

SDG COVER PAGE

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011
 Lab Code: ACE Case No.: 51955 MA No.: _____ SDG No.: YE8F7
 SOW No. : SFAM01.1

EPA Sample No.	Lab Sample Id	ICP-AES	Analysis Method		
			ICP-MS	Mercury	Cyanide
<u>YE8F5</u>	<u>Q1136-01</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8F7</u>	<u>Q1136-02</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8F7D</u>	<u>Q1136-03</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8F7S</u>	<u>Q1136-04</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8F8</u>	<u>Q1136-05</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8E3</u>	<u>Q1136-06</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8E4</u>	<u>Q1136-07</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8E5</u>	<u>Q1136-08</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8E6</u>	<u>Q1136-09</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8E7</u>	<u>Q1136-10</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8E8</u>	<u>Q1136-11</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8D1</u>	<u>Q1136-12</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8D2</u>	<u>Q1136-13</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8D4</u>	<u>Q1136-14</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8C3</u>	<u>Q1136-15</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>
<u>YE8D5</u>	<u>Q1136-17</u>	<u>X</u>	<u></u>	<u>X</u>	<u></u>

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the SDG Narrative. All edits and manual integrations have been peer-reviewed. Release of the data contained in this hardcopy Complete SDG File and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: _____
 Date: _____ Title: _____

CHAIN OF CUSTODY RECORD

No: 9-011625-150913-0008

Lab: Alliance Technical Course LLC

Lab Contact: Mohammad Ahmed

Lab Phone: 908-789-8900

[illegible]

Sample(s) to be used for Lab QC: MW-28-SO-3-4 Tag 346, MW-28-SO-3-4 Tag 350

Shipment for Case Complete? N	Samples Transferred From Chain of Custody #

Analysis Key: ICP-AES/MS=ICP-AES/MS Metals+Hg MA 3152.0, pH, SPLP ICP-AES=SPLP ICP-AES Metals + Hg, pH

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Hillison Thruwa 1600		Penn	11/8/25	2-3'
				10/5/24	SPent 11'
					Deep bldm 12'
					100' bldm 12'

Spent
Deep blood from
Just seen the

CHAIN OF CUSTODY RECORD

No: 9-011825-122406-0013

AirbillNo: 7715 3303 8663

MÀ 3152.0

Lab: Alliance Technical Group LLC

Lab Contact: Mohammad Ahmed

Lab Phone: 908-789-8900

[illegible]

Special Instructions:

Shipment for Case Complete? ☒**Samples Transferred From Chain of Custody #**

Analysis Key: ICP-AES/MS=ICP-AES/MS Metals+Hg, MA 3152.0, pH, SPLP ICP-AES=SPLP ICP-AES Metals + Hg, pH

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Alison Hura EA	01/21/25 1600		10:15 1-22-26	TP Can # 1 1.9
					Custody Seal Intact
					Temp Out Normal

No: 9-011825-123309-0014

Lab Phone: 908-789-8900

[illegible]

Special Instructions:

Shipment for Case Complete? ☒ No

Analysis Key: SPLP ICP-AES=SPLP ICP-AES Metals + Hg, pH, ICP-AES/MS=ICP-AES/MS Metals+Hg, MA 3152.0, pH, SVOA=Semivolatiles

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Allison Huon EA	6/26/25 1000		10:15 1.22.25	IF Count 1 2.0°
					Control Seal Intact
					Top Blank Preserved

CHAIN OF CUSTODY RECORD

Case #: 51955
MA 3152.0

No: 9-011925-103859-0017
Lab: Alliance Technical Group LLC
Lab Contact: Mohammad Ahmed
Lab Phone: 908-789-8900

[illegible]

Shipment for Case Complete?

Samples Transferred From Chain of Custody #

Analysis Key: SPLP ICP-AES=SPLP ICP-AES Metals + Hg, pH, ICP-AES/MS=ICP-AES/MS Metals+Hg MA 3152.0, pH, SVOA=SemiVolatiles

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Allison Hays EA Hays	01/21/25 1:00		10:15 1-22-25	26-Ga-1 1.8'
					Cosydy Seal Tube
					Lead But Mass

Costly Seal Rubber
Leak But Preserved

No: 9-011925-103929-0018

Lab Phone: 908-789-8900

[illegible]

Sample(s) to be used for Lab QC: MW-24-SO-5-7 Tag 150, MW-24-SO-5-7 Tag 151, MW-24-SO-5-7 Tag 154

Analysis Key: ICP-AES/MS=ICP-AES/MS Metals+Hg MA 3152.0, pH, SVOA=Semivolatiles, SPLP ICP-AES=SPLP ICP-AES Metals + Hg, pH.

Shipment for Case Complete? ☒

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Alfred Hughes fiver EA	01/21/15 1000	R. Melendez	10:15 1-22-25	FA gum # 2.2
					Temp Blank passed
					Custodial Seal intact

No: 9-011925-144654-0020

Lab Phone: 908-789-8900

[illegible]

Special Instructions:

Shipment for Case Complete? ☒

Samples Transferred From Chain of Custody #

Analysis Key: ICP-AES/MS=ICP-AES/MS Metals+Hg, MA 3152.0, pH, SVOA=SemiVolatiles, SPLP ICP-AES=SPLP ICP-AES Metals + Hg, pH

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Mission House Fluor	01/21/25 1000	R. McQuinn	10:15 1-22-25	IR gm #1 2.5°
					Temp Blank present
					Custody seal intact

FORM DC-1
SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page <u>1</u> of <u>6</u>
Received By (Print Name) <u>Agustina Rene</u>		Log-in Date 1/18/2025
Received By (Signature) <u>[Signature]</u>		
Case Number 51955	SDG No. YE8F5 YE8F7	MA No. N/A

Remarks:	
1. Custody Seal (s)	Present, Intact
2. Custody Seal Nos.	NA
3. Traffic Reports/Chain Of Custody Records	Present
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	<u>771488587235</u> <u>1</u>
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	<u>2.3</u> Degree C
8. Sample Condition	Intact
9. Sample Tags Sample Tag Numbers	Absent Listed on Traffic Report
10. Does information on Traffic Reports/Chain of Custody Records and Sample Tags agree ?	Yes
11. Date Received at Lab	<u>01/18/2025</u>
12. Time Received	<u>10:54</u>

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding		Remarks: Condition of Sample Shipment, etc.
			Sample Tag #	Assigned Lab #	
1	YE8F5	N/A	336	Q1136-01	Intact
2	YE8F7	N/A	350	Q1136-02	Intact
3	YE8F7D	N/A	350	Q1136-03	Intact
4	YE8F7S	N/A	350	Q1136-04	Intact
5	YE8F8	N/A	357	Q1136-05	Intact
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A

* Contact SMO and attach record of resolution

Reviewed By <u>[Signature]</u>	Logbook No. N/A
Date <u>1/22/25</u>	Logbook Page No. N/A

FORM DC-1
SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page <u>2</u> of <u>6</u>
Received By (Print Name) <u>Cassanova</u>		Log-in Date 1/22/2025
Received By (Signature) <u>[Signature]</u>		
Case Number 51955	SDG No. YE8F	MA No. N/A

Remarks:	
1. Custody Seal (s)	Present, Intact
2. Custody Seal Nos.	<u>n/a</u>
3. Traffic Reports/Chain Of Custody Records	Present
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	<u>771533038663</u> <u>2</u>
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	<u>1.9</u> Degree C
8. Sample Condition	Intact
9. Sample Tags Sample Tag Numbers	Absent Listed on Traffic Report
10. Does information on Traffic Reports/Chain of Custody Records and Sample Tags agree?	Yes
11. Date Received at Lab	<u>01/22/2025</u>
12. Time Received	<u>10:15</u>

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding		Remarks: Condition of Sample Shipment, etc.
			Sample Tag #	Assigned Lab #	
1	YE8E3	N/A	252	Q1136-06	Intact
2	YE8E4	N/A	259	Q1136-07	Intact
3	YE8E5	N/A	266	Q1136-08	Intact
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A

* Contact SMO and attach record of resolution

Reviewed By <u>[Signature]</u>	Logbook No. N/A
Date <u>1/22/25</u>	Logbook Page No. N/A

FORM DC-1
SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page <u>3</u> of <u>6</u>
Received By (Print Name) <u>Casparova</u>		Log-in Date 1/22/2025
Received By (Signature) <u>[Signature]</u>		
Case Number 51955	SDG No. YE8F5	MA No. N/A

Remarks:	
1. Custody Seal (s)	Present, Intact
2. Custody Seal Nos.	<u>n/a</u>
3. Traffic Reports/Chain Of Custody Records	Present
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	<u>771532981764</u> <u>3</u>
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	<u>2.0</u> Degree C
8. Sample Condition	Intact
9. Sample Tags Sample Tag Numbers	Absent Listed on Traffic Report
10. Does information on Traffic Reports/Chain of Custody Records and Sample Tags agree?	Yes
11. Date Received at Lab	<u>22</u> <u>01/20/2025</u>
12. Time Received	<u>10:15</u>

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding		Remarks: Condition of Sample Shipment, etc.
			Sample Tag #	Assigned Lab #	
1	YE8E6	N/A	273	Q1136-09	Intact
2	YE8E7	N/A	280	Q1136-10	Intact
3	YE8E8	N/A	287	Q1136-11	Intact
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A

* Contact SMO and attach record of resolution

Reviewed By <u>[Signature]</u>	Logbook No. N/A
Date <u>1/22/25</u>	Logbook Page No. N/A

FORM DC-1
SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page <u>4</u> of <u>6</u>
Received By (Print Name) <u>Assana Lee</u>		Log-in Date 1/22/2025
Received By (Signature) <u>[Signature]</u>		
Case Number 51955	SDG No. YE8F5 <u>2</u>	MA No. N/A

Remarks:	
1. Custody Seal (s)	Present, Intact
2. Custody Seal Nos.	<u>n/a</u>
3. Traffic Reports/Chain Of Custody Records	Present
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	<u>771533032404</u> <u>4</u>
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	<u>1.8</u> Degree C
8. Sample Condition	Intact
9. Sample Tags Sample Tag Numbers	Absent Listed on Traffic Report
10. Does information on Traffic Reports/Chain of Custody Records and Sample Tags agree ?	Yes
11. Date Received at Lab	<u>01/20/2025</u> <u>[Signature]</u>
12. Time Received	<u>10:15</u>

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding		Remarks: Condition of Sample Shipment, etc.
			Sample Tag #	Assigned Lab #	
1	YE8D1	N/A	168	Q1136-12	Intact
2	YE8D2	N/A	175	Q1136-13	Intact
3	YE8D4	N/A	189	Q1136-14	Intact
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A

* Contact SMO and attach record of resolution

Reviewed By <u>[Signature]</u>	Logbook No. N/A
Date <u>1/22/25</u>	Logbook Page No. N/A

FORM DC-1
SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page <u>5</u> of <u>6</u>
Received By (Print Name) <u>Cassara Lee</u>		Log-in Date 1/22/2025
Received By (Signature) <u>[Signature]</u>		
Case Number 51955	SDG No. YE8F5 <u>dh</u>	MA No. N/A

Remarks:	
1. Custody Seal (s)	Present, Intact
2. Custody Seal Nos.	n/a
3. Traffic Reports/Chain Of Custody Records	Present
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	<u>771533034885</u> <u>5</u>
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	<u>2.2</u> Degree C
8. Sample Condition	Intact
9. Sample Tags Sample Tag Numbers	Absent Listed on Traffic Report
10. Does information on Traffic Reports/Chain of Custody Records and Sample Tags agree ?	Yes
11. Date Received at Lab	<u>01/22/2025</u>
12. Time Received	<u>10:15</u>

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding		Remarks: Condition of Sample Shipment, etc.
			Sample Tag #	Assigned Lab #	
1	YE8C3	N/A	112	Q1136-15	Intact
2	YE8C9	N/A	154	Q1136-16	Intact <u>dh</u>
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A

* Contact SMO and attach record of resolution

Reviewed By <u>[Signature]</u>	Logbook No. N/A
Date <u>1/22/25</u>	Logbook Page No. N/A

FORM DC-1
SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page <u>6</u> of <u>6</u>
Received By (Print Name) <u>Casparova</u>		Log-in Date 1/22/2025
Received By (Signature) <u>[Signature]</u>		
Case Number 51955	SDG No. YE8F5	MA No. N/A

Remarks:	
1. Custody Seal (s)	Present, Intact
2. Custody Seal Nos.	n/a
3. Traffic Reports/Chain Of Custody Records	Present
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	<u>771533078108</u> <u>6</u>
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	<u>2.5</u> Degree C
8. Sample Condition	Intact
9. Sample Tags Sample Tag Numbers	Absent Listed on Traffic Report
10. Does information on Traffic Reports/Chain of Custody Records and Sample Tags agree?	Yes
11. Date Received at Lab	<u>01/22/2025</u>
12. Time Received	<u>10:15</u>

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding		Remarks: Condition of Sample Shipment, etc.
			Sample Tag #	Assigned Lab #	
1	YE8D5	N/A	196	Q1136-17	Intact
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A

* Contact SMO and attach record of resolution

Reviewed By <u>[Signature]</u>	Logbook No. N/A
Date <u>1/22/25</u>	Logbook Page No. N/A

FORM DC-2
COMPLETE SDG FILE (CSF) INVENTORY SHEET

LAB NAME	Alliance Technical Group, LLC		
LAB CODE	ACE		
CONTRACT NO.	68HERH20D0011		
CASE NO.	51955	SDG NO.	YE8F7
MA NO.		SOW NO.	SFAM01.1

All documents delivered in the Complete SDG File must be original documents where possible.
(Reference - Exhibit B Section 2.4)

	PAGE NOS:		CHECK	
	FROM	TO	LAB	REGION
1. SDG Cover Page	1	1	✓	
2. Traffic Report/Chain of Custody Record(s)	2	7	✓	
3. Sample Log-In Sheet (DC-1)	8	13	✓	
4. CSF Inventory Sheet (DC-2)	14	16	✓	
5. SDG Narrative	17	19	✓	
6. Communication Logs	NA	NA	✓	
7. Percent Solids Log	NA	NA	✓	
Analysis Forms and Data (ICP-AES)				
8. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	20	33	✓	
9. Instrument raw data by instrument in analysis order	34	279	✓	
Other Data				
10. Standard and Reagent Preparation Logs	280	428	✓	
11. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	429	430	✓	
12. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	431	436	✓	
13. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	NA	NA	✓	
14. Extraction Logs for TCLP and SPLP	437	440	✓	
15. Raw GPC Data	NA	NA	✓	
16. Raw Florisil Data	NA	NA	✓	
Analysis Forms and Data (ICP-MS)				
17. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	NA	NA	✓	
18. Instrument raw data by instrument in analysis order	NA	NA	✓	
Other Data				
19. Standard and Reagent Preparation Logs	NA	NA	✓	
20. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	NA	NA	✓	
21. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	NA	NA	✓	
22. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	NA	NA	✓	

	PAGE NOS:		CHECK	
	FROM	TO	LAB	REGION
23 . Extraction Logs for TCLP and SPLP	NA	NA	✓	
24 . Raw GPC Data	NA	NA	✓	
25 . Raw Florisil Data	NA	NA	✓	

Analysis Forms and Data (Mercury)

26 . Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	441	454	✓	
27 . Instrument raw data by instrument in analysis order	455	456	✓	

Other Data

28 . Standard and Reagent Preparation Logs	457	481	✓	
29 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	482	483	✓	
30 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	484	485	✓	
31 . Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	NA	NA	✓	
32 . Extraction Logs for TCLP and SPLP	486	489	✓	
33 . Raw GPC Data	NA	NA	✓	
34 . Raw Florisil Data	NA	NA	✓	

Analysis Forms and Data (Cyanide)

35 . Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	NA	NA	✓	
36 . Instrument raw data by instrument in analysis order	NA	NA	✓	

Other Data

37 . Standard and Reagent Preparation Logs	NA	NA	✓	
38 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	NA	NA	✓	
39 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	NA	NA	✓	
40 . Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	NA	NA	✓	
41 . Extraction Logs for TCLP and SPLP	NA	NA	✓	
42 . Raw GPC Data	NA	NA	✓	
43 . Raw Florisil Data	NA	NA	✓	

Additional

44. EPA Shipping/Receiving Documents

Airbill (No. of Shipments 6)

Sample Tags

Sample Log-In Sheet (Lab)

45. Misc. Shipping/Receiving Records (list all individual records)

46. Internal Lab Sample Transfer Records and Tracking Sheets
(describe or list)47. Other Records and related Communication Logs
(describe or list)

48. Comments:

Completed by:
(CLP Lab)Audited by:
(EPA)Nimisha Pandya, Document Control Officer
(Print Name & Title)

PAGE NOs:		CHECK	
FROM	TO	LAB	REGION
490	495	✓	
NA	NA	✓	
496	497	✓	
NA	NA	✓	
498	498	✓	
NA	NA	✓	



**284 Sheffield Street
Mountainside, NJ 07092**

SDG NARRATIVE

USEPA

SDG # YE8F7

CASE # 51955

CONTRACT # 68HERH20D0011

SOW# SFAM01.1

LAB NAME: Alliance Technical Group, LLC

LAB CODE: ACE

LAB ORDER ID #Q1136

A. Number of Samples and Date of Receipt

14 Soil samples were delivered to the laboratory intact on 01/18/2025, 01/22/2025.

B. Parameters

Test requested for SPLP MetalGroup3 = Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc & SPLP Mercury.

C. Cooler Temp

Indicator Bottle: Presence/Absence

Cooler: 2.3°C, 1.9°C, 2.0°C, 1.8°C, 2.2°C, 2.5°C

D. Analytical Techniques:

All analyses were based on CLP Methodology by method SFAM01.1.

Inter Element correction factors (IECs) are determined annually and correction factor are applied during ICP-AES analysis.

E. Calculation:

Calculation for ICP-AES Water Sample:

Concentration or Result (µg/L) = $C \times \frac{V_f}{V_i} \times DF \times 1000$



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Mountainside, NJ 07092**

Where,

C = Instrument value in ppm (The average of all replicate exposures)

Vf = Final digestion volume (mL)

Vi = Initial aliquot amount (mL) (Sample amount taken in prep)

DF = Dilution Factor

Example Calculation For Sample YE8F5 For Arsenic:

If C = 0.0060448 ppm

Vf = 50 ml

Vi = 50 ml

DF = 1

$$\text{Concentration or Result } (\mu\text{g/L}) = 0.0060448 \times \frac{50}{50} \times 1 \times 1000$$

$$= 6.0448 \mu\text{g/L}$$

$$= 6.0 \mu\text{g/L} \text{ (Reported Result with Signification)}$$

Calculation for Hg Water Sample:

$$\text{Concentration or Result } (\mu\text{g/L}) = C \times DF$$

Where,

C = Instrument response in $\mu\text{g/L}$ from the calibration curve.

DF = Dilution Factor

Example Calculation For Sample YE8F5:

If C = 0.2068 ppb

DF = 1

$$\text{Concentration or Result } (\mu\text{g/L}) = 0.2068 \times 1$$

$$= 0.2068 \mu\text{g/L}$$

$$= 0.21 \mu\text{g/L} \text{ (Reported Result with Signification)}$$

F. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. Spike sample did meet requirements except for Cadmium, Cobalt, Lead, Nickel, Silver, Thallium. Duplicate sample did meet requirements. Serial Dilution did meet requirements except for Aluminum, Calcium, Chromium, Iron, Magnesium, Manganese, Zinc.



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Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged.

Samples receive as soil but as per ASR process for SPLP and forms are reported with water.

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature_____

Name: Nimisha Pandya

Date _____

Title: Document Control Officer

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

YE8C3

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8F7

Matrix: Water Lab Sample ID: Q1136-15

% Solids: Date Received: 01/22/2025

Analytical Method: ICP_AES

Concentration Units ($\mu\text{g/L}$, mg/L , mg/kg dry weight, μg , or $\mu\text{g/cm}^2$): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	79000	*	01/27/2025	1813
7440-36-0	Antimony	60	U	01/27/2025	1813
7440-38-2	Arsenic	7.9	J	01/27/2025	1813
7440-39-3	Barium	100	J	01/27/2025	1813
7440-41-7	Beryllium	2.6	J	01/27/2025	1813
7440-43-9	Cadmium	6.6	*	01/27/2025	1813
7440-70-2	Calcium	130000	*	01/27/2025	1813
7440-47-3	Chromium	77	*	01/27/2025	1813
7440-48-4	Cobalt	520	*	01/27/2025	1813
7440-50-8	Copper	250		01/27/2025	1813
7439-89-6	Iron	29000	*	01/27/2025	1813
7439-92-1	Lead	12	*	01/27/2025	1813
7439-95-4	Magnesium	66000	*	01/27/2025	1813
7439-96-5	Manganese	9700	*	01/27/2025	1813
7440-02-0	Nickel	430	*	01/27/2025	1813
7440-09-7	Potassium	4500	J	01/27/2025	1813
7782-49-2	Selenium	35	U	01/27/2025	1813
7440-22-4	Silver	2.3	J*	01/27/2025	1813
7440-23-5	Sodium	6900		01/27/2025	1813
7440-28-0	Thallium	3.5	J*	01/27/2025	1813
7440-62-2	Vanadium	11	J	01/27/2025	1813
7440-66-6	Zinc	1300	*	01/27/2025	1813

NOTE: Hardness (total) is reported in mg/L

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

YE8D1

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8F7

Matrix: Water Lab Sample ID: Q1136-12

% Solids: Date Received: 01/22/2025

Analytical Method: ICP_AES

Concentration Units ($\mu\text{g/L}$, mg/L , mg/kg dry weight, μg , or $\mu\text{g/cm}^2$): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	79000	*	01/27/2025	1744
7440-36-0	Antimony	60	U	01/27/2025	1744
7440-38-2	Arsenic	7.0	J	01/27/2025	1744
7440-39-3	Barium	86	J	01/27/2025	1744
7440-41-7	Beryllium	4.1	J	01/27/2025	1744
7440-43-9	Cadmium	9.1	*	01/27/2025	1744
7440-70-2	Calcium	170000	*	01/27/2025	1744
7440-47-3	Chromium	80	*	01/27/2025	1744
7440-48-4	Cobalt	830	*	01/27/2025	1744
7440-50-8	Copper	270		01/27/2025	1744
7439-89-6	Iron	15000	*	01/27/2025	1744
7439-92-1	Lead	10	*	01/27/2025	1744
7439-95-4	Magnesium	73000	*	01/27/2025	1744
7439-96-5	Manganese	14000	*	01/27/2025	1744
7440-02-0	Nickel	590	*	01/27/2025	1744
7440-09-7	Potassium	5300		01/27/2025	1744
7782-49-2	Selenium	35	U	01/27/2025	1744
7440-22-4	Silver	1.8	J*	01/27/2025	1744
7440-23-5	Sodium	7400		01/27/2025	1744
7440-28-0	Thallium	2.9	J*	01/27/2025	1744
7440-62-2	Vanadium	9.8	J	01/27/2025	1744
7440-66-6	Zinc	1300	*	01/27/2025	1744

NOTE: Hardness (total) is reported in mg/L

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

YE8E3

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8F7

Matrix: Water Lab Sample ID: Q1136-06

% Solids: Date Received: 01/22/2025

Analytical Method: ICP_AES

Concentration Units ($\mu\text{g/L}$, mg/L , mg/kg dry weight, μg , or $\mu\text{g/cm}^2$): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	29000	*	01/27/2025	1720
7440-36-0	Antimony	60	U	01/27/2025	1720
7440-38-2	Arsenic	65		01/27/2025	1720
7440-39-3	Barium	73	J	01/27/2025	1720
7440-41-7	Beryllium	8.6		01/27/2025	1720
7440-43-9	Cadmium	21	*	01/27/2025	1720
7440-70-2	Calcium	120000	*	01/27/2025	1720
7440-47-3	Chromium	34	*	01/27/2025	1720
7440-48-4	Cobalt	350	*	01/27/2025	1720
7440-50-8	Copper	1300		01/27/2025	1720
7439-89-6	Iron	34000	*	01/27/2025	1720
7439-92-1	Lead	590	*	01/27/2025	1720
7439-95-4	Magnesium	46000	*	01/27/2025	1720
7439-96-5	Manganese	17000	*	01/27/2025	1720
7440-02-0	Nickel	380	*	01/27/2025	1720
7440-09-7	Potassium	6700		01/27/2025	1720
7782-49-2	Selenium	35	U	01/27/2025	1720
7440-22-4	Silver	1.4	J*	01/27/2025	1720
7440-23-5	Sodium	9300		01/27/2025	1720
7440-28-0	Thallium	3.7	J*	01/27/2025	1720
7440-62-2	Vanadium	43	J	01/27/2025	1720
7440-66-6	Zinc	3400	*	01/27/2025	1720

NOTE: Hardness (total) is reported in mg/L

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

YE8E6

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8F7

Matrix: Water Lab Sample ID: Q1136-09

% Solids: Date Received: 01/22/2025

Analytical Method: ICP_AES

Concentration Units ($\mu\text{g/L}$, mg/L , mg/kg dry weight, μg , or $\mu\text{g/cm}^2$): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	9300	*	01/27/2025	1732
7440-36-0	Antimony	60	U	01/27/2025	1732
7440-38-2	Arsenic	270		01/27/2025	1732
7440-39-3	Barium	82	J	01/27/2025	1732
7440-41-7	Beryllium	0.92	J	01/27/2025	1732
7440-43-9	Cadmium	6.9	*	01/27/2025	1732
7440-70-2	Calcium	57000	*	01/27/2025	1732
7440-47-3	Chromium	35	*	01/27/2025	1732
7440-48-4	Cobalt	28	J*	01/27/2025	1732
7440-50-8	Copper	840		01/27/2025	1732
7439-89-6	Iron	22000	*	01/27/2025	1732
7439-92-1	Lead	120	*	01/27/2025	1732
7439-95-4	Magnesium	7300	*	01/27/2025	1732
7439-96-5	Manganese	390	*	01/27/2025	1732
7440-02-0	Nickel	210	*	01/27/2025	1732
7440-09-7	Potassium	3300	J	01/27/2025	1732
7782-49-2	Selenium	35	U	01/27/2025	1732
7440-22-4	Silver	10	U*	01/27/2025	1732
7440-23-5	Sodium	6700		01/27/2025	1732
7440-28-0	Thallium	25	U*	01/27/2025	1732
7440-62-2	Vanadium	32	J	01/27/2025	1732
7440-66-6	Zinc	800	*	01/27/2025	1732

NOTE: Hardness (total) is reported in mg/L

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

YE8E7

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011
 Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8F7
 Matrix: Water Lab Sample ID: Q1136-10
 % Solids: Date Received: 01/22/2025
 Analytical Method: ICP_AES
 Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	25000	*	01/27/2025	1736
7440-36-0	Antimony	60	U	01/27/2025	1736
7440-38-2	Arsenic	1000		01/27/2025	1736
7440-39-3	Barium	64	J	01/27/2025	1736
7440-41-7	Beryllium	8.3		01/27/2025	1736
7440-43-9	Cadmium	13	*	01/27/2025	1736
7440-70-2	Calcium	130000	*	01/27/2025	1736
7440-47-3	Chromium	83	*	01/27/2025	1736
7440-48-4	Cobalt	87	*	01/27/2025	1736
7440-50-8	Copper	78		01/27/2025	1736
7439-89-6	Iron	55000	*	01/27/2025	1736
7439-92-1	Lead	110	*	01/27/2025	1736
7439-95-4	Magnesium	21000	*	01/27/2025	1736
7439-96-5	Manganese	1100	*	01/27/2025	1736
7440-02-0	Nickel	1500	*	01/27/2025	1736
7440-09-7	Potassium	3600	J	01/27/2025	1736
7782-49-2	Selenium	35	U	01/27/2025	1736
7440-22-4	Silver	10	U*	01/27/2025	1736
7440-23-5	Sodium	5900		01/27/2025	1736
7440-28-0	Thallium	25	U*	01/27/2025	1736
7440-62-2	Vanadium	60		01/27/2025	1736
7440-66-6	Zinc	1600	*	01/27/2025	1736

NOTE: Hardness (total) is reported in mg/L

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

YE8E8

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011
 Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8F7
 Matrix: Water Lab Sample ID: Q1136-11
 % Solids: Date Received: 01/22/2025
 Analytical Method: ICP_AES
 Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	45000	*	01/27/2025	1740
7440-36-0	Antimony	60	U	01/27/2025	1740
7440-38-2	Arsenic	11		01/27/2025	1740
7440-39-3	Barium	74	J	01/27/2025	1740
7440-41-7	Beryllium	6.0		01/27/2025	1740
7440-43-9	Cadmium	25	*	01/27/2025	1740
7440-70-2	Calcium	78000	*	01/27/2025	1740
7440-47-3	Chromium	160	*	01/27/2025	1740
7440-48-4	Cobalt	38	J*	01/27/2025	1740
7440-50-8	Copper	53		01/27/2025	1740
7439-89-6	Iron	85000	*	01/27/2025	1740
7439-92-1	Lead	66	*	01/27/2025	1740
7439-95-4	Magnesium	23000	*	01/27/2025	1740
7439-96-5	Manganese	1100	*	01/27/2025	1740
7440-02-0	Nickel	250	*	01/27/2025	1740
7440-09-7	Potassium	11000		01/27/2025	1740
7782-49-2	Selenium	12	J	01/27/2025	1740
7440-22-4	Silver	10	U*	01/27/2025	1740
7440-23-5	Sodium	5200		01/27/2025	1740
7440-28-0	Thallium	4.2	J*	01/27/2025	1740
7440-62-2	Vanadium	130		01/27/2025	1740
7440-66-6	Zinc	2100	*	01/27/2025	1740

NOTE: Hardness (total) is reported in mg/L

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

YE8F8

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8F7

Matrix: Water Lab Sample ID: Q1136-05

% Solids: Date Received: 01/18/2025

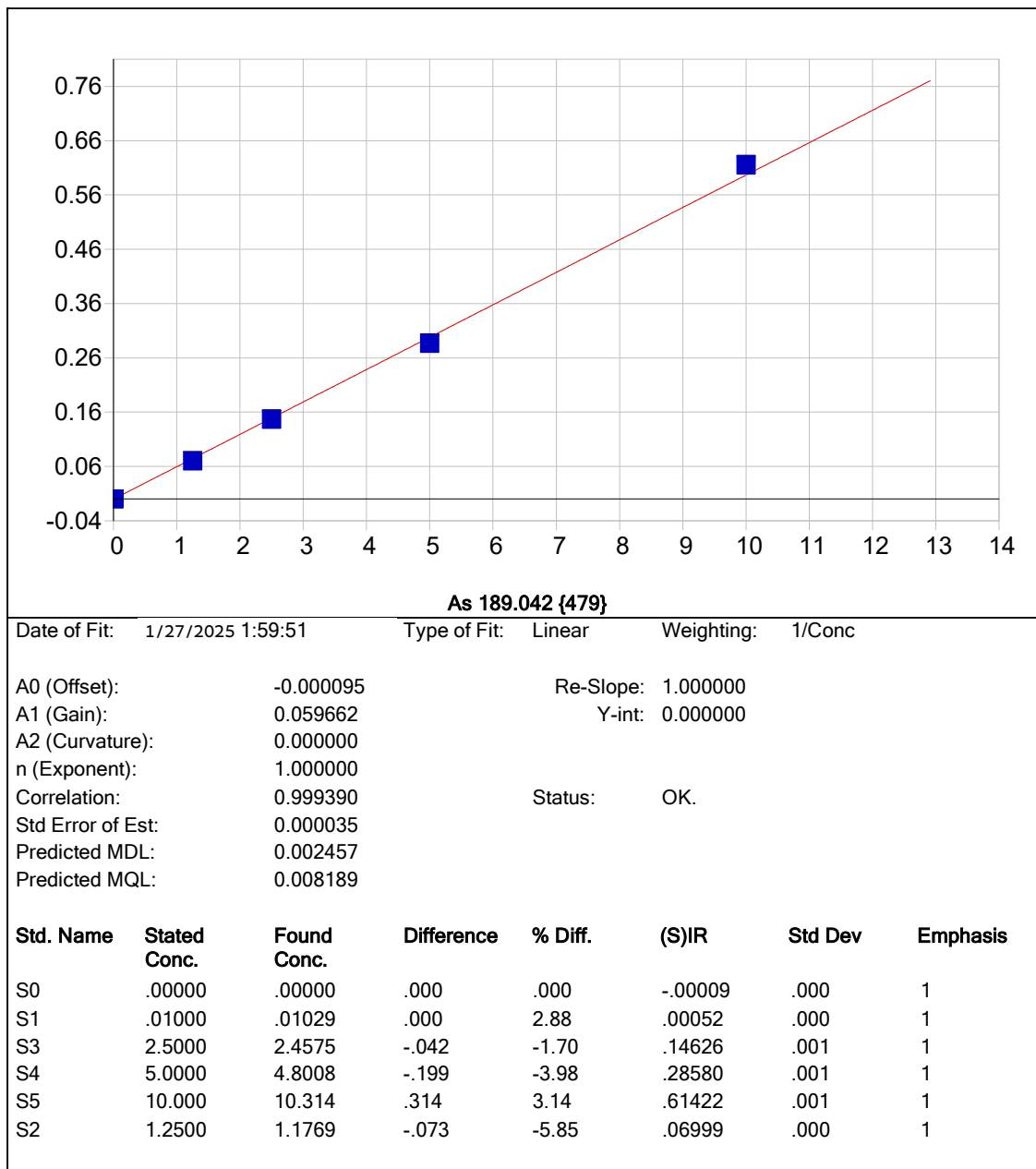
Analytical Method: ICP_AES

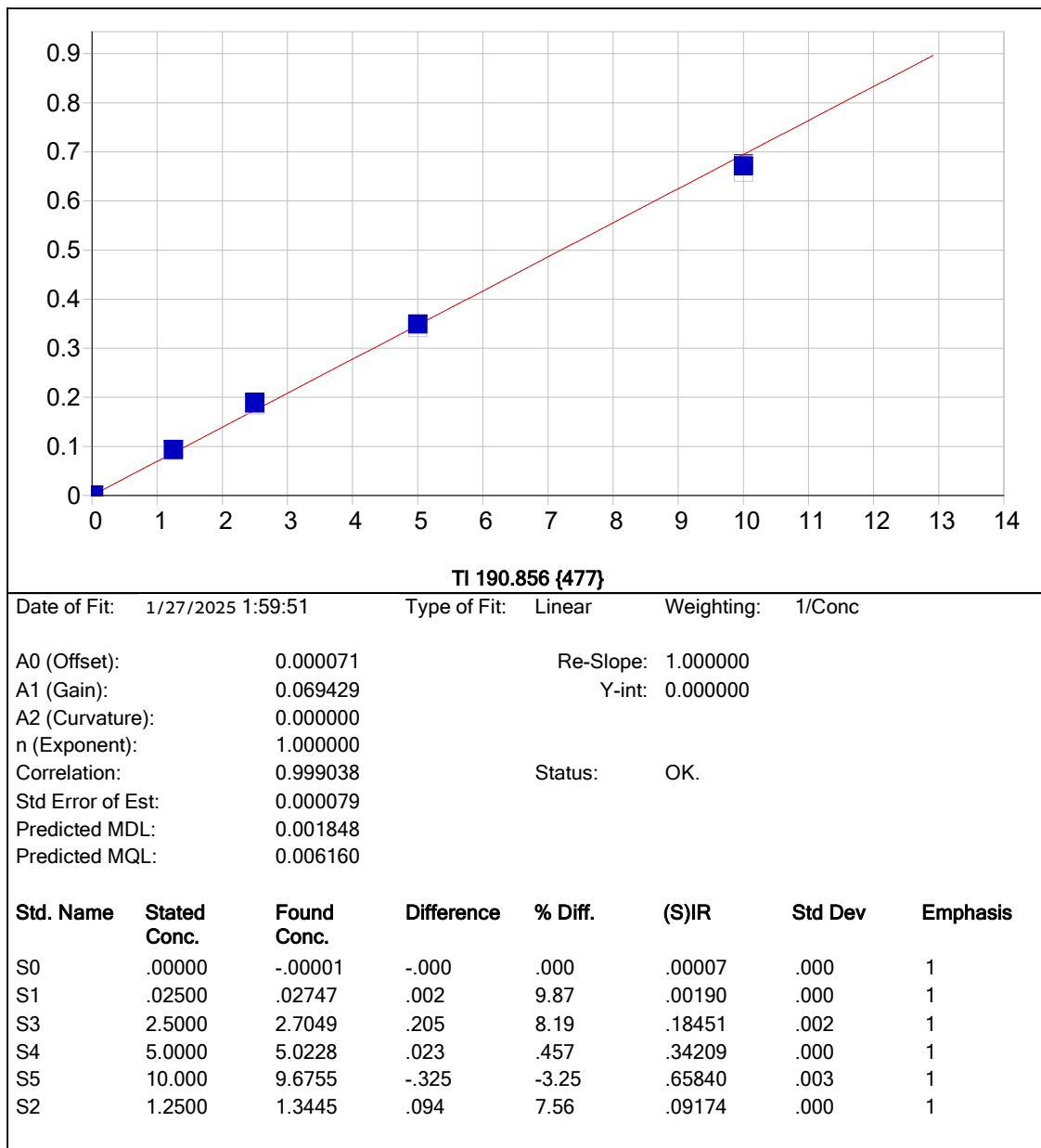
Concentration Units ($\mu\text{g/L}$, mg/L , mg/kg dry weight, μg , or $\mu\text{g/cm}^2$): $\mu\text{g/L}$

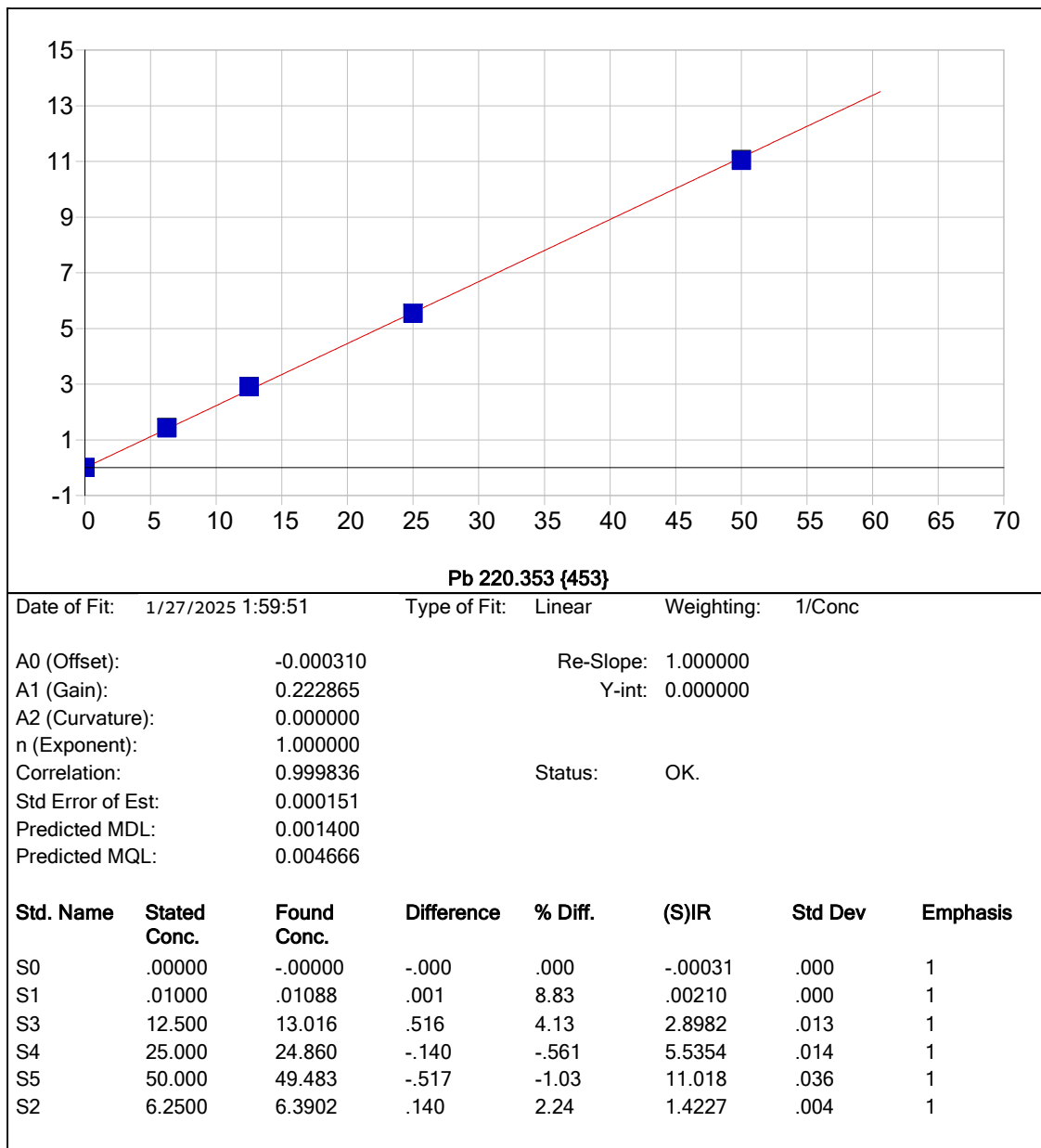
CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	53000	*	01/27/2025	1716
7440-36-0	Antimony	60	U	01/27/2025	1716
7440-38-2	Arsenic	5.2	J	01/27/2025	1716
7440-39-3	Barium	54	J	01/27/2025	1716
7440-41-7	Beryllium	2.4	J	01/27/2025	1716
7440-43-9	Cadmium	5.1	*	01/27/2025	1716
7440-70-2	Calcium	92000	*	01/27/2025	1716
7440-47-3	Chromium	30	*	01/27/2025	1716
7440-48-4	Cobalt	320	*	01/27/2025	1716
7440-50-8	Copper	200		01/27/2025	1716
7439-89-6	Iron	18000	*	01/27/2025	1716
7439-92-1	Lead	4.5	J*	01/27/2025	1716
7439-95-4	Magnesium	36000	*	01/27/2025	1716
7439-96-5	Manganese	5600	*	01/27/2025	1716
7440-02-0	Nickel	310	*	01/27/2025	1716
7440-09-7	Potassium	6700		01/27/2025	1716
7782-49-2	Selenium	35	U	01/27/2025	1716
7440-22-4	Silver	10	U*	01/27/2025	1716
7440-23-5	Sodium	3800	J	01/27/2025	1716
7440-28-0	Thallium	8.0	J*	01/27/2025	1716
7440-62-2	Vanadium	50	U	01/27/2025	1716
7440-66-6	Zinc	740	*	01/27/2025	1716

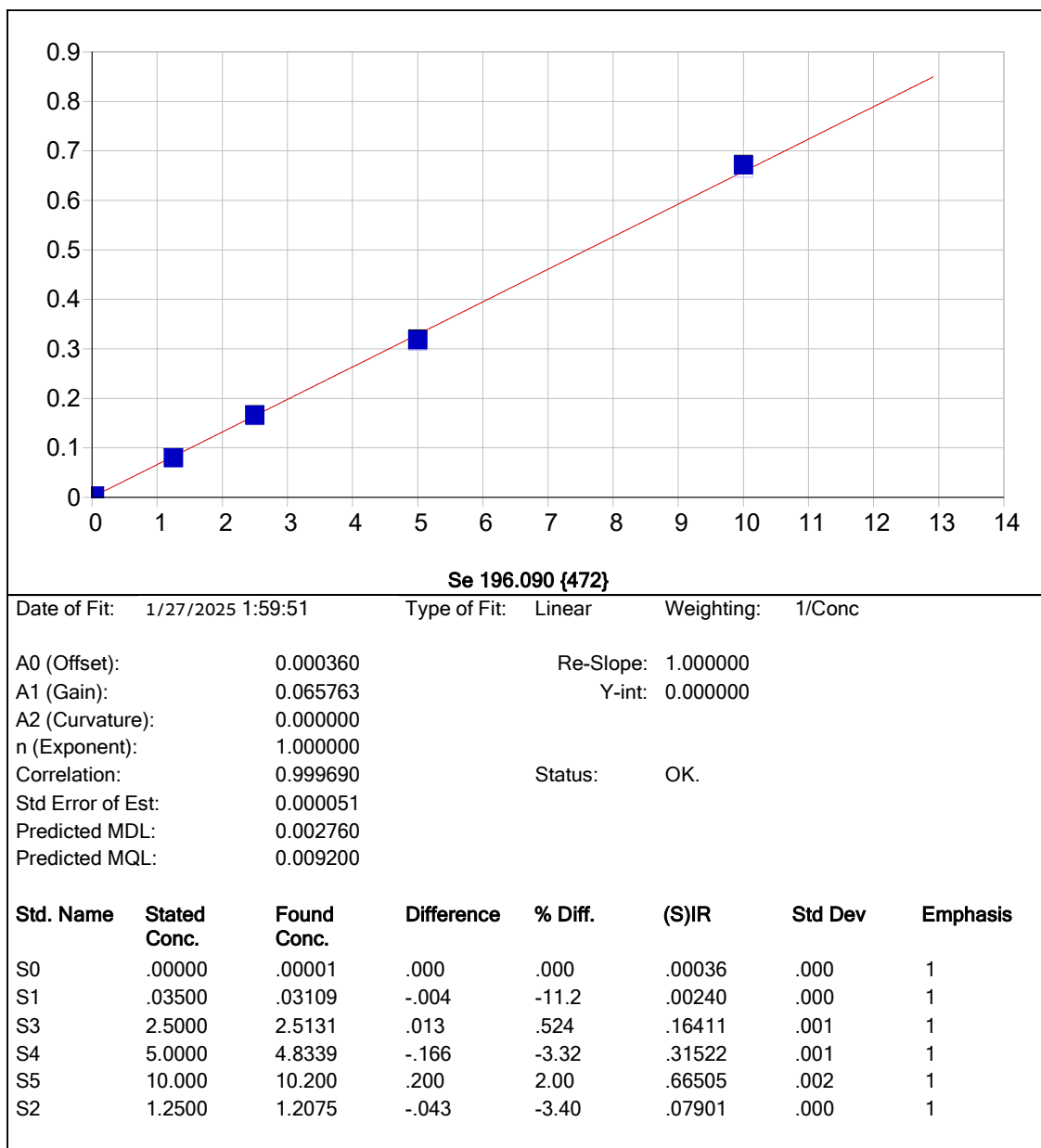
NOTE: Hardness (total) is reported in mg/L

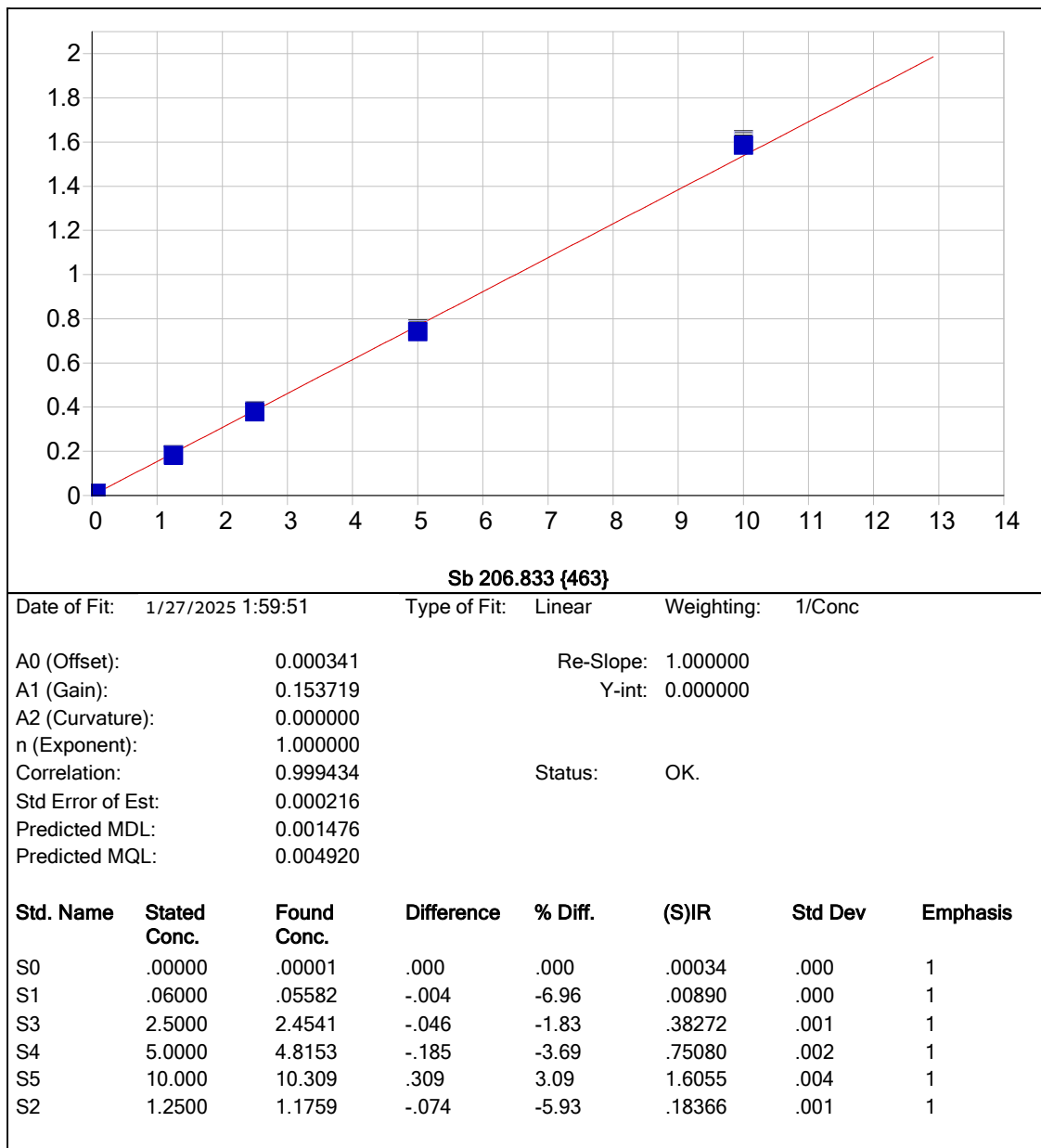
Comments:

