

Sample Name: PB170264BS Acquired: 10/29/2025 16:24:59 Type: Unk
Method: 6010-200.7 NEW(v324) 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 -.011045	.1864110	.1889266
Stddev	.001202	.0019401	.0004549
%RSD	10.87993	1.040751	.2407935

#1	-.010479	.1842502	.1885083
#2	-.012425	.1869796	.1894109
#3	-.010231	.1880033	.1888605

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6192.755	95829.11	7286.861	4791.921	7509.553
Stddev	11.801	177.72	63.927	25.413	9.078
%RSD	.1905583	.1854539	.8772935	.5303301	.1208866

#1	6188.075	96001.59	7356.248	4817.455	7511.775
#2	6184.012	95646.58	7273.978	4791.677	7499.571
#3	6206.178	95839.16	7230.356	4766.630	7517.314

Sample Name: Q3442-01 Acquired: 10/29/2025 16:29:00 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.002823	-.013547	-.000405	.0045794	-.002260	.0862242	.0081422
Stddev	.000086	.001385	.000921	.0005452	.002177	.0124700	.0004594
%RSD	3.055874	10.22318	227.2025	11.90499	96.35462	14.46233	5.642793

#1	-.002917	-.014967	-.000401	.0051972	-.004488	.0814495	.0086708
#2	-.002749	-.013473	-.001329	.0043754	-.000137	.0768471	.0079168
#3	-.002802	-.012200	.000513	.0041657	-.002155	.1003760	.0078391

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000116	-.000055	10.29488	.0171299	-.000148	.0033780	.2480086
Stddev	.000036	.000043	.02167	.0001722	.000216	.0002511	.0117472
%RSD	30.93492	77.53777	.2104526	1.005119	146.3392	7.433370	4.736605

#1	-.000149	-.000007	10.27092	.0169829	-.000273	.0036670	.2377649
#2	-.000078	-.000069	10.31311	.0173193	-.000272	.0032132	.2608309
#3	-.000122	-.000089	10.30060	.0170875	.000102	.0032539	.2454301

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0120782	.6759621	.0032181	-.000731	.4143295	.0059295	.0226828
Stddev	.0005350	.0065942	.0002653	.000187	.0198249	.0024190	.0002559
%RSD	4.429202	.9755336	8.242717	25.58550	4.784810	40.79647	1.128298

#1	.0116498	.6826233	.0030236	-.000553	.4035524	.0080621	.0227459
#2	.0119069	.6694370	.0035202	-.000926	.4372085	.0064256	.0224012
#3	.0126778	.6758260	.0031103	-.000715	.4022276	.0033009	.0229012

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.018761	-.007118	.0010333	-.011057	.0001802	.2311916	.0148297
Stddev	.023694	.000756	.0001713	.000198	.0031523	.0126863	.0019119
%RSD	126.2923	10.62649	16.57830	1.788249	1748.980	5.487366	12.89225

#1	-.003543	-.006645	.0009350	-.011032	.0036741	.2305288	.0150273
#2	-.046060	-.006717	.0009338	-.011266	-.000683	.2441963	.0128267
#3	-.006680	-.007990	.0012311	-.010872	-.002451	.2188496	.0166352

Sample Name: Q3442-01 Acquired: 10/29/2025 16:29:00 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6573940	-.004785	.0342859
Stddev	.0032167	.000394	.0001734
%RSD	.4893079	8.240824	.5056379
#1	.6593291	-.004660	.0341033
#2	.6591721	-.004468	.0344483
#3	.6536808	-.005226	.0343063

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6181.740	96348.97	7428.366	4696.029	7789.477
Stddev	1.942	3239.69	34.519	102.896	12.027
%RSD	.0314176	3.362453	.4646860	2.191124	.1544025
#1	6183.841	98827.76	7406.954	4776.595	7794.693
#2	6180.011	92683.20	7409.958	4580.119	7775.722
#3	6181.368	97535.93	7468.187	4731.374	7798.015

Sample Name: Q3464-02 Acquired: 10/29/2025 16:33:16 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0056203	-.016591	.0314234	.0023745	-.003012	16.74937
Stddev	.0008911	.002820	.0010638	.0010394	.001180	.08894
%RSD	15.85537	16.99953	3.385467	43.77250	39.19127	.5309984

#1	.0047841	-.019213	.0311248	.0025091	-.003316	16.85190
#2	.0055192	-.016953	.0305408	.0033400	-.001709	16.69312
#3	.0065577	-.013607	.0326046	.0012744	-.004010	16.70308

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3904156	.0011075	-.000104	48.23726	.0432123	.0125081
Stddev	.0019712	.0000495	.000127	.27379	.0005863	.0001759
%RSD	.5048941	4.470202	122.4957	.5675911	1.356730	1.406148

#1	.3923892	.0011603	.000039	48.55171	.0436764	.0123654
#2	.3904109	.0011001	-.000204	48.10832	.0434072	.0124542
#3	.3884468	.0010621	-.000147	48.05175	.0425535	.0127046

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1487960	23.08101	1.215467	12.84080	.0237593	.0007151
Stddev	.0007199	.93287	.006866	.15667	.0005921	.0003918
%RSD	.4838053	4.041717	.5649196	1.220116	2.492204	54.79607

#1	.1496272	22.05498	1.222143	13.01802	.0244431	.0002802
#2	.1483888	23.87809	1.215832	12.72073	.0234159	.0008244
#3	.1483720	23.30995	1.208425	12.78364	.0234190	.0010406

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	455.9673	.0625615	.2554716	4.984259	.1901667	.0112156
Stddev	2.7813	.0021704	.0026993	.256370	.0050128	.0001757
%RSD	.6099688	3.469175	1.056612	5.143588	2.636025	1.566432

#1	456.5039	.0621003	.2571800	4.704349	.1958104	.0110961
#2	458.4412	.0606588	.2568751	5.207661	.1884586	.0114173
#3	452.9569	.0649254	.2523596	5.040766	.1862312	.0111334

Sample Name: Q3464-02 Acquired: 10/29/2025 16:33:16 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.011221	.3892420	F 67.07786	3.095079	F 172.6297	-.002422
Stddev	.000419	.0016720	2.50509	.014857	.8507	.001172
%RSD	3.731952	.4295481	3.734607	.4800158	.4927933	48.37407

#1	-.011659	.3889961	64.25189	3.105602	173.2810	-.002114
#2	-.011180	.3910233	69.02555	3.101551	172.9409	-.001435
#3	-.010825	.3877066	67.95615	3.078084	171.6672	-.003717

Elem	Sr4077
Units	ppm
Avg	.1772252
Stddev	.0005900
%RSD	.3329008

#1	.1778267
#2	.1766475
#3	.1772012

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5913.553	90536.44	7286.068	4535.327	6432.293
Stddev	14.014	778.09	375.513	34.441	8.471
%RSD	.2369742	.8594247	5.153851	.7593861	.1316925

#1	5899.365	89843.63	6852.900	4503.487	6423.910
#2	5927.385	90387.41	7519.515	4530.612	6440.849
#3	5913.909	91378.26	7485.788	4571.883	6432.120

Sample Name: CCV03 Acquired: 10/29/2025 16:37:31 Type: Unk
Method: 6010-200.7 NEW(v324) 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	5.080474	4.736629	5.020818	5.065326	5.122921	9.727790	9.728265
Stddev	.033477	.112914	.043367	.021893	.025592	.017505	.131714
%RSD	.6589344	2.383845	.8637396	.4322132	.4995504	.1799480	1.353933

#1	5.088511	4.677711	5.024387	5.071205	5.139491	9.733028	9.611041
#2	5.043711	4.866816	4.975777	5.041094	5.093447	9.742078	9.702957
#3	5.109202	4.665361	5.062290	5.083679	5.135827	9.708264	9.870797

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2486321	2.512984	24.96542	1.031004	2.515820	1.268240	5.076436
Stddev	.0009001	.021273	.05858	.002331	.021160	.009071	.042267
%RSD	.3620181	.8465089	.2346415	.2260601	.8410669	.7152626	.8326203

#1	.2483150	2.513818	24.91324	1.030685	2.518289	1.269510	5.056298
#2	.2496478	2.491307	25.02879	1.028849	2.493534	1.258601	5.048004
#3	.2479334	2.533828	24.95424	1.033478	2.535637	1.276610	5.125007

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.468045	25.01163	2.514140	1.280926	25.34513	2.503216	2.555938
Stddev	.003934	.12711	.021512	.001649	.12707	.005426	.001373
%RSD	.1593827	.5081855	.8556352	.1287185	.5013613	.2167722	.0537313

#1	2.463617	24.92078	2.513685	1.281265	25.43715	2.504299	2.556726
#2	2.471137	25.15688	2.492860	1.279134	25.20014	2.508018	2.554352
#3	2.469380	24.95722	2.535876	1.282379	25.39810	2.497329	2.556736

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.15648	4.946803	5.117643	5.082575	4.965470	5.152286	5.006574
Stddev	.12962	.025141	.031972	.033958	.012203	.018009	.038266
%RSD	.5152558	.5082275	.6247443	.6681164	.2457573	.3495424	.7643159

#1	25.19415	4.936766	5.122419	5.084748	4.952469	5.168959	4.992026
#2	25.01219	4.975412	5.083552	5.047583	4.967264	5.133186	4.977716
#3	25.26308	4.928231	5.146959	5.115394	4.976676	5.154713	5.049981

Sample Name: CCV03 Acquired: 10/29/2025 16:37:31 Type: Unk
Method: 6010-200.7 NEW(v324) 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	4.997031	4.653048	5.225471
Stddev	.018003	.009971	.023221
%RSD	.3602797	.2142851	.4443852

#1	4.986556	4.641890	5.203846
#2	4.986718	4.656168	5.250013
#3	5.017819	4.661086	5.222554

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5928.574	91379.05	7156.211	4557.535	6732.184
Stddev	36.448	163.28	29.839	11.407	49.025
%RSD	.6147860	.1786855	.4169633	.2502969	.7282120

#1	5933.907	91390.40	7180.414	4567.982	6740.605
#2	5962.062	91536.37	7122.873	4559.259	6776.452
#3	5889.754	91210.40	7165.347	4545.364	6679.494

Sample Name: CCB03 Acquired: 10/29/2025 16:41:39 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0000720	-.012235	-.000828	.0022945	-.003143	-.003248	.0006412
Stddev	.0013943	.003900	.001263	.0044025	.001295	.001407	.0005319
%RSD	1936.285	31.87452	152.4909	191.8714	41.19038	43.30060	82.94750

#1	.0013196	-.009415	.000277	-.002789	-.002005	-.001872	.0012449
#2	-.001433	-.016686	-.000557	.004794	-.002873	-.004683	.0002417
#3	.000330	-.010605	-.002205	.004878	-.004552	-.003191	.0004370

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000506	-.000006	-.008925	-.000134	-.000095	-.000201	.0289598
Stddev	.0000862	.000004	.008804	.000280	.000080	.000228	.0026305
%RSD	170.2689	64.15028	98.64973	208.9775	83.88274	113.6622	9.083352

#1	.0001470	-.000008	-.000999	.000158	-.000116	-.000120	.0260982
#2	-.000019	-.000001	-.007374	-.000159	-.000007	-.000458	.0312726
#3	.000024	-.000008	-.018402	-.000401	-.000162	-.000024	.0295086

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006366	-.005800	.0000606	-.000314	.0597688	.0017383	-.000124
Stddev	.0007320	.020159	.0001374	.000188	.0133017	.0026395	.000168
%RSD	114.9919	347.5632	226.5892	59.94044	22.25535	151.8450	134.9219

#1	.0014818	.003733	.0001767	-.000529	.0446491	.0047862	.000018
#2	.0002255	-.028958	.0000963	-.000187	.0649870	.0002024	-.000082
#3	.0002025	.007825	-.000091	-.000224	.0696702	.0002263	-.000309

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0076996	-.004887	-.000120	.0007186	-.000978	.0098984	-.000416
Stddev	.0249889	.000469	.000076	.0000357	.000909	.0029017	.000560
%RSD	324.5480	9.591337	63.14982	4.972453	92.87535	29.31500	134.6633

#1	.0287302	-.004815	-.000053	.0007455	-.001968	.0066641	-.000715
#2	.0142937	-.004458	-.000203	.0007323	-.000785	.0107577	-.000764
#3	-.019925	-.005387	-.000105	.0006780	-.000182	.0122734	.000230

Sample Name: CCB03 Acquired: 10/29/2025 16:41:39 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.004928	.0034029	.0003274
Stddev	.001646	.0000815	.0000798
%RSD	33.39922	2.394253	24.37015

#1	-.006507	.0034355	.0004124
#2	-.003223	.0034629	.0003157
#3	-.005056	.0033101	.0002541

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6207.906	96586.26	7325.598	4765.574	7795.847
Stddev	15.405	299.07	51.139	17.577	17.404
%RSD	.2481536	.3096366	.6980826	.3688328	.2232478

#1	6195.462	96365.10	7283.714	4747.709	7792.208
#2	6203.120	96467.17	7310.491	4766.164	7780.549
#3	6225.136	96926.53	7382.588	4782.848	7814.782

Sample Name: Q3464-01 Acquired: 10/29/2025 16:45:58 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.003668	-.016535	.0544075	-.000847	-.002028	6.076964
Stddev	.001485	.002304	.0011819	.002890	.000807	.044794
%RSD	40.47606	13.93229	2.172352	341.1804	39.79550	.7371163

#1	-.005190	-.014649	.0554973	.002346	-.002596	6.125259
#2	-.002224	-.019103	.0545740	-.001604	-.002385	6.068853
#3	-.003590	-.015853	.0531511	-.003284	-.001104	6.036779

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2171951	-.000011	.0001098	282.3824	.0263002	.0086313
Stddev	.0016458	.000036	.0000248	1.4642	.0003493	.0000610
%RSD	.7577307	324.1538	22.58037	.5185021	1.328049	.7068355

#1	.2188872	-.000012	.0001101	283.7776	.0263792	.0086754
#2	.2170980	.000026	.0001344	282.5119	.0266031	.0085617
#3	.2156000	-.000047	.0000848	280.8579	.0259181	.0086569

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1789297	6.886055	2.173811	27.58132	.0569305	-.000276
Stddev	.0010209	.066284	.016149	.11043	.0002883	.000450
%RSD	.5705697	.9625776	.7428663	.4003776	.5063725	163.4277

#1	.1796676	6.959885	2.187397	27.60135	.0567954	.000193
#2	.1793569	6.866613	2.178079	27.68036	.0572615	-.000314
#3	.1777646	6.831666	2.155958	27.46225	.0567346	-.000705

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	636.6173	.0107023	1.075721	22.78704	.2469840	.0102924
Stddev	2.7269	.0028096	.002808	.14400	.0024762	.0003932
%RSD	.4283446	26.25279	.2610289	.6319536	1.002593	3.820811

#1	633.7042	.0136897	1.076244	22.95314	.2479169	.0098987
#2	639.1090	.0103044	1.078231	22.69735	.2488584	.0102933
#3	637.0386	.0081128	1.072688	22.71062	.2441769	.0106852

Sample Name: Q3464-01 Acquired: 10/29/2025 16:45:58 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.007180	.3801473	F 82.08150	.7988356	F 559.3753	-.037628
Stddev	.000316	.0023555	.25201	.0043782	4.5263	.000959
%RSD	4.405910	.6196351	.3070241	.5480683	.8091620	2.547881

#1	-.007391	.3824988	82.37244	.8036678	564.5916	-.038372
#2	-.007332	.3801556	81.94084	.7951329	557.0492	-.036546
#3	-.006816	.3777877	81.93121	.7977059	556.4852	-.037966

Elem	Sr4077
Units	ppm
Avg	.9068358
Stddev	.0036661
%RSD	.4042704

#1	.9101140
#2	.9075163
#3	.9028772

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5618.997	85827.33	7151.535	4351.968	5975.367
Stddev	5.523	641.56	48.244	15.662	7.709
%RSD	.0982912	.7474979	.6745899	.3598924	.1290075

#1	5614.605	86515.60	7206.826	4369.627	5972.253
#2	5625.198	85720.49	7118.004	4346.522	5984.145
#3	5617.189	85245.89	7129.776	4339.756	5969.702

Sample Name: Q3464-01DUP Acquired: 10/29/2025 16:50:14 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.003868	-.018436	.0554226	-.000434	.0006469	6.255287
Stddev	.000741	.002135	.0013586	.002448	.0010894	.044285
%RSD	19.16226	11.58130	2.451325	564.3506	168.3990	.7079610

#1	-.003091	-.020501	.0565406	-.003184	.0000847	6.296171
#2	-.003944	-.016237	.0558166	.000375	-.000047	6.261444
#3	-.004568	-.018569	.0539105	.001508	.001902	6.208245

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2181085	-.000007	.0000871	282.6529	.0260835	.0088743
Stddev	.0011937	.000122	.0000478	.3612	.0007162	.0000603
%RSD	.5473111	1684.681	54.89483	.1278050	2.745919	.6789454

#1	.2192240	-.000036	.0001263	282.2650	.0268698	.0089297
#2	.2168495	.000127	.0000338	282.7142	.0259124	.0088101
#3	.2182518	-.000112	.0001013	282.9796	.0254684	.0088831

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1799263	6.804362	2.169070	27.78039	.0568683	.0002679
Stddev	.0004393	.124347	.005755	.10406	.0001247	.0004085
%RSD	.2441475	1.827461	.2653166	.3745696	.2193468	152.4906

#1	.1803609	6.909317	2.173081	27.67363	.0568060	.0005613
#2	.1794825	6.836741	2.162476	27.88151	.0567870	.0004412
#3	.1799354	6.667029	2.171653	27.78604	.0570119	-.000199

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	629.3378	.0098147	1.073127	22.51138	.2501454	.0101228
Stddev	9.9944	.0011488	.018220	.54624	.0008525	.0000755
%RSD	1.588088	11.70530	1.697882	2.426489	.3407893	.7454985

#1	633.8007	.0091060	1.085849	22.96257	.2494575	.0100525
#2	636.3232	.0111402	1.081278	22.66748	.2498796	.0102025
#3	617.8894	.0091978	1.052254	21.90408	.2510991	.0101134

Sample Name: Q3464-01DUP Acquired: 10/29/2025 16:50:14 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.007051	.3780418	F 82.18454	.7953976	F 560.0253	-.040168
Stddev	.000325	.0017934	1.91586	.0044309	2.1938	.001128
%RSD	4.606604	.4743839	2.331172	.5570723	.3917373	2.807290
#1	-.006902	.3797254	83.75323	.7909061	557.7519	-.038888
#2	-.007424	.3782442	82.75110	.7955213	562.1297	-.041015
#3	-.006828	.3761558	80.04929	.7997654	560.1943	-.040600

Elem	Sr4077
Units	ppm
Avg	.9040365
Stddev	.0042729
%RSD	.4726465
#1	.9014562
#2	.9089687
#3	.9016847

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5605.453	84864.00	6976.212	4308.917	5970.011
Stddev	14.174	1541.90	65.844	71.439	15.182
%RSD	.2528608	1.816905	.9438315	1.657932	.2543046
#1	5610.672	83192.15	6964.408	4232.467	5979.954
#2	5616.277	85169.69	7047.159	4320.308	5977.543
#3	5589.409	86230.15	6917.068	4373.976	5952.536

Sample Name: Q3464-01LX5 Acquired: 10/29/2025 16:54:30 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.000342	-.015378	.0121789	-.001688	-.003676	1.369297
Stddev	.001734	.001102	.0005628	.001186	.001173	.019611
%RSD	506.3891	7.168142	4.621254	70.30234	31.90571	1.432213

#1	-.002345	-.016487	.0128287	-.003057	-.004881	1.356676
#2	.000667	-.015364	.0118434	-.001011	-.002538	1.391891
#3	.000651	-.014282	.0118647	-.000994	-.003609	1.359325

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0494933	.0000353	-.000036	58.68126	.0054858	.0017651
Stddev	.0021826	.0000107	.000031	.15938	.0001495	.0000670
%RSD	4.409952	30.28140	86.39864	.2716106	2.724502	3.792947

#1	.0470720	.0000234	-.000016	58.80063	.0055127	.0018365
#2	.0513095	.0000385	-.000072	58.74289	.0053248	.0017551
#3	.0500985	.0000441	-.000020	58.50026	.0056201	.0017037

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0391259	1.328316	.4464743	5.778455	.0118120	-.000123
Stddev	.0003870	.023944	.0026709	.057119	.0002192	.000318
%RSD	.9890893	1.802565	.5982186	.9884906	1.856058	259.0364

#1	.0391828	1.317254	.4485442	5.782095	.0119908	-.000254
#2	.0387135	1.311902	.4474193	5.719602	.0115674	-.000355
#3	.0394812	1.355790	.4434594	5.833667	.0118779	.000240

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	121.5422	.0015450	.2188355	4.487978	.0515361	.0026995
Stddev	1.4576	.0040147	.0011494	.009567	.0001613	.0001191
%RSD	1.199231	259.8592	.5252315	.2131772	.3130604	4.412482

#1	120.7963	-.002972	.2186665	4.494457	.0513898	.0026614
#2	120.6086	.004706	.2177799	4.476990	.0517092	.0028331
#3	123.2218	.002902	.2200600	4.492488	.0515093	.0026042

Sample Name: Q3464-01LX5 Acquired: 10/29/2025 16:54:30 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0176624	.0821320	F 16.51590	.1521717	F 118.6567	.0052451
Stddev	.0000831	.0014663	.20687	.0032061	.8415	.0008795
%RSD	.4704365	1.785239	1.252534	2.106874	.7092284	16.76790
#1	.0177073	.0826813	16.34991	.1492061	117.7938	.0051468
#2	.0177134	.0804704	16.45013	.1555736	118.7013	.0061697
#3	.0175666	.0832443	16.74766	.1517356	119.4751	.0044189

Elem	Sr4077
Units	ppm
Avg	.1879478
Stddev	.0002885
%RSD	.1534997
#1	.1881737
#2	.1876228
#3	.1880470

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5865.968	89265.26	6900.074	4466.127	6667.401
Stddev	13.981	811.16	44.985	23.906	20.399
%RSD	.2383396	.9087106	.6519430	.5352693	.3059468
#1	5880.699	89868.39	6890.364	4484.228	6690.149
#2	5864.324	89584.31	6860.737	4475.125	6661.319
#3	5852.882	88343.08	6949.121	4439.028	6650.735

Sample Name: Q3464-01MS Acquired: 10/29/2025 16:58:42 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.7734765	1.693664	.9546260	1.927239	.6826775	7.224903
Stddev	.0006216	.051964	.0025113	.004058	.0014494	.010478
%RSD	.0803693	3.068161	.2630644	.2105819	.2123145	.1450228

#1	.7727645	1.644726	.9567335	1.931046	.6810489	7.228604
#2	.7739115	1.748202	.9552972	1.927702	.6831577	7.213077
#3	.7737534	1.688065	.9518474	1.922968	.6838259	7.233028

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3874672	.1940921	.1912285	284.0851	.4136310	.2026790
Stddev	.0010504	.0031920	.0006594	.4060	.0025349	.0004357
%RSD	.2710974	1.644593	.3448246	.1429303	.6128432	.2149575

#1	.3875991	.1950021	.1915769	284.3207	.4122370	.2031020
#2	.3884454	.1967303	.1916406	284.3183	.4120990	.2022317
#3	.3863571	.1905438	.1904680	283.6162	.4165569	.2027034

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4511710	9.430868	2.341020	29.82139	.5405347	.0596947
Stddev	.0004264	.160399	.002144	.08262	.0018859	.0004154
%RSD	.0945026	1.700782	.0915708	.2770401	.3488917	.6959011

#1	.4510597	9.381072	2.342077	29.91250	.5420732	.0592767
#2	.4508113	9.301274	2.338553	29.80033	.5411001	.0597000
#3	.4516420	9.610259	2.342430	29.75135	.5384308	.0601075

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	612.4443	.2866081	1.264576	31.75969	.4998007	.4026034
Stddev	2.9623	.0042449	.005872	.53510	.0075932	.0008763
%RSD	.4836879	1.481091	.4643704	1.684844	1.519252	.2176601

#1	611.6008	.2914341	1.265016	31.55919	.5027300	.4016075
#2	615.7369	.2834521	1.258496	31.35380	.5054929	.4029462
#3	609.9953	.2849383	1.270216	32.36609	.4911791	.4032564

Sample Name: Q3464-01MS Acquired: 10/29/2025 16:58:42 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6012359	.5007295	F 70.70238	6.995650	F 555.5697	.1432400
Stddev	.0003990	.0012698	1.11630	.034975	2.5526	.0023449
%RSD	.0663706	.2535985	1.578870	.4999606	.4594609	1.637022
#1	.6007752	.5008757	70.26833	6.961279	554.8704	.1438001
#2	.6014573	.4993929	69.86830	7.031200	558.3991	.1406657
#3	.6014751	.5019200	71.97051	6.994471	553.4397	.1452540

Elem	Sr4077
Units	ppm
Avg	1.096647
Stddev	.002280
%RSD	.2078950
#1	1.098973
#2	1.096553
#3	1.094416

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5537.814	83602.62	6768.661	4280.009	5881.101
Stddev	26.994	945.84	83.211	55.245	20.719
%RSD	.4874570	1.131348	1.229363	1.290762	.3522899
#1	5568.959	84593.71	6795.603	4319.102	5904.189
#2	5523.336	83504.48	6675.316	4304.117	5864.128
#3	5521.148	82709.69	6835.063	4216.807	5874.986

Sample Name: Q3464-01MSD Acquired: 10/29/2025 17:02:47 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.8276399	1.997553	1.017892	2.074535	.7225176	8.016905
Stddev	.0026649	.037929	.006191	.021601	.0053460	.008661
%RSD	.3219845	1.898753	.6081965	1.041228	.7399138	.1080379

#1	.8299181	2.041345	1.024456	2.099448	.7286475	8.024801
#2	.8247094	1.976189	1.017063	2.061027	.7188221	8.007642
#3	.8282920	1.975124	1.012157	2.063130	.7200830	8.018273

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4166609	.2157127	.2045999	297.6714	.4366513	.2165666
Stddev	.0018403	.0017691	.0009090	.7015	.0016590	.0005632
%RSD	.4416702	.8201022	.4442832	.2356719	.3799395	.2600804

#1	.4186042	.2170457	.2056187	297.1781	.4356890	.2172170
#2	.4149448	.2137057	.2038718	297.3617	.4356979	.2162364
#3	.4164336	.2163867	.2043091	298.4745	.4385669	.2162464

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4734506	9.886676	2.479967	31.52189	.5768276	.0636855
Stddev	.0015706	.086923	.010848	.09767	.0016407	.0002776
%RSD	.3317316	.8791924	.4374439	.3098461	.2844304	.4359527

#1	.4752640	9.788200	2.474207	31.40921	.5785274	.0635386
#2	.4725246	9.952720	2.473213	31.58226	.5752533	.0640057
#3	.4725632	9.919107	2.492480	31.57421	.5767021	.0635122

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	629.8640	.3208095	1.312166	33.14142	.5410330	.4317336
Stddev	.3948	.0027634	.001542	.23237	.0049159	.0008703
%RSD	.0626863	.8613920	.1175160	.7011496	.9086141	.2015882

#1	629.7434	.3176404	1.311950	32.89643	.5455263	.4325972
#2	630.3051	.3227163	1.313804	33.16913	.5357824	.4308567
#3	629.5435	.3220719	1.310743	33.35869	.5417903	.4317468

Sample Name: Q3464-01MSD Acquired: 10/29/2025 17:02:47 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6531515	.5414212	F 70.23282	7.617045	F 576.3744	.1677346
Stddev	.0035364	.0009483	.53017	.035588	4.4174	.0023439
%RSD	.5414336	.1751438	.7548693	.4672144	.7664034	1.397374
#1	.6562354	.5406064	69.63411	7.651991	581.2230	.1662842
#2	.6492916	.5411952	70.64280	7.580849	572.5785	.1704387
#3	.6539275	.5424621	70.42154	7.618296	575.3216	.1664808

Elem	Sr4077
Units	ppm
Avg	1.126965
Stddev	.002398
%RSD	.2127464
#1	1.124197
#2	1.128405
#3	1.128292

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5398.939	80788.86	6358.967	4169.683	5721.337
Stddev	7.947	502.42	36.870	22.539	5.947
%RSD	.1471973	.6218931	.5798062	.5405488	.1039359
#1	5391.051	81309.96	6354.032	4194.298	5716.461
#2	5406.944	80749.13	6398.056	4164.694	5727.962
#3	5398.820	80307.48	6324.814	4150.056	5719.589

Sample Name: Q3464-01A Acquired: 10/29/2025 17:06:52 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.7783623	1.829827	.9547639	1.968827	.7482189	8.103466
Stddev	.0011584	.068417	.0045692	.009654	.0030127	.024262
%RSD	.1488259	3.739005	.4785649	.4903627	.4026555	.2994063

#1	.7770656	1.905933	.9559608	1.970520	.7447440	8.130694
#2	.7787266	1.773421	.9586155	1.958438	.7498123	8.095562
#3	.7792948	1.810127	.9497154	1.977523	.7501003	8.084141

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3997093	.2018611	.1913674	283.4367	.4092821	.2023951
Stddev	.0016752	.0020796	.0004196	.3946	.0018256	.0004720
%RSD	.4190998	1.030230	.2192802	.1392114	.4460565	.2331952

#1	.3994918	.1999689	.1917094	283.1178	.4071786	.2019920
#2	.4014825	.2015268	.1914937	283.8780	.4102131	.2029143
#3	.3981534	.2040877	.1908991	283.3142	.4104545	.2022791

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4482086	9.387029	2.356166	30.01953	.5413192	.0641037
Stddev	.0009199	.111624	.004972	.10625	.0007970	.0004027
%RSD	.2052441	1.189128	.2110119	.3539224	.1472326	.6282048

#1	.4486411	9.454323	2.353920	29.95682	.5422212	.0636721
#2	.4488326	9.448585	2.361864	29.95956	.5410263	.0644694
#3	.4471521	9.258180	2.352714	30.14220	.5407102	.0641697

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	610.7733	.2940747	1.253503	31.71752	.5174937	.4021212
Stddev	5.6895	.0059358	.000693	.25971	.0048775	.0004956
%RSD	.9315320	2.018466	.0553055	.8188211	.9425184	.1232467

#1	604.7854	.2882468	1.253551	31.84196	.5121824	.4023715
#2	616.1081	.2938645	1.252787	31.89160	.5185266	.4024417
#3	611.4266	.3001128	1.254171	31.41901	.5217719	.4015504

Sample Name: Q3464-01A Acquired: 10/29/2025 17:06:52 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6799970	.5670821	F 80.15052	7.088590	F 555.1261	.1555228
Stddev	.0026131	.0129251	.64383	.021926	3.6254	.0027018
%RSD	.3842755	2.279226	.8032715	.3093125	.6530701	1.737246
#1	.6821326	.5575665	80.68594	7.113803	559.2957	.1585641
#2	.6807751	.5817972	80.32947	7.073991	552.7188	.1546042
#3	.6770832	.5618825	79.43615	7.077976	553.3638	.1534000

Elem	Sr4077
Units	ppm
Avg	1.065604
Stddev	.002007
%RSD	.1883779
#1	1.064038
#2	1.067867
#3	1.064905

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5530.942	82158.93	6486.451	4238.244	5868.591
Stddev	43.314	179.61	57.005	15.563	50.993
%RSD	.7831234	.2186181	.8788285	.3672094	.8689200
#1	5506.680	82365.92	6538.813	4224.542	5832.658
#2	5505.196	82044.19	6494.813	4255.165	5846.161
#3	5580.949	82066.67	6425.727	4235.026	5926.955

Sample Name: Q3476-01 Acquired: 10/29/2025 17:19:16 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0468596	-.038172	.1352546	.0084497	-.012757	216.2664	.5128096
Stddev	.0012065	.001665	.0021100	.0025823	.003660	.3507	.0022225
%RSD	2.574621	4.363066	1.559985	30.56063	28.69178	.1621708	.4333897

#1	.0475587	-.039560	.1373885	.0057983	-.015807	216.1737	.5130207
#2	.0475537	-.036325	.1331695	.0085940	-.008698	216.6542	.5149190
#3	.0454665	-.038630	.1352056	.0109568	-.013765	215.9713	.5104891

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0154681	.0017884	36.12171	.2409676	.1561831	.2130759	241.3627
Stddev	.0001019	.0002008	.11120	.0005739	.0002501	.0004670	1.2068
%RSD	.6588793	11.22569	.3078420	.2381698	.1601226	.2191705	.4999807

#1	.0153515	.0020097	36.15806	.2405718	.1560739	.2133306	240.4956
#2	.0155401	.0017374	36.21019	.2407053	.1564692	.2133602	240.8516
#3	.0155128	.0016181	35.99689	.2416258	.1560062	.2125370	242.7409

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.258085	38.62570	.2350429	.0023068	12.98965	.4230522	.4195938
Stddev	.006411	.14879	.0004246	.0001465	.06159	.0017132	.0002718
%RSD	.2839076	.3852094	.1806626	6.348755	.4741236	.4049575	.0647649

#1	2.260103	38.49858	.2353373	.0021383	12.93731	.4214765	.4192808
#2	2.263243	38.78935	.2345562	.0024039	12.97412	.4228042	.4197314
#3	2.250908	38.58915	.2352354	.0023782	13.05752	.4248758	.4197693

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.91846	.1713112	.0024643	.0083755	4.216991	4.697213	3.473215
Stddev	.04222	.0093250	.0002834	.0005498	.012688	.045099	.015795
%RSD	.3866575	5.443317	11.50250	6.564647	.3008793	.9601224	.4547519

#1	10.87069	.1635442	.0027221	.0081741	4.219834	4.727006	3.491363
#2	10.93396	.1687363	.0025101	.0089977	4.228017	4.645327	3.462579
#3	10.95074	.1816531	.0021607	.0079548	4.203123	4.719305	3.465702

Sample Name: Q3476-01 Acquired: 10/29/2025 17:19:16 Type: Unk
Method: 6010-200.7 NEW(v324) 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	1.444941	.1656706	-.132562
Stddev	.009194	.0007873	.000971
%RSD	.6363084	.4752368	.7326142
#1	1.454478	.1665298	-.131813
#2	1.444210	.1654982	-.132214
#3	1.436133	.1649837	-.133660

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7008.604	103544.3	8012.770	5362.333	6489.279
Stddev	6.098	427.4	37.063	14.999	2.892
%RSD	.0870132	.4127382	.4625536	.2797048	.0445606
#1	7001.756	104025.4	8019.696	5375.558	6486.267
#2	7013.450	103398.9	7972.732	5346.036	6492.033
#3	7010.604	103208.5	8045.882	5365.406	6489.539

Sample Name: Q3477-01 Acquired: 10/29/2025 17:23:18 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0481169	-.031996	.1107302	.0003746	-.015812	114.9904	.4954826
Stddev	.0023024	.001243	.0018598	.0015802	.001914	.3041	.0036886
%RSD	4.784967	3.886247	1.679563	421.8199	12.10793	.2644555	.7444510

#1	.0471803	-.032616	.1104588	-.001286	-.017986	115.0630	.4922389
#2	.0464303	-.032807	.1090211	.000551	-.015069	114.6565	.4947138
#3	.0507399	-.030564	.1127108	.001859	-.014379	115.2515	.4994950

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0100195	.0035594	17.56228	.1669309	.1060915	.2160591	223.4176
Stddev	.0000027	.0001659	.05461	.0003477	.0002797	.0012641	1.8122
%RSD	.0265781	4.661756	.3109733	.2083034	.2636541	.5850749	.8111140