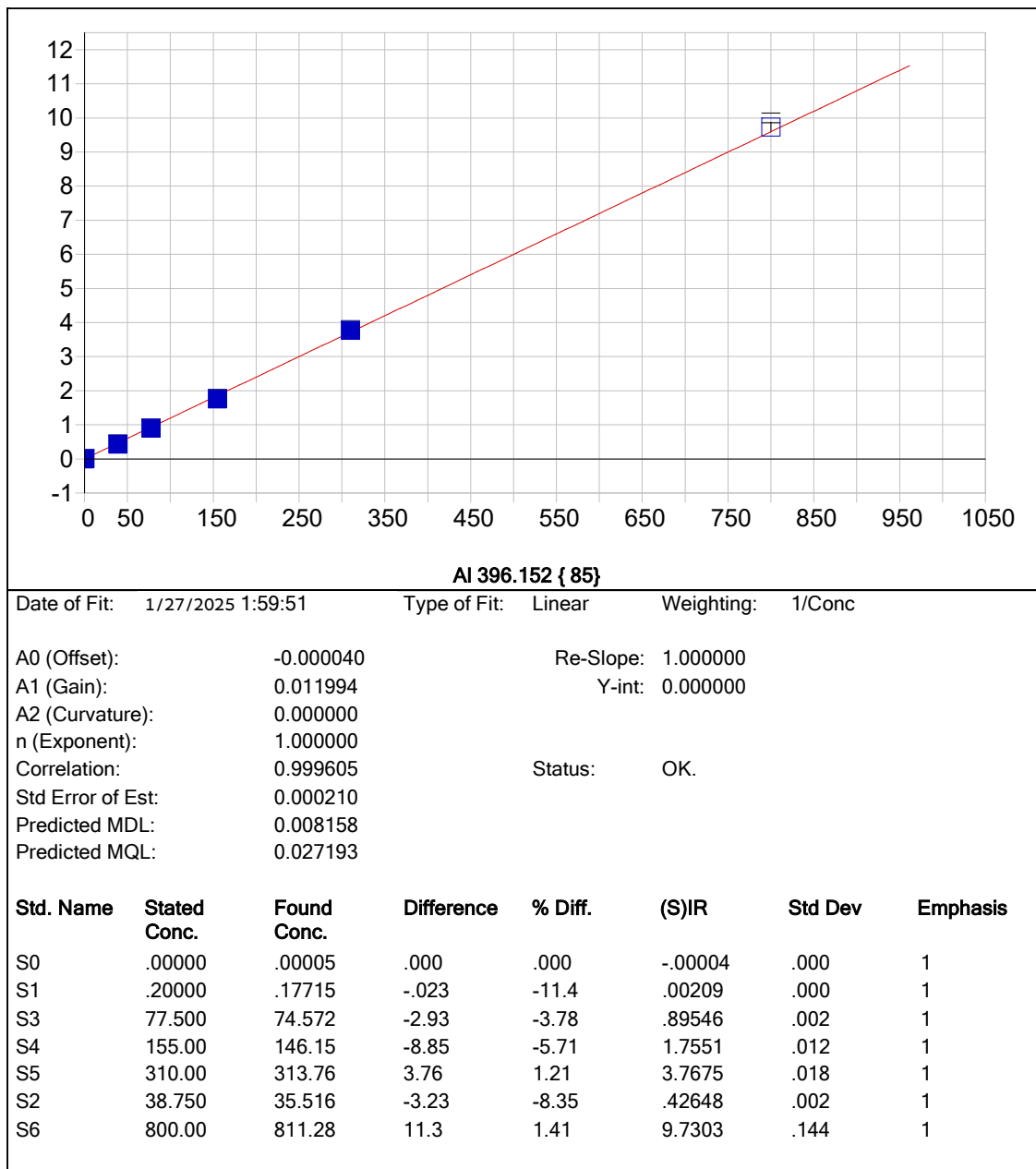


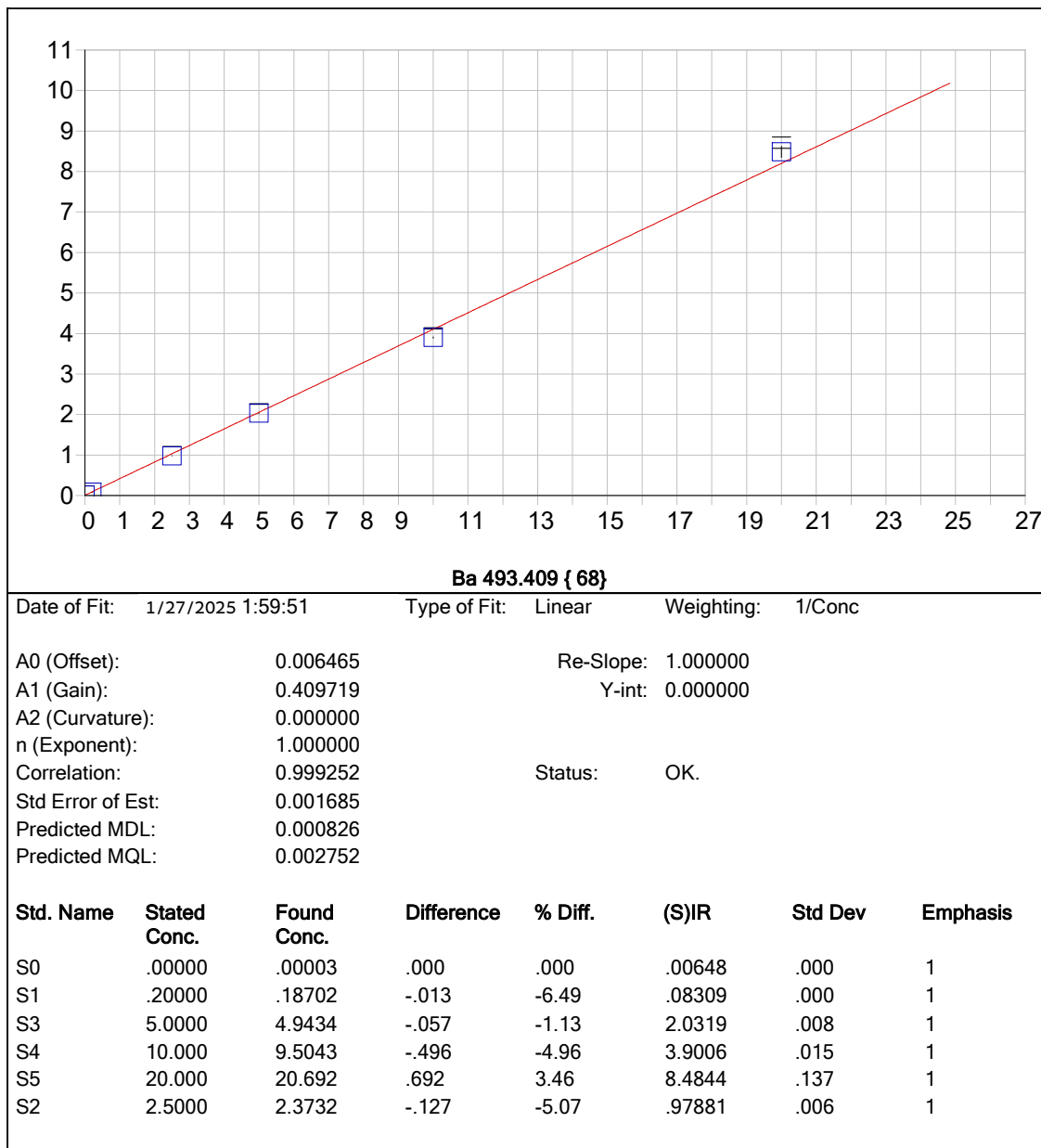


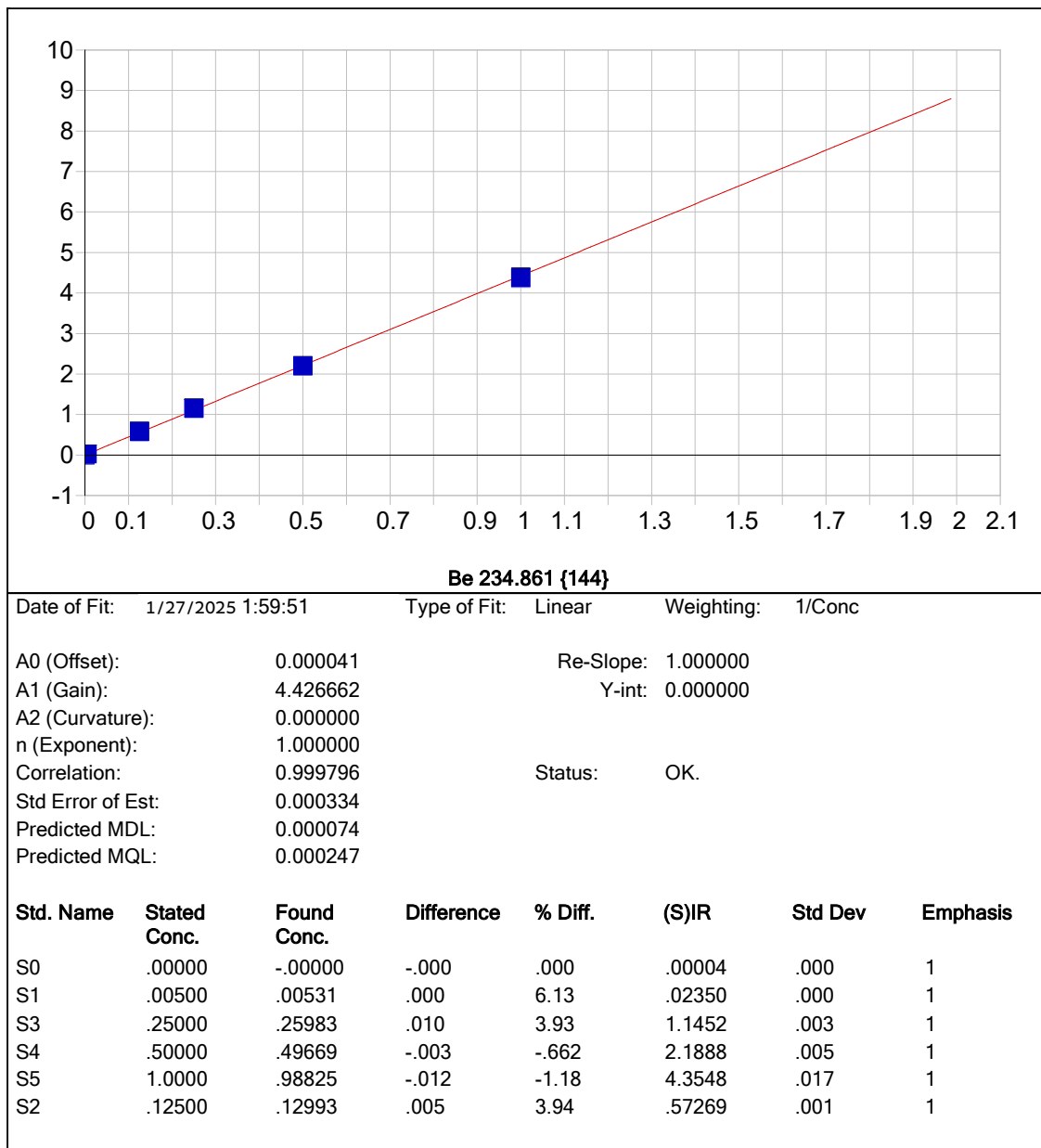


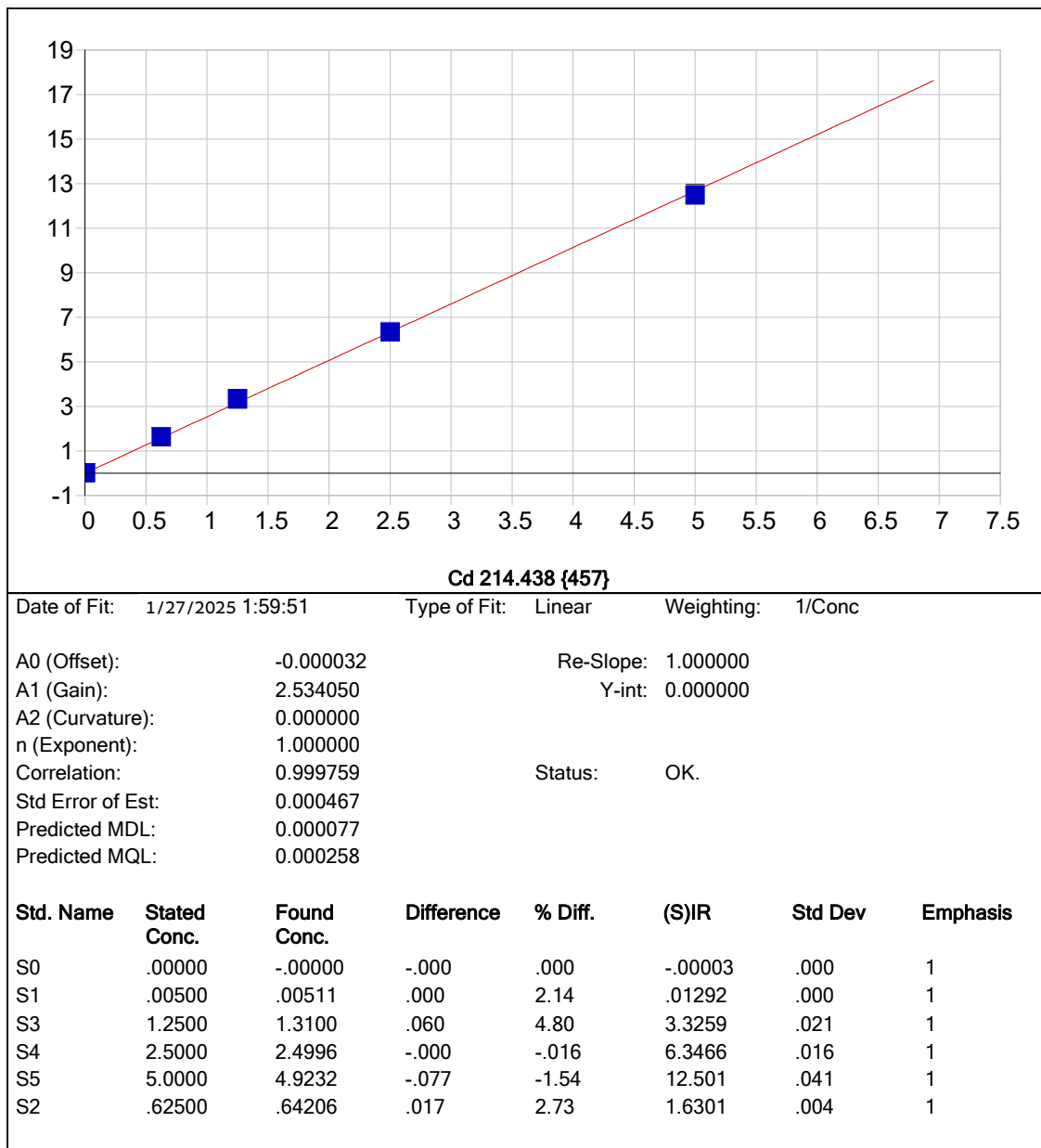


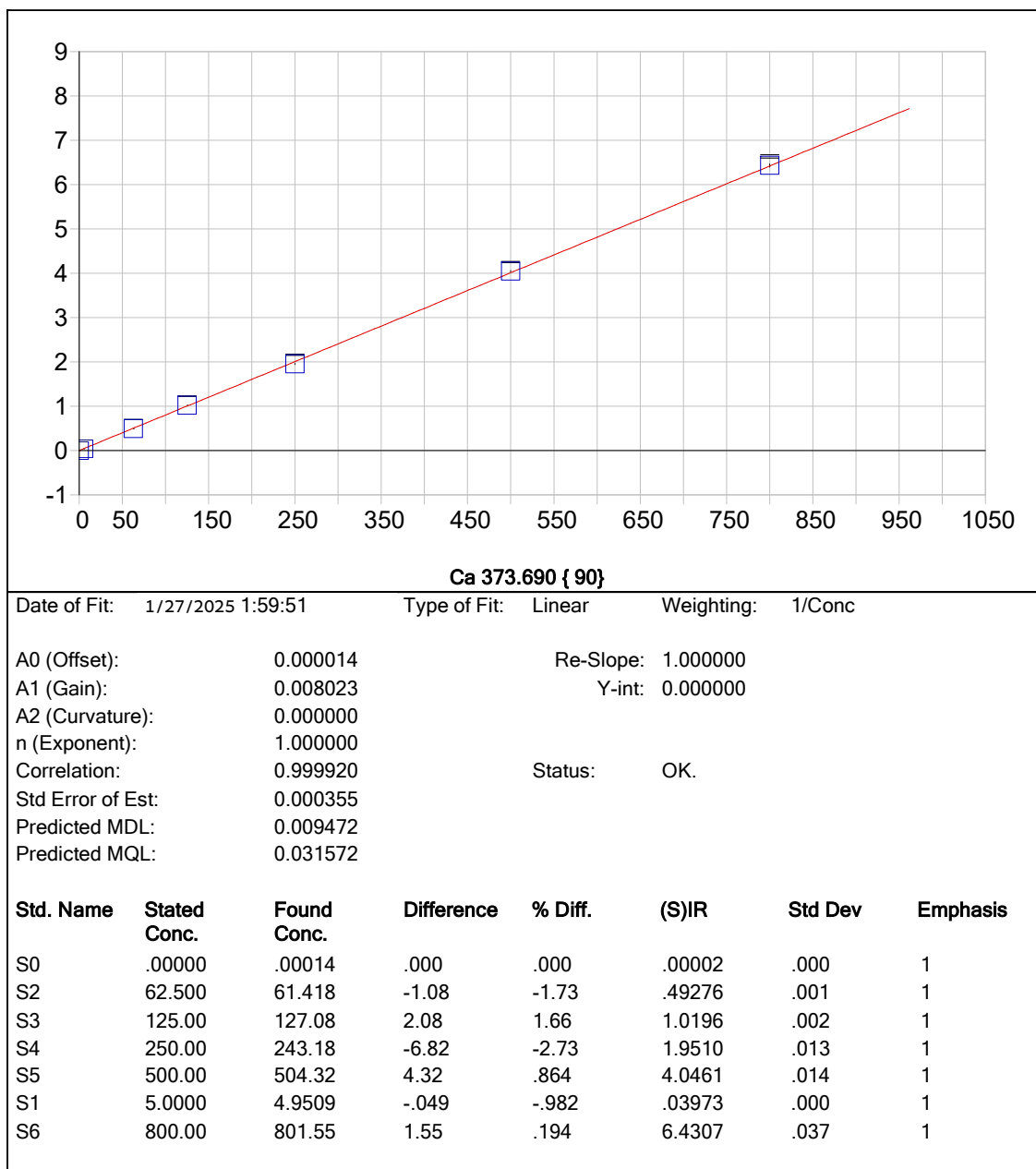


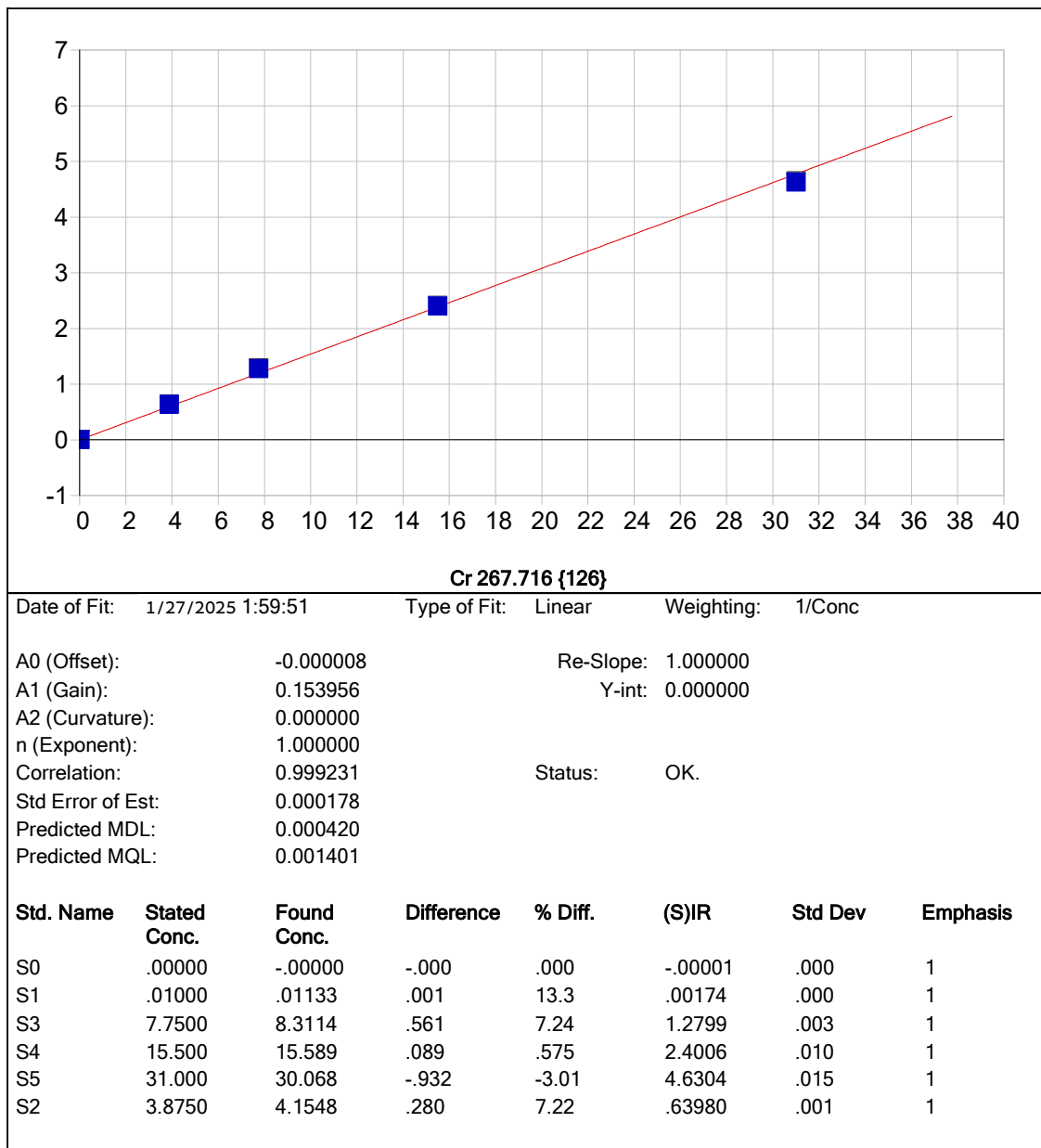


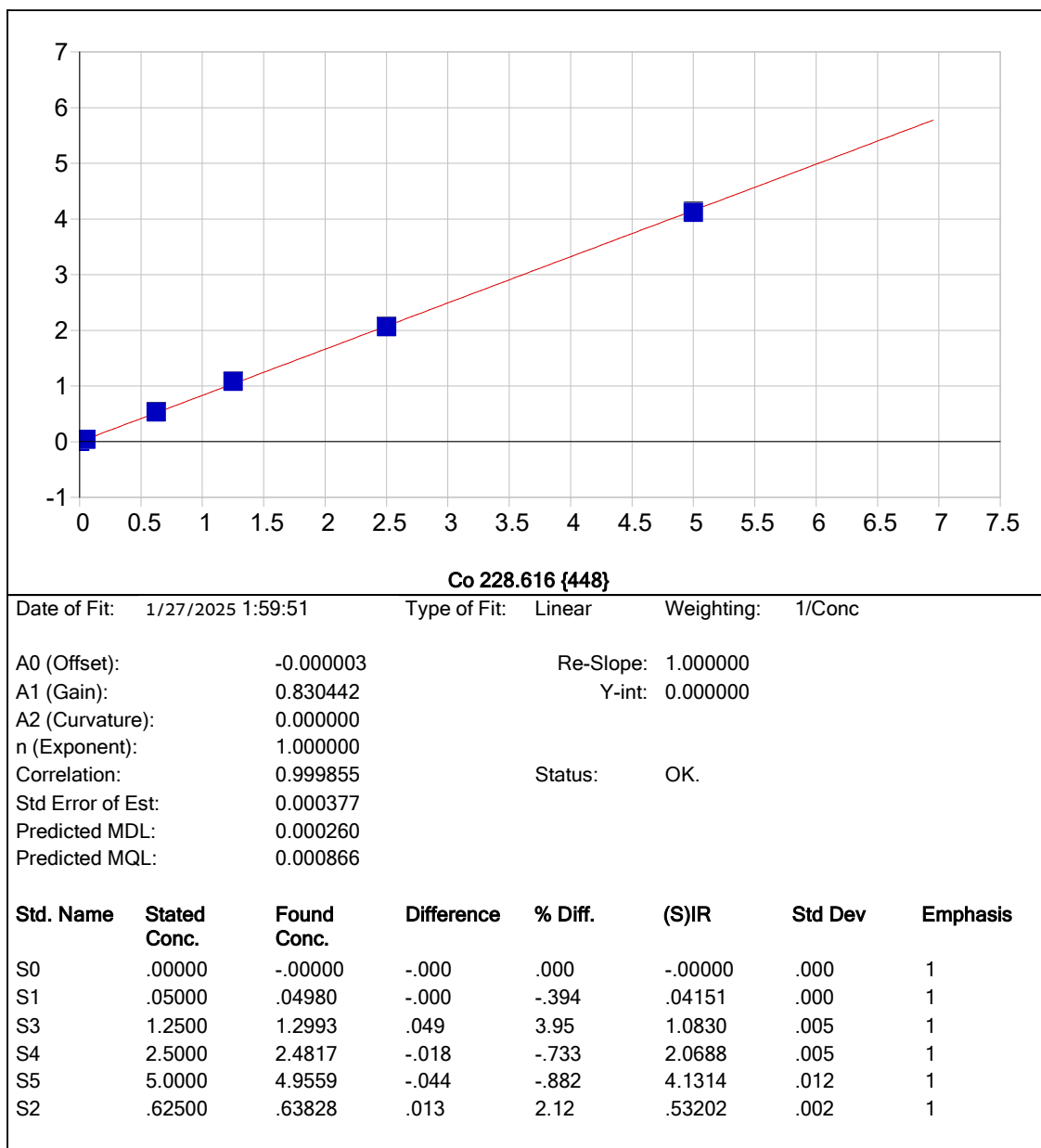


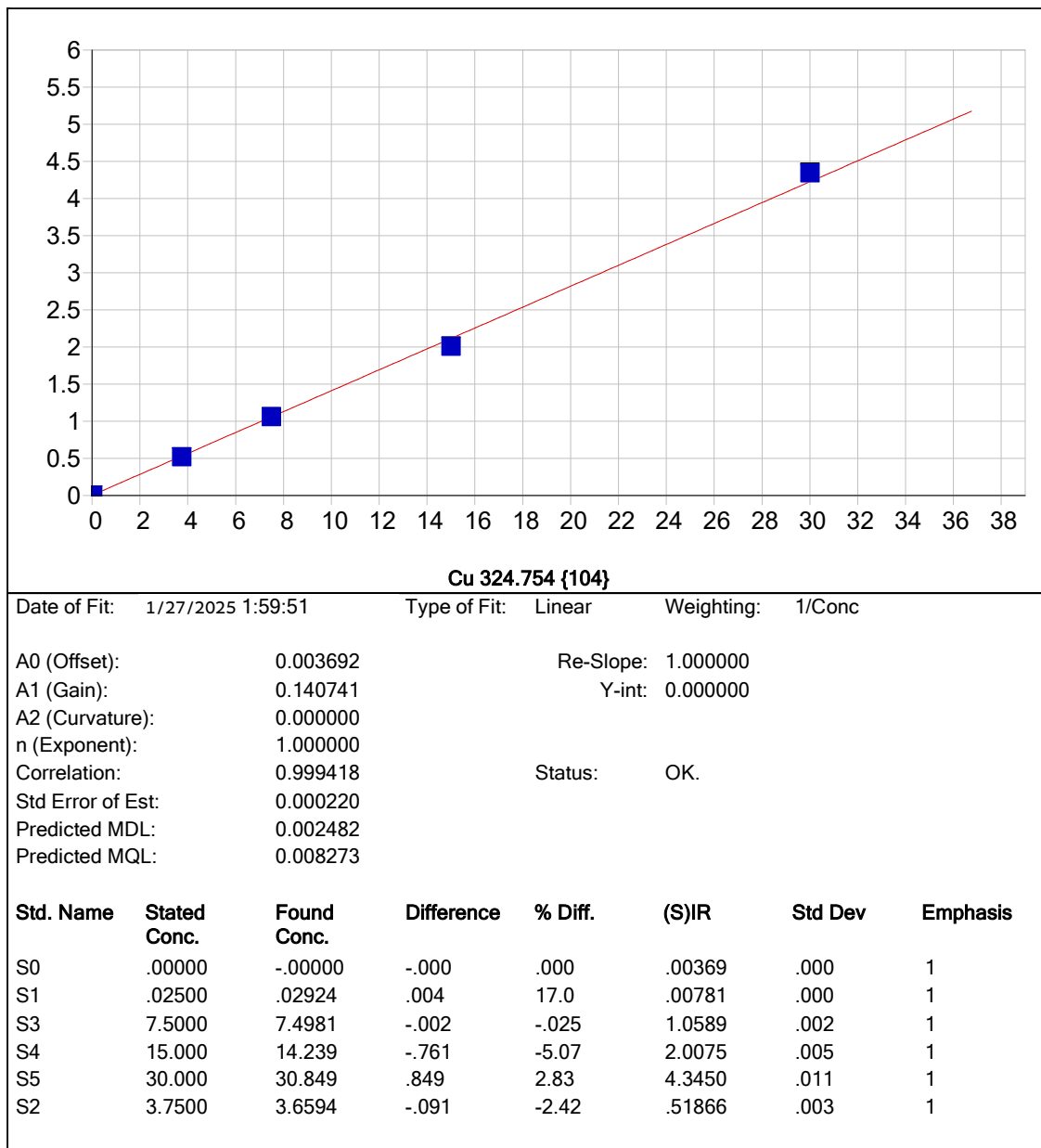


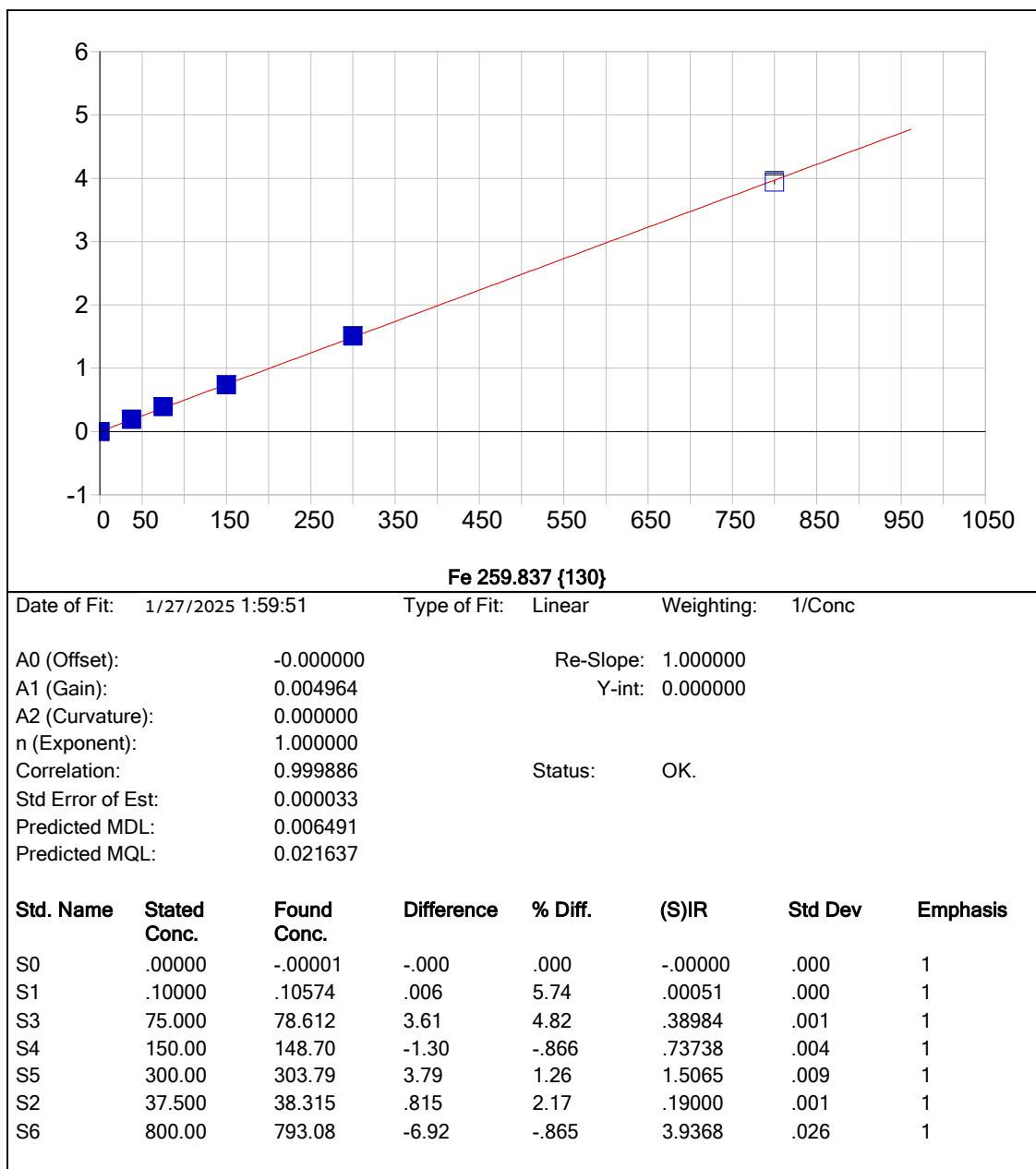


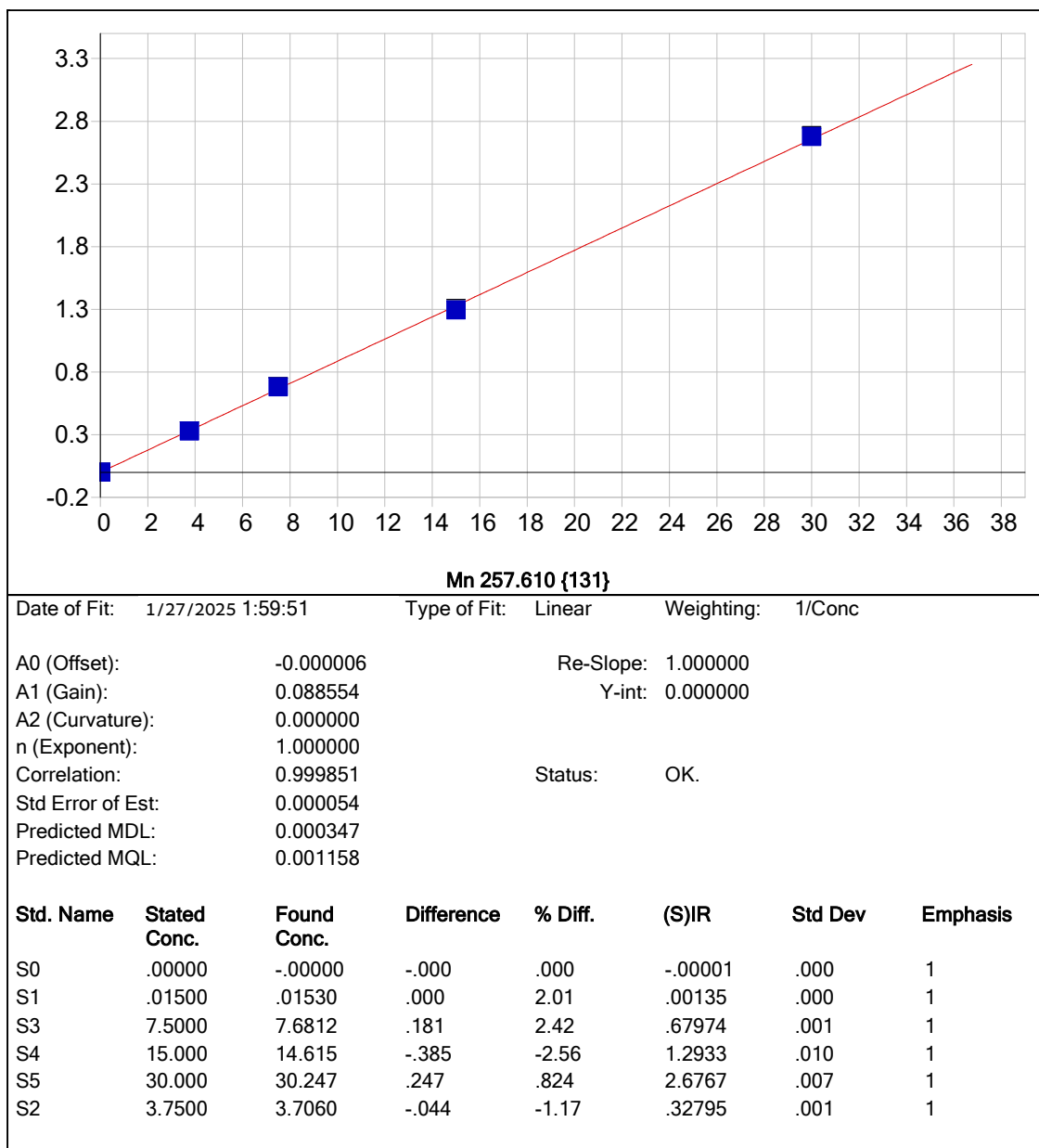


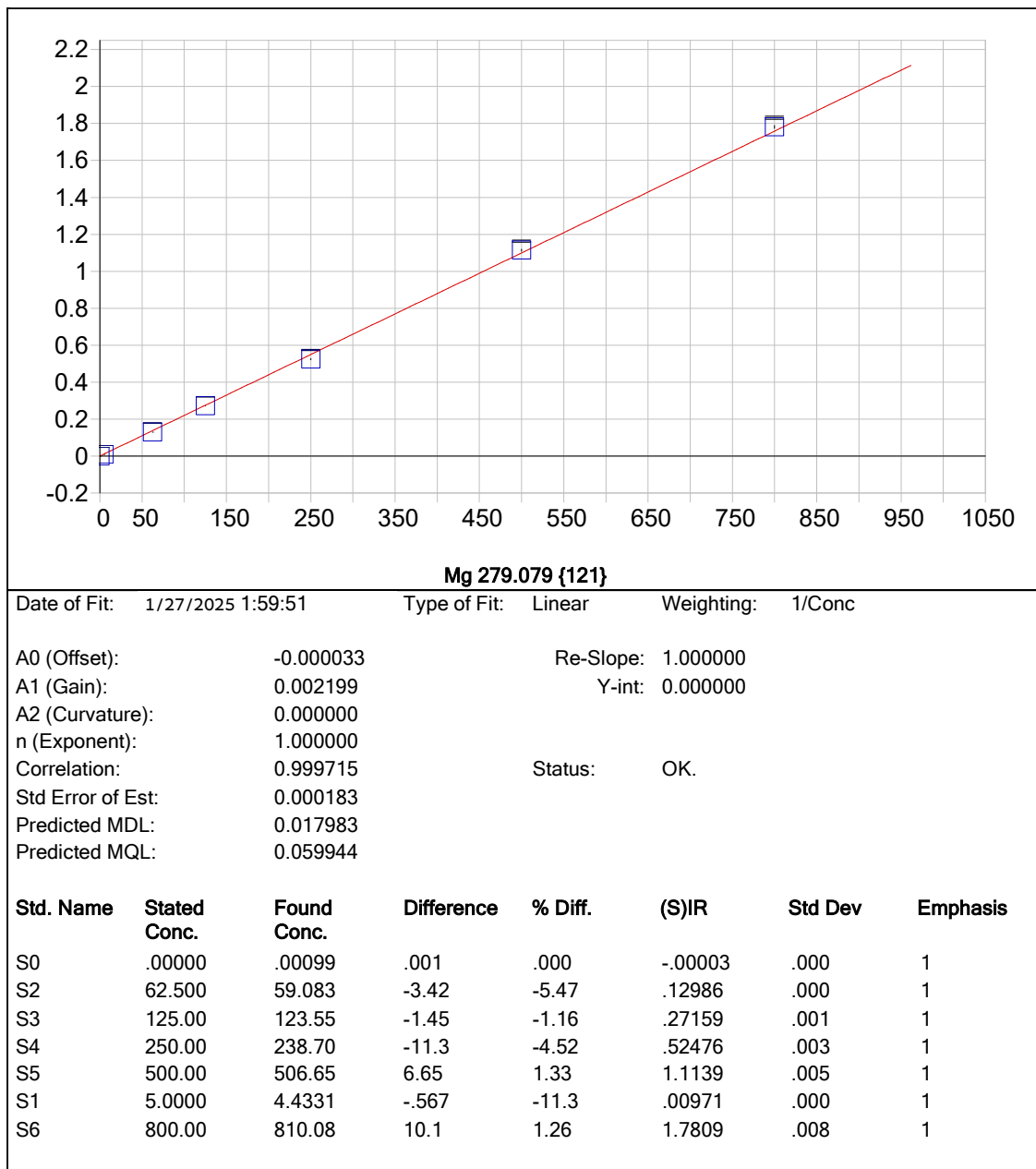


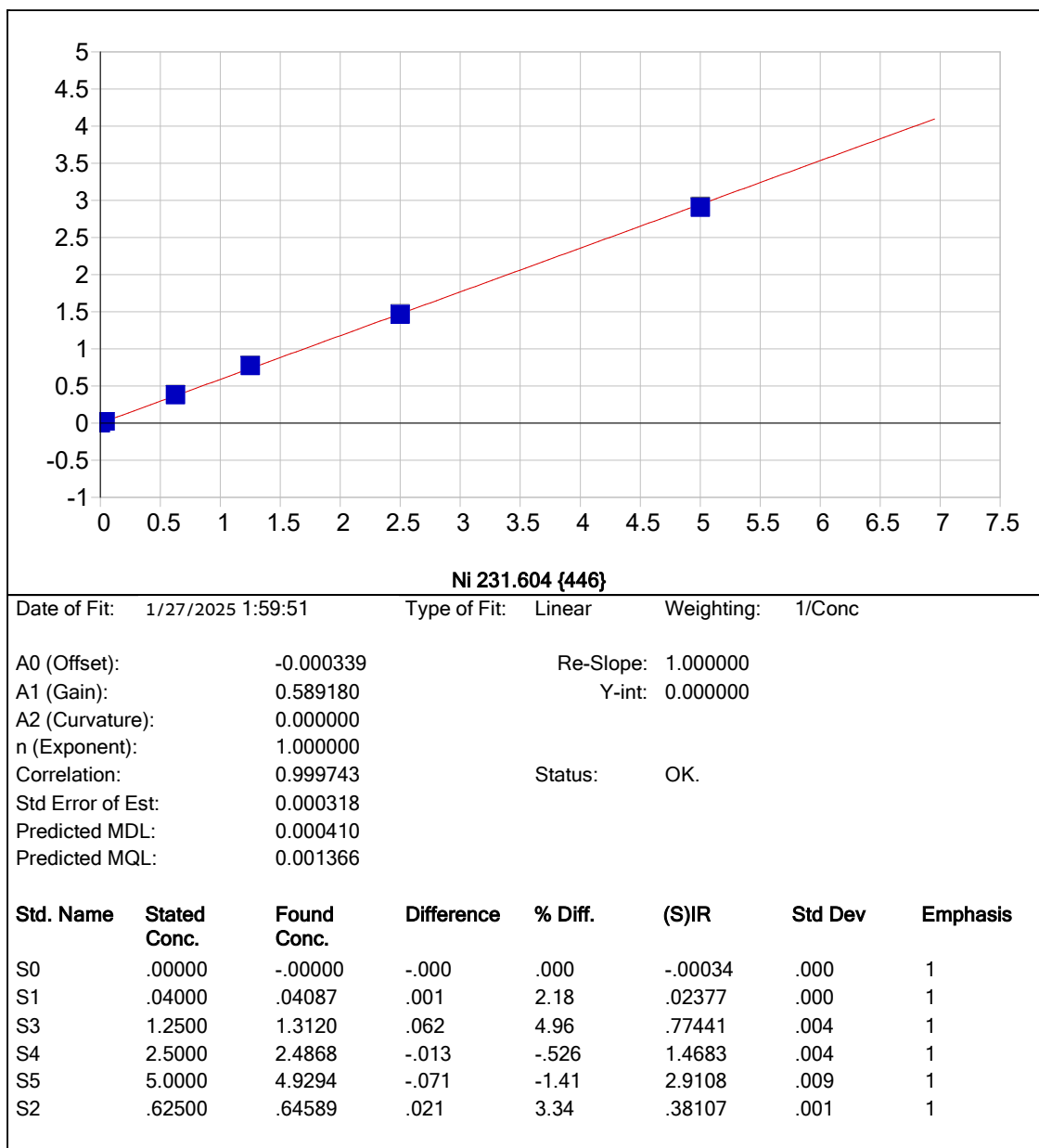


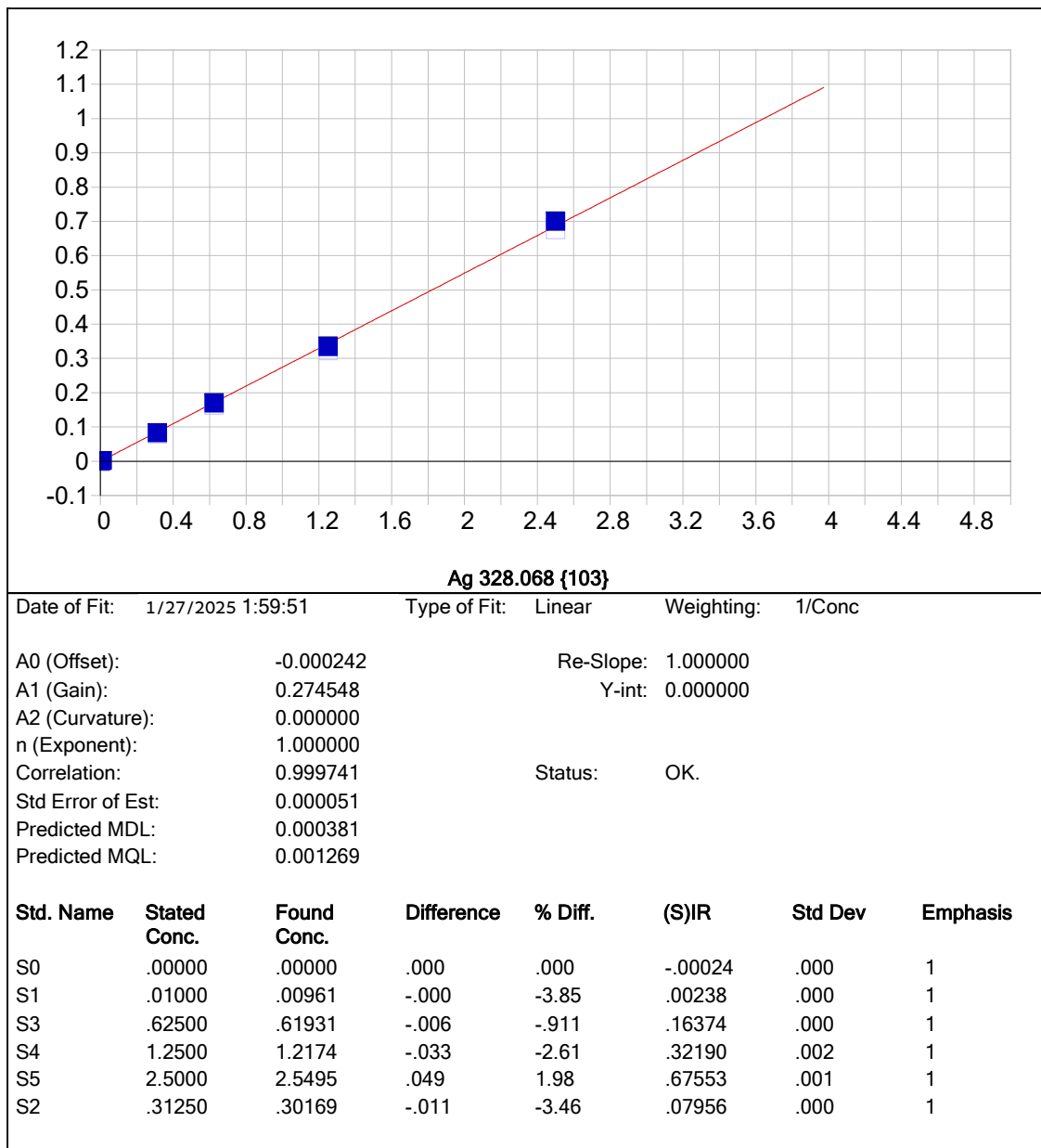


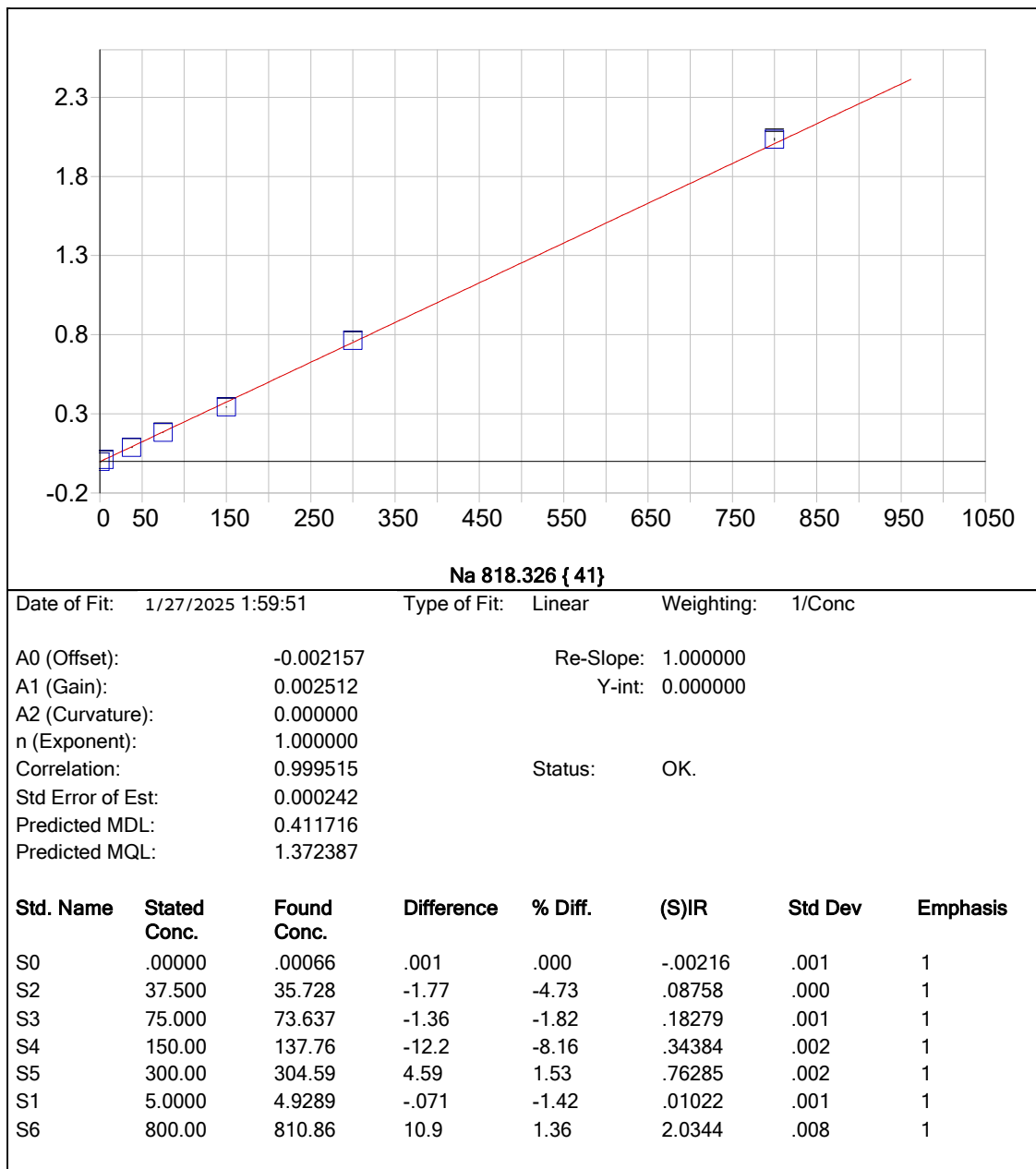


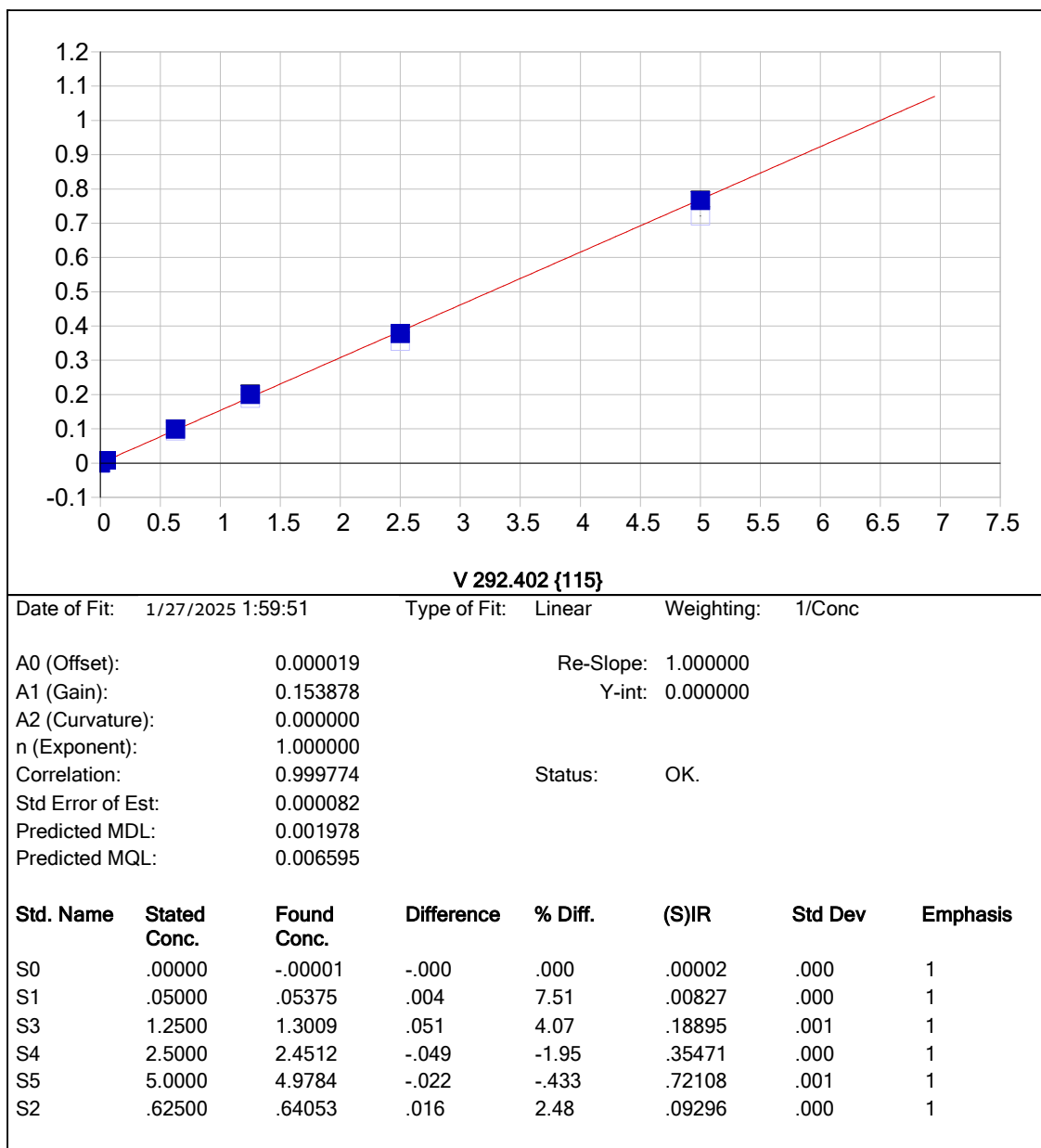


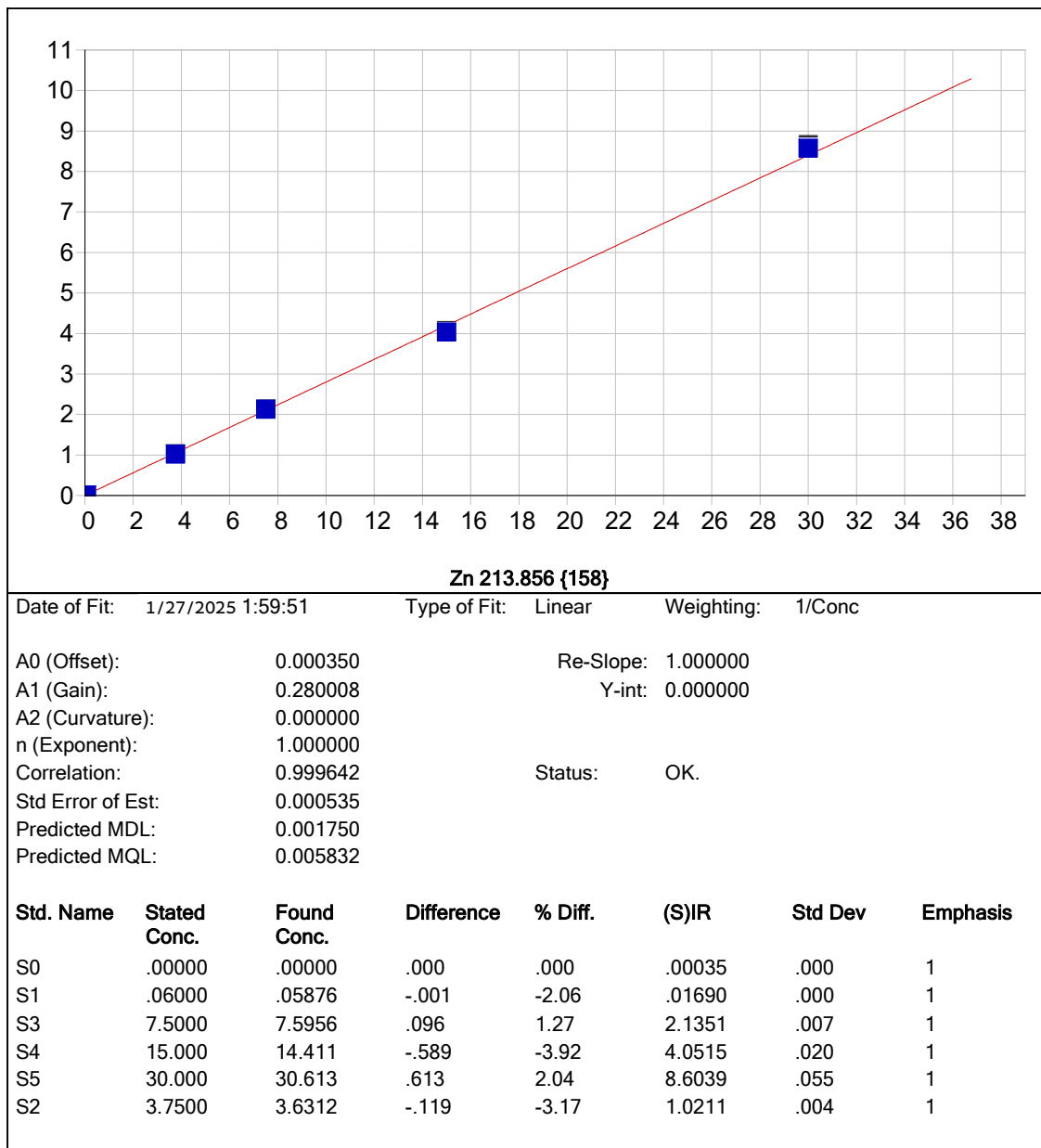


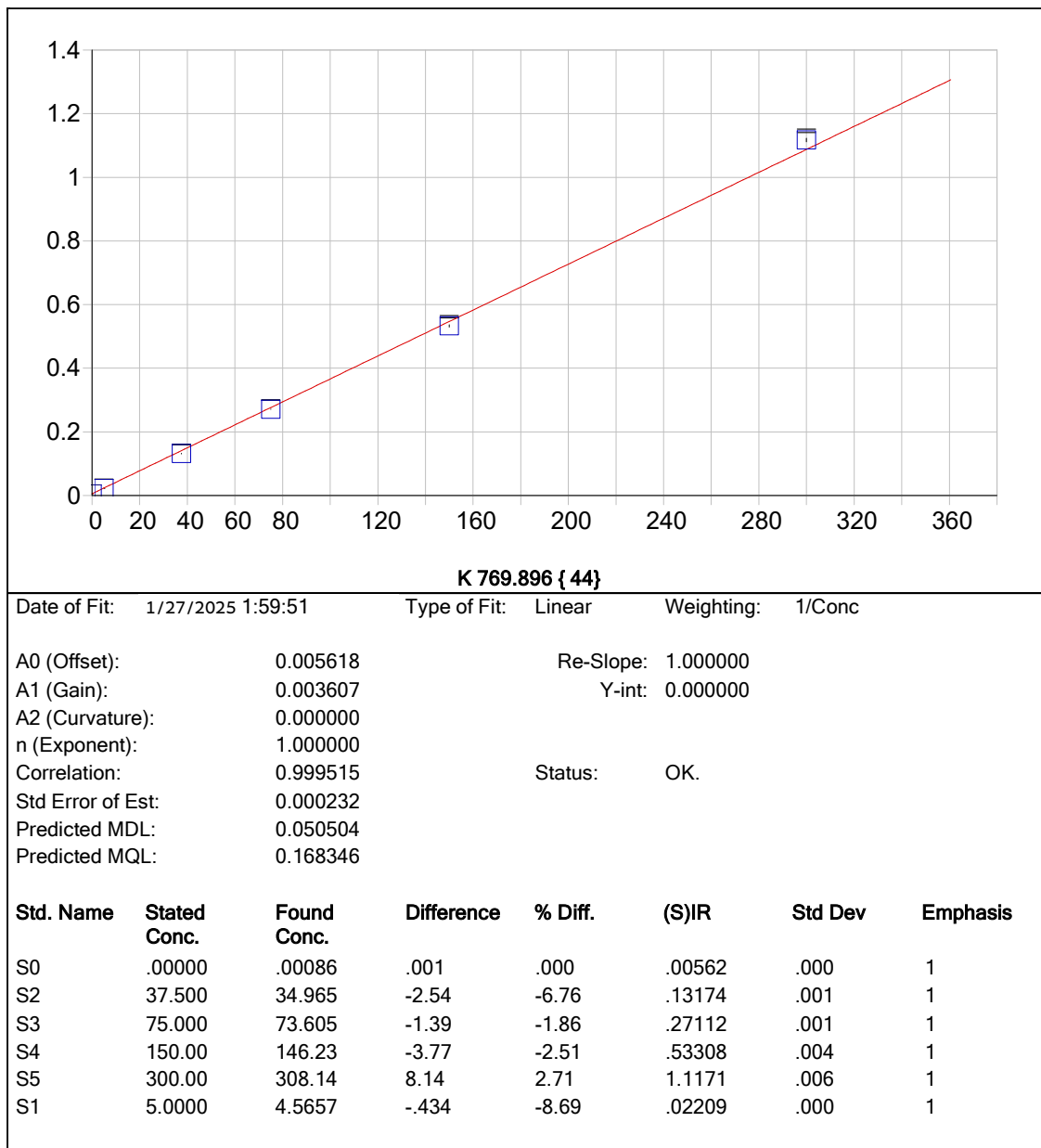


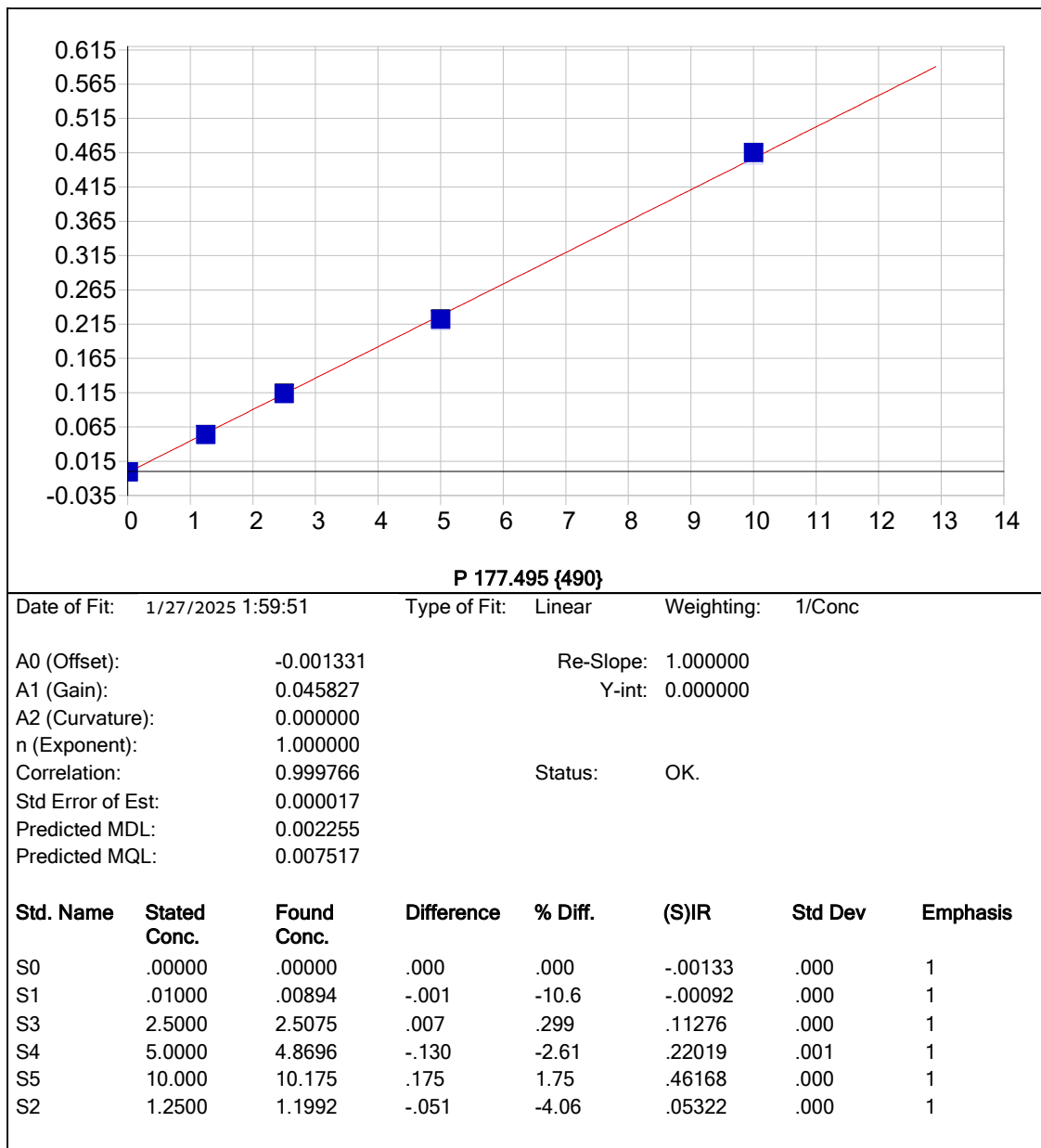


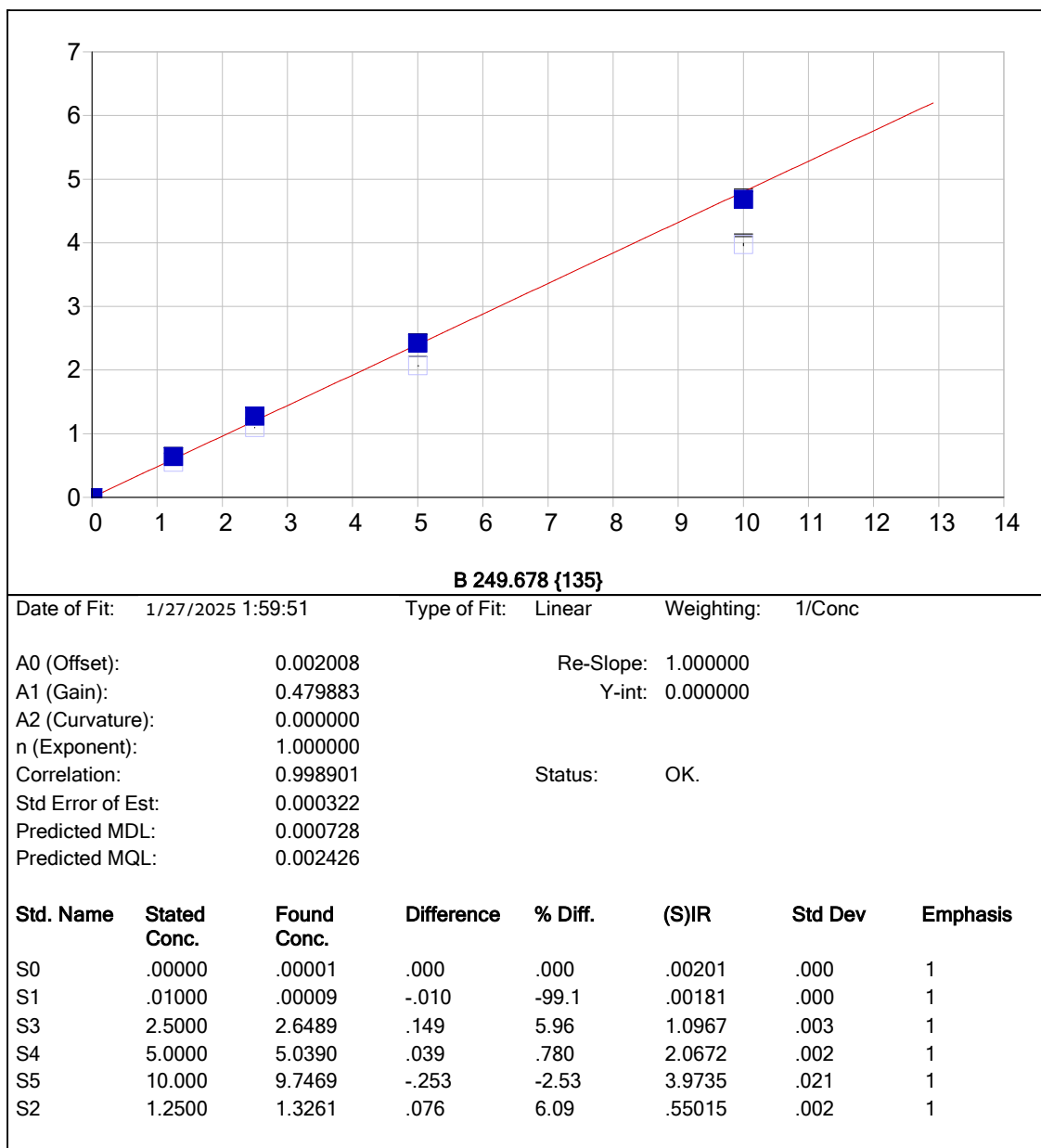


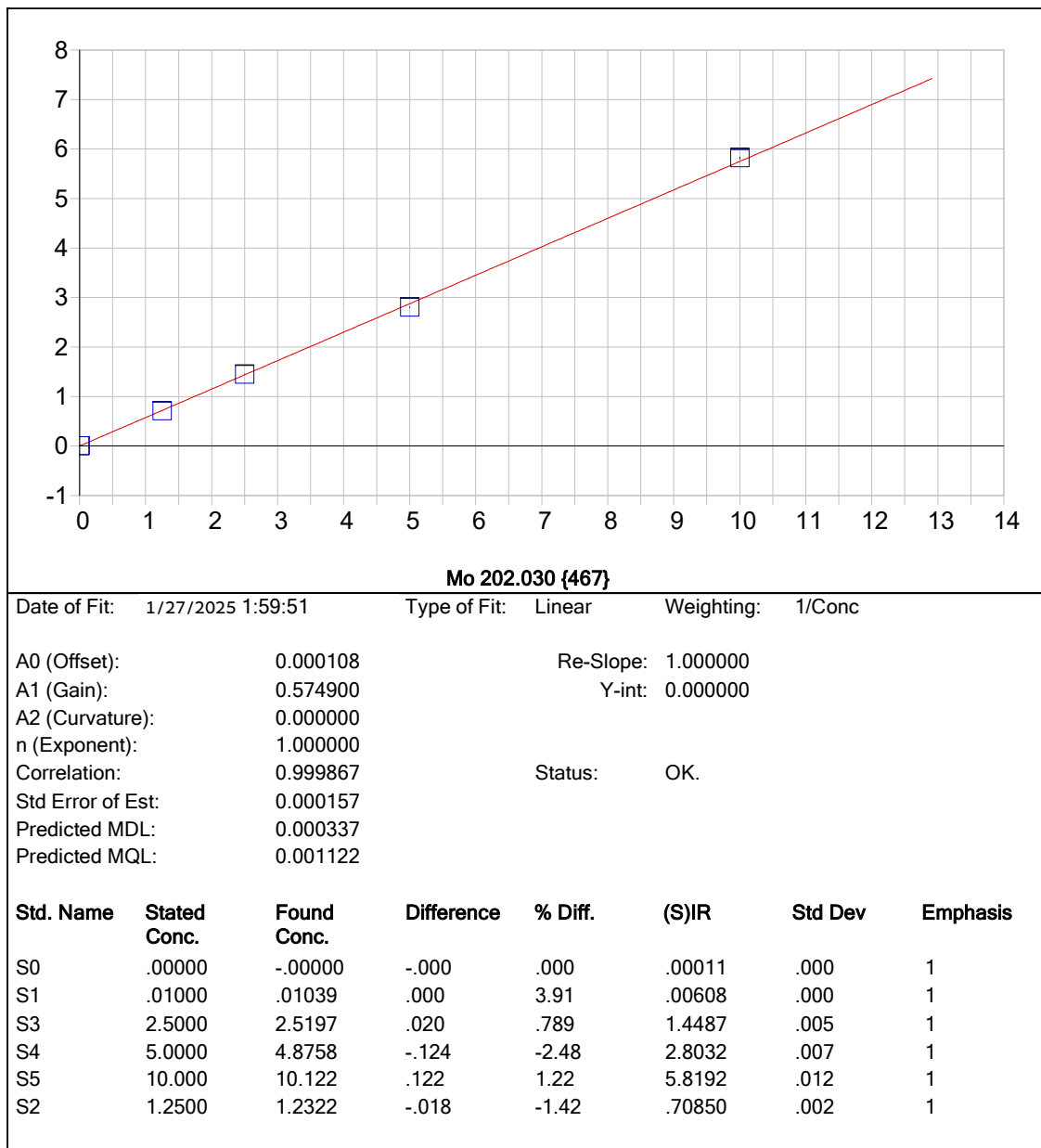


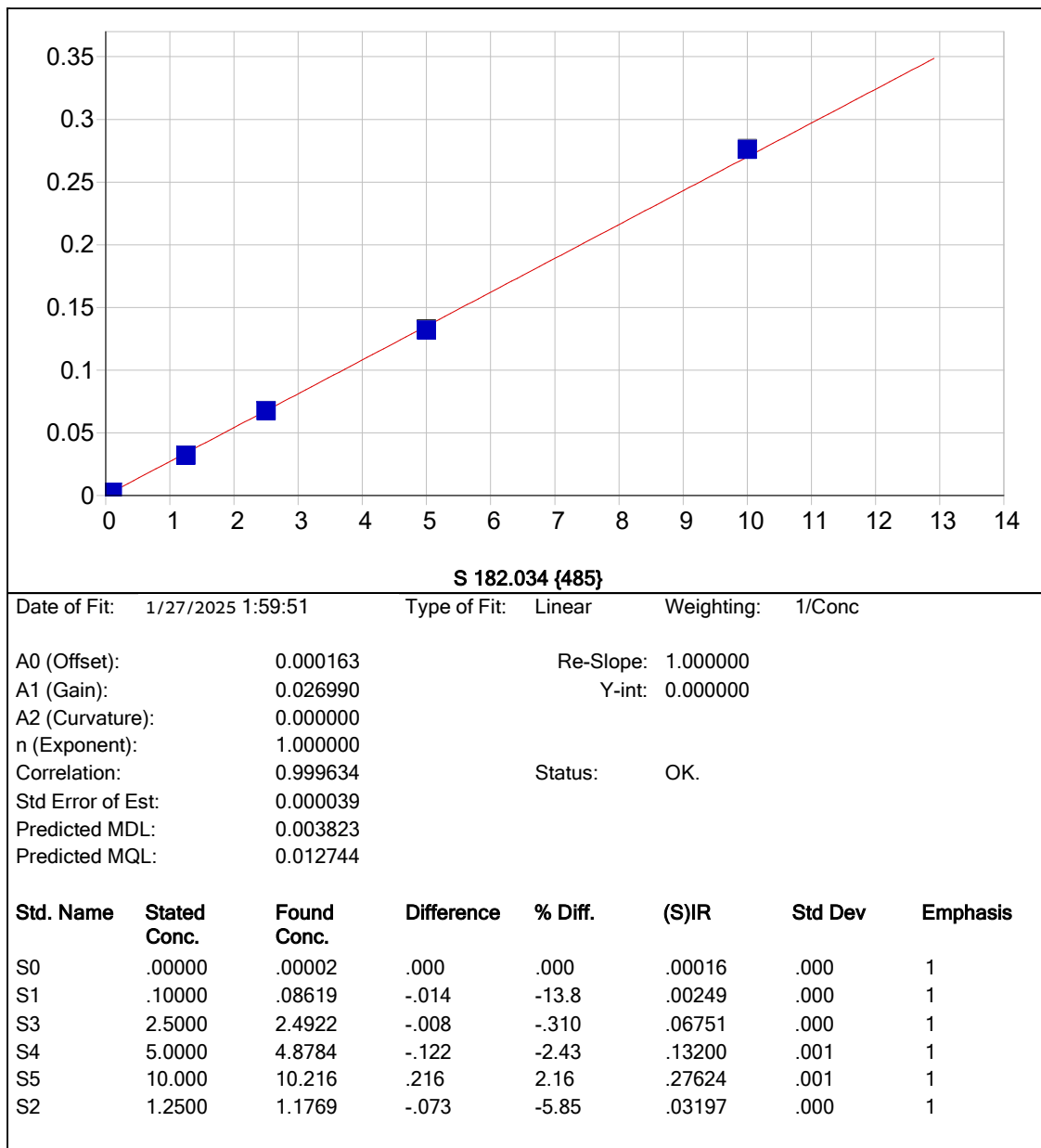


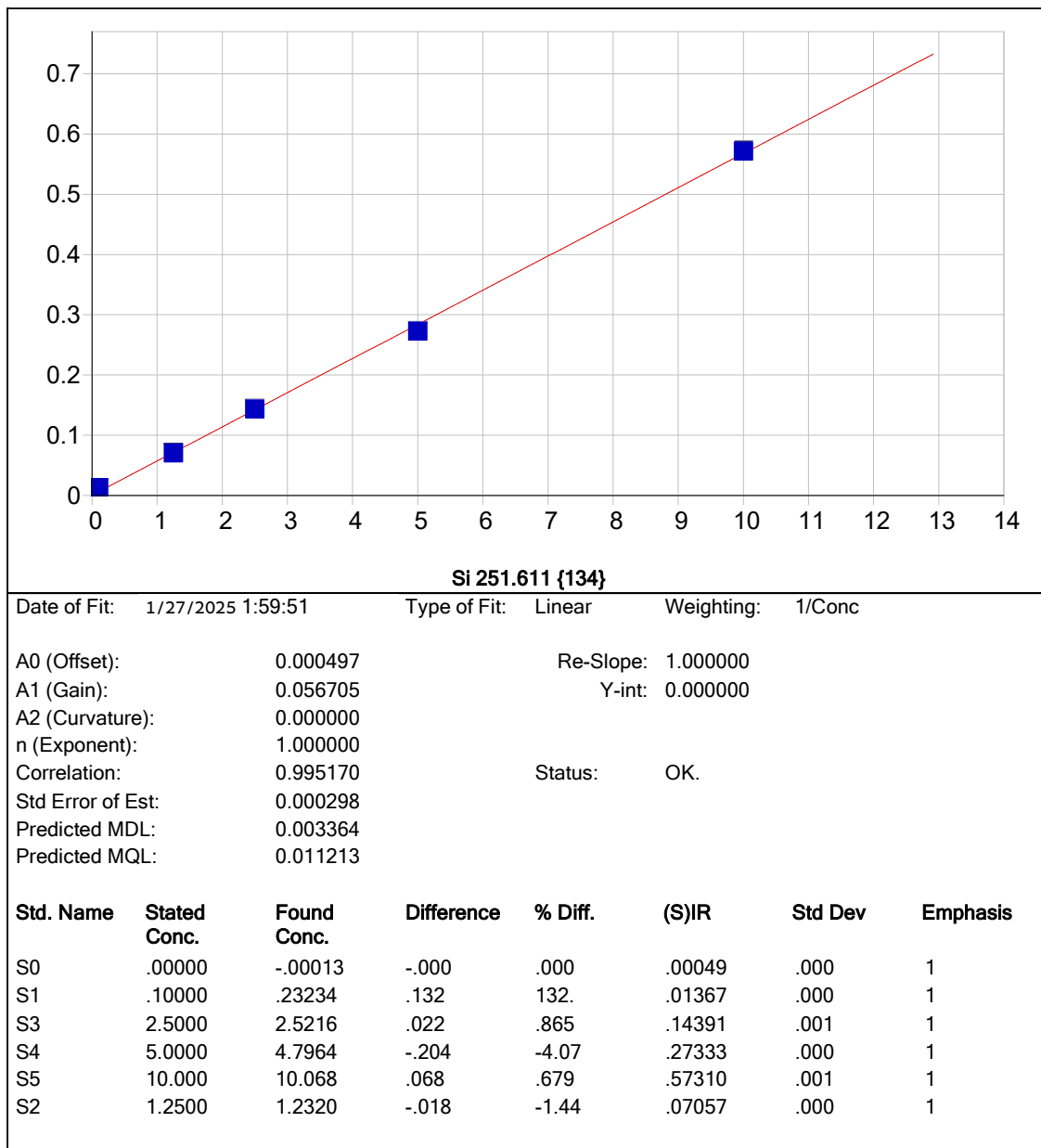


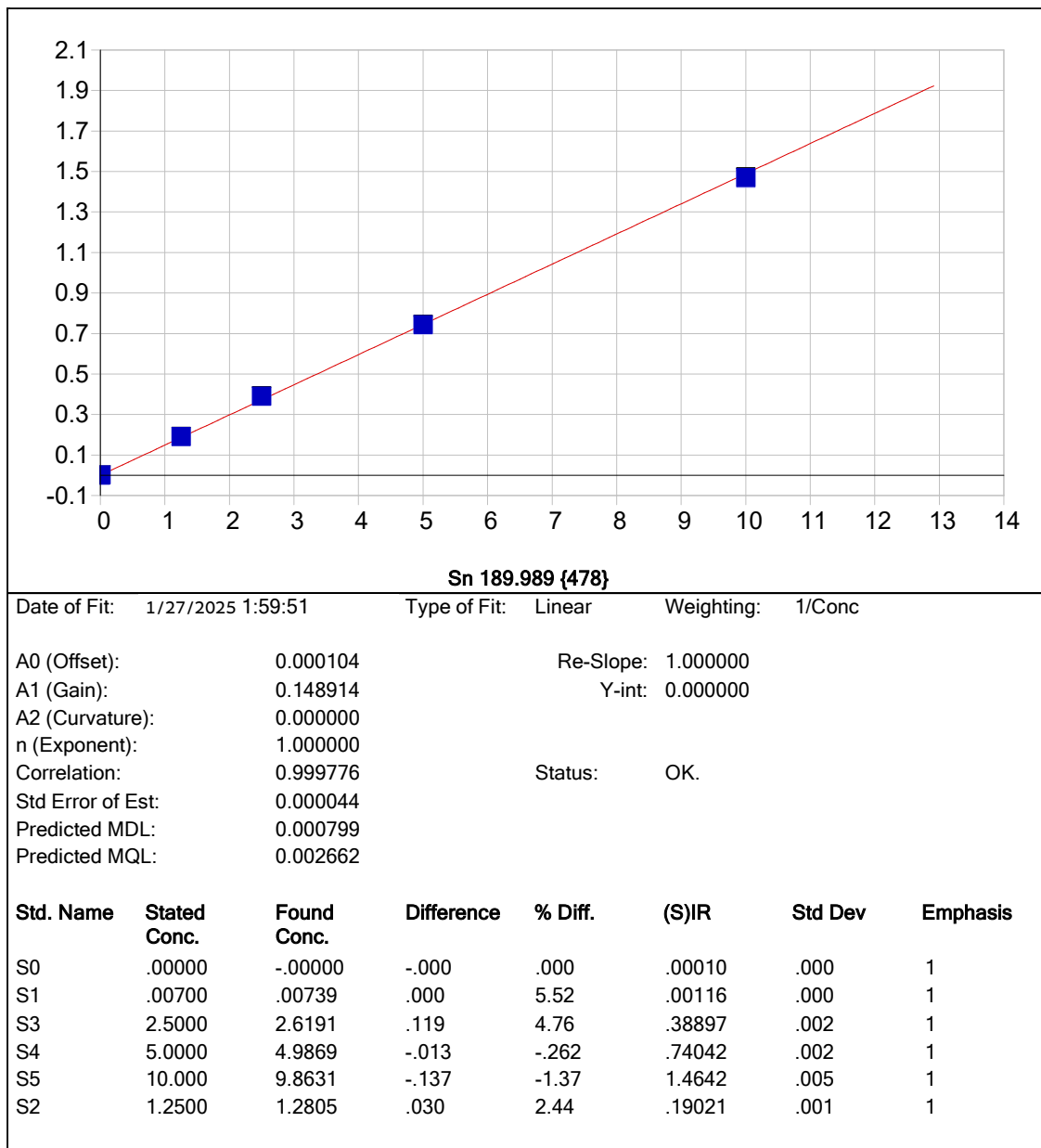


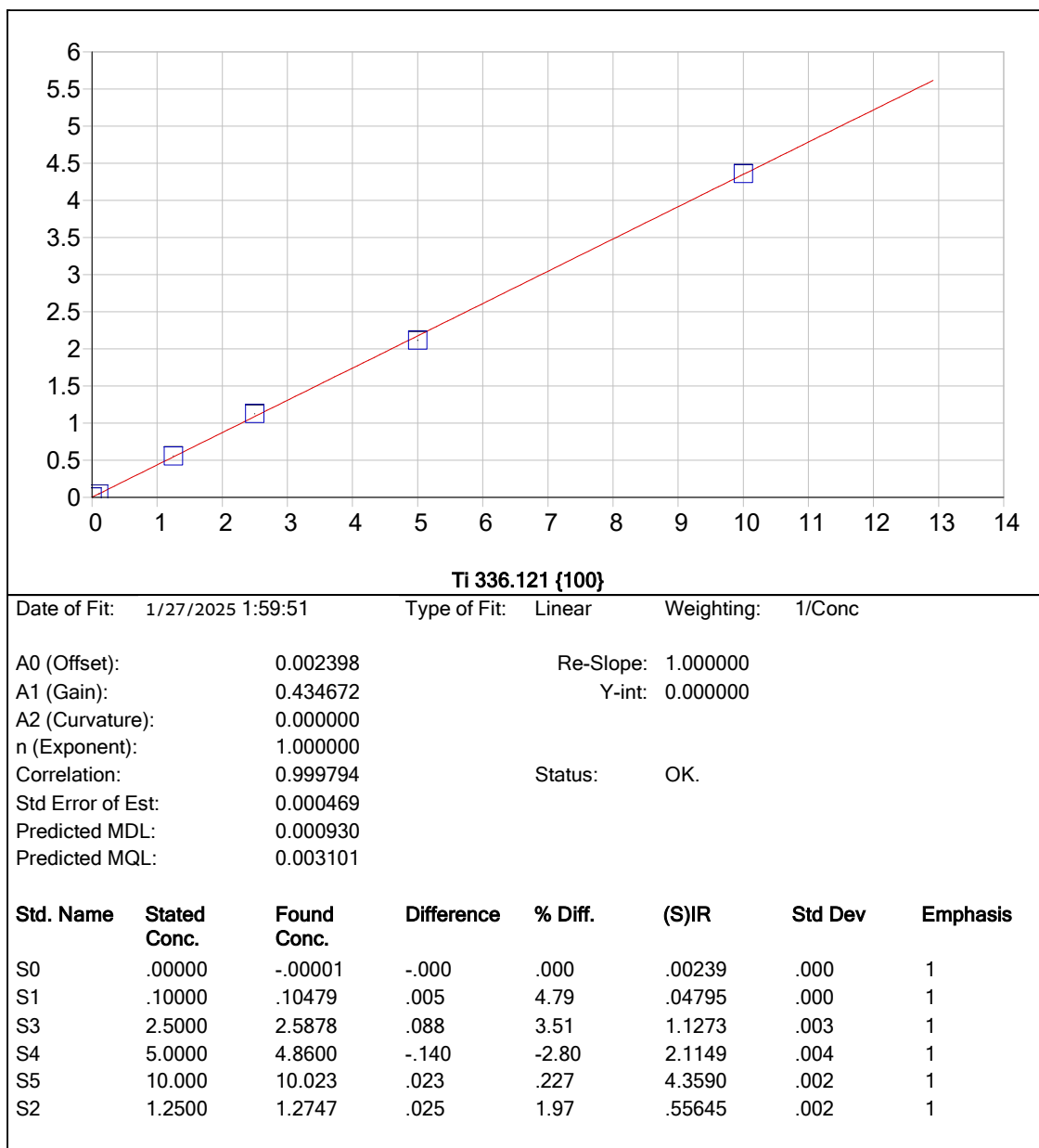


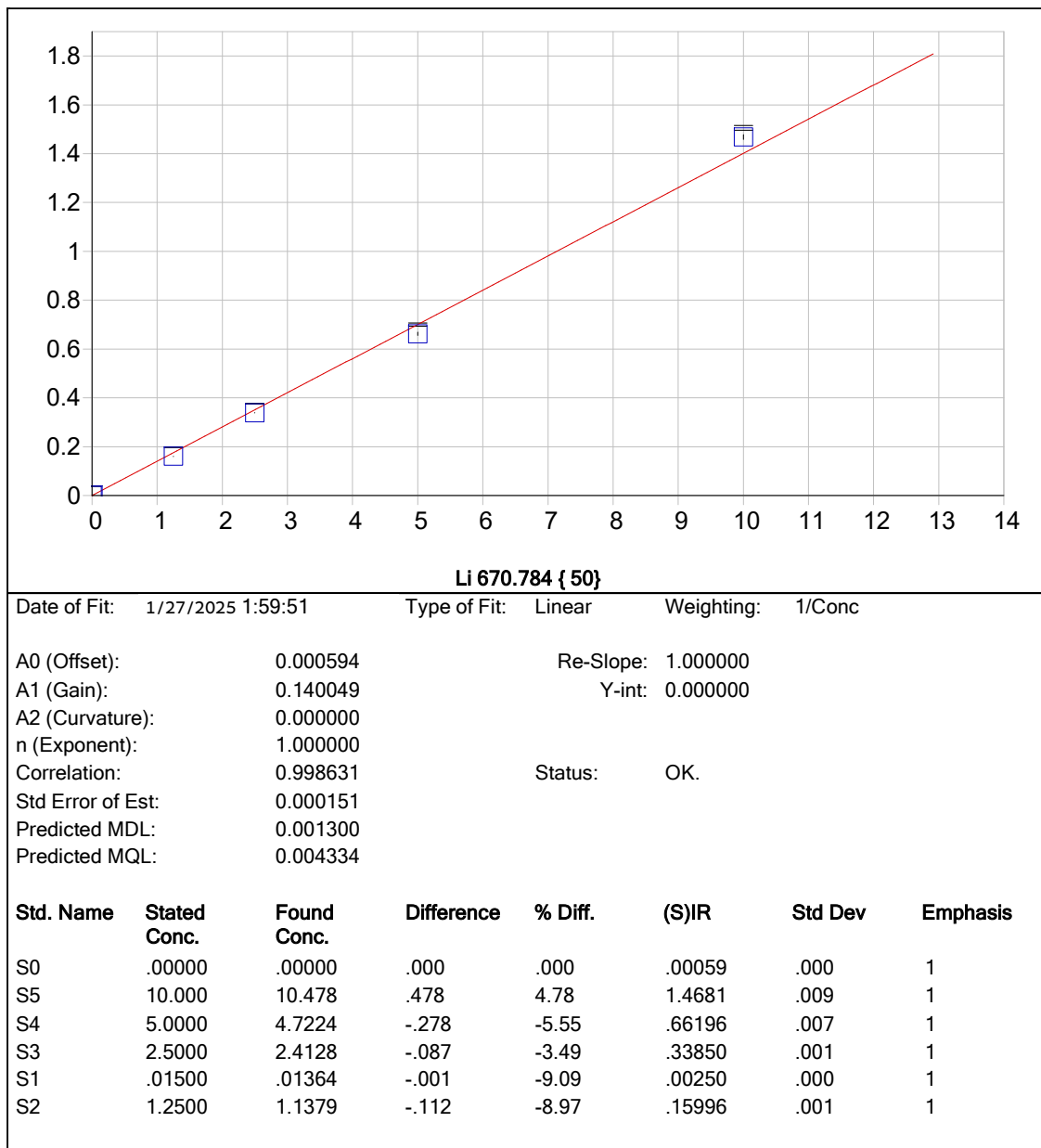


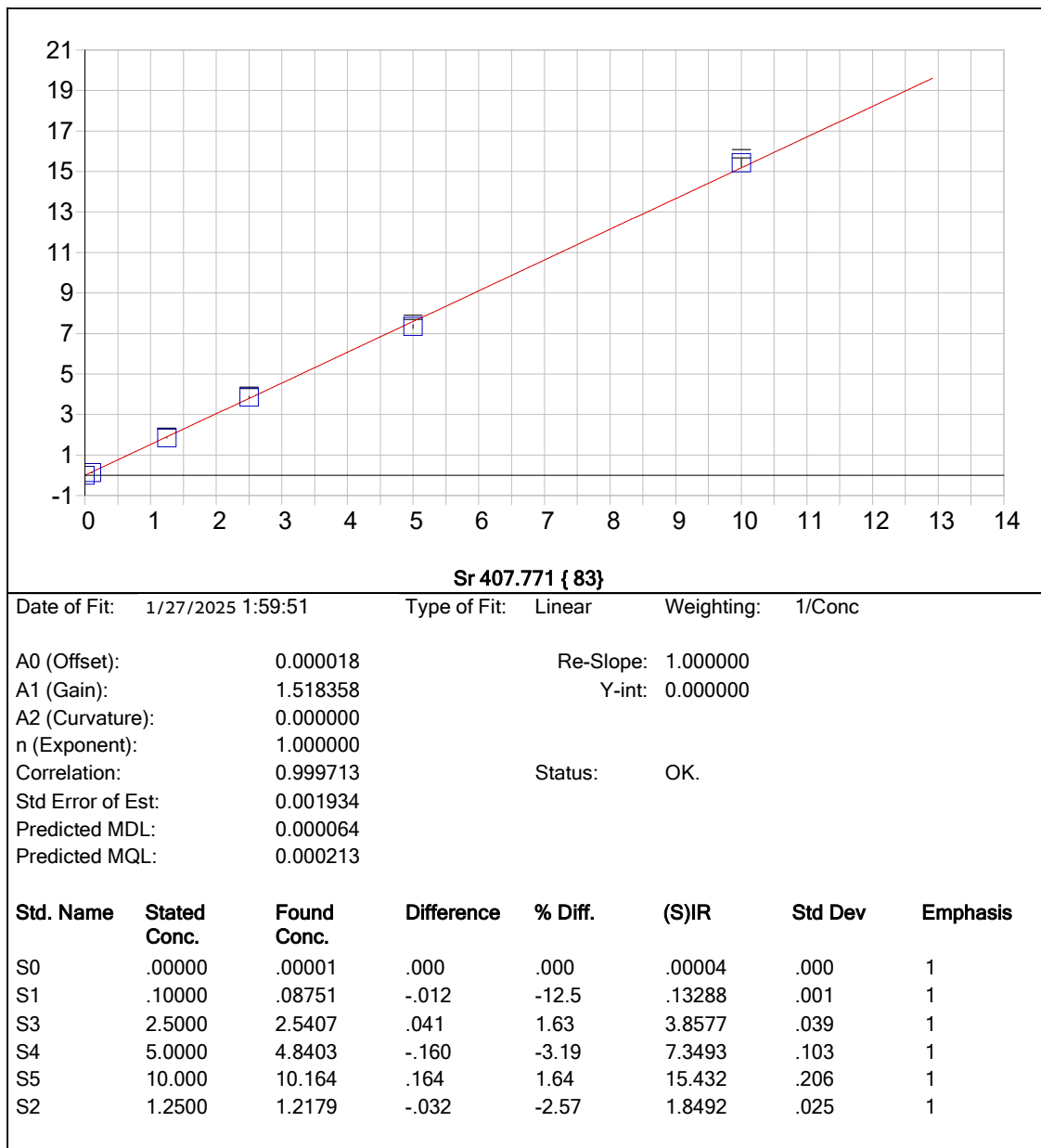


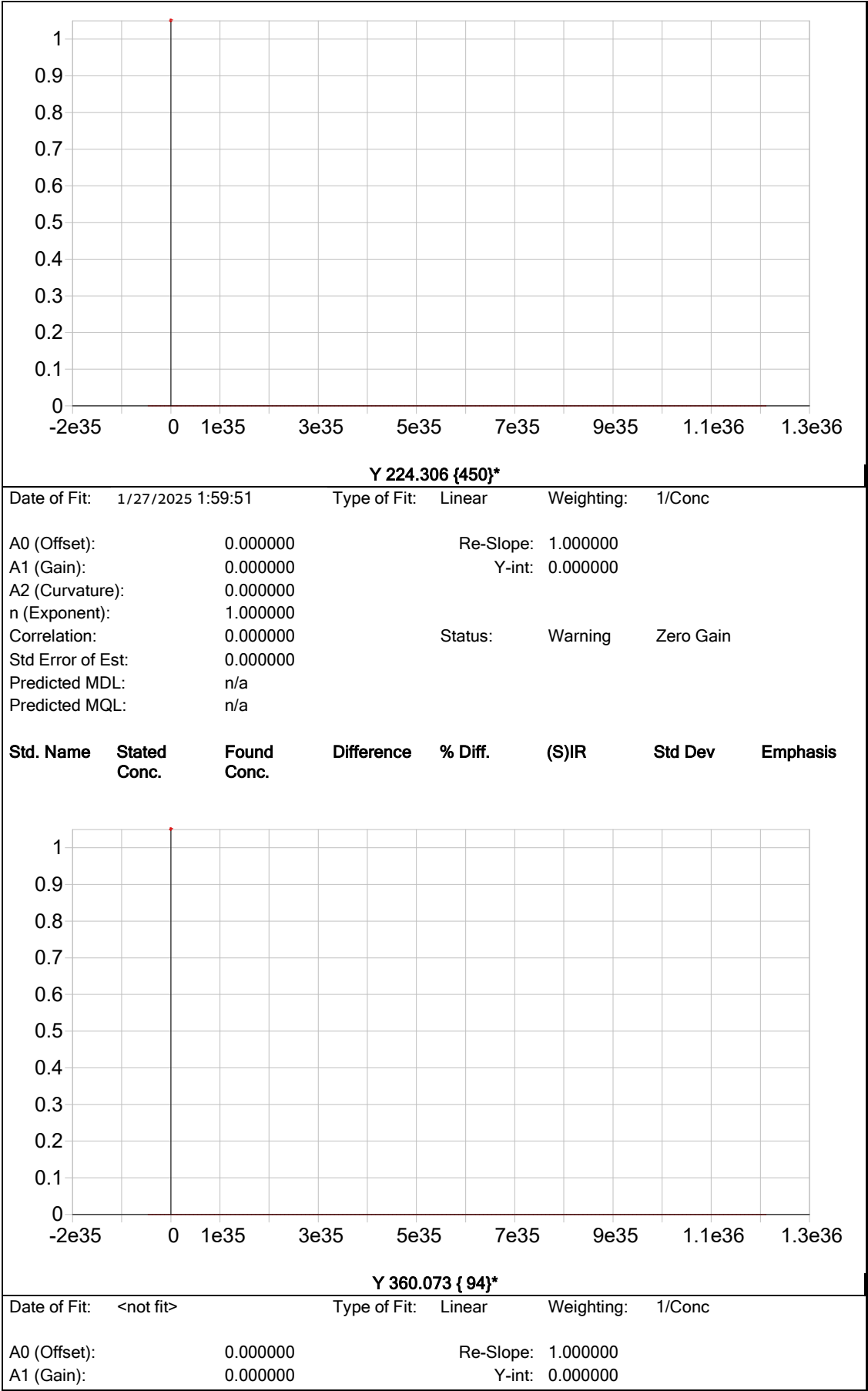


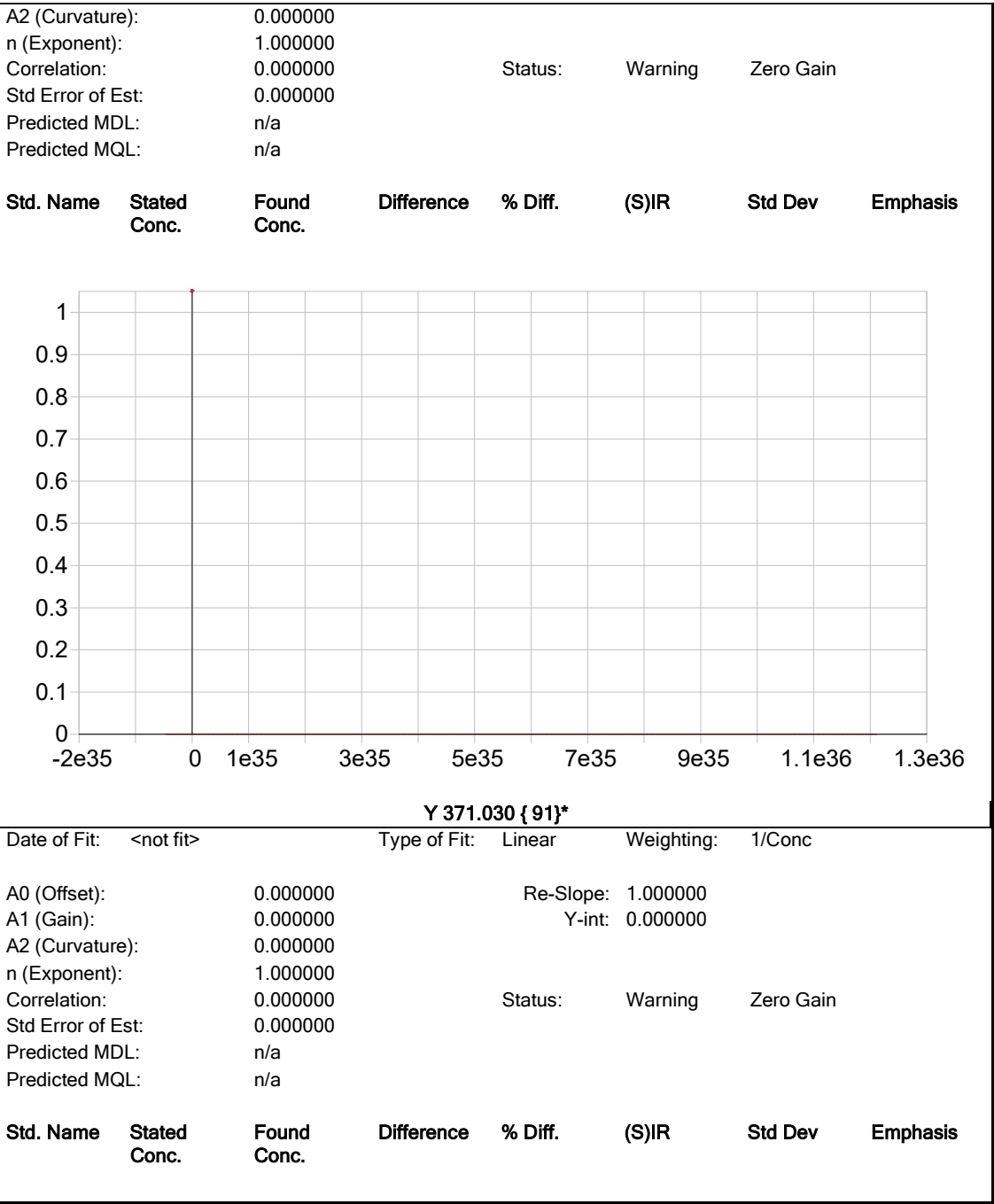


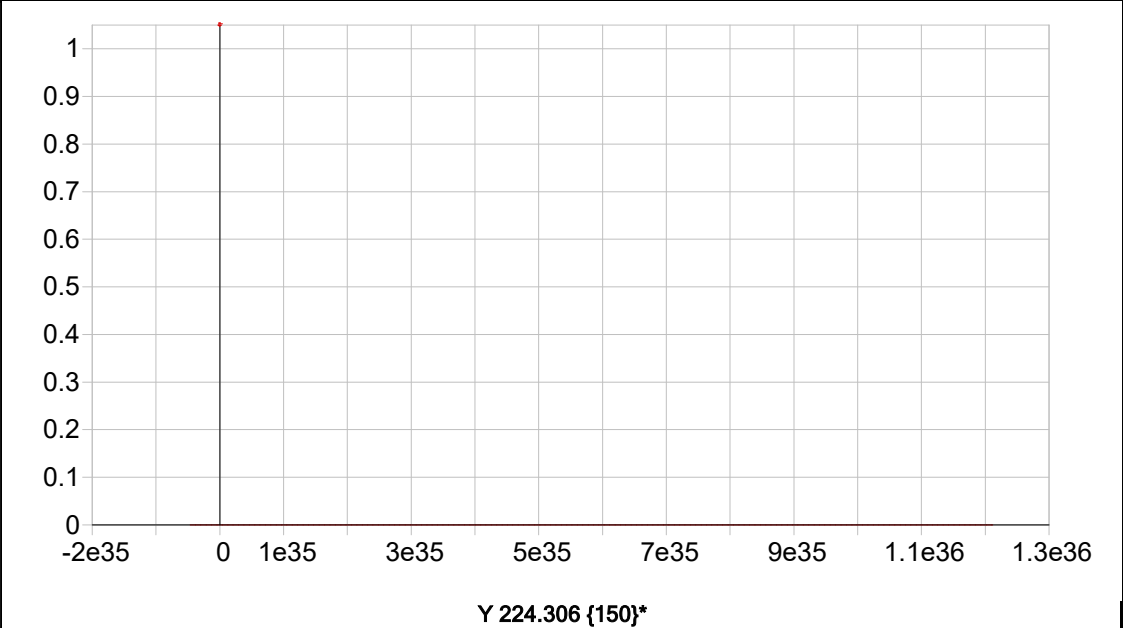




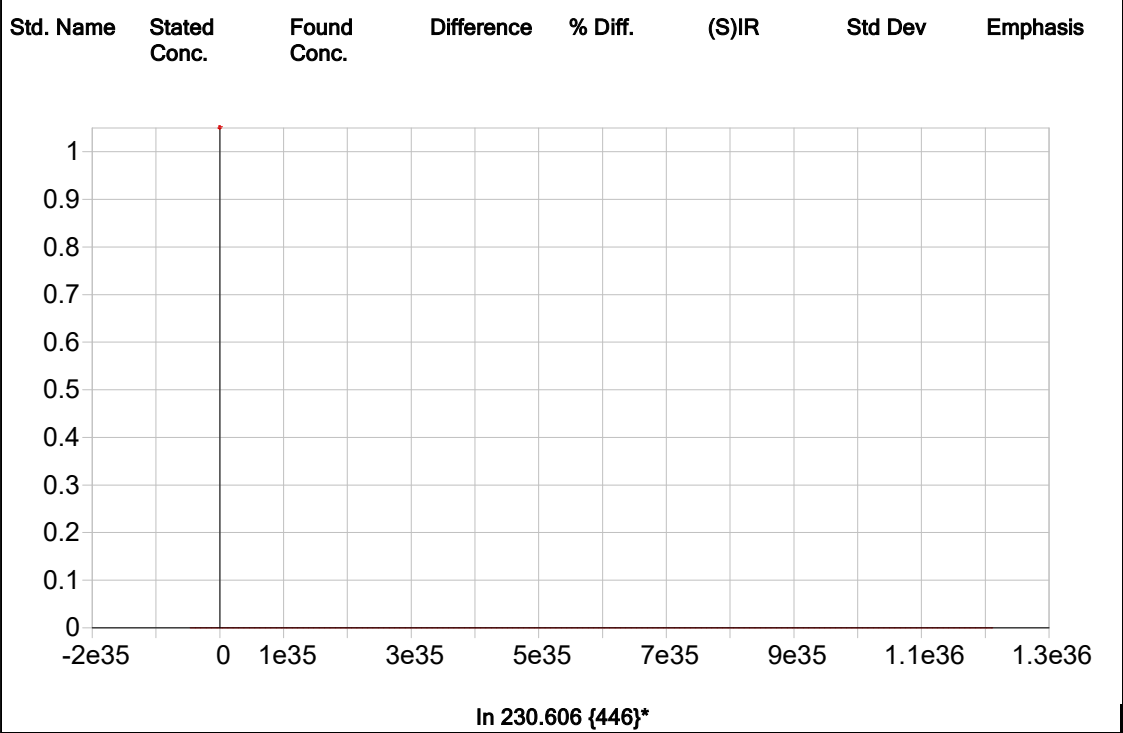








Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
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A2 (Curvature):		0.000000		Status:	Warning	Zero Gain	
n (Exponent):		1.000000					
Correlation:		0.000000					
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

Sample Name: S0 Acquired: 1/27/2025 14:23:39 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 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	-.00009	.00007	-.00031	.00036	.00034	-.00004	.00648	.00004
Stddev	.00009	.00001	.00007	.00006	.00014	.00013	.00023	.00016
%RSD	98.992	20.708	23.596	15.946	41.468	325.66	3.5651	427.59
#1	-.00001	.00006	-.00039	.00041	.00046	.00007	.00642	-.00013
#2	-.00020	.00009	-.00028	.00030	.00038	-.00000	.00673	.00020
#3	-.00007	.00006	-.00026	.00037	.00018	-.00018	.00628	.00004
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00003	.00002	-.00001	-.00000	.00369	-.00000	-.00001	-.00003
Stddev	.00012	.00002	.00001	.00007	.00007	.00001	.00004	.00004
%RSD	356.51	152.65	172.95	1514.4	1.9402	2914.3	600.91	114.57
#1	.00007	-.00001	-.00002	.00007	.00377	-.00000	.00004	-.00003
#2	-.00016	.00002	.00001	-.00002	.00363	.00002	-.00002	.00000
#3	-.00001	.00003	-.00001	-.00006	.00368	-.00001	-.00003	-.00007
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00034	-.00024	-.00216	.00002	.00035	.00562	-.00133	.00201
Stddev	.00018	.00002	.00078	.00014	.00029	.00006	.00006	.00021
%RSD	51.843	9.0647	36.208	787.77	82.517	1.1126	4.2043	10.266
#1	-.00014	-.00024	-.00126	-.00014	.00068	.00557	-.00135	.00203
#2	-.00043	-.00022	-.00256	.00009	.00024	.00560	-.00127	.00221
#3	-.00046	-.00026	-.00265	.00011	.00014	.00569	-.00138	.00180
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00011	.00016	.00049	.00010	.00239	.00059	.00004	
Stddev	.00014	.00004	.00006	.00013	.00011	.00014	.00004	
%RSD	130.31	21.427	12.633	123.40	4.6816	23.748	100.19	
#1	.00014	.00013	.00056	.00012	.00250	.00053	.00007	
#2	-.00005	.00020	.00046	-.00003	.00228	.00050	-.00001	
#3	.00023	.00016	.00045	.00022	.00240	.00076	.00006	

Sample Name: S0 Acquired: 1/27/2025 14:23:39 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 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	3721.3	77141.	10941.	2574.2	4698.6
Stddev	4.9	412.	38.	15.0	4.0
%RSD	.13119	.53411	.34829	.58186	.08615
#1	3722.6	76665.	10933.	2557.2	4699.0
#2	3725.5	77385.	10907.	2580.1	4702.4
#3	3716.0	77373.	10982.	2585.3	4694.4

Sample Name: S1 Acquired: 1/27/2025 14:27:55 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 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	.00052	.00190	.00210	.00240	.00890	.00209	.08309	.02350
Stddev	.00007	.00009	.00016	.00018	.00008	.00005	.00045	.00019
%RSD	12.945	4.7803	7.6163	7.5152	.89797	2.3760	.54737	.82349
#1	.00053	.00197	.00215	.00259	.00883	.00204	.08342	.02329
#2	.00045	.00194	.00192	.00238	.00889	.00208	.08327	.02366
#3	.00058	.00180	.00223	.00223	.00899	.00214	.08257	.02357
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01292	.03973	.00174	.04151	.00781	.00051	.00135	.00971
Stddev	.00006	.00008	.00003	.00031	.00008	.00002	.00002	.00004
%RSD	.49572	.21208	1.9312	.74433	.99954	3.0568	1.5932	.44953
#1	.01287	.03983	.00175	.04145	.00772	.00053	.00137	.00968
#2	.01289	.03970	.00176	.04124	.00788	.00050	.00134	.00976
#3	.01299	.03967	.00170	.04185	.00782	.00052	.00133	.00970
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02377	.00238	.01022	.00827	.01690	.02209	-.00092	.00181
Stddev	.00011	.00004	.00057	.00031	.00029	.00014	.00008	.00017
%RSD	.46023	1.8549	5.5395	3.7022	1.6864	.65111	9.0244	9.2530
#1	.02382	.00243	.00996	.00858	.01668	.02225	-.00098	.00162
#2	.02364	.00234	.00984	.00797	.01680	.02198	-.00096	.00187
#3	.02384	.00237	.01087	.00827	.01723	.02203	-.00083	.00194
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00608	.00249	.01367	.00116	.04795	.00250	.13288	
Stddev	.00012	.00014	.00010	.00010	.00029	.00016	.00116	
%RSD	1.9889	5.7832	.75431	9.0330	.60796	6.4551	.87243	
#1	.00602	.00252	.01371	.00127	.04819	.00234	.13404	
#2	.00601	.00233	.01356	.00106	.04802	.00251	.13289	
#3	.00622	.00261	.01375	.00114	.04762	.00266	.13172	

Sample Name: S1 Acquired: 1/27/2025 14:27:55 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 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	3608.8	74781.	11122.	2485.3	4475.5
Stddev	10.9	95.	43.	6.9	10.5
%RSD	.30306	.12766	.38471	.27731	.23468
#1	3600.2	74890.	11171.	2478.9	4466.1
#2	3621.1	74713.	11107.	2484.4	4486.9
#3	3605.2	74739.	11089.	2492.6	4473.4

Sample Name: S2 Acquired: 1/27/2025 14:32:08 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 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	.06999	.09174	1.4227	.07901	.18366	.42648	.97881	.57269
Stddev	.00049	.00015	.0043	.00022	.00055	.00168	.00593	.00096
%RSD	.70044	.16698	.30216	.28250	.30047	.39280	.60573	.16766
#1	.06979	.09178	1.4202	.07926	.18340	.42736	.98428	.57309
#2	.06963	.09186	1.4202	.07883	.18329	.42754	.97964	.57160
#3	.07055	.09157	1.4276	.07894	.18430	.42455	.97251	.57338
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.6301	.49276	.63980	.53202	.51866	.19000	.32795	.12986
Stddev	.0040	.00134	.00059	.00154	.00264	.00069	.00086	.00025
%RSD	.24463	.27255	.09190	.29023	.50959	.36342	.26083	.19265
#1	1.6294	.49329	.63992	.53128	.52134	.19000	.32824	.12999
#2	1.6265	.49376	.64033	.53099	.51860	.19069	.32861	.13003
#3	1.6344	.49123	.63917	.53380	.51605	.18931	.32698	.12958
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.38107	.07956	.08758	.09296	1.0211	.13174	.05322	.55015
Stddev	.00100	.00016	.00045	.00045	.0041	.00066	.00007	.00202
%RSD	.26192	.20462	.51297	.47873	.39940	.49969	.12618	.36799
#1	.38075	.07968	.08707	.09274	1.0198	.13202	.05316	.54983
#2	.38027	.07938	.08774	.09266	1.0256	.13222	.05321	.54830
#3	.38219	.07962	.08793	.09347	1.0178	.13099	.05329	.55231
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.70850	.03197	.07057	.19021	.55645	.15996	1.8492	
Stddev	.00157	.00013	.00043	.00083	.00197	.00109	.0249	
%RSD	.22139	.41849	.61128	.43489	.35436	.67914	1.3466	
#1	.70795	.03194	.07027	.18957	.55677	.16120	1.8315	
#2	.70729	.03212	.07106	.18992	.55825	.15950	1.8384	
#3	.71027	.03186	.07038	.19114	.55434	.15918	1.8777	

Sample Name: S2 Acquired: 1/27/2025 14:32:08 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 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	3402.2	71247.	11035.	2344.1	4008.7
Stddev	6.9	252.	19.	9.3	6.0
%RSD	.20303	.35357	.17140	.39675	.14891
#1	3403.3	71187.	11049.	2343.3	4013.6
#2	3408.5	71030.	11014.	2335.2	4010.3
#3	3394.8	71523.	11043.	2353.7	4002.0

Sample Name: S3 Acquired: 1/27/2025 14:36:11 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 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	.14626	.18451	2.8982	.16411	.38272	.89546	2.0319	1.1452
Stddev	.00084	.00180	.0127	.00093	.00146	.00194	.0080	.0030
%RSD	.57208	.97649	.43951	.56961	.38140	.21675	.39400	.25991

#1	.14572	.18407	2.8957	.16379	.38341	.89401	2.0319	1.1454
#2	.14583	.18297	2.8869	.16338	.38104	.89766	2.0239	1.1422
#3	.14722	.18649	2.9120	.16517	.38370	.89469	2.0399	1.1481

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.3259	1.0196	1.2799	1.0830	1.0589	.38984	.67974	.27159
Stddev	.0208	.0016	.0031	.0052	.0019	.00119	.00102	.00077
%RSD	.62671	.15480	.23829	.47984	.18148	.30541	.15051	.28365

#1	3.3201	1.0178	1.2764	1.0820	1.0605	.38865	.67855	.27070
#2	3.3086	1.0202	1.2809	1.0783	1.0568	.39103	.68030	.27202
#3	3.3491	1.0207	1.2823	1.0886	1.0594	.38985	.68035	.27205

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.77441	.16374	.18279	.18895	2.1351	.27112	.11276	1.0967
Stddev	.00441	.00035	.00120	.00086	.0067	.00066	.00029	.0026
%RSD	.56965	.21179	.65809	.45626	.31244	.24170	.26084	.23818

#1	.77290	.16341	.18199	.18852	2.1414	.27074	.11261	1.0946
#2	.77095	.16410	.18221	.18994	2.1281	.27188	.11257	1.0960
#3	.77938	.16372	.18418	.18839	2.1357	.27075	.11310	1.0996

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4487	.06751	.14391	.38897	1.1273	.33850	3.8577
Stddev	.0053	.00032	.00066	.00174	.0026	.00063	.0389
%RSD	.36788	.47831	.46069	.44845	.22762	.18598	1.0082

#1	1.4478	.06732	.14413	.38810	1.1249	.33901	3.8163
#2	1.4439	.06734	.14317	.38784	1.1270	.33869	3.8636
#3	1.4544	.06789	.14444	.39098	1.1300	.33780	3.8934

Sample Name: S3 Acquired: 1/27/2025 14:36:11 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 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	3245.2	69389.	10947.	2265.9	3791.4
Stddev	6.4	181.	33.	3.4	9.6
%RSD	.19820	.26100	.30296	.14817	.25231
#1	3245.3	69598.	10970.	2264.1	3792.3
#2	3251.6	69281.	10962.	2263.9	3800.5
#3	3238.8	69288.	10909.	2269.8	3781.5

Sample Name: S4 Acquired: 1/27/2025 14:40:20 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 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	.28580	.34209	5.5354	.31522	.75080	1.7551	3.9006	2.1888
Stddev	.00113	.00028	.0143	.00149	.00236	.0117	.0153	.0047
%RSD	.39707	.08166	.25774	.47241	.31425	.66489	.39237	.21323

#1	.28647	.34192	5.5434	.31580	.75250	1.7630	3.9182	2.1857
#2	.28449	.34194	5.5189	.31353	.74811	1.7417	3.8912	2.1941
#3	.28644	.34241	5.5438	.31633	.75181	1.7605	3.8922	2.1865

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6.3466	1.9510	2.4006	2.0688	2.0075	.73738	1.2933	.52476
Stddev	.0159	.0126	.0104	.0045	.0048	.00430	.0104	.00278
%RSD	.25091	.64504	.43457	.21920	.23939	.58319	.80713	.52966

#1	6.3550	1.9594	2.4092	2.0722	2.0126	.73995	1.3004	.52655
#2	6.3283	1.9365	2.3890	2.0636	2.0030	.73242	1.2813	.52156
#3	6.3566	1.9570	2.4037	2.0705	2.0071	.73978	1.2982	.52618

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4683	.32190	.34384	.35471	4.0515	.53308	.22019	2.0672
Stddev	.0044	.00214	.00193	.00024	.0197	.00383	.00058	.0018
%RSD	.30071	.66483	.56221	.06636	.48658	.71833	.26533	.08849

#1	1.4717	.32308	.34409	.35445	4.0699	.53585	.22042	2.0666
#2	1.4633	.31943	.34563	.35477	4.0307	.52871	.21953	2.0692
#3	1.4699	.32319	.34179	.35491	4.0538	.53469	.22063	2.0657

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.8032	.13200	.27333	.74042	2.1149	.66196	7.3493
Stddev	.0069	.00053	.00039	.00242	.0042	.00682	.1034
%RSD	.24512	.40080	.14409	.32633	.19833	1.0298	1.4069

#1	2.8067	.13253	.27377	.74199	2.1196	.66662	7.3167
#2	2.7953	.13147	.27302	.73764	2.1114	.65414	7.2662
#3	2.8076	.13201	.27319	.74163	2.1137	.66512	7.4651

Sample Name: S4 Acquired: 1/27/2025 14:40:20 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 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	3053.6	66585.	10684.	2171.8	3563.6
Stddev	6.7	285.	36.	5.4	8.5
%RSD	.21983	.42832	.33826	.24854	.23879
#1	3051.1	66349.	10681.	2165.5	3558.6
#2	3061.2	66902.	10649.	2174.7	3573.5
#3	3048.6	66503.	10721.	2175.1	3558.8

Sample Name: S5 Acquired: 1/27/2025 14:44:24 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 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	.61422	.65840	11.018	.66505	1.6055	3.7675	8.4844	4.3548
Stddev	.00084	.00328	.036	.00155	.0042	.0182	.1367	.0173
%RSD	.13731	.49778	.32769	.23261	.26125	.48293	1.6108	.39722
#1	.61368	.65536	11.032	.66357	1.6027	3.7710	8.5342	4.3414
#2	.61379	.65797	10.977	.66492	1.6035	3.7478	8.3298	4.3743
#3	.61519	.66187	11.045	.66666	1.6103	3.7837	8.5892	4.3486
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	12.501	4.0461	4.6304	4.1314	4.3450	1.5065	2.6767	1.1139
Stddev	.041	.0144	.0151	.0121	.0107	.0088	.0072	.0053
%RSD	.32608	.35540	.32555	.29160	.24686	.58360	.26733	.47786
#1	12.503	4.0598	4.6364	4.1352	4.3358	1.5151	2.6714	1.1187
#2	12.459	4.0474	4.6416	4.1179	4.3425	1.4975	2.6848	1.1082
#3	12.540	4.0311	4.6133	4.1411	4.3568	1.5068	2.6737	1.1146
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.9108	.67553	.76285	.72108	8.6039	1.1171	.46168	3.9735
Stddev	.0086	.00069	.00203	.00060	.0555	.0060	.00037	.0206
%RSD	.29409	.10209	.26565	.08386	.64456	.53475	.07972	.51773
#1	2.9144	.67529	.76117	.72133	8.6382	1.1222	.46187	3.9534
#2	2.9011	.67499	.76228	.72040	8.5399	1.1106	.46125	3.9945
#3	2.9170	.67631	.76510	.72153	8.6336	1.1185	.46191	3.9726
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	5.8192	.27624	.57310	1.4642	4.3590	1.4681	15.432	
Stddev	.0124	.00053	.00085	.0051	.0016	.0095	.206	
%RSD	.21242	.19249	.14789	.35099	.03650	.64487	1.3318	
#1	5.8112	.27624	.57223	1.4658	4.3582	1.4716	15.602	
#2	5.8129	.27571	.57314	1.4585	4.3580	1.4573	15.490	
#3	5.8334	.27678	.57392	1.4684	4.3608	1.4753	15.204	

Sample Name: S5 Acquired: 1/27/2025 14:44:24 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 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	2711.8	63463.	10454.	2066.7	3262.4
Stddev	5.2	203.	40.	12.6	7.9
%RSD	.19081	.31934	.38586	.61172	.24204
#1	2715.1	63229.	10453.	2053.2	3261.3
#2	2714.5	63568.	10414.	2078.2	3270.8
#3	2705.8	63590.	10494.	2068.7	3255.1

Sample Name: S6 Acquired: 1/27/2025 14:48:59 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S06 Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	9.7303	6.4307	3.9368	1.7809	2.0344
Stddev	.1439	.0367	.0258	.0083	.0081
%RSD	1.4785	.57019	.65535	.46546	.39768
#1	9.7072	6.4327	3.9087	1.7726	2.0342
#2	9.5994	6.3931	3.9421	1.7809	2.0264
#3	9.8843	6.4663	3.9595	1.7892	2.0426
Int. Std.	Y_3600	Y_3710			
Units	Cts/S	Cts/S			
Avg	59621.	10065.			
Stddev	202.	74.			
%RSD	.33883	.73435			
#1	59774.	9980.5			
#2	59698.	10099.			
#3	59392.	10116.			

Sample Name: ICV003 Acquired: 1/27/2025 15:41:59 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV003 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9268194	1.079328	1.012936	.9539148	1.025221	2.487107
Stddev	.0036777	.005877	.000404	.0013201	.003029	.016441
%RSD	.3968092	.5445195	.0398446	.1383903	.2954529	.6610406

#1	.9270146	1.075816	1.012530	.9528703	1.021725	2.473938
#2	.9230480	1.086113	1.013337	.9534757	1.027068	2.505534
#3	.9303957	1.076056	1.012942	.9553986	1.026869	2.481850

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5138612	.5108384	.5008677	9.544351	.5664082	.5016677
Stddev	.0016271	.0007536	.0005825	.010181	.0019084	.0002766
%RSD	.3166368	.1475239	.1163065	.1066680	.3369322	.0551449

#1	.5123908	.5099695	.5013425	9.536093	.5642494	.5019179
#2	.5156092	.5112313	.5002176	9.555726	.5678707	.5013707
#3	.5135836	.5113144	.5010429	9.541234	.5671046	.5017147

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4975535	10.03601	.4897166	5.966106	.5106198	.2346933
Stddev	.0037554	.02693	.0013586	.041378	.0009282	.0007654
%RSD	.7547670	.2683606	.2774184	.6935528	.1817722	.3261089

#1	.5013085	10.00877	.4881526	5.989458	.5112191	.2342847
#2	.4937978	10.06263	.4903939	5.990528	.5095507	.2355762
#3	.4975542	10.03662	.4906035	5.918330	.5110896	.2342189

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.23930	.5033207	.9719463	9.576793	F .0031986	F .0417262
Stddev	.28515	.0028168	.0035653	.094688	.0010260	.0001652
%RSD	2.784859	.5596352	.3668161	.9887256	32.07459	.3959791

#1	10.34695	.5047458	.9696371	9.576546	.0027411	.0416065
#2	9.91600	.5000761	.9701492	9.671604	.0043737	.0419147
#3	10.45495	.5051401	.9760524	9.482228	.0024810	.0416574

Sample Name: ICV003 Acquired: 1/27/2025 15:41:59 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV003 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.000526	F .0035762	F -.001806	F .0001571	F -.001084	F .0004090
Stddev	.000043	.0019492	.000691	.0005499	.000397	.0013689
%RSD	8.186578	54.50289	38.27061	350.1518	36.66506	334.6759

#1	-.000478	.0013448	-.001501	-.000399	-.001417	.0017183
#2	-.000563	.0044375	-.002597	.000701	-.001190	.0005215
#3	-.000535	.0049464	-.001320	.000169	-.000644	-.001013

Elem	Sr4077
Units	ppm
Avg	F .0011221
Stddev	.0000143
%RSD	1.278112

#1	.0011357
#2	.0011071
#3	.0011235

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3607.403	74343.97	11244.17	2450.872	4435.499
Stddev	4.825	122.40	8.10	1.994	5.311
%RSD	.1337529	.1646373	.0720624	.0813469	.1197400

#1	3612.593	74454.85	11246.80	2448.614	4431.042
#2	3606.564	74212.63	11250.62	2451.612	4441.375
#3	3603.053	74364.44	11235.07	2452.389	4434.079

Sample Name: ICB003 Acquired: 1/27/2025 15:45:56 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB003 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008965	.0007413	.0001810	-.000761	.0004518	.0095554	-.002458
Stddev	.0008502	.0010532	.0005983	.001852	.0006579	.0027009	.000218
%RSD	94.82789	142.0851	330.6057	243.3800	145.6246	28.26578	8.872469
#1	.0014925	-.000158	.0007818	.000517	.0005030	.0071201	-.002223
#2	-.000077	.001900	-.000415	.000085	-.000230	.0124603	-.002498
#3	.001274	.000482	.000176	-.002885	.001083	.0090857	-.002654
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000009	-.000018	.0077181	.0000843	.0000042	.0011649	.0053115
Stddev	.000087	.000059	.0038883	.0003430	.0002699	.0016597	.0018910
%RSD	964.1065	321.3854	50.37812	406.9291	6463.498	142.4739	35.60243
#1	.000044	.000045	.0040433	.0004344	-.000097	.0030013	.0071417
#2	-.000109	-.000030	.0117894	.0000695	-.000201	.0007218	.0033651
#3	.000039	-.000070	.0073217	-.000251	.000310	-.000228	.0054277
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000506	-.012748	.0001415	-.000319	.0431904	-.000499	.0002598
Stddev	.0001894	.009890	.0002080	.000170	.1997997	.002363	.0007708
%RSD	374.7125	77.57912	147.0655	53.28983	462.6020	473.6773	296.6780
#1	.0000816	-.001328	-.000051	-.000125	-.006975	.002217	-.000627
#2	.0002225	-.018468	.000362	-.000390	-.126746	-.002083	.000772
#3	-.000152	-.018448	.000114	-.000442	.263292	-.001631	.000634
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.137754	-.000456	-.000781	.0004223	-.001718	-.001545	.0005172
Stddev	.011066	.001336	.000390	.0001292	.002902	.001428	.0005590
%RSD	8.032964	292.6814	49.98969	30.58574	168.9466	92.41084	108.0946
#1	-.142207	-.000878	-.001212	.0003105	.000141	-.000071	.0011297
#2	-.125156	-.001531	-.000451	.0005638	-.000232	-.001643	.0003875
#3	-.145900	.001039	-.000680	.0003927	-.005062	-.002922	.0000344

Sample Name: ICB003 Acquired: 1/27/2025 15:45:56 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB003 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0007881	-.001043	.0000239
Stddev	.0004265	.000388	.0000374
%RSD	54.11917	37.22026	156.0228

#1	.0011805	-.001402	.0000251
#2	.0008498	-.001096	.0000607
#3	.0003341	-.000631	-.000014

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3587.037	75359.44	10979.58	2471.211	4501.347
Stddev	5.986	76.31	49.29	12.971	5.941
%RSD	.1668753	.1012663	.4489030	.5248984	.1319748

#1	3590.968	75332.65	10995.96	2478.130	4506.565
#2	3580.148	75445.54	10924.19	2456.247	4494.882
#3	3589.996	75300.14	11018.60	2479.256	4502.594

Sample Name: ICSA003 Acquired: 1/27/2025 15:56:30 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA003 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008332	.0019135	.0054677	.0200191	.0069128	224.9219
Stddev	.0021578	.0006698	.0013166	.0006985	.0009632	1.5235
%RSD	258.9784	35.00276	24.08021	3.489249	13.93310	.6773515
#1	.0033197	.0011473	.0061675	.0194753	.0069287	224.2694
#2	-.000549	.0022057	.0062867	.0197751	.0078680	223.8333
#3	-.000271	.0023876	.0039490	.0208069	.0059418	226.6630
Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0079114	-.000704	.0005059	240.1774	.0598314	.0008650
Stddev	.0010199	.000015	.0000947	1.3583	.0005113	.0002977
%RSD	12.89204	2.159878	18.72470	.5655377	.8545223	34.42024
#1	.0080498	-.000718	.0005626	238.9588	.0603057	.0005864
#2	.0088550	-.000688	.0003966	239.9315	.0592898	.0011787
#3	.0068293	-.000705	.0005587	241.6418	.0598987	.0008299
Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.007643	98.70624	.0099967	233.1837	.0030492	-.001155
Stddev	.001806	.68818	.0001777	1.3583	.0002908	.000514
%RSD	23.63399	.6972006	1.777336	.5825166	9.535827	44.54493
#1	-.005571	98.22936	.0098980	232.2472	.0027367	-.000938
#2	-.008883	98.39419	.0102018	232.5622	.0030992	-.001742
#3	-.008476	99.49516	.0098902	234.7415	.0033118	-.000785
Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.437481	-.006219	-.009572	-.104753	.0040572	F .4115306
Stddev	.442460	.001361	.002259	.029624	.0004122	.0037103
%RSD	101.1380	21.88895	23.60059	28.28004	10.16035	.9015936
#1	-.812233	-.005859	-.008897	-.100545	.0035854	.4092660
#2	.050630	-.005074	-.007727	-.077458	.0043476	.4095132
#3	-.550840	-.007724	-.012092	-.136257	.0042386	.4158125

Sample Name: ICSA003 Acquired: 1/27/2025 15:56:30 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA003 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000630	.0184330	.0033632	-.003177	-.002776	.0050316
Stddev	.000052	.0071957	.0018756	.000659	.000673	.0006052
%RSD	8.318534	39.03694	55.76902	20.75754	24.24558	12.02891
#1	-.000690	.0206295	.0037216	-.003096	-.002700	.0053030
#2	-.000595	.0103950	.0050336	-.002561	-.002144	.0054538
#3	-.000604	.0242744	.0013342	-.003873	-.003483	.0043382

Elem	Sr4077
Units	ppm
Avg	.0902908
Stddev	.0005857
%RSD	.6487207
#1	.0897310
#2	.0902420
#3	.0908994

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3319.126	68087.90	10715.90	2309.467	3747.999
Stddev	6.489	114.35	52.74	5.539	8.174
%RSD	.1955095	.1679498	.4921557	.2398414	.2180991
#1	3326.619	68158.99	10710.36	2308.385	3756.479
#2	3315.444	68148.74	10666.15	2304.548	3740.169
#3	3315.315	67955.99	10771.19	2315.467	3747.350

Sample Name: ICSAB003 Acquired: 1/27/2025 16:01:16 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB003 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0976883	.1102426	.0575089	.0643529	.5629873	233.0849
Stddev	.0034526	.0014409	.0017930	.0039875	.0013113	.5378
%RSD	3.534314	1.306995	3.117839	6.196297	.2329164	.2307233

#1	.0963757	.1118592	.0557536	.0608170	.5616332	233.5284
#2	.1016048	.1090937	.0574356	.0635669	.5630774	233.2395
#3	.0950846	.1097750	.0593374	.0686749	.5642512	232.4867

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4944284	.5163196	1.018637	246.0646	.6147760	.5115692
Stddev	.0018489	.0023077	.002769	.5286	.0020814	.0010141
%RSD	.3739396	.4469513	.2717962	.2148192	.3385709	.1982389

#1	.4962536	.5139367	1.017108	245.9041	.6126866	.5104024
#2	.4944749	.5164783	1.016969	245.6349	.6147921	.5120665
#3	.4925567	.5185439	1.021833	246.6549	.6168494	.5122387

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4874980	101.9497	.5098181	239.3722	1.023512	.2040284
Stddev	.0028075	.0995	.0005996	.6962	.002576	.0010920
%RSD	.5758964	.0976343	.1176209	.2908304	.2516465	.5352245

#1	.4849502	102.0267	.5092815	238.9622	1.020581	.2051830
#2	.4870358	101.8373	.5097074	238.9784	1.024542	.2038901
#3	.4905078	101.9850	.5104654	240.1760	1.025414	.2030122

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.538449	.4883120	.9731382	-.333603	.0054921	F .4263345
Stddev	.257399	.0017105	.0108594	.041952	.0035009	.0009798
%RSD	47.80380	.3502825	1.115917	12.57555	63.74436	.2298277

#1	-.830204	.4896811	.9851528	-.381587	.0014846	.4274655
#2	-.343441	.4863946	.9640221	-.303853	.0079556	.4257943
#3	-.441703	.4888604	.9702399	-.315368	.0070362	.4257436

Sample Name: ICSAB003 Acquired: 1/27/2025 16:01:16 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB003 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000345	.0182632	-.000782	-.003199	-.003958	.0059729
Stddev	.000105	.0059853	.001983	.001615	.000385	.0003247
%RSD	30.54911	32.77222	253.7488	50.49538	9.722520	5.435427

#1	-.000261	.0189484	.001334	-.002986	-.003595	.0062678
#2	-.000463	.0238763	-.001080	-.001701	-.004361	.0056250
#3	-.000311	.0119648	-.002599	-.004911	-.003917	.0060259

Elem	Sr4077
Units	ppm
Avg	.0916935
Stddev	.0000850
%RSD	.0926876

#1	.0917029
#2	.0916042
#3	.0917734

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3269.239	67487.32	10790.51	2244.903	3725.423
Stddev	4.144	187.94	52.39	7.727	8.559
%RSD	.1267532	.2784772	.4855581	.3442214	.2297373

#1	3273.053	67609.28	10828.93	2236.735	3732.962
#2	3269.835	67581.80	10811.78	2252.098	3727.185
#3	3264.830	67270.89	10730.82	2245.875	3716.120

Sample Name: CCV021 Acquired: 1/27/2025 16:10:42 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV021 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.247377	5.035009	25.83331	5.244305	5.258986	403.6074
Stddev	.019788	.018661	.06789	.009859	.015989	5.5892
%RSD	.3770933	.3706258	.2628153	.1879939	.3040390	1.384813

#1	5.231176	5.017067	25.80165	5.238012	5.254742	402.0050
#2	5.241525	5.054314	25.78703	5.239236	5.245546	409.8227
#3	5.269430	5.033645	25.91125	5.255667	5.276669	398.9943

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.912933	.5337179	2.606693	402.6336	16.23518	2.607961
Stddev	.088502	.0009603	.003626	2.1912	.04532	.005374
%RSD	.8927946	.1799332	.1391004	.5442089	.2791773	.2060663

#1	9.916769	.5331971	2.603991	402.3945	16.24172	2.604958
#2	9.999455	.5348261	2.605274	404.9345	16.27688	2.604759
#3	9.822575	.5331304	2.610814	400.5718	16.18694	2.614165

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.72845	407.3363	14.97760	399.6196	2.605308	1.340373
Stddev	.05236	.7099	.03974	1.1442	.008465	.002669
%RSD	.3555323	.1742679	.2653196	.2863209	.3248965	.1991125

#1	14.69115	407.5141	14.96391	399.5059	2.602383	1.342502
#2	14.78832	407.9404	15.02238	400.8164	2.598695	1.341238
#3	14.70589	406.5545	14.94652	398.5365	2.614848	1.337379

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	384.5646	2.514594	15.29756	159.3561	5.307222	F 6.273370
Stddev	2.1134	.010542	.03079	.1424	.013777	.011893
%RSD	.5495603	.4192382	.2012976	.0893765	.2595897	.1895773

#1	382.8799	2.505585	15.33310	159.4506	5.296940	6.262618
#2	386.9359	2.526188	15.27898	159.4253	5.301849	6.286145
#3	383.8779	2.512010	15.28059	159.1923	5.322876	6.271349

Sample Name: CCV021 Acquired: 1/27/2025 16:10:42 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV021 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.111177	5.337638	4.770677	5.218744	5.001700	5.019914
Stddev	.011153	.008687	.018360	.008869	.014360	.007362
%RSD	.2182100	.1627483	.3848445	.1699507	.2871038	.1466601
#1	5.103810	5.327904	4.769514	5.219682	4.999300	5.023971
#2	5.105711	5.344603	4.789591	5.209444	5.017109	5.024355
#3	5.124008	5.340408	4.752927	5.227108	4.988691	5.011416

Elem	Sr4077
Units	ppm
Avg	5.006941
Stddev	.027015
%RSD	.5395558
#1	5.030959
#2	4.977694
#3	5.012171

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2819.142	62661.27	10087.71	2017.870	3252.446
Stddev	7.076	203.20	42.13	5.860	6.431
%RSD	.2509942	.3242758	.4176850	.2904170	.1977397
#1	2821.757	62566.29	10084.22	2011.530	3254.903
#2	2824.539	62522.95	10047.42	2023.088	3257.286
#3	2811.131	62894.56	10131.48	2018.993	3245.148

Sample Name: CCB021 Acquired: 1/27/2025 16:14:59 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB021 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000240	.0002790	.0017592	-.000893	.0008431	.0039258	.0007473
Stddev	.000879	.0007821	.0006710	.001433	.0009156	.0008733	.0002446
%RSD	365.4732	280.3640	38.14375	160.5431	108.5972	22.24577	32.73223
#1	.000711	.0003364	.0018781	-.002517	.0001107	.0029898	.0006869
#2	-.000409	.0010308	.0010366	-.000356	.0005489	.0047189	.0010164
#3	-.001023	-.000530	.0023628	.000195	.0018695	.0040687	.0005385
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000076	.0000199	.0097190	.0002771	.0000192	-.000888	.0096743
Stddev	.000025	.0000294	.0059402	.0001956	.0002774	.001065	.0042439
%RSD	32.61273	147.6864	61.11933	70.60548	1446.458	119.8381	43.86771
#1	-.000058	.0000081	.0044118	.0004571	-.000290	-.001318	.0119023
#2	-.000067	.0000534	.0086095	.0003052	.000245	.000324	.0047804
#3	-.000105	-.000002	.0161358	.0000689	.000103	-.001671	.0123402
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001748	-.018069	-.000023	-.000099	.0479992	.0004691	.0003386
Stddev	.0000801	.009409	.000093	.000078	.0474877	.0009046	.0010801
%RSD	45.80385	52.07001	407.8628	78.54391	98.93426	192.8232	319.0232
#1	.0002426	-.015457	.000025	-.000188	.1024950	.0013194	.0012255
#2	.0000865	-.028507	-.000130	-.000067	.0260184	-.000481	.0006546
#3	.0001955	-.010242	.000036	-.000043	.0154843	.000569	-.000864
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0689899	.0007276	.0031957	.0003724	-.000084	.0002979	.0002368
Stddev	.0327522	.0005464	.0004544	.0003805	.002627	.0023676	.0007130
%RSD	47.47394	75.09454	14.21803	102.1678	3131.081	794.6583	301.0318
#1	.0341189	.0001134	.0037006	-.000058	-.000440	.0010287	-.000221
#2	.0991029	.0009096	.0030665	.000663	-.002515	.0022141	-.000127
#3	.0737480	.0011597	.0028199	.000512	.002703	-.002349	.001058

Sample Name: CCB021 Acquired: 1/27/2025 16:14:59 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB021 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000204	.0002154	.0000720
Stddev	.000300	.0004162	.0000280
%RSD	147.0522	193.2214	38.87164

#1	-.000155	.0002608	.0000419
#2	-.000526	-.000222	.0000767
#3	.000068	.000607	.0000973

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3690.812	75557.42	11181.15	2532.458	4640.577
Stddev	10.126	306.60	101.94	16.100	5.080
%RSD	.2743567	.4057839	.9117476	.6357350	.1094706

#1	3698.779	75362.68	11094.48	2529.985	4640.441
#2	3694.241	75398.73	11155.49	2517.738	4645.724
#3	3679.417	75910.83	11293.47	2549.651	4635.566

Sample Name: Q1106-01DLX2 Acquired: 1/27/2025 16:19:09 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001871	-.001071	.0030862	-.008672	.0009223	-.137540
Stddev	.002764	.002676	.0005973	.001402	.0011066	.006925
%RSD	147.6776	249.9592	19.35302	16.17118	119.9753	5.035109

#1	.000036	.000656	.0036614	-.008467	.0006992	-.129787
#2	-.000610	.000286	.0024691	-.010165	-.000056	-.143111
#3	-.005041	-.004154	.0031282	-.007383	.002123	-.139723

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1096313	.0000008	-.000081	522.2007	.1250440	-.001130
Stddev	.0009902	.0000348	.000001	2.8420	.0004822	.000115
%RSD	.9032193	4473.689	1.484374	.5442290	.3856149	10.21092

#1	.1099157	.0000310	-.000080	523.5069	.1250837	-.001024
#2	.1085300	.0000086	-.000083	518.9405	.1245432	-.001253
#3	.1104481	-.000037	-.000081	524.1548	.1255051	-.001114

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001462	.0074229	.0004559	.0155994	-.000473	-.000675
Stddev	.001145	.0044260	.0000357	.0178105	.000341	.000332
%RSD	78.31914	59.62625	7.835522	114.1742	72.10715	49.22786

#1	-.000969	.0124926	.0004379	.0338911	-.000842	-.000340
#2	-.000646	.0054483	.0004971	.0145943	-.000170	-.000680
#3	-.002770	.0043279	.0004328	-.001687	-.000406	-.001005

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.18763	-.000263	.0177900	56.27371	-.002708	.0259589
Stddev	.25285	.000769	.0031812	.36109	.001061	.0011546
%RSD	1.917308	292.2133	17.88178	.6416701	39.19262	4.447589

#1	13.01954	-.000674	.0178167	56.33760	-.001608	.0260759
#2	13.47841	-.000740	.0209577	55.88494	-.003726	.0270505
#3	13.06493	.000624	.0145955	56.59859	-.002791	.0247503

Sample Name: Q1106-01DLX2 Acquired: 1/27/2025 16:19:09 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0922617	F 123.5439	.0844550	-.003562	-.015946	.1352333
Stddev	.0004247	.2640	.0023689	.000232	.000668	.0006820
%RSD	.4603109	.2136568	2.804964	6.513970	4.189379	.5043109
#1	.0917756	123.2619	.0818698	-.003408	-.016079	.1358757
#2	.0924486	123.5849	.0865217	-.003450	-.015221	.1345176
#3	.0925609	123.7850	.0849736	-.003829	-.016538	.1353065

Elem	Sr4077
Units	ppm
Avg	2.609138
Stddev	.021437
%RSD	.8216290
#1	2.586212
#2	2.612515
#3	2.628686

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3292.852	69482.23	10377.93	2320.423	3792.576
Stddev	13.238	381.90	37.74	6.702	11.513
%RSD	.4020292	.5496343	.3636287	.2888085	.3035798
#1	3308.053	69470.81	10403.28	2318.972	3805.861
#2	3286.648	69869.71	10334.56	2327.731	3786.378
#3	3283.855	69106.17	10395.96	2314.566	3785.490

Sample Name: Q1106-02DLX2 Acquired: 1/27/2025 16:23:32 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0040213	.0034701	.0127578	.0075141	.0040239	30.02319
Stddev	.0019886	.0010105	.0008136	.0016958	.0005879	.13712
%RSD	49.45223	29.11911	6.377400	22.56850	14.61041	.4567023
#1	.0022106	.0023089	.0126242	.0087038	.0038240	30.11996
#2	.0037037	.0039519	.0120193	.0082661	.0035620	30.08333
#3	.0061496	.0041495	.0136300	.0055723	.0046857	29.86628
Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0368667	.0069503	.0047413	76.77702	.2047697	.2994923
Stddev	.0005268	.0001912	.0000834	.15736	.0009317	.0005317
%RSD	1.428827	2.750438	1.759667	.2049538	.4550173	.1775447
#1	.0363245	.0069577	.0047210	76.92572	.2050937	.2996489
#2	.0368990	.0067556	.0046699	76.79309	.2037192	.2988999
#3	.0373765	.0071377	.0048330	76.61224	.2054962	.2999282
Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6014398	75.83876	16.48684	24.66050	.1138826	-.000369
Stddev	.0012387	.25188	.05339	.06355	.0005768	.000176
%RSD	.2059629	.3321229	.3238510	.2577084	.5064702	47.76793
#1	.6021431	76.07169	16.51405	24.71928	.1134540	-.000198
#2	.6000094	75.87314	16.52115	24.59306	.1136554	-.000551
#3	.6021667	75.57147	16.42533	24.66917	.1145384	-.000359
Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.727452	.2146035	.6237325	4.386278	1.532138	.6440730
Stddev	.421141	.0023784	.0052419	.063672	.004807	.0014898
%RSD	5.449937	1.108281	.8404071	1.451620	.3137597	.2313021
#1	8.192109	.2171566	.6292212	4.446446	1.526801	.6456448
#2	7.619345	.2142035	.6231981	4.392788	1.533486	.6438923
#3	7.370903	.2124505	.6187783	4.319602	1.536128	.6426818

Sample Name: Q1106-02DLX2 Acquired: 1/27/2025 16:23:32 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G5 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0022023	F 202.6793	F 13.18894	-.000486	.0006017	.0297822
Stddev	.0003349	.4070	.01345	.000641	.0006920	.0003959
%RSD	15.20495	.2008132	.1019849	132.0815	115.0102	1.329444

#1	.0018557	202.3328	13.17342	-.001224	.0007909	.0293381
#2	.0022273	202.5776	13.19724	-.000169	-.000165	.0299103
#3	.0025240	203.1275	13.19615	-.000064	.001179	.0300982

Elem	Sr4077
Units	ppm
Avg	.5119958
Stddev	.0030156
%RSD	.5889811

#1	.5135558
#2	.5139118
#3	.5085198

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3966.383	84162.42	11975.70	2756.612	4189.398
Stddev	11.636	68.18	58.58	2.439	12.542
%RSD	.2933703	.0810076	.4891890	.0884778	.2993759

#1	3975.612	84110.91	12012.98	2754.291	4195.084
#2	3970.225	84239.73	12005.94	2759.154	4198.090
#3	3953.312	84136.62	11908.17	2756.391	4175.020

Sample Name: Q1106-07DLX2 Acquired: 1/27/2025 16:27:29 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8H1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0765547	-.007371	.0101642	.0437739	.0236069	7.258971
Stddev	.0022352	.001444	.0024278	.0011102	.0011332	.028874
%RSD	2.919812	19.59397	23.88580	2.536308	4.800361	.3977706

#1	.0786102	-.005727	.0077369	.0426457	.0230087	7.250235
#2	.0741751	-.007951	.0101631	.0438108	.0249139	7.235474
#3	.0768786	-.008436	.0125925	.0448652	.0228982	7.291205

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0513011	.0039154	.0056602	60.85525	.0492562	.3535934
Stddev	.0005609	.0002408	.0001082	.03489	.0003343	.0006770
%RSD	1.093397	6.150129	1.910976	.0573294	.6785928	.1914510

#1	.0510566	.0041468	.0057806	60.88187	.0490958	.3529025
#2	.0509040	.0039334	.0056287	60.81575	.0496404	.3536223
#3	.0519428	.0036662	.0055712	60.86812	.0490324	.3542555

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.009171	306.5822	18.82885	17.54589	.0940428	.0012567
Stddev	.000936	.1289	.03667	.01330	.0005437	.0008006
%RSD	10.20411	.0420333	.1947456	.0757819	.5781751	63.70693

#1	-.008091	306.4344	18.86191	17.54276	.0943622	.0008951
#2	-.009671	306.6710	18.78941	17.56047	.0934150	.0007007
#3	-.009750	306.6413	18.83523	17.53444	.0943512	.0021742

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.748085	.3968887	.4734223	2.854195	.3303186	1.553936
Stddev	.229886	.0024936	.0070826	.042190	.0010931	.001669
%RSD	6.133417	.6282736	1.496039	1.478181	.3309139	.1073743

#1	3.996679	.3985377	.4770234	2.817343	.3293845	1.554790
#2	3.704399	.3981084	.4652628	2.900216	.3300506	1.555004
#3	3.543177	.3940201	.4779808	2.845026	.3315208	1.552013

Sample Name: Q1106-07DLX2 Acquired: 1/27/2025 16:27:29 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8H1 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003715	F 191.2106	4.509870	-.000277	-.000797	.0029586
Stddev	.000361	.3568	.008763	.000379	.000787	.0007551
%RSD	9.708998	.1866150	.1942976	137.0270	98.72948	25.52068

#1	-.003734	191.2549	4.505096	-.000433	.000030	.0038287
#2	-.003344	190.8338	4.519983	.000156	-.001537	.0025716
#3	-.004065	191.5433	4.504531	-.000553	-.000885	.0024755

Elem	Sr4077
Units	ppm
Avg	.5081389
Stddev	.0015674
%RSD	.3084605

#1	.5096678
#2	.5065357
#3	.5082131

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3740.447	77854.06	11928.67	2557.659	4218.931
Stddev	13.682	229.78	56.84	3.681	13.870
%RSD	.3657742	.2951412	.4765135	.1439084	.3287631

#1	3754.800	77887.88	11941.90	2554.541	4231.700
#2	3738.988	77609.25	11866.39	2561.719	4220.920
#3	3727.554	78065.06	11977.74	2556.717	4204.174

Sample Name: Q1106-12DLX2 Acquired: 1/27/2025 16:31:28 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8H6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033932	.0046568	.0061094	.0007923	-.000234	34.49029
Stddev	.0023400	.0003692	.0015152	.0008397	.001975	.23009
%RSD	68.96097	7.927845	24.80111	105.9906	842.5493	.6671264

#1	.0006942	.0050708	.0066647	.0011199	.001465	34.23203
#2	.0046327	.0043618	.0072686	.0014187	-.002402	34.56540
#3	.0048527	.0045377	.0043949	-.000162	.000233	34.67345

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0429292	.0092938	.0039972	124.1793	.0217645	.3746265
Stddev	.0005916	.0000630	.0000300	.4599	.0001318	.0006695
%RSD	1.378099	.6776033	.7518933	.3703424	.6057791	.1787057

#1	.0431233	.0093080	.0040091	123.6571	.0218493	.3743495
#2	.0422649	.0092250	.0039631	124.5239	.0218315	.3741399
#3	.0433993	.0093485	.0040196	124.3570	.0216126	.3753900

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8261859	36.60855	29.54168	30.52424	.1044800	.0032825
Stddev	.0011335	.12533	.29967	.09323	.0002706	.0001973
%RSD	.1371901	.3423585	1.014407	.3054455	.2589642	6.009848

#1	.8251606	36.46660	29.37197	30.41775	.1042447	.0031775
#2	.8274030	36.70394	29.36538	30.56380	.1047757	.0031599
#3	.8259942	36.65511	29.88769	30.59117	.1044197	.0035100

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.88668	.1492915	1.123658	12.51410	4.962538	.4269650
Stddev	.23901	.0010405	.006799	.11301	.009519	.0006203
%RSD	1.721180	.6969507	.6051118	.9030802	.1918184	.1452859

#1	13.65929	.1491025	1.117482	12.38502	4.965667	.4274693
#2	13.86490	.1483585	1.130944	12.59523	4.951848	.4262723
#3	14.13583	.1504136	1.122548	12.56205	4.970098	.4271532

Sample Name: Q1106-12DLX2 Acquired: 1/27/2025 16:31:28 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8H6 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000897	F 226.2879	F 16.59609	-.001728	-.002615	.0308780
Stddev	.000281	.0461	.04745	.000538	.000149	.0002590
%RSD	31.37630	.0203604	.2859251	31.10310	5.686860	.8386527

#1	-.001173	226.3068	16.64826	-.001412	-.002756	.0305929
#2	-.000907	226.2354	16.58452	-.001424	-.002630	.0309425
#3	-.000610	226.3216	16.55549	-.002349	-.002459	.0310986