#1	.0100222	.0037093	17.57398	.1665866	.1059923	.2174378	221.3251
#2	.0100169	.0033811	17.50277	.1669242	.1058749	.2149547	224.4642
#3	.0100195	.0035877	17.61010	.1672820	.1064073	.2157847	224.4634

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.443848	35.22364	.1927898	.0009053	.6183078	.2908096	.4482439
Stddev	.026806	.06686	.0003531	.0009056	.0145125	.0013999	.0005133
%RSD	.6032268	.1898187	.1831449	100.0331	2.347132	.4813644	.1145101

#1	4.412895	35.23331	.1930440	.0002624	.6063085	.2897910	.4488366
#2	4.459215	35.15247	.1929387	.0019410	.6141771	.2924058	.4479412
#3	4.459435	35.28513	.1923866	.0005125	.6344379	.2902320	.4479540

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.836641	.1176232	.0032963	.0087955	2.873379	6.592357	5.913454
Stddev	.073618	.0073562	.0001190	.0002570	.013329	.076602	.026063
%RSD	1.076813	6.254064	3.609752	2.922261	.4638753	1.161979	.4407375

#1	6.761154	.1101247	.0033180	.0085510	2.870914	6.680729	5.936097
#2	6.840534	.1248284	.0034029	.0090635	2.861455	6.544923	5.919302
#3	6.908235	.1179165	.0031679	.0087721	2.887768	6.551417	5.884964

Sample Name: Q3477-01 Acquired: 10/29/2025 17:23:18 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.3113670	.1504567	-.143286
Stddev	.0062962	.0015416	.001710
%RSD	2.022109	1.024642	1.193282
#1	.3182969	.1486847	-.141317
#2	.3059983	.1514899	-.144397
#3	.3098058	.1511956	-.144144

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7162.441	109176.1	8026.023	5607.390	6656.581
Stddev	4.769	820.6	27.280	32.605	5.097
%RSD	.0665888	.7516176	.3398935	.5814699	.0765768
#1	7156.954	110120.4	8049.797	5644.554	6658.809
#2	7165.595	108771.3	8032.033	5594.029	6650.749
#3	7164.774	108636.5	7996.239	5583.588	6660.185

Sample Name: CCV04 Acquired: 10/29/2025 17:27:21 Type: Unk
Method: 6010-200.7 NEW(v324) 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	4.975337	5.308223	4.948318	4.942311	4.929834	9.643734	9.639233
Stddev	.007561	.065845	.007552	.010754	.008600	.186543	.199119
%RSD	.1519784	1.240431	.1526165	.2175897	.1744578	1.934341	2.065710

#1	4.970314	5.235061	4.939677	4.949748	4.932258	9.746917	9.751496
#2	4.971663	5.326884	4.953655	4.929981	4.920281	9.755889	9.756871
#3	4.984033	5.362723	4.951622	4.947204	4.936962	9.428395	9.409332

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2618577	2.495051	24.61764	1.018015	2.480651	1.246557	4.701234
Stddev	.0058195	.002910	.46968	.001489	.003452	.001679	.017073
%RSD	2.222394	.1166277	1.907921	.1462782	.1391395	.1347069	.3631545

#1	.2671853	2.491692	24.95872	1.019525	2.476671	1.246520	4.695870
#2	.2627407	2.496821	24.81227	1.016548	2.482467	1.244897	4.720344
#3	.2556472	2.496638	24.08192	1.017972	2.482816	1.248255	4.687487

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.464668	25.14081	2.486280	1.247016	23.71601	2.462185	2.492579
Stddev	.046811	.53011	.003727	.001047	.11031	.044589	.007084
%RSD	1.899280	2.108571	.1499192	.0839360	.4651347	1.810954	.2842002

#1	2.491213	25.54439	2.482062	1.247195	23.59196	2.486891	2.494044
#2	2.492173	25.33758	2.487646	1.245892	23.80309	2.488952	2.484877
#3	2.410618	24.54044	2.489132	1.247962	23.75296	2.410712	2.498816

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.49836	5.193888	5.035000	5.071170	4.921398	4.796997	5.101909
Stddev	.13584	.105492	.002313	.005321	.097109	.054467	.010241
%RSD	.5780708	2.031086	.0459384	.1049177	1.973208	1.135437	.2007354

#1	23.35409	5.289762	5.035661	5.066927	4.983438	4.735213	5.092035
#2	23.62380	5.211026	5.032428	5.077140	4.971271	4.838072	5.112482
#3	23.51718	5.080876	5.036910	5.069445	4.809486	4.817707	5.101210

Sample Name: CCV04 Acquired: 10/29/2025 17:27:21 Type: Unk
Method: 6010-200.7 NEW(v324) 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	5.035701	4.749418	4.894116
Stddev	.011996	.101517	.140105
%RSD	.2382198	2.137468	2.862718
#1	5.027502	4.813419	4.917534
#2	5.030132	4.802469	5.021037
#3	5.049469	4.632367	4.743778

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5910.925	90197.33	6550.770	4595.303	6667.616
Stddev	6.210	184.79	133.502	11.514	10.024
%RSD	.1050674	.2048742	2.037959	.2505546	.1503361
#1	5917.690	90404.63	6444.610	4595.207	6679.179
#2	5909.604	90049.90	6507.049	4606.864	6661.389
#3	5905.481	90137.44	6700.650	4583.837	6662.279

Sample Name: CCB04 Acquired: 10/29/2025 17:31:24 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000754	-.011305	-.000219	.0023741	-.002227	.0078355
Stddev	.001536	.004067	.000784	.0021344	.000307	.0124493
%RSD	203.5797	35.97279	358.2262	89.90281	13.78004	158.8821

#1	-.001773	-.009295	.000289	.0021826	-.002566	-.004603
#2	-.001502	-.015985	.000176	.0045977	-.001968	.007814
#3	.001012	-.008634	-.001122	.0003419	-.002148	.020295

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0052839	.0000274	-.000002	-.002713	-.000092	-.000118
Stddev	.0012679	.0000253	.000028	.007909	.000157	.000114
%RSD	23.99615	92.36500	1320.719	291.5152	171.3491	96.56589

#1	.0040617	.0000229	-.000004	.006417	-.000262	-.000248
#2	.0065931	.0000546	.000027	-.007488	-.000061	-.000067
#3	.0051970	.0000047	-.000030	-.007068	.000048	-.000039

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000143	-.006159	.0012403	-.041222	.0002971	-.000428
Stddev	.000307	.007008	.0004787	.016809	.0004629	.000205
%RSD	215.0758	113.7727	38.59796	40.77571	155.7836	47.94274

#1	-.000457	.000875	.0014501	-.059388	-.000007	-.000193
#2	.000156	-.006214	.0006925	-.026221	.000068	-.000572
#3	-.000127	-.013140	.0015783	-.038057	.000830	-.000519

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2478005	.0023862	.0036748	.1124572	-.002236	.0000267
Stddev	.0099199	.0011748	.0000212	.0298298	.000690	.0001264
%RSD	4.003179	49.23262	.5778666	26.52546	30.84970	472.7856

#1	.2363622	.0037260	.0036507	.0865748	-.001444	.0000783
#2	.2529915	.0015323	.0036830	.1057162	-.002708	.0001191
#3	.2540478	.0019004	.0036908	.1450807	-.002555	-.000117

Sample Name: CCB04 Acquired: 10/29/2025 17:31:24 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014175	-.000324	.0035493	-.002414	F .0309839	.0033459
Stddev	.0007465	.001301	.0101242	.001541	.0031093	.0029516
%RSD	52.66638	400.9544	285.2425	63.83753	10.03503	88.21500

#1	.0007647	-.001524	-.001816	-.003910	.0345455	.0034535
#2	.0022314	.001058	.015227	-.000832	.0288107	.0003420
#3	.0012563	-.000508	-.002763	-.002500	.0295957	.0062423

Elem	Sr4077
Units	ppm
Avg	.0001173
Stddev	.0002050
%RSD	174.8635

#1	.0003501
#2	-.000036
#3	.000038

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5916.243	92245.49	6575.791	4649.359	7387.426
Stddev	8.608	475.39	62.307	15.970	15.122
%RSD	.1455007	.5153514	.9475139	.3434892	.2047039

#1	5907.542	92766.63	6593.427	4645.460	7372.313
#2	5916.432	91835.57	6506.567	4635.700	7387.409
#3	5924.755	92134.26	6627.378	4666.918	7402.558

Sample Name: Q3480-01 Acquired: 10/29/2025 17:35:43 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0635579	-.057578	.4025885	-.008112	-.028686	351.5697
Stddev	.0026687	.006313	.0037240	.001875	.001390	2.4582
%RSD	4.198873	10.96358	.9250204	23.11466	4.845340	.6992177

#1	.0624482	-.064662	.4020930	-.010207	-.029625	348.7873
#2	.0666024	-.052549	.4065355	-.006591	-.027089	352.4747
#3	.0616230	-.055523	.3991370	-.007539	-.029344	353.4472

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.695979	.0193872	.0292691	200.9584	1.096666	.7182612
Stddev	.008510	.0000525	.0007156	1.0830	.003017	.0016288
%RSD	.3156396	.2708246	2.445023	.5389382	.2750801	.2267627

#1	2.687184	.0193905	.0291223	199.7086	1.095111	.7167844
#2	2.704172	.0194380	.0286383	201.5438	1.100143	.7179910
#3	2.696581	.0193332	.0300468	201.6227	1.094744	.7200081

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.424052	705.3167	11.88049	232.1349	1.162071	^ *****
Stddev	.007072	7.4212	.07778	1.1103	.003119	----
%RSD	.4966309	1.052184	.6546464	.4783000	.2684184	----

#1	1.419768	709.2916	11.79782	230.8565	1.159480	^ ----
#2	1.420174	709.9037	11.95221	232.8576	1.161199	^ ----
#3	1.432215	696.7547	11.89146	232.6907	1.165533	^ ----

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	33.48861	1.595001	.9767594	7.184420	^ *****	-.000237
Stddev	.11419	.012990	.0073204	.063853	----	.000423
%RSD	.3409914	.8144063	.7494617	.8887671	----	178.3237

#1	33.61849	1.581260	.9701277	7.257727	^ ----	-.000702
#2	33.40398	1.607080	.9846144	7.154599	^ ----	.000127
#3	33.44335	1.596662	.9755360	7.140933	^ ----	-.000137

Sample Name: Q3480-01 Acquired: 10/29/2025 17:35:43 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0258838	F 28.44246	4.225030	8.001162	2.001161	.2954306
Stddev	.0013579	.13248	.092516	.025372	.007303	.0014187
%RSD	5.246101	.4657980	2.189719	.3171001	.3649415	.4802177
#1	.0254359	28.29500	4.331639	8.029342	1.999643	.2947258
#2	.0274091	28.55146	4.165788	7.980133	1.994736	.2970637
#3	.0248064	28.48092	4.177664	7.994011	2.009103	.2945024

Elem	Sr4077
Units	ppm
Avg	-.282701
Stddev	.008389
%RSD	2.967431
#1	-.288448
#2	-.286580
#3	-.273074

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7620.638	115759.6	9476.255	5756.214	5541.978
Stddev	7.302	353.3	51.965	53.802	9.412
%RSD	.0958162	.3052149	.5483689	.9346793	.1698357
#1	7626.243	115677.0	9531.985	5774.296	5552.197
#2	7612.381	115454.9	9429.129	5695.701	5533.664
#3	7623.290	116146.9	9467.651	5798.647	5540.072

Sample Name: Q3481-01 Acquired: 10/29/2025 17:39:57 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0549550	-.032173	.3104805	.0032690	-.018007	151.0630	.5674139
Stddev	.0001990	.002126	.0027727	.0014045	.001463	.1342	.0026823
%RSD	.3620166	6.607361	.8930273	42.96345	8.126357	.0888173	.4727191

#1	.0551211	-.029804	.3091290	.0046788	-.018167	150.9849	.5643700
#2	.0550094	-.032799	.3086428	.0032583	-.016471	150.9862	.5684405
#3	.0547345	-.033915	.3136698	.0018699	-.019385	151.2180	.5694313

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0104716	.0038419	39.48997	.1816284	.1250234	.3414144	233.7489
Stddev	.0001087	.0001315	.06922	.0005179	.0009347	.0027142	.2289
%RSD	1.038297	3.423834	.1752779	.2851391	.7476131	.7949744	.0979059

#1	.0105142	.0037640	39.41691	.1811602	.1250564	.3414479	233.5328
#2	.0103480	.0037679	39.49846	.1815402	.1240726	.3386836	233.9887
#3	.0105525	.0039938	39.55456	.1821847	.1259412	.3441116	233.7251

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.576952	49.91835	.2465509	.0003986	8.891570	.4001060	.6088403
Stddev	.006941	.02857	.0014942	.0002609	.029489	.0053496	.0026098
%RSD	.1940413	.0572396	.6060436	65.44054	.3316553	1.337045	.4286558

#1	3.569437	49.91619	.2464689	.0003741	8.865213	.3941037	.6058774
#2	3.578298	49.94795	.2450994	.0006709	8.886076	.4043711	.6107983
#3	3.583121	49.89092	.2480845	.0001509	8.923419	.4018433	.6098452

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.997899	.2549310	.0025955	.0942369	4.447739	9.850863	7.488587
Stddev	.034876	.0021310	.0002032	.0010651	.023285	.171644	.057266
%RSD	.3488291	.8358956	7.827203	1.130245	.5235253	1.742425	.7647124

#1	9.961109	.2543547	.0025095	.0947399	4.421791	9.652937	7.487390
#2	10.00211	.2531474	.0024495	.0930134	4.454611	9.940850	7.431929
#3	10.03048	.2572908	.0028275	.0949574	4.466814	9.958802	7.546443

Sample Name: Q3481-01 Acquired: 10/29/2025 17:39:57 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.644739	.1589634	-.033873
Stddev	.016324	.0006310	.000638
%RSD	.6172413	.3969588	1.884723

#1	2.640162	.1585539	-.033486
#2	2.631192	.1596901	-.034610
#3	2.662863	.1586462	-.033523

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7190.039	108078.1	8372.981	5509.943	6544.609
Stddev	30.705	214.2	6.306	14.249	38.061
%RSD	.4270479	.1981446	.0753088	.2586070	.5815631

#1	7188.874	107840.7	8366.869	5526.194	6547.998
#2	7221.309	108137.0	8379.464	5499.586	6580.862
#3	7159.932	108256.7	8372.611	5504.051	6504.966

Sample Name: Q3481-01DUP Acquired: 10/29/2025 17:43:58 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0556144	-.034746	.3720224	.0008332	-.017304	158.3631
Stddev	.0002181	.001857	.0010311	.0043454	.001503	.2415
%RSD	.3922328	5.345038	.2771592	521.5370	8.684934	.1525166

#1	.0555814	-.032694	.3730813	.0023731	-.018736	158.0948
#2	.0554146	-.036310	.3719643	.0041990	-.017438	158.4314
#3	.0558471	-.035236	.3710216	-.004072	-.015739	158.5632

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6078129	.0114250	.0044330	33.05060	.1909765	.1232226
Stddev	.0001990	.0000391	.0001276	.01275	.0003585	.0003315
%RSD	.0327344	.3425343	2.878790	.0385896	.1877117	.2690345

#1	.6077264	.0114381	.0043334	33.04205	.1905691	.1230837
#2	.6080404	.0114559	.0045769	33.04450	.1912434	.1229832
#3	.6076718	.0113810	.0043888	33.06526	.1911171	.1236010

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3398269	243.4607	4.062673	47.96660	.2474182	.0020581
Stddev	.0003155	1.1119	.011970	.11341	.0001956	.0005970
%RSD	.0928524	.4566919	.2946438	.2364322	.0790730	29.00785

#1	.3401657	244.3733	4.074888	47.83719	.2472038	.0022605
#2	.3397735	242.2223	4.062167	48.04868	.2475870	.0013862
#3	.3395414	243.7864	4.050963	48.01392	.2474639	.0025276

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.958403	.4086077	.5913343	10.00203	.2012015	.0032877
Stddev	.060669	.0002172	.0012484	.05106	.0031144	.0000832
%RSD	.6772326	.0531561	.2111199	.5105285	1.547885	2.531949

#1	8.976142	.4083911	.5924950	10.01524	.2034971	.0032571
#2	8.890842	.4088255	.5900136	9.94566	.1976564	.0033819
#3	9.008226	.4086064	.5914944	10.04519	.2024509	.0032240

Sample Name: Q3481-01DUP Acquired: 10/29/2025 17:43:58 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0087401	4.178458	F 11.46929	7.356780	2.383682	.1752329
Stddev	.0005468	.009522	.12366	.029031	.014007	.0014158
%RSD	6.256235	.2278811	1.078142	.3946130	.5876358	.8079284
#1	.0090217	4.188177	11.60407	7.387534	2.392044	.1746553
#2	.0081099	4.169146	11.36108	7.329851	2.367511	.1768461
#3	.0090886	4.178051	11.44273	7.352957	2.391491	.1741972

Elem	Sr4077
Units	ppm
Avg	-.093882
Stddev	.001339
%RSD	1.426650
#1	-.095379
#2	-.092797
#3	-.093470

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7317.530	109218.2	8320.631	5617.557	6613.448
Stddev	12.144	175.3	55.387	6.562	12.322
%RSD	.1659563	.1604640	.6656557	.1168197	.1863245
#1	7303.579	109260.2	8330.585	5618.225	6600.307
#2	7323.285	109025.8	8260.942	5610.686	6624.744
#3	7325.727	109368.7	8370.365	5623.760	6615.292

Sample Name: Q3481-01LX5 Acquired: 10/29/2025 17:48:01 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0123641	-.016689	.0639991	.0029752	-.008310	36.20353	.1427798
Stddev	.0019298	.000545	.0005929	.0050035	.001564	.01084	.0028764
%RSD	15.60802	3.263541	.9264022	168.1753	18.81789	.0299285	2.014544

#1	.0104591	-.016906	.0645496	.0065715	-.009946	36.21270	.1453874
#2	.0123154	-.017091	.0640763	.0050930	-.006831	36.20632	.1396945
#3	.0143177	-.016069	.0633714	-.002739	-.008154	36.19157	.1432575

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0026454	-.000001	9.718148	.0441346	.0251634	.0864206	55.95354
Stddev	.0000784	.000038	.007964	.0002285	.0000767	.0000128	.26326
%RSD	2.962937	3819.917	.0819467	.5177988	.3050207	.0148186	.4704977

#1	.0027320	.000003	9.714908	.0439658	.0252496	.0864340	55.91431
#2	.0025794	-.000040	9.712314	.0440434	.0251377	.0864193	55.71210
#3	.0026247	.000035	9.727221	.0443946	.0251027	.0864084	56.23421

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8874376	12.21892	.0508625	.0001019	2.105363	.0983964	.1477268
Stddev	.0027590	.04408	.0001776	.0004235	.021162	.0027168	.0007903
%RSD	.3108950	.3607728	.3491129	415.5445	1.005145	2.761049	.5349808

#1	.8891633	12.17175	.0508384	.0004343	2.085839	.0958240	.1474937
#2	.8842556	12.22595	.0506982	-.000375	2.102399	.0981276	.1486075
#3	.8888940	12.25907	.0510509	.000246	2.127850	.1012375	.1470794

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.280227	.0505505	.0010855	.0359978	1.102934	2.721137	1.512002
Stddev	.017681	.0008584	.0002227	.0003816	.006037	.011845	.004978
%RSD	.7754087	1.698034	20.51216	1.060046	.5473194	.4353100	.3292042

#1	2.266137	.0502334	.0013410	.0363600	1.109876	2.722315	1.509493
#2	2.274476	.0498958	.0009828	.0360338	1.100011	2.708746	1.508779
#3	2.300067	.0515223	.0009327	.0355994	1.098915	2.732349	1.517735

Sample Name: Q3481-01LX5 Acquired: 10/29/2025 17:48:01 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.5447363	.0363740	-.006903
Stddev	.0045034	.0007727	.000263
%RSD	.8267121	2.124333	3.810584
#1	.5423716	.0360417	-.007041
#2	.5419077	.0372572	-.006599
#3	.5499294	.0358229	-.007067

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6258.521	94709.62	7054.494	4839.355	7005.148
Stddev	13.564	299.97	17.647	28.593	14.774
%RSD	.2167286	.3167295	.2501541	.5908408	.2109046
#1	6243.292	94859.67	7036.068	4849.639	6988.104
#2	6262.965	94904.96	7056.173	4861.384	7014.310
#3	6269.305	94364.23	7071.242	4807.043	7013.030

Sample Name: Q3481-01MS Acquired: 10/29/2025 17:52:06 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6782299	1.781955	1.323063	1.524353	.3092078	147.9647
Stddev	.0013263	.107558	.001673	.003235	.0014697	.5881
%RSD	.195522	6.035958	.1264337	.2122193	.4753188	.3974735

#1	.6768082	1.906005	1.324182	1.523750	.3091543	147.9583
#2	.6784477	1.725152	1.321140	1.521463	.3107036	148.5560
#3	.6794338	1.714707	1.323867	1.527848	.3077656	147.3799

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7224621	.1714575	.1893226	42.08055	.5076388	.3067016
Stddev	.0028532	.0013639	.0003771	.15338	.0012242	.0005317
%RSD	.3949314	.7954539	.1991739	.3645012	.2411469	.1733461

#1	.7257433	.1719260	.1890234	42.13115	.5090330	.3064135
#2	.7205642	.1725254	.1891982	42.20225	.5071436	.3063762
#3	.7210788	.1699212	.1897462	41.90826	.5067398	.3073152

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5647185	228.1588	3.802440	46.74112	.6899038	.0639055
Stddev	.0005237	1.2417	.012104	.24630	.0021138	.0002567
%RSD	.0927326	.5442288	.3183263	.5269396	.3063964	.4016684

#1	.5641139	228.3709	3.815513	46.69877	.6882586	.0639006
#2	.5650268	226.8247	3.800187	47.00585	.6891649	.0636513
#3	.5650150	229.2807	3.791621	46.51875	.6922879	.0641646

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.82012	.6565856	.7187681	17.07678	.3824990	.3238969
Stddev	.02010	.0040638	.0007984	.07390	.0069045	.0000859
%RSD	.1858080	.6189341	.1110775	.4327473	1.805107	.0265293

#1	10.82875	.6532118	.7185211	17.14626	.3807971	.3238006
#2	10.79715	.6610970	.7196608	16.99914	.3766046	.3239243
#3	10.83447	.6554479	.7181224	17.08495	.3900954	.3239658

Sample Name: Q3481-01MS Acquired: 10/29/2025 17:52:06 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6222361	4.555058	9.774004	F 11.69335	2.364782	.2979961
Stddev	.0027444	.006876	.039403	.06959	.021127	.0021924
%RSD	.4410600	.1509602	.4031374	.5951021	.8934016	.7357259
#1	.6205334	4.560569	9.783548	11.77355	2.389167	.2997759
#2	.6207728	4.557252	9.730707	11.64897	2.353209	.2986652
#3	.6254021	4.547352	9.807759	11.65752	2.351970	.2955470

Elem	Sr4077
Units	ppm
Avg	.0971432
Stddev	.0022448
%RSD	2.310809
#1	.0964549
#2	.0996516
#3	.0953232

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6927.515	104449.3	8132.037	5338.263	6483.349
Stddev	14.012	431.7	64.560	16.275	12.520
%RSD	.2022716	.4132955	.7938938	.3048809	.1931162
#1	6943.676	103960.9	8090.837	5319.726	6497.207
#2	6918.744	104606.8	8098.834	5344.858	6479.989
#3	6920.126	104780.0	8206.441	5350.207	6472.852

Sample Name: Q3481-01MSD Acquired: 10/29/2025 17:56:02 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6820658	1.789330	1.203294	1.523682	.3139553	152.3986
Stddev	.0022018	.073919	.000837	.003974	.0006334	.6725
%RSD	.3228093	4.131100	.0695265	.2608316	.2017547	.4412672

#1	.6795748	1.847572	1.202328	1.525308	.3134527	151.9454
#2	.6828709	1.706173	1.203760	1.519152	.3137465	152.0793
#3	.6837518	1.814244	1.203793	1.526585	.3146668	153.1713

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7086439	.1725467	.1911838	37.02486	.5087957	.3017941
Stddev	.0019932	.0015004	.0004084	.21622	.0014624	.0006362
%RSD	.2812694	.8695502	.2136221	.5839854	.2874327	.2108075

#1	.7063789	.1709826	.1908200	36.80925	.5082633	.3010875
#2	.7101303	.1726835	.1911059	37.02365	.5104498	.3023214
#3	.7094224	.1739740	.1916256	37.24168	.5076741	.3019735

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5484958	230.3686	3.889948	48.73521	.6876880	.0634189
Stddev	.0013561	1.5637	.017354	.26293	.0022176	.0004633
%RSD	.2472450	.6787923	.4461356	.5395165	.3224710	.7304587

#1	.5470962	230.9363	3.870971	48.52032	.6852145	.0632115
#2	.5485874	231.5691	3.893860	48.65691	.6894983	.0639496
#3	.5498038	228.6003	3.905012	49.02840	.6883513	.0630955

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.84732	.6351193	.6984655	17.47008	.3975645	.3200568
Stddev	.06622	.0022486	.0017419	.11674	.0053594	.0006133
%RSD	.6105189	.3540373	.2493863	.6682423	1.348053	.1916342

#1	10.90703	.6332451	.6976379	17.51164	.4023554	.3200777
#2	10.85884	.6345002	.6972917	17.56036	.3985613	.3194332
#3	10.77609	.6376125	.7004668	17.33824	.3917766	.3206594

Sample Name: Q3481-01MSD Acquired: 10/29/2025 17:56:02 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6296736	4.573517	F 11.69428	F 12.47439	2.084192	.3053492
Stddev	.0020801	.002469	.13946	.06229	.012848	.0016414
%RSD	.3303534	.0539935	1.192578	.4993292	.6164712	.5375354
#1	.6302980	4.574225	11.53326	12.53092	2.083434	.3058687
#2	.6273527	4.575556	11.77707	12.40761	2.071740	.3035110
#3	.6313699	4.570771	11.77250	12.48462	2.097403	.3066680

Elem	Sr4077
Units	ppm
Avg	.0795830
Stddev	.0034166
%RSD	4.293131
#1	.0784313
#2	.0768911
#3	.0834266

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7157.406	107778.4	8366.945	5472.231	6591.953
Stddev	9.720	344.2	57.708	21.067	9.982
%RSD	.1358022	.3193873	.6897168	.3849730	.1514325
#1	7168.326	107420.3	8408.498	5487.933	6601.279
#2	7149.702	107808.1	8391.281	5448.290	6581.423
#3	7154.189	108106.9	8301.054	5480.469	6593.158

Sample Name: Q3481-01A Acquired: 10/29/2025 17:59:57 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6867954	1.819760	1.232393	1.550595	.6126234	150.4073
Stddev	.0029053	.083326	.000451	.004786	.0012693	.1347
%RSD	.4230252	4.578942	.0365993	.3086762	.2071923	.0895290

#1	.6882579	1.802536	1.232390	1.556047	.6140886	150.3027
#2	.6886788	1.910352	1.232846	1.548651	.6119216	150.3600
#3	.6834494	1.746392	1.231943	1.547086	.6118600	150.5592

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7191125	.1722008	.1946300	40.04611	.5047837	.3177778
Stddev	.0048937	.0003549	.0004245	.06637	.0010087	.0006427
%RSD	.6805245	.2061114	.2180874	.1657367	.1998293	.2022607

#1	.7241275	.1718649	.1941785	40.11972	.5036209	.3170358
#2	.7188602	.1725721	.1950209	40.02781	.5054234	.3181626
#3	.7143498	.1721652	.1946905	39.99082	.5053068	.3181350

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5622920	237.1917	3.726208	50.96818	.7251425	.0647768
Stddev	.0021675	1.4839	.028098	.09138	.0005170	.0006049
%RSD	.3854809	.6256320	.7540754	.1792949	.0712945	.9337830

#1	.5602403	238.7492	3.754529	51.06681	.7245489	.0653741
#2	.5620765	237.0315	3.725759	50.95137	.7253848	.0647918
#3	.5645592	235.7944	3.698337	50.88638	.7254939	.0641646

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.59312	.6316265	.7666400	17.97415	.4770829	.3258991
Stddev	.02104	.0031565	.0012767	.11821	.0042152	.0000618
%RSD	.1814880	.4997440	.1665349	.6576675	.8835351	.0189535

#1	11.60659	.6284603	.7661467	18.10969	.4804858	.3258824
#2	11.60390	.6347732	.7656835	17.92033	.4783952	.3258474
#3	11.56888	.6316460	.7680898	17.89242	.4723676	.3259675

Sample Name: Q3481-01A Acquired: 10/29/2025 17:59:57 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.7716198	4.598784	F 10.79418	F 12.90210	2.715616	.3064659
Stddev	.0013408	.017830	.06255	.03594	.009252	.0005868
%RSD	.1737596	.3877058	.5794639	.2785816	.3406828	.1914650
#1	.7701404	4.615526	10.85580	12.86242	2.719170	.3065779
#2	.7719643	4.600790	10.73075	12.93247	2.722564	.3069886
#3	.7727547	4.580036	10.79597	12.91141	2.705115	.3058312

Elem	Sr4077
Units	ppm
Avg	.1233113
Stddev	.0021823
%RSD	1.769783
#1	.1208428
#2	.1241069
#3	.1249843

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7160.187	108215.0	8444.153	5503.364	6510.411
Stddev	15.373	141.7	11.747	18.861	12.119
%RSD	.2147024	.1309748	.1391120	.3427141	.1861453
#1	7177.304	108101.5	8438.501	5515.454	6523.146
#2	7155.704	108373.8	8457.657	5513.007	6509.069
#3	7147.555	108169.6	8436.300	5481.632	6499.020

Sample Name: CCV05 Acquired: 10/29/2025 18:03:53 Type: Unk
Method: 6010-200.7 NEW(v324) 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	4.851526	5.073818	4.839994	4.825598	4.830511	9.473940	9.565713
Stddev	.003459	.099187	.009662	.008734	.006208	.038199	.027237
%RSD	.0712940	1.954886	.1996286	.1810013	.1285104	.4031989	.2847321

#1	4.847722	4.989450	4.849857	4.828226	4.832424	9.497487	9.534924
#2	4.852374	5.048923	4.839576	4.815851	4.823572	9.494467	9.586665
#3	4.854481	5.183081	4.830547	4.832716	4.835537	9.429866	9.575548

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2519691	2.442368	24.40547	.9983473	2.427191	1.223197	4.784266
Stddev	.0009732	.002751	.13206	.0042017	.004716	.001202	.017086
%RSD	.3862356	.1126511	.5410977	.4208685	.1943110	.0982327	.3571287

#1	.2508565	2.445042	24.28920	.9978306	2.432460	1.224583	4.780044
#2	.2526623	2.442518	24.54904	1.002784	2.425750	1.222438	4.803067
#3	.2523884	2.439545	24.37817	.994428	2.423363	1.222571	4.769686

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.436654	24.68167	2.431384	1.223203	23.16303	2.428472	2.447109
Stddev	.013209	.13810	.003043	.003041	.08445	.004528	.006894
%RSD	.5420940	.5595334	.1251753	.2485900	.3645842	.1864421	.2817035

#1	2.421582	24.60663	2.434819	1.223278	23.16345	2.428810	2.442026
#2	2.446217	24.84105	2.430310	1.226207	23.24727	2.423785	2.454956
#3	2.442162	24.59734	2.429024	1.220126	23.07838	2.432821	2.444346

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.13677	4.994219	4.943847	4.938655	4.839542	4.777928	4.939635
Stddev	.20342	.007093	.002992	.001483	.019848	.000316	.015342
%RSD	.8791877	.1420251	.0605138	.0300192	.4101262	.0066227	.3105954

#1	23.02112	4.993981	4.946685	4.937250	4.821698	4.777690	4.921971
#2	23.37164	4.987248	4.940722	4.940205	4.860919	4.778287	4.949641
#3	23.01754	5.001428	4.944135	4.938510	4.836008	4.777806	4.947293

Sample Name: CCV05 Acquired: 10/29/2025 18:03:53 Type: Unk
Method: 6010-200.7 NEW(v324) 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	4.814537	4.535951	4.917449
Stddev	.020353	.010078	.018533
%RSD	.4227421	.2221849	.3768895
#1	4.795679	4.525319	4.902051
#2	4.811819	4.545364	4.912277
#3	4.836112	4.537170	4.938019

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6064.247	91980.32	6806.420	4659.722	6866.780
Stddev	13.499	395.43	25.578	26.255	18.158
%RSD	.2226045	.4299113	.3757883	.5634464	.2644255
#1	6050.848	92239.24	6834.707	4674.615	6849.271
#2	6064.051	91525.14	6784.922	4629.407	6865.545
#3	6077.844	92176.56	6799.631	4675.144	6885.523

Sample Name: CCB05 Acquired: 10/29/2025 18:07:57 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.000748	-.010703	.0003940	.0031877	-.002991	.0121657	.0049977
Stddev	.001434	.003147	.0008346	.0027234	.000354	.0056808	.0010636
%RSD	191.6696	29.39821	211.8466	85.43547	11.85158	46.69523	21.28189

#1	-.002145	-.007308	.0013545	.0022682	-.002874	.0129237	.0043477
#2	-.000821	-.011280	-.000154	.0062518	-.002709	.0061439	.0044203
#3	.000721	-.013522	-.000018	.0010430	-.003389	.0174294	.0062252

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000034	.0000201	.0169800	.0000965	-.000026	.0004204	.0148411
Stddev	.0000300	.0000142	.0058440	.0002787	.000131	.0004402	.0110875
%RSD	882.7171	70.89404	34.41712	288.7702	499.5165	104.7008	74.70792

#1	.0000377	.0000351	.0226864	.0003657	-.000153	.0001548	.0173227
#2	-.000018	.0000183	.0110075	-.000191	-.000035	.0001780	.0244774
#3	-.000009	.0000068	.0172459	.000115	.000109	.0009285	.0027231

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006973	-.006461	.0001924	-.000217	.0231821	.0031683	.0038014
Stddev	.0004504	.021382	.0001621	.000421	.0084682	.0021563	.0001181
%RSD	64.59152	330.9422	84.25335	193.8242	36.52896	68.05833	3.106801

#1	.0002750	.007576	.0000065	-.000579	.0143861	.0013855	.0038276
#2	.0006455	.004111	.0002665	.000244	.0238811	.0025544	.0039042
#3	.0011714	-.031069	.0003042	-.000317	.0312791	.0055649	.0036724

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.064205	-.003004	.0001224	.0009518	-.003273	.0054272	-.000634
Stddev	.035295	.000372	.0000658	.0002453	.001407	.0106766	.002329
%RSD	54.97232	12.38467	53.77185	25.77239	42.99328	196.7263	367.2052

#1	-.024656	-.002868	.0001294	.0010227	-.004895	-.005984	-.002932
#2	-.092501	-.002719	.0000534	.0011539	-.002538	.007091	-.000696
#3	-.075458	-.003425	.0001845	.0006789	-.002385	.015174	.001725

Sample Name: CCB05 Acquired: 10/29/2025 18:07:57 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0039213	-.001276	.0001073
Stddev	.0033585	.002169	.0000780
%RSD	85.64803	170.0022	72.69793
#1	.0068676	-.002909	.0000175
#2	.0002643	-.002103	.0001577
#3	.0046320	.001185	.0001467

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5969.684	91989.46	6669.466	4632.717	7464.257
Stddev	30.464	419.62	50.970	16.178	35.734
%RSD	.5103068	.4561587	.7642268	.3492056	.4787390
#1	5941.002	92277.99	6697.641	4638.379	7430.209
#2	5966.389	91508.09	6700.128	4614.469	7461.095
#3	6001.662	92182.31	6610.628	4645.303	7501.467

Sample Name: Q3420-05 Acquired: 10/29/2025 18:12:16 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.1030419	-.004963	.0036765	.9843063	.0020514	2.725548
Stddev	.0015726	.005077	.0005333	.0066712	.0014098	.034212
%RSD	1.526127	102.2935	14.50522	.6777559	68.72628	1.255230

#1	.1035527	-.006551	.0040157	.9806933	.0007070	2.698450
#2	.1012774	.000718	.0039521	.9802210	.0019285	2.763992
#3	.1042955	-.009057	.0030619	.9920047	.0035186	2.714204

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0120447	.0000186	.0004704	1.618542	.0317249	.0020215
Stddev	.0003469	.0000660	.0000973	.016787	.0001392	.0000952
%RSD	2.880405	354.9113	20.68858	1.037167	.4387909	4.710353

#1	.0124230	.0000885	.0005688	1.622657	.0316978	.0019447
#2	.0119694	-.000043	.0003742	1.632888	.0318757	.0021280
#3	.0117415	.000010	.0004683	1.600080	.0316013	.0019917

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0147348	.9468444	.0201699	1.283387	.0300599	.0006823
Stddev	.0005975	.0058513	.0009926	.033152	.0000541	.0005624
%RSD	4.054997	.6179828	4.921379	2.583172	.1799653	82.42598

#1	.0141109	.9433374	.0192242	1.284068	.0301217	.0012809
#2	.0147917	.9435965	.0200820	1.316193	.0300366	.0006013
#3	.0153018	.9535993	.0212036	1.249900	.0300213	.0001649

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	^ *****	.0050354	.5325956	22.71760	F 11.76872	.0495874
Stddev	-----	.0007606	.0024624	1.34326	.19043	.0004417
%RSD	-----	15.10442	.4623316	5.912873	1.618071	.8907258

#1	^ -----	.0042419	.5297799	21.39694	11.68757	.0493050
#2	6528.745	.0057581	.5343457	22.67348	11.98628	.0493608
#3	6512.217	.0051063	.5336611	24.08238	11.63231	.0500964

Sample Name: Q3420-05 Acquired: 10/29/2025 18:12:16 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.003906	.0592793	F 30.05592	.2720355	F 1690.065	.0204521
Stddev	.000516	.0006604	.74595	.0017242	9.152	.0013403
%RSD	13.20380	1.114063	2.481882	.6338307	.5414895	6.553343
#1	-.004126	.0599626	29.40403	.2733854	1696.472	.0193259
#2	-.003317	.0592310	29.89430	.2700931	1679.584	.0200958
#3	-.004275	.0586445	30.86944	.2726279	1694.140	.0219345

Elem	Sr4077
Units	ppm
Avg	.0157401
Stddev	.0002617
%RSD	1.662371
#1	.0155306
#2	.0160334
#3	.0156564

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3869.098	59578.15	6464.723	2987.429	3955.386
Stddev	28.646	16.01	92.241	10.800	27.755
%RSD	.7403735	.0268800	1.426838	.3615099	.7016926
#1	3876.914	59583.61	6498.817	2998.532	3953.842
#2	3893.024	59560.12	6360.288	2986.796	3983.881
#3	3837.355	59590.72	6535.064	2976.960	3928.436

Sample Name: Q3420-05DUP Acquired: 10/29/2025 18:16:36 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.1042657	-.008965	.0043424	.9817477	.0001285	2.794220
Stddev	.0032847	.001616	.0003283	.0084076	.0000882	.019798
%RSD	3.150354	18.02212	7.561163	.8563954	68.62531	.7085246

#1	.1078634	-.008612	.0045433	.9914472	.0001935	2.799603
#2	.1014265	-.007555	.0045203	.9772561	.0000281	2.810770
#3	.1035073	-.010728	.0039635	.9765398	.0001639	2.772288

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0085897	.0000356	.0004148	1.631003	.0321159	.0018092
Stddev	.0018978	.0000134	.0000620	.012746	.0002201	.0002113
%RSD	22.09352	37.52589	14.93561	.7814695	.6853139	11.68130

#1	.0092279	.0000472	.0004004	1.641013	.0323700	.0016065
#2	.0100861	.0000210	.0003612	1.635342	.0319859	.0017928
#3	.0064551	.0000386	.0004826	1.616655	.0319917	.0020282

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0148181	.9409198	.0202802	1.303965	.0296961	.0008853
Stddev	.0003539	.0134896	.0011265	.012008	.0002567	.0002799
%RSD	2.388228	1.433658	5.554778	.9208776	.8644042	31.61744

#1	.0151740	.9373951	.0215050	1.317137	.0297074	.0006688
#2	.0144662	.9295424	.0192883	1.301129	.0294340	.0012014
#3	.0148141	.9558218	.0200473	1.293629	.0299470	.0007857

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 6320.849	.0083974	.5412624	36.01344	F 11.94216	.0488510
Stddev	26.452	.0019584	.0024939	1.43715	.16327	.0006534
%RSD	.4184909	23.32168	.4607581	3.990588	1.367139	1.337457

#1	6308.188	.0086760	.5389797	34.59846	12.05943	.0495205
#2	6351.252	.0102017	.5439241	35.97008	12.01135	.0488175
#3	6303.107	.0063146	.5408834	37.47178	11.75569	.0482151

Sample Name: Q3420-05DUP Acquired: 10/29/2025 18:16:36 Type: Unk
Method: 6010-200.7 NEW(v324) 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	-.004108	.0565054	F 32.98057	.2665013	F 1671.927	.0265216
Stddev	.001252	.0007889	.96553	.0024323	13.096	.0009916
%RSD	30.46769	1.396194	2.927566	.9126973	.7832737	3.738925

#1	-.003448	.0566977	31.98643	.2691451	1685.742	.0270468
#2	-.003324	.0556381	33.04060	.2660005	1659.694	.0271403
#3	-.005551	.0571803	33.91468	.2643584	1670.346	.0253779

Elem	Sr4077
Units	ppm
Avg	.0157905
Stddev	.0000452
%RSD	.2862847

#1	.0158386
#2	.0157489
#3	.0157839

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3881.226	59475.04	6432.308	2926.054	3984.784
Stddev	25.264	63.85	66.331	13.904	31.076
%RSD	.6509368	.1073598	1.031220	.4751883	.7798676

#1	3852.556	59548.56	6373.915	2940.420	3949.631
#2	3900.233	59433.47	6418.581	2912.663	4008.599
#3	3890.888	59443.09	6504.429	2925.080	3996.122

Sample Name: Q3420-05LX5 Acquired: 10/29/2025 18:20:59 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0222541	-.010141	.0002565	.1871349	-.001784	.6085484
Stddev	.0020774	.003110	.0002141	.0018953	.002351	.0153852
%RSD	9.334942	30.67054	83.44938	1.012796	131.8066	2.528179

#1	.0226195	-.011259	.0004663	.1886975	-.000288	.6240762
#2	.0241246	-.012538	.0000384	.1850266	-.004493	.6082592
#3	.0200183	-.006626	.0002649	.1876806	-.000570	.5933099

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0035336	.0000878	-.000002	.3902040	.0076241	.0002597
Stddev	.0010657	.0000241	.000061	.0166406	.0003127	.0000882
%RSD	30.16025	27.46019	2581.738	4.264590	4.102125	33.96742

#1	.0035360	.0001156	.000063	.3787965	.0079744	.0003064
#2	.0045981	.0000760	-.000058	.3825171	.0075248	.0003146
#3	.0024666	.0000718	-.000012	.4092985	.0073730	.0001579

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037386	.1903625	.0050889	.3045483	.0068888	-.000234
Stddev	.0003319	.0042686	.0000873	.0358975	.0002717	.000131
%RSD	8.877983	2.242325	1.716388	11.78713	3.944280	56.05705

#1	.0039989	.1952477	.0050686	.3288336	.0065776	-.000143
#2	.0033648	.1873526	.0051846	.2633144	.0070790	-.000174
#3	.0038520	.1884873	.0050135	.3214968	.0070098	-.000385

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2117.256	.0031326	.1086833	13.93169	3.308107	.0116011
Stddev	53.343	.0040075	.0002203	.26688	.028994	.0002224
%RSD	2.519441	127.9289	.2027241	1.915633	.8764651	1.916796

#1	2171.204	.0016527	.1087498	13.74795	3.318557	.0114020
#2	2116.026	.0076696	.1084374	13.80930	3.330427	.0118411
#3	2064.539	.0000755	.1088627	14.23781	3.275336	.0115601

Sample Name: Q3420-05LX5 Acquired: 10/29/2025 18:20:59 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.0197612	.0121239	9.663585	.0539647	F 536.2196	.0405681
Stddev	.0005509	.0026605	.320038	.0002335	4.4430	.0033481
%RSD	2.787998	21.94444	3.311790	.4326919	.8285711	8.253139
#1	.0196211	.0132684	10.00361	.0542014	538.0924	.0375774
#2	.0203687	.0090826	9.61893	.0539582	539.4194	.0399415
#3	.0192939	.0140206	9.36822	.0537346	531.1468	.0441852

Elem	Sr4077
Units	ppm
Avg	.0036651
Stddev	.0000901
%RSD	2.458340
#1	.0036076
#2	.0037689
#3	.0036188

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4937.028	73790.02	6760.097	3791.870	5270.720
Stddev	4.485	105.16	48.231	16.658	5.678
%RSD	.0908352	.1425075	.7134668	.4393152	.1077315
#1	4941.142	73714.80	6743.095	3772.691	5270.675
#2	4932.247	73910.18	6722.670	3800.188	5265.064
#3	4937.693	73745.07	6814.527	3802.731	5276.421

Sample Name: Q3420-05MS Acquired: 10/29/2025 18:25:23 Type: Unk
Method: 6010-200.7 NEW(v324) 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	1.125544	2.038673	.9842026	3.757754	1.013717	5.127352
Stddev	.003670	.082470	.0075275	.027709	.010383	.010490
%RSD	.3260399	4.045268	.7648347	.7373890	1.024295	.2045883

#1	1.127283	1.969443	.9755264	3.789097	1.025662	5.131299
#2	1.128021	2.129915	.9889954	3.747649	1.008638	5.115461
#3	1.121328	2.016661	.9880860	3.736515	1.006851	5.135295

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2227899	.1919388	.2159711	2.721920	.4417452	.2161861
Stddev	.0013170	.0011584	.0011297	.016575	.0025049	.0010446
%RSD	.5911527	.6034976	.5230552	.6089406	.5670435	.4832060

#1	.2236532	.1908723	.2146741	2.739301	.4446197	.2150363
#2	.2234424	.1917731	.2167398	2.720167	.4400302	.2170767
#3	.2212740	.1931711	.2164994	2.706291	.4405855	.2164453

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2975293	5.098753	.2248469	3.284520	.5635994	.1102769
Stddev	.0008241	.012827	.0017264	.023407	.0028676	.0001261
%RSD	.2769983	.2515675	.7678268	.7126465	.5087924	.1143859

#1	.2968966	5.110371	.2242556	3.267649	.5602883	.1102166
#2	.2984613	5.084988	.2234938	3.311242	.5652295	.1101923
#3	.2972299	5.100899	.2267913	3.274668	.5652802	.1104219

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 6274.640	.3214799	.8253307	60.49570	F 12.90650	.4859944
Stddev	93.312	.0062029	.0030370	1.36121	.06431	.0015024
%RSD	1.487122	1.929496	.3679723	2.250090	.4982379	.3091424

#1	6365.119	.3169844	.8262780	59.05579	12.83450	.4873329
#2	6280.069	.3188986	.8277812	60.66986	12.92680	.4862810
#3	6178.733	.3285567	.8219330	61.76144	12.95821	.4843694

Sample Name: Q3420-05MS Acquired: 10/29/2025 18:25:23 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.7403815	.2663893	F 30.81708	8.523770	F 1728.518	.3302497
Stddev	.0072364	.0005479	.51205	.010406	21.075	.0012084
%RSD	.9773882	.2056821	1.661592	.1220775	1.219226	.3658956
#1	.7321160	.2658144	30.30304	8.531714	1704.644	.3289619
#2	.7455758	.2664480	30.82107	8.511992	1744.536	.3304286
#3	.7434526	.2669056	31.32712	8.527606	1736.375	.3313587

Elem	Sr4077
Units	ppm
Avg	.2223554
Stddev	.0003507
%RSD	.1577092
#1	.2226411
#2	.2224611
#3	.2219641

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3834.320	59403.47	6223.294	2948.963	3911.317
Stddev	.938	413.93	9.986	8.986	10.227
%RSD	.0244626	.6968101	.1604697	.3047170	.2614793
#1	3833.916	58961.64	6225.653	2939.125	3922.662
#2	3833.652	59466.50	6231.889	2951.024	3908.484
#3	3835.392	59782.27	6212.339	2956.739	3902.805

Sample Name: Q3420-05MSD Acquired: 10/29/2025 18:29:31 Type: Unk
Method: 6010-200.7 NEW(v324) 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	1.026823	1.862089	.8826041	3.517503	.9199033	4.816904
Stddev	.003917	.044787	.0037033	.014538	.0021855	.009697
%RSD	.3814419	2.405182	.4195930	.4133001	.2375766	.2013202

#1	1.030604	1.833033	.8857446	3.533274	.9224175	4.812883
#2	1.022784	1.913666	.8785204	3.514598	.9184579	4.827965
#3	1.027080	1.839568	.8835474	3.504638	.9188345	4.809864

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1992567	.1638291	.1943720	2.593063	.3999623	.1952410
Stddev	.0013304	.0003032	.0006826	.013355	.0006597	.0009375
%RSD	.6676883	.1850378	.3511986	.5150291	.1649445	.4801828

#1	.1980538	.1634791	.1950194	2.581962	.3992872	.1960485
#2	.2006856	.1639989	.1936589	2.589343	.3999944	.1942128
#3	.1990305	.1640092	.1944378	2.607883	.4006054	.1954616

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2706392	4.843503	.2014648	2.994582	.5103513	.0997345
Stddev	.0011644	.015970	.0015013	.052192	.0019348	.0012459
%RSD	.4302272	.3297235	.7451684	1.742896	.3791128	1.249182

#1	.2716220	4.844051	.1999958	2.974007	.5123949	.1011278
#2	.2693532	4.859193	.2014023	3.053926	.5085477	.0993481
#3	.2709423	4.827267	.2029963	2.955812	.5101115	.0987276

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 6274.122	.2875115	.8012526	64.95508	F 12.23006	.4460739
Stddev	15.642	.0022303	.0056684	1.55239	.02657	.0009837
%RSD	.2493040	.7757287	.7074379	2.389950	.2172438	.2205198

#1	6283.543	.2849363	.8021518	63.24295	12.20311	.4470239
#2	6282.756	.2888144	.8064176	65.35136	12.23084	.4450597
#3	6256.066	.2887840	.7951884	66.27092	12.25623	.4461381

Sample Name: Q3420-05MSD Acquired: 10/29/2025 18:29:31 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6717074	.2456893	F 32.88453	7.731922	F 1724.512	.2929782
Stddev	.0016989	.0031710	.46403	.017312	3.011	.0022462
%RSD	.2529264	1.290672	1.411087	.2239040	.1746155	.7666596

#1	.6708341	.2493300	32.39572	7.751088	1727.315	.2905471
#2	.6706227	.2442077	32.93887	7.727259	1724.892	.2934110
#3	.6736654	.2435302	33.31900	7.717418	1721.328	.2949764

Elem	Sr4077
Units	ppm
Avg	.2010722
Stddev	.0002958
%RSD	.1470919

#1	.2008041
#2	.2013894
#3	.2010231

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3831.296	59826.17	6603.690	2956.054	3906.269
Stddev	10.978	147.57	23.768	31.065	14.670
%RSD	.2865333	.2466637	.3599261	1.050878	.3755462

#1	3819.577	59897.80	6630.902	2961.900	3889.677
#2	3841.340	59656.45	6593.176	2922.482	3917.522
#3	3832.970	59924.24	6586.992	2983.780	3911.608

Sample Name: Q3420-05A Acquired: 10/29/2025 18:33:39 Type: Unk
Method: 6010-200.7 NEW(v324) 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	1.009908	1.764726	.8813425	3.380298	.9046021	4.447872
Stddev	.007415	.034792	.0053662	.014745	.0013254	.007956
%RSD	.7342397	1.971523	.6088605	.4361913	.1465166	.1788830

#1	1.002531	1.726609	.8752252	3.363348	.9035235	4.449710
#2	1.009833	1.772792	.8835470	3.387390	.9060817	4.439158
#3	1.017361	1.794776	.8852554	3.390157	.9042010	4.454750

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1916053	.1600411	.1923294	2.415859	.3925961	.1925833
Stddev	.0007418	.0007681	.0006767	.006241	.0013943	.0008861
%RSD	.3871251	.4799167	.3518534	.2583447	.3551508	.4601220

#1	.1924540	.1594900	.1916363	2.408845	.3911681	.1915795
#2	.1912812	.1609184	.1923633	2.420800	.3926661	.1929135
#3	.1910809	.1597148	.1929885	2.417933	.3939541	.1932569

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2668579	4.716836	.1966971	2.874914	.5018115	.0976555
Stddev	.0009303	.019903	.0009717	.067296	.0018649	.0003039
%RSD	.3486138	.4219481	.4940156	2.340790	.3716403	.3111615

#1	.2665638	4.706708	.1977932	2.797276	.4996592	.0980049
#2	.2661102	4.704034	.1959412	2.916556	.5029471	.0975086
#3	.2678997	4.739765	.1963570	2.910909	.5028283	.0974529

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 5857.374	.2839660	.7529242	62.03342	F 11.21736	.4368466
Stddev	18.199	.0020242	.0037046	1.65480	.04224	.0014549
%RSD	.3107056	.7128372	.4920347	2.667592	.3765865	.3330539

#1	5878.032	.2816889	.7497016	60.43024	11.19877	.4352434
#2	5843.708	.2855612	.7569718	61.93462	11.26571	.4372135
#3	5850.382	.2846478	.7520991	63.73541	11.18760	.4380830

Sample Name: Q3420-05A Acquired: 10/29/2025 18:33:39 Type: Unk
Method: 6010-200.7 NEW(v324) 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	.6606018	.2330627	F 32.02962	7.475327	F 1617.773	.2733215
Stddev	.0031511	.0024905	.40312	.025856	10.265	.0026840
%RSD	.4770051	1.068589	1.258574	.3458805	.6345012	.9819769
#1	.6573803	.2315803	31.67308	7.448658	1607.041	.2727155
#2	.6607477	.2316698	31.94873	7.500285	1618.783	.2709924
#3	.6636774	.2359380	32.46704	7.477037	1627.496	.2762567

Elem	Sr4077
Units	ppm
Avg	.1986678
Stddev	.0005575
%RSD	.2806034
#1	.1983439
#2	.1993115
#3	.1983480

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3952.105	61811.12	6845.877	3048.276	4049.841
Stddev	6.392	259.15	22.341	6.080	9.471
%RSD	.1617427	.4192664	.3263395	.1994456	.2338639
#1	3958.005	62026.68	6866.398	3053.609	4060.428
#2	3952.995	61883.09	6822.078	3041.656	4046.923
#3	3945.314	61523.59	6849.156	3049.564	4042.173

Sample Name: CCV06 Acquired: 10/29/2025 18:55:44 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV06 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.794660	5.489646	4.915123	4.772308	4.737322	9.450605
Stddev	.013531	.051352	.012026	.010476	.018453	.032801
%RSD	.2822094	.9354277	.2446642	.2195064	.3895266	.3470825

#1	4.779064	5.434597	4.905328	4.762496	4.716152	9.420118
#2	4.801653	5.536254	4.911498	4.771087	4.750004	9.446385
#3	4.803263	5.498088	4.928545	4.783340	4.745811	9.485312

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.692988	.2527308	2.472349	24.45815	1.006992	2.457145
Stddev	.051815	.0014115	.005850	.07173	.003146	.003827
%RSD	.5345605	.5585206	.2366369	.2932835	.3123979	.1557405

#1	9.633265	.2511217	2.467930	24.40226	1.010508	2.454789
#2	9.725958	.2533100	2.470134	24.43316	1.006023	2.455086
#3	9.719740	.2537606	2.478984	24.53904	1.004445	2.461561

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.192465	4.858584	2.454996	24.83725	2.468417	1.242017
Stddev	.004365	.008238	.016274	.13094	.004130	.001600
%RSD	.3660234	.1695564	.6629054	.5272044	.1673184	.1288162

#1	1.187454	4.867258	2.436327	24.75265	2.465683	1.240216
#2	1.194499	4.850865	2.462470	24.77102	2.466401	1.242557
#3	1.195441	4.857628	2.466191	24.98807	2.473168	1.243276

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	26.26310	2.445107	2.252550	25.95918	5.141341	4.818101
Stddev	.35537	.013532	.002265	.09562	.043863	.012448
%RSD	1.353117	.5534233	.1005735	.3683334	.8531519	.2583573

#1	26.66247	2.430975	2.251722	26.06915	5.090699	4.804764
#2	26.14510	2.446399	2.255113	25.91264	5.165901	4.820126
#3	25.98175	2.457946	2.250815	25.89574	5.167423	4.829412

Sample Name: CCV06 Acquired: 10/29/2025 18:55:44 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV06 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.024342	4.887921	F 5.506660	4.625794	5.155324	4.564279
Stddev	.008100	.019506	.051602	.013373	.016562	.011777
%RSD	.1612061	.3990607	.9370842	.2891032	.3212641	.2580193
#1	5.016181	4.865789	5.563763	4.616852	5.147966	4.550687
#2	5.024466	4.895368	5.492845	4.619361	5.174290	4.570714
#3	5.032379	4.902606	5.463372	4.641168	5.143716	4.571436

Elem	Sr4077
Units	ppm
Avg	4.882217
Stddev	.093396
%RSD	1.912985
#1	4.774505
#2	4.931446
#3	4.940700

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6184.626	91291.21	6843.879	5434.026	6735.636
Stddev	10.414	149.92	50.561	14.154	5.885
%RSD	.1683797	.1642231	.7387742	.2604672	.0873671
#1	6194.359	91126.96	6897.990	5444.435	6735.174
#2	6185.874	91420.69	6835.807	5439.732	6741.737
#3	6173.644	91325.99	6797.840	5417.909	6729.995

Sample Name: CCB06 Acquired: 10/29/2025 19:04:41 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001578	-.002617	-.000277	.0020717	-.004798	-.013439
Stddev	.000698	.001252	.000726	.0037128	.001247	.010339
%RSD	44.24694	47.85022	262.1140	179.2129	25.99268	76.92929

#1	-.000818	-.003736	-.000156	-.002156	-.005278	-.005915
#2	-.002191	-.001264	.000381	.003569	-.003382	-.009175
#3	-.001726	-.002852	-.001055	.004802	-.005734	-.025228

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0063644	-.000025	-.000066	-.019734	.0003161	-.000117
Stddev	.0001697	.000054	.000046	.012733	.0002426	.000067
%RSD	2.666443	217.8691	69.48677	64.52611	76.76275	56.77629

#1	.0063086	-.000046	-.000040	-.030263	.0002676	-.000045
#2	.0062296	-.000064	-.000039	-.005581	.0005793	-.000131
#3	.0065550	.000036	-.000119	-.023358	.0001014	-.000176

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000221	-.012253	.0009056	-.021556	.0000159	-.000288
Stddev	.000387	.004145	.0006117	.036543	.0001764	.000443
%RSD	175.3260	33.83130	67.55009	169.5230	1108.648	153.6669

#1	-.000215	-.014511	.0009295	-.059805	-.000065	-.000001
#2	.000163	-.014780	.0015050	-.017865	-.000106	-.000066
#3	-.000610	-.007469	.0002823	.013001	.000218	-.000798

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3636523	-.000900	-.000367	.0392984	F .0742915	.0000139
Stddev	.0075102	.001408	.000156	.0195389	.0015745	.0002255
%RSD	2.065220	156.4199	42.39071	49.71926	2.119373	1618.248

#1	.3637306	.000707	-.000279	.0596963	.0752493	-.000234
#2	.3561032	-.001492	-.000547	.0374485	.0751508	.000207
#3	.3711230	-.001916	-.000276	.0207502	.0724743	.000069

Sample Name: CCB06 Acquired: 10/29/2025 19:04:41 Type: Unk
Method: 6010-200.7 NEW(v324) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0056647	-.001224	F .2837423	.0015474	F .0344516	-.003212
Stddev	.0002881	.002830	.0052769	.0011670	.0012990	.000960
%RSD	5.085445	231.2551	1.859754	75.41465	3.770611	29.90157
#1	.0056596	-.004304	.2898324	.0024494	.0359511	-.002459
#2	.0059553	.001261	.2805275	.0002294	.0337378	-.004294
#3	.0053792	-.000628	.2808670	.0019634	.0336661	-.002883

Elem	Sr4077
Units	ppm
Avg	-.000082
Stddev	.000050
%RSD	60.37675
#1	-.000140
#2	-.000052
#3	-.000055

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6502.806	95999.07	6881.786	5707.122	7862.436
Stddev	21.313	132.96	23.461	27.932	29.818
%RSD	.3277478	.1385025	.3409117	.4894166	.3792447
#1	6496.827	96106.12	6881.073	5680.079	7845.170
#2	6485.121	96040.85	6858.690	5735.864	7845.270
#3	6526.470	95850.23	6905.595	5705.422	7896.866

LB137668

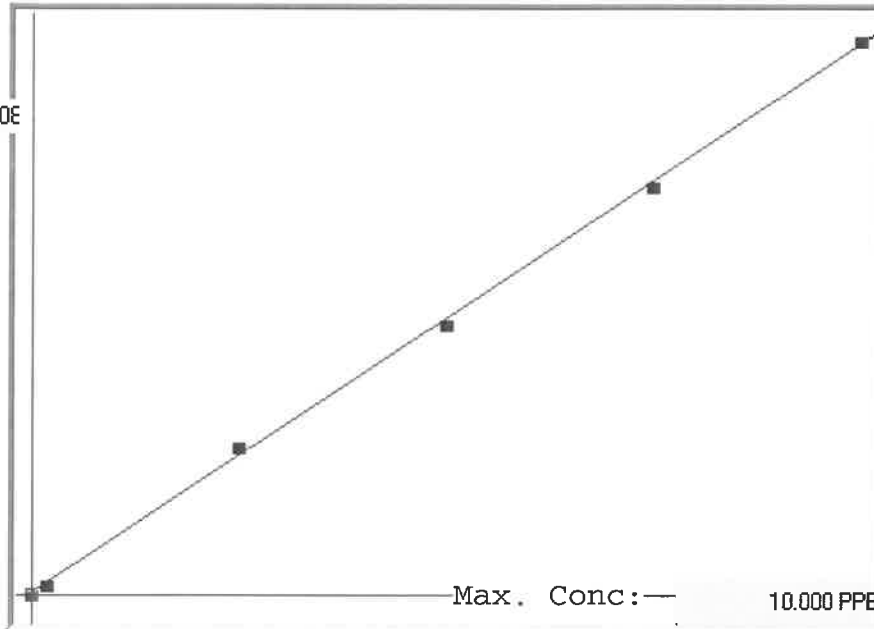
7471B

INSTRUMENT ID: CV1

Linear

μ Abs.:

5370E



A= 0.0000e+000

B= 1.8787e-004

C= -3.7871e-002

Rho= 0.9997108

Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0.0	0.000	-0.033	-0.033	26	0.000	26				
0.2	0.200	0.170	-0.030	1104	0.0 %	1104				
2.5	2.500	2.672	0.172	14424	0.0 %	14424				
5.0	5.000	4.915	-0.085	26364	0.0 %	26364				
7.5	7.500	7.424	-0.076	39720	0.0 %	39720				
10.0	10.000	10.052	0.052	53708	0.0 %	53708				

LB137668 INSTRUMENT ID: CV1

Method: 7471B Operator: Admin Date of Analysis: 28 Oct 2025 12:28:20

Type	Sample ID	Extended ID	Conc.	μ Abs.	Units	Type	Std Conc	Method	Date
U	PB170271BS - 1	LCSS	3.9664	21374	PPB	SMPL	-7471B		28 Oct 2025 13:14:11
S	0.0 - 1	50	-	26	PPB	Std	0.0000	7471B	28 Oct 2025 12:32:55
S	0.2 - 1	102	-	1104	PPB	Std	0.2000	7471B	28 Oct 2025 12:35:13
S	2.5 - 1	525	-	14424	PPB	Std	2.5000	7471B	28 Oct 2025 12:37:30
S	5.0 - 1	55	-	26364	PPB	Std	5.0000	7471B	28 Oct 2025 12:39:46
S	7.5 - 1	55	-	39720	PPB	Std	7.5000	7471B	28 Oct 2025 12:42:22
S	10.0 - 1	55	-	53708	PPB	Std	10.0000	7471B	28 Oct 2025 12:45:04
U	ICV90 - 1	ICV90	4.2961	23069	PPB	SMPL	-7471B		28 Oct 2025 12:51:39
U	ICB90 - 1	ICB90	-0.0873	-263	PPB	SMPL	-7471B		28 Oct 2025 12:53:54
U	CCV97 - 1	CCV97	5.0411	27035	PPB	SMPL	-7471B		28 Oct 2025 12:56:34
U	CCB97 - 1	CCB97	-0.0931	-294	PPB	SMPL	-7471B		28 Oct 2025 12:58:49
U	CRA - 1	CRA	0.1620	1064	PPB	SMPL	-7471B		28 Oct 2025 13:04:08
U	HighStd - 1	HighStd	10.0580	53739	PPB	SMPL	-7471B		28 Oct 2025 13:06:22
U	ChkStd - 1	ChkStd	7.1100	38047	PPB	SMPL	-7471B		28 Oct 2025 13:08:38
U	PB170271BL - 1	PBS	-0.0933	-295	PPB	SMPL	-7471B		28 Oct 2025 13:11:27
U	Q3451-01 - 1	TP-11	0.0277	349	PPB	SMPL	-7471B		28 Oct 2025 13:16:28
U	Q3451-01DUP - 1	TP-11DUP	0.0260	340	PPB	SMPL	-7471B		28 Oct 2025 13:21:48
U	Q3451-01MS - 1	TP-11MS	3.9979	21482	PPB	SMPL	-7471B		28 Oct 2025 13:24:04
U	Q3451-01MSD - 1	TP-11MSD	4.1063	22059	PPB	SMPL	-7471B		28 Oct 2025 13:26:21
U	Q3451-05 - 1	TP-12	-0.0133	131	PPB	SMPL	-7471B		28 Oct 2025 13:29:02
U	CCV98 - 1	CCV98	4.7663	25572	PPB	SMPL	-7471B		28 Oct 2025 13:31:39
U	CCB98 - 1	CCB98	-0.0707	-175	PPB	SMPL	-7471B		28 Oct 2025 13:33:55
U	Q3452-01 - 1	JB-1	44.3148	236084	PPB	SMPL	-7471B		28 Oct 2025 13:36:34
U	Q3457-01 - 1	TR-05-102425	0.2054	1295	PPB	SMPL	-7471B		28 Oct 2025 13:38:50
U	Q3460-01 - 1	WC-1	3.6256	19500	PPB	SMPL	-7471B		28 Oct 2025 13:41:55
U	Q3460-05 - 1	WC-2	-0.0153	120	PPB	SMPL	-7471B		28 Oct 2025 13:44:12
U	Q3460-09 - 1	WC-3	0.0209	313	PPB	SMPL	-7471B		28 Oct 2025 13:46:51
U	Q3460-13 - 1	WC-4	4.4122	23687	PPB	SMPL	-7471B		28 Oct 2025 13:49:07
U	Q3460-17 - 1	WC-5	2.4777	13390	PPB	SMPL	-7471B		28 Oct 2025 13:51:24
U	Q3465-01 - 1	SU-03-10242025	0.2699	1638	PPB	SMPL	-7471B		28 Oct 2025 13:54:05
U	Q3466-02 - 1	B8-0.0-1.0-20251023	3.4824	18738	PPB	SMPL	-7471B		28 Oct 2025 13:56:39
U	Q3466-05 - 1	B9-0.0-1.0-20251023	0.5571	3167	PPB	SMPL	-7471B		28 Oct 2025 13:58:56
U	CCV99 - 1	CCV99	4.9932	26780	PPB	SMPL	-7471B		28 Oct 2025 14:01:32
U	CCB99 - 1	CCB99	-0.0961	-310	PPB	SMPL	-7471B		28 Oct 2025 14:03:50
U	Q3466-07 - 1	B7-1.0-2.0-20251023	0.2381	1469	PPB	SMPL	-7471B		28 Oct 2025 14:06:31
U	Q3469-01 - 1	TP-13	0.1631	1070	PPB	SMPL	-7471B		28 Oct 2025 14:08:47
U	Q3451-01LX5 - 1		-0.0407	-15	PPB	SMPL	-7471B		28 Oct 2025 14:11:02
U	Q3451-01A - 1		3.7734	20287	PPB	SMPL	-7471B		28 Oct 2025 14:13:18
U	Q3452-01DLX10 - 1		6.0962	32651	PPB	SMPL	-7471B		28 Oct 2025 14:20:48
U	CCV100 - 1	CCV100	4.9036	26303	PPB	SMPL	-7471B		28 Oct 2025 14:23:03
U	CCB100 - 1	CCB100	-0.0730	-187	PPB	SMPL	-7471B		28 Oct 2025 14:25:30

SOP ID : M3050B-Digestion-20

SDG No : N/A

Matrix : SOIL

Pipette ID: ICP A

Balance ID : M SC-2

Filter paper ID : N/A

pH Strip ID : N/A

Hood ID : #3

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

Start Digest Date: 10/28/2025 **Time :** 10:40 **Temp :** 96 °C

End Digest Date: 10/28/2025 **Time :** 12:42 **Temp :** 96 °C

Digestion tube ID: M6054

Block thermometer ID: MET-DIG. #2

Dig Technician Signature: *SJ*

Supervisor Signature: *SJ*

Temp : 1. 96°C 2. N/A

Standard Name	MLS USED	STD REF. # FROM LOG
LFS-1	1.00	M6209
LFS-2	1.00	M6201
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
CONC: HNO3	5.00	M6158
1:1 HNO3	10.00	MP86978
30% H2O2	3.00	M6170
Conc. HNO3	10.00	M6151
PTFE Boiling Stones	N/A	M5581
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#2 CELL#35 96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
10/28/25 13:42	<i>SJ met dig</i>	<i>SJ (met dig lab)</i>
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	pH	Initial Weight (g)	Final Vol (ml)	Color Before	Color After	Texture	Artifact	Comment	Prep Pos
PB170288BL	PBS288	N/A	2.00	100	Colorless	Colorless	Fine	No	N/A	1
PB170288BS	LCS288	N/A	2.00	100	Colorless	Colorless	Fine	No	M6209,M6201	2
Q3465-01	SU-03-10242025	N/A	2.40	100	Brown	Yellow	Medium	No	N/A	3
Q3466-02	B8-0.0-1.0-20251023	N/A	2.14	100	Brown	Yellow	Medium	No	N/A	4
Q3466-05	B9-0.0-1.0-20251023	N/A	2.14	100	Brown	Yellow	Medium	No	N/A	5
Q3466-07	B7-1.0-2.0-20251023	N/A	2.20	100	Brown	Yellow	Medium	No	N/A	6
Q3469-01	TP-13	N/A	2.30	100	Brown	Yellow	Medium	No	N/A	7
Q3469-01MS	TP-13MS	N/A	2.25	100	Brown	Yellow	Medium	No	M6209,M6201	9
Q3469-01MSD	TP-13MSD	N/A	2.28	100	Brown	Yellow	Medium	No	M6209,M6201	10
Q3469-01DUP	TP-13DUP	N/A	2.24	100	Brown	Yellow	Medium	No	N/A	8