Elem	Sr4077
Units	ppm
Avg	.6979582
Stddev	.0037697
%RSD	.5401034

#1	.6937754
#2	.7010930
#3	.6990063

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3975.070	83843.82	13030.79	2763.387	4005.833
Stddev	1.519	388.15	41.50	6.033	.412
%RSD	.0382028	.4629461	.3184464	.2183273	.0102762

#1	3974.028	84237.58	13003.08	2768.494	4005.792
#2	3974.370	83832.36	13078.50	2756.730	4006.264
#3	3976.813	83461.53	13010.80	2764.937	4005.444

Sample Name: Q1045-17DLX2 Acquired: 1/27/2025 16:39:31 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: GCQ12 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0221622	-.003568	.5047582	-.002136	.0100102	14.59530
Stddev	.0018003	.000697	.0010083	.004792	.0005898	.06943
%RSD	8.123368	19.53768	.1997627	224.3641	5.892011	.4757280

#1	.0204450	-.004093	.5036082	.000207	.0105792	14.67345
#2	.0240354	-.003833	.5051758	-.007648	.0100497	14.57177
#3	.0220061	-.002777	.5054906	.001034	.0094016	14.54070

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	18.98728	.0019890	.0034838	F 906.0691	.0522391	.0243162
Stddev	.14036	.0000785	.0000421	7.9233	.0002950	.0004460
%RSD	.7392081	3.948276	1.208736	.8744746	.5646355	1.834349

#1	18.98675	.0019551	.0035276	904.0242	.0525783	.0244169
#2	19.12790	.0019331	.0034800	899.3687	.0520970	.0247033
#3	18.84719	.0020787	.0034437	914.8145	.0520422	.0238284

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.202630	63.78684	7.411170	459.5242	.0282611	-.000391
Stddev	.006199	.28654	.024115	1.2357	.0006157	.000316
%RSD	.5154605	.4492166	.3253822	.2689141	2.178442	80.78744

#1	1.207922	64.10439	7.438886	460.8338	.0287015	-.000085
#2	1.195810	63.70854	7.394990	459.3601	.0275576	-.000371
#3	1.204159	63.54759	7.399634	458.3788	.0285242	-.000716

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -1.21669	.0728870	.7639608	1.597042	1.678404	.2882971
Stddev	.05847	.0002159	.0083913	.046310	.002908	.0012750
%RSD	4.805811	.2962653	1.098396	2.899744	.1732619	.4422369

#1	-1.27679	.0730845	.7550303	1.621808	1.676576	.2890939
#2	-1.15999	.0726564	.7651706	1.543614	1.681757	.2889708
#3	-1.21330	.0729200	.7716816	1.625702	1.676878	.2868267

Sample Name: Q1045-17DLX2 Acquired: 1/27/2025 16:39:31 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: GCQ12 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014713	6.443462	5.708219	-.001184	.3076573	.0276306
Stddev	.0000920	.004112	.016460	.000017	.0021794	.0004775
%RSD	6.255516	.0638127	.2883506	1.410870	.7083937	1.728330

#1	.0015403	6.447573	5.689354	-.001197	.3096275	.0274336
#2	.0015069	6.443465	5.719652	-.001189	.3080282	.0281751
#3	.0013668	6.439349	5.715651	-.001165	.3053162	.0272830

Elem	Sr4077
Units	ppm
Avg	.3989473
Stddev	.0019730
%RSD	.4945455

#1	.4012175
#2	.3979776
#3	.3976469

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3126.716	66020.81	10636.49	2166.701	3414.465
Stddev	2.733	80.85	39.66	11.464	5.444
%RSD	.0874072	.1224682	.3728349	.5291104	.1594378

#1	3123.671	65927.57	10678.15	2171.936	3408.307
#2	3128.955	66071.61	10632.10	2174.614	3418.637
#3	3127.522	66063.24	10599.20	2153.554	3416.452

Sample Name: PB166225TB Acquired: 1/27/2025 16:43:49 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LEB225 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010425	.0013899	.0006659	-.000616	-.001122	-.002431	.0041765
Stddev	.0010358	.0005279	.0003721	.001087	.000746	.007445	.0008370
%RSD	99.35564	37.97937	55.88445	176.4421	66.50573	306.2388	20.04122
#1	.0003438	.0019965	.0007529	-.001598	-.001856	-.008757	.0050291
#2	.0005512	.0011382	.0002580	.000552	-.001147	.005773	.0041442
#3	.0022326	.0010350	.0009868	-.000802	-.000364	-.004309	.0033560
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000031	.0000408	.0191408	-.000068	-.000049	-.001684	.0097478
Stddev	.000051	.0000607	.0110816	.000241	.000041	.000600	.0043964
%RSD	164.2834	149.0309	57.89510	357.2788	82.58917	35.61057	45.10099
#1	-.000070	.0000923	.0304511	-.000307	-.000032	-.001177	.0132161
#2	-.000049	-.000026	.0083030	.000175	-.000020	-.002345	.0112241
#3	.000026	.000056	.0186683	-.000071	-.000096	-.001529	.0048033
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017155	.0018228	.0001478	-.000129	-.171517	.0003380	.0014895
Stddev	.0001351	.0095514	.0002484	.000422	.391376	.0009110	.0014100
%RSD	7.873417	523.9997	168.0029	328.1876	228.1850	269.5213	94.66141
#1	.0018634	-.004693	.0002941	-.000613	-.612298	.0003915	-.000054
#2	.0016847	.012787	.0002883	.000160	-.037496	.0012211	.002710
#3	.0015986	-.002625	-.000139	.000067	.135242	-.000599	.001812
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.43935	.0014230	-.001665	.0000709	7.549383	-.001865	-.000140
Stddev	.02563	.0007661	.000729	.0002335	.010912	.003302	.000109
%RSD	1.780927	53.83860	43.79692	329.5988	.1445385	177.0168	78.07670
#1	-1.46828	.0022875	-.001223	-.000157	7.561151	.001740	-.000023
#2	-1.43030	.0008280	-.002507	.000310	7.547400	-.002595	-.000239
#3	-1.41947	.0011537	-.001265	.000059	7.539599	-.004741	-.000157

Sample Name: PB166225TB Acquired: 1/27/2025 16:43:49 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LEB225 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0010247	-.002276	-.000014
Stddev	.0002770	.001172	.000008
%RSD	27.03123	51.50718	52.48912

#1	.0010203	-.003089	-.000023
#2	.0007499	-.000932	-.000009
#3	.0013039	-.002808	-.000011

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3815.796	79421.72	11486.41	2670.094	4838.271
Stddev	17.913	538.06	69.37	15.303	14.903
%RSD	.4694406	.6774712	.6039401	.5731163	.3080199

#1	3834.858	78822.23	11565.65	2658.646	4854.874
#2	3813.219	79862.77	11456.98	2687.475	4833.885
#3	3799.311	79580.17	11436.61	2664.163	4826.053

Sample Name: Q1136-01 Acquired: 1/27/2025 16:47:57 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060448	.0050903	.0109529	.0047741	.0002074	77.99161
Stddev	.0020790	.0003040	.0013435	.0016701	.0011297	.47931
%RSD	34.39287	5.971580	12.26631	34.98357	544.7990	.6145650

#1	.0082447	.0052638	.0115859	.0028948	-.000130	78.30807
#2	.0041128	.0047393	.0094098	.0060887	-.000715	77.44015
#3	.0057768	.0052677	.0118630	.0053387	.001467	78.22661

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0943564	.0034820	.0121082	93.30189	.0583490	1.490300
Stddev	.0011167	.0001043	.0000284	.33712	.0002815	.002560
%RSD	1.183434	2.996657	.2343524	.3613257	.4825291	.1717450

#1	.0956075	.0033693	.0121393	93.64214	.0586741	1.487351
#2	.0934606	.0035015	.0121013	92.96798	.0581857	1.491943
#3	.0940012	.0035752	.0120839	93.29554	.0581871	1.491607

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8522279	47.26364	11.83362	46.82327	.7991922	.0003580
Stddev	.0005327	.13160	.05604	.12298	.0015810	.0002125
%RSD	.0625119	.2784288	.4735913	.2626433	.1978186	59.36746

#1	.8528102	47.35589	11.88838	46.96441	.7974634	.0005751
#2	.8521086	47.11295	11.77637	46.76626	.7995486	.0003486
#3	.8517650	47.32208	11.83611	46.73914	.8005645	.0001503

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.305030	.1471073	1.035040	9.769803	4.615478	.6530935
Stddev	.255728	.0020456	.006641	.081928	.008949	.0028691
%RSD	4.055942	1.390566	.6416469	.8385851	.1938835	.4393146

#1	6.079594	.1468367	1.034931	9.782437	4.620512	.6535967
#2	6.582918	.1492748	1.028454	9.682291	4.620776	.6556778
#3	6.252578	.1452104	1.041735	9.844680	4.605146	.6500061

Sample Name: Q1136-01 Acquired: 1/27/2025 16:47:57 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F5 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000538	F 327.7085	F 28.08739	-.002787	.0956077	.1101415
Stddev	.000247	.5630	.12764	.001455	.0003903	.0011923
%RSD	45.94328	.1717987	.4544558	52.20403	.4082674	1.082541
#1	-.000271	327.2385	28.17352	-.002364	.0959875	.1111506
#2	-.000759	328.3325	28.14791	-.004407	.0956281	.1088258
#3	-.000584	327.5546	27.94075	-.001591	.0952076	.1104480

Elem	Sr4077
Units	ppm
Avg	.3989891
Stddev	.0030409
%RSD	.7621518
#1	.4010249
#2	.3954935
#3	.4004488

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4380.197	91004.34	14095.90	3041.527	4135.943
Stddev	13.553	92.09	82.61	17.068	10.361
%RSD	.3094191	.1011939	.5860753	.5611506	.2505007
#1	4393.689	90917.66	14103.04	3055.849	4147.883
#2	4380.319	91101.02	14009.95	3046.090	4130.623
#3	4366.584	90994.34	14174.72	3022.641	4129.324

Sample Name: Q1136-02 Acquired: 1/27/2025 16:56:08 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0146953	.0072248	.0088653	-.003959	-.003280	32.01960
Stddev	.0011960	.0009187	.0010527	.000727	.000788	.20203
%RSD	8.138760	12.71578	11.87384	18.35634	24.04128	.6309524

#1	.0154020	.0062729	.0089186	-.003441	-.002811	31.97911
#2	.0133144	.0072954	.0077871	-.004790	-.004190	31.84087
#3	.0153694	.0081062	.0098904	-.003646	-.002838	32.23880

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0394623	.0026067	.0016662	54.41217	.0293643	.1098856
Stddev	.0005846	.0000199	.0000761	.32742	.0003179	.0002392
%RSD	1.481376	.7651375	4.565057	.6017358	1.082426	.2176906

#1	.0398189	.0026268	.0017488	54.44298	.0290969	.1101490
#2	.0387877	.0025869	.0016508	54.07043	.0292802	.1096819
#3	.0397804	.0026063	.0015991	54.72309	.0297157	.1098259

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1203837	11.50054	2.237321	23.99326	.1030756	-.002314
Stddev	.0003464	.07753	.010144	.18445	.0005389	.000063
%RSD	.2877549	.6741274	.4533944	.7687730	.5228178	2.722136

#1	.1199937	11.50316	2.237865	24.03815	.1036880	-.002386
#2	.1205015	11.42174	2.226915	23.79051	.1028655	-.002284
#3	.1206559	11.57673	2.247181	24.15113	.1026735	-.002272

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.780586	.0234275	.5252356	13.52778	.6660636	.3095265
Stddev	.177834	.0004196	.0021782	.12495	.0008540	.0020473
%RSD	6.395551	1.791124	.4147049	.9236865	.1282235	.6614314

#1	2.576558	.0229817	.5270634	13.49922	.6654154	.3106181
#2	2.902709	.0238148	.5228254	13.41958	.6670314	.3107966
#3	2.862489	.0234859	.5258181	13.66454	.6657441	.3071647

Sample Name: Q1136-02 Acquired: 1/27/2025 16:56:08 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001577	F 320.3987	F 11.05320	-.002038	.0120930	.0234766
Stddev	.0001738	.2985	.05481	.001249	.0000875	.0007521
%RSD	110.1595	.0931642	.4958897	61.27886	.7232231	3.203746

#1	.0000656	320.7324	11.10429	-.002982	.0121489	.0226280
#2	.0003582	320.3065	11.06001	-.002510	.0121378	.0240609
#3	.0000494	320.1571	10.99530	-.000622	.0119922	.0237410

Elem	Sr4077
Units	ppm
Avg	.2763597
Stddev	.0016163
%RSD	.5848446

#1	.2763826
#2	.2747321
#3	.2779644

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7597.578	159977.2	24561.43	5246.753	4129.489
Stddev	19.721	548.3	137.67	34.345	9.273
%RSD	.2595737	.3427189	.5605233	.6545931	.2245650

#1	7620.349	160032.9	24478.10	5237.933	4139.534
#2	7585.984	160495.4	24485.85	5284.648	4127.677
#3	7586.401	159403.1	24720.34	5217.679	4121.255

Sample Name: Q1105-01DLX5 Acquired: 1/27/2025 17:00:07 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0656971	.0001636	.0698264	.0006272	.0057649	23.05545
Stddev	.0038691	.0007090	.0018252	.0013550	.0019793	.10822
%RSD	5.889318	433.4070	2.613943	216.0247	34.33386	.4694002

#1	.0692397	.0005807	.0698381	-.000367	.0039624	23.16519
#2	.0662833	.0005651	.0716458	.002171	.0054492	22.94881
#3	.0615684	-.000655	.0679954	.000078	.0078831	23.05235

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2357544	.0009555	.0030419	553.2820	.0797812	.0113204
Stddev	.0013556	.0000443	.0000403	2.2756	.0001595	.0002174
%RSD	.5750148	4.639231	1.323916	.4112882	.1998890	1.920023

#1	.2365787	.0009856	.0030026	550.6623	.0799370	.0114542
#2	.2341898	.0009764	.0030399	554.4156	.0796183	.0110696
#3	.2364947	.0009046	.0030831	554.7681	.0797884	.0114374

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0731189	31.92654	1.064574	7.207608	.0301768	-.000609
Stddev	.0021673	.12517	.006641	.039268	.0000614	.000415
%RSD	2.964093	.3920639	.6238461	.5448101	.2035442	68.10831

#1	.0750303	32.06313	1.068409	7.246843	.0302378	-.001015
#2	.0735621	31.81731	1.056906	7.168308	.0301778	-.000626
#3	.0707642	31.89917	1.068408	7.207673	.0301149	-.000186

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3461497	.1261801	.4939139	6.325316	.5918018	.1650954
Stddev	.0677551	.0011234	.0011058	.053945	.0036404	.0005611
%RSD	19.57392	.8902807	.2238856	.8528501	.6151415	.3398498

#1	.3345839	.1249765	.4950878	6.345309	.5879339	.1650628
#2	.2849220	.1272008	.4928919	6.264228	.5951613	.1645514
#3	.4189432	.1263631	.4937621	6.366410	.5923101	.1656721

Sample Name: Q1105-01DLX5 Acquired: 1/27/2025 17:00:07 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8G3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0926339	F 12.18106	1.885746	.0040527	1.346987	.0309748
Stddev	.0003166	.03607	.006763	.0008172	.003486	.0007464
%RSD	.3417974	.2961211	.3586245	20.16390	.2588273	2.409826
#1	.0926814	12.19142	1.881104	.0037955	1.344718	.0309472
#2	.0922962	12.14094	1.882629	.0049676	1.345240	.0317347
#3	.0929241	12.21081	1.893505	.0033951	1.351001	.0302426

Elem	Sr4077
Units	ppm
Avg	.5863565
Stddev	.0050921
%RSD	.8684353
#1	.5915014
#2	.5813189
#3	.5862492

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3319.201	69850.79	10945.93	2311.046	3712.855
Stddev	3.366	205.63	76.54	5.135	6.362
%RSD	.1014023	.2943799	.6992610	.2221891	.1713559
#1	3315.451	69951.69	11033.55	2313.371	3705.510
#2	3321.960	69986.48	10912.18	2305.160	3716.439
#3	3320.193	69614.20	10892.07	2314.608	3716.618

Sample Name: Q1136-03 Acquired: 1/27/2025 17:04:17 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0152263	.0054877	.0074558	-.002623	-.003462	31.74589
Stddev	.0015723	.0006744	.0018942	.000432	.000841	.08404
%RSD	10.32620	12.28864	25.40574	16.46064	24.30105	.2647124

#1	.0144038	.0057737	.0075108	-.002493	-.004357	31.69793
#2	.0142358	.0047175	.0093220	-.003105	-.003341	31.84292
#3	.0170392	.0059720	.0055348	-.002271	-.002688	31.69682

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0410652	.0026765	.0016509	54.55599	.0291932	.1091885
Stddev	.0003593	.0000425	.0000343	.17085	.0001008	.0001778
%RSD	.8749177	1.586545	2.078986	.3131589	.3451618	.1628289

#1	.0414687	.0027198	.0016202	54.65499	.0292951	.1093322
#2	.0409470	.0026350	.0016445	54.65426	.0291907	.1089897
#3	.0407799	.0026746	.0016879	54.35871	.0290936	.1092435

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1222387	11.44020	2.271326	24.11338	.1017429	-.002560
Stddev	.0007545	.02061	.007946	.06782	.0004882	.000180
%RSD	.6172579	.1801372	.3498290	.2812648	.4798204	7.028492

#1	.1228597	11.42995	2.278380	24.16140	.1022993	-.002767
#2	.1213990	11.46392	2.272881	24.14295	.1013864	-.002471
#3	.1224574	11.42672	2.262718	24.03580	.1015430	-.002441

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.993151	.0245857	.5220601	13.29924	.6864713	.3123202
Stddev	.208066	.0006501	.0042167	.08781	.0032009	.0011700
%RSD	6.951414	2.644084	.8076996	.6602837	.4662847	.3746296

#1	2.768918	.0238979	.5262359	13.22340	.6900884	.3120533
#2	3.030561	.0246693	.5178037	13.39544	.6840043	.3113066
#3	3.179975	.0251899	.5221407	13.27887	.6853213	.3136006

Sample Name: Q1136-03 Acquired: 1/27/2025 17:04:17 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7D Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000714	F 321.7125	F 11.40273	-.001358	.0116570	.0239460
Stddev	.0000408	1.0756	.04116	.000388	.0003529	.0002275
%RSD	57.15944	.3343459	.3609461	28.58299	3.027142	.9500525

#1	.0000998	322.5493	11.45016	-.001803	.0112547	.0238840
#2	.0000898	320.4993	11.37633	-.001187	.0119143	.0241981
#3	.0000246	322.0891	11.38172	-.001085	.0118020	.0237560

Elem	Sr4077
Units	ppm
Avg	.2785562
Stddev	.0010410
%RSD	.3737124

#1	.2784354
#2	.2796523
#3	.2775808

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7633.366	160162.5	24234.49	5379.271	4140.956
Stddev	11.566	74.0	82.18	26.985	9.335
%RSD	.1515190	.0462248	.3390916	.5016507	.2254363

#1	7646.688	160092.5	24156.22	5349.900	4150.403
#2	7627.515	160154.9	24320.08	5402.969	4140.726
#3	7625.894	160240.0	24227.17	5384.944	4131.737

Sample Name: Q1136-02LX5 Acquired: 1/27/2025 17:08:16 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0052004	.0008728	.0024617	-.002073	-.001698	10.57208
Stddev	.0015544	.0006597	.0017661	.000749	.000419	.05116
%RSD	29.88908	75.58023	71.74420	36.10319	24.66358	.4839095

#1	.0069199	.0010885	.0006126	-.001224	-.001899	10.52067
#2	.0047865	.0001323	.0026414	-.002637	-.001979	10.62298
#3	.0038950	.0013977	.0041310	-.002358	-.001217	10.57260

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0122575	.0009101	.0002418	18.20564	.0099149	.0213033
Stddev	.0008015	.0000562	.0000662	.10482	.0000388	.0001014
%RSD	6.538551	6.173710	27.40004	.5757756	.3914376	.4757493

#1	.0120106	.0009479	.0002822	18.08516	.0098880	.0212579
#2	.0131533	.0008455	.0001653	18.27593	.0099594	.0212326
#3	.0116084	.0009369	.0002779	18.25583	.0098972	.0214195

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0426056	3.900429	.7636094	7.936518	.0201207	-.001125
Stddev	.0009304	.021865	.0049122	.034016	.0004661	.000133
%RSD	2.183748	.5605879	.6432833	.4285966	2.316494	11.80679

#1	.0431653	3.875749	.7580854	7.897264	.0202672	-.001270
#2	.0431199	3.917382	.7674865	7.957324	.0195989	-.001009
#3	.0415316	3.908156	.7652563	7.954967	.0204959	-.001096

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7899448	.0084408	.1734866	4.250642	.1288588	.1120423
Stddev	.1757672	.0012575	.0035375	.044590	.0012643	.0016504
%RSD	22.25057	14.89777	2.039055	1.049007	.9811662	1.473060

#1	.6024390	.0071436	.1697325	4.233932	.1294548	.1138827
#2	.9509680	.0085246	.1767578	4.216822	.1297150	.1106935
#3	.8164274	.0096544	.1739696	4.301173	.1274067	.1115508

Sample Name: Q1136-02LX5 Acquired: 1/27/2025 17:08:16 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7L Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002004	F 61.55930	3.888666	-.000660	.0043662	.0079643
Stddev	.0003422	.10074	.001119	.000373	.0003962	.0009854
%RSD	170.7360	.1636423	.0287828	56.60599	9.074269	12.37271

#1	-.000182	61.47419	3.888250	-.000336	.0048232	.0068283
#2	.000478	61.53319	3.889934	-.001068	.0041546	.0085886
#3	.000305	61.67052	3.887815	-.000574	.0041206	.0084759

Elem	Sr4077
Units	ppm
Avg	.0914938
Stddev	.0005927
%RSD	.6477625

#1	.0908124
#2	.0917796
#3	.0918893

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4529.693	93399.80	13616.40	3112.835	4496.200
Stddev	6.441	175.94	81.74	18.706	1.990
%RSD	.1421853	.1883722	.6003409	.6009370	.0442530

#1	4523.787	93544.90	13532.41	3133.262	4494.653
#2	4528.731	93450.41	13695.69	3108.702	4495.504
#3	4536.560	93204.11	13621.10	3096.541	4498.445

Sample Name: Q1136-04 Acquired: 1/27/2025 17:12:18 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0313922	.0528880	.0276423	.0423731	.0383515	33.47322
Stddev	.0004567	.0011993	.0014590	.0011370	.0001345	.15224
%RSD	1.454746	2.267611	5.278252	2.683230	.3506104	.4548004

#1	.0308795	.0525535	.0289325	.0432302	.0383080	33.29936
#2	.0317553	.0542190	.0279354	.0410833	.0382441	33.53765
#3	.0315418	.0518914	.0260590	.0428059	.0385023	33.58264

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9068185	.0261158	.0516259	55.55499	.1290278	.5995280
Stddev	.0065448	.0000744	.0000718	.21717	.0002632	.0003301
%RSD	.7217322	.2850422	.1391495	.3909171	.2039629	.0550631

#1	.8993203	.0261994	.0517055	55.31925	.1293292	.5998868
#2	.9113843	.0260918	.0516064	55.74692	.1289107	.5992373
#3	.9097509	.0260564	.0515659	55.59880	.1288435	.5994598

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2370482	12.17516	2.531310	24.51287	.5992398	.0153733
Stddev	.0009556	.04105	.013259	.05268	.0018094	.0000545
%RSD	.4031226	.3371209	.5237831	.2149105	.3019419	.3542126

#1	.2360077	12.13088	2.519590	24.48553	.5977888	.0154345
#2	.2372501	12.18267	2.545700	24.57360	.5986634	.0153549
#3	.2378866	12.21193	2.528638	24.47949	.6012671	.0153304

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.730885	.2512766	.7589184	13.66786	.6565574	.3093127
Stddev	.135791	.0003638	.0059688	.06052	.0045831	.0008817
%RSD	4.972415	.1447684	.7864908	.4427939	.6980496	.2850382

#1	2.575643	.2512550	.7520264	13.59838	.6548193	.3102082
#2	2.789423	.2516507	.7624104	13.70904	.6617553	.3084455
#3	2.827589	.2509241	.7623184	13.69618	.6530976	.3092844

Sample Name: Q1136-04 Acquired: 1/27/2025 17:12:18 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7S Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001299	F 312.2732	F 11.27596	-.002844	.0112634	.0250535
Stddev	.0001539	.3386	.01853	.001653	.0001897	.0006125
%RSD	118.5316	.1084339	.1643265	58.12501	1.684113	2.444717
#1	.0000505	312.5714	11.28613	-.004602	.0114257	.0250458
#2	.0000318	311.9051	11.28718	-.001320	.0110549	.0256697
#3	.0003072	312.3432	11.25458	-.002610	.0113096	.0244448

Elem	Sr4077
Units	ppm
Avg	.2850887
Stddev	.0015318
%RSD	.5373211
#1	.2835999
#2	.2866602
#3	.2850059

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7660.760	158822.1	24707.24	5241.464	4201.707
Stddev	12.862	282.7	68.37	20.668	5.656
%RSD	.1678999	.1780176	.2767069	.3943198	.1346080
#1	7670.811	159137.7	24629.83	5265.230	4206.404
#2	7665.204	158591.9	24759.37	5231.465	4203.290
#3	7646.265	158736.7	24732.53	5227.697	4195.429

Sample Name: Q1136-05 Acquired: 1/27/2025 17:16:13 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0051659	.0080284	.0045420	-.002454	-.001698	52.58885
Stddev	.0013046	.0016762	.0018105	.002368	.001464	.18162
%RSD	25.25360	20.87857	39.86051	96.49439	86.18673	.3453650

#1	.0039481	.0068748	.0024622	-.004235	-.000059	52.79854
#2	.0050070	.0072594	.0057654	-.003359	-.002164	52.48734
#3	.0065427	.0099512	.0053984	.000233	-.002873	52.48068

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0537353	.0024195	.0050992	92.31056	.0301248	.3219934
Stddev	.0006727	.0000520	.0001156	.39285	.0003151	.0010091
%RSD	1.251956	2.148719	2.267699	.4255745	1.045861	.3133772

#1	.0544578	.0023846	.0050009	92.76398	.0297802	.3211286
#2	.0536210	.0023946	.0050700	92.09571	.0303981	.3217497
#3	.0531269	.0024792	.0052266	92.07199	.0301960	.3231020

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1971299	17.96318	5.633731	35.89504	.3134176	-.001314
Stddev	.0009113	.07113	.027801	.17203	.0004718	.000052
%RSD	.4622903	.3959935	.4934697	.4792453	.1505436	3.952799

#1	.1978885	18.04468	5.662826	36.04204	.3133635	-.001274
#2	.1961190	17.93129	5.607437	35.93723	.3129751	-.001373
#3	.1973823	17.91357	5.630929	35.70584	.3139141	-.001295

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.769775	.0021921	.7399914	6.727267	.2123960	.3886646
Stddev	.200345	.0007401	.0046028	.067824	.0030088	.0003792
%RSD	5.314518	33.76389	.6220058	1.008200	1.416621	.0975606

#1	4.000039	.0029891	.7394904	6.802008	.2106336	.3890740
#2	3.673939	.0015264	.7356597	6.669637	.2106842	.3885943
#3	3.635348	.0020608	.7448242	6.710155	.2158702	.3883255

Sample Name: Q1136-05 Acquired: 1/27/2025 17:16:13 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F8 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000400	F 328.4756	F 20.15239	-.001986	.0111241	.0523991
Stddev	.000352	.5327	.07429	.000887	.0001244	.0002973
%RSD	88.08178	.1621650	.3686608	44.67055	1.118182	.5673217

#1	-.000786	329.0106	20.23551	-.002482	.0110647	.0524136
#2	-.000319	328.4709	20.09246	-.000962	.0110407	.0520948
#3	-.000095	327.9453	20.12921	-.002514	.0112671	.0526888

Elem	Sr4077
Units	ppm
Avg	.5205397
Stddev	.0029637
%RSD	.5693589

#1	.5236052
#2	.5176895
#3	.5203245

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6111.966	131382.3	20364.95	4240.821	4045.383
Stddev	11.896	153.1	33.86	14.595	7.324
%RSD	.1946405	.1165641	.1662813	.3441558	.1810538

#1	6099.767	131207.2	20372.75	4254.454	4042.335
#2	6123.535	131491.5	20327.87	4242.585	4053.739
#3	6112.597	131448.2	20394.24	4225.425	4040.074

Sample Name: Q1136-06 Acquired: 1/27/2025 17:20:10 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0649583	.0037192	.5889364	-.001837	.0015253	28.92558
Stddev	.0041580	.0035359	.0008769	.000489	.0013519	.08115
%RSD	6.401062	95.07320	.1489025	26.64546	88.63401	.2805576

#1	.0617158	-.000274	.5895694	-.001682	.0003683	28.83332
#2	.0696461	.004978	.5879355	-.002385	.0011963	28.98594
#3	.0635128	.006453	.5893044	-.001444	.0030114	28.95748

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0733786	.0086223	.0206620	120.2955	.0338231	.3450497
Stddev	.0008762	.0000251	.0001289	.2437	.0003528	.0006772
%RSD	1.194017	.2914176	.6238548	.2025673	1.043035	.1962723

#1	.0724304	.0085951	.0206044	120.1896	.0342282	.3448035
#2	.0735473	.0086272	.0205720	120.1228	.0335837	.3445300
#3	.0741582	.0086446	.0208097	120.5742	.0336574	.3458156

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.320301	33.57976	17.26317	45.75559	.3821590	.0013749
Stddev	.005230	.11140	.03529	.12171	.0002421	.0001981
%RSD	.3961051	.3317569	.2044146	.2660018	.0633465	14.40791

#1	1.325939	33.45508	17.24751	45.64541	.3820190	.0013524
#2	1.315608	33.61466	17.23842	45.73512	.3820194	.0015833
#3	1.319357	33.66953	17.30358	45.88624	.3824385	.0011891

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.304636	.0431899	3.381917	6.733963	.3025923	1.153607
Stddev	.315688	.0007789	.020876	.037241	.0009047	.003698
%RSD	3.392799	1.803476	.6172933	.5530284	.2989687	.3205809

#1	9.013940	.0424227	3.392210	6.695508	.3035740	1.157812
#2	9.640459	.0431670	3.357892	6.769857	.3024105	1.150862
#3	9.259510	.0439800	3.395647	6.736526	.3017923	1.152147

Sample Name: Q1136-06 Acquired: 1/27/2025 17:20:10 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001662	F 337.0246	F 10.12680	-.002645	.0048544	.0177647
Stddev	.000226	.4403	.01746	.000511	.0007995	.0005693
%RSD	13.60881	.1306328	.1724001	19.32172	16.46933	3.204734

#1	-.001831	336.5190	10.14692	-.003164	.0040605	.0175797
#2	-.001750	337.2317	10.11779	-.002143	.0056593	.0184035
#3	-.001405	337.3232	10.11569	-.002627	.0048434	.0173108

Elem	Sr4077
Units	ppm
Avg	.8780764
Stddev	.0050601
%RSD	.5762692

#1	.8836022
#2	.8769576
#3	.8736693

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4059.311	90445.88	13685.08	2868.480	4067.723
Stddev	8.012	204.94	36.07	14.512	7.561
%RSD	.1973798	.2265901	.2635866	.5059092	.1858812

#1	4067.318	90564.17	13647.15	2856.353	4076.009
#2	4059.323	90564.24	13718.96	2884.558	4065.962
#3	4051.293	90209.23	13689.13	2864.528	4061.198

Sample Name: Q1136-07 Acquired: 1/27/2025 17:24:13 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0237312	.0005166	.0138606	.0130153	.0059713	71.97623
Stddev	.0014283	.0032539	.0010037	.0015973	.0006709	.38087
%RSD	6.018807	629.8127	7.241633	12.27270	11.23594	.5291641

#1	.0227159	.0033416	.0133310	.0137158	.0053303	71.84652
#2	.0231132	.0012495	.0150182	.0111874	.0059149	71.67716
#3	.0253645	-.003041	.0132325	.0141428	.0066686	72.40502

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0846911	.0065217	.0051412	85.73584	.0890874	.2521792
Stddev	.0004743	.0000868	.0000939	.30832	.0002761	.0010670
%RSD	.5600794	1.330728	1.825441	.3596155	.3098866	.4231133

#1	.0841631	.0065020	.0051593	85.58854	.0892749	.2532244
#2	.0850812	.0066166	.0052247	85.52880	.0892169	.2510916
#3	.0848291	.0064464	.0050396	86.09018	.0887704	.2522217

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3590273	110.5699	8.184525	71.45542	.3879786	-.000062
Stddev	.0015901	.4301	.035627	.23757	.0013897	.000204
%RSD	.4428811	.3889669	.4353018	.3324741	.3581946	327.4755

#1	.3586456	110.4290	8.152942	71.42745	.3895735	-.000100
#2	.3576628	110.2279	8.177488	71.23307	.3870271	.000158
#3	.3607734	111.0528	8.223147	71.70574	.3873353	-.000246

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.18044	.0943229	1.985829	2.998007	.2204876	1.686733
Stddev	.14762	.0010972	.010041	.036916	.0033437	.004697
%RSD	.9724260	1.163209	.5056114	1.231342	1.516509	.2784399

#1	15.09212	.0939365	1.974474	3.022204	.2213310	1.690078
#2	15.35086	.0955610	1.993531	2.955517	.2168029	1.688757
#3	15.09834	.0934711	1.989483	3.016299	.2233288	1.681363

Sample Name: Q1136-07 Acquired: 1/27/2025 17:24:13 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E4 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001592	F 613.0205	F 26.69356	-.001363	.0186545	.0596581
Stddev	.000137	1.4544	.03138	.000996	.0007644	.0013183
%RSD	8.579628	.2372549	.1175579	73.01530	4.097599	2.209757

#1	-.001691	613.9802	26.70277	-.000697	.0190570	.0581394
#2	-.001437	611.3471	26.71930	-.002508	.0177730	.0603281
#3	-.001650	613.7341	26.65860	-.000886	.0191336	.0605068

Elem	Sr4077
Units	ppm
Avg	.6343842
Stddev	.0039636
%RSD	.6247918

#1	.6318053
#2	.6323993
#3	.6389481

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4675.119	96939.80	15473.21	3178.663	4130.867
Stddev	9.613	41.16	84.41	13.120	12.544
%RSD	.2056272	.0424578	.5455400	.4127569	.3036681

#1	4666.493	96952.24	15434.40	3185.366	4117.446
#2	4685.483	96973.30	15415.19	3163.545	4142.296
#3	4673.380	96893.85	15570.05	3187.077	4132.858

Sample Name: Q1136-08 Acquired: 1/27/2025 17:28:09 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0101751	.0028440	.0067236	-.001021	.0002590	36.48779
Stddev	.0014887	.0021977	.0013575	.001316	.0009535	.07613
%RSD	14.63032	77.27734	20.18958	128.9135	368.0623	.2086438

#1	.0086824	.0038045	.0056805	-.002502	.0008233	36.40369
#2	.0116597	.0003295	.0062319	-.000575	.0007956	36.50770
#3	.0101833	.0043979	.0082583	.000015	-.000842	36.55199

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1109657	.0025176	.0005600	143.2165	.0362005	.0253966
Stddev	.0006193	.0001029	.0000884	.1895	.0003035	.0003764
%RSD	.5580869	4.087787	15.79378	.1322936	.8382805	1.482066

#1	.1111282	.0025534	.0006621	143.3746	.0365198	.0250546
#2	.1102814	.0025979	.0005126	143.0065	.0361657	.0253354
#3	.1114876	.0024016	.0005054	143.2685	.0359159	.0257998

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1640946	28.21181	2.597806	109.7811	.2058504	-.000421
Stddev	.0011429	.02164	.003564	.1136	.0004195	.000296
%RSD	.6964962	.0766976	.1372084	.1035203	.2037960	70.34235

#1	.1641050	28.19109	2.601564	109.9003	.2053890	-.000347
#2	.1629465	28.21007	2.594473	109.6739	.2059534	-.000747
#3	.1652322	28.23426	2.597382	109.7690	.2062089	-.000169

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.76384	.0747643	1.588113	1.619744	.0625102	1.319696
Stddev	.03896	.0004597	.005582	.042123	.0004703	.002255
%RSD	.2193235	.6149100	.3514828	2.600603	.7524215	.1708746

#1	17.77759	.0743936	1.582262	1.649378	.0627423	1.318265
#2	17.79406	.0752787	1.588697	1.638329	.0628193	1.322295
#3	17.71987	.0746206	1.593380	1.571525	.0619689	1.318527

Sample Name: Q1136-08 Acquired: 1/27/2025 17:28:09 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E5 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000871	F 348.3328	F 20.59377	-.004148	.0082838	.0549839
Stddev	.000059	.5863	.07179	.000238	.0008198	.0004466
%RSD	6.795040	.1683040	.3486125	5.726807	9.896904	.8122537

#1	-.000893	347.8682	20.66992	-.003886	.0091737	.0548696
#2	-.000915	348.1387	20.58408	-.004350	.0075592	.0546055
#3	-.000804	348.9915	20.52732	-.004208	.0081185	.0554765

Elem	Sr4077
Units	ppm
Avg	.9591637
Stddev	.0020144
%RSD	.2100160

#1	.9601093
#2	.9568504
#3	.9605313

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3540.759	76154.68	11466.55	2500.913	4060.067
Stddev	11.904	46.56	35.52	3.711	14.490
%RSD	.3362060	.0611373	.3097439	.1483697	.3569022

#1	3549.796	76168.29	11453.29	2504.523	4071.968
#2	3545.209	76102.84	11439.57	2501.106	4064.302
#3	3527.270	76192.93	11506.79	2497.110	4043.931

Sample Name: Q1136-09 Acquired: 1/27/2025 17:32:09 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2679724	.0024836	.1150756	.0032574	.0011077	9.270709
Stddev	.0004943	.0004461	.0004512	.0014604	.0008812	.040387
%RSD	.1844641	17.96302	.3921007	44.83127	79.55164	.4356367

#1	.2674639	.0019743	.1147790	.0016133	.0014358	9.238525
#2	.2680020	.0028055	.1155949	.0044040	.0017779	9.257575
#3	.2684512	.0026708	.1148530	.0037550	.0001095	9.316028

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0820676	.0009172	.0068778	56.66956	.0354074	.0281982
Stddev	.0009516	.0000043	.0000258	.18427	.0000934	.0001640
%RSD	1.159527	.4723792	.3749884	.3251733	.2637751	.5816993

#1	.0810194	.0009179	.0068500	56.49216	.0353061	.0283758
#2	.0823061	.0009125	.0068824	56.65650	.0354261	.0280524
#3	.0828772	.0009211	.0069009	56.86001	.0354901	.0281663

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8418186	21.56944	.3878933	7.256366	.2139934	-.000621
Stddev	.0031331	.10124	.0010691	.030561	.0010451	.000180
%RSD	.3721804	.4693794	.2756103	.4211607	.4883877	29.04399

#1	.8404958	21.46848	.3870426	7.240414	.2130425	-.000425
#2	.8453961	21.56890	.3875440	7.237081	.2138253	-.000781
#3	.8395639	21.67096	.3890934	7.291602	.2151123	-.000658

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.662496	.0322170	.7986590	3.277232	F 23.30781	.6869935
Stddev	.295624	.0005633	.0026440	.041991	.06591	.0033704
%RSD	4.437137	1.748560	.3310604	1.281301	.2827694	.4906036

#1	6.895980	.0328653	.7957788	3.271273	23.23253	.6908549
#2	6.761409	.0318465	.7992219	3.238539	23.33581	.6854839
#3	6.330098	.0319392	.8009763	3.321885	23.35510	.6846419

Sample Name: Q1136-09 Acquired: 1/27/2025 17:32:09 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E6 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013176	F 345.7872	4.860927	-.002182	.0060003	.0126905
Stddev	.0001393	1.0829	.012771	.000989	.0005115	.0006194
%RSD	10.57383	.3131714	.2627315	45.30860	8.525159	4.881034

#1	.0012651	344.5600	4.870521	-.003230	.0056946	.0131280
#2	.0014755	346.1930	4.865829	-.002053	.0065908	.0129617
#3	.0012121	346.6086	4.846431	-.001265	.0057154	.0119817

Elem	Sr4077
Units	ppm
Avg	.5899891
Stddev	.0024087
%RSD	.4082630

#1	.5872327
#2	.5910457
#3	.5916890

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3936.968	84671.35	12817.56	2811.068	4396.985
Stddev	10.473	113.96	71.15	10.773	11.298
%RSD	.2660212	.1345911	.5550893	.3832403	.2569450

#1	3948.038	84595.25	12738.03	2814.575	4409.520
#2	3935.650	84802.37	12839.46	2819.651	4393.849
#3	3927.216	84616.42	12875.17	2798.979	4387.587

Sample Name: Q1136-10 Acquired: 1/27/2025 17:36:09 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.036306	.0001567	.1072746	.0026781	.0037340	24.69129
Stddev	.005469	.0010509	.0015764	.0018464	.0004640	.03177
%RSD	.5276916	670.7230	1.469504	68.94653	12.42784	.1286741

#1	1.031313	-.000619	.1088880	.0030831	.0032773	24.68658
#2	1.035456	.001353	.1071978	.0006628	.0037196	24.66213
#3	1.042150	-.000264	.1057380	.0042884	.0042050	24.72515

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0635124	.0082794	.0126491	132.2111	.0833354	.0866976
Stddev	.0003074	.0001177	.0001298	.3282	.0001827	.0003485
%RSD	.4840189	1.422029	1.025902	.2482589	.2192709	.4019505

#1	.0632270	.0082721	.0127989	132.2909	.0831531	.0869092
#2	.0638379	.0084006	.0125770	132.4921	.0835186	.0862954
#3	.0634723	.0081654	.0125712	131.8504	.0833346	.0868883

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0776568	54.51224	1.104892	21.19798	1.460985	-.002625
Stddev	.0022067	.05869	.005648	.02836	.002534	.000172
%RSD	2.841583	.1076691	.5111674	.1337996	.1734315	6.559085

#1	.0790841	54.47650	1.109314	21.17630	1.462010	-.002823
#2	.0751152	54.48025	1.106832	21.23008	1.458099	-.002543
#3	.0787712	54.57998	1.098530	21.18757	1.462846	-.002509

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.938383	.0599271	1.579983	3.572895	F 63.73352	.7046771
Stddev	.047178	.0010489	.012695	.015517	.01933	.0014343
%RSD	.7944585	1.750279	.8034721	.4342839	.0303254	.2035372

#1	5.912839	.0587242	1.573885	3.581262	63.71717	.7059346
#2	5.909486	.0604065	1.594576	3.554990	63.72853	.7049818
#3	5.992825	.0606507	1.571487	3.582432	63.75485	.7031150

Sample Name: Q1136-10 Acquired: 1/27/2025 17:36:09 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E7 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000255	F 342.9296	F 11.67344	-.002807	.0003494	.0467821
Stddev	.000325	.6410	.08983	.000128	.0003567	.0012359
%RSD	127.6202	.1869329	.7695454	4.567565	102.0949	2.641785

#1	.000011	342.4598	11.73254	-.002953	.0007581	.0454386
#2	-.000618	342.6690	11.71770	-.002709	.0001011	.0478705
#3	-.000159	343.6599	11.57006	-.002761	.0001888	.0470371

Elem	Sr4077
Units	ppm
Avg	.8514446
Stddev	.0117614
%RSD	1.381351

#1	.8546171
#2	.8612944
#3	.8384223

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4896.774	102650.4	15394.56	3337.967	4200.743
Stddev	7.107	297.0	71.72	15.555	5.865
%RSD	.1451361	.2893298	.4658468	.4660085	.1396211

#1	4903.529	102858.6	15395.36	3355.548	4196.619
#2	4897.432	102310.3	15322.45	3325.992	4207.458
#3	4889.361	102782.4	15465.87	3332.361	4198.153

Sample Name: Q1136-11 Acquired: 1/27/2025 17:40:14 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0114080	.0041858	.0657403	.0118900	.0039465	44.93761
Stddev	.0011816	.0013853	.0012297	.0015387	.0003305	.17998
%RSD	10.35769	33.09621	1.870580	12.94122	8.375507	.4005100
#1	.0101156	.0027532	.0661082	.0108530	.0039202	44.73146
#2	.0124329	.0042857	.0643686	.0136580	.0042893	45.01789
#3	.0116756	.0055185	.0667441	.0111591	.0036299	45.06348
Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0737391	.0059673	.0250555	77.81420	.1606986	.0379511
Stddev	.0005584	.0001140	.0000930	.17215	.0006200	.0003401
%RSD	.7572618	1.911146	.3712243	.2212346	.3858170	.8960872
#1	.0742371	.0060092	.0249600	77.77104	.1603897	.0381167
#2	.0738446	.0060543	.0250607	78.00383	.1614124	.0375600
#3	.0731354	.0058382	.0251458	77.66774	.1602937	.0381767
Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0524678	84.48269	1.085738	23.18435	.2487825	-.001511
Stddev	.0013903	.23369	.001339	.07782	.0006324	.000348
%RSD	2.649753	.2766187	.1233365	.3356456	.2541869	23.05572
#1	.0519732	84.27322	1.087221	23.18863	.2495031	-.001395
#2	.0513924	84.73475	1.085378	23.25994	.2483202	-.001235
#3	.0540377	84.44010	1.084616	23.10448	.2485241	-.001902
Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.153134	.1245943	2.064897	11.07030	F 30.36292	.8363844
Stddev	.250344	.0002896	.006383	.07064	.04597	.0014060
%RSD	4.858083	.2324383	.3091387	.6381373	.1514152	.1681069
#1	5.037545	.1248920	2.059555	10.99063	30.38810	.8372633
#2	5.440387	.1243135	2.063170	11.12531	30.30986	.8371272
#3	4.981470	.1245775	2.071966	11.09497	30.39081	.8347628

Sample Name: Q1136-11 Acquired: 1/27/2025 17:40:14 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E8 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0012894	F 330.4668	F 19.77319	-.002149	.0096765	.0473262
Stddev	.0003265	.5046	.09423	.001547	.0006276	.0006338
%RSD	25.32209	.1527022	.4765521	72.02242	6.485528	1.339157

#1	.0010486	330.2642	19.88183	-.001770	.0103582	.0480304
#2	.0016610	330.0949	19.72408	-.000825	.0091228	.0468017
#3	.0011585	331.0412	19.71365	-.003850	.0095485	.0471464

Elem	Sr4077
Units	ppm
Avg	.2913034
Stddev	.0011583
%RSD	.3976208

#1	.2905534
#2	.2907195
#3	.2926375

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4246.851	88730.18	13844.74	2895.281	4274.823
Stddev	5.189	320.41	64.80	7.522	3.643
%RSD	.1221848	.3611038	.4680226	.2598175	.0852231

#1	4245.650	88942.67	13804.97	2903.542	4274.952
#2	4252.535	88361.64	13809.73	2893.477	4278.399
#3	4242.367	88886.22	13919.51	2888.825	4271.116

Sample Name: Q1136-12 Acquired: 1/27/2025 17:44:11 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0069505	.0028762	.0101157	-.000179	-.002359	78.54679
Stddev	.0023363	.0025393	.0028328	.001672	.000777	.33624
%RSD	33.61414	88.28476	28.00373	934.8931	32.93581	.4280706

#1	.0092189	.0036668	.0097674	-.000311	-.003169	78.86909
#2	.0070807	.0049262	.0131066	.001555	-.001620	78.19816
#3	.0045517	.0000357	.0074732	-.001780	-.002289	78.57312

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0854820	.0040633	.0091428	167.7603	.0802023	.8256059
Stddev	.0004683	.0000505	.0001293	.3204	.0003465	.0018114
%RSD	.5478242	1.243643	1.414628	.1909669	.4320066	.2194060

#1	.0859985	.0041170	.0092379	168.1260	.0798703	.8236344
#2	.0853622	.0040560	.0089955	167.5290	.0805616	.8259866
#3	.0850852	.0040168	.0091949	167.6260	.0801748	.8271967

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2695093	14.66318	13.55782	73.13506	.5911144	.0018053
Stddev	.0008104	.00946	.02904	.13296	.0017342	.0002150
%RSD	.3006982	.0645406	.2142098	.1818059	.2933695	11.90760

#1	.2690318	14.66869	13.59081	73.26860	.5899096	.0015681
#2	.2690511	14.65225	13.54653	73.13389	.5903317	.0018605
#3	.2704450	14.66859	13.53612	73.00267	.5931019	.0019873

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.393821	.0098201	1.251488	5.304848	1.501797	.6307729
Stddev	.210270	.0015896	.006359	.014143	.008339	.0019675
%RSD	2.843861	16.18711	.5080783	.2666036	.5552885	.3119173

#1	7.151050	.0105822	1.258610	5.300388	1.497777	.6285011
#2	7.512027	.0108851	1.249472	5.320683	1.496229	.6319229
#3	7.518386	.0079929	1.246381	5.293472	1.511385	.6318948

Sample Name: Q1136-12 Acquired: 1/27/2025 17:44:11 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D1 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-0.000385	F 363.6503	F 34.89908	-0.002668	-0.001743	.1728548
Stddev	.000111	.7229	.06300	.000657	.000620	.0020598
%RSD	28.73565	.1987857	.1805341	24.61445	35.59520	1.191610

#1	-0.000504	363.1550	34.89786	-0.003049	-0.002458	.1751146
#2	-0.000367	363.3160	34.96269	-0.001910	-0.001428	.1710826
#3	-0.000285	364.4798	34.83670	-0.003046	-0.001343	.1723672

Elem	Sr4077
Units	ppm
Avg	1.132124
Stddev	.003733
%RSD	.3296977

#1	1.131723
#2	1.136040
#3	1.128607

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4216.196	90443.20	14372.87	2923.512	3992.914
Stddev	8.777	136.88	81.74	12.048	13.397
%RSD	.2081644	.1513483	.5687063	.4121171	.3355312

#1	4224.629	90563.50	14444.30	2910.211	4004.355
#2	4216.846	90294.26	14283.73	2933.695	3996.211
#3	4207.112	90471.85	14390.58	2926.630	3978.176

Sample Name: CCV022 Acquired: 1/27/2025 17:57:23 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV022 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.927239	4.585303	24.24443	4.799041	4.838258	396.1362
Stddev	.008675	.058521	.02554	.018675	.005590	6.3614
%RSD	.1760625	1.276272	.1053328	.3891468	.1155438	1.605874

#1	4.937225	4.652877	24.27386	4.810396	4.840449	403.4034
#2	4.922930	4.551443	24.22811	4.809240	4.831904	391.5760
#3	4.921563	4.551588	24.23133	4.777487	4.842420	393.4291

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.10107	.4860494	2.426584	401.8904	15.21873	2.431059
Stddev	.04306	.0035858	.006067	2.3190	.12688	.002082
%RSD	.4262987	.7377333	.2500368	.5770334	.8336975	.0856560

#1	10.12369	.4867430	2.433337	403.9036	15.36089	2.432237
#2	10.05141	.4892376	2.424820	399.3547	15.17832	2.432285
#3	10.12810	.4821675	2.421593	402.4128	15.11698	2.428655

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.96209	402.3464	14.98204	393.8580	2.423222	1.267053
Stddev	.10530	2.4413	.08366	2.4098	.001274	.010274
%RSD	.7037919	.6067661	.5583687	.6118468	.0525757	.8108917

#1	14.88812	405.0737	15.07528	396.6221	2.423673	1.278586
#2	15.08265	401.6003	14.95731	392.7534	2.424209	1.263698
#3	14.91549	400.3652	14.91355	392.1984	2.421784	1.258875

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	394.5294	2.436838	15.05304	154.8304	5.032598	F 5.906798
Stddev	3.0251	.012407	.08001	.7880	.011595	.032788
%RSD	.7667556	.5091602	.5315004	.5089571	.2303980	.5550872

#1	392.5425	2.431298	15.14514	155.7238	5.044957	5.916028
#2	398.0109	2.451050	15.01330	154.5331	5.021959	5.933981
#3	393.0350	2.428166	15.00069	154.2343	5.030880	5.870384

Sample Name: CCV022 Acquired: 1/27/2025 17:57:23 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV022 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.769774	4.945264	F 3.116080	4.880760	4.946312	5.161619
Stddev	.009066	.013581	.015077	.008337	.038046	.025375
%RSD	.1900710	.2746276	.4838585	.1708170	.7691809	.4916084

#1	4.780178	4.960732	3.116106	4.889115	4.931084	5.184791
#2	4.765574	4.939770	3.131144	4.880724	4.989613	5.165563
#3	4.763569	4.935291	3.100989	4.872440	4.918238	5.134503

Elem	Sr4077
Units	ppm
Avg	4.824743
Stddev	.015999
%RSD	.3316128

#1	4.807500
#2	4.827619
#3	4.839109

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2936.858	65065.92	10709.19	2121.625	3366.945
Stddev	3.204	437.03	56.54	14.513	2.762
%RSD	.1090964	.6716681	.5279990	.6840590	.0820212

#1	2935.055	64562.55	10722.89	2104.895	3365.579
#2	2940.558	65286.57	10647.05	2130.834	3370.123
#3	2934.962	65348.63	10757.63	2129.145	3365.132

Sample Name: CCB022 Acquired: 1/27/2025 18:01:41 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB022 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005722	.0003532	.0008554	.0008276	.0001706	.0034339	-.002395
Stddev	.0009579	.0003024	.0011805	.0016708	.0017160	.0081677	.000508
%RSD	167.3887	85.60831	138.0004	201.8857	1005.937	237.8572	21.19724
#1	.0016658	.0001190	.0017567	.0022160	-.000444	-.005084	-.002905
#2	.0001688	.0006945	-.000481	-.001027	.002109	.011200	-.002390
#3	-.000118	.0002460	.001290	.001294	-.001153	.004186	-.001889
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000083	.0000509	.0072949	.0004607	-.000058	-.000698	.0054757
Stddev	.000025	.0000079	.0060509	.0002145	.000111	.000493	.0013887
%RSD	30.38888	15.54500	82.94712	46.55501	190.6103	70.56862	25.36041
#1	-.000097	.0000543	.0089015	.0003098	.000066	-.001209	.0045854
#2	-.000097	.0000565	.0006028	.0007062	-.000093	-.000660	.0070758
#3	-.000054	.0000419	.0123805	.0003661	-.000148	-.000226	.0047659
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001599	.0012677	-.000154	-.000681	-.231025	-.001817	.0000305
Stddev	.0001074	.0110158	.000374	.000325	.268275	.000362	.0018059
%RSD	67.17711	868.9694	242.4245	47.71457	116.1240	19.92451	5921.057
#1	.0000516	-.002192	-.000010	-.000347	.078681	-.001960	-.001884
#2	.0002663	.013598	.000126	-.000700	-.380092	-.001405	.001704
#3	.0001616	-.007603	-.000579	-.000996	-.391663	-.002086	.000272
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0300465	.0002984	.0063706	.0004121	.0121522	-.001977	.0006184
Stddev	.0102863	.0011686	.0006315	.0004525	.0023244	.000597	.0005800
%RSD	34.23475	391.6700	9.913266	109.8017	19.12692	30.18437	93.78338
#1	.0198449	-.000976	.0069104	.0002747	.0143160	-.001814	.0000117
#2	.0298790	.001320	.0065252	.0009174	.0124455	-.001479	.0011674
#3	.0404156	.000551	.0056761	.0000443	.0096952	-.002639	.0006763

Sample Name: CCB022 Acquired: 1/27/2025 18:01:41 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB022 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0000205	-.000108	.0000588
Stddev	.0007217	.000976	.0000467
%RSD	3516.252	901.2215	79.37170

#1	-.000812	.000252	.0000281
#2	.000407	.000636	.0000358
#3	.000467	-.001213	.0001126

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3720.159	77571.77	11431.70	2565.133	4713.809
Stddev	10.188	155.77	9.00	19.343	9.803
%RSD	.2738598	.2008111	.0787356	.7540863	.2079661

#1	3718.972	77644.47	11427.10	2576.528	4710.141
#2	3730.888	77392.94	11442.07	2542.799	4724.917
#3	3710.616	77677.91	11425.92	2576.072	4706.368

Sample Name: Q1136-13 Acquired: 1/27/2025 18:05:49 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0218079	.0022105	.2063470	.0044802	-.000059	15.39725
Stddev	.0005952	.0012405	.0007203	.0020484	.001014	.08517
%RSD	2.729332	56.11827	.3490903	45.72125	1719.969	.5531269

#1	.0222978	.0007990	.2071537	.0050430	-.000748	15.30741
#2	.0211454	.0031275	.2061193	.0022092	.001105	15.47680
#3	.0219803	.0027050	.2057681	.0061884	-.000534	15.40755

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0822107	.0030173	.0110307	60.31322	.0083907	.0609977
Stddev	.0009872	.0000190	.0000480	.24666	.0003166	.0003213
%RSD	1.200846	.6286217	.4354331	.4089598	3.773654	.5267382

#1	.0815090	.0030386	.0110519	60.15610	.0087467	.0607955
#2	.0833395	.0030022	.0109757	60.59751	.0081408	.0613682
#3	.0817835	.0030112	.0110644	60.18605	.0082845	.0608294

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7297264	22.35151	.2731521	15.07962	.1241558	-.001011
Stddev	.0048707	.08371	.0006624	.06755	.0003552	.000137
%RSD	.6674743	.3745048	.2425053	.4479790	.2860819	13.54308

#1	.7353114	22.29087	.2731699	15.09299	.1240368	-.001165
#2	.7275080	22.44701	.2738054	15.13950	.1245552	-.000901
#3	.7263598	22.31664	.2724810	15.00639	.1238754	-.000969

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.282435	.0102906	1.231145	4.781665	F 17.40595	.6395184
Stddev	.145462	.0005004	.008451	.061825	.04357	.0048378
%RSD	2.753701	4.862672	.6864313	1.292965	.2503069	.7564789

#1	5.449891	.0108431	1.226733	4.713955	17.42470	.6438897
#2	5.210027	.0098679	1.240889	4.795928	17.43701	.6343206
#3	5.187387	.0101607	1.225814	4.835112	17.35615	.6403448

Sample Name: Q1136-13 Acquired: 1/27/2025 18:05:49 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D2 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001375	F 318.8297	8.299502	-.002434	.0037568	.0295021
Stddev	.0002657	.1299	.046693	.000766	.0001352	.0005112
%RSD	193.2357	.0407290	.5625947	31.47040	3.597437	1.732818
#1	.0000324	318.9705	8.350439	-.002661	.0038545	.0300924
#2	-.000060	318.8039	8.258727	-.001580	.0036025	.0292016
#3	.000440	318.7146	8.289340	-.003062	.0038133	.0292124

Elem	Sr4077
Units	ppm
Avg	.3634763
Stddev	.0020926
%RSD	.5757140
#1	.3612795
#2	.3654462
#3	.3637031

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3971.866	83903.88	12920.73	2738.668	4489.841
Stddev	16.338	123.71	79.95	8.242	14.491
%RSD	.4113414	.1474469	.6187654	.3009413	.3227526
#1	3990.578	84040.48	12854.31	2743.643	4506.574
#2	3964.588	83799.37	13009.46	2743.206	4481.500
#3	3960.431	83871.79	12898.40	2729.154	4481.449

Sample Name: Q1136-14 Acquired: 1/27/2025 18:09:47 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0129883	.0040969	.0119754	-.001047	-.000150	41.02401
Stddev	.0014683	.0010991	.0013694	.001623	.001819	.08291
%RSD	11.30500	26.82630	11.43490	155.0267	1210.711	.2021105

#1	.0146772	.0050761	.0116408	.000637	.000360	41.02588
#2	.0122723	.0029082	.0108043	-.002602	.001359	41.10597
#3	.0120153	.0043066	.0134810	-.001176	-.002170	40.94018

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0953616	.0053150	.0031493	118.0642	.0528001	.2276926
Stddev	.0003352	.0000925	.0000320	.1888	.0001144	.0002200
%RSD	.3515188	1.740846	1.017189	.1598787	.2166497	.0966193

#1	.0952891	.0054211	.0031618	118.2655	.0526809	.2276805
#2	.0957271	.0052729	.0031732	118.0360	.0528105	.2274788
#3	.0950685	.0052511	.0031129	117.8912	.0529090	.2279183

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2145257	32.64713	8.349551	94.67799	.4627882	.0006373
Stddev	.0016995	.06978	.007913	.14591	.0007219	.0002503
%RSD	.7922304	.2137427	.0947714	.1541097	.1559891	39.28200

#1	.2164757	32.70079	8.341340	94.84076	.4620145	.0004194
#2	.2133594	32.67235	8.357128	94.55896	.4629063	.0005817
#3	.2137422	32.56824	8.350185	94.63424	.4634437	.0009107

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.623759	.0198153	1.191274	2.111376	.6215360	.7123496
Stddev	.176401	.0013250	.006609	.050814	.0050119	.0049004
%RSD	3.136703	6.686650	.5548067	2.406657	.8063722	.6879235

#1	5.490837	.0211755	1.184830	2.163096	.6273233	.7149117
#2	5.823884	.0197421	1.190956	2.061520	.6186549	.7066992
#3	5.556556	.0185285	1.198037	2.109511	.6186299	.7154378

Sample Name: Q1136-14 Acquired: 1/27/2025 18:09:47 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D4 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000398	F 344.2602	F 18.20372	-.002662	.0033545	.0844205
Stddev	.000295	.5252	.06125	.000396	.0004477	.0004644
%RSD	74.26629	.1525629	.3364881	14.89639	13.34645	.5501412
#1	-.000060	344.0510	18.24554	-.002689	.0036995	.0845280
#2	-.000528	344.8578	18.13341	-.003044	.0035155	.0848217
#3	-.000605	343.8719	18.23221	-.002252	.0028486	.0839117

Elem	Sr4077
Units	ppm
Avg	.7002508
Stddev	.0018009
%RSD	.2571721
#1	.6988912
#2	.7022932
#3	.6995680

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3943.453	85672.91	13458.06	2757.149	4066.652
Stddev	18.642	207.71	79.16	5.675	10.890
%RSD	.4727292	.2424465	.5882231	.2058186	.2677840
#1	3964.140	85494.91	13404.40	2763.699	4079.225
#2	3938.261	85901.13	13548.98	2753.710	4060.482
#3	3927.957	85622.71	13420.79	2754.038	4060.248

Sample Name: Q1136-15 Acquired: 1/27/2025 18:13:46 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0079218	.0034909	.0117135	-.000286	-.000526	79.09333
Stddev	.0014132	.0014719	.0023882	.003189	.001316	.65830
%RSD	17.83883	42.16485	20.38853	1116.349	249.9452	.8323089

#1	.0079339	.0046018	.0141358	.003392	.000207	79.74467
#2	.0093288	.0040494	.0093609	-.002286	-.002046	78.42828
#3	.0065026	.0018214	.0116439	-.001963	.000259	79.10702

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1020343	.0025927	.0066270	130.2663	.0769533	.5152044
Stddev	.0001165	.0000317	.0000967	.7015	.0002350	.0016079
%RSD	.1141989	1.222250	1.459138	.5385281	.3053467	.3120865

#1	.1021675	.0025607	.0065260	130.9807	.0769390	.5141718
#2	.1019510	.0026241	.0066362	129.5784	.0771951	.5143844
#3	.1019844	.0025932	.0067187	130.2397	.0767258	.5170569

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2482853	29.05583	9.671455	65.73241	.4336911	.0023038
Stddev	.0015344	.18134	.061859	.40997	.0011631	.0004320
%RSD	.6179975	.6241221	.6396057	.6236982	.2681981	18.75061

#1	.2470725	29.23514	9.740971	66.15338	.4328285	.0021029
#2	.2500103	28.87252	9.622478	65.33440	.4332308	.0020089
#3	.2477732	29.05983	9.650915	65.70945	.4350139	.0027996

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.884595	.0110342	1.276829	4.536592	1.646714	.6798226
Stddev	.259331	.0002605	.005937	.030680	.008061	.0043858
%RSD	3.766826	2.361216	.4649772	.6762829	.4895303	.6451442

#1	6.994087	.0108104	1.283371	4.544236	1.642873	.6755420
#2	6.588475	.0113202	1.271782	4.502813	1.641291	.6843066
#3	7.071222	.0109721	1.275336	4.562728	1.655977	.6796193

Sample Name: Q1136-15 Acquired: 1/27/2025 18:13:46 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000519	F 354.8120	F 31.20367	-.002969	.0005461	.1769289
Stddev	.000174	1.4359	.07223	.000404	.0003610	.0012049
%RSD	33.50507	.4046831	.2314682	13.60894	66.10493	.6810236

#1	-.000555	353.3993	31.18351	-.003323	.0004891	.1783069
#2	-.000329	354.7666	31.28384	-.002529	.0002170	.1760734
#3	-.000671	356.2700	31.14368	-.003056	.0009322	.1764065

Elem	Sr4077
Units	ppm
Avg	.9033037
Stddev	.0091838
%RSD	1.016688

#1	.9133485
#2	.8953372
#3	.9012255

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4016.608	85570.96	13513.20	2804.364	4072.735
Stddev	11.807	91.40	108.37	5.863	10.756
%RSD	.2939504	.1068073	.8019902	.2090553	.2640932

#1	4027.475	85476.37	13619.77	2798.077	4082.308
#2	4018.305	85658.78	13403.10	2805.336	4074.802
#3	4004.045	85577.72	13516.73	2809.680	4061.096

Sample Name: Q1136-17 Acquired: 1/27/2025 18:17:43 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0041927	-.004643	.0108053	.0185473	.0159180	.1464988
Stddev	.0018536	.001520	.0011042	.0032384	.0018160	.0087925
%RSD	44.21019	32.72612	10.21879	17.46010	11.40824	6.001782

#1	.0023787	-.004497	.0095365	.0160357	.0166261	.1524931
#2	.0060835	-.003202	.0113309	.0174039	.0172732	.1505982
#3	.0041158	-.006231	.0115484	.0222023	.0138547	.1364052

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0777842	.0001191	.0050217	364.6004	-.001003	.0599431
Stddev	.0000226	.0000909	.0000846	2.0725	.000536	.0002133
%RSD	.0290323	76.38610	1.684029	.5684396	53.42821	.3558085

#1	.0778097	.0000175	.0049445	363.8270	-.000398	.0601838
#2	.0777670	.0001467	.0051121	363.0257	-.001417	.0597774
#3	.0777758	.0001930	.0050086	366.9484	-.001195	.0598681

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.013093	201.1998	10.41929	100.3719	.0795656	-.003793
Stddev	.001383	.5327	.03792	.1352	.0006326	.000047
%RSD	10.56534	.2647813	.3639795	.1346852	.7950276	1.251917

#1	-.012369	200.9865	10.45281	100.2838	.0795145	-.003769
#2	-.012223	200.8068	10.37813	100.3044	.0789602	-.003847
#3	-.014688	201.8062	10.42694	100.5275	.0802222	-.003762

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.927522	-.017498	.4102036	1.532265	.0057480	1.039566
Stddev	.204511	.000759	.0042010	.039707	.0033431	.003192
%RSD	5.207132	4.335392	1.024115	2.591395	58.16067	.3070120

#1	3.936241	-.016812	.4147673	1.578081	.0021878	1.038345
#2	4.127534	-.017370	.4064979	1.510865	.0062360	1.037165
#3	3.718790	-.018313	.4093456	1.507848	.0088203	1.043187

Sample Name: Q1136-17 Acquired: 1/27/2025 18:17:43 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D5 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001668	F 376.1387	2.678027	-.003533	-.010704	.0113325
Stddev	.000335	1.2301	.012334	.000848	.000074	.0006542
%RSD	20.07307	.3270448	.4605646	23.99804	.6869743	5.773262
#1	-.002007	375.4730	2.689862	-.003611	-.010673	.0109812
#2	-.001658	375.3849	2.678970	-.002649	-.010651	.0120873
#3	-.001338	377.5583	2.665248	-.004339	-.010788	.0109288

Elem	Sr4077
Units	ppm
Avg	3.850540
Stddev	.038400
%RSD	.9972549
#1	3.857861
#2	3.809007
#3	3.884753

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3489.308	75365.86	11543.44	2434.497	3837.083
Stddev	11.925	347.47	21.00	9.392	13.107
%RSD	.3417540	.4610465	.1819455	.3857909	.3415815
#1	3502.905	75549.68	11565.33	2432.218	3852.216
#2	3484.388	75582.81	11541.53	2444.818	3829.315
#3	3480.630	74965.09	11523.46	2426.453	3829.719