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB170288 WorkList ID : 192730 Department : Digestion Date : 10-28-2025 09:44:46

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3465-01	SU-03-10242025	Solid	Metals ICP-TAL	Cool 4 deg C	PSEG05	D31	10/24/2025	6010D
Q3466-02	B8-0.0-1.0-20251023	Solid	Metals ICP-TAL	Cool 4 deg C	HDR108	D41	10/23/2025	6010D
Q3466-05	B9-0.0-1.0-20251023	Solid	Metals ICP-TAL	Cool 4 deg C	HDR108	D41	10/23/2025	6010D
Q3466-07	B7-1.0-2.0-20251023	Solid	Metals ICP-TAL	Cool 4 deg C	HDR108	D41	10/23/2025	6010D
Q3469-01	TP-13	Solid	Metals ICP-TAL	Cool 4 deg C	PSEG03	D41	10/25/2025	6010D

Date/Time 10/28/25 10:10
 Raw Sample Received by: S108 medid
 Raw Sample Relinquished by: CPCSmt

Date/Time 10/28/25 11:10
 Raw Sample Received by: CPCSmt
 Raw Sample Relinquished by: S108 medid

SOP ID : M7471B-Mercury-19

SDG No : NA

Matrix : SOIL

Pipette ID: HG A

Balance ID : M SC-3

Filter paper ID : N/A

pH Strip ID : NA

Hood ID : #1

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

Start Digest Date: 10/27/2025 Time : 14:40 Temp : 94 °C

End Digest Date: 10/27/2025 Time : 15:10 Temp : 94 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature: *mh*

Supervisor Signature: *mh*

Temp : 1. 94°C 2. N/A

Standard Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP87742
CCV	30mL	MP87744
CRA	30mL	MP87746
Blank Spike	0.48mL	MP87734
Matrix Spike	0.48mL	MP87734

Chemical Used	ML/SAMPLE USED	Lot Number
AQUA REGIA	1.5ML	MP87748
KMnO4 (5%)	4.5mL	MP87072
Hydroxylamine HCL (12%)	2.0ML	MP87149
PTFE Boiling Stones	-----	M5582
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
0.0 ppb	S0	30mL	MP87735
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30mL	MP87737
2.5 ppb	S2.5	30mL	MP87738
5.0 ppb	S5.0	30mL	MP87739
7.5 ppb	S7.5	30mL	MP87740
10.0 ppb	S10.0	30mL	MP87741
ICV	ICV	30mL	MP87742
ICB	ICB	30mL	MP87743
CCV	CCV	30mL	MP87744
CCB	CCB	30mL	MP87745
CRI	CRI	30mL	MP87746
CHK STD	CHK STD	30mL	MP87747

Extraction Conformance/Non-Conformance Comments:

N/A		
Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
10/27/25 16:10	<i>mh mrf d12</i>	<i>mh mrf/46</i>
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	Initial Weight (g)	Final Vol (ml)	pH	Comment	Prep Pos
PB170271BL	PBS271	0.50	35	N/A	N/A	3-1
PB170271BS	LCS271	0.50	35	N/A	MP87734	2
Q3451-01MS	TP-11MS	0.50	35	N/A	MP87734	5
Q3451-01MSD	TP-11MSD	0.55	35	N/A	MP87734	6
Q3451-01DUP	TP-11DUP	0.56	35	N/A	N/A	4
Q3451-01	TP-11	0.55	35	N/A	N/A	3
Q3451-05	TP-12	0.52	35	N/A	N/A	7
Q3452-01	JB-1	0.59	35	N/A	N/A	8
Q3457-01	TR-05-102425	0.53	35	N/A	N/A	9
Q3460-01	WC-1	0.58	35	N/A	N/A	10
Q3460-05	WC-2	0.56	35	N/A	N/A	11
Q3460-09	WC-3	0.58	35	N/A	N/A	12
Q3460-13	WC-4	0.52	35	N/A	N/A	13
Q3460-17	WC-5	0.54	35	N/A	N/A	14
Q3465-01	SU-03-10242025	0.52	35	N/A	N/A	15
Q3466-02	B8-0.0-1.0-20251023	0.53	35	N/A	N/A	16
Q3466-05	B9-0.0-1.0-20251023	0.56	35	N/A	N/A	17
Q3466-07	B7-1.0-2.0-20251023	0.57	35	N/A	N/A	18
Q3469-01	TP-13	0.50	35	N/A	N/A	19

WORKLIST(Hardcopy Internal Chain)

WorkList Name : 102725_7471

WorkList ID : 192696

Department : Digestion

Date : 10-27-2025 09:12:31

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3451-01	TP-11	Solid	Mercury	Cool 4 deg C	PSEG03	D31	10/23/2025	7471B
Q3451-05	TP-12	Solid	Mercury	Cool 4 deg C	PSEG03	D31	10/23/2025	7471B
Q3452-01	JB-1	Solid	Mercury	Cool 4 deg C	PSEG03	D31	10/24/2025	7471B
Q3457-01	TR-05-102425	Solid	Mercury	Cool 4 deg C	PSEG05	D31	10/24/2025	7471B
Q3460-01	WC-1	Solid	Mercury	Cool 4 deg C	PSEG03	D31	10/24/2025	7471B
Q3460-05	WC-2	Solid	Mercury	Cool 4 deg C	PSEG03	D31	10/24/2025	7471B
Q3460-09	WC-3	Solid	Mercury	Cool 4 deg C	PSEG03	D31	10/24/2025	7471B
Q3460-13	WC-4	Solid	Mercury	Cool 4 deg C	PSEG03	D31	10/24/2025	7471B
Q3460-17	WC-5	Solid	Mercury	Cool 4 deg C	PSEG03	D31	10/24/2025	7471B
Q3465-01	SU-03-10242025	Solid	Mercury	Cool 4 deg C	PSEG05	D31	10/24/2025	7471B
Q3466-02	B8-0.0-1.0-20251023	Solid	Mercury	Cool 4 deg C	HDR108	D41	10/23/2025	7471B
Q3466-05	B9-0.0-1.0-20251023	Solid	Mercury	Cool 4 deg C	HDR108	D41	10/23/2025	7471B
Q3466-07	B7-1.0-2.0-20251023	Solid	Mercury	Cool 4 deg C	HDR108	D41	10/23/2025	7471B
Q3469-01	TP-13	Solid	Mercury	Cool 4 deg C	PSEG03	D41	10/25/2025	7471B

Date/Time

10/27/25 @ 14:20

Raw Sample Received by:

AS3 - DJ9 Lab

Raw Sample Relinquished by:

AS3 - DJ9 Lab

Date/Time

10/23/25 @ 15:10

Raw Sample Received by:

AS3 - DJ9 Lab

Raw Sample Relinquished by:

AS3 - DJ9 Lab

PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 10/28/2025

OVENTEMP IN Celsius(°C): 107
Time IN: 17:40
In Date: 10/27/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 104
Time OUT: 08:27
Out Date: 10/28/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID-OVEN

QC:LB137661

Lab ID	Client SampleID	Dish #	Dish Wt(g) (A)	Sample Wt(g)	Dish + Sample Wt(g) (B)	Dish+Dry Sample Wt(g) (C)	% Solid	Comments
Q3459-01	Y2404-0071-END-1-1	1	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-02	Y2404-0071-END-1-2	2	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-03	Y2404-0071-END-2-1	3	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-04	Y2404-0071-END-2-2	4	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-05	BC259240LOK-END-1-1	5	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-06	BC259240LOK-END-1-2	6	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-07	BC271327-END-1-1	7	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-08	BC271327-END-1-2	8	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-09	BC271327-END-2-1	9	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-10	BC271327-END-2-2	10	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-11	BC283118LOK-END-1-1	11	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-12	BC283118LOK-END-1-2	12	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-13	BC283118LOK-END-2-1	13	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-14	BC283118LOK-END-2-2	14	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-15	BC283118LOK-END-3-1	15	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-16	BC283118LOK-END-3-2	16	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-17	BC283118LOK-END-4-1	17	1.00	1.00	2.00	2.00	100.0	PILC
Q3459-18	BC283118LOK-END-4-2	18	1.00	1.00	2.00	2.00	100.0	PILC
Q3461-01	SS-9R(4.5-5.0)	19	1.18	10.38	11.56	10.34	88.2	
Q3461-02	SS-9R(5.0-5.5)	20	1.19	10.46	11.65	10.07	84.9	
Q3461-03	SS-25(4.5-5.0)	21	1.19	10.39	11.58	9.76	82.5	
Q3461-04	SS-25(5.0-5.5)	22	1.12	11.10	12.22	10.89	88.0	
Q3465-01	SU-03-10242025	23	1.16	10.29	11.45	10.74	93.1	
Q3465-02	SU-03-10242025-E2	24	1.18	10.49	11.67	10.23	86.3	
Q3466-01	B8-0.5-1.0-20251023	25	1.17	10.34	11.51	9.6	81.5	
Q3466-02	B8-0.0-1.0-20251023	26	1.16	10.36	11.52	10.00	85.3	
Q3466-04	B9-0.5-1.0-20251023	27	1.17	10.38	11.55	9.85	83.6	
Q3466-05	B9-0.0-1.0-20251023	28	1.18	10.42	11.6	9.85	83.2	



PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 10/28/2025

OVENTEMP IN Celsius(°C): 107
Time IN: 17:40
In Date: 10/27/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 104
Time OUT: 08:27
Out Date: 10/28/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID-OVEN

QC:LB137661

Lab ID	Client SampleID	Dish #	Dish Wt(g) (A)	Sample Wt(g)	Dish + Sample Wt(g) (B)	Dish+Dry Sample Wt(g) (C)	% Solid	Comments
Q3466-06	B7-1.5-2.0-20251023	29	1.14	10.35	11.49	10.57	91.1	
Q3466-07	B7-1.0-2.0-20251023	30	1.16	10.65	11.81	10.66	89.2	
Q3469-01	TP-13	31	1.18	10.10	11.28	10.38	91.1	
Q3469-02	TP-13-EPH	32	1.12	11.10	12.22	10.21	81.9	
Q3469-03	TP-13-VOC	33	1.11	10.41	11.52	10.52	90.4	
Q3470-01	PILC-1	34	1.00	1.00	2.00	2.00	100.0	PILC
Q3470-02	PILC-2	35	1.00	1.00	2.00	2.00	100.0	PILC
Q3472-04	COMP-1	36	1.00	1.00	2.00	2.00	100.0	oily-debris
Q3472-06	COMP-2	37	1.00	1.00	2.00	2.00	100.0	oily-debris
Q3472-08	COMP-3	38	1.00	1.00	2.00	2.00	100.0	oily-debris
Q3472-10	COMP-4	39	1.00	1.00	2.00	2.00	100.0	oily-debris
Q3472-12	COMP-5	40	1.00	1.00	2.00	2.00	100.0	oily-debris
Q3472-14	155	41	1.00	1.00	2.00	2.00	100.0	debris
Q3472-16	142	42	1.00	1.00	2.00	2.00	100.0	oil sample
Q3472-18	137	43	1.00	1.00	2.00	2.00	100.0	oil sample
Q3474-01	WASTE	44	1.18	10.39	11.57	10.24	87.2	
Q3474-02	VOC	45	1.11	10.43	11.54	10.14	86.6	
Q3474-03	1	46	1.18	10.32	11.5	9.87	84.2	
Q3474-04	2	47	1.19	10.47	11.66	9.97	83.9	
Q3474-05	3	48	1.16	10.56	11.72	10.32	86.7	
Q3474-06	4	49	1.18	10.27	11.45	10.1	86.9	
Q3474-07	5	50	1.16	10.61	11.77	10.27	85.9	

$$\% \text{ Solid} = \frac{(C-A) * 100}{(B-A)}$$

WORKLIST(Hardcopy Internal Chain)

10/27/25

WorkList Name : %1-102725 WorkList ID : 192686 Department : Wet-Chemistry Date : 10-27-2025 08:17:32

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3459-01	Y2404-0071-END-1-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-02	Y2404-0071-END-1-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-03	Y2404-0071-END-2-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-04	Y2404-0071-END-2-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-05	BC259240LOK-END-1-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-06	BC259240LOK-END-1-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-07	BC271327-END-1-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-08	BC271327-END-1-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-09	BC271327-END-2-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-10	BC271327-END-2-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-11	BC283118LOK-END-1-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-12	BC283118LOK-END-1-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-13	BC283118LOK-END-2-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-14	BC283118LOK-END-2-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-15	BC283118LOK-END-3-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-16	BC283118LOK-END-3-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-17	BC283118LOK-END-4-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3459-18	BC283118LOK-END-4-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/24/2025	Chemtech -SO
Q3461-01	SS-9R(4.5-5.0)	Solid	Percent Solids	Cool 4 deg C	MATR02	D41	10/24/2025	Chemtech -SO
Q3461-02	SS-9R(5.0-5.5)	Solid	Percent Solids	Cool 4 deg C	MATR02	D41	10/24/2025	Chemtech -SO
Q3461-03	SS-25(4.5-5.0)	Solid	Percent Solids	Cool 4 deg C	MATR02	D41	10/24/2025	Chemtech -SO

Date/Time 10/27/25 17:45
 Raw Sample Received by: JH WOC
 Raw Sample Relinquished by: JH WOC

WORKLIST(Hardcopy Internal Chain)

137661

WorkList Name : %1-102725

WorkList ID : 192686

Department : Wet-Chemistry

Date : 10-27-2025 08:17:32

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3461-04	SS-25(5.0-5.5)	Solid	Percent Solids	Cool 4 deg C	MATR02	D41	10/24/2025	Chemtech -SO
Q3465-01	SU-03-10242025	Solid	Percent Solids	Cool 4 deg C	PSEG05	D31	10/24/2025	Chemtech -SO
Q3465-02	SU-03-10242025-E2	Solid	Percent Solids	Cool 4 deg C	PSEG05	D31	10/24/2025	Chemtech -SO
Q3466-01	B8-0.5-1.0-20251023	Solid	Percent Solids	Cool 4 deg C	HDR108	D41	10/23/2025	Chemtech -SO
Q3466-02	B8-0.0-1.0-20251023	Solid	Percent Solids	Cool 4 deg C	HDR108	D41	10/23/2025	Chemtech -SO
Q3466-04	B9-0.5-1.0-20251023	Solid	Percent Solids	Cool 4 deg C	HDR108	D41	10/23/2025	Chemtech -SO
Q3466-05	B9-0.0-1.0-20251023	Solid	Percent Solids	Cool 4 deg C	HDR108	D41	10/23/2025	Chemtech -SO
Q3466-06	B7-1.5-2.0-20251023	Solid	Percent Solids	Cool 4 deg C	HDR108	D41	10/23/2025	Chemtech -SO
Q3466-07	B7-1.0-2.0-20251023	Solid	Percent Solids	Cool 4 deg C	HDR108	D41	10/23/2025	Chemtech -SO
Q3469-01	TP-13	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/25/2025	Chemtech -SO
Q3469-02	TP-13-EPH	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/25/2025	Chemtech -SO
Q3469-03	TP-13-VOC	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/25/2025	Chemtech -SO
Q3470-01	PILC-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/27/2025	Chemtech -SO
Q3470-02	PILC-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/27/2025	Chemtech -SO
Q3472-04	COMP-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/27/2025	Chemtech -SO
Q3472-06	COMP-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/27/2025	Chemtech -SO
Q3472-08	COMP-3	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/27/2025	Chemtech -SO
Q3472-10	COMP-4	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/27/2025	Chemtech -SO
Q3472-12	COMP-5	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/27/2025	Chemtech -SO
Q3472-14	155	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/27/2025	Chemtech -SO
Q3472-16	142	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/27/2025	Chemtech -SO

Date/Time 10/27/25 15:30
Raw Sample Received by: 88 WOC
Raw Sample Relinquished by: CFS

Date/Time 10/27/25 17:45
Raw Sample Received by: CFS
Raw Sample Relinquished by: 88 WOC

WORKLIST(Hardcopy Internal Chain)

VB 137661

WorkList Name : %1-102725 WorkList ID : 192686 Department : Wet-Chemistry Date : 10-27-2025 08:17:32

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3472-18	137	Solid	Percent Solids	Cool 4 deg C	PSEG03	D41	10/27/2025	Chemtech -SO
Q3474-01	WASTE	Solid	Percent Solids	Cool 4 deg C	SCIA01	J31	10/27/2025	Chemtech -SO
Q3474-02	VOC	Solid	Percent Solids	Cool 4 deg C	SCIA01	J31	10/27/2025	Chemtech -SO
Q3474-03	1	Solid	Percent Solids	Cool 4 deg C	SCIA01	J31	10/27/2025	Chemtech -SO
Q3474-04	2	Solid	Percent Solids	Cool 4 deg C	SCIA01	J31	10/27/2025	Chemtech -SO
Q3474-05	3	Solid	Percent Solids	Cool 4 deg C	SCIA01	J31	10/27/2025	Chemtech -SO
Q3474-06	4	Solid	Percent Solids	Cool 4 deg C	SCIA01	J31	10/27/2025	Chemtech -SO
Q3474-07	5	Solid	Percent Solids	Cool 4 deg C	SCIA01	J31	10/27/2025	Chemtech -SO

Date/Time 10/27/25 13:30

Raw Sample Received by: gg wec

Raw Sample Relinquished by: gg wec

Date/Time 10/27/25 17:45

Raw Sample Received by: gg wec

Raw Sample Relinquished by: gg wec

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137668

Review By	mohan	Review On	10/30/2025 3:55:07 PM
Supervise By	jaswal	Supervise On	10/30/2025 3:55:31 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87754,MP87755,MP87756,MP87757,MP87758,MP87759		
ICV Standard	MP87760		
CCV Standard	MP87762		
ICSA Standard			
CRI Standard	MP87764		
LCS Standard			
Chk Standard	MP87761,MP87763,MP87765,MP87751		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	10/28/25 12:32		mohan	OK
2	S0.2	S0.2	CAL2	10/28/25 12:35		mohan	OK
3	S2.5	S2.5	CAL3	10/28/25 12:37		mohan	OK
4	S5	S5	CAL4	10/28/25 12:39		mohan	OK
5	S7.5	S7.5	CAL5	10/28/25 12:42		mohan	OK
6	S10	S10	CAL6	10/28/25 12:45		mohan	OK
7	ICV90	ICV90	ICV	10/28/25 12:51		mohan	OK
8	ICB90	ICB90	ICB	10/28/25 12:53		mohan	OK
9	CCV97	CCV97	CCV	10/28/25 12:56		mohan	OK
10	CCB97	CCB97	CCB	10/28/25 12:58		mohan	OK
11	CRA	CRA	CRDL	10/28/25 13:04		mohan	OK
12	HighStd	HighStd	HIGH STD	10/28/25 13:06		mohan	OK
13	ChkStd	ChkStd	SAM	10/28/25 13:08		mohan	OK
14	PB170271BL	PB170271BL	MB	10/28/25 13:11		mohan	OK
15	PB170271BS	PB170271BS	LCS	10/28/25 13:14		mohan	OK
16	Q3451-01	TP-11	SAM	10/28/25 13:16		mohan	OK
17	Q3451-01DUP	TP-11DUP	DUP	10/28/25 13:21		mohan	OK
18	Q3451-01MS	TP-11MS	MS	10/28/25 13:24		mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137668

Review By	mohan	Review On	10/30/2025 3:55:07 PM
Supervise By	jaswal	Supervise On	10/30/2025 3:55:31 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87754,MP87755,MP87756,MP87757,MP87758,MP87759		
ICV Standard	MP87760		
CCV Standard	MP87762		
ICSA Standard			
CRI Standard	MP87764		
LCS Standard			
Chk Standard	MP87761,MP87763,MP87765,MP87751		

19	Q3451-01MSD	TP-11MSD	MSD	10/28/25 13:26		mohan	OK
20	Q3451-05	TP-12	SAM	10/28/25 13:29		mohan	OK
21	CCV98	CCV98	CCV	10/28/25 13:31		mohan	OK
22	CCB98	CCB98	CCB	10/28/25 13:33		mohan	OK
23	Q3452-01	JB-1	SAM	10/28/25 13:36	Hg is High , Need dilution	mohan	Dilution
24	Q3457-01	TR-05-102425	SAM	10/28/25 13:38		mohan	OK
25	Q3460-01	WC-1	SAM	10/28/25 13:41		mohan	OK
26	Q3460-05	WC-2	SAM	10/28/25 13:44		mohan	OK
27	Q3460-09	WC-3	SAM	10/28/25 13:46		mohan	OK
28	Q3460-13	WC-4	SAM	10/28/25 13:49		mohan	OK
29	Q3460-17	WC-5	SAM	10/28/25 13:51		mohan	OK
30	Q3465-01	SU-03-10242025	SAM	10/28/25 13:54		mohan	OK
31	Q3466-02	B8-0.0-1.0-20251023	SAM	10/28/25 13:56		mohan	OK
32	Q3466-05	B9-0.0-1.0-20251023	SAM	10/28/25 13:58		mohan	OK
33	CCV99	CCV99	CCV	10/28/25 14:01		mohan	OK
34	CCB99	CCB99	CCB	10/28/25 14:03		mohan	OK
35	Q3466-07	B7-1.0-2.0-20251023	SAM	10/28/25 14:06		mohan	OK
36	Q3469-01	TP-13	SAM	10/28/25 14:08		mohan	OK
37	Q3451-01L	TP-11L	SD	10/28/25 14:11		mohan	OK
38	Q3451-01A	TP-11A	PS	10/28/25 14:13		mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137668

Review By	mohan	Review On	10/30/2025 3:55:07 PM
Supervise By	jaswal	Supervise On	10/30/2025 3:55:31 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87754,MP87755,MP87756,MP87757,MP87758,MP87759		
ICV Standard	MP87760		
CCV Standard	MP87762		
ICSA Standard			
CRI Standard	MP87764		
LCS Standard			
Chk Standard	MP87761,MP87763,MP87765,MP87751		

39	Q3452-01DL	JB-1DL	SAM	10/28/25 14:20	10X For Hg	mohan	Confirms
40	CCV100	CCV100	CCV	10/28/25 14:23		mohan	OK
41	CCB100	CCB100	CCB	10/28/25 14:25		mohan	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137697

Review By	Janvi	Review On	10/31/2025 10:49:23 AM
Supervise By	mohan	Supervise On	11/3/2025 10:12:07 AM
STD. NAME	STD REF.#		
ICAL Standard	MP87637,MP87643,MP87641,MP87640,MP87639,MP87638		
ICV Standard	MP87644,MP87643		
CCV Standard	MP87647		
ICSA Standard	MP87645,MP87646		
CRI Standard	MP87643		
LCS Standard			
Chk Standard	MP87668,MP87648,MP87651,MP87649,MP87650		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	10/29/25 13:36		Jaswal	OK
2	S1	S1	CAL2	10/29/25 13:40		Jaswal	OK
3	S2	S2	CAL3	10/29/25 13:44		Jaswal	OK
4	S3	S3	CAL4	10/29/25 13:49		Jaswal	OK
5	S4	S4	CAL5	10/29/25 13:53		Jaswal	OK
6	S5	S5	CAL6	10/29/25 13:57		Jaswal	OK
7	ICV01	ICV01	ICV	10/29/25 14:01		Jaswal	OK
8	LLICV01	LLICV01	LLICV	10/29/25 14:07		Jaswal	OK
9	ICB01	ICB01	ICB	10/29/25 14:12		Jaswal	OK
10	CRI01	CRI01	CRDL	10/29/25 14:16		Jaswal	OK
11	ICSA01	ICSA01	ICSA	10/29/25 14:21		Jaswal	OK
12	ICSAB01	ICSAB01	ICSAB	10/29/25 14:25		Jaswal	OK
13	ICSADL	ICSADL	ICSA	10/29/25 14:29		Jaswal	OK
14	ICSABDL	ICSABDL	ICSAB	10/29/25 14:33		Jaswal	OK
15	CCV01	CCV01	CCV	10/29/25 14:37		Jaswal	OK
16	CCB01	CCB01	CCB	10/29/25 14:41		Jaswal	OK
17	LR-1	LR-1	HIGH STD	10/29/25 14:46		Jaswal	OK
18	LR-2	LR-2	HIGH STD	10/29/25 14:50		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137697

Review By	Janvi	Review On	10/31/2025 10:49:23 AM
Supervise By	mohan	Supervise On	11/3/2025 10:12:07 AM
STD. NAME	STD REF.#		
ICAL Standard	MP87637,MP87643,MP87641,MP87640,MP87639,MP87638		
ICV Standard	MP87644,MP87643		
CCV Standard	MP87647		
ICSA Standard	MP87645,MP87646		
CRI Standard	MP87643		
LCS Standard			
Chk Standard	MP87668,MP87648,MP87651,MP87649,MP87650		

19	LR-3	LR-3	HIGH STD	10/29/25 14:55		Jaswal	OK
20	Q3465-01	SU-03-10242025	SAM	10/29/25 15:00		Jaswal	OK
21	PB170288BL	PB170288BL	MB	10/29/25 15:04		Jaswal	OK
22	PB170288BS	PB170288BS	LCS	10/29/25 15:08		Jaswal	OK
23	Q3447-05DL2	P001-TW3-251023-01	SAM	10/29/25 15:12	10X for Cu,Pb	Jaswal	Confirms
24	Q3466-02	B8-0.0-1.0-20251023	SAM	10/29/25 15:16		Jaswal	OK
25	Q3466-05	B9-0.0-1.0-20251023	SAM	10/29/25 15:20		Jaswal	OK
26	Q3466-07	B7-1.0-2.0-20251023	SAM	10/29/25 15:24		Jaswal	OK
27	CCV02	CCV02	CCV	10/29/25 15:43		Jaswal	OK
28	CCB02	CCB02	CCB	10/29/25 15:48		Jaswal	OK
29	Q3469-01	TP-13	SAM	10/29/25 15:52		Jaswal	OK
30	Q3469-01DUP	TP-13DUP	DUP	10/29/25 15:56		Jaswal	OK
31	Q3469-01L	TP-13L	SD	10/29/25 16:00		Jaswal	OK
32	Q3469-01MS	TP-13MS	MS	10/29/25 16:04		Jaswal	OK
33	Q3469-01MSD	TP-13MSD	MSD	10/29/25 16:08		Jaswal	OK
34	Q3469-01A	TP-13A	PS	10/29/25 16:12	0.1ml of each m6008 and m6017 in 10ml sample.	Jaswal	OK
35	PB170264BL	PB170264BL	MB	10/29/25 16:16		Jaswal	OK
36	PB170264BS	PB170264BS	LCS	10/29/25 16:24		Jaswal	OK
37	Q3442-01	SW-1	SAM	10/29/25 16:29		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137697

Review By	Janvi	Review On	10/31/2025 10:49:23 AM
Supervise By	mohan	Supervise On	11/3/2025 10:12:07 AM
STD. NAME	STD REF.#		
ICAL Standard	MP87637,MP87643,MP87641,MP87640,MP87639,MP87638		
ICV Standard	MP87644,MP87643		
CCV Standard	MP87647		
ICSA Standard	MP87645,MP87646		
CRI Standard	MP87643		
LCS Standard			
Chk Standard	MP87668,MP87648,MP87651,MP87649,MP87650		

38	Q3464-02	MW3	SAM	10/29/25 16:33		Jaswal	OK
39	CCV03	CCV03	CCV	10/29/25 16:37		Jaswal	OK
40	CCB03	CCB03	CCB	10/29/25 16:41		Jaswal	OK
41	Q3464-01	MW2	SAM	10/29/25 16:45		Jaswal	OK
42	Q3464-01DUP	MW2DUP	DUP	10/29/25 16:50		Jaswal	OK
43	Q3464-01L	MW2L	SD	10/29/25 16:54		Jaswal	OK
44	Q3464-01MS	MW2MS	MS	10/29/25 16:58		Jaswal	OK
45	Q3464-01MSD	MW2MSD	MSD	10/29/25 17:02		Jaswal	OK
46	Q3464-01A	MW2A	PS	10/29/25 17:06	0.1ml of each m6008 and m6017 in 10ml sample.	Jaswal	OK
47	Q3476-01	NB-07-102825	SAM	10/29/25 17:19		Jaswal	OK
48	Q3477-01	SOUTH-MAHWAH-SO	SAM	10/29/25 17:23		Jaswal	OK
49	CCV04	CCV04	CCV	10/29/25 17:27		Jaswal	OK
50	CCB04	CCB04	CCB	10/29/25 17:31		Jaswal	OK
51	Q3480-01	RT3449	SAM	10/29/25 17:35	Ag is oversaturated, Need dilution	Jaswal	Dilution
52	Q3481-01	OR-02-102825	SAM	10/29/25 17:39		Jaswal	OK
53	Q3481-01DUP	OR-02-102825DUP	DUP	10/29/25 17:43		Jaswal	OK
54	Q3481-01L	OR-02-102825L	SD	10/29/25 17:48		Jaswal	OK
55	Q3481-01MS	OR-02-102825MS	MS	10/29/25 17:52		Jaswal	OK
56	Q3481-01MSD	OR-02-102825MSD	MSD	10/29/25 17:56		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137697

Review By	Janvi	Review On	10/31/2025 10:49:23 AM
Supervise By	mohan	Supervise On	11/3/2025 10:12:07 AM

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

57	Q3481-01A	OR-02-102825A	PS	10/29/25 17:59	0.1ml of each m6008 and m6017 in 10ml sample.	Jaswal	OK
58	CCV05	CCV05	CCV	10/29/25 18:03		Jaswal	OK
59	CCB05	CCB05	CCB	10/29/25 18:07		Jaswal	OK
60	Q3420-05	COMPOSITE	SAM	10/29/25 18:12	Na oversaturated	Jaswal	Dilution
61	Q3420-05DUP	COMPOSITEDUP	DUP	10/29/25 18:16	Na High	Jaswal	Dilution
62	Q3420-05L	COMPOSITEL	SD	10/29/25 18:20	Na High in original/dup/ms/msd	Jaswal	Dilution
63	Q3420-05MS	COMPOSITEMS	MS	10/29/25 18:25	Na High	Jaswal	Dilution
64	Q3420-05MSD	COMPOSITEMSD	MSD	10/29/25 18:29	Na High	Jaswal	Dilution
65	Q3420-05A	COMPOSITEA	PS	10/29/25 18:33	Na High, 0.1ml of each m6008 and m6017 in 10ml sample.	Jaswal	Dilution
66	CCV06	CCV06	CCV	10/29/25 18:55		Jaswal	OK
67	CCB06	CCB06	CCB	10/29/25 19:04		Jaswal	OK

Prep Standard - Chemical Standard Summary

Order ID : Q3466

Test : Mercury, Metals ICP-TAL

Prepbatch ID : PB170271, PB170288,

Sequence ID/Qc Batch ID: LB137668, LB137697,

Standard ID :

MP86978, MP87072, MP87149, MP87637, MP87638, MP87639, MP87640, MP87641, MP87642, MP87643, MP87644, MP87645, MP87646, MP87647, MP87648, MP87649, MP87650, MP87651, MP87668, MP87734, MP87742, MP87744, MP87746, MP87748, MP87751, MP87753, MP87754, MP87755, MP87756, MP87757, MP87758, MP87759, MP87760, MP87761, MP87762, MP87763, MP87764, MP87765,

Chemical ID :

M4916, M5062, M5467, M5581, M5582, M5658, M5697, M5748, M5798, M5799, M5800, M5801, M5814, M5820, M5882, M5884, M5962, M5969, M5971, M5979, M5985, M5998, M6021, M6023, M6026, M6027, M6028, M6030, M6032, M6058, M6077, M6086, M6128, M6137, M6140, M6142, M6144, M6145, M6151, M6158, M6159, M6160, M6161, M6162, M6163, M6164, M6165, M6170, M6171, M6174, M6176, M6177, M6178, M6179, M6182, M6184, M6187, M6196, M6200, M6201, M6209, W 3112,

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
169	1:1HNO3	MP86978	08/28/2025	11/27/2025	Sagar Kanani	None	None	Sarabjit Jaswal
								08/28/2025

FROM 1250.00000ml of M6162 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
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>
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP87149	09/09/2025	02/03/2026	Mohan Bera	METALS_SCALE_2 (M SC-2)	None	Sarabjit Jaswal 09/10/2025
FROM 2000.00000ml of W3112 + 240.00000gram of M5884 + 240.00000ml of M6196 = Final Quantity: 2000.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP87637	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP	Sarabjit Jaswal
FROM 125.00000ml of M6200 + 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)	MP87638	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP)	Sarabjit Jaswal
FROM 5.00000ml of M5467 + 5.00000ml of M5820 + 5.00000ml of M5969 + 5.00000ml of M5971 + 5.00000ml of M5998 + 5.00000ml of M6077 + 5.00000ml of M6160 + 5.00000ml of M6174 + 5.00000ml of M6176 + 455.00000ml of MP87637 = Final Quantity: 500.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
910	ICP AES STD S4	MP87639	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
<u>FROM</u> 50.00000ml of MP87637 + 50.00000ml of MP87638 = Final Quantity: 100.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
909	ICP AES STD S3	MP87640	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP	Sarabjit Jaswal

A)

FROM 25.00000ml of MP87638 + 75.00000ml of MP87637 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3913	ICP AES STD S2	MP87641	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP	Sarabjit Jaswal

A)

FROM 16.00000ml of MP87638 + 184.00000ml of MP87637 = Final Quantity: 200.000 ml

[illegible]

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2951	ICP AES S1/CRI WORK STD	MP87643	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP)	Sarabjit Jaswal
FROM 2.00000ml of MP87642 + 98.00000ml of MP87637 = Final Quantity: 100.000 ml								

[illegible]

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
904	ICP AES ICSA SOLN	MP87645	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
<u>FROM</u>	25.00000ml of M6182 + 225.00000ml of MP87637 = 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>
3494	ICP AES ICSAB SOLN-1	MP87646	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP)	Sarabjit Jaswal
A) FROM 0.10000ml of M6077 + 10.00000ml of M6182 + 10.00000ml of M6184 + 79.90000ml of MP87637 = Final Quantity: 100.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
911	ICP AES CCV SOLN	MP87647	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP)	Sarabjit Jaswal
FROM 50.00000ml of MP87637 + 50.00000ml of MP87638 = 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>
903	ICP AES RINSE SOLN	MP87648	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP)	Sarabjit Jaswal
FROM 200.00000ml of M6187 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4226	LR-2	MP87649	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
<u>FROM</u>	13.50000ml of M6140 + 9.00000ml of M6142 + 9.50000ml of M6159 + 18.00000ml of MP87637 = Final Quantity: 50.000 ml							



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

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



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
919	ICP AES INTERNAL STD	MP87668	10/17/2025	11/11/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP)	Sarabjit Jaswal
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>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP87734	10/27/2025	10/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 10/28/2025
<u>FROM</u>	1.00000ml of M6187 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml							



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1346	Hg ICV SOLUTION	MP87742	10/27/2025	10/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG	Sarabjit Jaswal
A) FROM 2.50000ml of M6161 + 2.50000ml of M6187 + 245.00000ml of W3112 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1358	CCV (Hg 5.0 PPB SOLUTION)	MP87744	10/27/2025	10/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/28/2025
<u>FROM</u> 485.00000ml of W3112 + 5.00000ml of M6187 + 10.00000ml of MP87734 = 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)	MP87746	10/27/2025	10/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/28/2025
<u>FROM</u> 2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87734 = 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>
887	AQUA REGIA FOR HG ON 7471A	MP87748	10/27/2025	10/28/2025	Mohan Bera	None	None	Sarabjit Jaswal 10/28/2025
<u>FROM</u> 150.00000ml of M6200 + 50.00000ml of M6187 = 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>
68	STANNOUS CHLORIDE SOLUTION	MP87751	10/28/2025	10/29/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
10/28/2025								

FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6200 = 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>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP87753	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal
10/28/2025								

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	MP87754	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 10/28/2025
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>
1341	Hg 0.2 PPB STD	MP87755	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 10/28/2025
FROM 2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87753 = 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	MP87756	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
FROM 2.50000ml of M6187 + 245.00000ml of W3112 + 2.50000ml of MP87753 = 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	MP87757	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 10/28/2025
FROM 2.50000ml of M6187 + 242.50000ml of W3112 + 5.00000ml of MP87753 = 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	MP87758	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
FROM 2.50000ml of M6187 + 240.00000ml of W3112 + 7.50000ml of MP87753 = 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	MP87759	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
FROM 2.50000ml of M6187 + 237.50000ml of W3112 + 10.00000ml of MP87753 = 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	MP87760	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 10/28/2025
FROM 2.50000ml of M6161 + 2.50000ml of M6187 + 245.00000ml of W3112 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1351	ICB (Hg 0.00 PPB SOLUTION)	MP87761	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 10/28/2025
<u>FROM</u>	2.50000ml of M6187 + 247.50000ml of W3112 = Final Quantity: 250.000 ml							



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1358	CCV (Hg 5.0 PPB SOLUTION)	MP87762	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
A) FROM 485.00000ml of W3112 + 5.00000ml of M6187 + 10.00000ml of MP87753 = 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)	MP87763	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/28/2025
<u>FROM</u> 495.00000ml of W3112 + 5.00000ml of M6187 = Final Quantity: 500.000 ml								



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1349	CRA/CRI (Hg 0.2 PPB SOLUTION)	MP87764	10/28/2025	10/29/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/28/2025
<u>FROM</u>	2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87753 = Final Quantity: 250.000 ml							

[illegible]

CHEMICAL RECEIPT LOG BOOK

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 #
PCI Scientific Supply, Inc.	26397-103 / PTFE BOILING STONES	W126678	03/20/2026	03/20/2025 /	06/12/2023 / jaswal	M5581

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	26397-103 / PTFE BOILING STONES	W126678	12/31/2025	06/17/2023 / Al-Terek	06/12/2023 / jaswal	M5582

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.	58029 / Cu, 1000 PPM, 500 ml	102523	10/25/2026	04/03/2024 / jaswal	10/27/2023 / jaswal	M5697

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57004 / Be, 1000 PPM, 125 ml	102523	10/25/2026	02/09/2024 / bin	02/09/2024 / bin	M5798

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57050 / Sn, 1000 PPM, 125 ml	071123	07/11/2026	02/09/2024 / bin	02/09/2024 / bin	M5799

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57027 / CO, 1000 PPM, 125 ml	091923	09/19/2026	05/31/2024 / bin	02/09/2024 / bin	M5800

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57033 / As, 1000 PPM, 125 ml	111323	11/13/2026	02/09/2024 / bin	02/09/2024 / bin	M5801

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	09/06/2029	01/23/2025 / kareem	09/19/2024 / kareem	M6077

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58120 / Calcium, 500 ml, 10000 PPM	082324	08/23/2027	03/06/2025 / JANVI	10/14/2024 / jaswal	M6086

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

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

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

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58111 / Na, 10000 PPM, 500 ml	072424	07/24/2027	01/23/2025 / kareem	01/13/2025 / Jaswal	M6144

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	121724	12/17/2027	02/04/2025 /	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-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	10/30/2025	03/10/2025 / Eman	02/02/2025 / Sagar	M6158

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

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV 5 0415	12/31/2025	05/01/2025 / mohan	03/30/2024 / mohan	M6161

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24H0162012	11/27/2025	05/27/2025 / Sagar	04/27/2025 / Sagar	M6162

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2186-03 / Hydrogen Peroxide (cs/4x4L)	24D1961001	10/31/2025	06/25/2025 /	05/20/2025 / Sagar	M6170

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 #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	02/05/2026	08/06/2025 / Janvi	03/06/2024 / Janvi	M6182

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	H330-500 / HYDROXYLAMINE HYDROCHLORIDE ACS 500G	243373	02/03/2026	09/04/2025 / mohan	08/04/2025 / mohan	M6196

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

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

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

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

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.

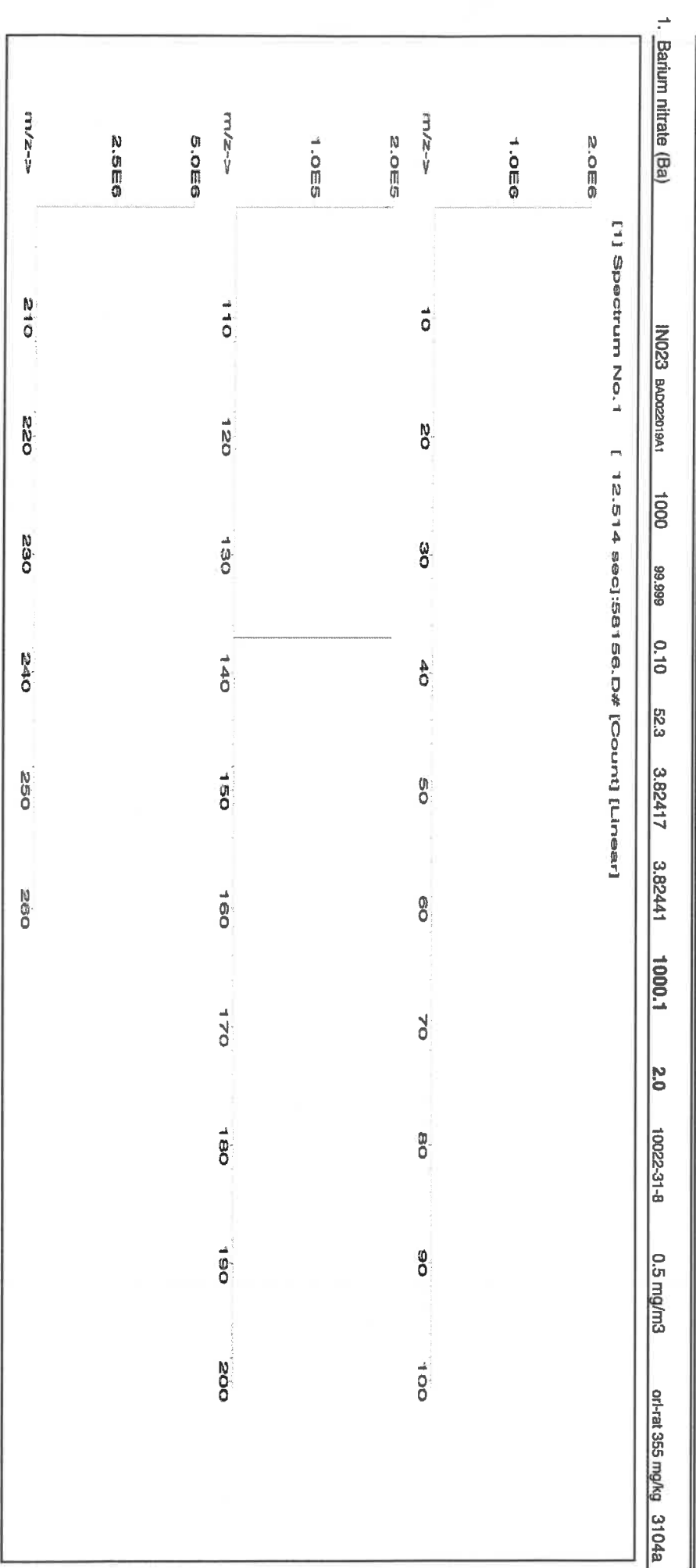


CERTIFIED WEIGHT REPORT:

Part Number: 57056
Lot Number: 010924
Description: Barium (Ba)
Solvent: Nitric Acid
Expiration Date: 010927
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02
Balance Uncertainty: 5E-05
Flask Uncertainty: 0.058

Lot # 24002546
Formulated By: Giovanni Esposito
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:

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

Solvent: **24002546 Nitric Acid**

Lot # **MC055 / MB086 / MB087**

Expiration Date: **082327**

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **10000**

NIST Test Number: **6UTB**

5E-05 Balance Uncertainty

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

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

SDS Information									
Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)
1. Calcium carbonate (Ca)	IN014	CAD03202383	10000	99.999	0.10	39.9	100.2537	100.2656	10001.2
							20.0	471.34-1	5 mg/m3
								ort-rat >2000mg/kg	3109a

[1] Spectrum No. 1 [12.514 sec]: 58120.D* [Count] [Linear]





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	T	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Tm	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	30	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	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	Su	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED 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

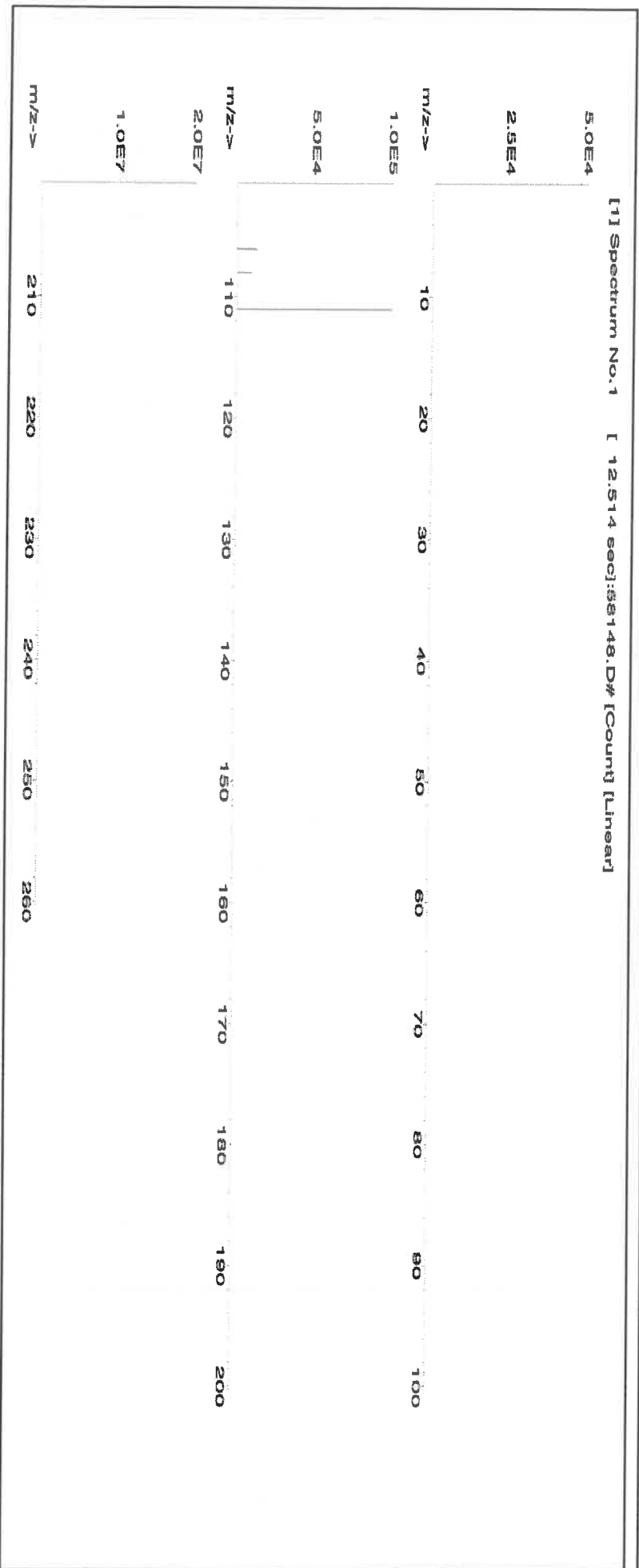
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	070124
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	070124

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
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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 #: **24002546**

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

Weight shown below was diluted to (mL): **2000.02**
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

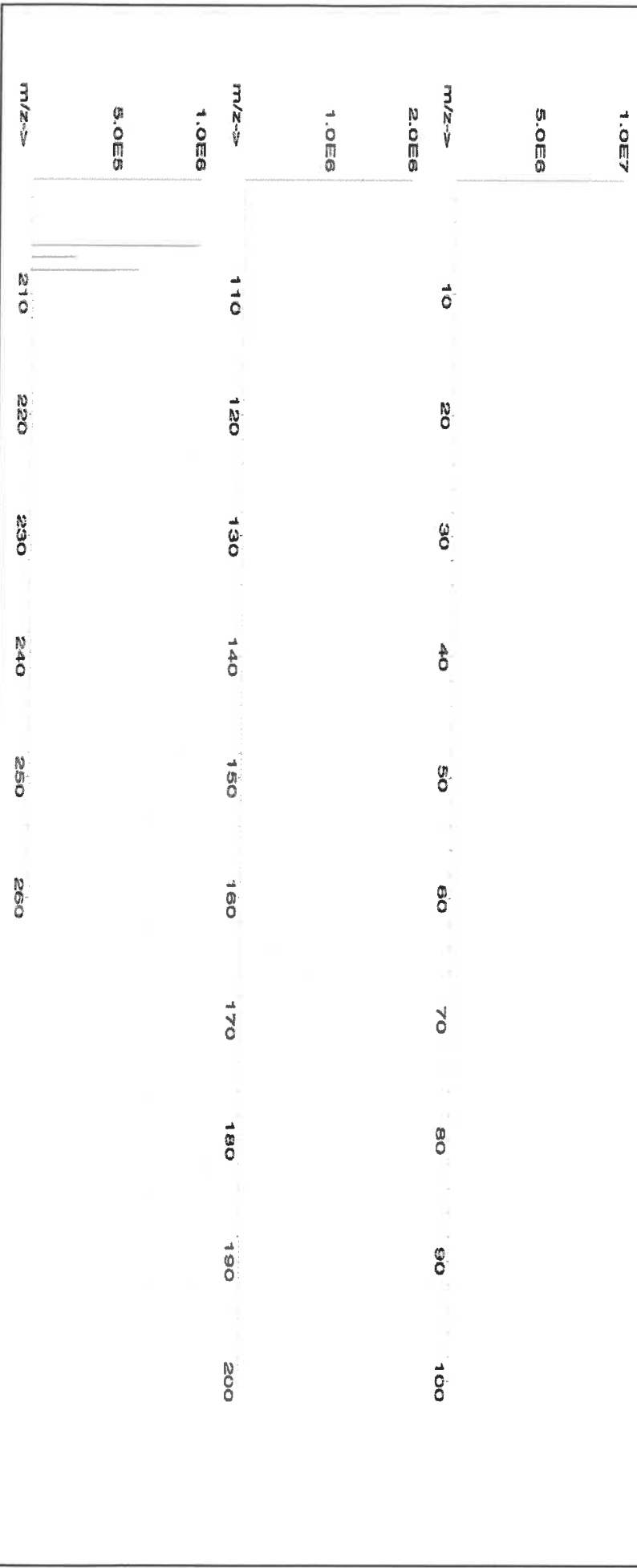
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas
	110923

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Lead(II) nitrate (Pb) IN029 PED12016A1 10000 99.999 0.10 62.5 32.0006 32.0040 10001.1 20.0 10099-74-8 0.05 mg/m3 Inverse rat 83 mg/kg 3128

[1] Spectrum No.1 [17.284 sec]:58182.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

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

Physical Characterization:

(T)= Target analyte

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

Certified by:

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

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):

1000.12 **0.058** **Balance Uncertainty**
Flask Uncertainty

Lot #

Solvent: 21110221 Nitric Acid

2% **20.0** **Nitric Acid**
(mL)

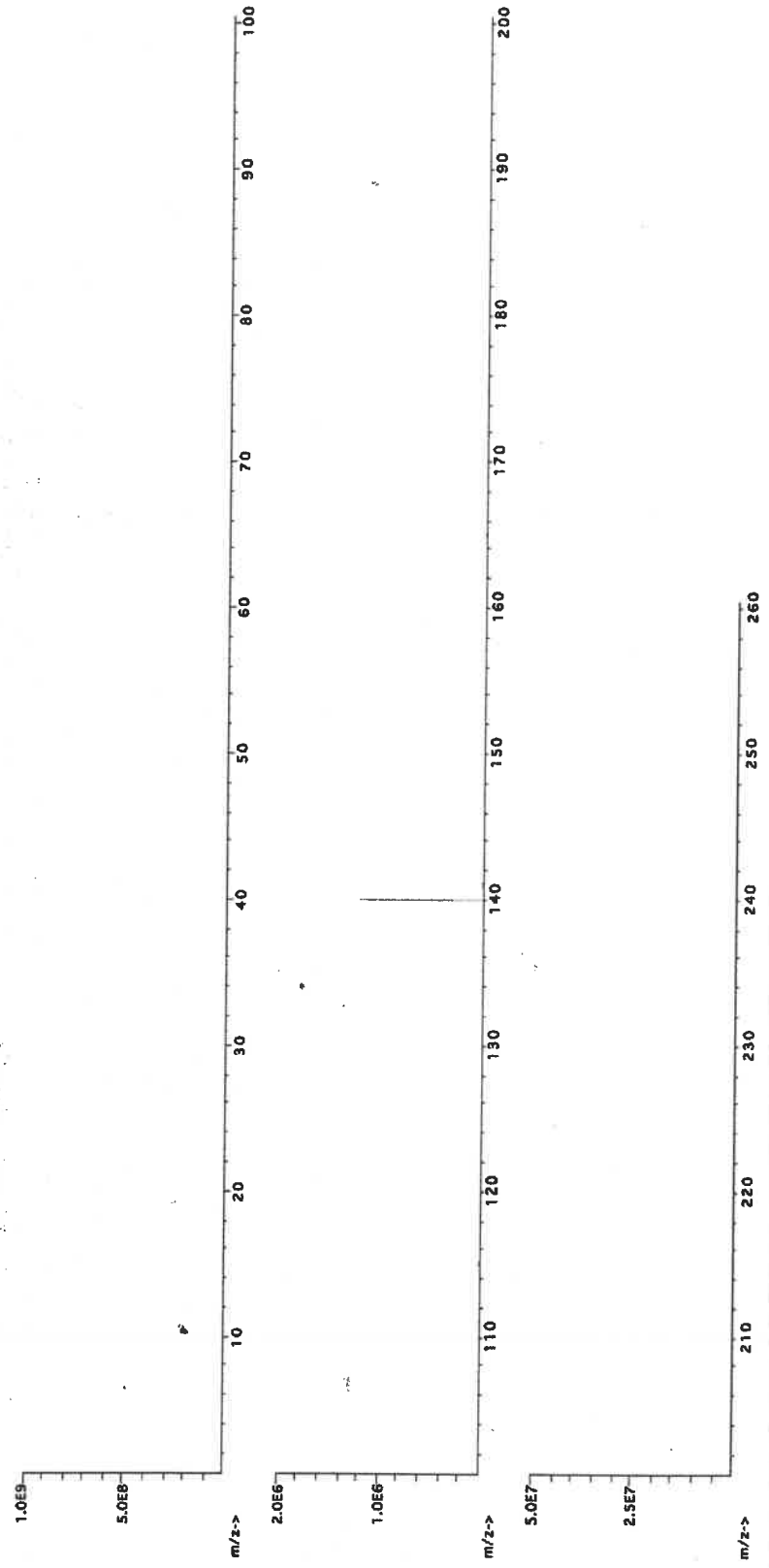
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas

SDS Information

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	SRM
1. Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.8	3.04919	3.04921	1000.0	2.0	10294-41-4	NA	NA

[1] Spectrum No.1 [43.472 sec]58158.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



MATERIAL CERTIFICATE OF COMPLIANCE

DATE: JUNE 12, 2023

CUSTOMER: PCI SCIENTIFIC SUPPLY, INC

PURCHASE ORDER NO. 6054931

CATALOG NO. BOI5021-450L

PRODUCT DESCRIPTION: BOILING STONES, TFE, 454GMS

QUANTITY: 10 EACH

LOT NO. W126678

SPECIFICATION (S): Made from Virgin PTFE Resin

We certify that we have complied with the terms and conditions of the above Purchase Order and the Part Specifications in the manufacturing of the above product.



Laura Valencia
Quality Assurance Inspector

F:\J:\A\CF\PCISCI\COC-55118-BOI5021-061223



MATERIAL CERTIFICATE OF COMPLIANCE

DATE: JUNE 12, 2023

CUSTOMER: PCI SCIENTIFIC SUPPLY, INC

PURCHASE ORDER NO. 6054931

CATALOG NO. BOI5021-450L

PRODUCT DESCRIPTION: BOILING STONES, TFE, 454GMS

QUANTITY: 10 EACH

LOT NO. W126678

SPECIFICATION (S): Made from Virgin PTFE Resin

We certify that we have complied with the terms and conditions of the above Purchase Order and the Part Specifications in the manufacturing of the above product.



Laura Valencia
Quality Assurance Inspector

F:\J:\A\CF\PCISCI\COC-55118-BOI5021-061223



CERTIFIED WEIGHT REPORT:

Part Number: 58024
Lot Number: 060523
Description: Chromium (Cr)

Lot # 21110221 **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

2.0%

40.0 (mL)

Nitric Acid

NIST Test Number: 6UTB

5E-05 Balance Uncertainty

Volume shown below was diluted to (mL): 2000.02

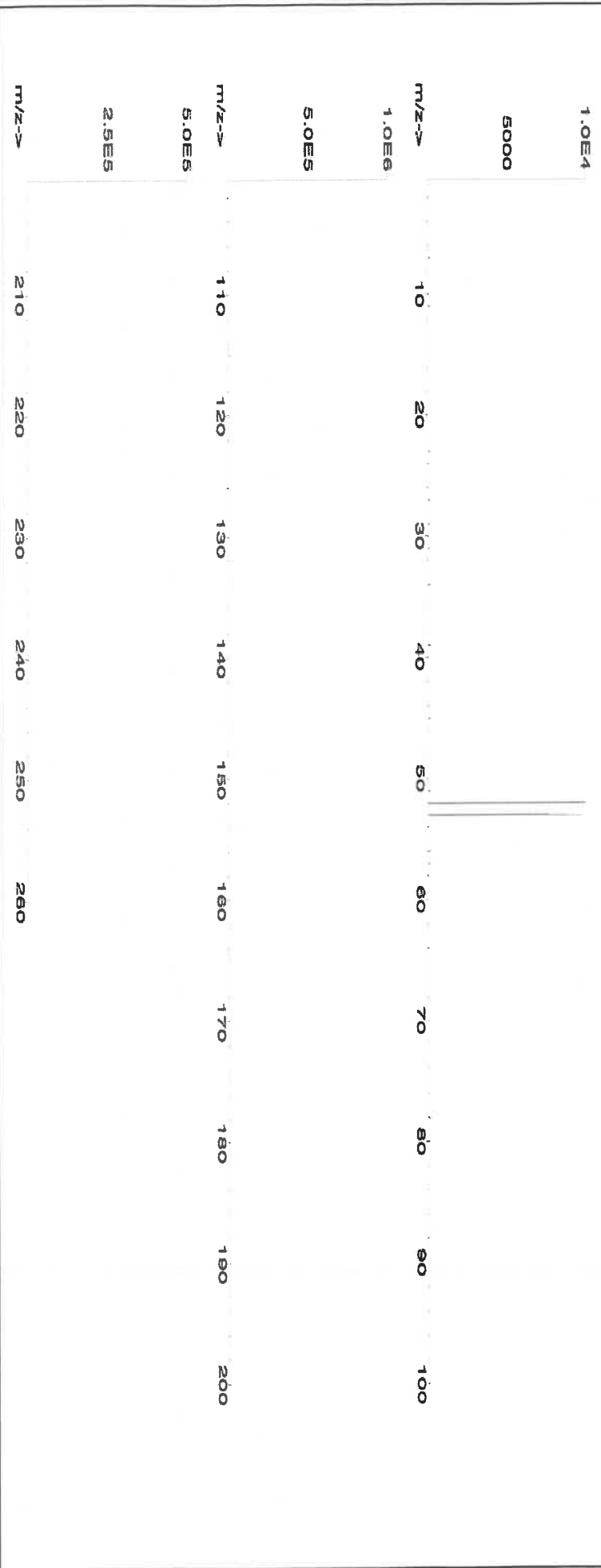
0.058 Flask Uncertainty

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
-------------	------------	-----------------	-------------------	------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. Chromium(III) nitrate nonahydrate (Cr) 58124 071122 0.1000 200.0 0.084 1000 10000.1 1000.0 2.2 7789-02-8 0.5 mg(Cr)/m3 or rat 3250 mg/kg 3112a

[1] Spectrum No.1 [31.393 sec]:57024.D# [Count] [Linear]





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).
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- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

M5697 R: 10/27/23



CERTIFIED WEIGHT REPORT:

Part Number: **58029**
Lot Number: **102523**
Description: **Copper (Cu)**

Lot # **24002546**
Solvent: **Nitric Acid**

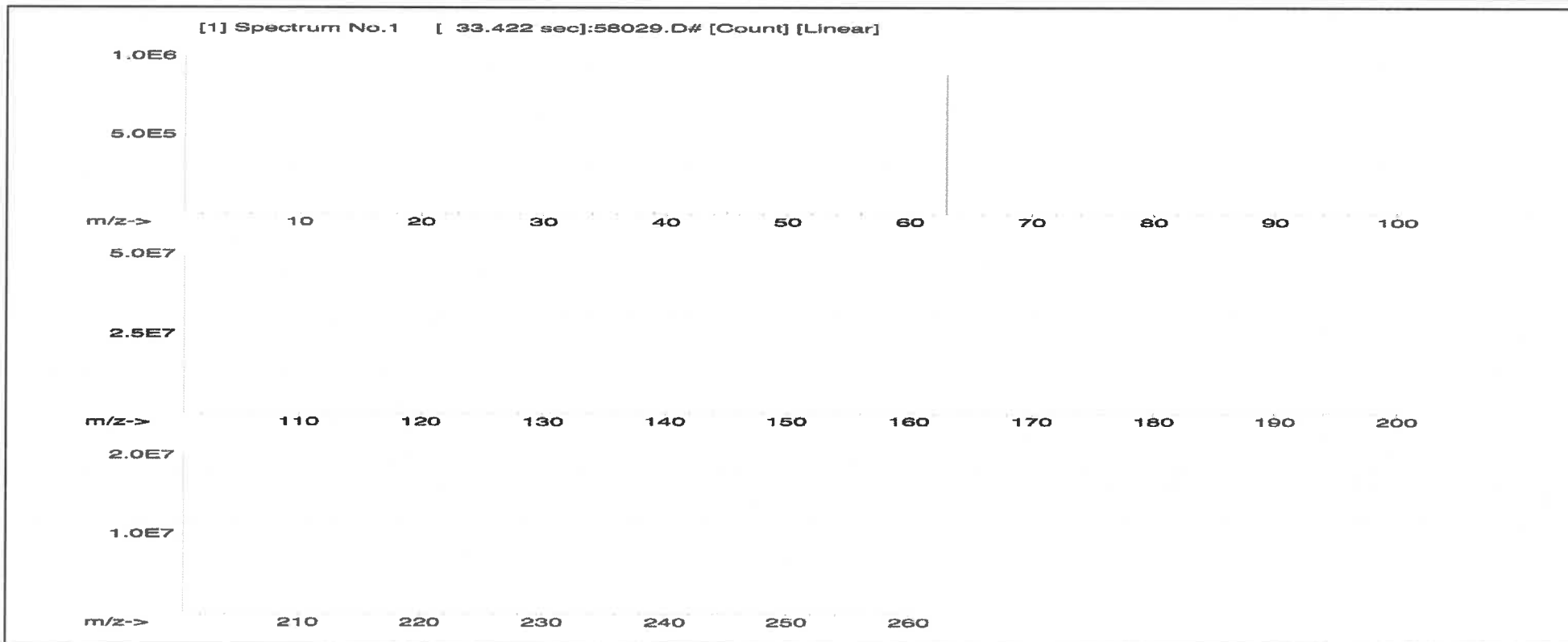
2.0% 40.0
(mL) Nitric Acid

Expiration Date: **102526**
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

Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.)			NIST SRM
										CAS#	OSHA PEL (TWA)	LD50	
1. Copper(II) nitrate trihydrate (Cu)	58129	100223	0.1000	200.0	0.084	1000	10000.1	1000.0	2.2	10031-43-3	1 mg/m3	ori-rat 794 mg/kg	3114





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	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	T	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **57028**
Lot Number: **091223**
Description: **Nickel (NI)**

Lot # **24002546**
Solvent: **Nitric Acid**

Expiration Date: **091226**

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6U7B**

Volume shown below was diluted to (mL): **2000.02**

Balance Uncertainty: **5E-05**
Flask Uncertainty: **0.056**

2.0%

40.0 (mL)

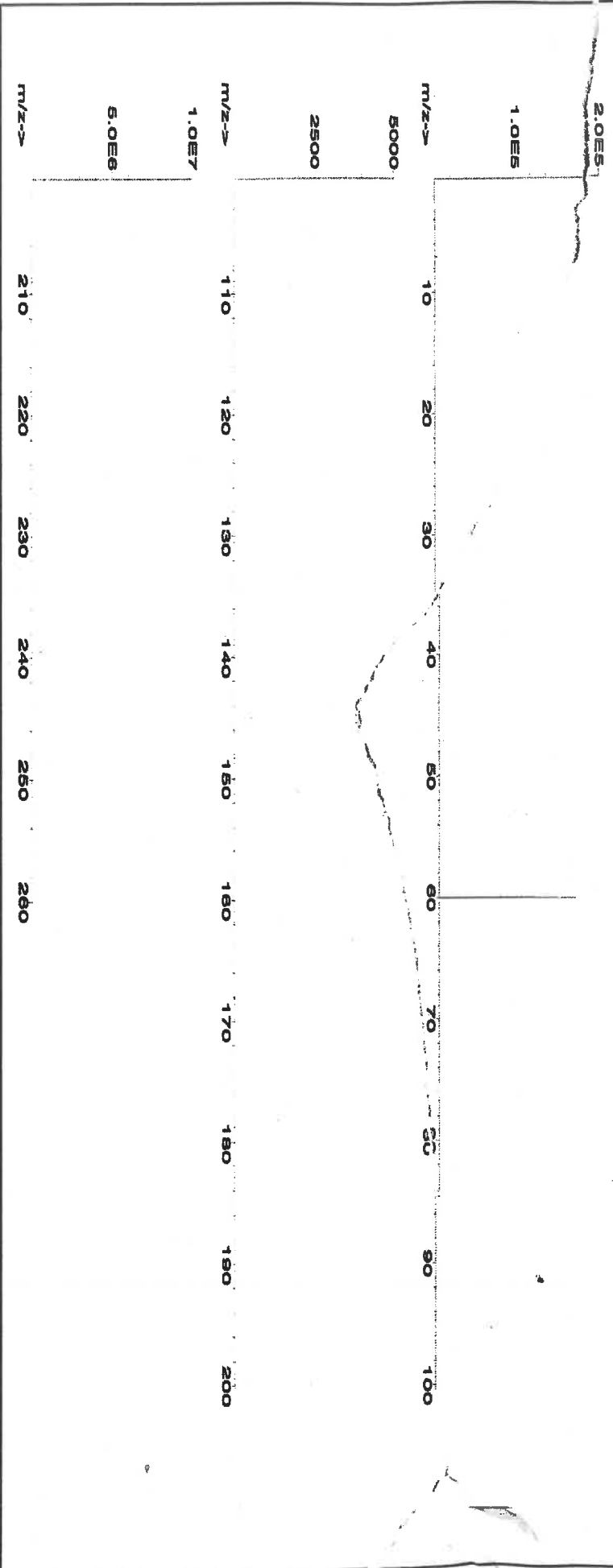
Nitric Acid

Formulated By:	<i>Lawrence Barry</i>	091223
Reviewed By:	<i>Pedro L. Renteria</i>	091223

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	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

[1] Spectrum No.1 [9.135 sec]:56028.D# [Count] [Linear]





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	T	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:

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CERTIFIED WEIGHT REPORT:

Part Number: 57004
Lot Number: 102523
Description: Beryllium (Be)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date:

102526

2.0%

40.0 (mL)

Nitric Acid

Recommended Storage:
Nominal Concentration (µg/mL):

Ambient (20 °C)

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

5E-05

Balance Uncertainty

0.058

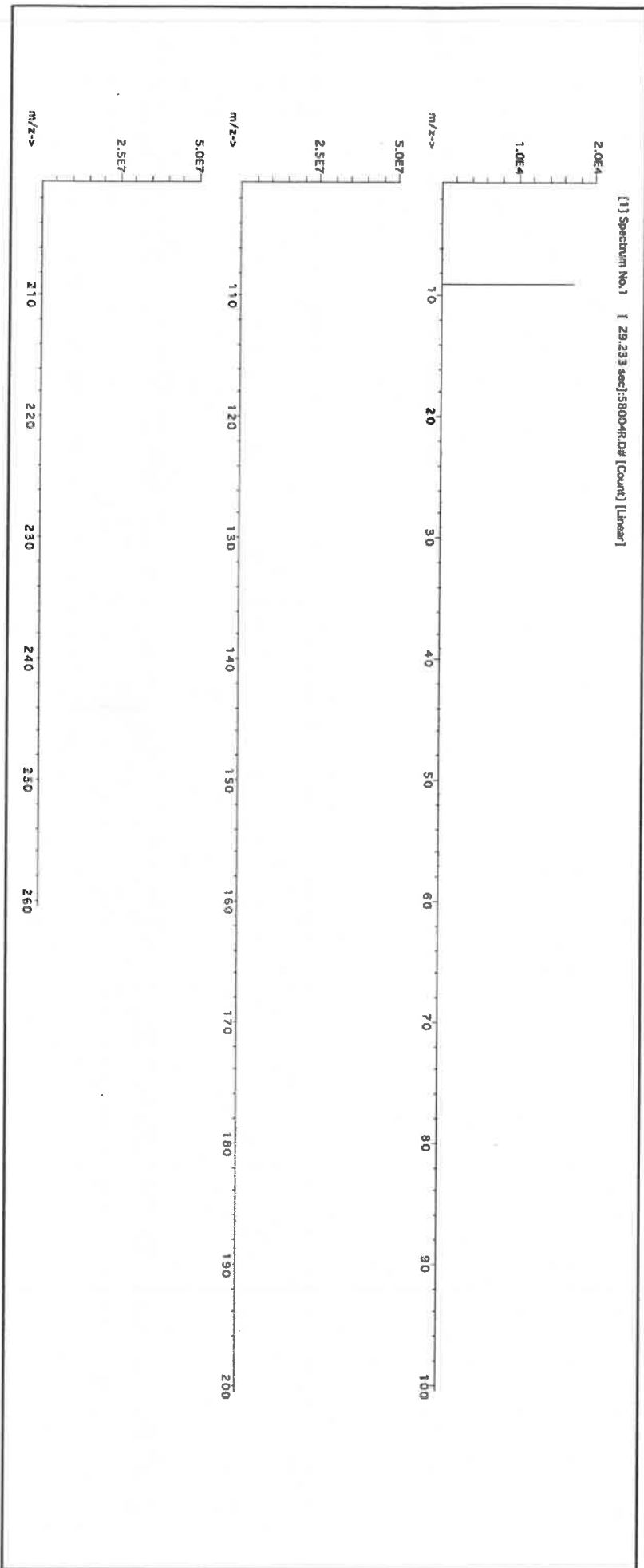
Flask Uncertainty

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

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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 * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.