Sample Name: PB166225BL Acquired: 1/27/2025 18:21:59 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW225 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000623	.0005352	.0008322	.0013114	.0001719	-.000119	-.003365
Stddev	.001272	.0006912	.0001620	.0015875	.0005950	.001599	.000592
%RSD	204.0651	129.1527	19.46529	121.0538	346.0423	1343.159	17.58660
#1	-.002080	-.000241	.0009753	.0003872	-.000402	.000515	-.002713
#2	-.000063	.000764	.0008650	.0031445	.000786	-.001937	-.003515
#3	.000272	.001083	.0006563	.0004026	.000132	.001066	-.003868
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000013	.0000011	.0075288	-.000103	.0001393	.0008206	.0035664
Stddev	.000009	.0000321	.0017054	.000054	.0000742	.0010620	.0042617
%RSD	70.40643	2974.829	22.65102	52.62722	53.29549	129.4162	119.4958
#1	-.000011	.0000240	.0092286	-.000165	.0002177	-.000207	-.001221
#2	-.000006	.0000149	.0075400	-.000069	.0001299	.001914	.006946
#3	-.000024	-.000036	.0058179	-.000073	.0000701	.000755	.004975
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000071	.0013373	.0002350	-.000146	.1657949	.0000811	.0002356
Stddev	.000294	.0092197	.0004424	.000099	.2263315	.0013124	.0004649
%RSD	411.7839	689.4341	188.2795	67.95640	136.5129	1617.873	197.3271
#1	.000122	.0103863	.0001843	-.000038	.0119731	.0015521	.0002658
#2	.000073	.0016697	-.000180	-.000168	.0597302	-.000970	-.000244
#3	-.000409	-.008044	.000701	-.000233	.4256815	-.000339	.000685
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.260876	.0012495	.0026252	.0001890	.0371799	-.002169	.0008306
Stddev	.040015	.0021619	.0003609	.0000640	.0036812	.000693	.0002358
%RSD	15.33873	173.0220	13.74762	33.88274	9.901026	31.94046	28.38491
#1	-.305360	.0024806	.0030088	.0002503	.0413220	-.002140	.0008157
#2	-.249457	.0025147	.0022924	.0001943	.0359354	-.002876	.0010735
#3	-.227812	-.001247	.0025744	.0001225	.0342822	-.001492	.0006027

Sample Name: PB166225BL Acquired: 1/27/2025 18:21:59 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW225 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008117	-.001002	.0001151
Stddev	.0007696	.000334	.0000434
%RSD	94.82008	33.32943	37.72200

#1	.0012434	-.001290	.0000742
#2	.0012685	-.001081	.0001607
#3	-.000077	-.000636	.0001104

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3580.647	75253.79	10856.19	2459.633	4487.391
Stddev	22.160	93.58	24.71	4.304	38.169
%RSD	.6188722	.1243558	.2275677	.1750000	.8505906

#1	3555.851	75159.28	10836.03	2454.663	4443.524
#2	3587.576	75346.42	10848.79	2462.170	4505.632
#3	3598.514	75255.67	10883.75	2462.067	4513.018

Sample Name: PB166225BS Acquired: 1/27/2025 18:26:09 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS225 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0185689	.0525976	.0209437	.0646695	.1090086	.3736171	.3784682
Stddev	.0030094	.0016518	.0012724	.0031029	.0009538	.0067394	.0102444
%RSD	16.20672	3.140395	6.075457	4.798146	.8749376	1.803823	2.706797
#1	.0197590	.0507247	.0223470	.0658456	.1079306	.3813329	.3898330
#2	.0208014	.0532213	.0206192	.0611505	.1097428	.3688823	.3699436
#3	.0151465	.0538467	.0198649	.0670125	.1093522	.3706359	.3756280
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0103090	.0101636	9.933772	.0218915	.0989978	.0543569	.2133373
Stddev	.0001088	.0001411	.252902	.0006377	.0009608	.0007707	.0076814
%RSD	1.055178	1.388471	2.545877	2.912899	.9705002	1.417873	3.600590
#1	.0102039	.0100323	10.22523	.0226221	.0982802	.0547063	.2214377
#2	.0103018	.0101457	9.77229	.0214467	.0986239	.0534733	.2061579
#3	.0104211	.0103128	9.80380	.0216057	.1000893	.0548909	.2124165
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0304609	8.900605	.0810664	.0190965	9.475852	.1035723	.1175361
Stddev	.0007721	.162163	.0008108	.0005338	.312641	.0022558	.0028979
%RSD	2.534663	1.821930	1.000139	2.795456	3.299339	2.177987	2.465505
#1	.0312404	9.086095	.0803988	.0197035	9.337120	.1020930	.1197691
#2	.0296964	8.830035	.0808318	.0187003	9.256585	.1024552	.1142614
#3	.0304458	8.785685	.0819686	.0188856	9.833852	.1061686	.1185778
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.237858	.0193891	.0022918	.0203635	.1964343	.4562112	.0144799
Stddev	.236709	.0010240	.0004319	.0004503	.0046984	.0085886	.0006215
%RSD	2.562379	5.281546	18.84557	2.211515	2.391832	1.882601	4.292290
#1	9.511177	.0193672	.0018663	.0198447	.1910269	.4514677	.0151389
#2	9.103111	.0204239	.0027298	.0205925	.1987572	.4510405	.0139042
#3	9.099286	.0183762	.0022792	.0206534	.1995187	.4661255	.0143966

Sample Name: PB166225BS Acquired: 1/27/2025 18:26:09 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS225 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2072024	.0280845	.1786881
Stddev	.0022485	.0009741	.0042913
%RSD	1.085174	3.468492	2.401543
#1	.2066280	.0289221	.1835024
#2	.2052967	.0270155	.1752650
#3	.2096823	.0283157	.1772970

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3626.429	74409.76	11428.59	2453.117	4445.966
Stddev	18.895	1647.87	93.89	52.941	26.749
%RSD	.5210450	2.214583	.8215770	2.158114	.6016518
#1	3631.023	72528.31	11498.71	2393.640	4455.710
#2	3642.604	75104.36	11465.16	2470.622	4466.478
#3	3605.660	75596.60	11321.92	2495.088	4415.711

Sample Name: Q1151-01 Acquired: 1/27/2025 18:30:12 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	s 2.900808	kF -1.05253	k 1.986246	s .5507783	sF 28.47547	k 17.91555
Stddev	.091714	.00958	.007872	.0227655	.95201	.07725
%RSD	3.161679	.9099603	.3963126	4.133336	3.343276	.4311708

#1	s 2.848463	k -1.04384	k 1.985788	s .5301500	s 27.99546	k 17.89200
#2	s 2.847253	k -1.05096	k 1.978613	s .5469815	s 27.85901	k 18.00184
#3	s 3.006708	k -1.06280	k 1.994337	s .5752036	s 29.57193	k 17.85283

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3752152	k -.011689	k .0166001	88.01727	F 316.9976	F 114.5901
Stddev	.0016217	.000151	.0001565	.19787	1.2418	.6192
%RSD	.4322073	1.295276	.9430301	.2248055	.3917347	.5404037

#1	.3757795	k -.011833	k .0166808	87.95264	315.6101	114.7910
#2	.3764794	k -.011531	k .0164197	88.23937	318.0047	115.0839
#3	.3733867	k -.011702	k .0166998	87.85979	317.3780	113.8953

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	k 3.125149	k 139.5769	k 2.166465	12.79844	F 96.79248	k -.029902
Stddev	.016956	.3593	.003891	.04258	.23599	.000350
%RSD	.5425790	.2574081	.1795885	.3326846	.2438129	1.170451

#1	k 3.134917	k 139.4204	k 2.164499	12.78361	96.52015	k -.029960
#2	k 3.134959	k 139.9879	k 2.170946	12.84646	96.92038	k -.029526
#3	k 3.105569	k 139.3225	k 2.163949	12.76527	96.93691	k -.030219

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	36.86520	k .1714895	k 4.842877	2.100792	k 3.046386	k .2076306
Stddev	.28075	.0093044	.028360	.019419	.019136	.0001832
%RSD	.7615698	5.425636	.5856021	.9243643	.6281470	.0882157

#1	37.18677	k .1607728	k 4.847734	2.123206	k 3.028632	k .2074415
#2	36.74006	k .1761885	k 4.868494	2.090129	k 3.043871	k .2078072
#3	36.66878	k .1775074	k 4.812401	2.089041	k 3.066655	k .2076431

Sample Name: Q1151-01 Acquired: 1/27/2025 18:30:12 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ0 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	sF 360.9821	kF 168.7950	k 3.375686	.3358744	.3658211	.0208091
Stddev	10.8475	.4162	.005105	.0013353	.0022616	.0007197
%RSD	3.004987	.2465702	.1512394	.3975524	.6182261	3.458616

#1	s 355.2243	k 168.4479	k 3.370437	.3343631	.3682397	.0214690
#2	s 354.2277	k 168.6806	k 3.380635	.3363659	.3637588	.0209168
#3	s 373.4945	k 169.2564	k 3.375986	.3368943	.3654650	.0200417

Elem	Sr4077
Units	ppm
Avg	.7737799
Stddev	.0029965
%RSD	.3872574

#1	.7745113
#2	.7763431
#3	.7704854

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	^ *****	72997.45	11572.09	1980.348	3908.024
Stddev	-----	235.54	22.59	7.986	3.886
%RSD	-----	.3226630	.1952053	.4032500	.0994401

#1	^ -----	73149.45	11580.55	1982.592	3911.668
#2	^ -----	72726.13	11546.49	1971.480	3908.471
#3	^ -----	73116.76	11589.22	1986.971	3903.934

Sample Name: Q1151-02 Acquired: 1/27/2025 18:34:26 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1107924	-.029082	2.885827	.0308061	.0608309	43.42664
Stddev	.0017403	.001474	.025662	.0032888	.0017955	.37201
%RSD	1.570754	5.069672	.8892402	10.67571	2.951622	.8566388

#1	.1090809	-.030426	2.857671	.0273377	.0598692	43.00126
#2	.1125600	-.027505	2.891907	.0338796	.0597212	43.58758
#3	.1107363	-.029317	2.907902	.0312010	.0629024	43.69108

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2877065	.0042921	.0076725	31.55529	26.31424	F 11.91319
Stddev	.0024256	.0000481	.0001404	.13028	.10626	.11788
%RSD	.8430794	1.120507	1.829248	.4128597	.4038021	.9894947

#1	.2851991	.0042735	.0076672	31.40765	26.20328	11.78292
#2	.2878793	.0042560	.0075349	31.60417	26.41507	11.94412
#3	.2900410	.0043466	.0078154	31.65407	26.32438	12.01251

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.266639	120.1486	.8712623	18.52408	F 11.50748	.0011576
Stddev	.008941	.7345	.0024140	.02487	.11504	.0001034
%RSD	.7058598	.6113147	.2770701	.1342677	.9997098	8.928771

#1	1.276635	119.3151	.8689481	18.49599	11.38010	.0011312
#2	1.259405	120.4295	.8710735	18.54331	11.53853	.0010700
#3	1.263878	120.7011	.8737651	18.53292	11.60381	.0012716

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	31.55221	.2653342	1.947634	9.463292	F 11.93254	.6557734
Stddev	.09093	.0019155	.007655	.116930	.12694	.0027071
%RSD	.2881936	.7219141	.3930438	1.235612	1.063772	.4128043

#1	31.63906	.2634159	1.953521	9.332048	11.78762	.6526932
#2	31.55988	.2672469	1.950400	9.501461	11.98602	.6568525
#3	31.45769	.2653399	1.938980	9.556368	12.02399	.6577744

Sample Name: Q1151-02 Acquired: 1/27/2025 18:34:26 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ1 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.754979	F 105.4346	5.082301	.0911807	1.067668	.0710895
Stddev	.016167	.7817	.027982	.0010387	.002903	.0007556
%RSD	.9211860	.7413850	.5505850	1.139178	.2719345	1.062858
#1	1.736718	104.5507	5.114596	.0903003	1.071020	.0702217
#2	1.760753	105.7179	5.065242	.0923263	1.066054	.0714452
#3	1.767467	106.0351	5.067067	.0909156	1.065930	.0716015

Elem	Sr4077
Units	ppm
Avg	.4135445
Stddev	.0027549
%RSD	.6661708
#1	.4104992
#2	.4142708
#3	.4158636

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3403.305	79807.50	12109.42	2597.378	4172.774
Stddev	31.233	62.65	93.93	6.364	40.952
%RSD	.9177173	.0785035	.7756857	.2450057	.9814118
#1	3436.000	79878.08	12002.84	2594.072	4217.260
#2	3400.138	79785.97	12145.32	2593.347	4164.416
#3	3373.776	79758.45	12180.12	2604.714	4136.645

Sample Name: Q1151-03 Acquired: 1/27/2025 18:38:28 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0828945	-.004345	1.567960	.0281109	.0213732	37.11711
Stddev	.0043395	.001055	.005914	.0012601	.0010590	.32680
%RSD	5.235001	24.27128	.3771557	4.482618	4.954738	.8804617

#1	.0829448	-.003398	1.574217	.0288413	.0212350	36.75390
#2	.0872086	-.005481	1.562462	.0288356	.0224945	37.21004
#3	.0785300	-.004156	1.567203	.0266559	.0203901	37.38737

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3236039	.0072655	.0152435	16.79408	1.845119	F 8.528199
Stddev	.0037358	.0001004	.0001576	.14261	.004878	.036148
%RSD	1.154428	1.381651	1.033693	.8491620	.2643797	.4238648

#1	.3193097	.0073711	.0154164	16.63639	1.839948	8.566598
#2	.3253956	.0071713	.0151081	16.83186	1.849640	8.494828
#3	.3261063	.0072541	.0152059	16.91400	1.845768	8.523172

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.188620	99.28287	.5477526	9.304021	F 5.133687	.0024866
Stddev	.003884	.75718	.0033695	.057084	.022117	.0002989
%RSD	.3267594	.7626453	.6151461	.6135390	.4308284	12.01900

#1	1.191763	98.52040	.5438663	9.246613	5.157583	.0027981
#2	1.184278	99.29357	.5495344	9.360775	5.113934	.0024595
#3	1.189818	100.0346	.5498571	9.304676	5.129544	.0022022

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	21.31914	.1535716	2.286873	2.813644	2.844984	.5091452
Stddev	.29200	.0016856	.027820	.097168	.015830	.0029872
%RSD	1.369673	1.097565	1.216499	3.453464	.5564237	.5867038

#1	21.55573	.1555132	2.254812	2.734597	2.860855	.5060994
#2	21.40890	.1524833	2.304641	2.784210	2.829195	.5092661
#3	20.99280	.1527184	2.301167	2.922127	2.844902	.5120701

Sample Name: Q1151-03 Acquired: 1/27/2025 18:38:28 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ2 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1316058	F 60.40851	2.361144	.0784245	.6172808	.0332066
Stddev	.0006639	.28906	.013884	.0004956	.0032524	.0002601
%RSD	.5044885	.4785018	.5880169	.6319248	.5268864	.7832934
#1	.1323682	60.71560	2.376854	.0784259	.6191893	.0330609
#2	.1311546	60.14171	2.350519	.0779283	.6135254	.0330519
#3	.1312947	60.36821	2.356060	.0789194	.6191276	.0335068

Elem	Sr4077
Units	ppm
Avg	.1975145
Stddev	.0020596
%RSD	1.042748
#1	.1951621
#2	.1983879
#3	.1989934

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3861.479	82584.64	12858.22	2675.659	4205.128
Stddev	10.310	249.09	130.40	19.236	16.151
%RSD	.2669847	.3016121	1.014135	.7189407	.3840774
#1	3850.861	82861.16	12707.93	2697.736	4189.167
#2	3871.450	82514.90	12925.43	2666.742	4221.462
#3	3862.124	82377.86	12941.30	2662.500	4204.754

Sample Name: Q1151-04 Acquired: 1/27/2025 18:42:21 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0513198	-.000629	.5237729	.0194253	.0124175	35.65171
Stddev	.0002776	.000603	.0041839	.0054014	.0017374	.10008
%RSD	.5408730	95.80961	.7988036	27.80586	13.99186	.2807132

#1	.0516150	.000023	.5261460	.0147329	.0106559	35.71672
#2	.0510641	-.000744	.5262308	.0253298	.0124669	35.70194
#3	.0512804	-.001166	.5189420	.0182133	.0141298	35.53646

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1136273	.0022595	.0026221	14.58903	.2201465	1.500838
Stddev	.0006834	.0000327	.0000880	.03482	.0004002	.004444
%RSD	.6014270	1.448304	3.356305	.2386980	.1817928	.2961277

#1	.1129396	.0022858	.0025690	14.61255	.2197552	1.504223
#2	.1136360	.0022698	.0025736	14.60551	.2205551	1.502485
#3	.1143063	.0022229	.0027237	14.54903	.2201293	1.495805

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1737731	109.1590	.4931003	9.769327	.6503931	.0008161
Stddev	.0013167	.2896	.0009593	.040347	.0020698	.0007576
%RSD	.7577109	.2652566	.1945500	.4129951	.3182427	92.82906

#1	.1730721	109.3049	.4931101	9.759104	.6515292	.0008702
#2	.1729553	109.3465	.4940546	9.813801	.6516460	.0015451
#3	.1752920	108.8255	.4921360	9.735074	.6480040	.0000329

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	19.23713	.1136370	.3775964	4.387295	1.692565	.5406279
Stddev	.31362	.0010663	.0060613	.051739	.006254	.0009302
%RSD	1.630281	.9383219	1.605240	1.179285	.3694915	.1720684

#1	18.89062	.1124472	.3801262	4.428484	1.696661	.5402514
#2	19.50151	.1139576	.3706800	4.329224	1.695668	.5416874
#3	19.31927	.1145062	.3819831	4.404177	1.685366	.5399449

Sample Name: Q1151-04 Acquired: 1/27/2025 18:42:21 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0395593	F 79.21304	4.326668	.0229890	.9192270	.0533192
Stddev	.0005081	.25685	.016214	.0011175	.0032224	.0007147
%RSD	1.284500	.3242515	.3747551	4.861258	.3505602	1.340347
#1	.0401364	79.44878	4.338209	.0233090	.9179835	.0526144
#2	.0391791	79.25102	4.308130	.0217463	.9168116	.0532999
#3	.0393623	78.93931	4.333664	.0239116	.9228859	.0540433

Elem	Sr4077
Units	ppm
Avg	.1252882
Stddev	.0001004
%RSD	.0801186
#1	.1253914
#2	.1251908
#3	.1252825

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3716.909	78004.70	12200.24	2526.186	4317.000
Stddev	3.333	85.43	24.70	4.112	8.229
%RSD	.0896641	.1095133	.2024704	.1627581	.1906156
#1	3717.645	77982.20	12204.86	2521.449	4314.059
#2	3713.269	77932.77	12222.31	2528.279	4310.646
#3	3719.812	78099.12	12173.56	2528.829	4326.295

Sample Name: Q1151-05 Acquired: 1/27/2025 18:46:18 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0887587	-.003815	1.256959	.0354469	.0203947	74.63712
Stddev	.0007121	.002862	.002521	.0023605	.0009010	.11897
%RSD	.8022455	75.02293	.2005629	6.659274	4.417598	.1593932

#1	.0885262	-.001301	1.259207	.0331248	.0206197	74.52924
#2	.0895580	-.006929	1.257438	.0353720	.0211619	74.76471
#3	.0881920	-.003213	1.254233	.0378440	.0194026	74.61743

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2613228	.0066585	.0106948	22.29805	4.467221	F 5.539451
Stddev	.0009596	.0000694	.0000421	.06419	.006754	.006676
%RSD	.3671993	1.042575	.3934527	.2878868	.1511993	.1205225

#1	.2603182	.0067105	.0106491	22.23430	4.474725	5.542457
#2	.2622299	.0066854	.0107034	22.36267	4.465312	5.544095
#3	.2614202	.0065797	.0107320	22.29717	4.461627	5.531800

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5673546	176.8981	1.363929	30.31978	4.299666	.0025893
Stddev	.0030938	.3648	.003202	.14447	.006265	.0000930
%RSD	.5453058	.2062156	.2347744	.4764992	.1457118	3.593048

#1	.5700791	176.5004	1.360610	30.19258	4.301939	.0024865
#2	.5639912	177.2172	1.367000	30.28990	4.304477	.0026677
#3	.5679934	176.9766	1.364175	30.47686	4.292581	.0026136

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	45.33569	.2029770	2.028322	17.08317	8.100535	.8591426
Stddev	.29208	.0022968	.012421	.03695	.016852	.0019689
%RSD	.6442507	1.131542	.6123702	.2163046	.2080390	.2291667

#1	45.67292	.2003311	2.013980	17.04053	8.115342	.8569879
#2	45.16379	.2041438	2.035553	17.10311	8.104067	.8608478
#3	45.17034	.2044561	2.035434	17.10587	8.082197	.8595922

Sample Name: Q1151-05 Acquired: 1/27/2025 18:46:18 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ4 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3978152	F 121.8718	5.933357	.0537031	1.537713	.1303187
Stddev	.0007691	.2516	.035397	.0008963	.007751	.0010375
%RSD	.1933378	.2064842	.5965704	1.669037	.5040552	.7961386
#1	.3974968	122.0991	5.966914	.0537624	1.546539	.1308607
#2	.3972563	121.9151	5.896370	.0527786	1.534582	.1309729
#3	.3986924	121.6014	5.936786	.0545683	1.532016	.1291224

Elem	Sr4077
Units	ppm
Avg	.2420323
Stddev	.0005141
%RSD	.2124197
#1	.2414815
#2	.2424995
#3	.2421158

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3907.762	84254.98	13356.31	2701.572	4103.706
Stddev	10.196	72.49	42.84	5.677	2.705
%RSD	.2609268	.0860420	.3207368	.2101339	.0659150
#1	3918.206	84338.19	13316.62	2708.099	4106.829
#2	3907.247	84205.42	13401.73	2697.780	4102.146
#3	3897.833	84221.35	13350.59	2698.838	4102.142

Sample Name: Q1151-06 Acquired: 1/27/2025 18:50:12 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0758936	-.001625	.6278153	.0263370	.0212763	66.94854
Stddev	.0016367	.002706	.0018563	.0036617	.0025127	.35037
%RSD	2.156622	166.4602	.2956676	13.90322	11.80970	.5233429

#1	.0754000	-.000433	.6256744	.0222337	.0241261	66.75774
#2	.0745605	.000279	.6289758	.0275055	.0193796	67.35290
#3	.0777203	-.004723	.6287956	.0292718	.0203234	66.73498

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2335204	.0050290	.0057691	12.08603	10.72783	3.313764
Stddev	.0011446	.0000315	.0000628	.05035	.01388	.004510
%RSD	.4901358	.6269093	1.089241	.4165680	.1293960	.1361042

#1	.2329008	.0050645	.0057082	12.03638	10.71194	3.317409
#2	.2348412	.0050042	.0057654	12.13704	10.73759	3.308720
#3	.2328192	.0050183	.0058337	12.08467	10.73397	3.315163

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4254242	140.8663	1.181699	28.04811	3.049012	.0024285
Stddev	.0023754	.6492	.002807	.07000	.002601	.0003627
%RSD	.5583659	.4608816	.2375662	.2495776	.0852969	14.93592

#1	.4275602	140.4035	1.180106	27.99312	3.046564	.0020204
#2	.4258464	141.6084	1.184940	28.12691	3.048731	.0027141
#3	.4228659	140.5869	1.180051	28.02430	3.051742	.0025510

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	43.36818	.1982497	1.202322	15.04062	3.986184	.6879979
Stddev	.26469	.0028034	.007570	.09411	.006360	.0017970
%RSD	.6103430	1.414073	.6295914	.6257077	.1595498	.2611967

#1	43.62252	.1950230	1.194382	14.96563	3.992684	.6862402
#2	43.38781	.1996390	1.203126	15.14622	3.979975	.6898318
#3	43.09422	.2000872	1.209458	15.01000	3.985893	.6879216

Sample Name: Q1151-06 Acquired: 1/27/2025 18:50:12 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ5 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3549858	F 87.68603	6.651267	.0358445	1.389649	.1160669
Stddev	.0011761	.06225	.035652	.0004993	.005818	.0002786
%RSD	.3313179	.0709923	.5360168	1.393079	.4186861	.2399947
#1	.3563177	87.69479	6.670719	.0362262	1.393242	.1160304
#2	.3540900	87.61987	6.672963	.0360278	1.392770	.1158084
#3	.3545498	87.74344	6.610121	.0352794	1.382936	.1163619

Elem	Sr4077
Units	ppm
Avg	.2344730
Stddev	.0007621
%RSD	.3250118
#1	.2337570
#2	.2352740
#3	.2343880

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3677.307	81613.01	12961.46	2639.032	4111.323
Stddev	7.681	193.77	55.70	12.274	2.926
%RSD	.2088666	.2374204	.4297090	.4650814	.0711694
#1	3675.023	81743.44	12906.92	2653.142	4112.666
#2	3671.028	81390.36	12959.21	2633.129	4107.966
#3	3685.871	81705.23	13018.25	2630.825	4113.336

Sample Name: Q1151-07 Acquired: 1/27/2025 18:54:06 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0160958	-.001158	.2745051	.0097443	.0045347	28.97688
Stddev	.0024044	.001497	.0015219	.0021515	.0009838	.14580
%RSD	14.93806	129.2583	.5544122	22.08002	21.69417	.5031488

#1	.0154435	.000526	.2751680	.0118921	.0038285	28.95353
#2	.0140848	-.001663	.2727642	.0075890	.0041172	28.84416
#3	.0187590	-.002338	.2755832	.0097519	.0056583	29.13294

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3099365	.0214913	.0092636	30.42619	.0915794	.1703208
Stddev	.0008669	.0001238	.0001147	.14954	.0000973	.0005823
%RSD	.2796935	.5758313	1.237970	.4914734	.1062642	.3418634

#1	.3100586	.0213704	.0093300	30.48986	.0916015	.1705626
#2	.3090151	.0216178	.0091312	30.25535	.0914729	.1696565
#3	.3107359	.0214857	.0093296	30.53334	.0916637	.1707431

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1753573	51.50031	1.085514	14.61912	.2456831	.0003314
Stddev	.0004585	.26098	.006890	.06058	.0006307	.0001290
%RSD	.2614548	.5067447	.6347637	.4144023	.2567246	38.92772

#1	.1756491	51.56146	1.090492	14.67468	.2462978	.0002211
#2	.1748289	51.21419	1.077649	14.55453	.2450375	.0002997
#3	.1755940	51.72528	1.088400	14.62815	.2457141	.0004732

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	48.64287	.0569178	.4519639	5.467896	6.042413	.2529071
Stddev	.12353	.0004758	.0022605	.029247	.017002	.0012609
%RSD	.2539465	.8359001	.5001450	.5348868	.2813851	.4985556

#1	48.63009	.0564963	.4522977	5.468482	6.061728	.2531911
#2	48.52622	.0568236	.4495550	5.438361	6.035799	.2515284
#3	48.77228	.0574337	.4540389	5.496846	6.029710	.2540018

Sample Name: Q1151-07 Acquired: 1/27/2025 18:54:06 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ6 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044542	F 19.01717	5.331130	.0437626	.2652369	.0192900
Stddev	.0003441	.03688	.012284	.0001407	.0006031	.0006201
%RSD	7.726131	.1939549	.2304277	.3214582	.2273821	3.214742
#1	.0048417	19.05955	5.339045	.0439178	.2645478	.0198178
#2	.0043368	18.99227	5.316978	.0437264	.2654942	.0186071
#3	.0041841	18.99970	5.337367	.0436435	.2656687	.0194452

Elem	Sr4077
Units	ppm
Avg	.3169615
Stddev	.0019789
%RSD	.6243481
#1	.3167210
#2	.3151138
#3	.3190497

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4873.225	104875.4	16585.51	3384.625	4125.338
Stddev	9.385	229.8	56.28	11.553	5.028
%RSD	.1925880	.2190792	.3393342	.3413390	.1218742
#1	4868.161	104627.3	16548.86	3375.258	4120.433
#2	4867.459	105080.9	16557.35	3397.535	4125.100
#3	4884.055	104917.9	16650.31	3381.083	4130.480

Sample Name: Q1151-08 Acquired: 1/27/2025 18:58:02 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0762684	.0014393	.7580748	.0253209	.0059362	25.63936
Stddev	.0003441	.0019059	.0011665	.0013653	.0008527	.12040
%RSD	.4511400	132.4246	.1538710	5.391856	14.36538	.4695900

#1	.0762097	.0031943	.7589986	.0238890	.0050179	25.77780
#2	.0759575	-.000588	.7567640	.0254657	.0067031	25.58118
#3	.0766381	.001712	.7584617	.0266080	.0060875	25.55909

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5175466	.0176600	.0075058	16.24432	.1707346	.2458559
Stddev	.0043935	.0000587	.0000808	.05212	.0005790	.0003321
%RSD	.8489126	.3322518	1.076404	.3208623	.3391086	.1350824

#1	.5225101	.0175943	.0075757	16.30390	.1712429	.2457112
#2	.5159734	.0176787	.0074173	16.22187	.1708566	.2462358
#3	.5141563	.0177071	.0075244	16.20718	.1701044	.2456207

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2430461	51.17148	.3841331	11.66616	.2569313	.0002890
Stddev	.0034915	.25146	.0042861	.05242	.0006564	.0000772
%RSD	1.436556	.4914081	1.115778	.4493729	.2554651	26.70928

#1	.2463117	51.46150	.3889742	11.71533	.2563661	.0003243
#2	.2434610	51.01429	.3808218	11.67216	.2567767	.0003422
#3	.2393658	51.03864	.3826034	11.61100	.2576512	.0002005

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	35.52005	.0858408	.5413282	5.259314	4.930691	.2647862
Stddev	.26413	.0013324	.0051231	.055584	.003098	.0013080
%RSD	.7436166	1.552186	.9463965	1.056868	.0628361	.4939699

#1	35.57500	.0870979	.5470885	5.306339	4.927504	.2661400
#2	35.75239	.0844441	.5396141	5.273631	4.933693	.2635294
#3	35.23277	.0859805	.5372818	5.197972	4.930875	.2646891

Sample Name: Q1151-08 Acquired: 1/27/2025 18:58:02 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ7 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0133872	F 41.57838	4.463615	.0190624	.7151061	.0185252
Stddev	.0002723	.04867	.015891	.0009659	.0037486	.0010561
%RSD	2.034186	.1170488	.3560074	5.066846	.5242041	5.700845

#1	.0135658	41.52270	4.474700	.0194581	.7183365	.0196899
#2	.0130738	41.59964	4.470737	.0197675	.7159861	.0182559
#3	.0135220	41.61280	4.445410	.0179615	.7109958	.0176299

Elem	Sr4077
Units	ppm
Avg	.3102727
Stddev	.0023469
%RSD	.7564062

#1	.3129150
#2	.3094729
#3	.3084303

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4299.088	91831.87	14424.83	2956.707	4243.047
Stddev	9.293	198.02	29.94	6.038	3.422
%RSD	.2161527	.2156326	.2075544	.2042146	.0806404

#1	4306.754	91612.45	14457.89	2950.047	4245.702
#2	4301.757	91997.29	14417.05	2958.251	4244.254
#3	4288.753	91885.87	14399.55	2961.823	4239.186

Sample Name: Q1151-09 Acquired: 1/27/2025 19:01:57 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ7D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0769253	.0034966	.7559648	.0260618	.0054233	25.82483
Stddev	.0017997	.0013330	.0027344	.0022606	.0008029	.16673
%RSD	2.339519	38.12312	.3617148	8.673925	14.80505	.6456195

#1	.0752774	.0019875	.7577560	.0271328	.0048627	25.66399
#2	.0766527	.0045135	.7528173	.0234647	.0063431	25.99688
#3	.0788457	.0039889	.7573210	.0275878	.0050641	25.81362

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5188818	.0175681	.0075353	16.22423	.1699403	.2459365
Stddev	.0030683	.0000584	.0000648	.05521	.0001582	.0003033
%RSD	.5913275	.3321896	.8604947	.3403214	.0931097	.1233061

#1	.5162157	.0175712	.0074900	16.19398	.1700372	.2457608
#2	.5222356	.0175082	.0076096	16.28796	.1697577	.2457621
#3	.5181942	.0176248	.0075064	16.19075	.1700259	.2462867

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2345918	51.19346	.3845146	11.69990	.2573014	.0004577
Stddev	.0022899	.25175	.0003344	.05657	.0002623	.0001119
%RSD	.9761364	.4917557	.0869709	.4834659	.1019328	24.45034

#1	.2340509	50.91144	.3849002	11.69141	.2575070	.0004957
#2	.2371038	51.39548	.3843400	11.76023	.2570060	.0005458
#3	.2326208	51.27348	.3843037	11.64806	.2573912	.0003318

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	35.51939	.0857176	.5396046	5.271787	4.909200	.2650126
Stddev	.30735	.0006170	.0026315	.024207	.016950	.0014732
%RSD	.8653016	.7198190	.4876634	.4591744	.3452654	.5559102

#1	35.31229	.0854441	.5374666	5.247901	4.901627	.2634214
#2	35.87253	.0852847	.5425434	5.296302	4.897357	.2663293
#3	35.37335	.0864241	.5388037	5.271156	4.928616	.2652871

Sample Name: Q1151-09 Acquired: 1/27/2025 19:01:57 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ7D Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0132973	F 41.50570	5.006735	.0194143	.7288295	.0189314
Stddev	.0001172	.12780	.025866	.0001986	.0055872	.0004779
%RSD	.8816883	.3079102	.5166260	1.022833	.7666006	2.524584

#1	.0131745	41.47584	4.978330	.0192383	.7239565	.0183803
#2	.0133095	41.39547	5.028934	.0196296	.7349276	.0192325
#3	.0134080	41.64578	5.012940	.0193751	.7276043	.0191814

Elem	Sr4077
Units	ppm
Avg	.3106060
Stddev	.0021805
%RSD	.7020182

#1	.3087406
#2	.3130032
#3	.3100741

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4297.715	91895.71	14543.53	2975.262	4245.104
Stddev	22.746	121.79	76.07	11.557	17.798
%RSD	.5292672	.1325313	.5230617	.3884292	.4192660

#1	4301.877	91766.15	14484.19	2963.846	4246.356
#2	4318.093	92007.87	14629.29	2974.987	4262.243
#3	4273.175	91913.10	14517.12	2986.954	4226.712

Sample Name: Q1151-08LX5 Acquired: 1/27/2025 19:05:53 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ7L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0183215	.0016233	.1562835	.0066361	.0021017	5.813757	.1135360
Stddev	.0016658	.0012309	.0016812	.0012581	.0007304	.004477	.0010928
%RSD	9.092208	75.82618	1.075719	18.95800	34.75314	.0770033	.9624681
#1	.0173967	.0006640	.1563557	.0074854	.0029397	5.816756	.1122743
#2	.0173234	.0030113	.1545674	.0072321	.0017649	5.815905	.1141563
#3	.0202446	.0011947	.1579274	.0051908	.0016004	5.808611	.1141775
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0043476	.0014586	3.709881	.0404108	.0493884	.0591074	11.75691
Stddev	.0000625	.0000938	.012976	.0002464	.0001076	.0007665	.02499
%RSD	1.436414	6.433259	.3497700	.6097962	.2178565	1.296833	.2125856
#1	.0043659	.0015576	3.711430	.0404217	.0495123	.0582236	11.73073
#2	.0042780	.0013710	3.696200	.0406516	.0493191	.0595919	11.78052
#3	.0043988	.0014471	3.722013	.0401591	.0493338	.0595065	11.75949
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0877011	2.638854	.0516309	-.000127	8.343853	.0202908	.1239131
Stddev	.0001750	.012127	.0001960	.000304	.250434	.0012497	.0018135
%RSD	.1994819	.4595699	.3796430	239.2859	3.001417	6.159139	1.463541
#1	.0875192	2.650525	.0516110	.000087	8.238250	.0214558	.1259047
#2	.0878682	2.639721	.0518362	-.000475	8.629792	.0204457	.1234778
#3	.0877159	2.626317	.0514457	.000007	8.163517	.0189708	.1223569
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.072871	.9993895	.0600495	.0031898	8.473208	1.135413	.0044953
Stddev	.020834	.0050438	.0002485	.0001371	.008380	.000924	.0003773
%RSD	1.941883	.5046902	.4137929	4.298296	.0988996	.0813666	8.393869
#1	1.066986	.9937930	.0600688	.0030322	8.464069	1.134637	.0044307
#2	1.055613	1.000791	.0597919	.0032555	8.475024	1.136435	.0041545
#3	1.096015	1.003584	.0602878	.0032818	8.480531	1.135168	.0049008

Sample Name: Q1151-08LX5 Acquired: 1/27/2025 19:05:53 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ7L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1713136	.0041739	.0687818
Stddev	.0010617	.0006062	.0001455
%RSD	.6197319	14.52420	.2115321
#1	.1723141	.0037401	.0689498
#2	.1701998	.0039149	.0686965
#3	.1714269	.0048665	.0686990

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3810.103	81769.80	12166.22	2648.438	4466.002
Stddev	10.242	14.44	13.11	16.093	11.707
%RSD	.2688141	.0176611	.1077614	.6076312	.2621373
#1	3799.695	81753.40	12173.96	2638.202	4452.903
#2	3810.445	81775.37	12173.62	2640.125	4469.660
#3	3820.170	81780.63	12151.08	2666.987	4475.444

Sample Name: Q1151-10 Acquired: 1/27/2025 19:09:55 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ7S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1339277	.1026208	.7745042	.1661957	.1455581	28.41242
Stddev	.0005221	.0007588	.0021186	.0003630	.0012662	.01854
%RSD	.3898556	.7393905	.2735373	.2184179	.8698824	.0652699

#1	.1342806	.1034471	.7754324	.1657783	.1441555	28.42170
#2	.1333280	.1024601	.7760002	.1663714	.1466167	28.42450
#3	.1341747	.1019553	.7720799	.1664375	.1459023	28.39107

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.637436	.0950733	.1017736	16.25911	.5183211	1.191218
Stddev	.013423	.0006535	.0000187	.03734	.0025162	.001130
%RSD	.3690368	.6873190	.0183867	.2296858	.4854481	.0948541

#1	3.632190	.0948465	.1017729	16.23597	.5183533	1.191915
#2	3.652690	.0945634	.1017927	16.23917	.5157890	1.191824
#3	3.627428	.0958099	.1017553	16.30219	.5208210	1.189914

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6428840	51.92037	1.161244	11.59006	1.210144	.0591598
Stddev	.0008985	.03235	.002554	.07743	.001199	.0001947
%RSD	.1397567	.0622995	.2199118	.6680842	.0990585	.3290638

#1	.6438478	51.89672	1.158306	11.55135	1.210680	.0593709
#2	.6427345	51.90717	1.162927	11.53962	1.210981	.0589874
#3	.6420696	51.95723	1.162499	11.67921	1.208771	.0591212

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	37.12641	.9004768	1.288618	5.173423	4.876510	.2687201
Stddev	.11082	.0024242	.006814	.017620	.015382	.0002880
%RSD	.2984939	.2692109	.5287502	.3405900	.3154389	.1071928

#1	36.99854	.9032042	1.281188	5.165830	4.858784	.2685739
#2	37.19464	.8996586	1.294575	5.193566	4.886359	.2690520
#3	37.18604	.8985676	1.290091	5.160871	4.884385	.2685346

Sample Name: Q1151-10 Acquired: 1/27/2025 19:09:55 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ7S Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0126365	F 40.32393	5.901444	.0193608	.7599771	.0191091
Stddev	.0006480	.04079	.043884	.0006275	.0024225	.0007701
%RSD	5.128317	.1011680	.7436075	3.241307	.3187579	4.030094

#1	.0119129	40.28034	5.850959	.0193019	.7614311	.0182484
#2	.0128332	40.36118	5.922914	.0187648	.7571806	.0193456
#3	.0131634	40.33028	5.930459	.0200157	.7613196	.0197332

Elem	Sr4077
Units	ppm
Avg	.3072861
Stddev	.0009980
%RSD	.3247906

#1	.3071294
#2	.3083533
#3	.3063757

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4389.354	92517.36	14270.50	3044.232	4333.650
Stddev	2.706	608.22	100.87	21.438	.575
%RSD	.0616425	.6574097	.7068162	.7042109	.0132676

#1	4392.124	92848.01	14316.63	3065.448	4334.288
#2	4386.718	92888.64	14340.05	3044.670	4333.490
#3	4389.222	91815.44	14154.81	3022.579	4333.172

Sample Name: Q1151-11 Acquired: 1/27/2025 19:13:47 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0B00 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1371115	-.007159	.9798147	.0604072	.0324829	26.87135
Stddev	.0033768	.001783	.0024698	.0044332	.0023147	.15295
%RSD	2.462828	24.90229	.2520722	7.338834	7.125984	.5691854
#1	.1407689	-.009010	.9806871	.0602477	.0324011	27.03226
#2	.1364533	-.007013	.9770270	.0649180	.0302102	26.85393
#3	.1341122	-.005454	.9817299	.0560559	.0348375	26.72786
Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7460745	.0041471	.0255657	37.97886	.1383036	.0706457
Stddev	.0054043	.0000761	.0000943	.11119	.0003427	.0001186
%RSD	.7243703	1.834464	.3687755	.2927631	.2477607	.1678524
#1	.7518600	.0041157	.0256054	38.10275	.1385910	.0707770
#2	.7452072	.0042338	.0254580	37.94606	.1379244	.0705463
#3	.7411562	.0040917	.0256336	37.88775	.1383954	.0706140
Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4005731	359.4077	1.228077	23.65972	.2272666	-.000793
Stddev	.0027952	1.4378	.002976	.13693	.0006168	.000662
%RSD	.6978016	.4000588	.2423409	.5787484	.2713881	83.42702
#1	.3999063	360.9631	1.230855	23.80759	.2279713	-.000136
#2	.4036415	359.1329	1.228440	23.63427	.2268248	-.001459
#3	.3981716	358.1271	1.224936	23.53731	.2270037	-.000784
Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	38.41468	.1215893	4.436435	6.627691	F 19.34846	1.578505
Stddev	.27939	.0012165	.015546	.072078	.03699	.008465
%RSD	.7273124	1.000511	.3504130	1.087531	.1911824	.5362975
#1	38.73615	.1213478	4.454057	6.702382	19.37959	1.587826
#2	38.27751	.1205117	4.430583	6.622146	19.35822	1.576397
#3	38.23039	.1229085	4.424664	6.558545	19.30757	1.571293

Sample Name: Q1151-11 Acquired: 1/27/2025 19:13:47 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0B00 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0136625	F 74.48428	4.926083	3.228632	.7755144	.0360083
Stddev	.0002207	.10799	.003575	.002861	.0043932	.0010525
%RSD	1.615343	.1449831	.0725773	.0886161	.5664944	2.922964

#1	.0139128	74.60180	4.926127	3.227735	.7759490	.0372227
#2	.0134958	74.46164	4.922486	3.226327	.7796742	.0353599
#3	.0135788	74.38941	4.929636	3.231834	.7709200	.0354423

Elem	Sr4077
Units	ppm
Avg	.3096480
Stddev	.0019452
%RSD	.6282128

#1	.3117635
#2	.3092441
#3	.3079364

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3706.723	80214.10	12354.02	2611.569	4112.473
Stddev	7.030	94.78	29.21	4.703	4.347
%RSD	.1896587	.1181621	.2364489	.1800807	.1057007

#1	3714.629	80108.69	12386.46	2606.182	4107.681
#2	3701.173	80241.28	12345.81	2613.673	4113.576
#3	3704.368	80292.32	12329.80	2614.853	4116.163

Sample Name: CCV023 Acquired: 1/27/2025 19:21:58 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV023 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.008648	4.621067	24.30442	4.836545	4.887723	403.1535
Stddev	.015598	.031475	.06413	.019075	.021906	3.2345
%RSD	.3114301	.6811128	.2638621	.3943887	.4481851	.8023036

#1	4.993762	4.592299	24.25520	4.817788	4.870404	400.7363
#2	5.007309	4.616218	24.28111	4.835926	4.880416	406.8278
#3	5.024872	4.654685	24.37694	4.855923	4.912348	401.8962

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.925218	.4788448	2.420897	405.8619	15.34153	2.418212
Stddev	.163891	.0015954	.007264	1.3479	.05483	.006523
%RSD	1.651258	.3331801	.3000573	.3321087	.3574173	.2697247

#1	9.736040	.4771928	2.414577	404.8210	15.29878	2.413479
#2	10.01544	.4803769	2.419280	407.3845	15.40335	2.415505
#3	10.02417	.4789647	2.428833	405.3803	15.32247	2.425652

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.45309	407.7298	14.80126	398.7629	2.415123	1.254635
Stddev	.02856	.7187	.03126	.4072	.006429	.001621
%RSD	.1975909	.1762768	.2112248	.1021050	.2661829	.1292059

#1	14.48529	408.2175	14.83732	399.1403	2.410601	1.256356
#2	14.43081	408.0674	14.78478	398.8169	2.412286	1.254413
#3	14.44317	406.9044	14.78169	398.3314	2.422482	1.253137

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	377.2276	2.390490	15.06274	154.6102	4.943449	F 5.837398
Stddev	1.2773	.005794	.05540	.3519	.015648	.001737
%RSD	.3385919	.2423909	.3677641	.2275777	.3165407	.0297514

#1	378.5058	2.396589	15.08724	154.9100	4.925919	5.838011
#2	375.9513	2.385057	15.10167	154.6978	4.956008	5.835439
#3	377.2258	2.389825	14.99932	154.2228	4.948419	5.838746

Sample Name: CCV023 Acquired: 1/27/2025 19:21:58 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV023 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.792162	4.890443	F 2.518286	4.891494	4.833492	5.075464
Stddev	.021531	.003443	.003883	.007883	.006526	.019360
%RSD	.4492898	.0704117	.1541949	.1611537	.1350224	.3814455

#1	4.769884	4.886916	2.522477	4.885724	4.839958	5.097580
#2	4.793742	4.890619	2.514811	4.888282	4.826907	5.067227
#3	4.812859	4.893796	2.517571	4.900476	4.833610	5.061584

Elem	Sr4077
Units	ppm
Avg	4.695748
Stddev	.039090
%RSD	.8324467

#1	4.705760
#2	4.652626
#3	4.728858

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2893.928	63732.11	10662.11	2048.358	3336.536
Stddev	9.374	192.38	28.73	12.921	7.934
%RSD	.3239248	.3018511	.2694833	.6308126	.2378009

#1	2901.086	63840.10	10691.36	2047.267	3338.315
#2	2897.382	63510.00	10633.92	2036.017	3343.430
#3	2883.317	63846.22	10661.04	2061.790	3327.863

Sample Name: CCB023 Acquired: 1/27/2025 19:26:16 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB023 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001181	.0006702	.0022601	-.000047	-.000924	.0108340	-.000231
Stddev	.001676	.0009652	.0006161	.000581	.001336	.0059688	.000665
%RSD	141.8848	144.0126	27.26032	1244.158	144.4599	55.09291	288.1232
#1	-.001970	-.000311	.0015743	.000374	-.001860	.0113365	-.000280
#2	-.002317	.000703	.0027670	.000196	-.001518	.0165357	-.000870
#3	.000744	.001619	.0024388	-.000710	.000605	.0046299	.000458
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000446	.0000444	.0064767	.0004219	-.000251	-.000828	.0165488
Stddev	.0000260	.0001009	.0085163	.0002064	.000140	.001304	.0058505
%RSD	58.29272	227.0753	131.4909	48.92167	55.80852	157.4397	35.35283
#1	.0000700	.0000689	.0007217	.0003322	-.000141	-.000743	.0135583
#2	.0000456	-.000066	.0024486	.0002755	-.000408	.000431	.0127981
#3	.0000181	.000131	.0162598	.0006580	-.000203	-.002172	.0232901
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001883	-.001827	-.000154	-.000262	.2779442	-.000544	.0008709
Stddev	.0000940	.010191	.000307	.000271	.4246571	.001064	.0014574
%RSD	49.91652	557.7130	199.5250	103.5411	152.7850	195.6227	167.3473
#1	.0002043	-.005142	-.000475	-.000474	-.107335	.000683	.0024685
#2	.0002733	-.009948	.000135	.000043	.207899	-.001107	.0005297
#3	.0000873	.009608	-.000121	-.000354	.733269	-.001207	-.000386
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0812839	.0006881	.0053732	.0006957	.0073695	-.001187	.0007498
Stddev	.0595517	.0013600	.0005885	.0003965	.0030854	.000712	.0005698
%RSD	73.26387	197.6434	10.95346	56.99160	41.86748	59.97173	75.99646
#1	.0507496	.0001777	.0059371	.0003669	.0103224	-.001505	.0013722
#2	.1499097	.0022295	.0047627	.0005843	.0041667	-.001685	.0006235
#3	.0431923	-.000343	.0054198	.0011361	.0076195	-.000372	.0002538

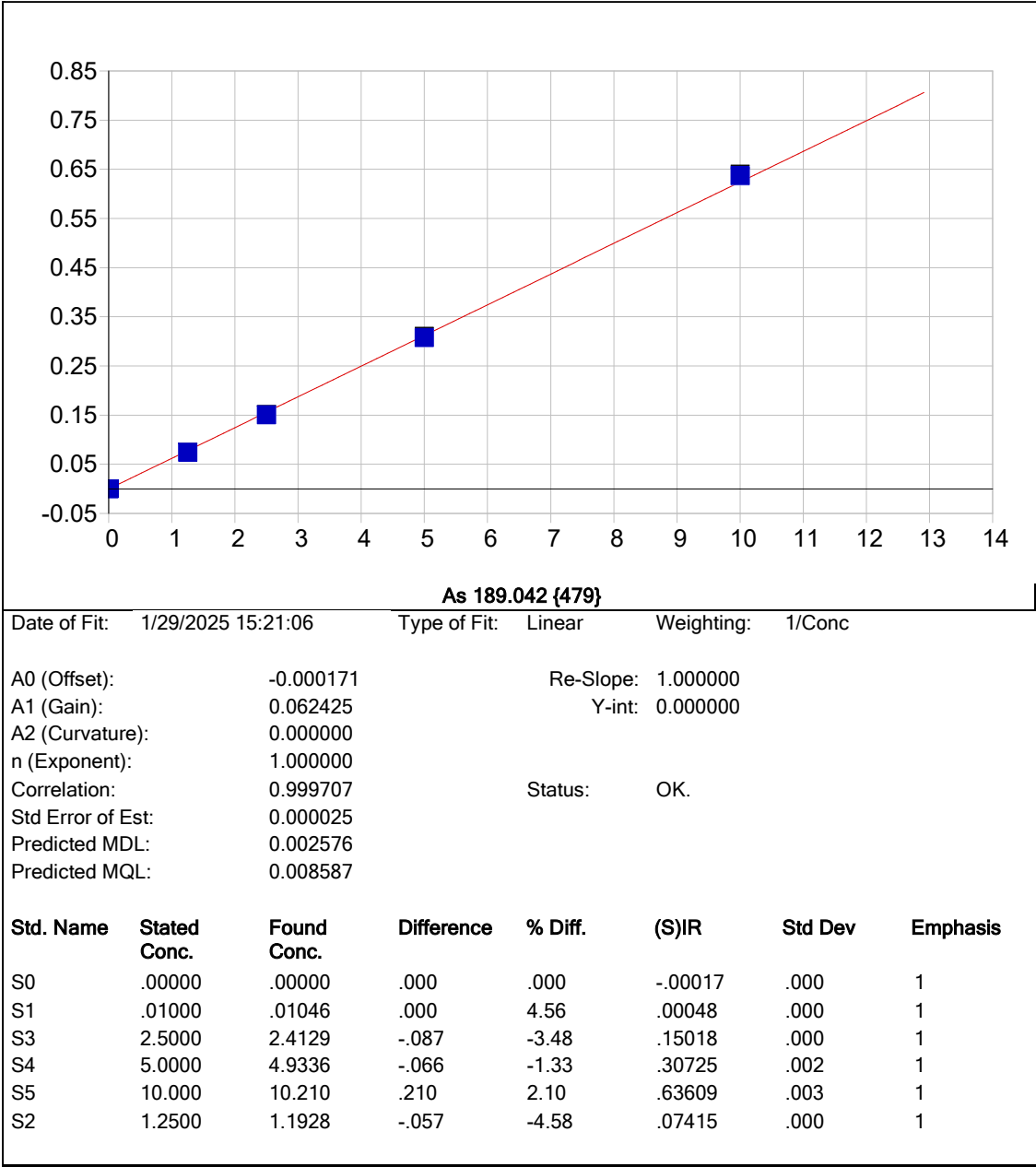
Sample Name: CCB023 Acquired: 1/27/2025 19:26:16 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB023 Custom ID2: Custom ID3:
Comment:

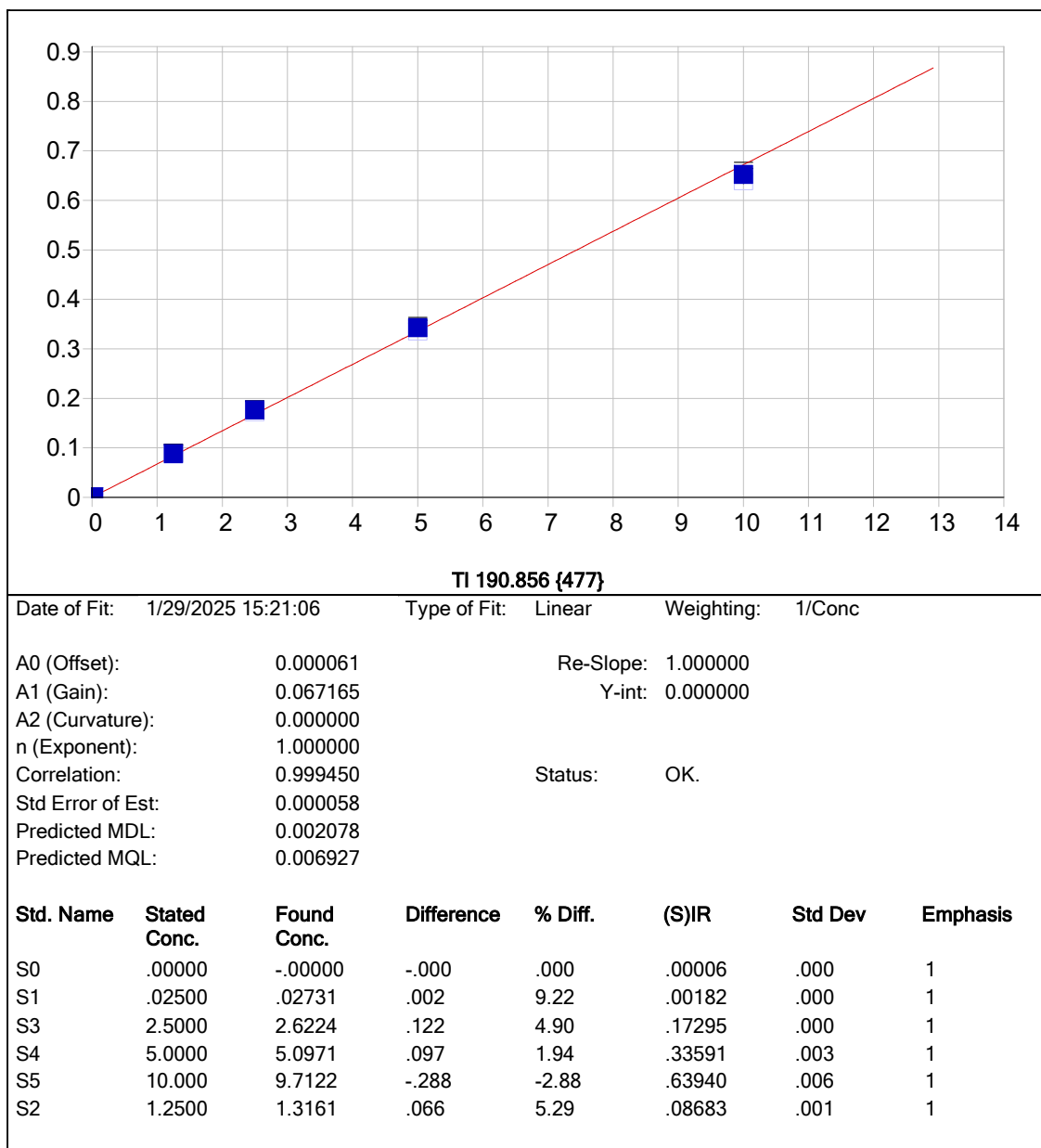
Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0011127	.0001217	.0001065
Stddev	.0006691	.0004483	.0000619
%RSD	60.13703	368.2657	58.06954

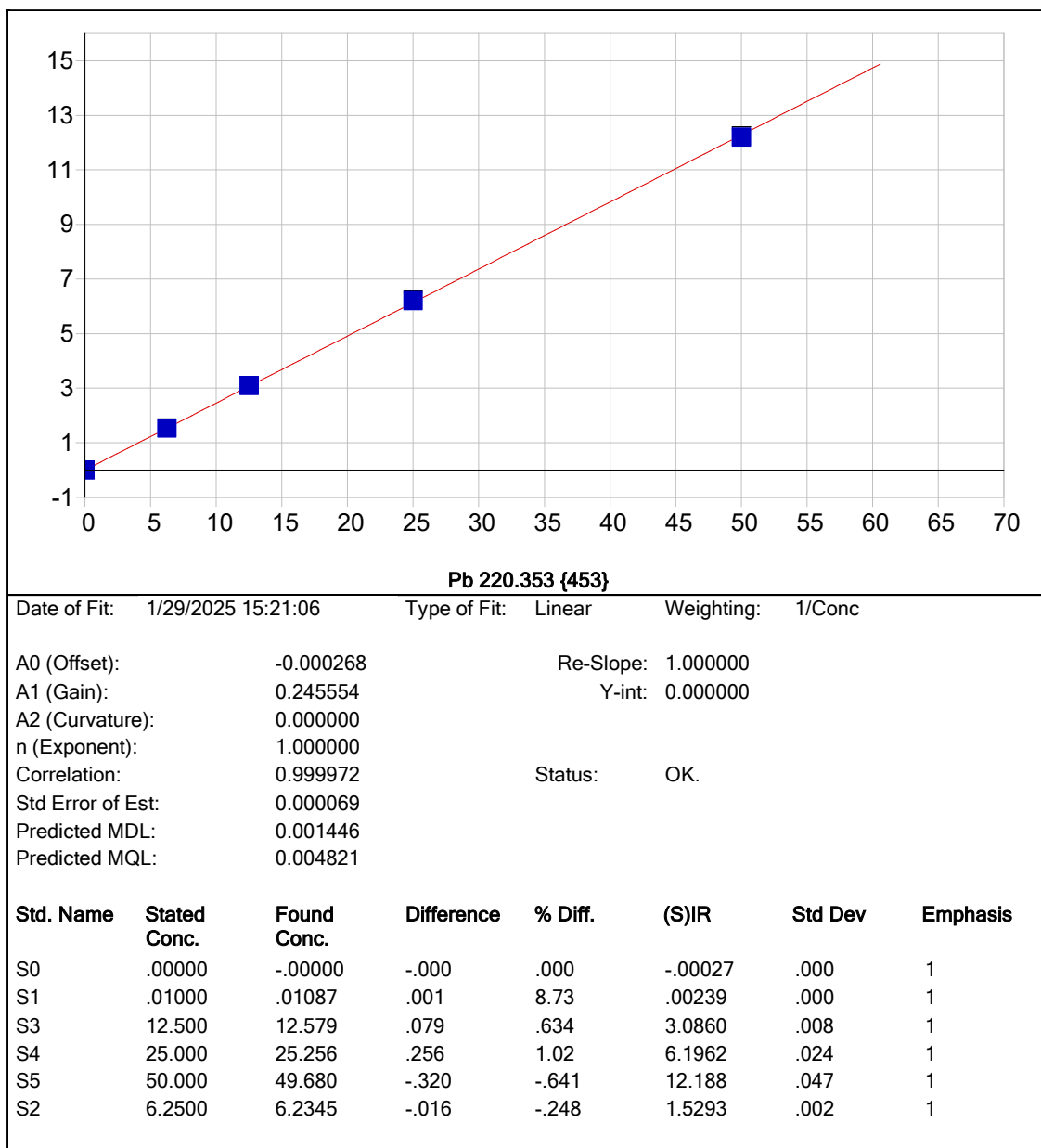
#1	.0015244	-.000381	.0001025
#2	.0003406	.000481	.0000468
#3	.0014731	.000266	.0001703

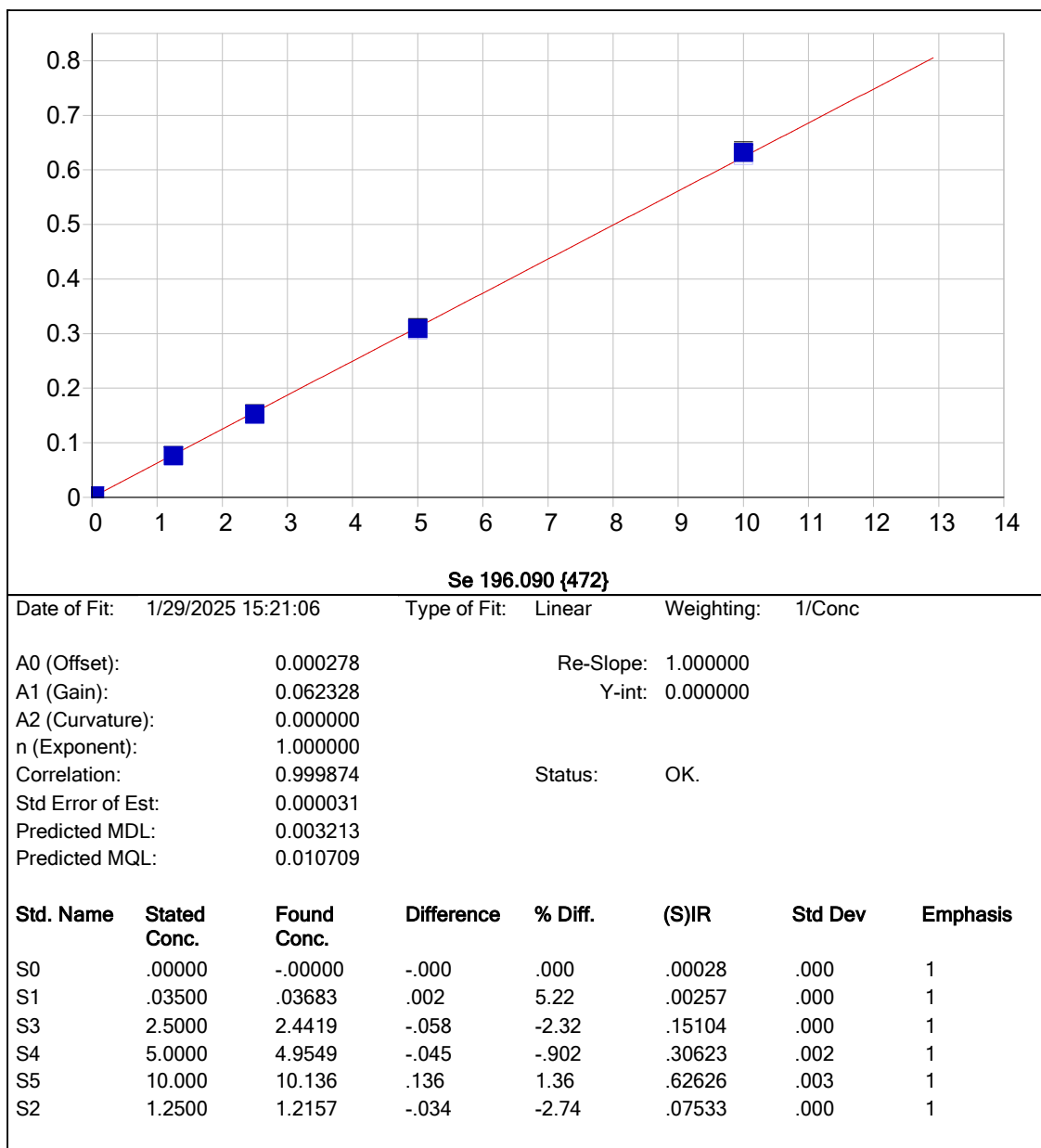
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3714.578	76897.24	11513.22	2536.835	4685.209
Stddev	2.806	225.48	49.09	17.471	1.730
%RSD	.0755477	.2932185	.4263627	.6886962	.0369331

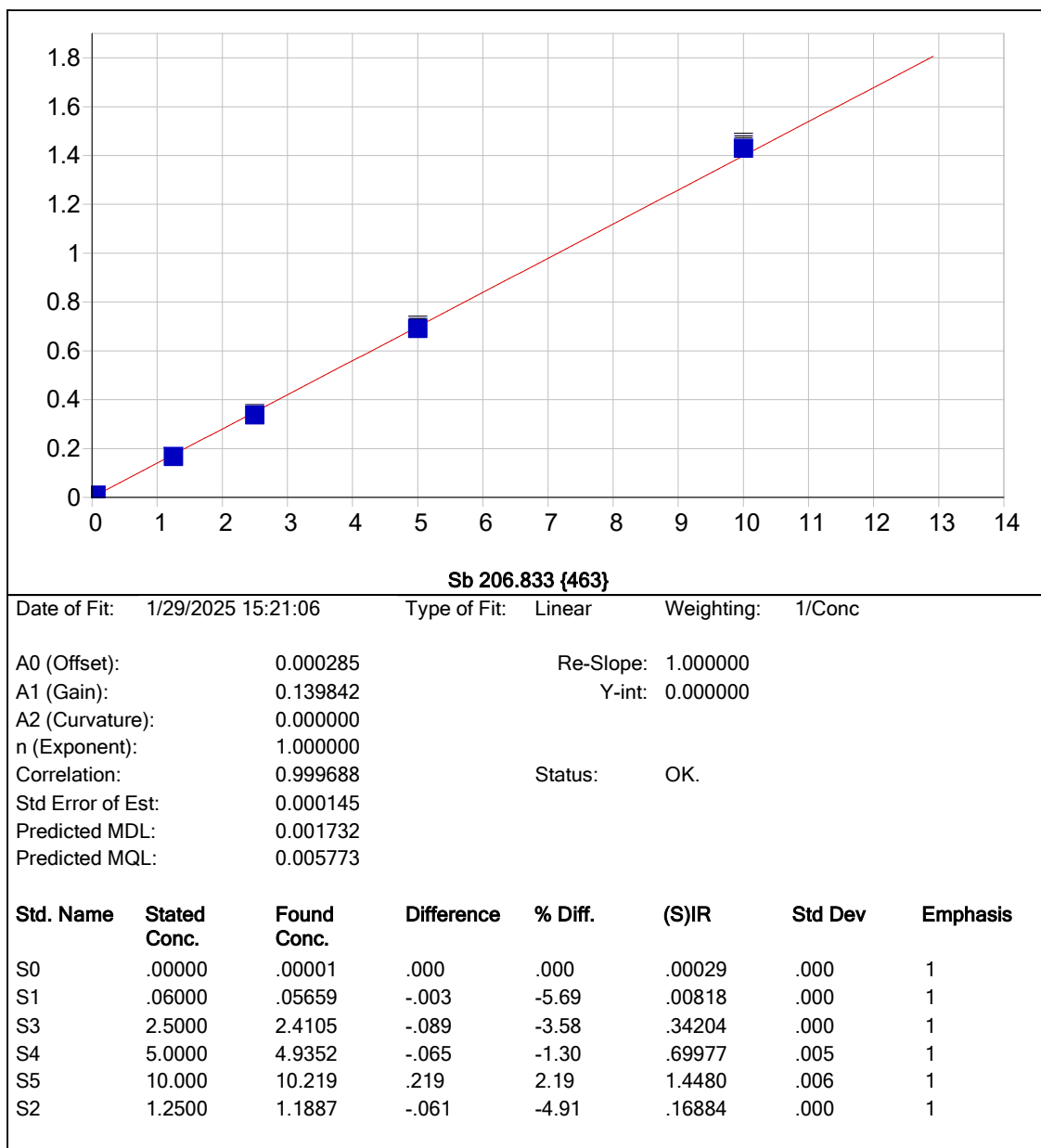
#1	3714.691	76981.56	11536.67	2524.439	4687.183
#2	3717.326	76641.76	11546.19	2529.249	4683.955
#3	3711.717	77068.40	11456.81	2556.817	4684.490