* All Standards should be stored with caps tight and under appropriate laboratory conditions.

* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

CERTIFIED WEIGHT REPORT:

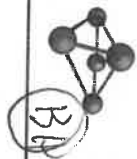
Part Number: **57050**
Lot Number: **071123**
Description: **Tin (Sn)**

Solvents: **21110221** Nitric Acid
22D0562008 Hydrochloric acid

Lot #

R-102509124

M599



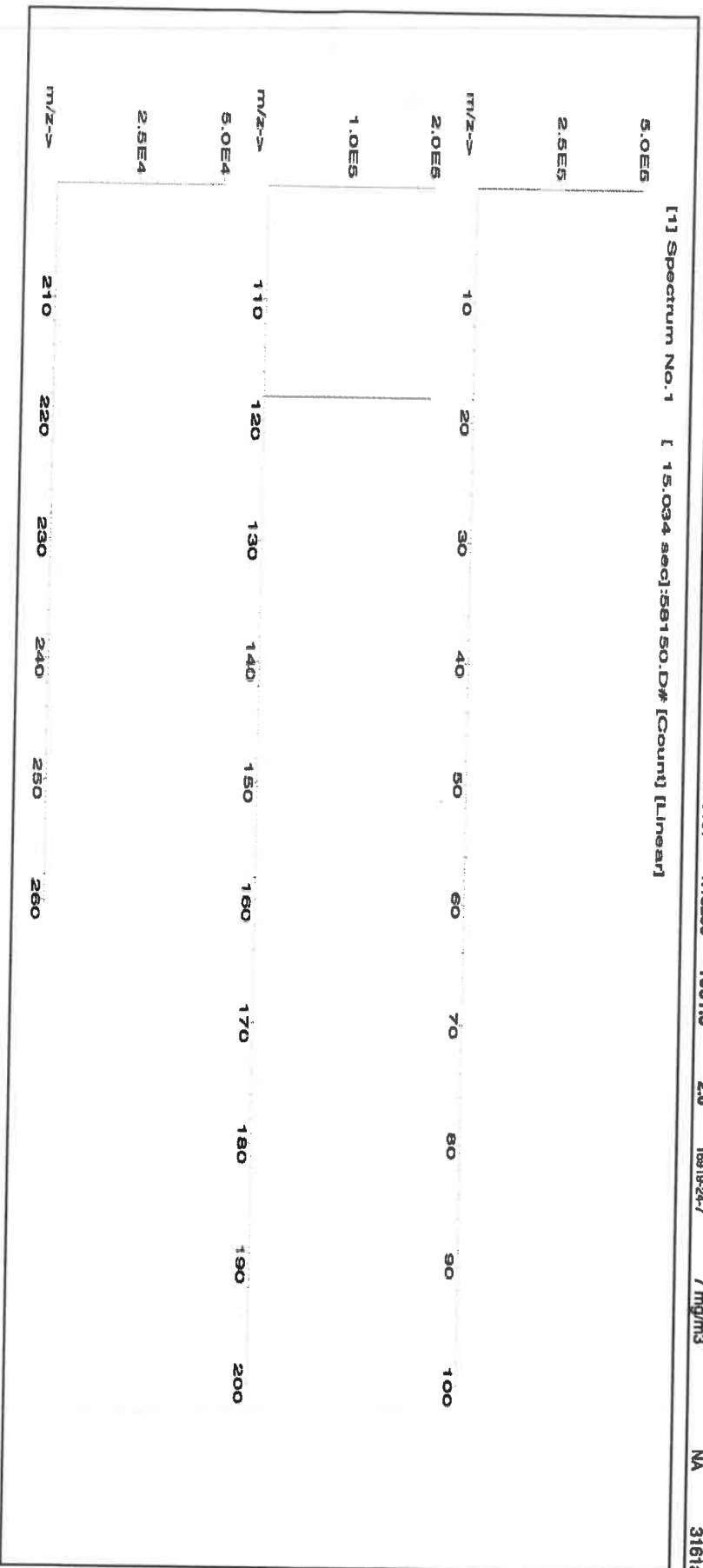
Expiration Date: **071126**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Weight shown below was diluted to (mL): **499.93**
5E-05 Balance Uncertainty
0.056 Flask Uncertainty

Formulated By: <i>Benson Chan</i>	
Benson Chan	
071123	
Reviewed By: <i>Pedro L. Rientas</i>	Pedro L. Rientas
071123	

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)

1. Ammonium hexafluoroantimonate(V) (Sn)	IN010	SND042023A1	1000	99.999	0.10	44.2	1.13107	1.13286	1001.6
									2.0
									16919-24-7
									7 mg/m3
									NA
									3161a

[1] Spectrum No. 1 [15.034 sec] :56150.D# [Count] [Linear]





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ta	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



R: 02/09/24 115800 (54)

CERTIFIED WEIGHT REPORT:

Part Number: 57027
Lot Number: 091923
Description: Cobalt (Co)

Expiration Date: 091926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Volume shown below was diluted to (mL): 2000.02

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Lot # 24002546
Solvent: Nitric Acid

2.0% Nitric Acid
40.0 (mL)

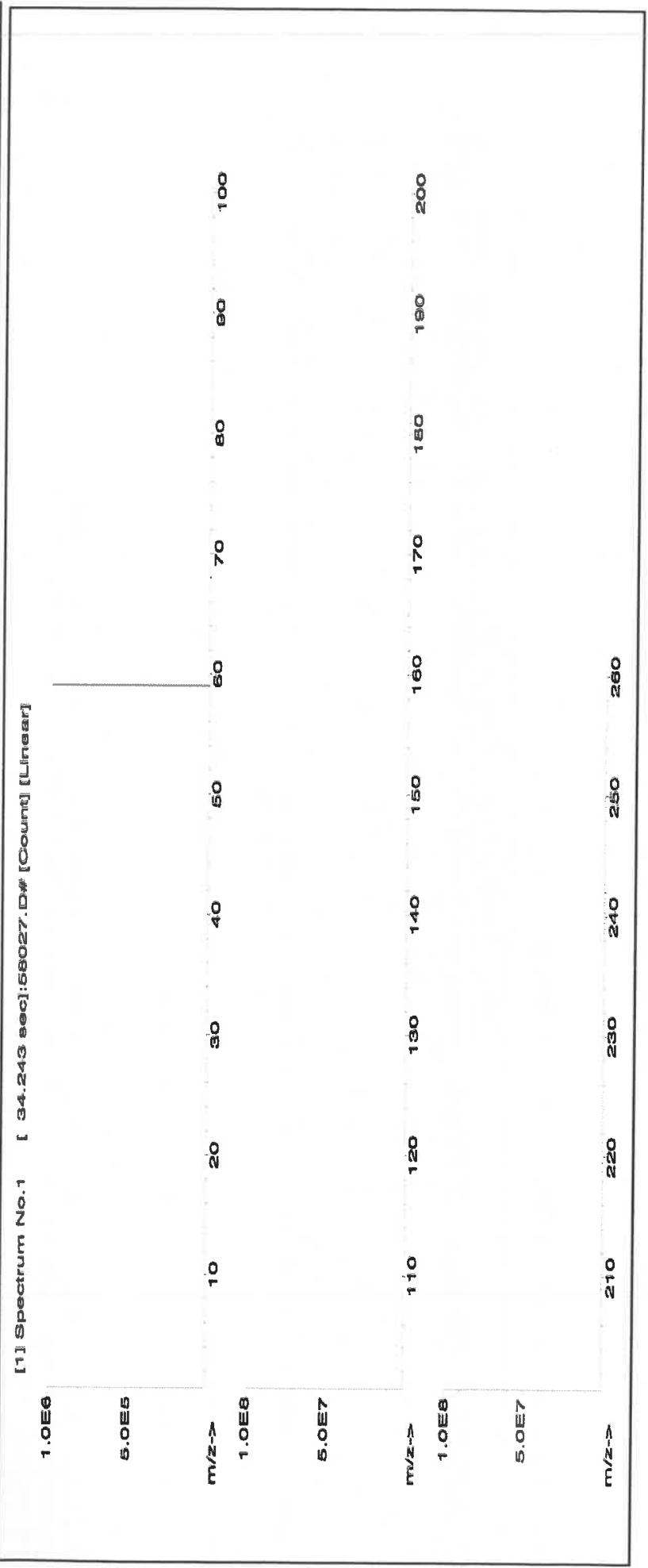
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas

SDS Information

Expanded Uncertainty +/- (µg/mL)
Final Conc. (µg/mL)
Initial Conc. (µg/mL)
Nominal Conc. (µg/mL)
Pipette (mL)
Initial Vol. (mL)
Dilution Factor
Part Number
Lot Number

(Solvent Safety Info. On Attached pg.)
CAS#
OSHA PEL (TWA)
LD50
NIST
SRM

1. Cobalt(II) nitrate hexahydrate (Co) 58127 050923 0.1000 200.0 0.084 1000 10000.0 1000.0 2.2 10026-22-9 0.02 mg/m3 orl-rat 691 mg/kg 3113





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

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

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

(T)= Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57033
111323
Arsenic (As)

Lot #
Solvent:

24002546
Nitric Acid

2.0%

80.0

Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):

111326
Ambient (20 °C)
1000

NIST Test Number:
Volume shown below was diluted to (mL):

6UTB
4000.0

5E-05
Balance Uncertainty
0.06
Flask Uncertainty

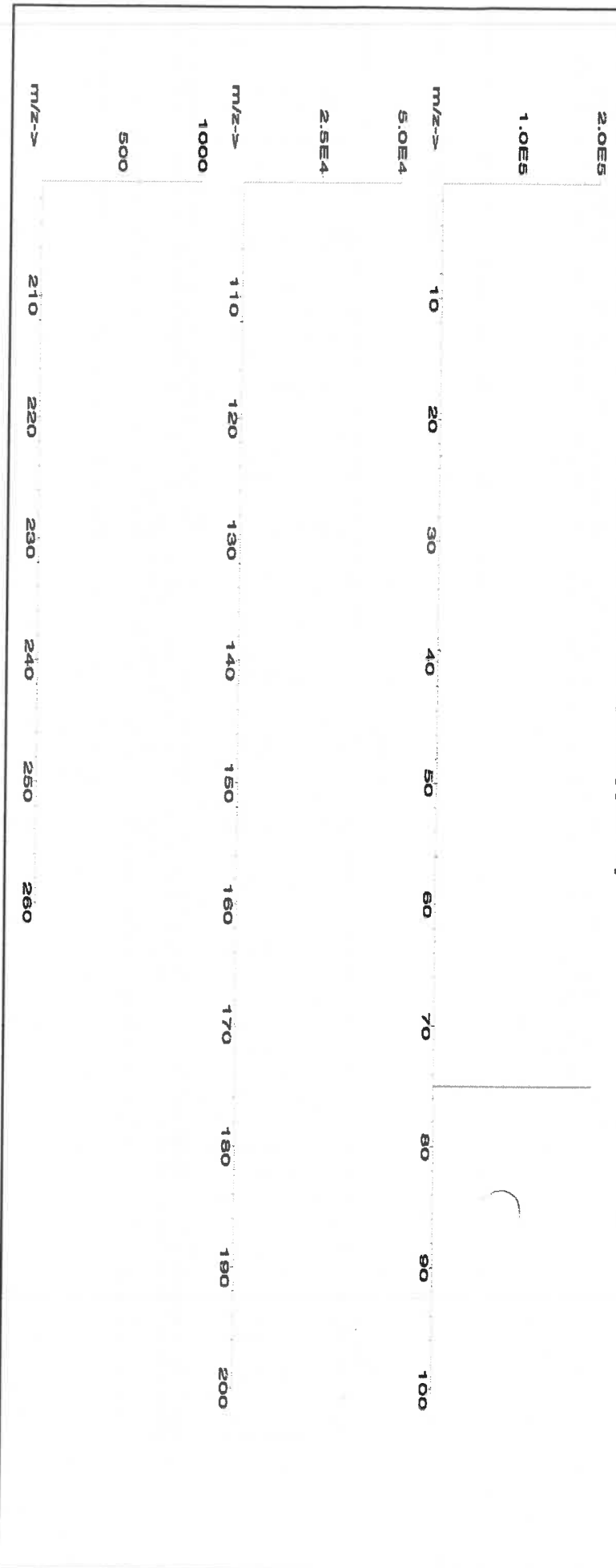
Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rendas	111323

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Arsenic (As)	58133	020522	0.1000	400.0	0.084	1000	10001.0	1000.0	2.0	7440-38-2	0.5 mg/m3	or-lat 500 mg/kg	3103a
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[1] Spectrum No.1 [34.433 sec]:57033.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **57005**
Lot Number: **071123**
Description: **Boron (B)**

Solvent: MKB8697V Ammonium hydroxide

Lot #

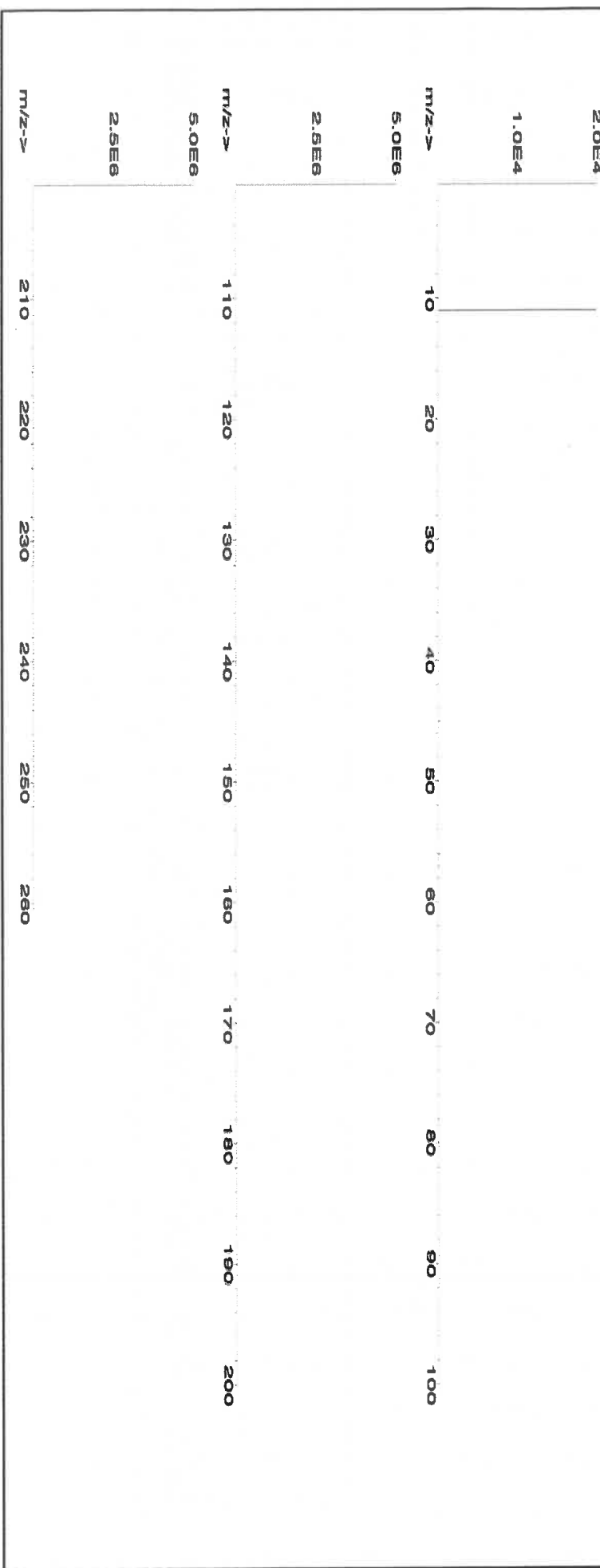
AI: 021009124 M5814

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1999.48 0.058 Balance Uncertainty
2.0% 40.0 Ammonium hydroxide (mL)

Formulated By:	Benson Chan
071123	
Reviewed By:	Pedro L. Rientas
071123	

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
IN018 BV082018A1	1000	99.999	0.10	17.3	11.55772	11.56201	1000.4	2.0	10043-35-3
									2 mg/m3
									ort-nat 2660 mg/kg
									3107

[1] Spectrum No. 1 [12.275 sec]:56105.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 57015
Lot Number: 091123
Description: Phosphorous (P)

Solvent: 24002546 Nitric Acid

Lot #

R: 02109124 M5820

Formulated By: Lawrence Barry 091123

Reviewed By: Pedro L. Rentas 091123

2% 40.0 (mL) Nitric Acid

Expiration Date: 091126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LJB

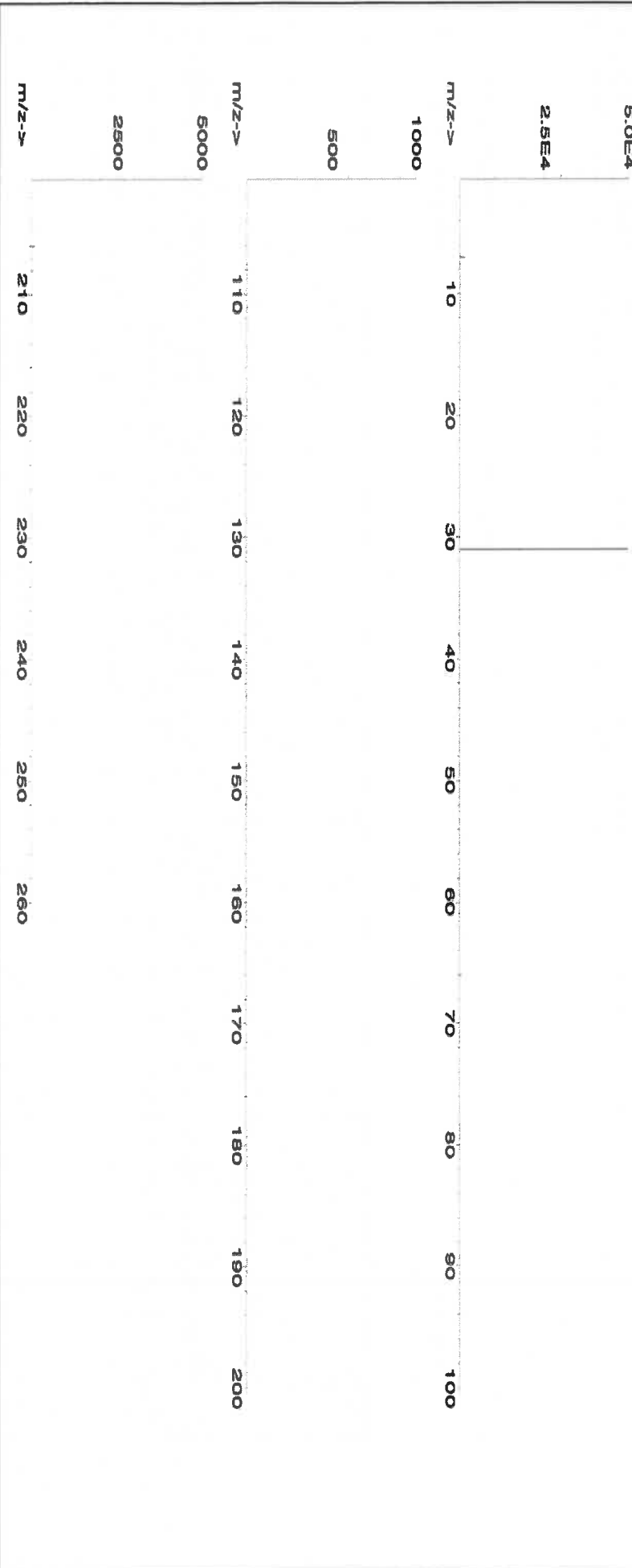
Weight shown below was diluted to (mL): 2000.02 0.058 Balance Uncertainty Flask Uncertainty

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium dihydrogen phosphate (P) IN008 PVO62019A1 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:

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Sodium Chloride, Crystal
BAKER ANALYZED® A.C.S. Reagent



MS824
MS

Material No.: 3624-01

Batch No.: 0000281938

Manufactured Date: 2021-06-07

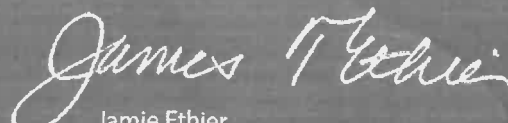
Retest Date: 2026-06-07

Revision No.: 1

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	$\geq 99.0 \%$	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	$\leq 0.005 \%$	0.003 %
Iodide (I)	$\leq 0.002 \%$	< 0.002 %
Bromide (Br)	$\leq 0.01 \%$	< 0.01 %
Chlorate and Nitrate (as NO ₃)	$\leq 0.003 \%$	< 0.001 %
ACS - Phosphate (PO ₄)	≤ 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 WEIGHT REPORT:

MS962 **R10614124**

Lot # **24002546** Solvent: **Nitric Acid**

Part Number: **57034**
Lot Number: **060624**
Description: **Selenium (Se)**

2.0% 40.0 (mL) Nitric Acid

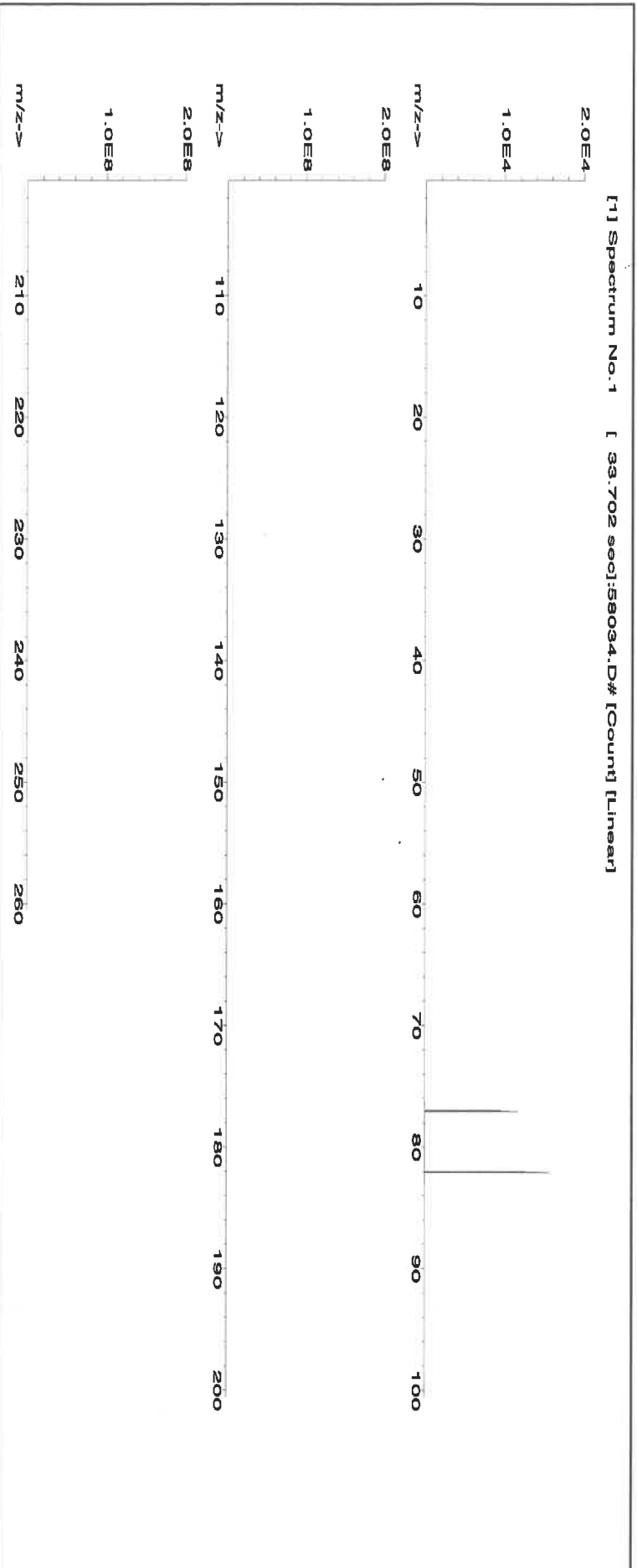
Expiration Date: **060627**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Volume shown below was diluted to (mL): **2000.07**
SE-05 Balance Uncertainty **0.100** Flask Uncertainty

Formulated By:	Benson Chan	060624
Reviewed By:	Pedro L. Rantas	060624

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	CAS#	OSHA PEL (TWA)	LDSO	NIST SRM
----------	-------------	------------	-----------------	-------------------	--------------	-----------------------	-----------------------	---------------------	----------------------------------	--	------	----------------	------	----------

1. Selenium (Se)	58134	071223	0.1000	200.0	0.084	1000	10002.5	1000.0	2.2	7782-49-2	0.2 mg/m3	or-tral 6700 mg/kg	3149
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<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	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Sr	<0.02	S	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02			Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
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- * 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

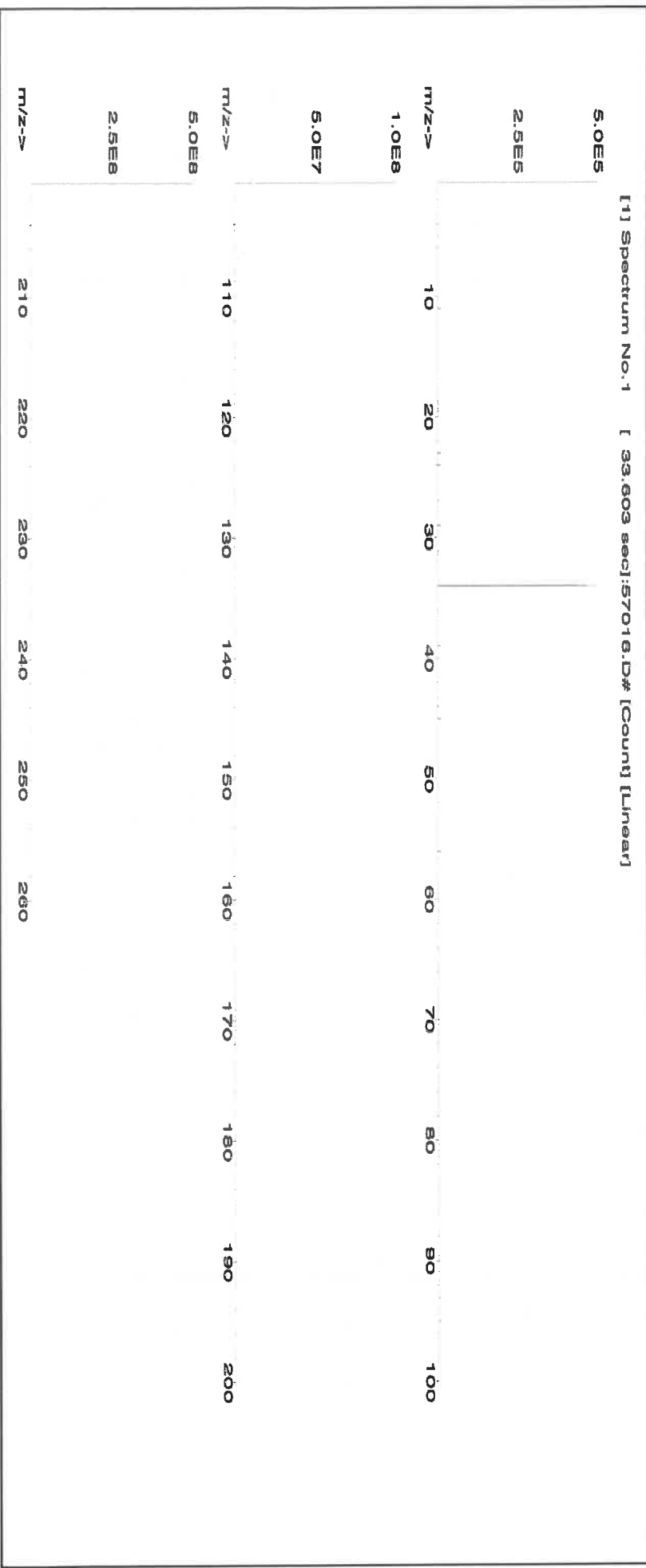
Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas

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 (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty		NIST SRM
									±	(µg/mL)	

SDS Information
(Solvent Safety Info. On Attached pg.)
CAS# OSHA PEL (TWA) LD50

1. Ammonium sulfate (S) IN117 SLBR725V 1000 99.9 0.10 24.3 16.4979 16.4980 1000.0 2.0 7783-20-2 NA or-rel 4250mg/kg 3181



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: **06/127**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Volume shown below was diluted to (mL): **250.11**
SE-05 Balance Uncertainty
0.016 Flask Uncertainty

Lot # **24002546**
Solvent: **Nitric Acid**

2.0% 5.0 (mL) Nitric Acid

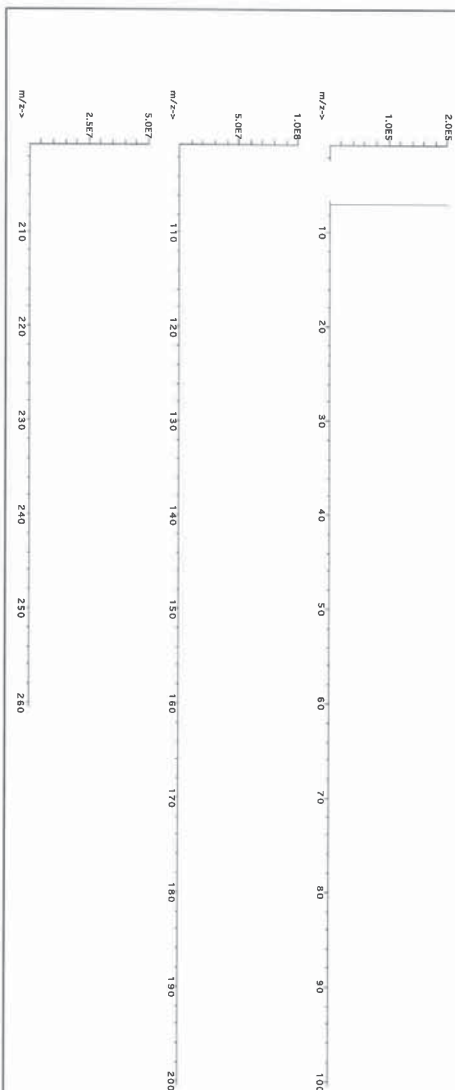
Microvial Capable	
Formulated By:	062124
Giovanni Esposito	

Reviewed By: *[Signature]*
Pietro L. Parias

Compound		Part		Lot		Dilution		Initial		Uncertainty		Nominal		Initial		Final		Expanded		SDS Information		NIST	
Number	Factor	Number	Factor	Number	Factor	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Uncertainty	± (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	SM

1. Lithium nitrate (Li) 58103 070622 0.1000 25.0 0.004 1000 10000.4 1000.0 2.0 7790-68-4 5 mg/m3 or-hal 1428 mg/kg NA

[1] Spectrum No. 1 [32.093 sec; 15000.0Hz Count [Lines]



Certificate of Analysis

MS978, MS979



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Christiansburg, VA 24073 USA
inorganicventures.com

R: 2/22/24

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F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories".
Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: 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 Lot#: T1 Metal

Starting Material Purity: 2094

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Method #1

1002 ± 4 µg/mL

ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods
Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = (X_p / U_{CRM})$

X_p = mean of Assay Method A with

U_{CRM} = the standard uncertainty of characterization Method A

k = coverage factor = 2

$U_{CRM} = k \sqrt{U_{CRM}^2 + U_{CRM}^2 + U_{CRM}^2 + U_{CRM}^2}$

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$U_{CRM} = k \sqrt{U_{CRM}^2 + U_{CRM}^2 + U_{CRM}^2 + U_{CRM}^2}$

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an UHPA-filtered Clean Room. An UHPA-filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag	<	0.000536	M Eu	<	0.000268	O Na	<	0.032670	M Se	<	0.001204	O Zn	<	0.003267
M Al	<	0.000872	O Fe	<	0.003225	O Nb	<	0.043560	O Si	<	0.004735	O Zr	<	0.043560
M As	<	0.008586	M Ga	<	0.000268	M Nd	<	0.000268	M Sm	<	0.000268			
M Au	<	0.004577	M Gd	<	0.000268	O Ni	<	0.010890	M Sn	<	0.000986			
O B	<	0.008929	M Ge	<	0.002146	M Os	<	0.000269	O Sr	<	0.000986			
M Ba	<	0.002683	M Hf	<	0.002161	O P	<	0.054450	M Ta	<	0.010560			
M Be	<	0.005366	M Hg	<	0.003231	M Pb	<	0.001073	M Tb	<	0.000268			
M Bi	<	0.001609	M Ho	<	0.000268	M Pd	<	0.000268	M Th	<	0.001341			
O Ca	<	0.000676	M In	<	0.002683	M Pr	<	0.000268	M Th	<	0.053663			
M Cd	<	0.000268	M Ir	<	0.000269	M Pt	<	0.000536	S Ti	<	0.000268			
M Co	<	0.000268	M K	<	0.001172	M Rb	<	0.000268	M Tl	<	0.000268			
M Cr	<	0.000752	O Li	<	0.000268	M Re	<	0.000268	M Tm	<	0.000268			
M Cs	<	0.000268	M Lu	<	0.000268	M Rh	<	0.000268	M U	<	0.000268			
O Cu	<	0.010890	O Mg	<	0.005445	I S	<	0.006976	M Y	<	0.002146			
M Dy	<	0.000268	O Mn	<	0.003267	M Sb	<	0.004900	M Yb	<	0.000536			
M Er	<	0.000268	M Mo	<	0.000774	O Sc	<	0.004900	M Yb	<	0.000536			

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 ± 4.6 Ti(F)₆-2 media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)₆-2 for months in 1% HNO₃ / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)₆-2 chemically stable for years in 2-5% HNO₃ / trace HF in an LDPE container.

TI Containing Samples (Preparation and Solution) - Metal (Soluble in H₂O / HF caution - powder reacts violently). Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H₂O / HF / H₂SO₄); K₂SiO₃ - no KF if silica not present); Organic Matrices (Dry ash at 450°C in P10 and dissolve by heating with 1:1:1 H₂O / HF / H₂SO₄ or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystaline form).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	14 ppt
ICP-MS 48 amu		

HAZARDOUS INFORMATION

HF Note: This standard should not be prepared or stored in glass.