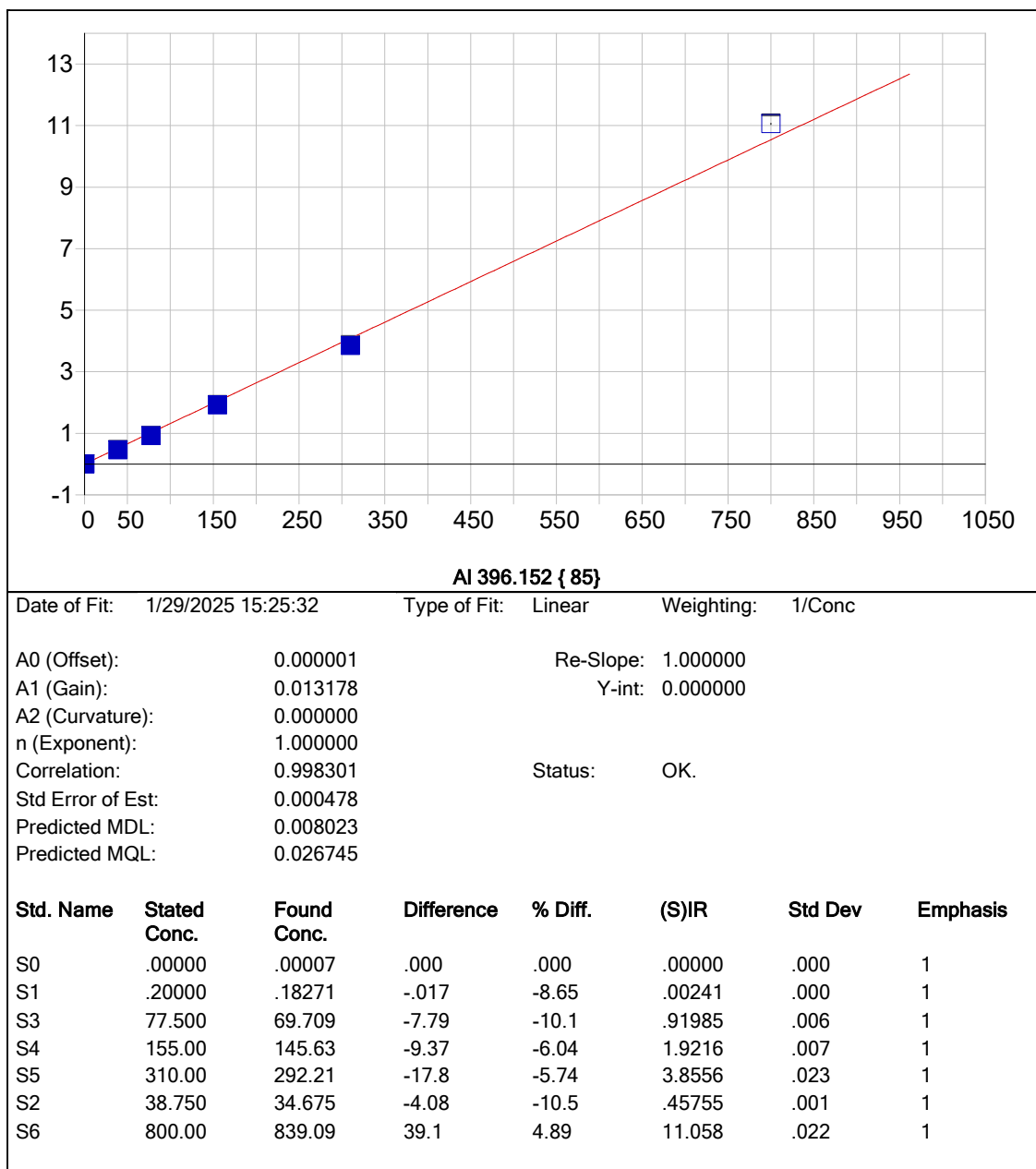


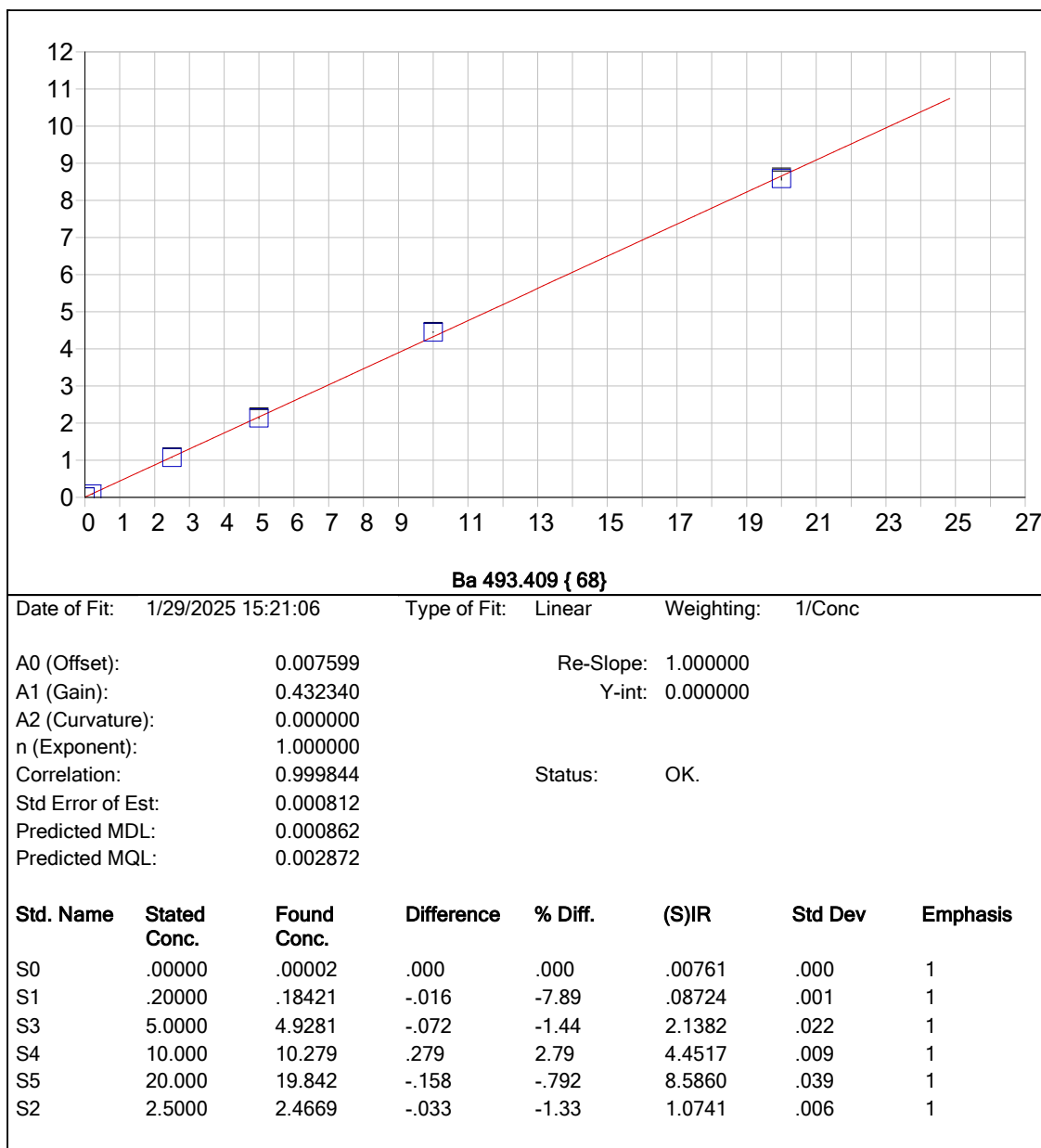


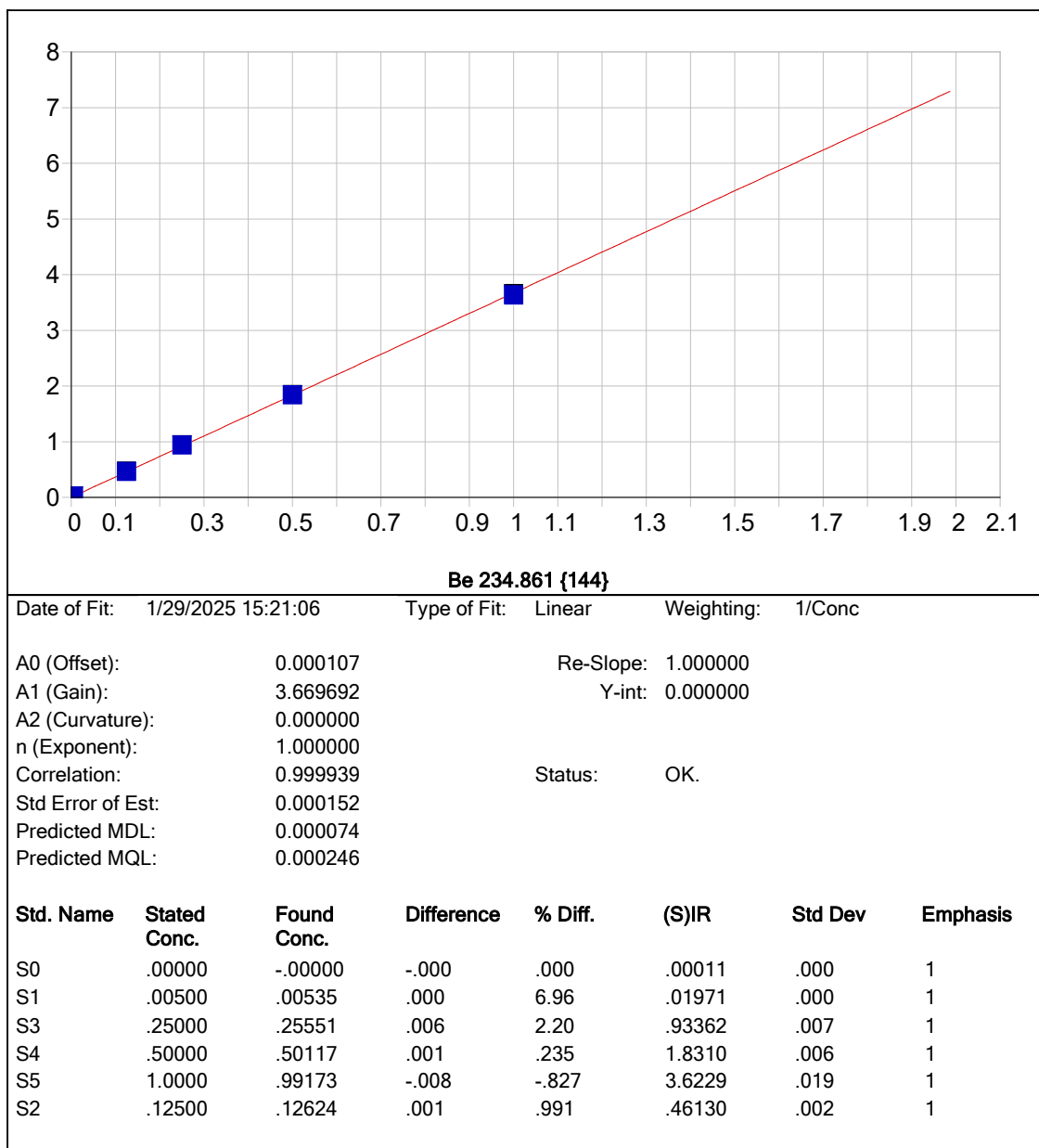


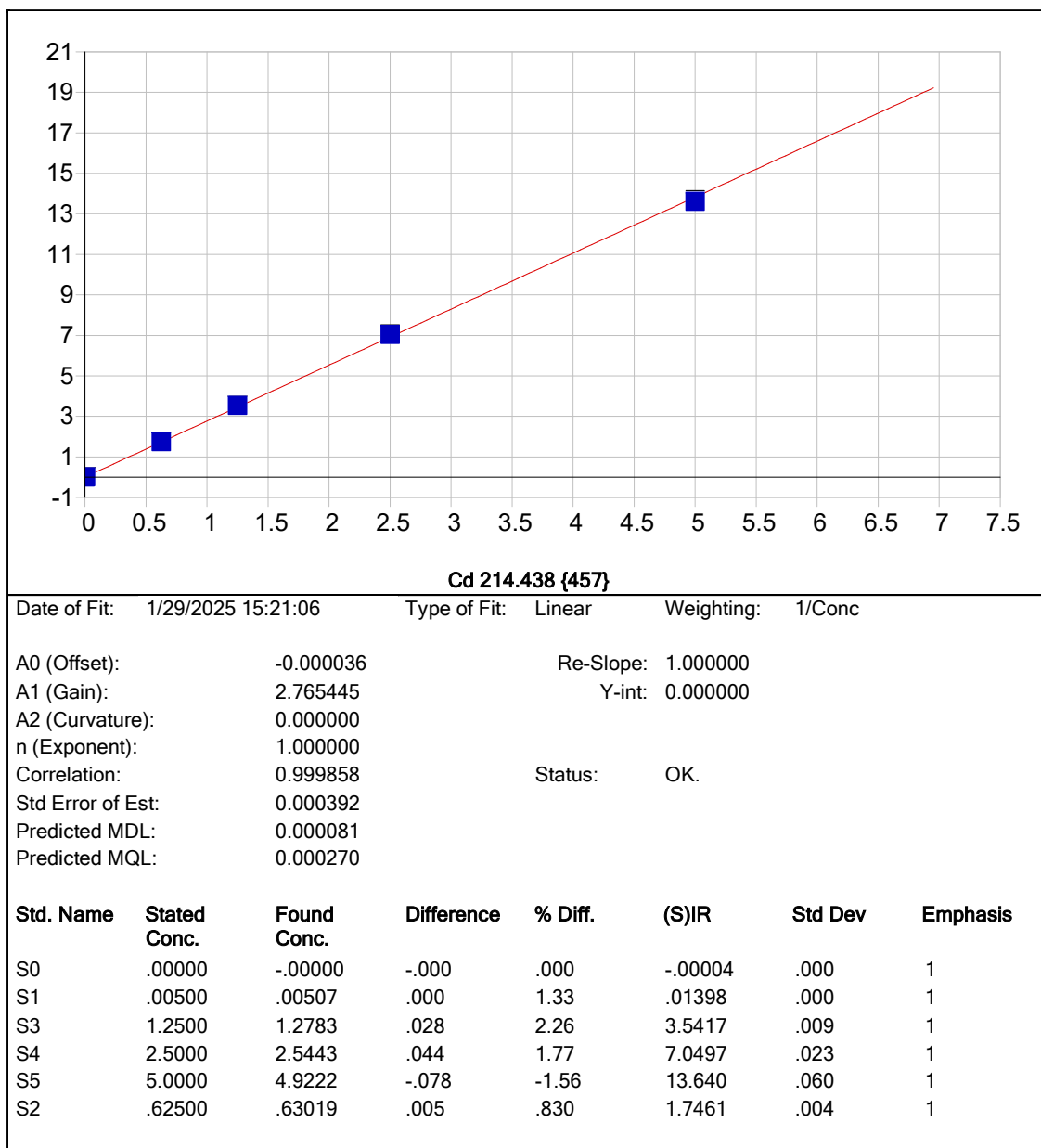


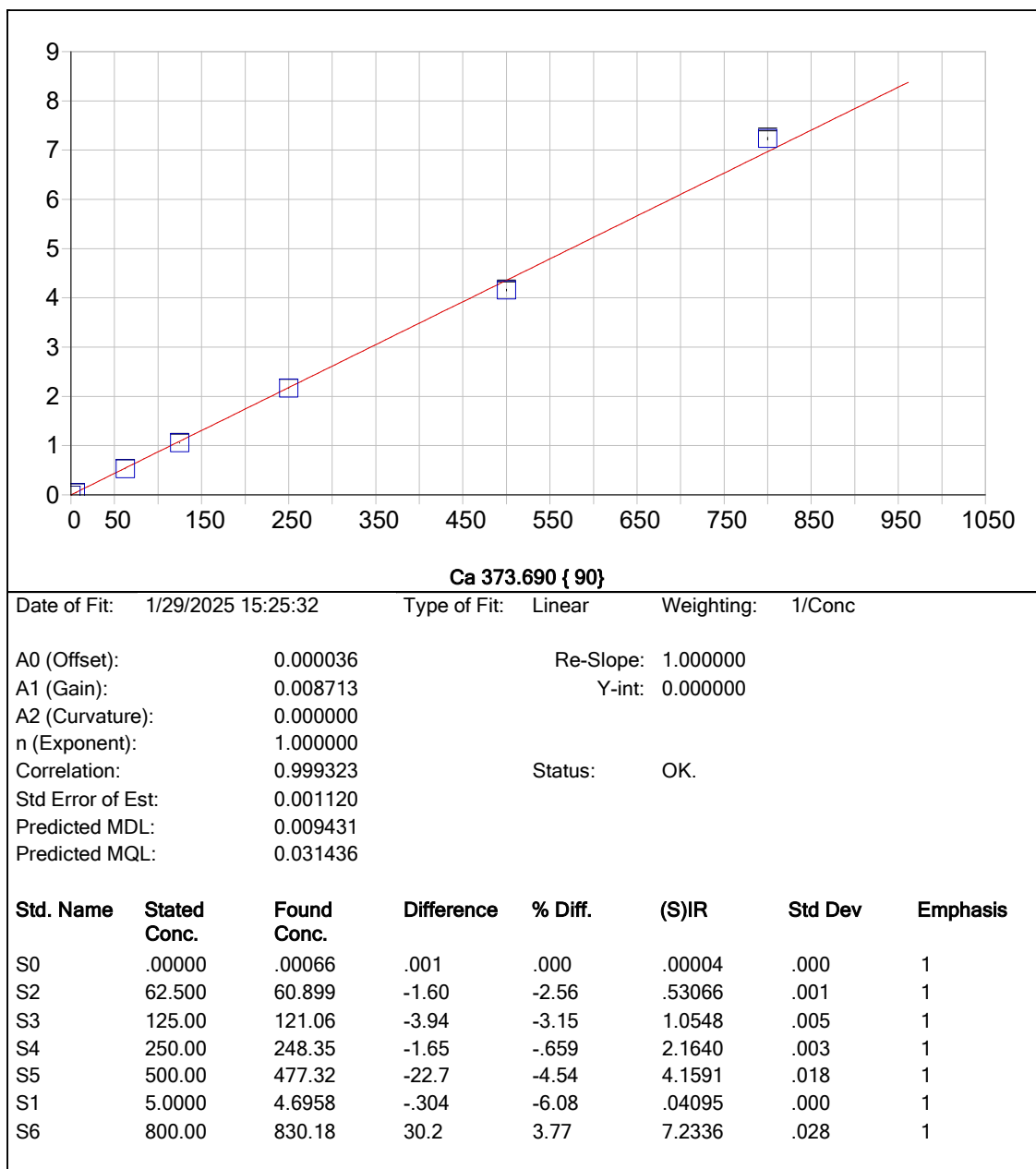


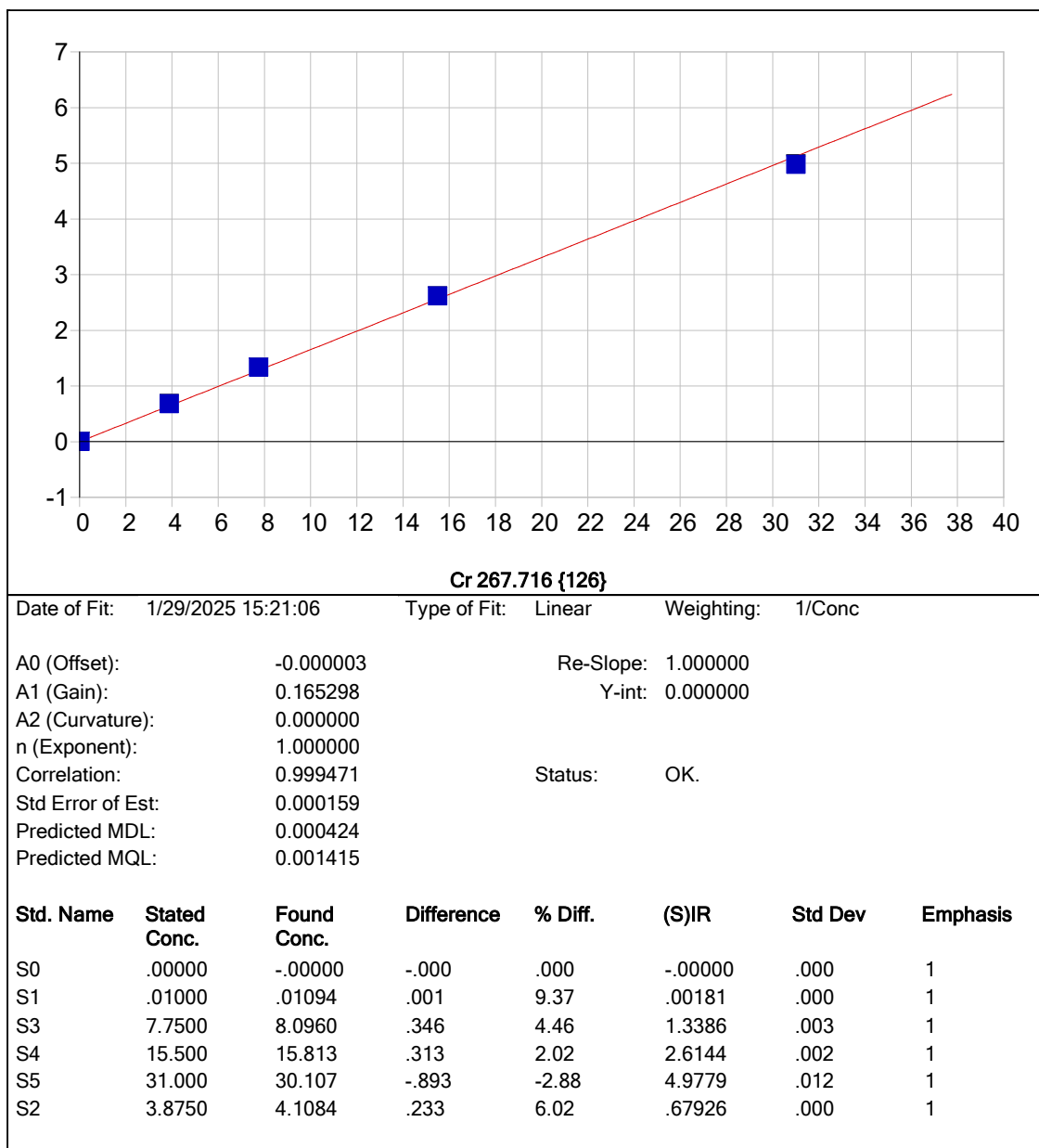


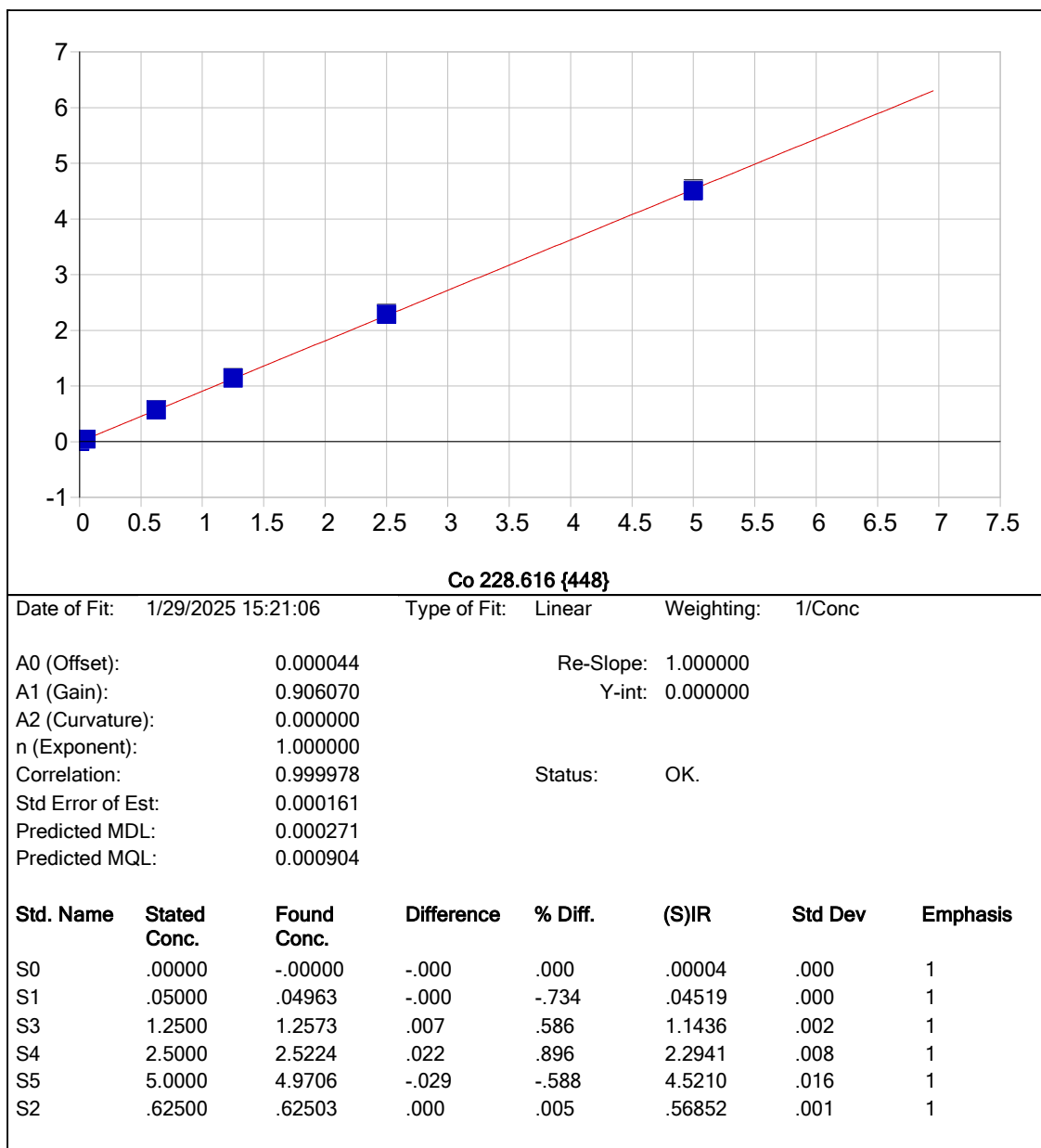


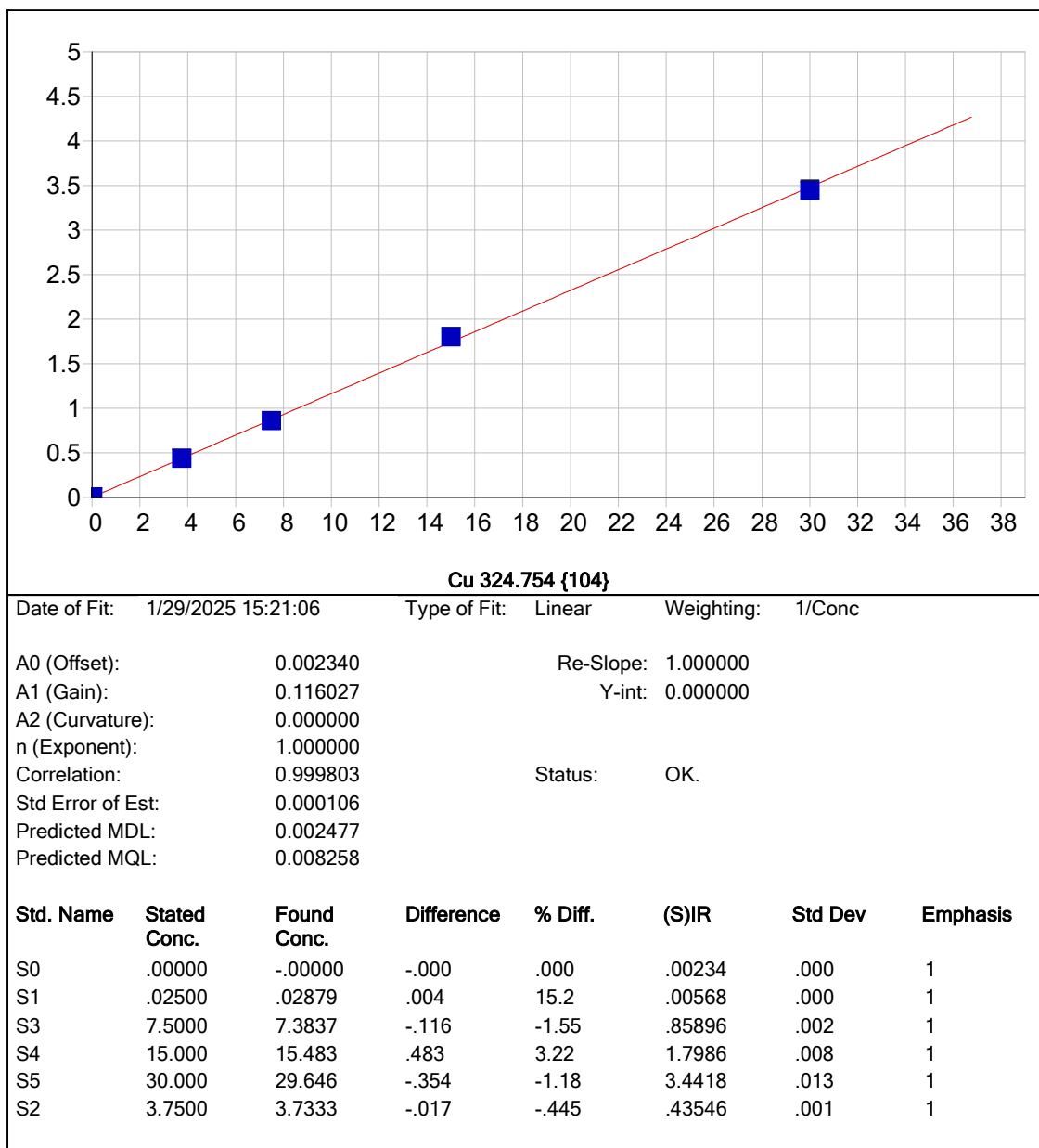


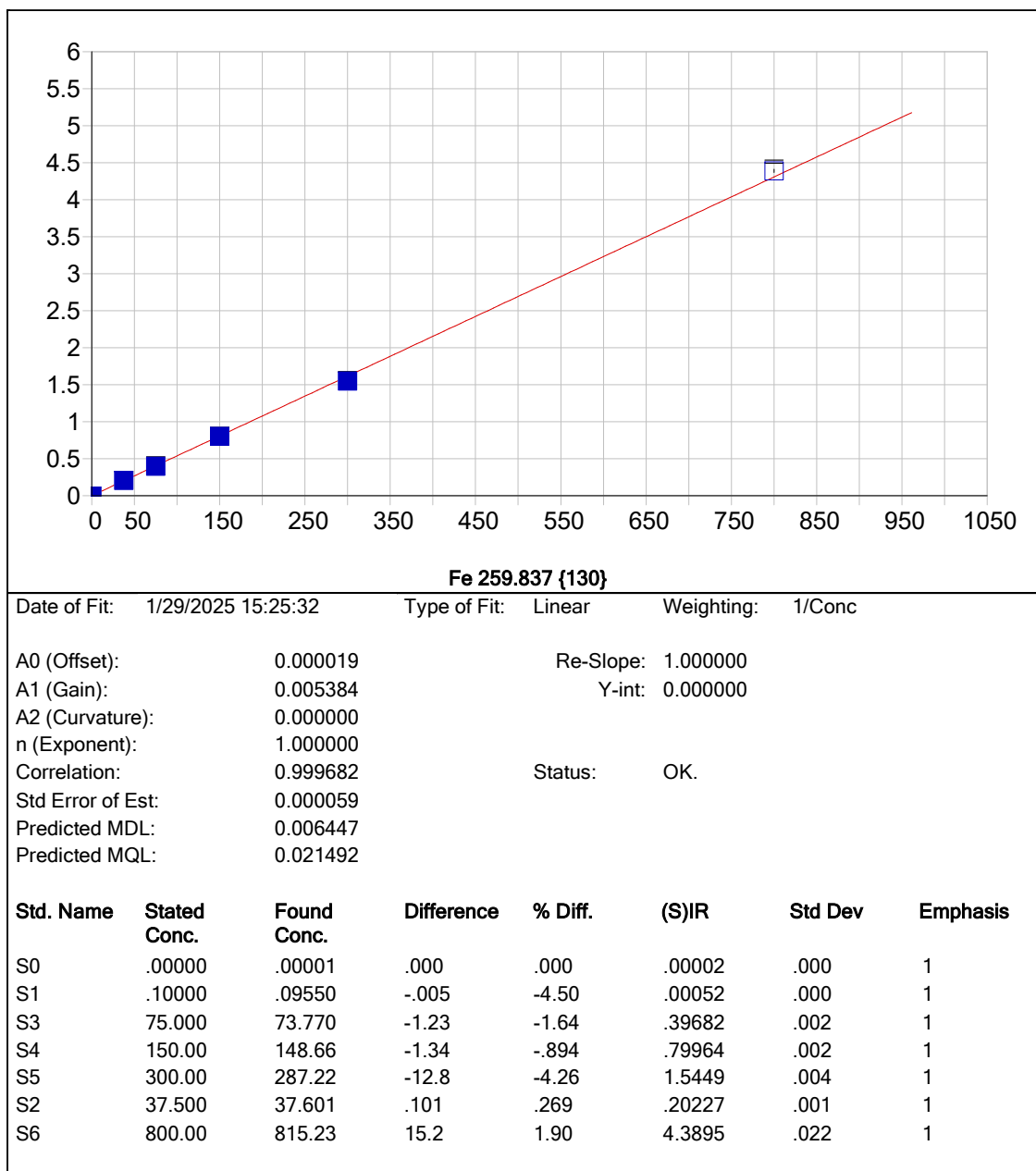


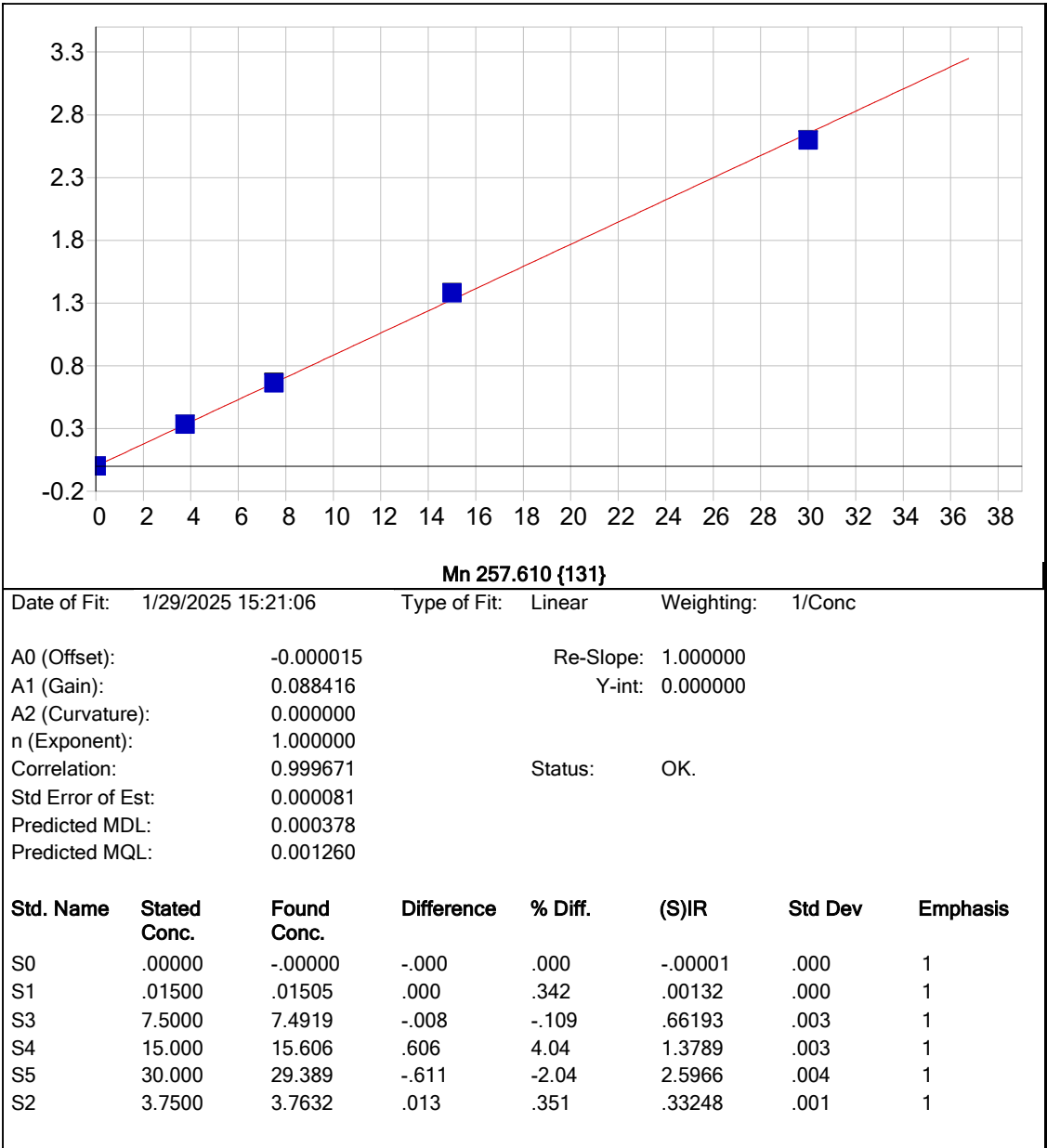


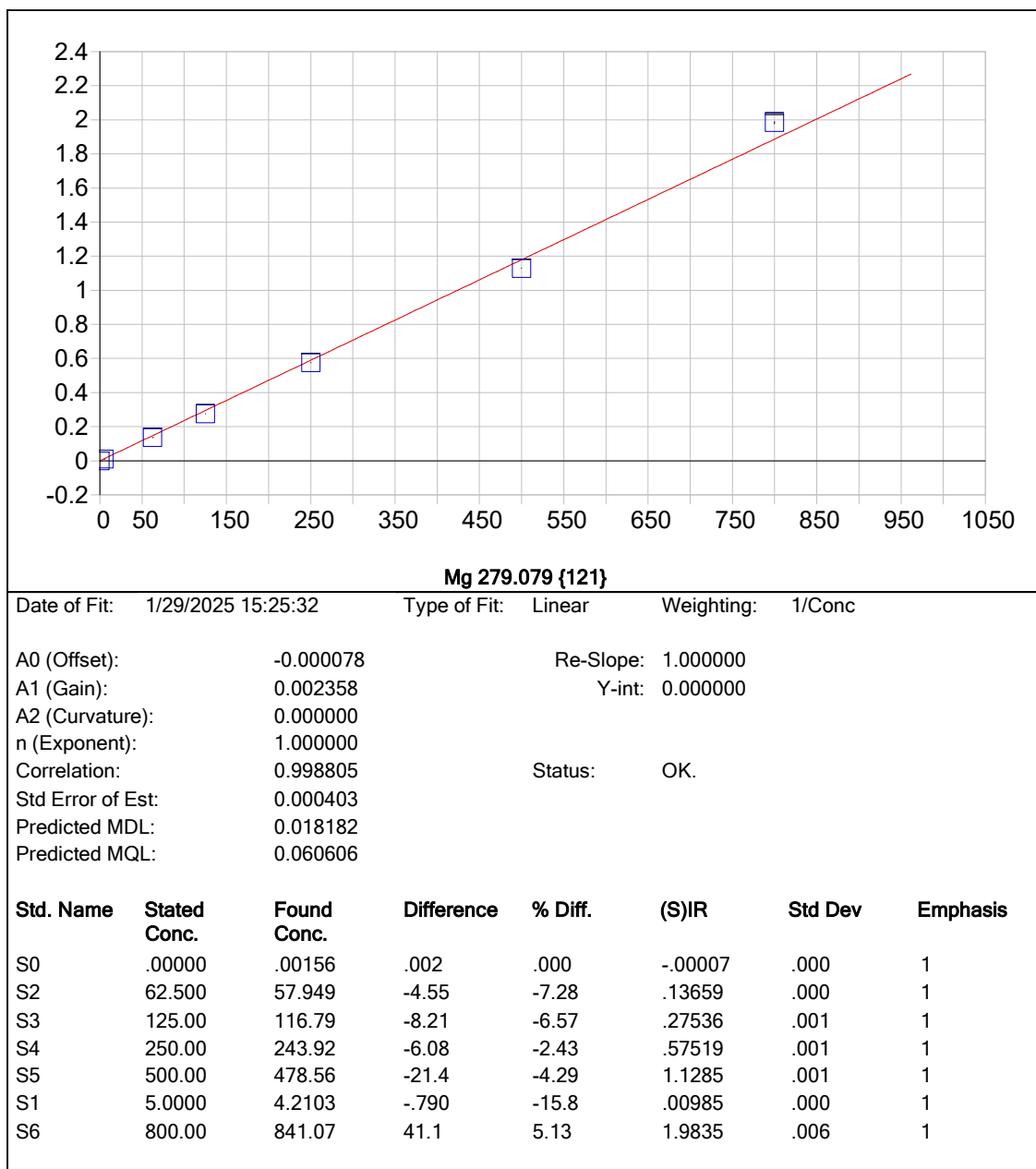


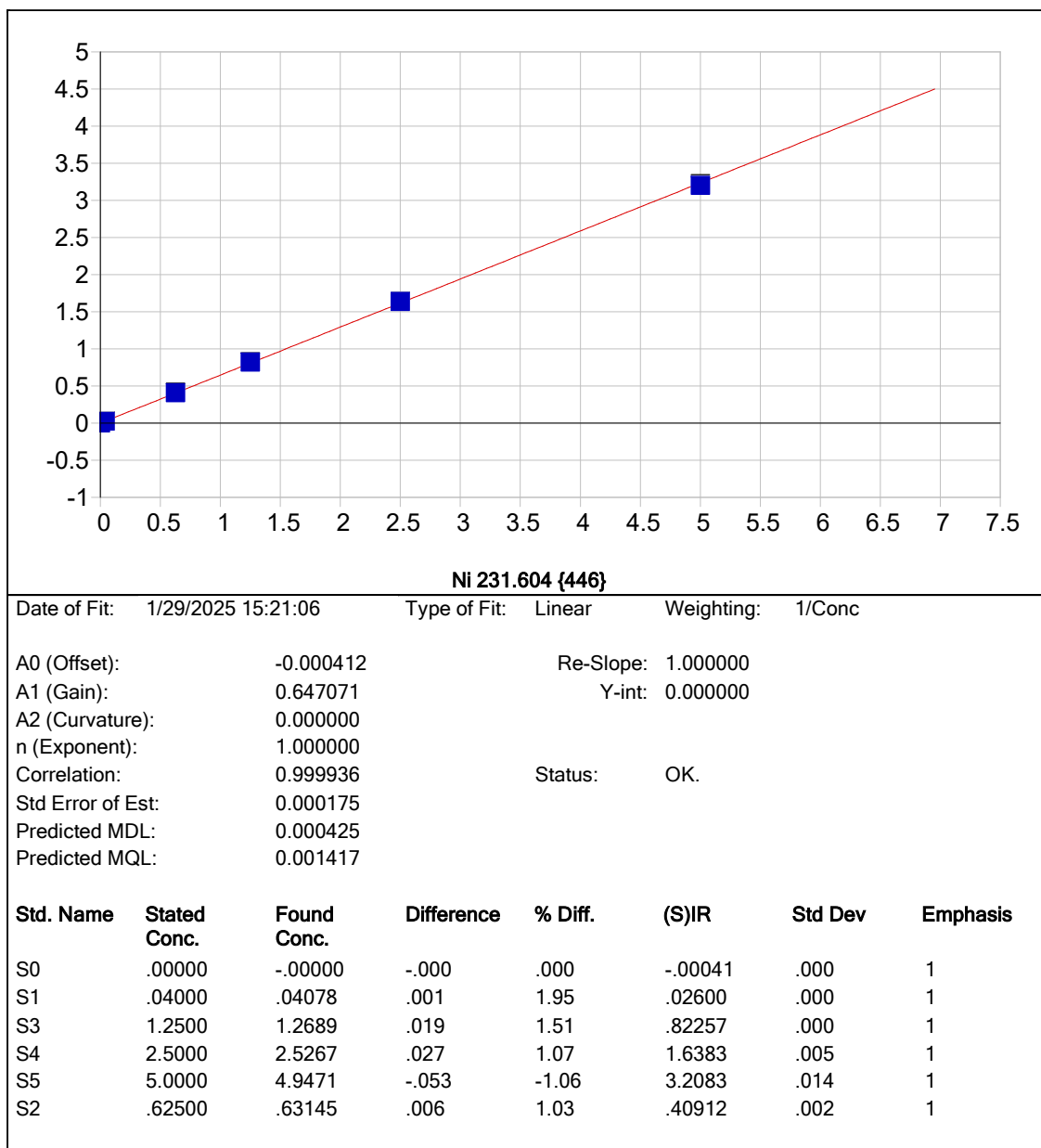


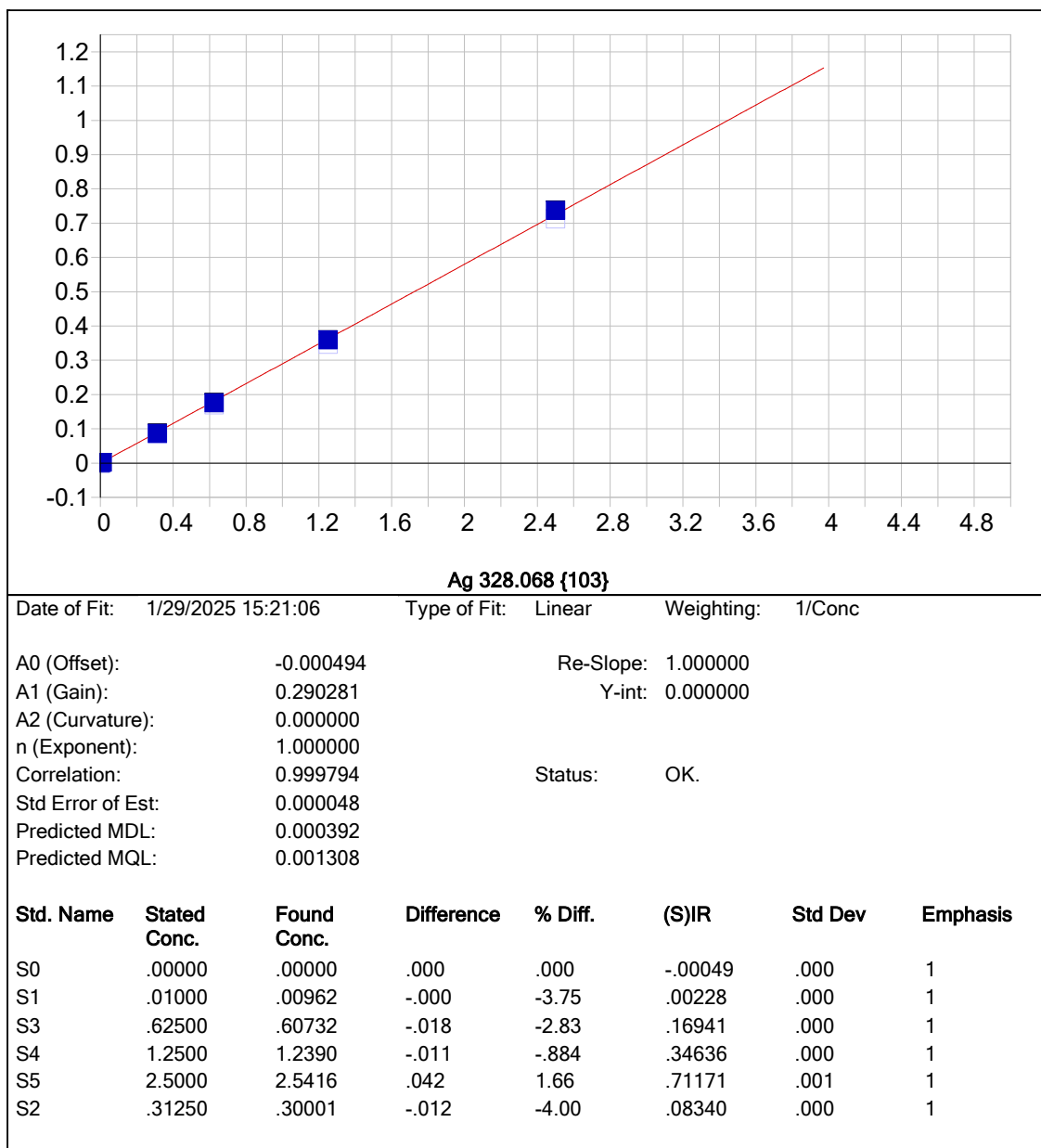


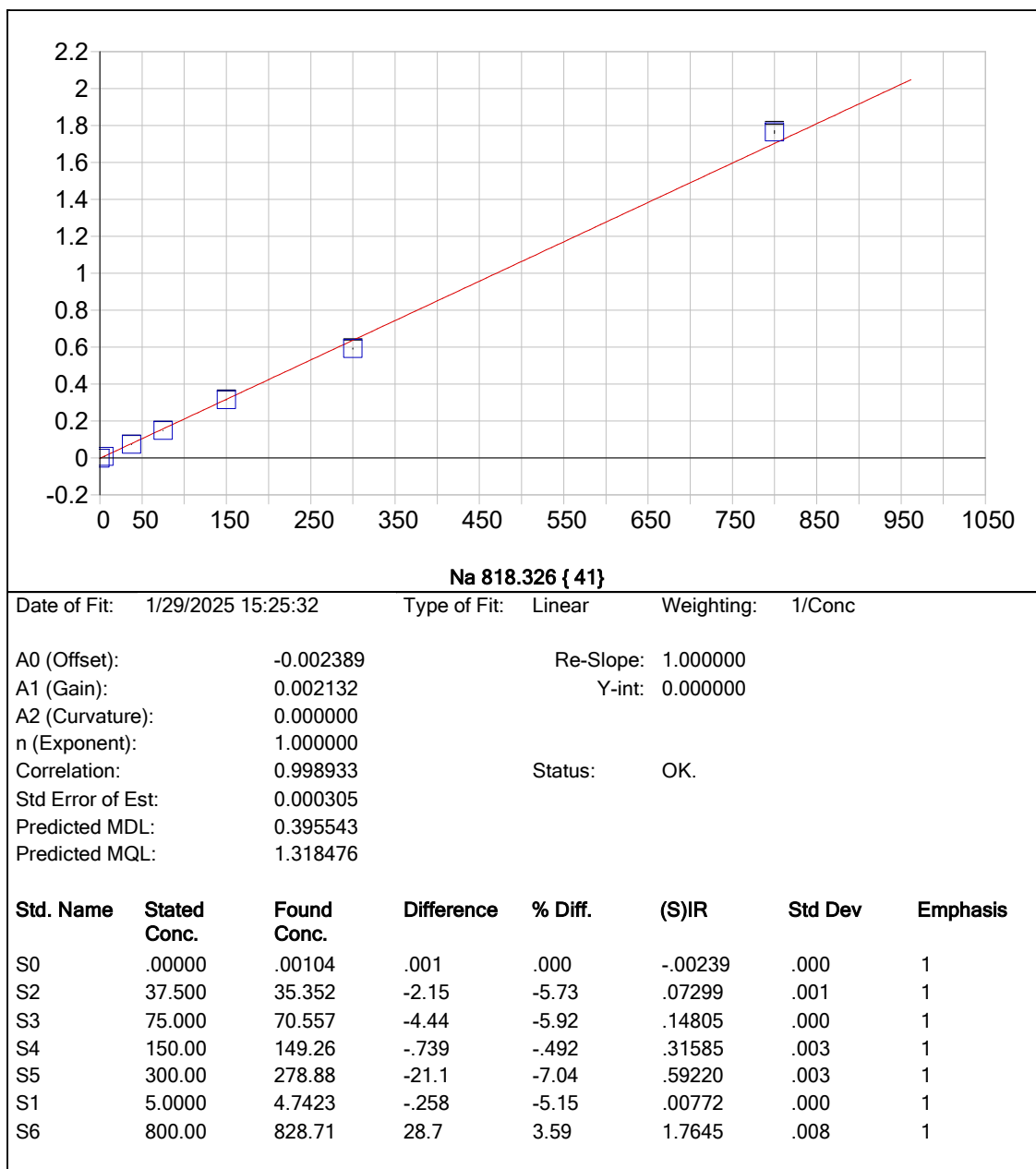


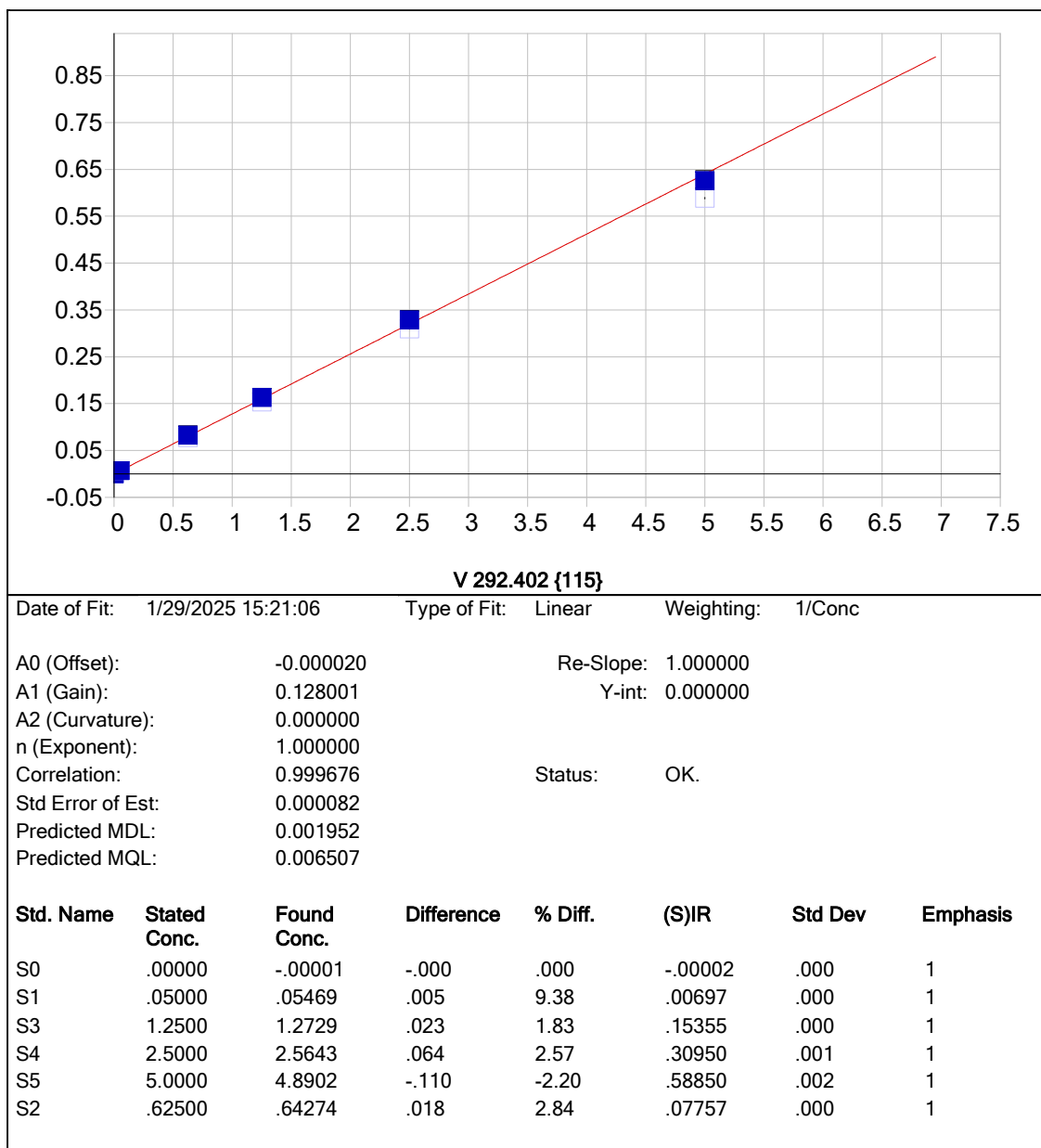


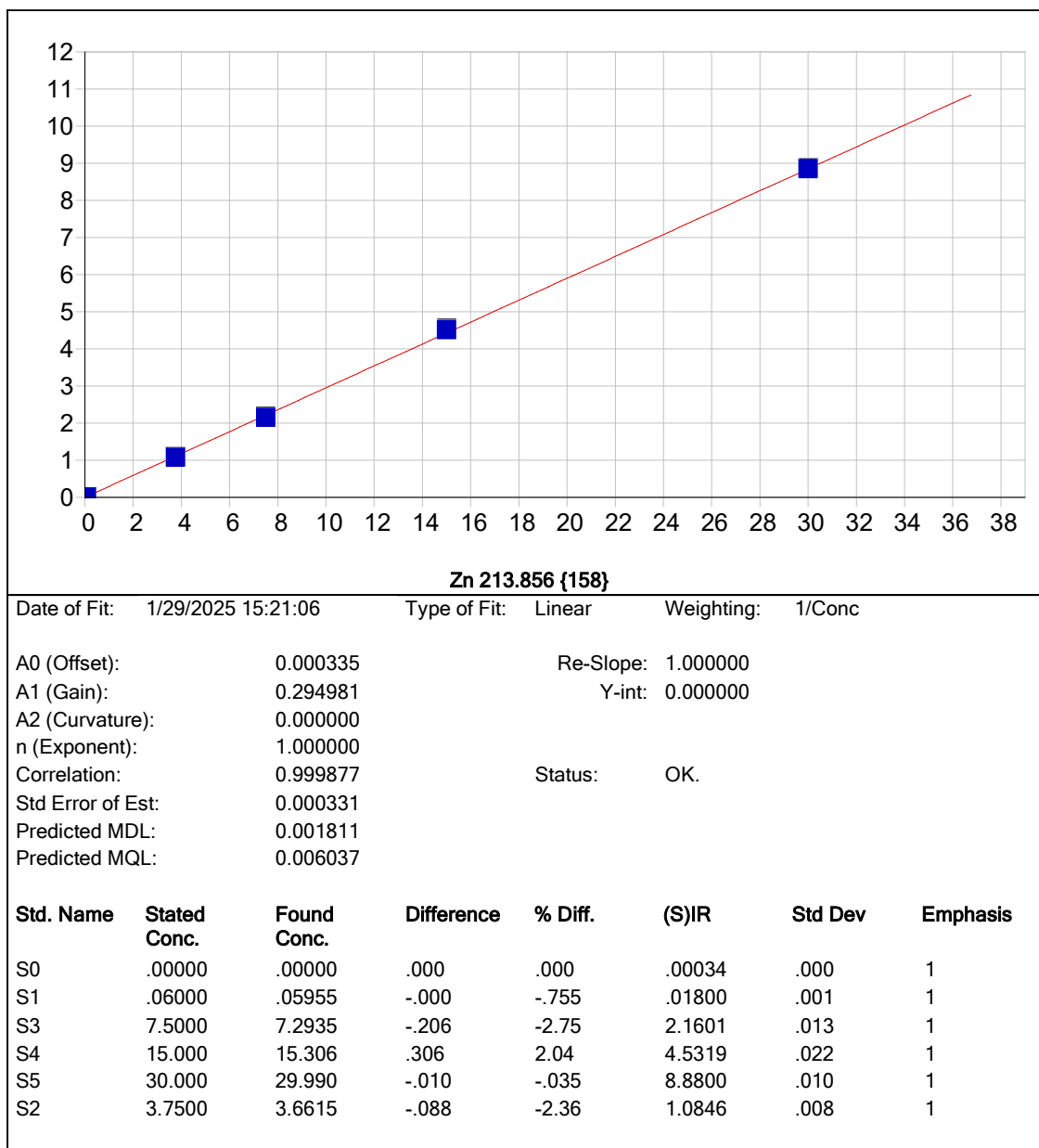


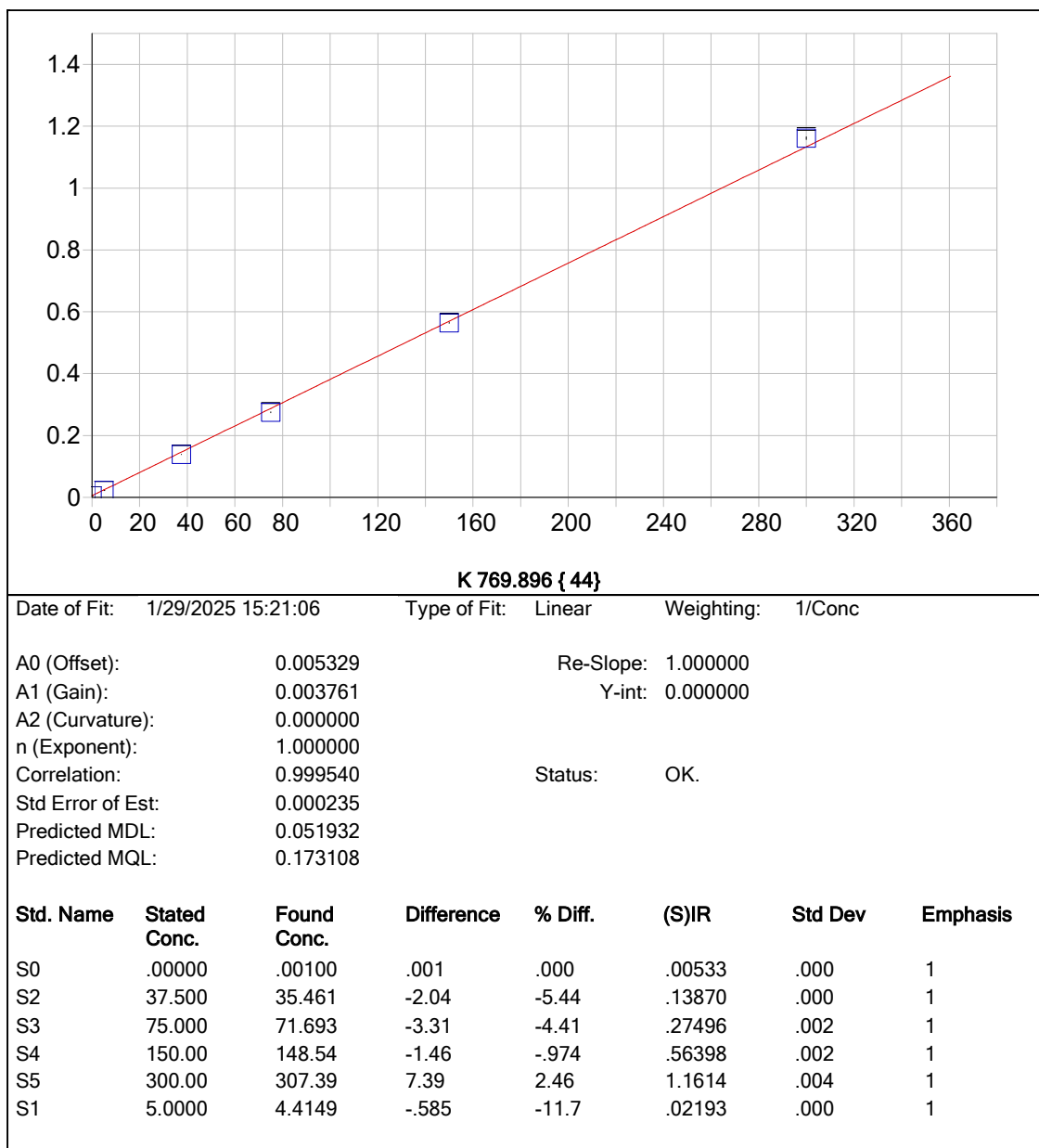


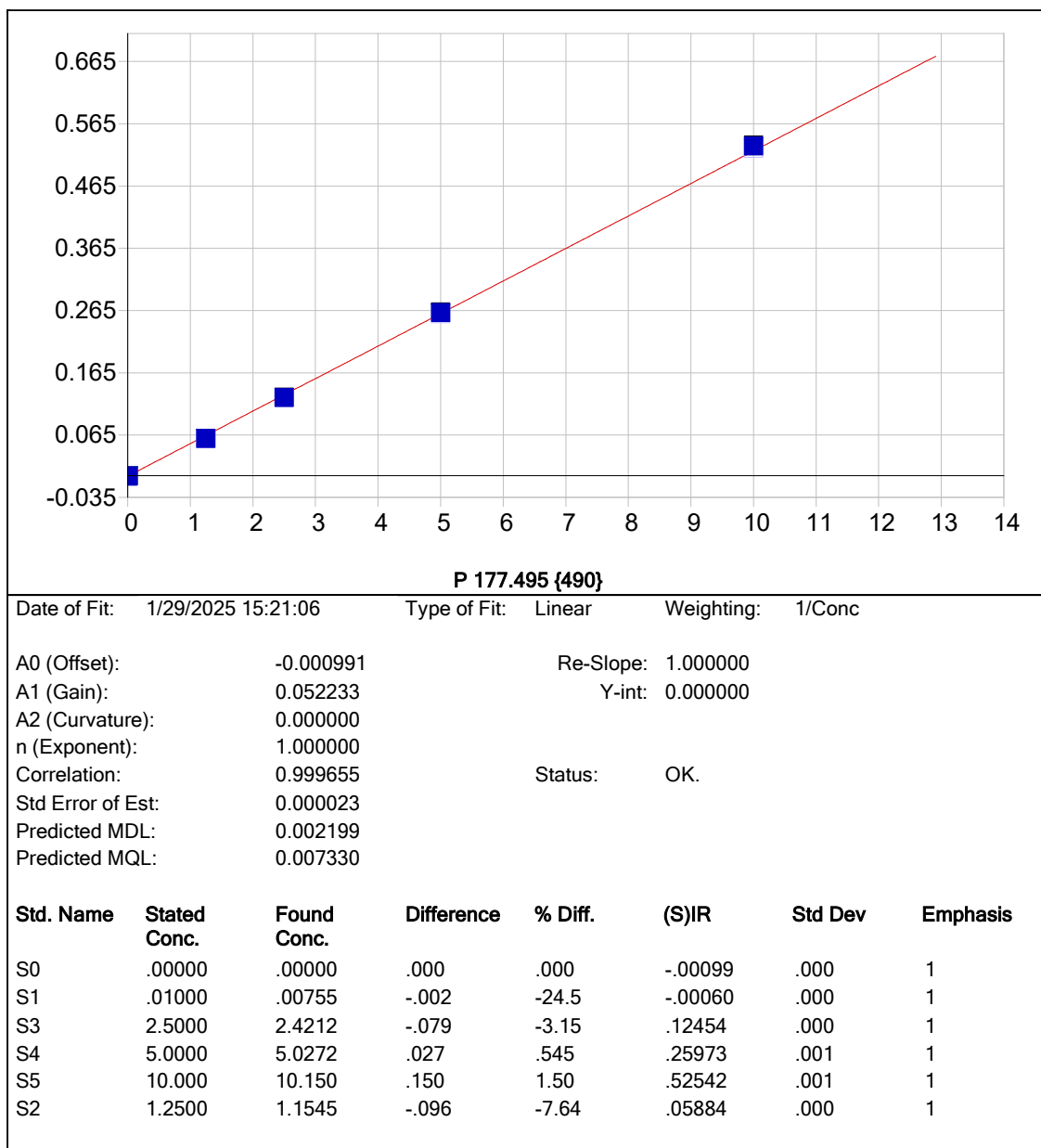


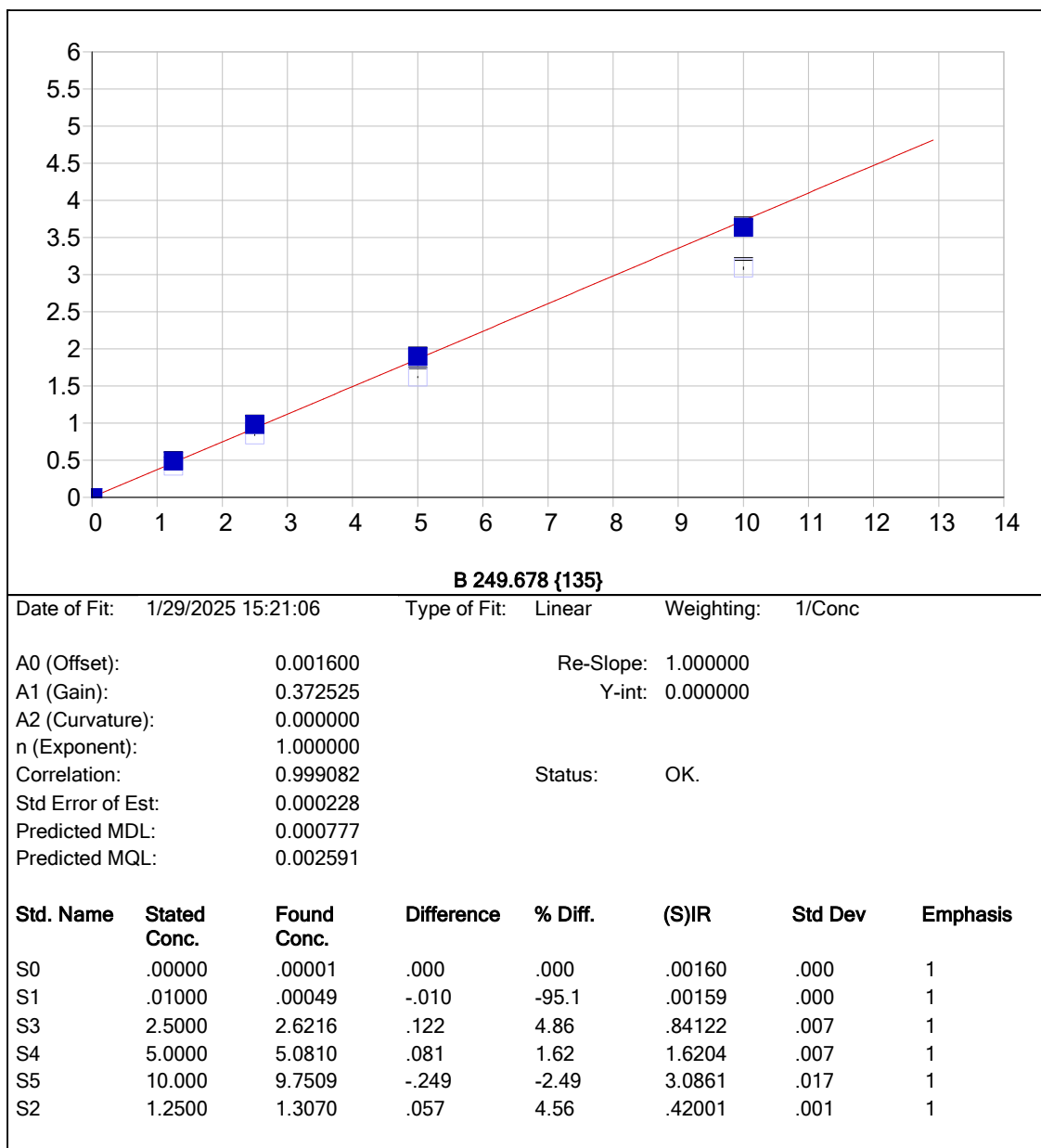


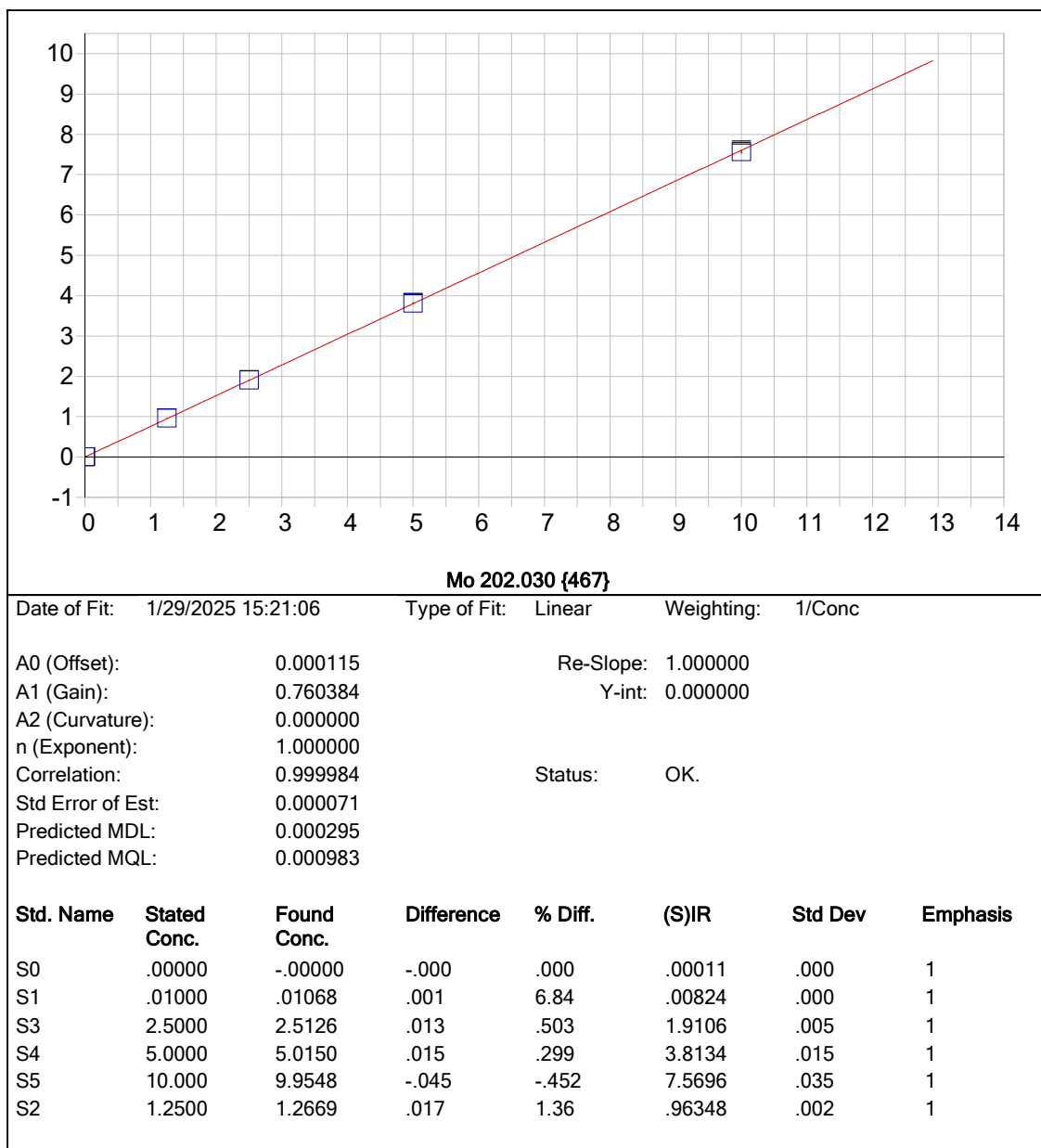


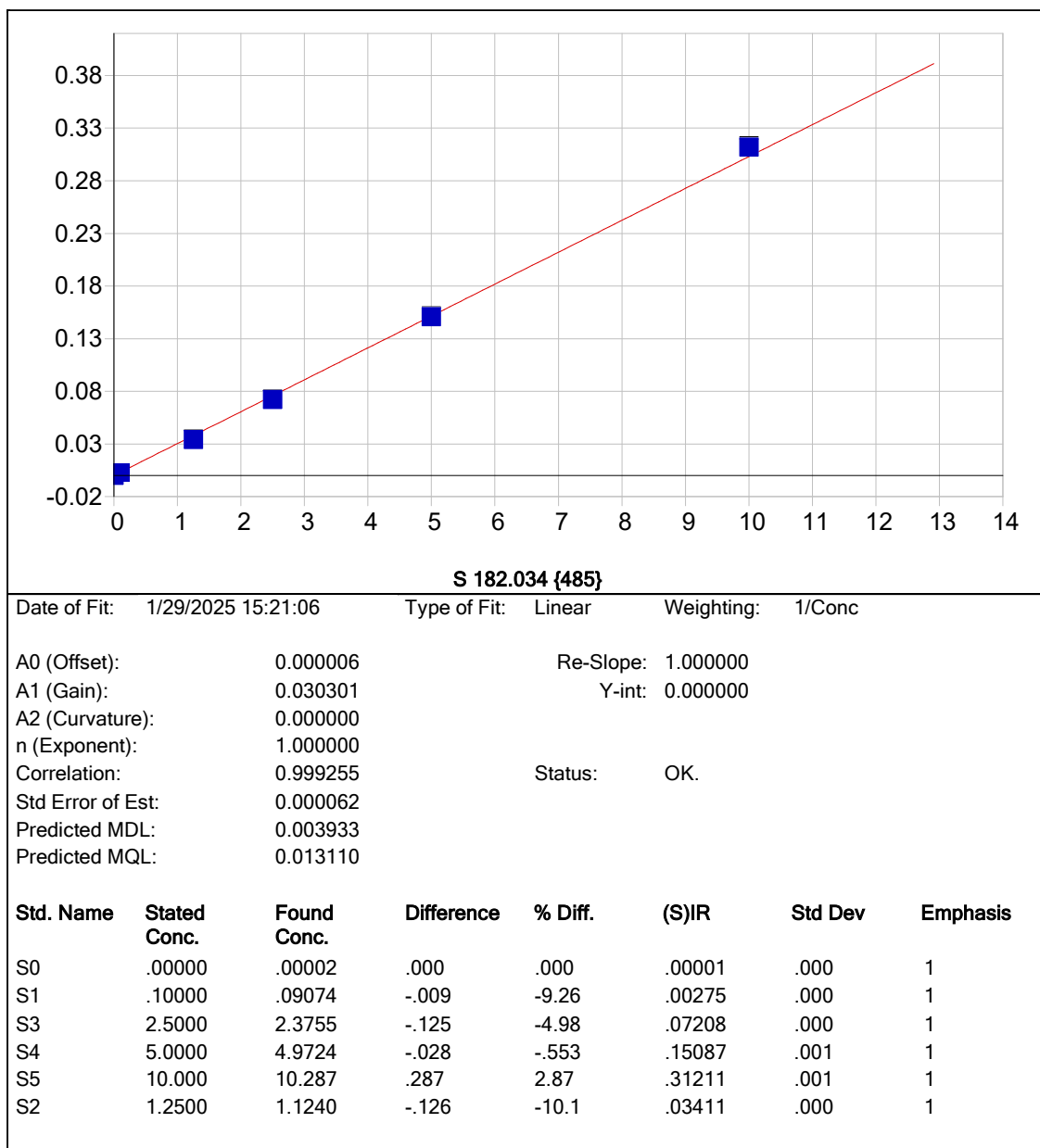


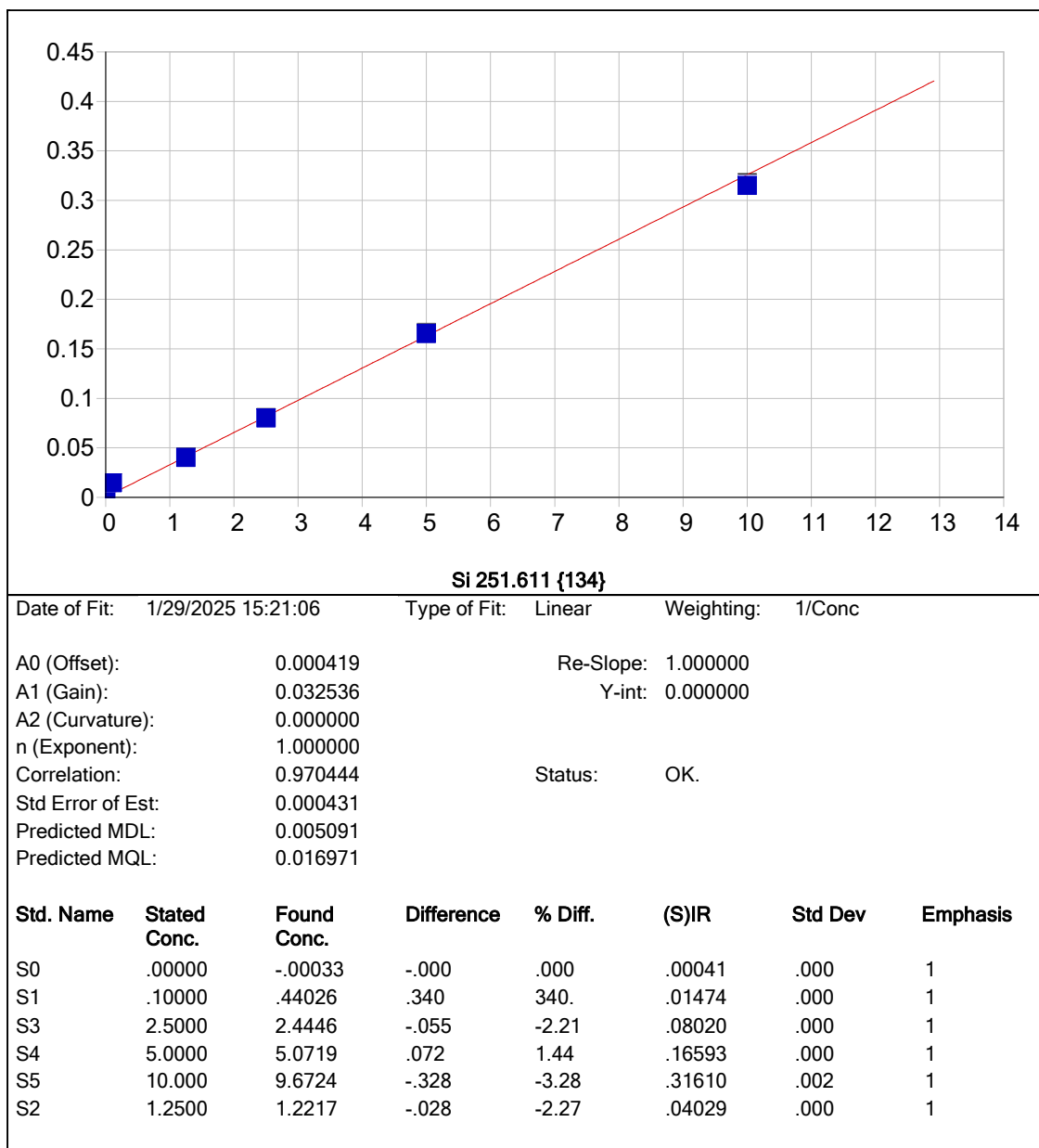


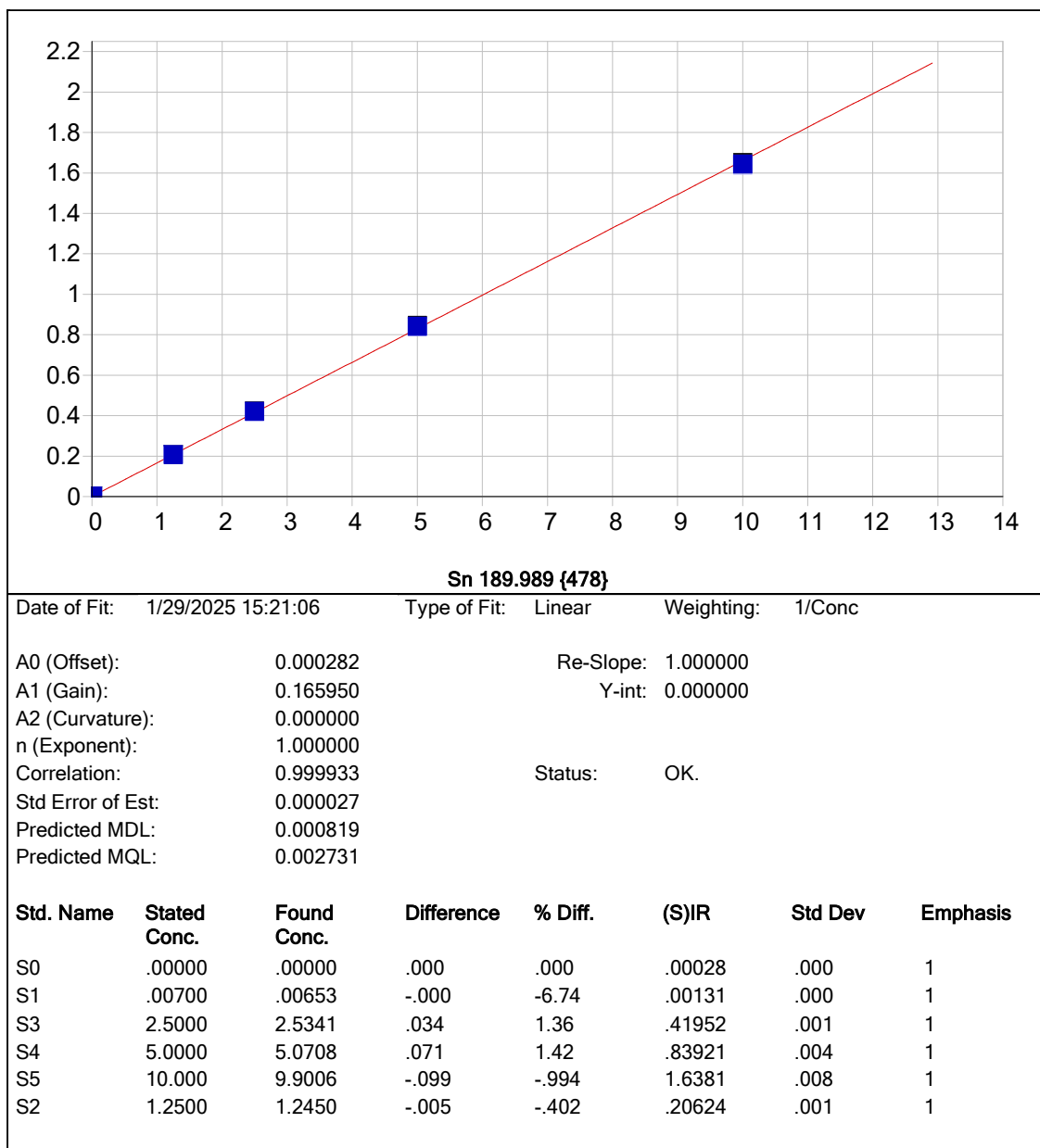


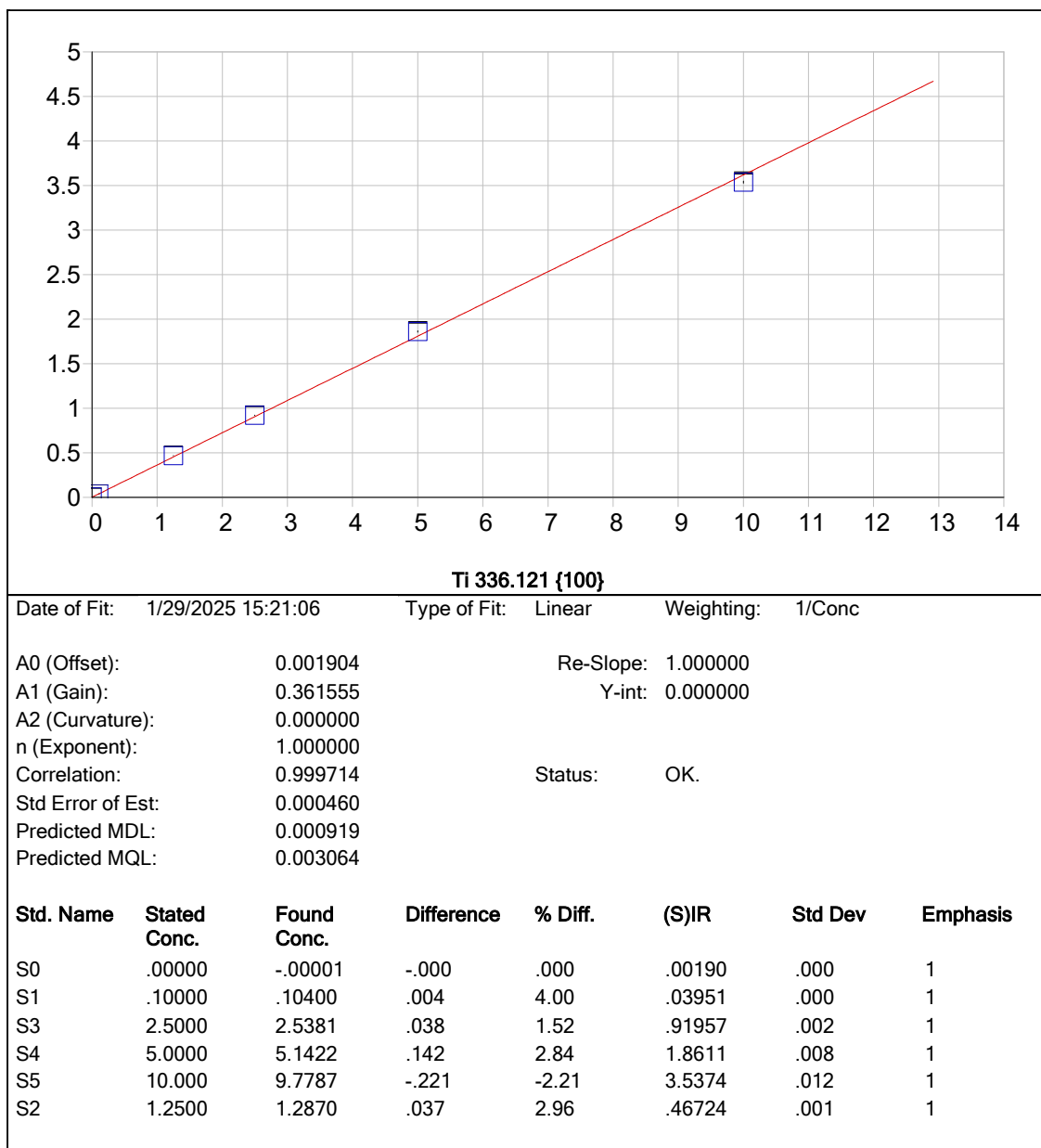


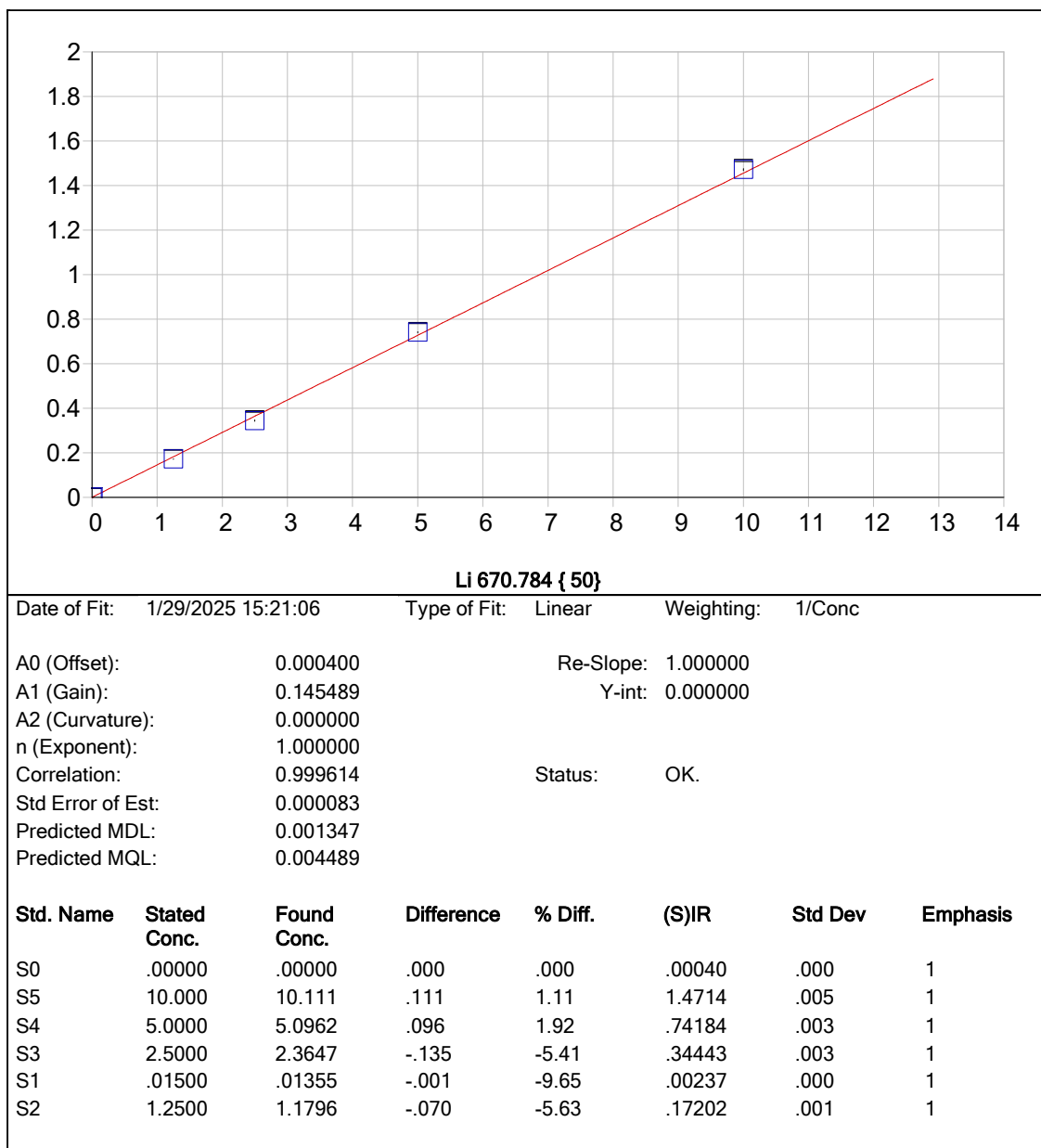


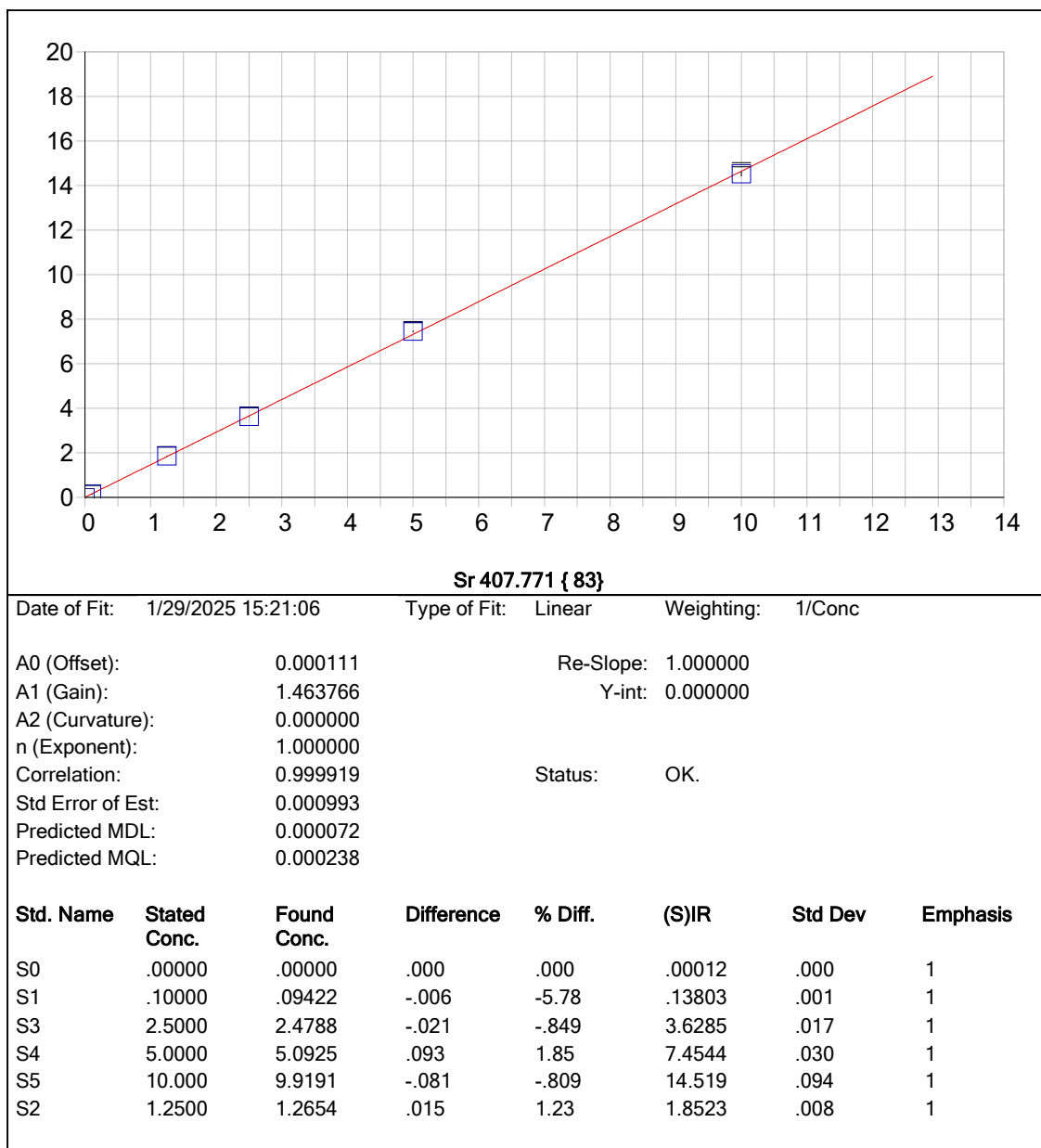


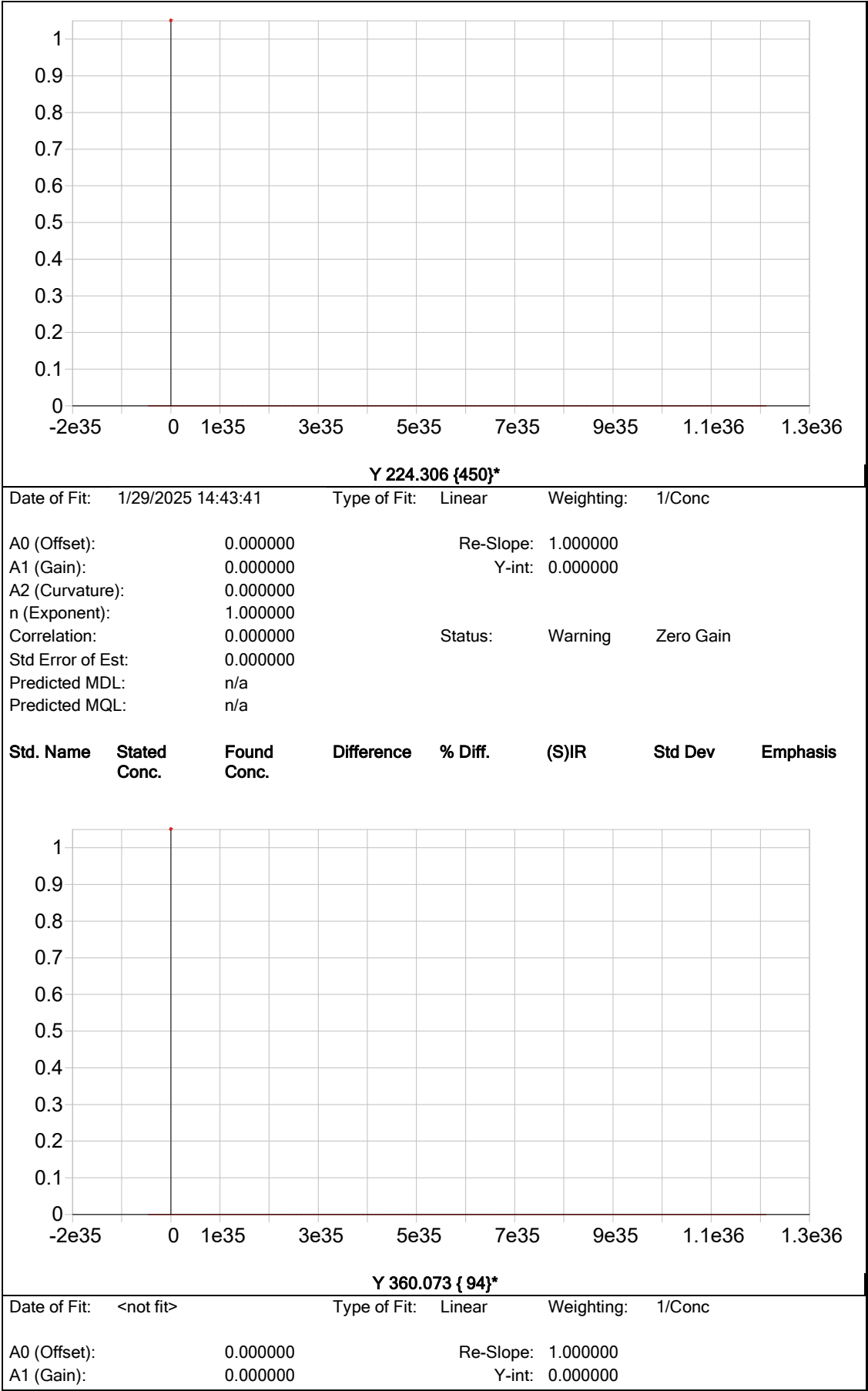


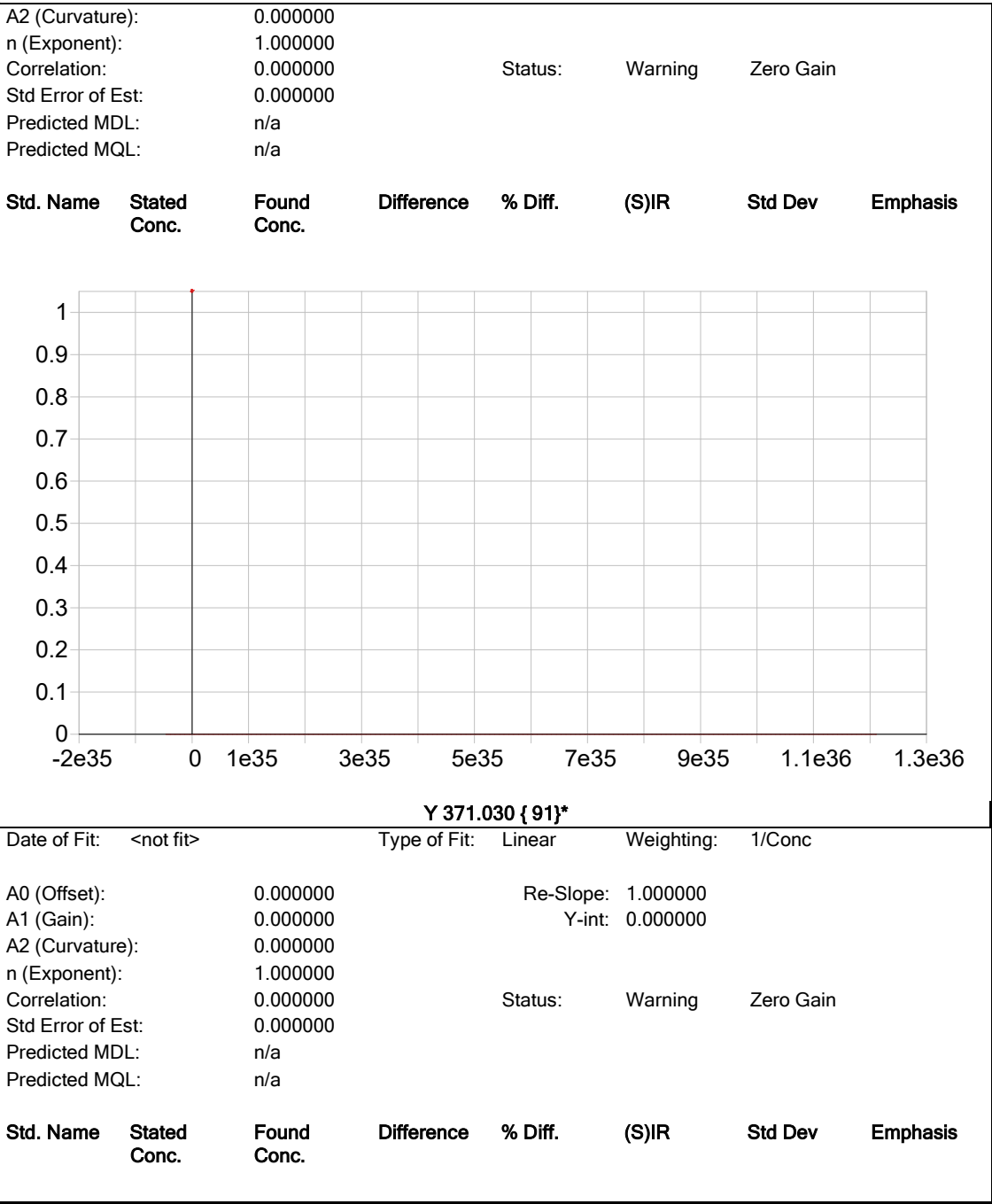


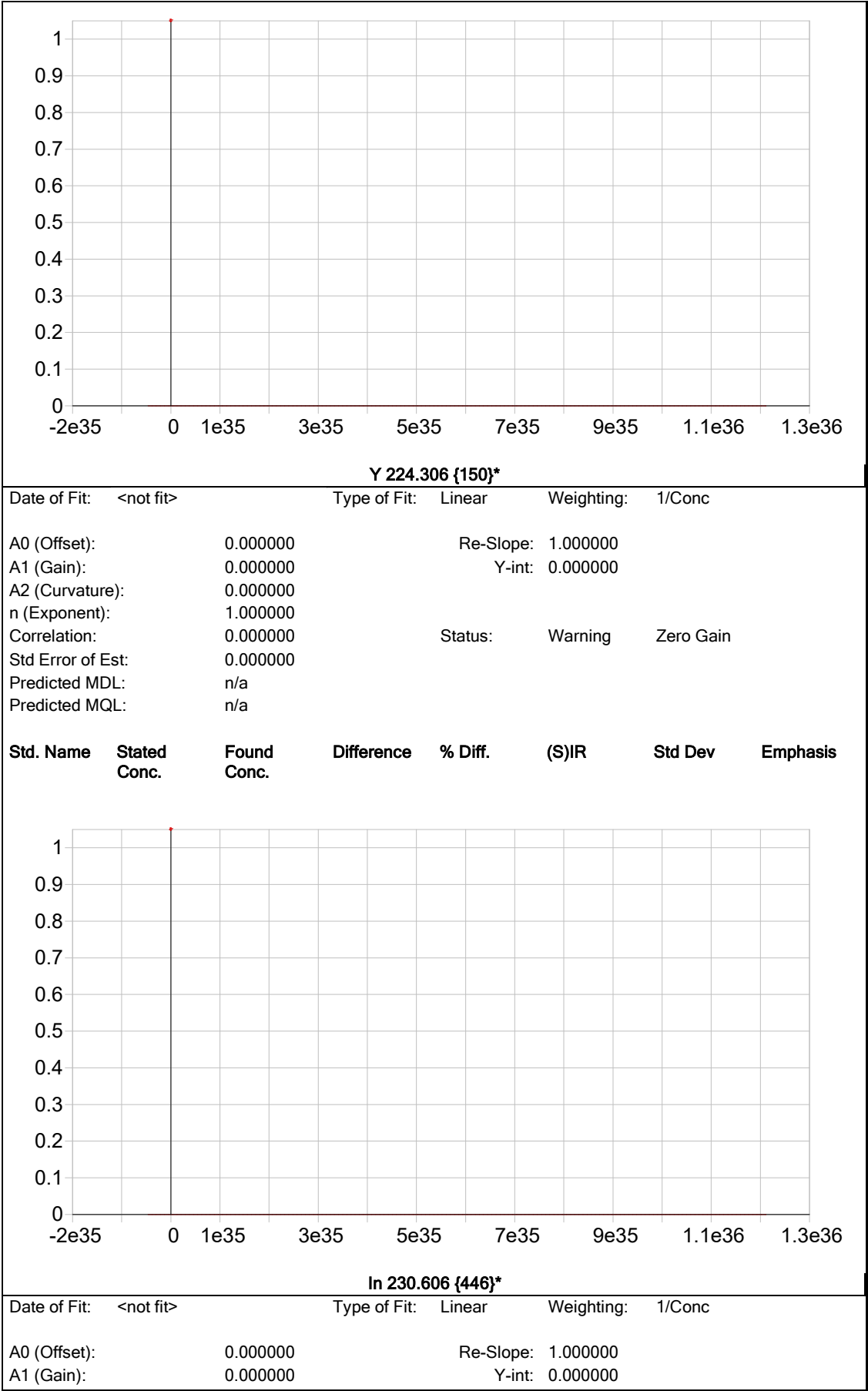












A2 (Curvature):		0.000000		Status:	Warning	Zero Gain	
n (Exponent):		1.000000					
Correlation:		0.000000					
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

Sample Name: S0 Acquired: 1/29/2025 14:56:12 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 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	-.00017	.00006	-.00027	.00028	.00029	.00000	.00761	.00011
Stddev	.00007	.00005	.00010	.00015	.00006	.00006	.00033	.00003
%RSD	41.217	84.285	36.550	55.700	21.255	2834.7	4.3132	30.545
#1	-.00021	.00009	-.00037	.00037	.00030	-.00003	.00772	.00012
#2	-.00021	.00009	-.00018	.00037	.00034	.00007	.00724	.00013
#3	-.00009	.00000	-.00025	.00010	.00022	-.00004	.00786	.00007
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00004	.00004	-.00000	.00004	.00234	.00002	-.00001	-.00007
Stddev	.00003	.00004	.00002	.00020	.00031	.00001	.00002	.00001
%RSD	90.199	91.978	483.43	454.40	13.063	40.802	109.66	19.356
#1	-.00006	.00006	-.00002	.00018	.00265	.00002	.00000	-.00006
#2	-.00000	.00007	.00001	.00014	.00233	.00001	-.00003	-.00007
#3	-.00004	-.00000	.00000	-.00018	.00204	.00003	-.00002	-.00009
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00041	-.00049	-.00239	-.00002	.00034	.00533	-.00099	.00160
Stddev	.00017	.00002	.00043	.00018	.00028	.00000	.00008	.00015
%RSD	42.163	4.8886	18.020	870.57	82.440	.00654	8.4921	9.1553
#1	-.00058	-.00051	-.00195	-.00013	.00046	.00533	-.00109	.00158
#2	-.00023	-.00051	-.00281	-.00012	.00002	.00533	-.00095	.00176
#3	-.00043	-.00047	-.00239	.00019	.00053	.00533	-.00094	.00147
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00011	.00001	.00041	.00028	.00190	.00040	.00012	
Stddev	.00017	.00016	.00004	.00003	.00028	.00013	.00006	
%RSD	147.91	2320.6	9.0902	10.948	14.895	32.698	50.886	
#1	-.00002	-.00017	.00039	.00030	.00192	.00044	.00006	
#2	.00006	.00006	.00045	.00030	.00161	.00051	.00011	
#3	.00031	.00013	.00038	.00025	.00217	.00026	.00018	

Sample Name: S0 Acquired: 1/29/2025 14:56:12 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 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	3343.6	69827.	13258.	2338.9	4051.8
Stddev	25.1	2197.	109.	86.0	29.7
%RSD	.75178	3.1458	.82415	3.6779	.73222
#1	3352.8	67304.	13348.	2241.0	4064.7
#2	3363.0	70864.	13288.	2373.1	4072.9
#3	3315.2	71313.	13136.	2402.5	4017.9

Sample Name: S1 Acquired: 1/29/2025 15:00:28 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 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	.00048	.00182	.00239	.00257	.00818	.00241	.08724	.01971
Stddev	.00019	.00006	.00010	.00020	.00007	.00009	.00102	.00022
%RSD	38.611	3.3558	4.2021	7.7950	.80053	3.6535	1.1744	1.0963
#1	.00027	.00189	.00235	.00234	.00816	.00232	.08609	.01946
#2	.00061	.00181	.00231	.00263	.00826	.00242	.08757	.01983
#3	.00057	.00177	.00250	.00273	.00813	.00250	.08806	.01984
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01398	.04095	.00181	.04519	.00568	.00052	.00132	.00985
Stddev	.00011	.00032	.00006	.00026	.00041	.00002	.00000	.00009
%RSD	.75118	.77427	3.5146	.57052	7.2164	4.3711	.09298	.89940
#1	.01388	.04061	.00178	.04540	.00564	.00050	.00131	.00975
#2	.01399	.04101	.00188	.04490	.00611	.00053	.00132	.00990
#3	.01409	.04123	.00176	.04527	.00529	.00054	.00132	.00991
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02600	.00228	.00772	.00697	.01800	.02193	-.00060	.00159
Stddev	.00031	.00008	.00050	.00020	.00068	.00020	.00006	.00021
%RSD	1.1911	3.3892	6.4102	2.9147	3.7756	.89278	9.3858	13.438
#1	.02633	.00222	.00732	.00717	.01879	.02192	-.00060	.00136
#2	.02598	.00237	.00758	.00698	.01759	.02214	-.00054	.00164
#3	.02571	.00226	.00827	.00676	.01763	.02175	-.00066	.00177
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00824	.00275	.01474	.00131	.03951	.00237	.13803	
Stddev	.00016	.00001	.00026	.00010	.00024	.00006	.00138	
%RSD	1.9621	.52399	1.7816	7.8587	.61200	2.7396	1.0013	
#1	.00841	.00274	.01502	.00122	.03975	.00236	.13657	
#2	.00809	.00276	.01471	.00143	.03950	.00244	.13820	
#3	.00822	.00276	.01450	.00129	.03927	.00231	.13932	

Sample Name: S1 Acquired: 1/29/2025 15:00:28 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 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	3304.0	69989.	13082.	2337.6	3957.6
Stddev	1.1	129.	132.	8.4	2.3
%RSD	.03434	.18414	1.0070	.36092	.05752
#1	3303.7	70073.	12955.	2344.3	3955.3
#2	3305.3	70054.	13072.	2340.3	3959.8
#3	3303.1	69841.	13218.	2328.1	3957.7

Sample Name: S2 Acquired: 1/29/2025 15:04:43 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 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	.07415	.08683	1.5293	.07533	.16884	.45755	1.0741	.46130
Stddev	.00016	.00054	.0017	.00038	.00024	.00146	.0057	.00202
%RSD	.21176	.62320	.10969	.49999	.14481	.31956	.53460	.43816
#1	.07430	.08647	1.5280	.07538	.16858	.45601	1.0680	.46241
#2	.07399	.08745	1.5289	.07494	.16890	.45773	1.0749	.46252
#3	.07415	.08657	1.5312	.07568	.16906	.45892	1.0794	.45897
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.7461	.53066	.67926	.56852	.43546	.20227	.33248	.13659
Stddev	.0036	.00141	.00036	.00112	.00122	.00081	.00130	.00040
%RSD	.20607	.26556	.05361	.19639	.27931	.40246	.39170	.29632
#1	1.7421	.52906	.67895	.56730	.43506	.20144	.33122	.13613
#2	1.7475	.53124	.67966	.56876	.43683	.20232	.33241	.13674
#3	1.7489	.53169	.67917	.56949	.43450	.20306	.33382	.13689
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.40912	.08340	.07299	.07757	1.0846	.13870	.05884	.42001
Stddev	.00182	.00018	.00095	.00010	.0083	.00033	.00005	.00061
%RSD	.44571	.21613	1.2960	.12663	.76794	.23605	.09312	.14534
#1	.40704	.08358	.07406	.07752	1.0750	.13837	.05882	.42043
#2	.40993	.08339	.07260	.07751	1.0903	.13870	.05880	.42029
#3	.41041	.08322	.07230	.07769	1.0884	.13902	.05891	.41931
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.96348	.03411	.04029	.20624	.46724	.17202	1.8523	
Stddev	.00192	.00027	.00013	.00061	.00140	.00087	.0078	
%RSD	.19944	.78002	.32056	.29760	.29875	.50322	.42338	
#1	.96151	.03437	.04016	.20553	.46600	.17121	1.8450	
#2	.96358	.03384	.04030	.20661	.46875	.17192	1.8515	
#3	.96535	.03414	.04041	.20658	.46696	.17293	1.8606	

Sample Name: S2 Acquired: 1/29/2025 15:04:43 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 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	3203.8	66626.	13210.	2232.1	3628.8
Stddev	1.0	40.	69.	9.5	5.1
%RSD	.03155	.06048	.51886	.42703	.14154
#1	3204.5	66655.	13168.	2235.3	3634.3
#2	3204.2	66580.	13173.	2221.3	3624.2
#3	3202.6	66643.	13289.	2239.5	3627.9

Sample Name: S3 Acquired: 1/29/2025 15:08:39 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 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	.15018	.17295	3.0860	.15104	.34204	.91985	2.1382	.93362
Stddev	.00026	.00034	.0076	.00039	.00048	.00564	.0217	.00694
%RSD	.17462	.19691	.24619	.25790	.13986	.61292	1.0149	.74382
#1	.15027	.17330	3.0908	.15061	.34199	.92430	2.1565	.92994
#2	.14988	.17262	3.0773	.15136	.34159	.92175	2.1440	.92929
#3	.15038	.17292	3.0901	.15115	.34255	.91351	2.1142	.94163
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.5417	1.0548	1.3386	1.1436	.85896	.39682	.66193	.27536
Stddev	.0091	.0051	.0029	.0021	.00189	.00182	.00348	.00082
%RSD	.25706	.48743	.22006	.18603	.21956	.45786	.52519	.29633
#1	3.5438	1.0593	1.3417	1.1440	.86113	.39849	.66439	.27592
#2	3.5318	1.0560	1.3359	1.1413	.85805	.39707	.66344	.27574
#3	3.5496	1.0492	1.3380	1.1454	.85770	.39489	.65795	.27443
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.82257	.16941	.14805	.15355	2.1601	.27496	.12454	.84122
Stddev	.00044	.00021	.00048	.00034	.0129	.00157	.00021	.00742
%RSD	.05302	.12196	.32579	.22114	.59784	.57170	.17065	.88184
#1	.82283	.16937	.14810	.15389	2.1666	.27628	.12430	.83878
#2	.82280	.16963	.14754	.15321	2.1685	.27538	.12471	.83533
#3	.82206	.16922	.14850	.15355	2.1453	.27322	.12461	.84956
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	1.9106	.07208	.08020	.41952	.91957	.34443	3.6285	
Stddev	.0046	.00022	.00021	.00065	.00218	.00320	.0168	
%RSD	.23932	.31187	.26698	.15491	.23660	.92845	.46261	
#1	1.9102	.07196	.07997	.41951	.92196	.34706	3.6475	
#2	1.9063	.07194	.08023	.41888	.91770	.34536	3.6220	
#3	1.9154	.07234	.08040	.42018	.91905	.34087	3.6159	

Sample Name: S3 Acquired: 1/29/2025 15:08:39 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 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	3093.8	65077.	12911.	2185.2	3420.0
Stddev	6.5	60.	84.	2.8	1.8
%RSD	.21163	.09216	.65340	.12940	.05360
#1	3098.2	65017.	12956.	2187.9	3421.7
#2	3096.8	65077.	12964.	2182.3	3420.0
#3	3086.2	65137.	12814.	2185.6	3418.1

Sample Name: S4 Acquired: 1/29/2025 15:12:36 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 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	.30725	.33591	6.1962	.30623	.69977	1.9216	4.4517	1.8310
Stddev	.00197	.00257	.0239	.00175	.00450	.0071	.0088	.0065
%RSD	.64176	.76562	.38637	.57105	.64316	.37038	.19862	.35386
#1	.30587	.33535	6.1888	.30498	.69543	1.9178	4.4595	1.8297
#2	.30638	.33367	6.1769	.30549	.69947	1.9298	4.4533	1.8253
#3	.30951	.33872	6.2230	.30823	.70441	1.9172	4.4421	1.8380
Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7.0497	2.1640	2.6144	2.2941	1.7986	.79964	1.3789	.57519
Stddev	.0228	.0031	.0024	.0077	.0079	.00219	.0029	.00099
%RSD	.32412	.14243	.09257	.33792	.43802	.27350	.20846	.17143
#1	7.0474	2.1629	2.6119	2.2900	1.8068	.79798	1.3808	.57477
#2	7.0281	2.1675	2.6167	2.2893	1.7911	.80212	1.3803	.57631
#3	7.0736	2.1616	2.6147	2.3031	1.7979	.79882	1.3756	.57448
Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.6383	.34636	.31585	.30950	4.5319	.56398	.25973	1.6204
Stddev	.0048	.00023	.00285	.00081	.0224	.00153	.00087	.0070
%RSD	.29402	.06740	.90291	.26195	.49512	.27055	.33684	.43138
#1	1.6374	.34626	.31887	.31008	4.5552	.56335	.25969	1.6256
#2	1.6341	.34663	.31320	.30857	4.5302	.56571	.25888	1.6125
#3	1.6436	.34620	.31549	.30984	4.5104	.56286	.26062	1.6232
Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	3.8134	.15087	.16593	.83921	1.8611	.74184	7.4544	
Stddev	.0155	.00054	.00044	.00383	.0082	.00261	.0299	
%RSD	.40535	.35989	.26614	.45602	.44177	.35236	.40089	
#1	3.8044	.15049	.16639	.83786	1.8673	.74240	7.4219	
#2	3.8046	.15061	.16587	.83624	1.8518	.74413	7.4807	
#3	3.8313	.15149	.16551	.84353	1.8641	.73899	7.4606	

Sample Name: S4 Acquired: 1/29/2025 15:12:36 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 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	2910.8	62779.	12719.	2087.3	3166.3
Stddev	6.8	119.	60.	3.8	4.6
%RSD	.23497	.18937	.47487	.18155	.14498
#1	2917.5	62915.	12711.	2083.0	3168.0
#2	2911.1	62698.	12783.	2088.8	3169.8
#3	2903.8	62722.	12663.	2090.1	3161.1

Sample Name: S5 Acquired: 1/29/2025 15:16:38 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 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	.63609	.63940	12.188	.62626	1.4480	3.8556	8.5860	3.6229
Stddev	.00279	.00600	.047	.00264	.0057	.0227	.0387	.0189
%RSD	.43819	.93794	.38749	.42103	.39622	.58992	.45094	.52172

#1	.63463	.63355	12.172	.62396	1.4449	3.8294	8.6290	3.6089
#2	.63433	.63910	12.151	.62568	1.4445	3.8676	8.5539	3.6154
#3	.63930	.64554	12.242	.62914	1.4546	3.8699	8.5750	3.6444

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	13.640	4.1591	4.9779	4.5210	3.4418	1.5449	2.5966	1.1285
Stddev	.060	.0184	.0117	.0163	.0133	.0045	.0037	.0014
%RSD	.43985	.44137	.23503	.35964	.38617	.28926	.14407	.12029

#1	13.615	4.1415	4.9760	4.5145	3.4303	1.5495	2.5947	1.1299
#2	13.596	4.1781	4.9905	4.5090	3.4387	1.5447	2.6009	1.1286
#3	13.708	4.1575	4.9673	4.5395	3.4563	1.5405	2.5941	1.1272

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.2083	.71171	.59220	.58850	8.8800	1.1614	.52542	3.0861
Stddev	.0138	.00061	.00339	.00158	.0096	.0044	.00135	.0168
%RSD	.42950	.08509	.57187	.26810	.10761	.37563	.25671	.54269

#1	3.2051	.71237	.58886	.58756	8.8707	1.1661	.52612	3.0713
#2	3.1964	.71117	.59212	.58762	8.8795	1.1607	.52387	3.0826
#3	3.2234	.71159	.59563	.59032	8.8898	1.1574	.52628	3.1043