ICP-OES 323.452 nm	ICP-OES 334.941 nm	ICP-OES 336.121 nm
0.0054 / 0.00092 µg/mL	0.0038 / 0.00028 µg/mL	0.0053 / 0.00034 µg/mL

1 W, Mo, Co
1 Nb, Ta, Cr, U
1 Ce, Ar, Ni
Ru
(where X = Zr, Mo,
14N17N2, 36Ar12C,
48Ca, 196X=2
14N16O18O,
32S16O, 32S14N,
N/A

8.0 HOMOGENEITY

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 QUALITY STANDARD DOCUMENTATION

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / 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; 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

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Paul Gaines

80978

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
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M5985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGIN10
Lot Number: U2-IN729349
Matrix: 5% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Indium
Starting Material: Indium Metal
Starting Material Lot#: 2511
Starting Material Purity: 99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL
Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10021 ± 56 µg/mL ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	10035 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	10001 ± 33 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{char i}^2) / (\sum (1/u_{char i}^2))$$

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum (w_i)^2 (u_{char i}^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = (X_a) (u_{char a})$$

X_a = mean of Assay Method A with

$u_{char a}$ = the standard uncertainty of characterization Method A

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000760	M	Eu	<	0.000760	O	Na	0.012771	M	Se	<	0.023000	M	Zn	<	0.006100
M	Al	0.003385	O	Fe	0.004462	M	Nb	<	0.000760	O	Si	0.024619	M	Zr	<	0.000760		
M	As	<	0.004600	M	Ga	<	0.000760	M	Nd	<	0.000760	M	Sm	<	0.000760			
M	Au	<	0.002300	M	Gd	<	0.000760	O	Ni	<	0.005100	M	Sn	<	0.000760			
O	B	0.003692	M	Ge	<	0.001600	M	Os	<	0.000760	O	Sr	<	0.000610				
M	Ba	<	0.001600	M	Hf	<	0.000760	n	P	<		M	Ta	<	0.000760			
O	Be	<	0.000130	M	Hg	<	0.003100	M	Pb	0.001400	M	Tb	<	0.000760				
M	Bi	<	0.000760	M	Ho	<	0.000760	M	Pd	<	0.001600	M	Te	<	0.000760			
O	Ca	0.004616	s	In	<			M	Pr	<	0.000760	M	Th	<	0.000760			
M	Cd	<	0.000760	M	Ir	<	0.000760	M	Pt	<	0.000760	O	Ti	<	0.001100			
M	Ce	<	0.000760	O	K	0.007078	M	Rb	<	0.000760	M	Tl	<	0.000760				
M	Co	<	0.000760	M	La	<	0.000760	M	Re	<	0.000760	M	Tm	<	0.000760			
O	Cr	<	0.001300	O	Li	<	0.000130	M	Rh	<	0.000760	M	U	<	0.000760			
M	Cs	<	0.000760	M	Lu	<	0.000760	M	Ru	<	0.000760	M	V	<	0.001600			
M	Cu	<	0.003800	O	Mg	0.000707	n	S	<			M	W	<	0.001600			
M	Dy	<	0.000760	O	Mn	0.000149	M	Sb	<	0.000760	M	Y	<	0.000760				
M	Er	<	0.000760	M	Mo	<	0.002300	M	Sc	<	0.000760	M	Yb	<	0.000760			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 114.82 +3 6 In(H₂O)₆+3

Chemical Compatibility -Soluble in HCl, HNO₃, and H₂SO₄. Avoid neutral and basic media. Stable with most metals and inorganic anions. The oxalate, sulfide, carbonate, hydroxide and phosphate are insoluble in water.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

In Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO₃); Oxide (Soluble in mineral acids); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in dilute HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 115 amu	1 ppt	n/a	115Sn, 99Ru16O
ICP-OES 158.583 nm	0.05 / 0.002 µg/mL	1	
ICP-OES 230.606 nm	0.1 / 0.03 µg/mL	1	Ni, Os
ICP-OES 325.609 nm	0.2 / 0.05 µg/mL	1	Mn, Mo, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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
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inorganicventures.com

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories".

Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CLPP-CAL-3
Lot Number: T2-MEB727800
Matrix: 7% (v/v) HNO₃
Value / Analyte(s):
1 000 µg/mL ea:
Arsenic, Lead,
Selenium, Thallium,
500 µg/mL ea:
Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	1 000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 2.2 µg/mL
Lead, Pb	1 000 ± 4 µg/mL	Selenium, Se	1 000 ± 6 µg/mL
Thallium, Tl	1 000 ± 7 µg/mL		

Density: 1.042 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
As	Calculated		See Sec. 4.2
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum (1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty } (Z) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (Z) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 21, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **December 21, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746172
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 5 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 000 ± 6 µg/mL		

Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum(w_i)(X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum(1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2 (u_{\text{char } i})^2]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™)

see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale).

<https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 12, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **August 12, 2029**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

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Christiansburg, VA 24073 USA
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Certificate of Analysis

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EXP: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746762
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 5 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 000 ± 6 µg/mL		

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum(w_i)(X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum(1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2(u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a)(u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 06, 2029**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58025
101124
Manganese (Mn)

R-71113128

Lot #
Solvent: 24002546 Nitric Acid

Expiration Date:

101127

2% 80.0 (mL) Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

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 MMN032020A1 1000 99.999 0.10 20.8 19.2322 19.2344 1000.1 2.0 15710-66-4 5 mg/m3 or-rel >300mg/kg 3132

[1] Spectrum No.1 [34.243 sec]:57025.D# [Count] [Linear]

5.0E6	m/z->	10	20	30	40	50	60	70	80	90	100
2.5E6	m/z->	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->	10	20	30	40	50	60	70	80	90	100
1.0E6	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:

$$w_i = (1/u_{char\ i})^2 / (\sum (1/u_{char\ i})^2)$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum (w_i)^2 (u_{char\ i})^2]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = (X_a) (u_{char\ a})$$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char\ a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag <	0.000310	M Eu <	0.000310	O Na	0.001656	M Se <	0.022000	M Zn <	0.002500
M Al	0.010787	M Fe <	0.027000	M Nb <	0.001300	s Si <		O Zr <	0.001900
M As <	0.001900	M Ga <	0.001300	M Nd <	0.000310	M Sm <	0.000310		
M Au <	0.000910	M Gd <	0.000310	M Ni <	0.005500	M Sn	0.000096		
M B	0.016180	M Ge <	0.001900	M Os <	0.000610	O Sr	0.000092		
M Ba	0.000096	M Hf	0.000423	i P <		M Ta	0.002542		
O Be <	0.000570	M Hg <	0.000610	M Pb <	0.000310	M Tb <	0.000310		
M Bi <	0.000310	M Ho <	0.000610	M Pd <	0.000610	M Te <	0.000910		
O Ca	0.011557	M In <	0.000310	M Pr <	0.000310	M Th <	0.001900		
M Cd <	0.000310	M Ir <	0.000310	M Pt <	0.000310	M Ti	0.001078		
M Ce <	0.000610	O K	0.000577	M Rb <	0.009100	M Tl <	0.000310		
M Co <	0.001600	M La <	0.000310	M Re <	0.000310	M Tm <	0.000310		
M Cr <	0.010000	O Li <	0.000460	M Rh <	0.000310	M U <	0.000310		
M Cs <	0.000310	M Lu <	0.000310	M Ru <	0.000310	O V <	0.001300		
M Cu <	0.002500	O Mg	0.001348	O S <	0.570000	M W <	0.001900		
M Dy <	0.000310	M Mn <	0.002500	M Sb <	0.000310	M Y <	0.000310		
M Er <	0.000310	M Mo <	0.000310	O Sc <	0.000590	M Yb <	0.000310		

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 28.09 +4 6 Si(OH)x(F)y2-

Chemical Compatibility -Soluble in HCl, HF, H3PO4 H2SO4 and HNO3 as the Si(OH)x(F)y2-. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths, or high levels of transition elements unless they are fluorinated. Stable with most inorganic anions with a tendency to hydrolyze forming silicic acid (silicic acid is soluble up to ∼100 ppm in water) in all dilute acids except HF.

Stability - 2-100 ppb levels - stability unknown - (alone or mixed with all other metals) as the Si(OH)x(F)y2-. 1-10,000 ppm single element solutions as the Si(OH)x(F)y2- chemically stable for years in 2-5 % HNO3 / trace HF in a LDPE container.

Si Containing Samples (Preparation and Solution) -Metal (Soluble in 1:1:1 H2O / HF / HNO3); Oxide - SiO2, amorphous (dissolve by heating in 1:1:1 H2O / HF / HNO3); Oxide - quartz (fuse in Pt0 with Na2CO3); Geological Samples(fuse in Pt0with Na2CO3 followed by HCl solution of the fuseate); Organic Matrices containing silicates and non volatile silicon compounds (dry ash at 4500C in Pt0 and dissolve by gently warming with 1:1:1 H2O / HF / H2SO4 or fuse / ash with Na2CO3 and dissolve fuseate with HCl / H2O); Silicone Oils - dimethyl silicones depolymerize to form volatile monomer units when heated (Measure directly in alcoholic KOH / xylene mixture where sample is treated first with the KOH at 60-1000C to "unzip" the Si- O-Si polymeric structure or digest with conc. H2SO4 / H2O2 followed by cooling and dissolution of the dehydrated silica with HF.) Note that the direct analysis of silicone oils in an organic solvent will result in false high results due to high vapor pressure of volatile monomer units like hexamethylcyclotrisiloxane. The KOH forms the K2+Si(CH3)2O= salt which is not volatile at room temperature.

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 28 amu	4000 - 8000 ppt	N/A	N2, 12C16O
ICP-OES 212.412 nm	0.02/0.01 µg/mL	1	Hf, Os, Mo, Ta
ICP-OES 251.611 nm	0.012/0.003 µg/mL	1	Ta, U, Zn, Th
ICP-OES 288.158 nm	0.03/0.004 µg/mL	1	Ta, Ce, Cr, Cd, Th

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; info@inorganicventures.com;

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 10, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- July 10, 2029

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number: 58126
Lot Number: 011025
Description: Iron (Fe)

R-2113125
M6140

Solvent: 24012496 Nitric Acid
Lot #

Expiration Date: 011028

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6U7B

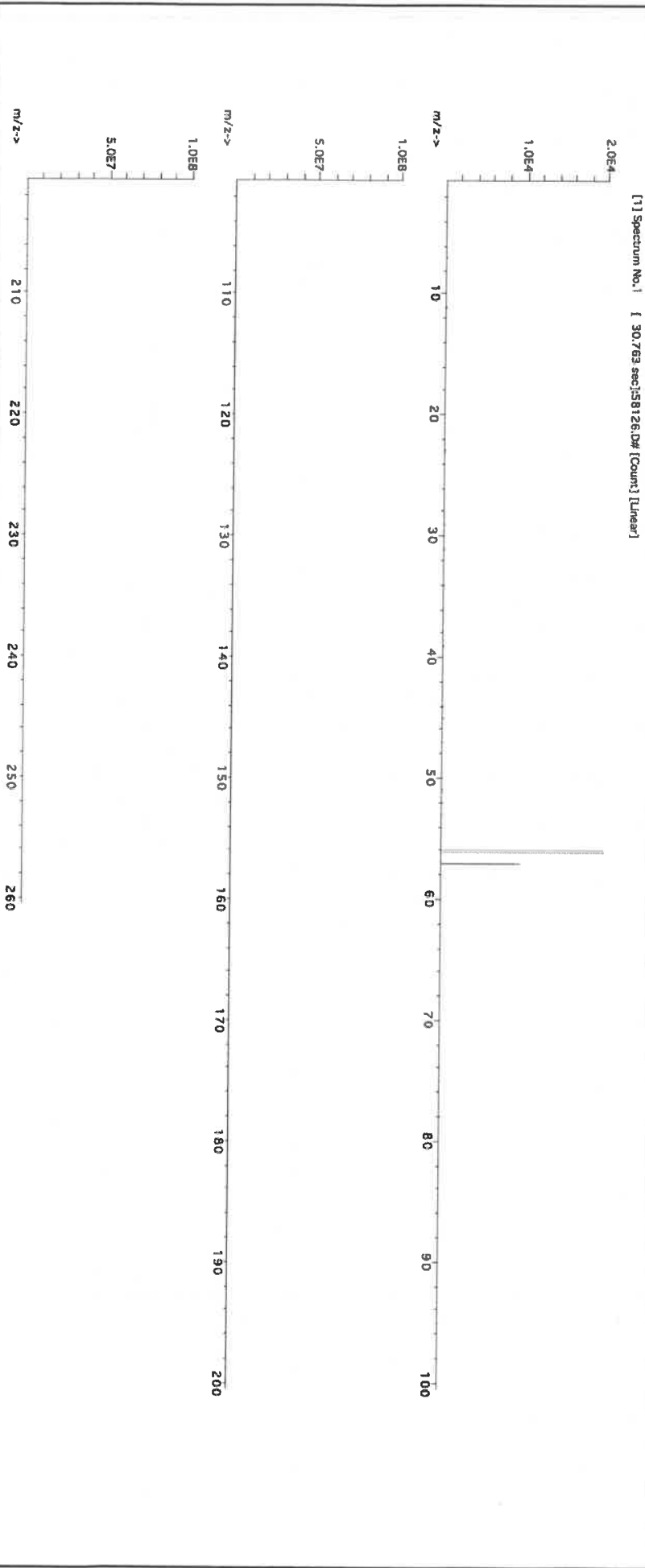
Weight shown below was diluted to (mL): 2000.07

2% 40.0 (mL) Nitric Acid

Formulated By:	Benson Chan	011025
Reviewed By:	Pedro L. Renteria	011025

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

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





CERTIFIED WEIGHT REPORT:

Part Number: 57119
Lot Number: 103024
Description: Potassium (K)

R-21113125

Solvent: 24002546 Nitric Acid
Lot #

Expiration Date: 103027
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

M6141
M6142
M6143

2% 80.0 (mL) Nitric Acid

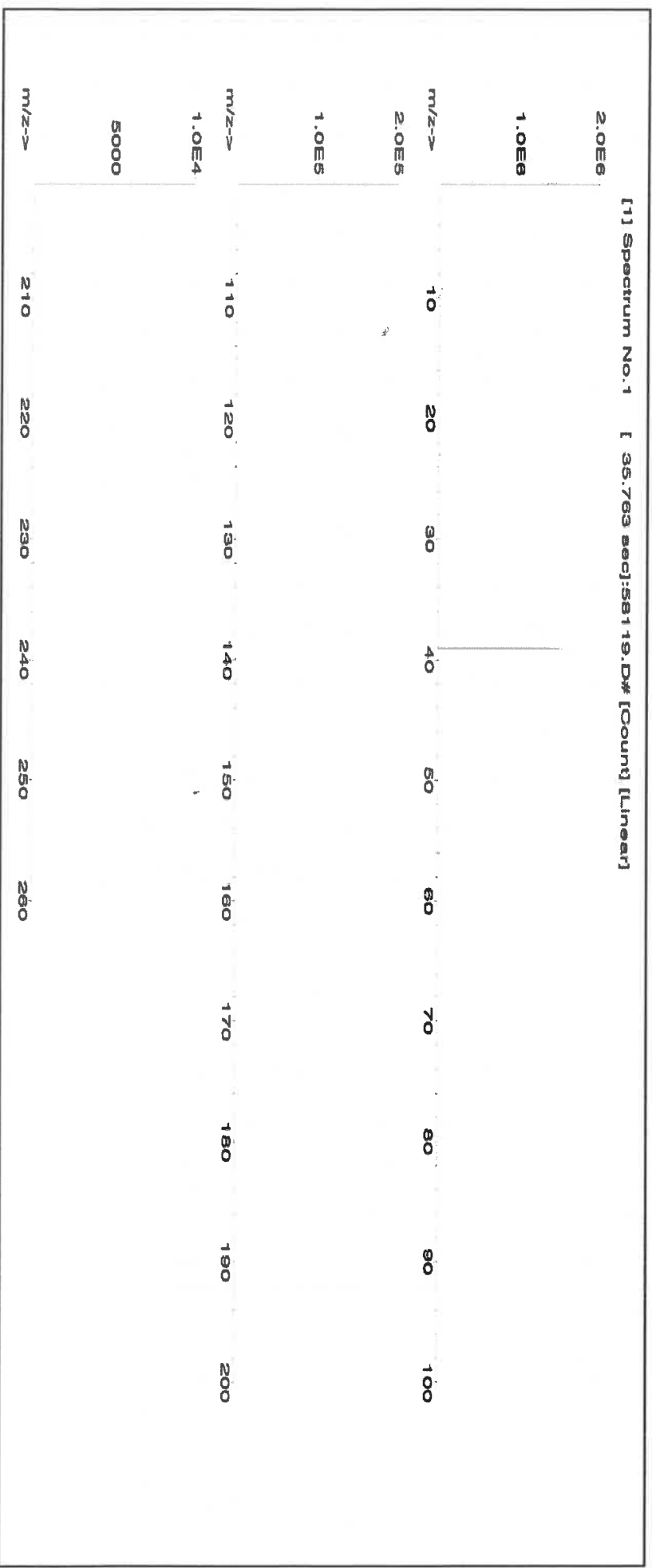
Weight shown below was diluted to (mL): 4000.1 0.15 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Renteria
	103024

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

1. Potassium nitrate (K) IN034 KD062022A1 10000 99.999 0.10 37.7 106.1040 ##### 10001.1 20.0 7757-79-1 5 mg/m3 orl-rat 3750 mg/kg 3141a

[1] Spectrum No. 1 [35.763 sec]:58119.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 58111
Lot Number: 072424
Description: Sodium (Na)

Lot # R-1113125
Solvent: 24002546 Nitric Acid

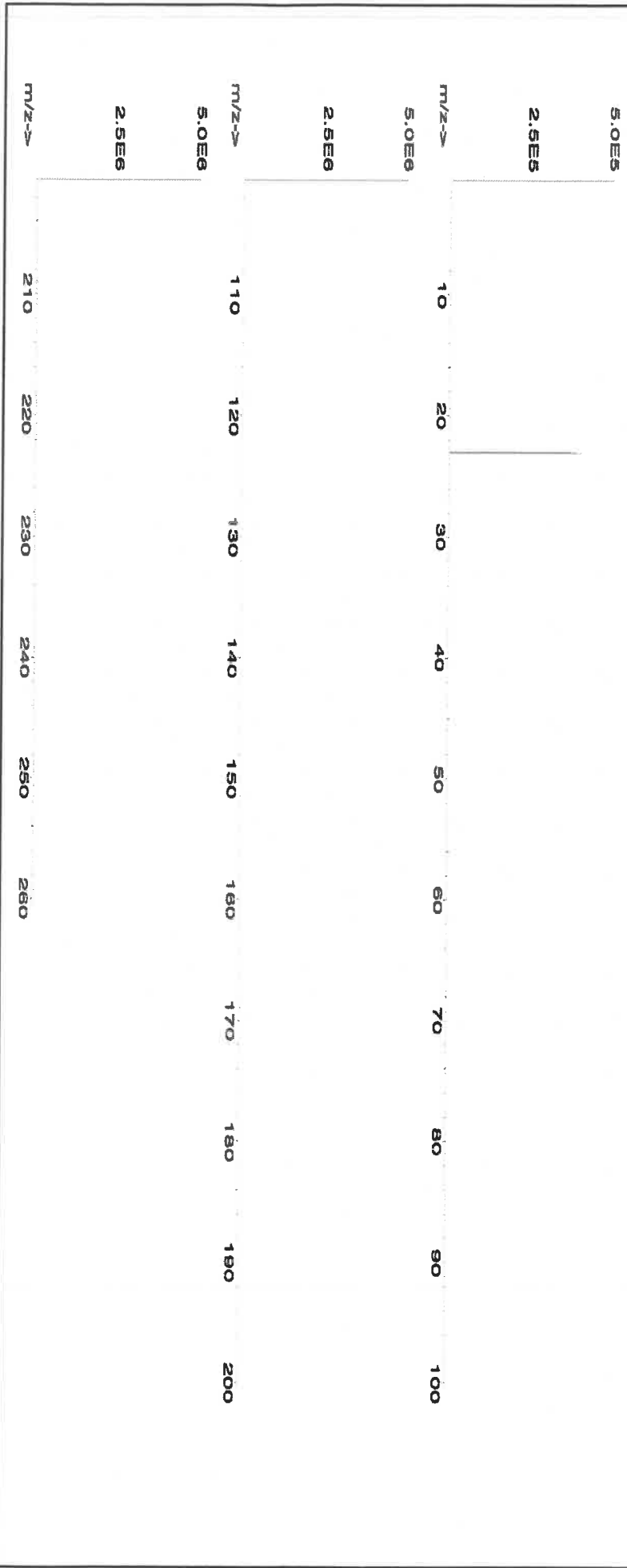
Expiration Date: 072427
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

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

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
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
									ort-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	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rb	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	T	Tb	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **58030** Lot # **24012496**
Lot Number: **121724** Nitric Acid
Description: **Zinc (Zn)**

Expiration Date: **121727** 2% 40.0 (mL)

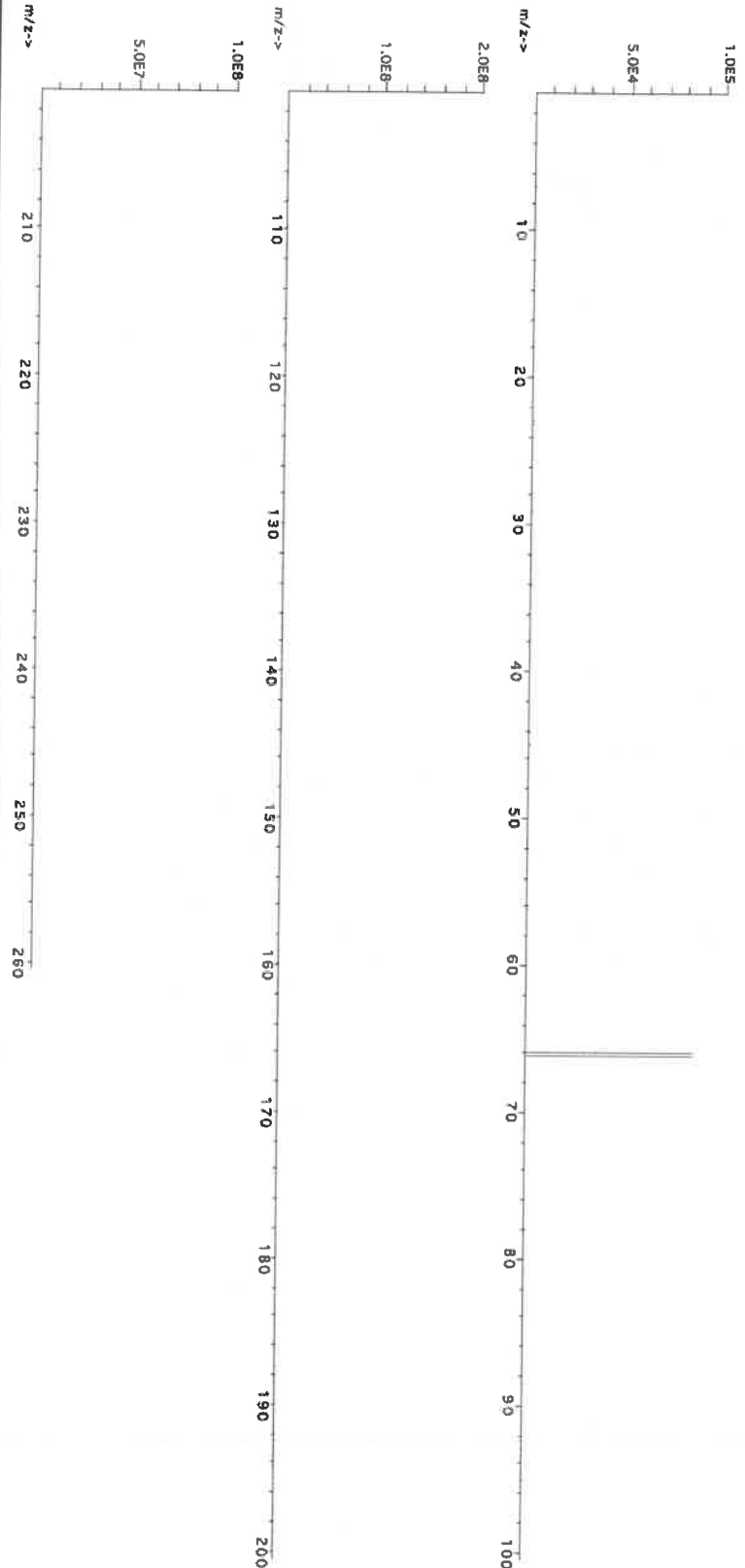
Recommended Storage: **Ambient (20 °C)** Nitric Acid
Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6UTB** 5E-05 Balance Uncertainty
Weight shown below was diluted to (mL): **2000.1** 0.10 Flask Uncertainty

<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
Reviewed By:	<i>Pedro L. Rentias</i>
	Pedro L. Rentias
	121724

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
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
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For Laboratory, Research, or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

A handwritten signature in cursive script that reads 'Jamie Ethier'.
Jamie Ethier
Vice President Global Quality

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
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For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Croak
Director Quality Operations, Bioscience Production

Nitric Acid 69%
CMOS

avantor™



m-6162

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

R. Date :- 04/27/2025

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

 **avantorsTM**



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

 **avantor™**



Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
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For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Croak
Director Quality Operations, Bioscience Production

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution		
Catalog Number:	QCP-CICV-1		
Lot Number:	V2-MEB744107		
Matrix:	7% (v/v) HNO ₃		
Value / Analyte(s):	2 500 µg/mL ea:		
	Calcium,	Potassium,	
	Magnesium,	Sodium,	
	1 000 µg/mL ea:		
	Aluminum,	Barium,	
	500 µg/mL ea:		
	Iron,		
	250 µg/mL ea:		
	Nickel,	Vanadium,	
	Zinc,	Cobalt,	
	Manganese,		
	125 µg/mL ea:		
	Silver,	Copper,	
	100 µg/mL ea:		
	Chromium,		
	25 µg/mL ea:		
	Beryllium		

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	1 000 ± 4 µg/mL	Barium, Ba	1 000 ± 6 µg/mL
Beryllium, Be	24.98 ± 0.12 µg/mL	Calcium, Ca	2 500 ± 8 µg/mL
Chromium, Cr	99.9 ± 0.6 µg/mL	Cobalt, Co	250.2 ± 1.2 µg/mL
Copper, Cu	125.0 ± 0.5 µg/mL	Iron, Fe	500.0 ± 2.2 µg/mL
Magnesium, Mg	2 500 ± 11 µg/mL	Manganese, Mn	249.9 ± 1.1 µg/mL
Nickel, Ni	250.0 ± 1.2 µg/mL	Potassium, K	2 500 ± 11 µg/mL
Silver, Ag	125.0 ± 0.6 µg/mL	Sodium, Na	2 500 ± 11 µg/mL
Vanadium, V	250.0 ± 1.1 µg/mL	Zinc, Zn	249.9 ± 1.1 µg/mL

Density: 1.081 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum(w_i)(X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum(1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2 (u_{\text{char } i})^2]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale), <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>)

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 22, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 22, 2029**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: QCP-CICV-2
 Lot Number: U2-MEB733713
 Matrix: 3% (w/v) Tartaric acid
 1% (v/v) HNO₃
 Value / Analyte(s): 500 µg/mL ea:
 Antimony

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	500.0 ± 2.8 µg/mL		

Density: 1.017 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Sb	ICP Assay	3102a	140911

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum(w_i)(X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{char i}^2) / (\sum(1/u_{char i}^2))$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

u_{char} = $[\sum(w_i)^2(u_{char i}^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = (X_a)(u_{char a})$$

X_a = mean of Assay Method A with

$u_{char a}$ = the standard uncertainty of characterization Method A

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale). <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 01, 2023

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **June 01, 2028**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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1.0 ACCREDITATION / REGISTRATION

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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.

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7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

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- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 02, 2025

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 02, 2030**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Hydrogen Peroxide, 30%

CMOS

(Stabilized)

M-6170

avantor™



R.Date . 8-05/20/2025

Material No.: 2190-03

Batch No.: 24D1961001

Test	Specification	Result
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Nickel (Ni)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Niobium (Nb)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 600.0 ppb	176.7 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 50.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	190.0 – 500.0 ppb	272.3 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)	≤ 50 ppb	< 1 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.2 µm and greater	≤ 1175 par/ml	202 par/ml
Particle Count – 0.5 µm and greater	≤ 100 par/ml	33 par/ml

>>> Continued on page 3 >>>

Hydrogen Peroxide, 30%

CMOS

(Stabilized)

 **avantorsTM**



Material No.: 2190-03
Batch No.: 24D1961001

Test	Specification	Result
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For Microelectronic Use

Country of Origin: USA

Packaging Site: Paris Mfg Ctr & DC



Michelle Bales
Sr. Manager, Quality Assurance

Hydrogen Peroxide, 30%
CMOS
(Stabilized)



Material No.: 2190-03
Batch No.: 24D1961001
Manufactured Date: 2024-04-17
Expiration Date: 2025-10-16
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (H ₂ O ₂)	30.0 – 32.0 %	31.6 %
Color (APHA)	≤ 10	< 5
Free Acid (μeq/g)	≤ 0.2	0.1
Residue after Evaporation	≤ 10 ppm	2 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 3 ppm
Chloride (Cl)	≤ 0.2 ppm	< 0.2 ppm
Nitrate (NO ₃)	≤ 2 ppm	< 2 ppm
Phosphate (PO ₄)	≤ 1 ppm	1 ppm
Sulfate (SO ₄)	≤ 3 ppm	< 3 ppm
Trace Impurities – Aluminum (Al)	≤ 70.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Barium (Ba)	≤ 20.0 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)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Chromium (Cr)	≤ 20.0 ppb	1.5 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)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	< 5.0 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 250.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	4.6 ppb
Trace Impurities – Lead (Pb)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>



R → 213125

Certified Reference Material CRM



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

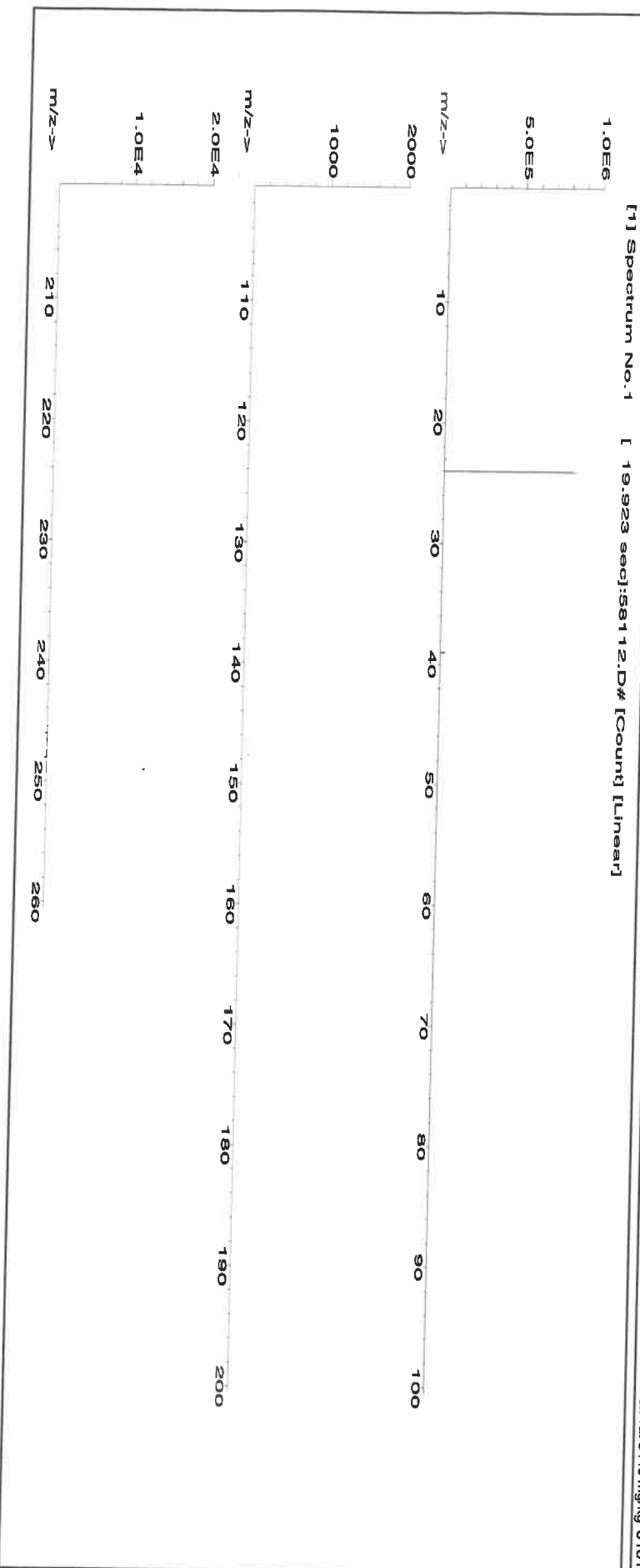
CERTIFIED WEIGHT REPORT:

Part Number: 58112 **Lot #** M 6171
Lot Number: 011525 **Solvent:** 24012496 Nitric Acid
Description: Magnesium (Mg)
Expiration Date: 011528 **2%**
Recommended Storage: Ambient (20 °C) **40.0** Nitric Acid
Nominal Concentration (µg/mL): 10000 **(mL)**
NIST Test Number: 6UTB **5E-05** Balance Uncertainty
Weight shown below was diluted to (mL): 2000.07 **0.100** Flask Uncertainty

Formulated By:	Benson Chan	011525
Reviewed By:	Pedro L. Rentas	011525

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Magnesium nitrate hexahydrate (Mg) IN030 MGD05023A1 10000 99.999 0.10 8.51 234.9183 234.9195 10000.1 20.0 13446-18-9 NA off-ret 5440 mg/kg 3131a





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Certificate of Analysis

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P: 800-669-6799/540-585-3030

F: 540-585-3012

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M6174
R → S1/S124

1.0 ACCREDITATION / REGISTRATION

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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, Magnesium,	Potassium, Sodium,
	2 000 µg/mL ea: Aluminum,	Barium,
	1 000 µg/mL ea: Iron,	
	500 µg/mL ea: Nickel, Zinc, Manganese,	Vanadium, Cobalt,
	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 Number: **092724**
Description: **Strontium (Sr)**

57038
092724
Strontium (Sr)

R-5816125

Lot # **24002546** Solvent: **Nitric Acid**

Expiration Date: **092727**

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **1000**

NIST Test Number: **8UTB**

092727

Ambient (20 °C)

1000

8UTB

M 6/7/26

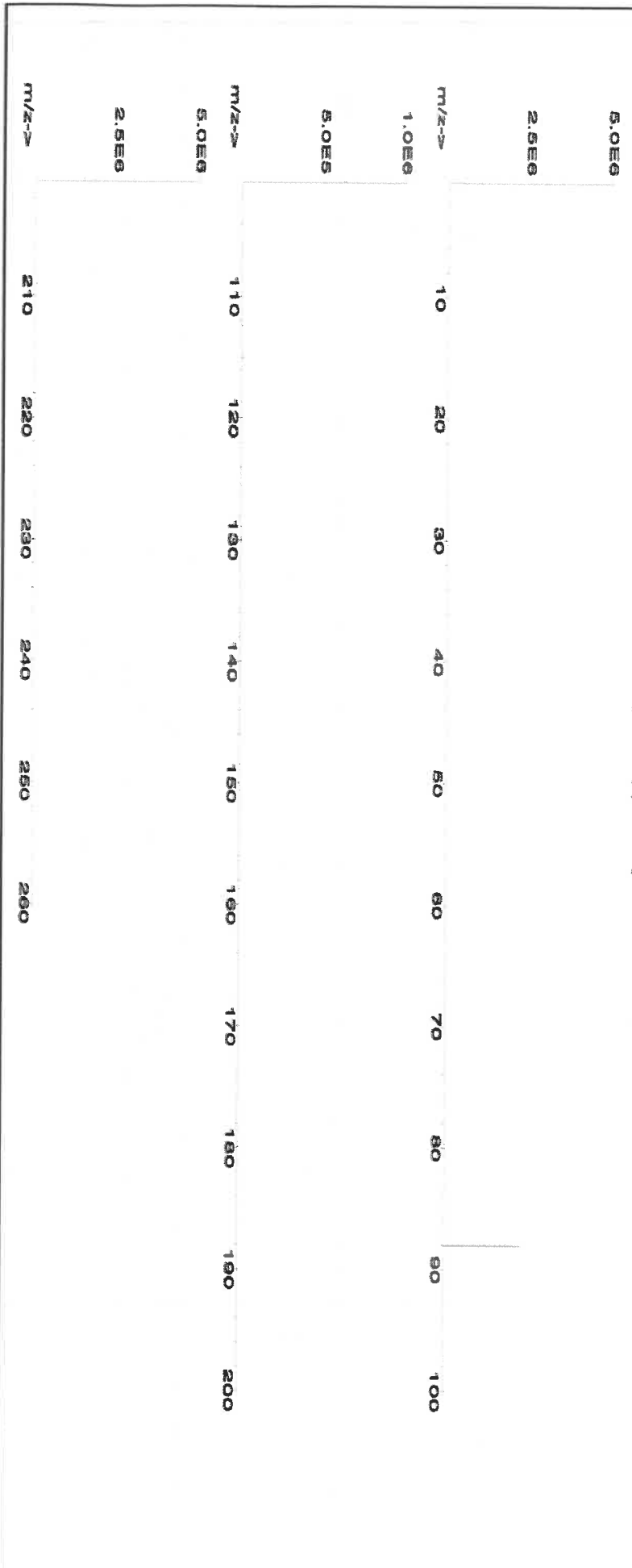
2% 40.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): **2000.07** 0.100 Flask Uncertainty

<i>[Signature]</i>	
Formulated By:	Benson Chan
	092724
Reviewed By:	Pedro L. Rentas
	092724

SDS Information									
Compound	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
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

[1] Spectrum No. 1 [14.465 sec]: 68138.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57042
080525
Molybdenum (Mo)

Solvent:
Ammonium hydroxide
ASTM Type 1 Water

Expiration Date:

080528

Recommended Storage:

Ambient (15 - 30 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

1999.41

R → 8/6/25
M6177

0.5%

10.0

Ammonium hydroxide

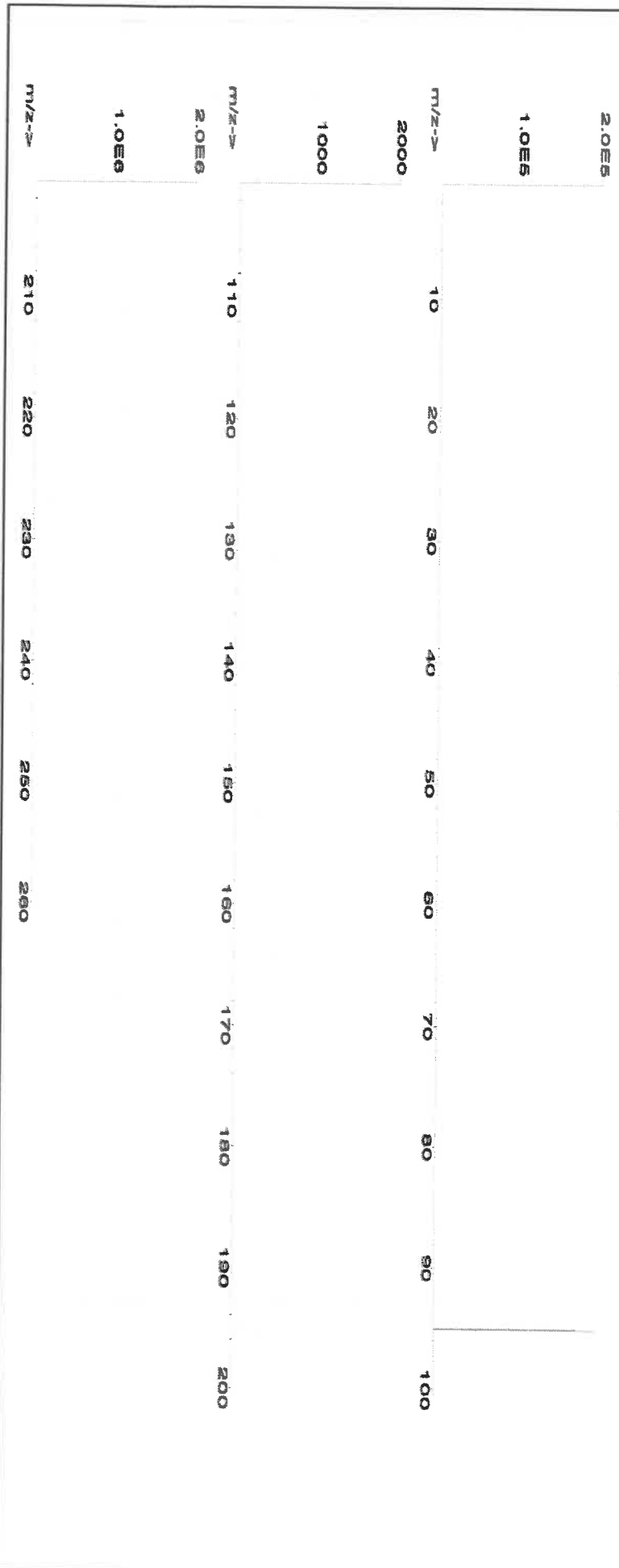
Formulated By:	Benson Chan	080525
Reviewed By:	Pedro L. Renteria	080525

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium molybdate (Mo) 58142 112322 0.1000 200.0 0.084 1000 10001.4 1000.5 2.2 13106-76-8 5 mg(Mo)/mL 0.1-0.333 mg/kg 3134

[1] Spectrum No. 1 [8.594 sec]:57042.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)															
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02
Ba	<0.02	Ce	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	T	Pt	<0.02	Sm	<0.02	S	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Te	<0.02
														Tb	<0.02
														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

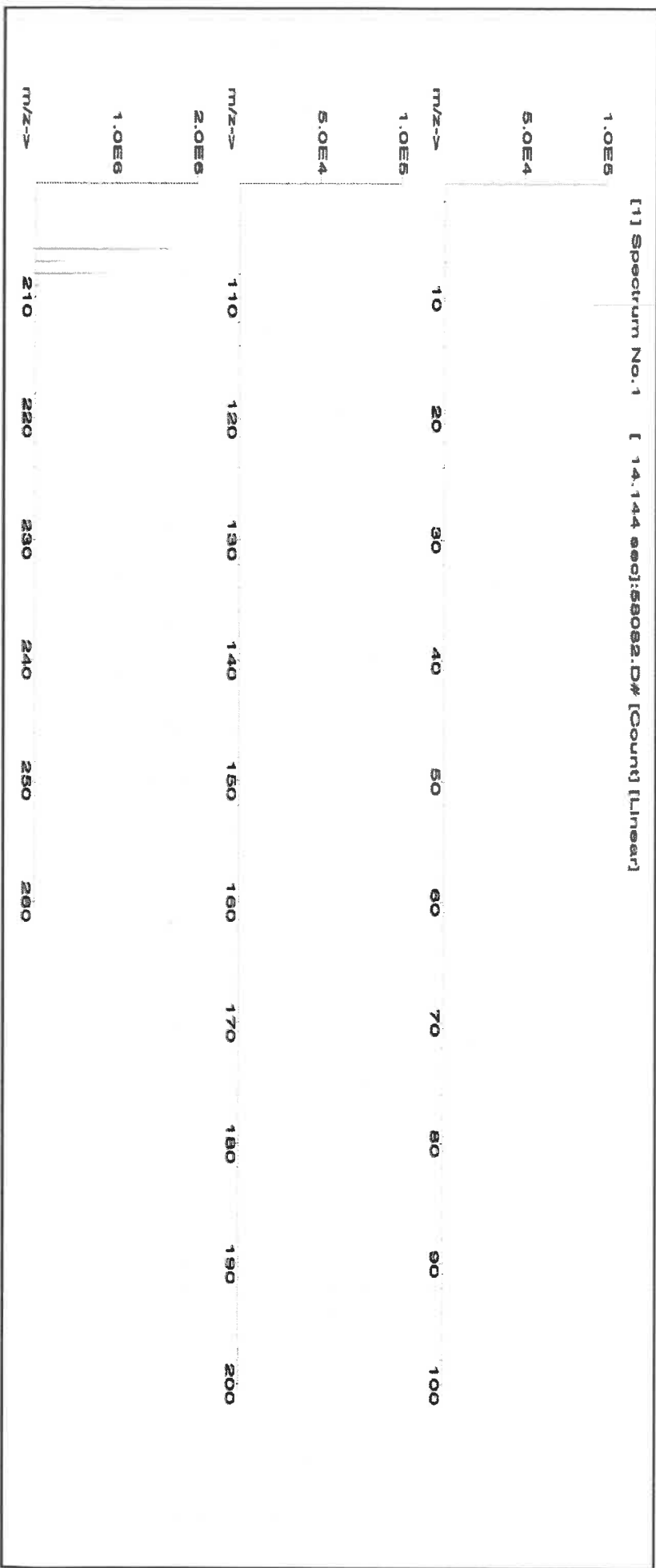
SE-05 Balance Uncertainty

Compound

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

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	73Ge16O, 178Hf+2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- February 20, 2029

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Instructions for QATS Reference Material: ICP-AES ICS

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.



M6182

(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) BREAKAGE OR MISSING ITEMS

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) ANALYSIS OF SAMPLES

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,





QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.



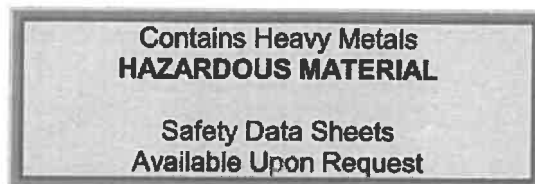
Instructions for QATS Reference Material: ICP-AES ICS

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.



M6184

(A) **SAMPLE DESCRIPTION**

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) **BREAKAGE OR MISSING ITEMS**

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) **ANALYSIS OF SAMPLES**

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,





Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710							
Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value $\pm$ 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value $\pm$ 15 percent of the listed certified value.

Nitric Acid 69%
CMOS



M6187

R.D :- 08/08/25

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	0.1 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 1 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS



Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 1 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	1 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 1.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	13 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	5 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantorsTM**



Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
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For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Croak
Director Quality Operations, Bioscience Production

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



M6200
R.O → 08/25/25

Material No.: 9530-33
Batch No.: 24D1562005
Manufactured Date: 2024-03-18
Retest Date: 2029-03-17
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.192
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	2.2 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	0.2 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 1.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	2.0 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	< 0.9 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.4 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	< 0.1 ppb

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA–ANALYZED® Reagent
For Trace Metal Analysis



Material No.: 9530–33
Batch No.: 24D1562005

Test	Specification	Result
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For Laboratory, Research, or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

A handwritten signature in dark ink, appearing to read 'JCroak'.

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: WW-LFS-2

Lot Number: V2-MEB743480

Matrix: 5% (v/v) HNO₃
tr. HF

Value / Analyte(s): 200 µg/mL ea:
Silica,

80 µg/mL ea:
Antimony,

70 µg/mL ea:
Tin,

40 µg/mL ea:
Molybdenum,

20 µg/mL ea:
Titanium

R-7/20/28

M6201

M6202

M6203

M6204

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.5 µg/mL	Molybdenum, Mo	40.05 ± 0.22 µg/mL
Silica, SiO ₂	200.3 ± 1.4 µg/mL	Tin, Sn	70.1 ± 0.4 µg/mL
Titanium, Ti	20.03 ± 0.12 µg/mL		

Density: 1.025 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102a	140911
SiO ₂	Calculated		See Sec. 4.2
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum (1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 07, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 07, 2029**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Thomas Kozikowski
Stock VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

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2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: WW-LFS-1
Lot Number: W2-MEB752149
Matrix: 5% (v/v) HNO₃

R → 7/20/28

M6209
M6210
M6211
M6212

Value / Analyte(s):	1 000 µg/mL ea:	
	Potassium,	
	600 µg/mL ea:	
	Phosphorus,	
	300 µg/mL ea:	
	Sodium,	Iron,
	200 µg/mL ea:	
	Magnesium,	Aluminum,
	Cerium,	Selenium,
	Thallium,	
	100 µg/mL ea:	
	Lead,	Calcium,
	80 µg/mL ea:	
	Arsenic,	
	70 µg/mL ea:	
	Mercury,	
	50 µg/mL ea:	
	Nickel,	
	40 µg/mL ea:	
	Chromium,	
	30 µg/mL ea:	
	Copper,	Boron,
	Vanadium,	
	20 µg/mL ea:	
	Zinc,	Strontium,
	Barium,	Beryllium,
	Cadmium,	Cobalt,
	Manganese,	Lithium,
	7.5 µg/mL ea:	
	Silver	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	200.2 ± 0.7 µg/mL	Arsenic, As	80.1 ± 0.5 µg/mL
Barium, Ba	20.02 ± 0.12 µg/mL	Beryllium, Be	20.02 ± 0.11 µg/mL
Boron, B	30.02 ± 0.15 µg/mL	Cadmium, Cd	20.04 ± 0.09 µg/mL
Calcium, Ca	100.1 ± 0.3 µg/mL	Cerium, Ce	200.2 ± 1.0 µg/mL
Chromium, Cr	40.02 ± 0.26 µg/mL	Cobalt, Co	20.03 ± 0.09 µg/mL
Copper, Cu	30.03 ± 0.13 µg/mL	Iron, Fe	300.3 ± 1.3 µg/mL
Lead, Pb	100.1 ± 0.5 µg/mL	Lithium, Li	20.03 ± 0.09 µg/mL
Magnesium, Mg	200.2 ± 0.9 µg/mL	Manganese, Mn	19.99 ± 0.09 µg/mL
Mercury, Hg	70.0 ± 0.3 µg/mL	Nickel, Ni	50.05 ± 0.22 µg/mL
Phosphorus, P	600.5 ± 2.9 µg/mL	Potassium, K	1 001 ± 4 µg/mL
Selenium, Se	200.2 ± 1.1 µg/mL	Silver, Ag	7.52 ± 0.03 µg/mL
Sodium, Na	300.3 ± 1.3 µg/mL	Strontium, Sr	20.02 ± 0.10 µg/mL
Thallium, Tl	200.2 ± 1.0 µg/mL	Vanadium, V	30.02 ± 0.13 µg/mL
Zinc, Zn	20.05 ± 0.09 µg/mL		

Density: 1.037 g/mL (measured at 20 ± 5 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Ce	ICP Assay	3110	160830
Ce	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Li	ICP Assay	3129a	100714
Li	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	14Q110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Tl	ICP Assay	3158	151215
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i})^2 / (\sum (1/u_{\text{char } i})^2)$$

$$\text{CRM/RM Expanded Uncertainty } (k) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ls}}^2)^{1/2}$$

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_{ls} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (k) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ls}}^2)^{1/2}$$

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_{ls} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale). <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 25° C to minimize the effects of transpiration. Use at 20° ± 5° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>)

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 08, 2025

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **April 08, 2029**

- The date after which this CRM/RM should not be used.
- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

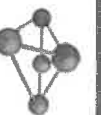
Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number: **57028**
Lot Number: **062024**
Description: **Nickel (NI)**

Lot # **24002546**
Solvent: **Nitric Acid**

2.0% 40.0 (mL) Nitric Acid

Expiration Date: **062027**

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6UTB**

5E-05 Balance Uncertainty

Volume shown below was diluted to (mL): **2000.07** 0.100 Flask Uncertainty

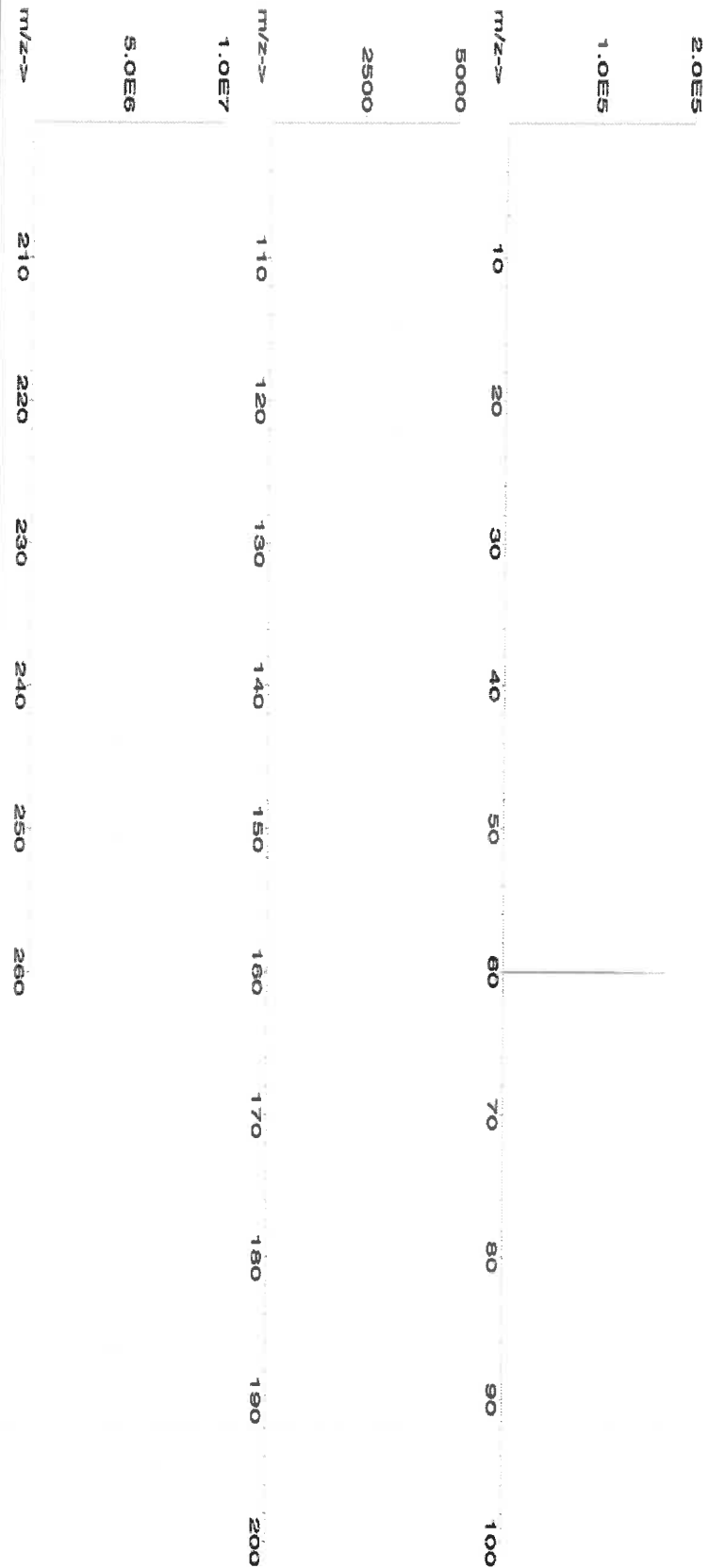
Formulated By:	Benson Chan	062024
Reviewed By:	Pedro L. Rentes	062024

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	-------------	------------	-----------------	-------------------	------------------	---------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. Nickel(II) nitrate hexahydrate (NI) 58128 062023 0.1000 200.0 0.084 1000 10000.4 1000.0 2.2 13478-00-7 1 mg/m3 orl-rat 1620 mg/kg 3136

[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).



M6030



CERTIFIED WEIGHT REPORT:

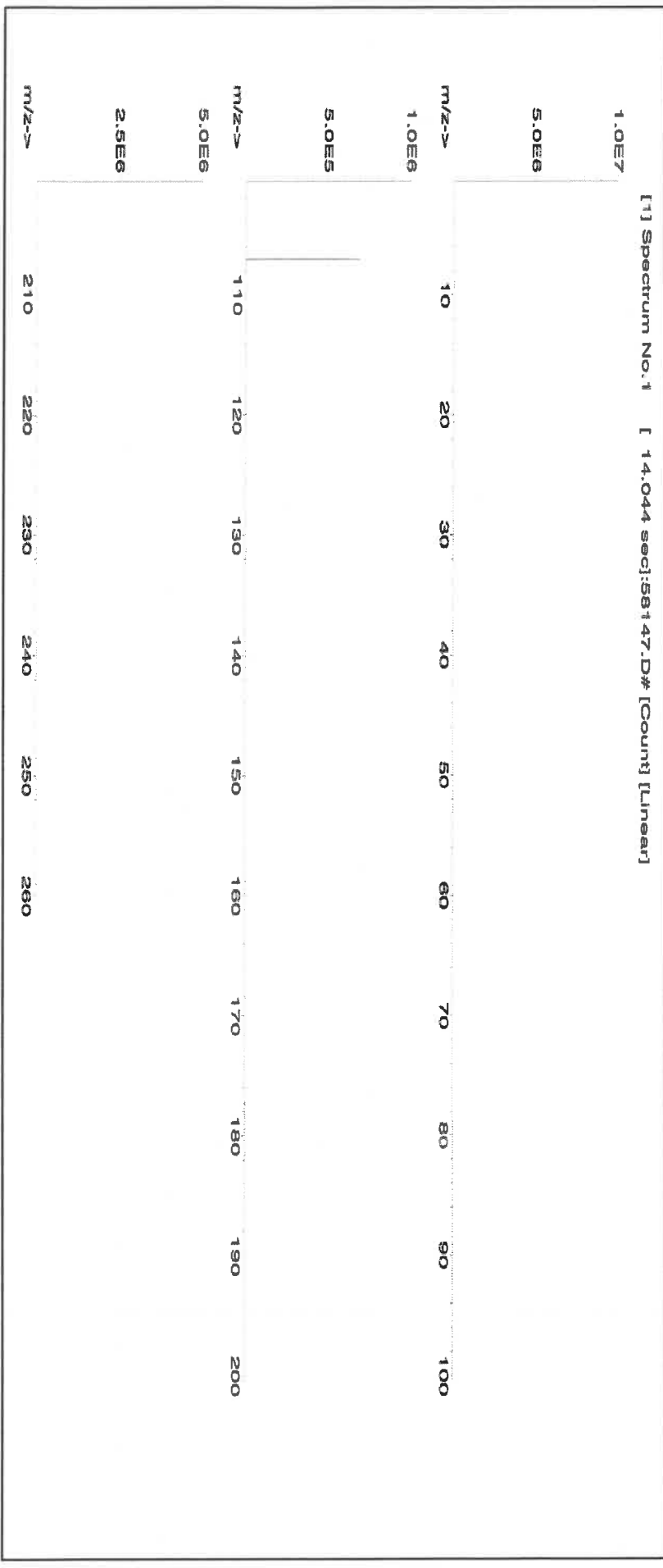
Part Number: **57047**
Lot Number: **122823**
Description: **Silver (Ag)**
Solvent: **24002546 Nitric Acid**

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

Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
2.0	7761-88-8	10 µg/m ³	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 meghm 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:
Lot Number:
Description:

57051
071724
Antimony (Sb)

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

071727
Ambient (20 °C)
1000
6UTB

Volume shown below was diluted to (mL):

2000.26

126160

Lot #
24002546

Solvent:
Nitric Acid

2.0%
Nitric Acid
(mL)

5E-05
Balance Uncertainty
0.058
Flask Uncertainty

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

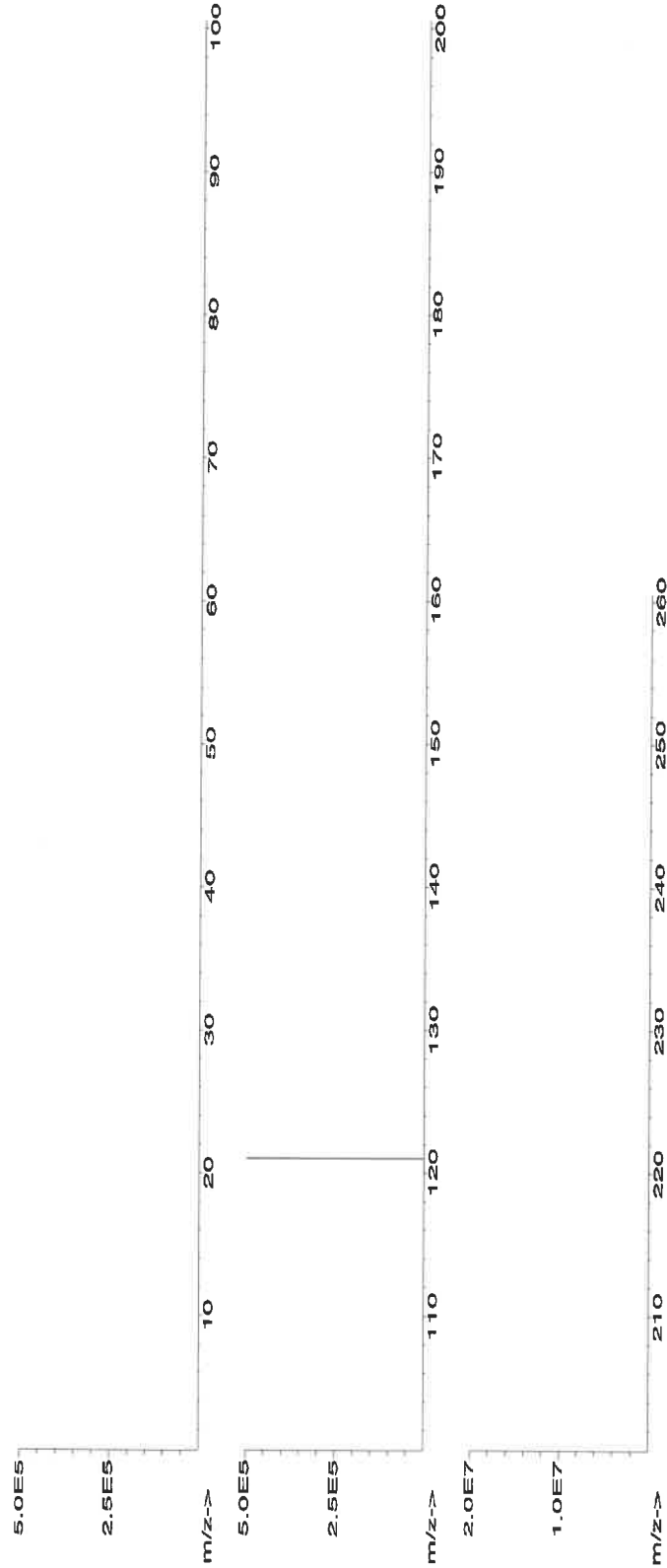
SDS Information

Expanded	Uncertainty	(Solvent Safety Info. On Attached pg.)	NIST
Conc. (µg/mL)	+/- (µg/mL)	CAS#	OSHA PEL (TWA)
1000	10001.4	1000.0	LD50
0.084	0.5 mg/m3	0.5 mg/m3	or-rat 7000 mg/kg
3102a			

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.
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- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57081
Lot Number: 062724
Description: Thallium (TI)

Lot #

Solvent: 24002546 Nitric Acid

2% 40.0 Nitric Acid (mL)

Expiration Date:

062727

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

2000.1

5E-05 Balance Uncertainty
0.10 Flask Uncertainty

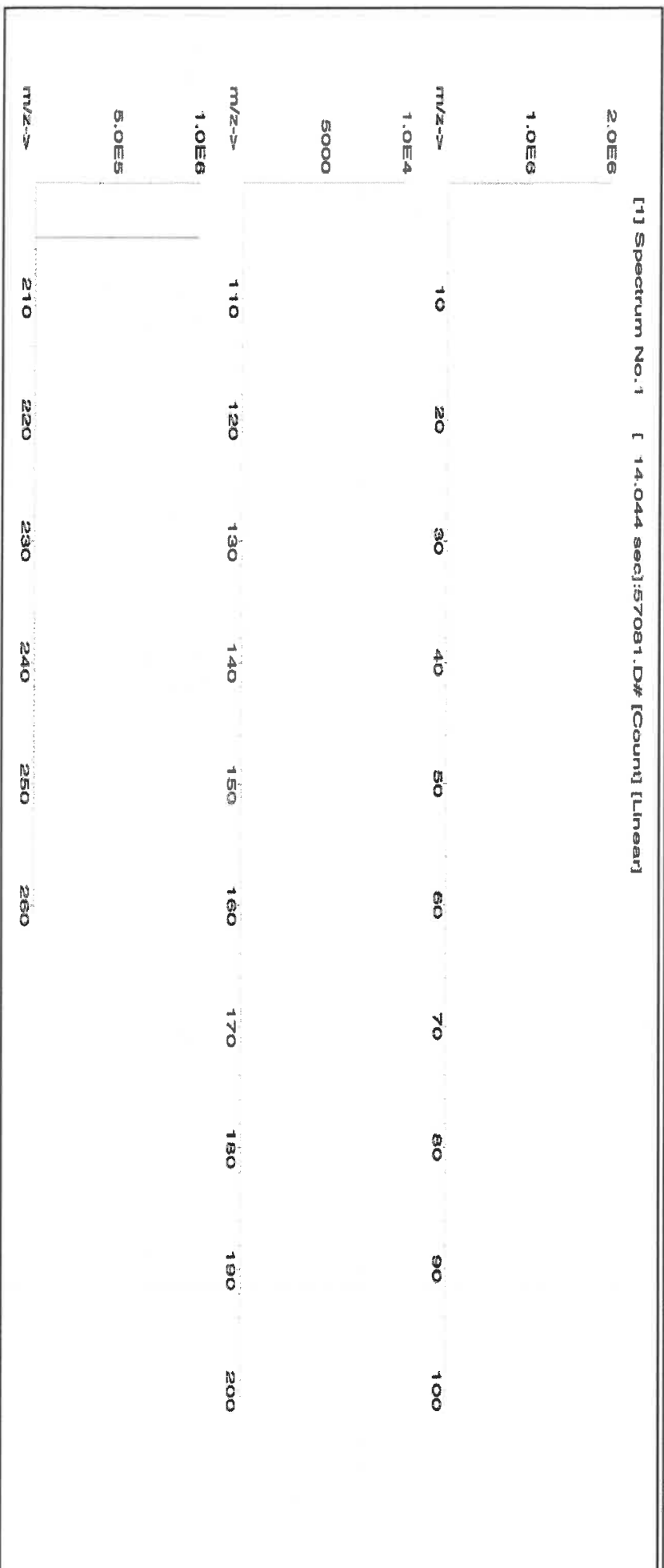
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	062724
Reviewed By:	<i>Pedro L. Rendas</i>
	Pedro L. Rendas
	062724

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Thallium nitrate (TI) IN037 BCCF4399 1000 99.999 0.10 77.0 2.5975 2.5977 1000.1 2.0 10102-45-1 0.1 mg/m3 orl-mus 15mg/kg 3158

[1] Spectrum No.1 [14.044 sec]:57081.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

M6021



CERTIFIED WEIGHT REPORT:

Part Number: **57023**
Lot Number: **062424**
Description: **Vanadium (V)**

Lot # **24002546**
Solvent: **Nitric Acid**

Aleah O'Brady	
Formulated By:	Aleah O'Brady
	062424
Reviewed By:	Pedro L. Rantas
	062424

Expiration Date: **062427**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**

2.0%
40.0 (mL)
Nitric Acid

Volume shown below was diluted to (mL): **2000.3**

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Compound		Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	SDS Information (Solvent Safety Info. On Attached pg.)	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	3165

[1] Spectrum No.1 [34.243 sec]:58023.D# [Count] [Linear]

2.0E6	m/z-->	10	20	30	40	50	60	70	80	90	100
1.0E7	m/z-->	110	120	130	140	150	160	170	180	190	200
5.0E8	m/z-->	210	220	230	240	250	260				
2.5E9	m/z-->										



SHIPPING DOCUMENTS

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: HDR
ADDRESS: 50 Tice Blvd Suite 210
CITY: Woodcliff Lake STATE: NJ ZIP: 07677
ATTENTION: Andrew Wadden
PHONE: 201-312-0752 FAX: N/A

CLIENT PROJECT INFORMATION

PROJECT NAME: PVWC
PROJECT NO.: 10367568 LOCATION: Passaic, NJ
PROJECT MANAGER: Andrew Wadden
e-mail: Andrew.Wadden@HDRInc.com
PHONE: 201-312-0752 FAX: N/A

CLIENT BILLING INFORMATION

BILL TO: HDR PO#:
ADDRESS: 50 Tice Blvd Suite 210
CITY: Woodcliff Lake STATE: NJ ZIP: 07677
ATTENTION: Andrew Wadden PHONE: 201-312-0752

DATA TURNAROUND INFORMATION

FAX (RUSH) _____ DAYS*
HARDCOPY (DATA PACKAGE): STANDARD TAT DAYS*
EDD: _____ DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS

DATA DELIVERABLE INFORMATION

☐ Level 1 (Results Only) ☐ Level 4 (QC + Full Raw Data)
☐ Level 2 (Results + QC) ☒ NJ Reduced ☐ US EPA CLP
☐ Level 3 (Results + QC) ☐ NYS ASP A ☐ NYS ASP B
+ Raw Data ☐ Other: _____
☐ EDD FORMAT _____

1. TCL VOCs
2. TCL SVOCs
3. Pesticides, Cyanide
4. Polychlorinated Biphenyls
5. TCLP for Metals, Cadmium
6. Hexavalent Chromium
7. Mercury, EPH, Volatility
8. Reactive Cyanide and Sulfide, Corrosivity
9. 2,3,7,8-Tetrachloro-dioxin
Paint filter

ALLIANCE SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE		SAMPLE COLLECTION		# OF BOTTLES	PRESERVATIVES									COMMENTS
			COMP	GRAB	DATE	TIME		E	E	E	E	E	E	E	E	E	
1.	B8-0.5-1.0-20251023	S		X	10/23	1015	4	X									
2.	B8-0.0-1.0-20251023		X	X		1030	6		X	X	X	X	X	X	X	X	
3.	B9-0.5-1.0-20251023			X		1140	4	X									
4.	B9-0.0-1.0-20251023		X	X		1150	3		X	X	X						
5.	B7-1.5-2.0-20251023			X		1340	4	X									
6.	B7-1.0-2.0-20251023		X	X		1350	3		X	X	X						
7.																	
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER: 1. <u>[Signature]</u>	DATE/TIME: <u>10-24-25</u>	RECEIVED BY: <u>[Signature]</u>	DATE/TIME: <u>10-24-25</u>	Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☐ COOLER TEMP <u>2.5</u> °C
RELINQUISHED BY SAMPLER: 2. <u>[Signature]</u>	DATE/TIME: <u></u>	RECEIVED BY: <u></u>	DATE/TIME: <u></u>	Comments: _____
RELINQUISHED BY SAMPLER: 3. <u>[Signature]</u>	DATE/TIME: <u>10-24-25</u>	RECEIVED BY: <u></u>	DATE/TIME: <u></u>	Comments: _____

Page 1 of 1

CLIENT: ☐ Hand Delivered ☐ Other

Shipment Complete ☐ YES ☐ NO

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

LOGIN REPORT/SAMPLE TRANSFER

Order ID : Q3466	HDRIO8	Order Date : 10/24/2025 3:18:10 PM	Project Mgr :
Client Name : HDR, Inc.		Project Name : PVWC Linear Construction	Report Type : NJ Reduced
Client Contact : Andrew Wadden		Receive DateTime : 10/24/2025 12:00:00 AM	EDD Type : Excel NJ
Invoice Name : HDR, Inc.		Purchase Order : 7:49 PM	Hard Copy Date :
Invoice Contact : Andrew Wadden			Date Signoff :

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
Q3466-01	B8-0.5-1.0-20251023	Solid	10/23/2025	10:15					
					VOC-TCLVOA-10		8260D	10 Bus. Days	
Q3466-04	B9-0.5-1.0-20251023	Solid	10/23/2025	11:40 10:15					
					VOC-TCLVOA-10		8260D	10 Bus. Days	
Q3466-06	B7-1.5-2.0-20251023	Solid	10/23/2025	13:40 10:15					
					VOC-TCLVOA-10		8260D	10 Bus. Days	

Relinquished By : 

Date / Time : 10/27/25 0855

Received By : 

Date / Time : 10/27/25 2:55

Storage Area : VOA Refridgerator Room


F22