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7.5696	.31211	.31610	1.6381	3.5374	1.4714	14.519
Stddev	.0353	.00108	.00168	.0079	.0121	.0046	.094
%RSD	.46628	.34543	.52995	.48358	.34280	.31472	.64565

#1	7.5452	.31178	.31463	1.6374	3.5318	1.4756	14.576
#2	7.5536	.31123	.31574	1.6306	3.5291	1.4722	14.411
#3	7.6101	.31331	.31793	1.6464	3.5513	1.4665	14.570

Sample Name: S5 Acquired: 1/29/2025 15:16:38 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 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	2628.7	59032.	12208.	1910.3	2859.1
Stddev	10.1	22.	72.	3.1	11.2
%RSD	.38465	.03651	.59286	.16315	.39149
#1	2635.2	59052.	12266.	1910.5	2865.0
#2	2633.8	59036.	12231.	1913.3	2866.1
#3	2617.1	59009.	12127.	1907.1	2846.2

Sample Name: S6 Acquired: 1/29/2025 15:21:07 Type: Cal
Method: EPA SFAM01.0(v59) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S06 Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.058	7.2336	4.3895	1.9835	1.7645
Stddev	.022	.0278	.0220	.0058	.0085
%RSD	.19895	.38421	.50066	.29055	.47942
#1	11.057	7.2098	4.3695	1.9773	1.7713
#2	11.080	7.2269	4.3861	1.9843	1.7550
#3	11.036	7.2641	4.4130	1.9888	1.7672
Int. Std.	Y_3600	Y_3710			
Units	Cts/S	Cts/S			
Avg	54428.	12060.			
Stddev	167.	33.			
%RSD	.30660	.27646			
#1	54600.	12086.			
#2	54417.	12071.			
#3	54267.	12022.			

Sample Name: ICV005 Acquired: 1/29/2025 15:31:10 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV005 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9990606	1.030469	.9580774	.9667031	1.001295	2.351126
Stddev	.0056953	.015157	.0026986	.0058509	.002675	.013824
%RSD	.5700686	1.470855	.2816683	.6052408	.2671288	.5879655
#1	.9931768	1.016518	.9566313	.9619182	.998407	2.366601
#2	.9994582	1.028293	.9564101	.9649650	1.001790	2.346782
#3	1.004547	1.046596	.9611909	.9732261	1.003687	2.339997
Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5624476	.4942479	.4877198	10.05475	.5347769	.4888557
Stddev	.0047080	.0010559	.0016726	.07615	.0026056	.0017389
%RSD	.8370527	.2136484	.3429412	.7573965	.4872352	.3557094
#1	.5669708	.4935556	.4864727	10.13007	.5372316	.4869830
#2	.5627976	.4937249	.4870662	10.05638	.5350562	.4891647
#3	.5575744	.4954633	.4896205	9.97779	.5320428	.4904194
Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4756728	9.288009	.5515622	5.781006	.4931815	.2258069
Stddev	.0016367	.065925	.0033645	.020225	.0006043	.0013151
%RSD	.3440858	.7097891	.6099988	.3498502	.1225252	.5824196
#1	.4738989	9.350894	.5544574	5.773981	.4927347	.2266075
#2	.4771244	9.293719	.5523581	5.803807	.4929407	.2265241
#3	.4759951	9.219415	.5478711	5.765231	.4938690	.2242890
Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.30212	.4966874	.9336785	9.526703	5.082850	F .0233640
Stddev	.20224	.0032236	.0025832	.083659	.022333	.0010429
%RSD	1.963078	.6490204	.2766645	.8781557	.4393753	4.463836
#1	10.14584	.5004097	.9308458	9.620429	5.068428	.0236183
#2	10.53054	.4948236	.9342860	9.500102	5.071547	.0242563
#3	10.22999	.4948289	.9359038	9.459579	5.108575	.0222175

Sample Name: ICV005 Acquired: 1/29/2025 15:31:10 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV005 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.000211	4.816161	F .0079037	5.398317	F -.001064	4.922811
Stddev	.000108	.015554	.0045135	.023326	.000471	.037764
%RSD	51.00861	.3229611	57.10653	.4320922	44.24065	.7671158

#1	-.000172	4.803261	.0027166	5.379514	-.000526	4.952277
#2	-.000333	4.811789	.0109362	5.391018	-.001400	4.935916
#3	-.000129	4.833434	.0100582	5.424419	-.001266	4.880241

Elem	Sr4077
Units	ppm
Avg	F 5.811753
Stddev	.103623
%RSD	1.782987

#1	5.920689
#2	5.714421
#3	5.800150

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3325.136	70529.07	13423.03	2381.597	3871.476
Stddev	7.221	327.79	15.82	2.196	4.040
%RSD	.2171694	.4647642	.1178380	.0921933	.1043572

#1	3326.349	70187.88	13427.61	2383.466	3872.239
#2	3331.673	70557.76	13436.06	2379.179	3875.080
#3	3317.385	70841.59	13405.43	2382.145	3867.109

Sample Name: ICB005 Acquired: 1/29/2025 15:35:11 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB005 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008439	-.000321	.0007344	-.002516	-.000155	-.001415	.0000541
Stddev	.0021898	.000949	.0011468	.004210	.000290	.003860	.0000561
%RSD	259.4984	295.3362	156.1652	167.3286	186.8017	272.8565	103.6724
#1	.0033594	-.001214	.0013350	-.007281	-.000319	-.004886	.0000638
#2	-.000636	-.000425	.0014562	.000701	.000180	-.002100	.0001048
#3	-.000192	.000675	-.000588	-.000969	-.000327	.002742	-.000006
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000047	.0000237	.0106732	.0000867	-.000103	.0001253	-.003270
Stddev	.000011	.0001170	.0047677	.0002905	.000109	.0024832	.003818
%RSD	23.67226	494.0466	44.66952	335.2024	105.7496	1982.395	116.7501
#1	-.000034	.0001487	.0160818	-.000242	-.000228	-.002585	-.005274
#2	-.000054	.0000053	.0088584	.000310	-.000062	.000668	-.005670
#3	-.000052	-.000083	.0070795	.000191	-.000021	.002292	.001133
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000021	-.006895	.0001273	-.000167	-.144052	.0000414	.0005785
Stddev	.000356	.010181	.0005169	.000292	.230842	.0014554	.0008267
%RSD	1714.575	147.6590	405.9518	174.3023	160.2497	3515.988	142.8943
#1	-.000429	-.011799	-.000418	-.000476	.035190	-.000545	-.000331
#2	.000231	-.013695	.000611	-.000130	-.404531	-.001029	.000783
#3	.000135	.004810	.000189	.000104	-.062814	.001699	.001284
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0525499	-.000401	.0030494	-.000082	.0054814	.0023781	-.000119
Stddev	.0211642	.001618	.0001381	.000321	.0019289	.0054834	.000608
%RSD	40.27452	403.8744	4.528450	392.1341	35.18943	230.5779	512.1881
#1	.0761911	-.001458	.0031523	-.000001	.0054477	-.003186	.000047
#2	.0353680	-.001207	.0031033	.000191	.0074269	.002544	-.000792
#3	.0460906	.001463	.0028925	-.000435	.0035696	.007777	.000389

Sample Name: ICB005 Acquired: 1/29/2025 15:35:11 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB005 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0004056	-.000064	.0000905
Stddev	.0011269	.000188	.0000491
%RSD	277.8177	293.0287	54.22499

#1	-.000670	.000137	.0001469
#2	.001578	-.000236	.0000579
#3	.000309	-.000093	.0000666

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3393.712	72569.04	13440.39	2418.402	4126.671
Stddev	7.678	293.71	110.96	16.819	6.816
%RSD	.2262274	.4047375	.8255761	.6954544	.1651643

#1	3402.459	72235.83	13364.41	2401.373	4128.472
#2	3388.089	72790.39	13389.04	2418.831	4119.135
#3	3390.587	72680.91	13567.73	2435.003	4132.405

Sample Name: ICSA005 Acquired: 1/29/2025 15:41:14 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA005 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0057793	.0031054	.0035286	.0240222	.0066356	224.9548
Stddev	.0027539	.0023666	.0001792	.0061843	.0004721	3.1704
%RSD	47.65011	76.21014	5.079024	25.74399	7.114860	1.409346
#1	.0034595	.0017694	.0033464	.0299022	.0067706	228.2456
#2	.0088227	.0058379	.0037047	.0175730	.0061106	221.9203
#3	.0050557	.0017089	.0035346	.0245914	.0070254	224.6985
Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0064678	-.000596	-.000158	238.0932	.0608726	.0010856
Stddev	.0010750	.000043	.000043	1.9821	.0002750	.0002135
%RSD	16.62037	7.227137	27.43365	.8324992	.4518249	19.66436
#1	.0071888	-.000601	-.000156	238.8002	.0607802	.0010241
#2	.0069822	-.000551	-.000116	235.8545	.0611819	.0009096
#3	.0052322	-.000636	-.000203	239.6249	.0606556	.0013231
Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004185	98.33179	.0186281	232.7414	.0026951	-.002328
Stddev	.002299	.70391	.0003500	1.6901	.0002697	.000147
%RSD	54.93401	.7158497	1.878767	.7261843	10.00791	6.310000
#1	-.006718	98.54928	.0188776	233.1784	.0027974	-.002159
#2	-.002231	97.54480	.0182280	230.8757	.0028988	-.002427
#3	-.003606	98.90129	.0187786	234.1701	.0023892	-.002397
Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.163871	-.004008	-.008741	-.075078	.0009837	F .1988006
Stddev	.306160	.003157	.002605	.034602	.0013667	.0045377
%RSD	186.8298	78.76847	29.80048	46.08866	138.9333	2.282531
#1	.094452	-.001884	-.005780	-.113895	.0025555	.2001760
#2	-.502044	-.002504	-.010681	-.047468	.0003207	.1937344
#3	-.084022	-.007635	-.009761	-.063870	.0000750	.2024915

Sample Name: ICSA005 Acquired: 1/29/2025 15:41:14 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA005 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000526	.0214723	.0056031	-.004040	-.002501	.0055373
Stddev	.0006628	.0019963	.0030023	.001631	.000569	.0001267
%RSD	1261.067	9.297170	53.58390	40.36887	22.74598	2.288362

#1	.0008146	.0208924	.0071832	-.005146	-.002144	.0055050
#2	-.000390	.0198301	.0074853	-.002167	-.002202	.0056770
#3	-.000267	.0236943	.0021406	-.004806	-.003157	.0054298

Elem	Sr4077
Units	ppm
Avg	F .1014649
Stddev	.0010411
%RSD	1.026091

#1	.1019634
#2	.1002683
#3	.1021631

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2981.033	63412.18	13041.63	2108.384	3300.914
Stddev	1.969	161.98	55.73	4.605	1.900
%RSD	.0660349	.2554350	.4273333	.2184351	.0575587

#1	2979.978	63405.38	13092.11	2103.990	3302.091
#2	2979.817	63577.45	12981.82	2107.987	3301.929
#3	2983.304	63253.71	13050.94	2113.175	3298.722

Sample Name: ICSAB005 Acquired: 1/29/2025 15:45:28 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB005 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0961105	.0997608	.0534378	.0691383	.5769237	221.9573
Stddev	.0022726	.0008657	.0019882	.0028731	.0034307	1.4036
%RSD	2.364599	.8678192	3.720643	4.155518	.5946521	.6323901

#1	.0938583	.1007538	.0545979	.0676908	.5789263	223.5775
#2	.0960702	.0993645	.0545735	.0724473	.5729624	221.1106
#3	.0984031	.0991642	.0511420	.0672770	.5788825	221.1838

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4952464	.5064060	.9837477	233.8816	.5995154	.4987010
Stddev	.0034023	.0005514	.0020330	.8585	.0004185	.0008707
%RSD	.6869919	.1088958	.2066597	.3670596	.0697983	.1745897

#1	.4981722	.5060239	.9822796	234.8630	.5992888	.4987744
#2	.4915129	.5061559	.9828953	233.2698	.5999982	.4977960
#3	.4960540	.5070382	.9860681	233.5120	.5992591	.4995327

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4850098	96.74679	.5081471	228.2457	.9955795	.1992657
Stddev	.0009009	.32068	.0030906	.7513	.0010581	.0003182
%RSD	.1857529	.3314584	.6082092	.3291826	.1062760	.1596633

#1	.4843089	97.11487	.5107776	228.9942	.9952975	.1995533
#2	.4860259	96.59765	.5047433	228.2513	.9967500	.1989239
#3	.4846945	96.52784	.5089206	227.4915	.9946911	.1993198

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.130691	.4848134	.9584420	-.275210	.0060727	F .1807588
Stddev	.171914	.0022309	.0047669	.053868	.0024190	.0010988
%RSD	131.5423	.4601478	.4973539	19.57339	39.83416	.6078650

#1	-.308529	.4860035	.9557177	-.217855	.0080725	.1819961
#2	.034613	.4822399	.9556620	-.283042	.0067618	.1798969
#3	-.118157	.4861970	.9639462	-.324733	.0033840	.1803835

Sample Name: ICSAB005 Acquired: 1/29/2025 15:45:28 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB005 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000099	.0248077	-.000068	-.003963	-.004674	.0042103
Stddev	.000627	.0037848	.006270	.000501	.000673	.0008301
%RSD	630.7351	15.25666	9259.927	12.64200	14.38889	19.71552

#1	.000071	.0290348	.007042	-.004401	-.004782	.0032518
#2	.000425	.0217331	-.002436	-.004072	-.005286	.0046959
#3	-.000793	.0236552	-.004808	-.003417	-.003954	.0046831

Elem	Sr4077
Units	ppm
Avg	.0989680
Stddev	.0009041
%RSD	.9135033

#1	.0994054
#2	.0979284
#3	.0995702

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3060.931	63560.55	12878.77	2126.991	3399.128
Stddev	4.259	175.46	10.38	6.364	.790
%RSD	.1391425	.2760515	.0806227	.2991949	.0232280

#1	3056.719	63358.31	12866.85	2122.762	3399.403
#2	3060.839	63651.19	12883.57	2123.901	3398.237
#3	3065.236	63672.16	12885.88	2134.310	3399.742

Sample Name: CCV028 Acquired: 1/29/2025 15:49:33 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV028 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.106231	4.965000	25.16854	5.143835	5.199633	405.4101
Stddev	.010631	.018986	.03707	.012946	.009543	2.4661
%RSD	.2082056	.3823904	.1472779	.2516889	.1835362	.6082890

#1	5.100450	4.958127	25.14548	5.136843	5.189592	407.8203
#2	5.099742	4.950407	25.14884	5.135889	5.200722	405.5181
#3	5.118500	4.986465	25.21130	5.158775	5.208585	402.8918

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.96322	.5162241	2.555079	413.1468	15.97342	2.560251
Stddev	.04592	.0037606	.002704	2.9092	.01044	.001207
%RSD	.4188510	.7284796	.1058365	.7041452	.0653500	.0471285

#1	10.91069	.5205648	2.552817	410.3555	15.96209	2.559181
#2	10.98318	.5139480	2.554345	416.1610	15.98265	2.560014
#3	10.99578	.5141596	2.558074	412.9240	15.97552	2.561559

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.81434	408.8166	15.97336	409.4044	2.552075	1.334014
Stddev	.06592	2.0364	.07254	1.5681	.004292	.002457
%RSD	.4168624	.4981311	.4541116	.3830212	.1681779	.1842081

#1	15.78600	406.4705	15.89142	407.5968	2.548284	1.335790
#2	15.76732	410.1271	15.99928	410.3993	2.551207	1.335043
#3	15.88969	409.8522	16.02937	410.2171	2.556735	1.331210

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	413.6875	2.580286	16.04027	163.7206	5.142794	F 5.572764
Stddev	1.7070	.004600	.04001	1.0645	.029720	.024418
%RSD	.4126215	.1782628	.2494656	.6501640	.5778934	.4381713

#1	413.5458	2.584060	16.01520	162.4936	5.118302	5.600787
#2	412.0559	2.575163	16.01920	164.2728	5.134222	5.561452
#3	415.4609	2.581635	16.08642	164.3956	5.175858	5.556054

Sample Name: CCV028 Acquired: 1/29/2025 15:49:33 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV028 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.079681	5.189158	F 6.514212	5.093894	5.200003	5.453585
Stddev	.011658	.004821	.031187	.011251	.010499	.049589
%RSD	.2294998	.0929026	.4787575	.2208815	.2019104	.9092995

#1	5.069662	5.185065	6.539903	5.089401	5.189865	5.397660
#2	5.076905	5.187936	6.479512	5.085583	5.199314	5.470897
#3	5.092476	5.194472	6.523220	5.106698	5.210830	5.492198

Elem	Sr4077
Units	ppm
Avg	F 5.626155
Stddev	.053139
%RSD	.9445042

#1	5.620416
#2	5.681931
#3	5.576118

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2765.010	59820.67	12488.23	1964.820	2975.489
Stddev	10.066	116.39	76.25	2.988	7.762
%RSD	.3640601	.1945701	.6105773	.1520658	.2608737

#1	2776.293	59878.95	12402.70	1961.371	2984.088
#2	2761.786	59686.65	12512.92	1966.447	2973.378
#3	2756.950	59896.40	12549.08	1966.641	2969.000

Sample Name: CCB028 Acquired: 1/29/2025 15:53:51 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB028 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0021815	.0018599	.0007598	.0014983	-.000514	.0093605	.0005395
Stddev	.0015411	.0014459	.0012506	.0020784	.002103	.0044132	.0001797
%RSD	70.64563	77.73949	164.5853	138.7185	408.9715	47.14682	33.30148
#1	.0008758	.0034347	.0022035	.0036248	-.000164	.0045335	.0004947
#2	.0017872	.0015528	.0000632	.0013983	.001392	.0131887	.0003865
#3	.0038815	.0005923	.0000127	-.000528	-.002770	.0103594	.0007373
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000049	.0000394	.0122853	.0001827	.0000156	-.001537	.0076877
Stddev	.000054	.0000379	.0068434	.0002331	.0002706	.000535	.0034188
%RSD	110.6052	95.96721	55.70414	127.5489	1737.221	34.78844	44.47054
#1	-.000015	.0000483	.0056074	.0002769	-.000166	-.001048	.0092253
#2	-.000111	-.000002	.0192831	-.000083	-.000114	-.002108	.0037701
#3	-.000021	.000072	.0119655	.000354	.000327	-.001455	.0100677
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001270	.0188466	-.000175	.0000214	.0299063	.0011106	.0000325
Stddev	.0002549	.0078177	.000296	.0001196	.2377015	.0006864	.0006413
%RSD	200.6651	41.48047	169.2967	559.3378	794.8215	61.80556	1971.023
#1	-.000148	.0208362	-.000278	.0001489	-.197814	.0016400	-.000373
#2	.000173	.0254773	-.000406	.0000035	.276467	.0003351	-.000301
#3	.000356	.0102264	.000159	-.000088	.011066	.0013568	.000772
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0942873	-.001280	.0054925	.0000876	.0059609	.0014401	-.000191
Stddev	.0278586	.000792	.0003645	.0001493	.0037390	.0038794	.000380
%RSD	29.54654	61.85363	6.636351	170.4256	62.72598	269.3851	198.8116
#1	.1020913	-.002075	.0053288	.0002389	.0039164	.0059191	.000015
#2	.1174116	-.001273	.0052384	.0000836	.0036899	-.000741	-.000629
#3	.0633589	-.000492	.0059101	-.000060	.0102763	-.000858	.000041

Sample Name: CCB028 Acquired: 1/29/2025 15:53:51 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB028 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008864	.0007086	.0000882
Stddev	.0003290	.0009410	.0000880
%RSD	37.11425	132.8057	99.76392

#1	.0011328	.0001854	-.000013
#2	.0005128	.0017950	.000129
#3	.0010134	.0001454	.000149

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3378.218	72622.83	13529.11	2431.064	4091.355
Stddev	6.574	274.68	88.17	5.183	2.454
%RSD	.1946130	.3782274	.6516734	.2131896	.0599864

#1	3373.962	72703.06	13585.01	2436.862	4089.090
#2	3385.790	72848.46	13427.48	2429.451	4093.963
#3	3374.902	72316.97	13574.86	2426.880	4091.012

Sample Name: Q1136-02 Acquired: 1/29/2025 15:58:00 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0153133	.0029970	.0050894	-.004850	-.002604	31.07541
Stddev	.0008638	.0017222	.0012616	.000060	.000248	.10745
%RSD	5.640586	57.46476	24.78902	1.230892	9.521662	.3457558

#1	.0161779	.0010444	.0051716	-.004783	-.002715	31.08915
#2	.0153117	.0042999	.0063079	-.004869	-.002778	30.96175
#3	.0144504	.0036466	.0037887	-.004898	-.002320	31.17532

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0376117	.0025540	.0015093	51.17705	.0297309	.1126255
Stddev	.0005110	.0000205	.0001048	.07150	.0000738	.0003275
%RSD	1.358590	.8022116	6.946504	.1397019	.2481043	.2907949

#1	.0381876	.0025642	.0016170	51.23373	.0296666	.1129624
#2	.0374347	.0025304	.0014075	51.09673	.0297146	.1123083
#3	.0372127	.0025674	.0015034	51.20069	.0298114	.1126057

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1197466	11.58207	2.282116	23.18116	.1059449	-.002937
Stddev	.0007050	.02877	.005575	.04572	.0003199	.000158
%RSD	.5887161	.2484325	.2442992	.1972140	.3019291	5.393663

#1	.1193918	11.57855	2.287318	23.20380	.1055756	-.002796
#2	.1192895	11.55522	2.276231	23.12854	.1061287	-.002907
#3	.1205585	11.61244	2.282800	23.21113	.1061305	-.003108

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.760222	.0243054	.5084607	12.91822	.6329755	.2887731
Stddev	.152769	.0003075	.0030588	.03776	.0045437	.0010080
%RSD	5.534660	1.265106	.6015760	.2922817	.7178296	.3490448

#1	2.715903	.0239516	.5089764	12.93361	.6381013	.2886267
#2	2.930250	.0245082	.5051768	12.87520	.6294430	.2898463
#3	2.634512	.0244564	.5112288	12.94586	.6313823	.2878465

Sample Name: Q1136-02 Acquired: 1/29/2025 15:58:00 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000959	F 327.8339	F 21.18949	-.002491	.0109164	.0249730
Stddev	.0001848	.2513	.03463	.000242	.0001648	.0003093
%RSD	192.7179	.0766552	.1634198	9.713579	1.509276	1.238672

#1	.0001423	328.0892	21.22934	-.002574	.0110841	.0249078
#2	.0002531	327.5868	21.17240	-.002680	.0107548	.0253097
#3	-.000108	327.8259	21.16673	-.002218	.0109101	.0247014

Elem	Sr4077
Units	ppm
Avg	.2956309
Stddev	.0011462
%RSD	.3877199

#1	.2968437
#2	.2945655
#3	.2954835

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7298.725	157105.9	30320.25	5243.303	3738.736
Stddev	21.600	483.2	68.46	24.317	9.181
%RSD	.2959405	.3075347	.2257933	.4637800	.2455701

#1	7318.782	157255.4	30387.55	5264.027	3745.154
#2	7301.535	157496.7	30322.50	5249.350	3742.834
#3	7275.857	156565.7	30250.69	5216.533	3728.219

Sample Name: Q1136-03 Acquired: 1/29/2025 16:01:59 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0149272	.0032718	.0070963	-.003786	-.002895	31.30768
Stddev	.0009618	.0015072	.0019157	.000605	.000462	.14055
%RSD	6.443632	46.06613	26.99612	15.98667	15.95944	.4489219
#1	.0144294	.0015348	.0067492	-.003798	-.003168	31.17539
#2	.0160359	.0042336	.0091618	-.003175	-.003156	31.29242
#3	.0143162	.0040469	.0053778	-.004386	-.002362	31.45524
Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0364753	.0025335	.0015179	50.81248	.0295408	.1117600
Stddev	.0010216	.0000216	.0000825	.08176	.0001014	.0003118
%RSD	2.800825	.8520933	5.434208	.1609079	.3434048	.2790062
#1	.0355097	.0025573	.0014910	50.74527	.0296577	.1117868
#2	.0363713	.0025152	.0016105	50.78866	.0294883	.1114357
#3	.0375449	.0025280	.0014522	50.90350	.0294764	.1120576
Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1189654	11.59444	2.251447	22.90463	.1052959	-.002762
Stddev	.0015697	.04338	.004841	.03677	.0005193	.000085
%RSD	1.319434	.3741176	.2150268	.1605567	.4931894	3.074794
#1	.1174930	11.56680	2.246257	22.93887	.1050470	-.002751
#2	.1187863	11.57209	2.252243	22.86576	.1049478	-.002852
#3	.1206169	11.64444	2.255841	22.90928	.1058928	-.002683
Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.848472	.0242785	.5118017	13.08315	.6237633	.2879888
Stddev	.074559	.0015884	.0025901	.06596	.0030243	.0011064
%RSD	2.617510	6.542573	.5060828	.5041934	.4848414	.3841724
#1	2.815819	.0252612	.5121112	13.02814	.6271609	.2889830
#2	2.795809	.0224460	.5090707	13.06504	.6213655	.2881864
#3	2.933786	.0251285	.5142232	13.15628	.6227636	.2867969

Sample Name: Q1136-03 Acquired: 1/29/2025 16:01:59 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7D Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003053	F 326.7778	F 20.83910	-.002469	.0109334	.0251447
Stddev	.0000675	.6466	.07977	.001901	.0001683	.0003497
%RSD	22.11984	.1978731	.3827689	77.00483	1.539126	1.390761

#1	.0002705	326.4483	20.91744	-.000331	.0110220	.0249111
#2	.0002623	326.3624	20.84188	-.003106	.0110389	.0255468
#3	.0003832	327.5228	20.75798	-.003970	.0107393	.0249762

Elem	Sr4077
Units	ppm
Avg	.2952264
Stddev	.0015225
%RSD	.5156879

#1	.2936512
#2	.2953380
#3	.2966899

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7197.481	156152.3	30316.68	5122.422	3715.663
Stddev	36.309	325.9	159.93	13.121	22.096
%RSD	.5044623	.2086812	.5275394	.2561576	.5946698

#1	7234.744	156399.5	30221.48	5134.005	3738.077
#2	7195.489	155783.0	30227.24	5108.172	3715.013
#3	7162.209	156274.2	30501.32	5125.091	3693.899

Sample Name: Q1136-02LX5 Acquired: 1/29/2025 16:05:57 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0061721	.0013295	.0038430	-.002684	-.000690	11.10259
Stddev	.0006695	.0003954	.0014811	.001827	.000437	.04356
%RSD	10.84813	29.74264	38.53986	68.04523	63.39449	.3922986

#1	.0069044	.0016513	.0034357	-.000766	-.001058	11.09307
#2	.0055912	.0008881	.0026082	-.004403	-.000206	11.06459
#3	.0060206	.0014491	.0054852	-.002884	-.000806	11.15012

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0119751	.0009296	.0004155	18.25253	.0116935	.0227015
Stddev	.0007946	.0000064	.0000623	.04910	.0002355	.0001950
%RSD	6.635218	.6913535	15.00337	.2690193	2.013568	.8587945

#1	.0117074	.0009339	.0003974	18.22891	.0115317	.0228370
#2	.0128689	.0009328	.0003642	18.21970	.0119636	.0227895
#3	.0113490	.0009223	.0004849	18.30898	.0115852	.0224781

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0446559	4.242455	.8238035	8.166453	.0215420	-.000996
Stddev	.0018919	.019698	.0048790	.020418	.0000995	.000128
%RSD	4.236591	.4643127	.5922527	.2500280	.4617918	12.89933

#1	.0466005	4.230366	.8213893	8.148675	.0214383	-.000948
#2	.0445456	4.231815	.8206023	8.161932	.0215512	-.000898
#3	.0428215	4.265185	.8294189	8.188754	.0216366	-.001141

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.046580	.0091656	.1801557	4.475365	.1364607	.1090021
Stddev	.155505	.0009035	.0021409	.002441	.0009777	.0005437
%RSD	14.85844	9.857839	1.188335	.0545429	.7164661	.4987660

#1	.883211	.0084397	.1776895	4.475961	.1367621	.1096289
#2	1.063728	.0088796	.1815352	4.472681	.1353678	.1087179
#3	1.192800	.0101775	.1812425	4.477453	.1372523	.1086594

Sample Name: Q1136-02LX5 Acquired: 1/29/2025 16:05:57 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7L Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004150	F 65.46945	7.650868	-.001098	.0045245	.0091357
Stddev	.0002212	.19812	.009348	.000158	.0006532	.0002352
%RSD	53.30526	.3026197	.1221822	14.37452	14.43676	2.574038

#1	.0006705	65.57182	7.650619	-.001048	.0046697	.0091668
#2	.0002888	65.24108	7.660338	-.000971	.0050929	.0088865
#3	.0002858	65.59544	7.641647	-.001274	.0038109	.0093537

Elem	Sr4077
Units	ppm
Avg	.1053583
Stddev	.0004823
%RSD	.4577392

#1	.1051716
#2	.1049972
#3	.1059060

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4192.431	89840.93	16965.68	2967.726	3995.087
Stddev	3.990	186.88	118.67	6.688	7.268
%RSD	.0951708	.2080155	.6994732	.2253432	.1819133

#1	4190.027	89852.77	16930.43	2975.425	3986.966
#2	4197.037	89648.41	16868.64	2963.364	4000.979
#3	4190.229	90021.62	17097.99	2964.388	3997.315

Sample Name: Q1136-04 Acquired: 1/29/2025 16:09:59 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0503951	.0788905	.0528370	.0878469	.0852065	33.69555
Stddev	.0020990	.0033333	.0005532	.0015460	.0012385	.13352
%RSD	4.165072	4.225251	1.046969	1.759871	1.453570	.3962497

#1	.0509426	.0754483	.0522556	.0892855	.0841948	33.54860
#2	.0521662	.0791202	.0533568	.0862122	.0848369	33.72861
#3	.0480766	.0821031	.0528987	.0880429	.0865877	33.80943

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.786568	.0478759	.1012649	52.60154	.2222327	1.081557
Stddev	.013017	.0001202	.0007390	.18485	.0006263	.005445
%RSD	.7285971	.2510283	.7297388	.3514224	.2818266	.5034723

#1	1.771738	.0479500	.1008581	52.39379	.2215115	1.078779
#2	1.796104	.0479404	.1008187	52.66296	.2226400	1.078061
#3	1.791860	.0477372	.1021179	52.74786	.2225466	1.087832

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3451935	12.81183	2.794195	23.79175	1.085772	.0319151
Stddev	.0029502	.03023	.012826	.05095	.004212	.0001450
%RSD	.8546506	.2359310	.4590310	.2141391	.3879615	.4543657

#1	.3431578	12.77943	2.779614	23.73412	1.082909	.0317798
#2	.3438458	12.81680	2.799237	23.81034	1.083799	.0320682
#3	.3485768	12.83927	2.803735	23.83080	1.090609	.0318971

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.856198	.4676936	.9527194	13.34606	.6743956	.2857381
Stddev	.022757	.0006586	.0089259	.06035	.0052642	.0006667
%RSD	.7967443	.1408244	.9368852	.4522016	.7805743	.2333327

#1	2.879033	.4680049	.9426588	13.29855	.6731765	.2862509
#2	2.856041	.4681388	.9596885	13.41396	.6698479	.2859790
#3	2.833521	.4669370	.9558109	13.32566	.6801623	.2849844

Sample Name: Q1136-04 Acquired: 1/29/2025 16:09:59 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7S Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006431	F 314.0590	F 21.18055	-.000418	.0104394	.0268924
Stddev	.0001279	1.1677	.03381	.001539	.0000316	.0003294
%RSD	19.88574	.3718147	.1596080	368.4065	.3030824	1.224809

#1	.0006101	313.4582	21.16184	-.000520	.0104257	.0265673
#2	.0005349	313.3140	21.21957	.001170	.0104168	.0272259
#3	.0007842	315.4048	21.16023	-.001903	.0104755	.0268841

Elem	Sr4077
Units	ppm
Avg	.3089301
Stddev	.0018101
%RSD	.5859130

#1	.3068559
#2	.3101898
#3	.3097446

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7354.686	155649.6	30987.77	5177.977	3815.781
Stddev	27.974	588.6	31.97	27.038	21.359
%RSD	.3803505	.3781564	.1031750	.5221789	.5597462

#1	7386.862	156274.3	30987.09	5208.907	3836.598
#2	7341.058	155569.1	31020.08	5166.200	3816.826
#3	7336.138	155105.3	30956.15	5158.825	3793.919

Sample Name: Q1151-01DLX20 Acquired: 1/29/2025 16:13:53 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0317233	.0187045	.1073728	.0132739	.0490555	.7271002
Stddev	.0005279	.0003207	.0009819	.0021647	.0026300	.0081165
%RSD	1.664013	1.714738	.9144672	16.30763	5.361205	1.116286

#1	.0320988	.0187048	.1074132	.0142570	.0470749	.7185702
#2	.0319514	.0190251	.1063713	.0107921	.0480520	.7347279
#3	.0311198	.0183837	.1083338	.0147725	.0520394	.7280024

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0160429	.0008033	.0003438	4.292522	25.61671	F 6.133567
Stddev	.0001850	.0000815	.0000623	.018369	.08224	.023482
%RSD	1.153119	10.14729	18.12453	.4279361	.3210401	.3828408

#1	.0160358	.0007656	.0002829	4.273792	25.65887	6.124181
#2	.0158616	.0007475	.0003410	4.310508	25.52194	6.116230
#3	.0162314	.0008969	.0004074	4.293265	25.66932	6.160290

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1667054	6.800204	.1110795	.6277432	F 5.186416	.0003535
Stddev	.0017333	.047832	.0008056	.0130387	.017616	.0002216
%RSD	1.039722	.7033941	.7252033	2.077078	.3396648	62.69897

#1	.1653690	6.765114	.1103948	.6211309	5.179465	.0006082
#2	.1686638	6.854687	.1108766	.6427633	5.173336	.0002481
#3	.1660833	6.780810	.1119671	.6193354	5.206448	.0002043

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.941499	.1137196	.1873524	.0050285	.1364766	.0502275
Stddev	.205327	.0016990	.0033557	.0372403	.0011344	.0007821
%RSD	10.57572	1.494004	1.791090	740.5798	.8312144	1.557149

#1	1.897932	.1138181	.1849497	.0337766	.1351923	.0510228
#2	2.165113	.1119735	.1911864	-.037040	.1368956	.0494593
#3	1.761451	.1153672	.1859212	.018349	.1373419	.0502005

Sample Name: Q1151-01DLX20 Acquired: 1/29/2025 16:13:53 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ0 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.177277	8.135086	.4162888	.0161244	.0198408	-.000002
Stddev	.012342	.024440	.0050137	.0001724	.0004357	.000137
%RSD	.3884370	.3004303	1.204378	1.069250	2.196207	6809.203

#1	3.172255	8.128730	.4154840	.0162942	.0193721	.000156
#2	3.168238	8.114452	.4117262	.0159495	.0202335	-.000090
#3	3.191338	8.162077	.4216563	.0161295	.0199169	-.000073

Elem	Sr4077
Units	ppm
Avg	.0408825
Stddev	.0001139
%RSD	.2786286

#1	.0407904
#2	.0410099
#3	.0408472

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3339.428	71791.36	13491.01	2379.898	4156.673
Stddev	8.951	72.42	72.00	11.548	11.110
%RSD	.2680448	.1008758	.5336683	.4852203	.2672833

#1	3331.002	71742.53	13421.37	2383.876	4147.402
#2	3348.825	71756.99	13565.15	2366.887	4168.988
#3	3338.456	71874.57	13486.51	2388.930	4153.629

Sample Name: Q1151-02DLX5 Acquired: 1/29/2025 16:18:01 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0224758	-.000810	.5971860	.0115847	.0081355	9.462948
Stddev	.0024467	.001575	.0020974	.0021431	.0021699	.030229
%RSD	10.88596	194.4647	.3512099	18.49981	26.67218	.3194482

#1	.0197104	.000129	.5980643	.0115201	.0101001	9.466875
#2	.0233577	-.002628	.5947922	.0094746	.0058064	9.491022
#3	.0243593	.000070	.5987014	.0137595	.0084998	9.430948

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0661240	.0009110	.0011463	7.093154	5.905280	2.425917
Stddev	.0006479	.0000286	.0000241	.020439	.004827	.003968
%RSD	.9798166	3.135135	2.103216	.2881494	.0817374	.1635766

#1	.0653866	.0009216	.0011708	7.070211	5.901729	2.425022
#2	.0666019	.0008787	.0011453	7.109416	5.903336	2.422473
#3	.0663835	.0009327	.0011227	7.099837	5.910776	2.430256

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2892964	26.62786	.2033433	4.166160	2.371819	-.000252
Stddev	.0006401	.08223	.0009601	.014595	.003918	.000181
%RSD	.2212603	.3088037	.4721664	.3503179	.1651734	71.78642

#1	.2885799	26.59233	.2022484	4.159261	2.372627	-.000191
#2	.2898116	26.72187	.2040418	4.156294	2.367561	-.000456
#3	.2894978	26.56936	.2037396	4.182926	2.375270	-.000110

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.196632	.0610559	.4401800	2.097294	2.377979	.0898778
Stddev	.240318	.0015574	.0010872	.012758	.007362	.0009760
%RSD	3.339312	2.550789	.2469952	.6082864	.3095696	1.085962

#1	7.273524	.0624930	.4394549	2.097933	2.375897	.0904604
#2	7.389094	.0612736	.4396549	2.109719	2.371883	.0904219
#3	6.927278	.0594011	.4414301	2.084228	2.386158	.0887509

Sample Name: Q1151-02DLX5 Acquired: 1/29/2025 16:18:01 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ1 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3606916	F 21.85227	2.844516	.0176235	.2410962	.0168747
Stddev	.0008366	.05251	.011298	.0005364	.0011921	.0005481
%RSD	.2319455	.2402844	.3971755	3.043693	.4944378	3.247767
#1	.3615035	21.84000	2.835545	.0171122	.2411807	.0168306
#2	.3607390	21.80698	2.840799	.0175764	.2398642	.0163501
#3	.3598323	21.90982	2.857204	.0181819	.2422438	.0174435

Elem	Sr4077
Units	ppm
Avg	.1014745
Stddev	.0005048
%RSD	.4974959
#1	.1012602
#2	.1020511
#3	.1011122

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3349.137	71796.13	14046.30	2373.854	3944.941
Stddev	6.522	272.26	102.58	14.119	6.412
%RSD	.1947416	.3792176	.7302711	.5947864	.1625474
#1	3341.699	71524.57	13976.93	2362.578	3945.068
#2	3351.833	72069.09	14164.13	2389.690	3951.290
#3	3353.879	71794.74	13997.84	2369.294	3938.467

Sample Name: Q1159-01 Acquired: 1/29/2025 16:21:56 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1345382	-.010367	.1231950	.0403097	.0098205	73.13456	1.798778
Stddev	.0013687	.000558	.0013984	.0029662	.0008761	.50057	.010019
%RSD	1.017311	5.377754	1.135068	7.358495	8.921597	.6844480	.5570061

#1	.1360255	-.010070	.1236131	.0370828	.0107771	73.66754	1.805782
#2	.1342573	-.010021	.1243365	.0409287	.0090571	73.06177	1.803251
#3	.1333317	-.011010	.1216352	.0429175	.0096272	72.67437	1.787302

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0026583	.0017184	22.27083	.1952257	.1653853	.2239371	173.2333
Stddev	.0000451	.0000459	.19102	.0024537	.0015786	.0015289	1.3082
%RSD	1.697215	2.671079	.8576924	1.256853	.9545085	.6827404	.7551608

#1	.0026840	.0016717	22.48630	.1980584	.1671895	.2256148	174.7433
#2	.0026846	.0017634	22.20389	.1938607	.1647078	.2226223	172.4440
#3	.0026062	.0017201	22.12229	.1937580	.1642585	.2235742	172.5125

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.440970	38.65893	.3214922	-.000022	.2511353	.1862940	.4268455
Stddev	.063989	.38102	.0024806	.000099	.2107686	.0007294	.0040460
%RSD	.7580805	.9855839	.7715939	438.7883	83.92630	.3915492	.9478836

#1	8.510926	39.08995	.3239007	.000090	.2005117	.1856736	.4299225
#2	8.426590	38.36702	.3216308	-.000092	.0702886	.1870976	.4283516
#3	8.385394	38.51982	.3189453	-.000066	.4826056	.1861110	.4222625

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.036655	1.779237	.3342442	.0079744	.1837722	1.662993	.0010931
Stddev	.019587	.015803	.0041147	.0003961	.0030388	.010012	.0009043
%RSD	1.889447	.8881622	1.231036	4.967571	1.653568	.6020750	82.73204

#1	1.059092	1.794920	.3386280	.0079648	.1872687	1.657749	.0000709
#2	1.027902	1.779471	.3304657	.0083753	.1822798	1.656692	.0014195
#3	1.022970	1.763318	.3336388	.0075832	.1817682	1.674539	.0017889

Sample Name: Q1159-01 Acquired: 1/29/2025 16:21:56 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6816669	.0711779	.2264513
Stddev	.0018240	.0009501	.0015161
%RSD	.2675822	1.334788	.6695165

#1	.6795918	.0710901	.2278055
#2	.6823927	.0721689	.2267349
#3	.6830164	.0702748	.2248133

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3474.073	74041.19	14909.50	2451.886	3811.544
Stddev	21.052	739.89	65.86	29.961	24.593
%RSD	.6059685	.9993002	.4417128	1.221953	.6452164

#1	3452.066	73189.53	14838.27	2419.098	3785.040
#2	3476.134	74408.21	14968.18	2458.722	3815.966
#3	3494.018	74525.82	14922.05	2477.838	3833.625

Sample Name: Q1151-01DLX40 Acquired: 1/29/2025 16:25:56 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0187640	.0109963	.0560347	.0092146	.0211938	.4041072	.0090349
Stddev	.0004042	.0016361	.0012381	.0027796	.0012099	.0033516	.0006644
%RSD	2.153985	14.87901	2.209583	30.16553	5.708592	.8293723	7.353784

#1	.0183222	.0123765	.0571743	.0073133	.0212683	.4032520	.0090659
#2	.0191151	.0091889	.0547173	.0079258	.0199484	.4012661	.0083555
#3	.0188547	.0114233	.0562126	.0124047	.0223647	.4078035	.0096832

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003664	.0001103	2.330600	13.53656	3.145471	.0891927	3.714706
Stddev	.0000721	.0000537	.005931	.06103	.011125	.0023206	.014884
%RSD	19.68381	48.72896	.2544785	.4508573	.3536910	2.601769	.4006658

#1	.0003479	.0001111	2.330699	13.46889	3.149227	.0918664	3.713616
#2	.0003054	.0000562	2.336481	13.55339	3.132954	.0880092	3.730105
#3	.0004460	.0001636	2.324621	13.58742	3.154232	.0877024	3.700398

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0608194	.3501130	2.673387	.0003170	1.030325	.0600911	.1017161
Stddev	.0003767	.0065209	.009986	.0001786	.267136	.0012291	.0006484
%RSD	.6193150	1.862516	.3735502	56.34592	25.92739	2.045394	.6374662

#1	.0612364	.3498135	2.678408	.0003394	1.148080	.0587265	.1024408
#2	.0607179	.3567786	2.661887	.0004833	.724542	.0604354	.1011908
#3	.0605038	.3437471	2.679867	.0001282	1.218352	.0611112	.1015167

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0383791	.0677831	.0256588	1.621930	4.160503	.2168949	.0080175
Stddev	.0370318	.0006292	.0004953	.002120	.026184	.0008647	.0007108
%RSD	96.48958	.9281890	1.930387	.1307360	.6293404	.3986843	8.865129

#1	.0379783	.0674987	.0254993	1.623450	4.187748	.2176663	.0086469
#2	.0015493	.0673464	.0252629	1.619508	4.135529	.2170583	.0081588
#3	.0756097	.0685043	.0262143	1.622832	4.158232	.2159602	.0072466

Sample Name: Q1151-01DLX40 Acquired: 1/29/2025 16:25:56 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0AZ0 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0105669	.0004129	.0222259
Stddev	.0003084	.0005358	.0001163
%RSD	2.918777	129.7745	.5233569

#1	.0109172	.0006745	.0222352
#2	.0103363	.0007675	.0223373
#3	.0104470	-.000203	.0221052

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3381.928	71088.64	13894.46	2349.035	4183.440
Stddev	9.629	240.63	20.84	16.889	14.724
%RSD	.2847127	.3384891	.1499736	.7189895	.3519672

#1	3370.863	71356.25	13916.71	2342.476	4169.907
#2	3386.526	70890.10	13891.26	2336.410	4199.120
#3	3388.397	71019.59	13875.41	2368.220	4181.293

Sample Name: Q1159-02 Acquired: 1/29/2025 16:29:56 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1332916	-.008115	.1241497	.0390520	.0104564	73.31936	1.815188
Stddev	.0022437	.003194	.0020063	.0026989	.0015296	.13492	.003306
%RSD	1.683272	39.36173	1.616031	6.911054	14.62833	.1840165	.1821311

#1	.1316711	-.004829	.1262752	.0418528	.0087586	73.35870	1.817508
#2	.1323513	-.008305	.1238852	.0364681	.0117271	73.43023	1.816653
#3	.1358524	-.011209	.1222888	.0388352	.0108834	73.16914	1.811402

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0026891	.0017957	22.39426	.1948245	.1655866	.2269862	173.7950
Stddev	.0001535	.0000573	.06063	.0005559	.0009019	.0015656	.4200
%RSD	5.708195	3.193321	.2707388	.2853225	.5446574	.6897116	.2416801

#1	.0027382	.0018549	22.43003	.1952290	.1665949	.2252458	173.8842
#2	.0028120	.0017404	22.42851	.1941906	.1648567	.2282797	174.1633
#3	.0025170	.0017919	22.32426	.1950538	.1653083	.2274331	173.3375

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.547086	39.02682	.3210292	.0000818	-.021327	.1925470	.4237105
Stddev	.018885	.07396	.0013079	.0003503	.165116	.0019752	.0037276
%RSD	.2209565	.1895234	.4074192	428.0148	774.1982	1.025822	.8797611

#1	8.544439	39.07596	.3224795	.0001676	-.183422	.1943838	.4232525
#2	8.567155	39.06274	.3199390	.0003813	-.027214	.1904577	.4276459
#3	8.529663	38.94175	.3206691	-.000303	.146653	.1927996	.4202330

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.038283	1.793097	.3356644	.0085572	.1819520	1.881504	.0008747
Stddev	.015807	.007598	.0023185	.0001743	.0034081	.017314	.0006804
%RSD	1.522410	.4237169	.6907053	2.036676	1.873073	.9202142	77.78547

#1	1.050367	1.797864	.3382919	.0085774	.1821039	1.865954	.0012053
#2	1.044087	1.784336	.3347953	.0083737	.1784705	1.900161	.0013268
#3	1.020394	1.797092	.3339061	.0087205	.1852816	1.878397	.0000922

Sample Name: Q1159-02 Acquired: 1/29/2025 16:29:56 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9D Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6911790	.0723408	.2272967
Stddev	.0008851	.0005012	.0003243
%RSD	.1280508	.6927918	.1426642

#1	.6921987	.0725685	.2269232
#2	.6906097	.0726878	.2275053
#3	.6907286	.0717663	.2274618

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3497.706	74078.34	14765.81	2491.224	3819.523
Stddev	9.312	220.51	48.65	8.570	10.019
%RSD	.2662400	.2976685	.3294990	.3440216	.2623000

#1	3487.084	74078.68	14804.52	2491.671	3808.983
#2	3504.470	73857.66	14711.19	2482.439	3828.922
#3	3501.562	74298.68	14781.72	2499.562	3820.664

Sample Name: Q1159-01LX5 Acquired: 1/29/2025 16:33:55 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0279216	-.000110	.0261435	.0065358	.0010576	15.08716	.3639199
Stddev	.0002771	.002720	.0005407	.0036036	.0008637	.01812	.0010852
%RSD	.9924418	2471.147	2.068169	55.13619	81.66438	.1200781	.2982016
#1	.0276386	.002730	.0260613	.0041233	.0001171	15.09504	.3627905
#2	.0281924	-.002693	.0256486	.0048059	.0018151	15.06644	.3640144
#3	.0279339	-.000367	.0267206	.0106782	.0012406	15.10000	.3649547
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005779	.0002057	4.653275	.0420364	.0333367	.0488310	36.44546
Stddev	.0000310	.0000233	.021649	.0001666	.0002551	.0014570	.07372
%RSD	5.362842	11.33144	.4652403	.3962448	.7652469	2.983708	.2022632
#1	.0005919	.0001909	4.632043	.0418802	.0336035	.0487312	36.50610
#2	.0005994	.0002326	4.675318	.0420172	.0333113	.0474265	36.46687
#3	.0005424	.0001937	4.652463	.0422117	.0330952	.0503353	36.36341
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.761334	8.019258	.0656501	-.000500	.0326023	.0437304	.0862960
Stddev	.002824	.036007	.0000984	.000410	.2736923	.0010148	.0009154
%RSD	.1603167	.4490008	.1499041	82.04253	839.4875	2.320548	1.060706
#1	1.758134	7.987159	.0657231	-.000526	-.099770	.0445519	.0861383
#2	1.763476	8.058193	.0655382	-.000078	-.149739	.0440433	.0872800
#3	1.762391	8.012423	.0656888	-.000897	.347315	.0425961	.0854698
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1995205	.3576457	.0630225	.0018730	.0430623	.7778326	-.000241
Stddev	.0034329	.0016931	.0006494	.0001855	.0044145	.0028200	.000837
%RSD	1.720562	.4734081	1.030421	9.903475	10.25135	.3625475	347.0602
#1	.1974933	.3565762	.0623347	.0016860	.0481529	.7749590	.000269
#2	.2034841	.3567631	.0631076	.0020569	.0402895	.7805958	-.001207
#3	.1975842	.3595978	.0636251	.0018762	.0407444	.7779430	.000214

Sample Name: Q1159-01LX5 Acquired: 1/29/2025 16:33:55 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1472591	.0148808	.0466970
Stddev	.0002732	.0010703	.0001165
%RSD	.1855379	7.192142	.2493707

#1	.1473897	.0140609	.0465939
#2	.1474425	.0144900	.0468233
#3	.1469451	.0160916	.0466738

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3478.687	72252.00	13844.90	2442.941	4084.368
Stddev	5.406	259.66	71.78	14.891	6.106
%RSD	.1554021	.3593872	.5184823	.6095590	.1494912

#1	3472.473	72446.43	13880.73	2444.690	4077.865
#2	3481.282	71957.12	13762.25	2427.252	4085.259
#3	3482.306	72352.46	13891.70	2456.880	4089.979

Sample Name: Q1159-03 Acquired: 1/29/2025 16:38:00 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1989204	.0721886	.1586515	.2090398	.1820507	75.13967	5.519214
Stddev	.0012356	.0020713	.0014387	.0039625	.0022335	.42569	.088679
%RSD	.6211361	2.869326	.9068333	1.895588	1.226875	.5665296	1.606729

#1	.1976060	.0698360	.1601376	.2114475	.1827368	75.03786	5.543283
#2	.2000580	.0729914	.1572654	.2112054	.1795546	75.60704	5.420986
#3	.1990973	.0737383	.1585514	.2044663	.1838607	74.77412	5.593375

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0933429	.0981251	21.87760	.6036258	1.119101	.6882171	171.6394
Stddev	.0004915	.0010430	.03871	.0026362	.010214	.0039767	.4100
%RSD	.5265741	1.062885	.1769366	.4367203	.9127070	.5778318	.2388546

#1	.0938591	.0991475	21.91326	.6065531	1.128486	.6872993	171.8532
#2	.0928805	.0970627	21.88312	.6028848	1.108222	.6925725	171.8983
#3	.0932891	.0981651	21.83643	.6014394	1.120596	.6847795	171.1667

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.269824	37.92954	1.274786	.0707116	.2919342	1.142171	1.311123
Stddev	.026451	.13104	.013424	.0009065	.1509470	.004531	.010927
%RSD	.2853414	.3454787	1.053069	1.281940	51.70582	.3966679	.8333774

#1	9.267612	38.08074	1.285816	.0714425	.2532445	1.138259	1.315679
#2	9.297311	37.85889	1.259839	.0709951	.1640977	1.141118	1.319034
#3	9.244549	37.84899	1.278704	.0696973	.4584602	1.147135	1.298655

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.007179	1.743936	.3264262	.0077095	.1770812	2.600234	.0008911
Stddev	.008007	.018528	.0047247	.0002250	.0047845	.017727	.0010068
%RSD	.7950061	1.062443	1.447386	2.918952	2.701842	.6817640	112.9916

#1	1.000545	1.761382	.3248346	.0075526	.1825618	2.585378	-.000041
#2	1.016074	1.724488	.3317411	.0079673	.1737383	2.595466	.001959
#3	1.004919	1.745938	.3227029	.0076086	.1749436	2.619858	.000756

Sample Name: Q1159-03 Acquired: 1/29/2025 16:38:00 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8C9S Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6848287	.0709029	.2237726
Stddev	.0039212	.0005327	.0017554
%RSD	.5725808	.7513310	.7844509

#1	.6807523	.0705935	.2227825
#2	.6851600	.0705972	.2257994
#3	.6885737	.0715180	.2227359

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3551.130	74783.27	14845.48	2498.132	3894.601
Stddev	20.817	286.07	107.69	15.656	30.436
%RSD	.5862209	.3825270	.7253787	.6267221	.7814970

#1	3533.563	74468.35	14768.89	2480.968	3869.746
#2	3574.123	75027.07	14968.61	2501.796	3928.547
#3	3545.704	74854.38	14798.95	2511.631	3885.510

Sample Name: Q1159-04 Acquired: 1/29/2025 16:42:04 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0887378	-.011760	.0787777	.0693282	.0165920	121.9645	.3674591
Stddev	.0022932	.002327	.0018034	.0038167	.0006506	1.0064	.0024645
%RSD	2.584289	19.79146	2.289271	5.505237	3.921170	.8251620	.6706778

#1	.0911409	-.011266	.0794296	.0716241	.0158409	120.9884	.3650328
#2	.0865731	-.014295	.0801645	.0714381	.0169536	121.9065	.3673845
#3	.0884995	-.009719	.0767389	.0649223	.0169814	122.9987	.3699600

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002061	.0044174	22.85970	.2406294	.1510998	.3629217	288.8741
Stddev	.0000574	.0000237	.14685	.0008478	.0008404	.0045191	1.6275
%RSD	27.85674	.5370632	.6423988	.3523202	.5562145	1.245186	.5633941

#1	.0002536	.0043903	22.72364	.2411317	.1505256	.3593829	287.2934
#2	.0002225	.0044344	22.84011	.2396506	.1507092	.3613700	288.7842
#3	.0001423	.0044277	23.01537	.2411060	.1520644	.3680121	290.5447

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.856474	69.45780	.5787482	-.001581	.1586748	.1877630	.8447507
Stddev	.019841	.23025	.0026737	.000255	.1504231	.0028125	.0072577
%RSD	.5144842	.3315005	.4619886	16.15163	94.79962	1.497916	.8591536

#1	3.837738	69.21319	.5770728	-.001681	.1412538	.1874028	.8371684
#2	3.854423	69.48987	.5773400	-.001771	.3170498	.1851479	.8454506
#3	3.877260	69.67034	.5818317	-.001290	.0177207	.1907383	.8516331

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.636893	4.628483	.5552343	.0078159	.1170053	3.369085	.0015378
Stddev	.003790	.020881	.0122962	.0001650	.0051089	.017887	.0003214
%RSD	.1041987	.4511315	2.214600	2.110623	4.366362	.5309281	20.90182

#1	3.634817	4.616401	.5424110	.0076416	.1225796	3.374185	.0017620
#2	3.641267	4.616455	.5563666	.0078366	.1125459	3.349201	.0011695
#3	3.634596	4.652594	.5669251	.0079696	.1158905	3.383868	.0016817

Sample Name: Q1159-04 Acquired: 1/29/2025 16:42:04 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D1 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2520343	.2451030	.2154560
Stddev	.0031067	.0020283	.0018797
%RSD	1.232661	.8275084	.8724049

#1	.2495242	.2429598	.2135534
#2	.2555089	.2453568	.2155029
#3	.2510698	.2469924	.2173118

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3445.026	74137.83	14975.68	2432.202	3706.353
Stddev	17.442	173.85	65.16	10.918	12.966
%RSD	.5062929	.2344890	.4350867	.4489023	.3498216

#1	3454.745	74246.64	14900.73	2444.213	3710.549
#2	3455.443	74229.52	15007.47	2429.514	3716.700
#3	3424.890	73937.34	15018.84	2422.878	3691.809

Sample Name: Q1159-05 Acquired: 1/29/2025 16:46:01 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.256717	-.021119	.2933137	.0894242	.0383522	17.47713
Stddev	.003641	.000248	.0003109	.0017594	.0016715	.07660
%RSD	.2897251	1.174566	.1059982	1.967506	4.358164	.4382918

#1	1.252528	-.021315	.2930750	.0897451	.0401157	17.40520
#2	1.258495	-.021200	.2932008	.0910011	.0381496	17.46853
#3	1.259127	-.020840	.2936653	.0875264	.0367912	17.55767

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2465302	.0006597	.0070313	303.5352	.0233365	.2057084
Stddev	.0014390	.0001525	.0001416	1.9324	.0001904	.0003957
%RSD	.5837104	23.11815	2.013833	.6366232	.8160572	.1923707

#1	.2450057	.0007862	.0069185	305.7422	.0231441	.2058010
#2	.2467198	.0007026	.0069852	302.7163	.0235249	.2052746
#3	.2478650	.0004904	.0071902	302.1471	.0233405	.2060496

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6357874	335.3643	5.291124	86.32386	.8198033	-.001542
Stddev	.0034018	.9827	.020346	.35949	.0018325	.000145
%RSD	.5350502	.2930364	.3845346	.4164378	.2235309	9.431751

#1	.6386451	334.2462	5.271712	85.96757	.8203824	-.001656
#2	.6366924	335.7557	5.289370	86.68645	.8177512	-.001378
#3	.6320246	336.0911	5.312290	86.31755	.8212763	-.001591

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0789373	-.000262	.3997445	6.031671	8.785172	.5555663
Stddev	.1228436	.000756	.0019542	.041413	.035136	.0057771
%RSD	155.6217	289.1233	.4888719	.6865925	.3999446	1.039858

#1	-.026121	-.001134	.3974895	6.077656	8.798267	.5542468
#2	.048928	.000135	.4007993	5.997317	8.745370	.5505631
#3	.214005	.000214	.4009448	6.020040	8.811881	.5618890

Sample Name: Q1159-05 Acquired: 1/29/2025 16:46:01 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8D3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0176206	F 148.8798	2.253039	-.001275	.0674164	.0308626
Stddev	.0005230	.4595	.025577	.000908	.0014263	.0003879
%RSD	2.968210	.3086108	1.135239	71.18077	2.115596	1.256726

#1	.0178769	148.9528	2.223514	-.001490	.0677750	.0313099
#2	.0179660	148.3882	2.267138	-.000279	.0686292	.0306188
#3	.0170189	149.2984	2.268464	-.002056	.0658451	.0306592

Elem	Sr4077
Units	ppm
Avg	3.750075
Stddev	.028509
%RSD	.7602258

#1	3.749366
#2	3.721926
#3	3.778931

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3424.983	74428.86	14738.65	2429.649	3453.599
Stddev	7.727	193.58	102.68	6.510	10.038
%RSD	.2255925	.2600862	.6966882	.2679283	.2906595

#1	3420.926	74382.17	14721.65	2422.598	3444.688
#2	3433.892	74262.90	14645.53	2435.430	3464.474
#3	3420.129	74641.52	14848.77	2430.918	3451.635

Sample Name: Q1159-06 Acquired: 1/29/2025 16:50:14 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0501549	-.001240	.1224121	.0374812	.0075337	68.62378	.2786039
Stddev	.0021631	.003235	.0006409	.0044340	.0013166	.55767	.0024726
%RSD	4.312808	260.8047	.5235320	11.82998	17.47626	.8126516	.8875100
#1	.0517200	.002486	.1222881	.0351506	.0074955	69.26766	.2814569
#2	.0476866	-.003328	.1218423	.0346985	.0062366	68.29384	.2770808
#3	.0510580	-.002880	.1231059	.0425945	.0088690	68.30984	.2772740
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007501	.0013262	11.36348	.0459947	.0614190	.3675516	140.7550
Stddev	.0000717	.0000858	.06465	.0002159	.0005908	.0018699	.8272
%RSD	9.556740	6.467776	.5689162	.4694046	.9618876	.5087346	.5877157
#1	.0006674	.0012471	11.43813	.0458904	.0615190	.3654069	141.7099
#2	.0007929	.0013141	11.32630	.0458507	.0607846	.3684085	140.3001
#3	.0007902	.0014173	11.32601	.0462429	.0619534	.3688396	140.2551
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6125545	52.68390	.1649776	-.001030	.5003016	.0175115	.7279208
Stddev	.0023178	.21520	.0012326	.000298	.1801363	.0006896	.0057294
%RSD	.3783777	.4084760	.7471187	28.96343	36.00553	3.938028	.7870883
#1	.6143350	52.93196	.1642469	-.000925	.5696077	.0169213	.7284984
#2	.6099338	52.57256	.1642853	-.000798	.6354913	.0173436	.7219244
#3	.6133946	52.54717	.1664007	-.001367	.2958058	.0182695	.7333394
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.953129	2.934455	.2694166	.0216714	7.937990	4.289885	-.000420
Stddev	.101298	.025796	.0050015	.0001838	.067173	.024270	.000453
%RSD	2.562472	.8790612	1.856404	.8481026	.8462264	.5657504	107.7185
#1	4.069037	2.931643	.2747413	.0218113	7.918953	4.293313	.000084
#2	3.881562	2.910181	.2686909	.0214633	7.882390	4.312258	-.000552
#3	3.908788	2.961542	.2648177	.0217396	8.012628	4.264083	-.000793

Sample Name: Q1159-06 Acquired: 1/29/2025 16:50:14 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8E2 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1338812	.1732689	.0887259
Stddev	.0008944	.0016405	.0006002
%RSD	.6680438	.9467989	.6764925

#1	.1346043	.1751632	.0894023
#2	.1341582	.1723177	.0882567
#3	.1328811	.1723257	.0885188

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3402.878	72344.57	14367.31	2416.732	3864.416
Stddev	20.907	240.22	56.19	5.721	29.720
%RSD	.6144053	.3320534	.3910789	.2367054	.7690565

#1	3408.460	72109.34	14428.78	2411.159	3869.607
#2	3420.429	72334.87	14318.61	2416.449	3891.197
#3	3379.747	72589.50	14354.53	2422.589	3832.442

Sample Name: PB166301BL Acquired: 1/29/2025 16:54:14 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS301 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014722	.0005788	-.000162	-.000209	-.000888	.0034935	-.001386
Stddev	.0016262	.0011777	.000134	.000890	.001241	.0022699	.000364
%RSD	110.4589	203.4647	82.83515	425.0691	139.7520	64.97396	26.29039
#1	.0027938	.0002126	-.000271	.000632	.000318	.0011899	-.000981
#2	.0019666	.0018960	-.000012	-.000119	-.000820	.0035624	-.001687
#3	-.000344	-.000372	-.000203	-.001141	-.002162	.0057281	-.001490
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000065	.0000037	.0006040	.0000265	-.000088	.0016828	.0012867
Stddev	.000059	.0000537	.0043221	.0004206	.000046	.0018395	.0020630
%RSD	90.61835	1444.386	715.6025	1588.415	52.76473	109.3091	160.3251
#1	.000002	-.000058	-.001006	-.000379	-.000137	-.000152	.0033567
#2	-.000109	.000031	.005500	-.000003	-.000080	.001673	.0012727
#3	-.000086	.000039	-.002682	.000461	-.000046	.003527	-.000769
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000009	.0163660	.0000343	.0002192	-.051921	.0018158	.0001182
Stddev	.000310	.0152790	.0001385	.0000848	.164522	.0005337	.0029826
%RSD	3612.855	93.35854	403.4249	38.68333	316.8716	29.39162	2524.196
#1	.000119	.0173273	.0001412	.0002970	.115684	.0024221	-.002983
#2	.000218	.0006290	.0000839	.0002317	-.213176	.0016084	.000371
#3	-.000362	.0311416	-.000122	.0001288	-.058270	.0014170	.002966
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.082991	-.000544	-.001887	.0000723	.0140713	.0020464	-.000790
Stddev	.043761	.000712	.000507	.0002118	.0010214	.0025711	.000608
%RSD	52.73033	130.8203	26.84248	292.7730	7.258593	125.6384	76.93164
#1	-.035963	-.000722	-.001303	.0003136	.0152476	.0042574	-.001421
#2	-.090493	.000240	-.002201	-.000014	.0134097	-.000775	-.000209
#3	-.122516	-.001150	-.002158	-.000083	.0135565	.002657	-.000741

Sample Name: PB166301BL Acquired: 1/29/2025 16:54:14 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS301 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008493	-.001151	-.000035
Stddev	.0003171	.001222	.000020
%RSD	37.33305	106.1694	57.37050

#1	.0006801	-.001257	-.000054
#2	.0012151	.000120	-.000036
#3	.0006527	-.002318	-.000014

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3434.646	72163.04	13392.38	2452.905	4175.397
Stddev	2.399	126.32	41.20	7.232	6.759
%RSD	.0698387	.1750503	.3076184	.2948397	.1618852

#1	3432.762	72068.35	13349.34	2444.568	4172.126
#2	3437.346	72114.30	13396.36	2457.486	4183.170
#3	3433.830	72306.47	13431.45	2456.662	4170.895

Sample Name: PB166301BS Acquired: 1/29/2025 16:58:23 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS301 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0204015	.0533871	.0204333	.0696364	.1149056	.3743441	.3857782
Stddev	.0020603	.0011946	.0011372	.0008329	.0006655	.0071780	.0057485
%RSD	10.09856	2.237617	5.565605	1.196045	.5791292	1.917494	1.490119
#1	.0213022	.0526877	.0214121	.0686946	.1154593	.3661194	.3804609
#2	.0180443	.0547665	.0207022	.0702761	.1141673	.3793454	.3918779
#3	.0218581	.0527072	.0191858	.0699384	.1150900	.3775674	.3849958
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0103759	.0101741	9.603222	.0220295	.0993005	.0540444	.2034108
Stddev	.0000124	.0000791	.108865	.0003788	.0000607	.0017744	.0058525
%RSD	.1199413	.7774273	1.133626	1.719663	.0611091	3.283175	2.877188
#1	.0103898	.0101047	9.511716	.0222531	.0993062	.0543044	.2059993
#2	.0103657	.0102602	9.723617	.0222433	.0992371	.0556744	.2075227
#3	.0103721	.0101574	9.574333	.0215921	.0993581	.0521543	.1967104
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0309728	8.624251	.0806772	.0196446	9.472246	.1064658	.1198823
Stddev	.0005916	.062660	.0001685	.0003003	.397996	.0019069	.0014560
%RSD	1.909907	.7265507	.2088680	1.528595	4.201704	1.791039	1.214505
#1	.0302907	8.577438	.0808069	.0193709	9.275993	.1082080	.1194766
#2	.0312824	8.695434	.0807380	.0199658	9.210491	.1067609	.1214981
#3	.0313453	8.599879	.0804867	.0195969	9.930253	.1044287	.1186722
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.211476	.0164769	-.001202	.0211628	.1814764	.8716308	.0134407
Stddev	.112971	.0013291	.001173	.0000983	.0039241	.0045356	.0009027
%RSD	1.226418	8.066280	97.62356	.4642728	2.162291	.5203641	6.716086
#1	9.086019	.0169538	-.001973	.0210897	.1849568	.8670806	.0144690
#2	9.305155	.0149752	.000148	.0211243	.1822487	.8716603	.0127792
#3	9.243254	.0175017	-.001781	.0212745	.1772236	.8761517	.0130739

Sample Name: PB166301BS Acquired: 1/29/2025 16:58:23 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS301 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2080600	.0292012	.1964681
Stddev	.0013034	.0011893	.0027596
%RSD	.6264287	4.072850	1.404620

#1	.2073680	.0293204	.1937806
#2	.2095634	.0303265	.1992946
#3	.2072486	.0279568	.1963290

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3358.142	70595.31	13609.37	2370.478	4008.387
Stddev	5.275	680.25	56.62	20.041	3.913
%RSD	.1570865	.9635915	.4160270	.8454342	.0976280

#1	3359.037	70920.25	13559.92	2384.715	4005.895
#2	3362.912	69813.52	13597.07	2347.560	4012.897
#3	3352.477	71052.15	13671.13	2379.157	4006.369

Sample Name: CCV029 Acquired: 1/29/2025 17:02:27 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV029 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.138618	4.871049	24.74611	5.106162	5.195191	400.1911	10.57906
Stddev	.004666	.033871	.01247	.017924	.017703	8.0587	.28465
%RSD	.0908082	.6953495	.0504108	.3510250	.3407505	2.013715	2.690697
#1	5.134306	4.834905	24.73613	5.086391	5.180835	391.0433	10.27558
#2	5.137977	4.902061	24.74211	5.110749	5.189766	406.2419	10.84012
#3	5.143572	4.876181	24.76010	5.121347	5.214971	403.2881	10.62148
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4963027	2.491449	406.6289	15.75585	2.507844	15.12346	406.6988
Stddev	.0042664	.002536	8.4825	.36069	.003415	.06353	6.8989
%RSD	.8596333	.1017761	2.086056	2.289268	.1361807	.4200955	1.696324
#1	.4914756	2.490737	399.2950	15.35606	2.506132	15.05011	399.0782
#2	.4978637	2.494265	415.9184	16.05687	2.505624	15.15972	412.5191
#3	.4995687	2.489346	404.6731	15.85461	2.511777	15.16057	408.4992
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.54516	402.4020	2.497105	1.316177	388.2909	2.490063	15.86578
Stddev	.28424	6.4836	.002375	.028090	1.2989	.013804	.43350
%RSD	1.828485	1.611228	.0951015	2.134229	.3345215	.5543536	2.732288
#1	15.24168	395.1436	2.495763	1.285061	387.0067	2.479007	15.42721
#2	15.80514	407.6198	2.495705	1.339666	388.2620	2.485647	16.29403
#3	15.58867	404.4427	2.499847	1.323804	389.6041	2.505534	15.87611
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	164.3148	4.982163	5.396442	5.038787	5.040049	4.890863	4.985871
Stddev	2.9331	.013057	.056849	.013319	.011868	.024028	.009646
%RSD	1.785031	.2620662	1.053458	.2643236	.2354655	.4912817	.1934705
#1	161.0852	4.968407	5.330805	5.028852	5.037419	4.864580	4.975107
#2	166.8129	4.983700	5.430076	5.033587	5.053011	4.911702	4.988773
#3	165.0463	4.994384	5.428445	5.053921	5.029717	4.896306	4.993733

Sample Name: CCV029 Acquired: 1/29/2025 17:02:27 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV029 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.007080	5.401779	5.385030
Stddev	.019205	.110489	.104220
%RSD	.3835628	2.045422	1.935372

#1	4.985420	5.283238	5.280026
#2	5.013790	5.501902	5.488449
#3	5.022030	5.420196	5.386615

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2767.424	59931.80	12834.65	1943.987	3008.578
Stddev	6.399	1073.69	39.64	48.667	3.297
%RSD	.2312185	1.791527	.3088727	2.503474	.1095744

#1	2769.802	61101.51	12868.05	1994.675	3008.553
#2	2772.293	58991.06	12845.06	1897.630	3011.888
#3	2760.177	59702.84	12790.84	1939.657	3005.295

Sample Name: CCB029 Acquired: 1/29/2025 17:06:45 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB029 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005161	.0004822	.0004229	-.000197	.0002698	.0028082	-.000049
Stddev	.0008616	.0014907	.0017112	.000885	.0025665	.0040995	.001067
%RSD	166.9242	309.1627	404.6330	448.9100	951.1562	145.9824	2165.134
#1	-.000444	.0007864	-.000202	-.000552	.0003166	.0025719	-.001215
#2	.000772	.0017973	-.000888	-.000850	.0028127	-.001168	.000188
#3	.001221	-.001137	.002359	.000811	-.002320	.007021	.000879
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000025	-.000009	.0126753	.0002820	-.000264	.0006676	.0012756
Stddev	.000066	.000085	.0057133	.0002602	.000113	.0003769	.0067152
%RSD	261.6348	986.6360	45.07415	92.25884	42.80054	56.45544	526.4178
#1	.000045	.000086	.0070665	.0000092	-.000232	.0009174	-.004984
#2	-.000084	-.000080	.0184876	.0005274	-.000390	.0002341	.008369
#3	-.000036	-.000032	.0124718	.0003095	-.000170	.0008513	.000442
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000044	.0111232	-.000005	-.000039	.0764491	.0011841	.0005432
Stddev	.000074	.0019353	.000534	.000074	.4911489	.0017759	.0012147
%RSD	170.6646	17.39868	11081.35	188.9181	642.4519	149.9798	223.6179
#1	-.000063	.0093486	.000050	.000004	.4575309	.0031458	.0016268
#2	.000039	.0131867	-.000564	-.000125	-.477836	-.000314	.0007726
#3	-.000106	.0108343	.000500	.000004	.249652	.000720	-.000770
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0886969	-.001276	.0023639	.0002095	.0066403	-.000141	-.000272
Stddev	.0223749	.000301	.0004744	.0003216	.0024157	.000466	.000051
%RSD	25.22620	23.55349	20.06705	153.5475	36.37993	329.2323	18.63826
#1	.1068021	-.001365	.0021266	-.000140	.0094218	-.000597	-.000330
#2	.0636823	-.000941	.0029100	.000493	.0054320	.000333	-.000242
#3	.0956064	-.001523	.0020550	.000276	.0050671	-.000160	-.000243

Sample Name: CCB029 Acquired: 1/29/2025 17:06:45 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB029 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000046	.0007411	.0000052
Stddev	.000410	.0005966	.0000571
%RSD	897.9000	80.50076	1098.683

#1	.000298	.0012986	-.000054
#2	.000065	.0001119	.000010
#3	-.000500	.0008127	.000060

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3363.619	72843.87	13860.85	2396.212	4111.113
Stddev	6.179	153.73	10.39	4.343	10.825
%RSD	.1837010	.2110445	.0749355	.1812621	.2633219

#1	3369.820	72678.29	13852.73	2400.212	4122.495
#2	3357.462	72982.07	13857.25	2391.592	4100.947
#3	3363.575	72871.24	13872.55	2396.831	4109.896

Sample Name: Q1136-02A Acquired: 1/29/2025 17:49:24 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7A Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0133018	.0776613	.0322536	.0300125	-.002406	33.08380
Stddev	.0009521	.0014057	.0004394	.0008450	.000858	.02357
%RSD	7.157953	1.810003	1.362377	2.815446	35.63878	.0712451

#1	.0142322	.0770953	.0324143	.0307754	-.001448	33.06823
#2	.0133440	.0792617	.0317565	.0301580	-.003102	33.11092
#3	.0123293	.0766268	.0325901	.0291043	-.002668	33.07226

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2137157	.0024488	.0123183	52.43343	.0309879	.2302367
Stddev	.0005560	.0000170	.0000965	.08625	.0000916	.0005968
%RSD	.2601835	.6947766	.7834940	.1644970	.2954857	.2592086

#1	.2140867	.0024490	.0122519	52.45867	.0310498	.2296227
#2	.2130763	.0024317	.0124291	52.50424	.0308827	.2308147
#3	.2139840	.0024658	.0122740	52.33737	.0310311	.2302727

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1215894	12.76508	2.412568	24.26158	.3175160	.0076820
Stddev	.0004727	.01339	.007784	.07252	.0007498	.0001160
%RSD	.3887600	.1048941	.3226564	.2989247	.2361327	1.510082

#1	.1221070	12.78003	2.420251	24.19896	.3169299	.0077247
#2	.1214808	12.76099	2.412766	24.34104	.3183609	.0077705
#3	.1211805	12.75421	2.404687	24.24474	.3172573	.0075507

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.711964	.0241401	.5146886	12.84211	.5508409	.2709726
Stddev	.052123	.0003413	.0013170	.01579	.0003193	.0006570
%RSD	1.921957	1.413748	.2558931	.1229856	.0579700	.2424667

#1	2.771593	.0238535	.5132993	12.84650	.5504867	.2716536
#2	2.675074	.0245177	.5148473	12.85525	.5509291	.2703426
#3	2.689225	.0240493	.5159190	12.82459	.5511068	.2709216

Sample Name: Q1136-02A Acquired: 1/29/2025 17:49:24 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: YE8F7A Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001032	F 307.3586	F 21.70169	-.002049	.0113664	.0275319
Stddev	.0001642	.3118	.03918	.000973	.0000387	.0000858
%RSD	159.1677	.1014553	.1805358	47.46656	.3403384	.3117010

#1	-.000077	307.0990	21.71551	-.002330	.0113529	.0276147
#2	.000244	307.7045	21.73209	-.002850	.0113364	.0275378
#3	.000142	307.2722	21.65747	-.000967	.0114101	.0274433

Elem	Sr4077
Units	ppm
Avg	.3039449
Stddev	.0000952
%RSD	.0313327

#1	.3040406
#2	.3039439
#3	.3038501

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7179.845	152032.6	30218.41	5040.211	3868.457
Stddev	20.491	276.1	59.78	16.648	13.261
%RSD	.2853922	.1815769	.1978117	.3303092	.3427895

#1	7202.527	152302.8	30283.35	5059.391	3883.735
#2	7174.337	151751.0	30165.69	5031.738	3859.931
#3	7162.672	152043.9	30206.20	5029.503	3861.706

Sample Name: CCV030 Acquired: 1/29/2025 18:01:49 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV030 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.888110	4.699588	24.02613	4.827395	4.967498	380.9967	10.17071
Stddev	.025384	.025650	.03048	.023776	.017021	2.4698	.09407
%RSD	.5193012	.5457853	.1268449	.4925202	.3426518	.6482598	.9249449
#1	4.868324	4.700394	23.99215	4.805921	4.954726	381.8777	10.06666
#2	4.879276	4.673545	24.03520	4.823319	4.960946	382.9052	10.24975
#3	4.916731	4.724826	24.05104	4.852946	4.986821	378.2071	10.19574
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4874444	2.430306	391.0924	15.20700	2.430966	15.04137	386.6988
Stddev	.0019760	.004460	2.1225	.08469	.004610	.03447	2.5842
%RSD	.4053762	.1835355	.5427162	.5569051	.1896522	.2291569	.6682594
#1	.4876449	2.425488	388.6472	15.10954	2.427225	15.00295	384.2064
#2	.4853757	2.431137	392.1706	15.26269	2.429555	15.06959	389.3659
#3	.4893124	2.434292	392.4595	15.24877	2.436117	15.05155	386.5243
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.08847	386.8549	2.424009	1.265782	389.8612	2.435321	15.31431
Stddev	.13200	2.2735	.003140	.002638	1.6889	.006422	.11680
%RSD	.8748411	.5876771	.1295171	.2083958	.4331955	.2636841	.7626952
#1	14.97203	384.5068	2.420591	1.262912	388.2470	2.427907	15.18033
#2	15.23187	389.0456	2.424670	1.268101	391.6159	2.438889	15.36786
#3	15.06151	387.0124	2.426765	1.266333	389.7206	2.439166	15.39473
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	154.7881	4.888346	5.221138	4.842833	4.869300	4.885949	4.827616
Stddev	1.1240	.002480	.012389	.017337	.009720	.013179	.002229
%RSD	.7261256	.0507242	.2372942	.3579944	.1996211	.2697316	.0461644
#1	153.8472	4.885661	5.213604	4.830041	4.859726	4.873800	4.825064
#2	156.0327	4.890550	5.214372	4.835893	4.879160	4.899960	4.828602
#3	154.4843	4.888827	5.235437	4.862565	4.869015	4.884087	4.829181

Sample Name: CCV030 Acquired: 1/29/2025 18:01:49 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV030 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.941886	5.198087	5.159302
Stddev	.016060	.043568	.047711
%RSD	.3249864	.8381566	.9247544

#1	4.926436	5.161163	5.106817
#2	4.958494	5.246141	5.171040
#3	4.940729	5.186958	5.200048

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2813.736	60847.99	12719.24	1990.530	3048.530
Stddev	7.002	250.49	27.15	12.984	1.238
%RSD	.2488536	.4116637	.2134468	.6522932	.0406131

#1	2819.642	61067.06	12702.17	2003.021	3049.847
#2	2815.564	60574.90	12750.55	1991.466	3047.389
#3	2806.001	60902.00	12705.01	1977.103	3048.354

Sample Name: CCB030 Acquired: 1/29/2025 18:06:07 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB030 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000874	.0015142	.0002736	.0020872	-.000031	.0059799	-.001810
Stddev	.0019076	.0015558	.0018041	.0004180	.000721	.0021038	.000252
%RSD	2181.299	102.7442	659.4512	20.02893	2304.018	35.18065	13.90235
#1	.0021779	.0031290	.0001077	.0019168	-.000458	.0083893	-.001525
#2	-.000357	.0013885	.0021549	.0017812	-.000437	.0050433	-.002003
#3	-.001559	.0000251	-.001442	.0025635	.000801	.0045070	-.001901
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000003	.0000017	.0115678	.0003714	-.000005	-.000874	.0090400
Stddev	.000062	.0000243	.0021616	.0003851	.000128	.001405	.0015809
%RSD	2293.662	1421.397	18.68646	103.6933	2835.092	160.6163	17.48762
#1	.000036	.0000189	.0112784	.0005302	.000139	-.001765	.0086146
#2	.000030	-.000026	.0095655	-.000068	-.000045	-.001603	.0107901
#3	-.000074	.000012	.0138596	.000652	-.000108	.000745	.0077154
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003270	.0047793	.0000681	.0000062	.1905489	-.000048	.0013162
Stddev	.0002180	.0074485	.0001992	.0003355	.0904774	.002360	.0020863
%RSD	66.68121	155.8499	292.6539	5429.185	47.48250	4916.485	158.5058
#1	.0003013	.0133615	-.000112	-.000174	.0880699	.002568	.0025840
#2	.0005567	.0009771	.000282	-.000201	.2241903	-.002018	.0024564
#3	.0001229	-.000001	.000034	.000393	.2593865	-.000693	-.001092
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0416934	-.002193	.0038653	.0002932	.0092786	.0027001	-.000327
Stddev	.0532679	.001556	.0003260	.0001201	.0004704	.0019458	.000324
%RSD	127.7611	70.96851	8.433341	40.96563	5.070195	72.06577	98.94020
#1	-.009315	-.002625	.0036496	.0003991	.0087694	.0040181	-.000025
#2	.037430	-.003488	.0042403	.0001627	.0093692	.0004652	-.000288
#3	.096965	-.000466	.0037060	.0003178	.0096971	.0036169	-.000668

Sample Name: CCB030 Acquired: 1/29/2025 18:06:07 Type: Unk
Method: EPA SFAM01.0(v59) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB030 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000042	.0015615	.0000132
Stddev	.000306	.0005384	.0000290
%RSD	730.6584	34.48079	219.4367

#1	.000021	.0021553	-.000003
#2	-.000374	.0011051	.000047
#3	.000228	.0014242	-.000004

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3400.009	72264.13	13613.53	2417.422	4146.901
Stddev	20.279	170.75	59.00	5.247	20.310
%RSD	.5964352	.2362791	.4333972	.2170564	.4897708

#1	3400.291	72068.40	13659.56	2413.886	4142.104
#2	3420.145	72382.53	13634.01	2414.929	4169.180
#3	3379.591	72341.46	13547.02	2423.451	4129.419

Prep Standard - Chemical Standard Summary

Order ID : Q1136

Test : SPLP MetalGroup3

Prepbatch ID : PB166225,

Sequence ID/Qc Batch ID: LB134438, LB134475,

Standard ID :

MP83499, MP83500, MP84041, MP84042, MP84063, MP84070, MP84204, MP84206, MP84207, MP84208, MP84209, MP84210, MP84211, MP84212, MP84213, MP84214, MP84215, MP84216, MP84218, MP84219, MP84292, MP84293, MP84294, MP84296, WP110804, WP110806,

Chemical ID :

M5130, M5173, M5218, M5223, M5289, M5295, M5298, M5393, M5429, M5466, M5472, M5476, M5496, M5497, M5513, M5519, M5565, M5658, M5697, M5798, M5799, M5800, M5801, M5802, M5806, M5815, M5817, M5819, M5875, M5942, M5959, M5961, M5962, M5976, M5977, M5978, M5985, M5990, M6021, M6023, M6025, M6028, M6030, M6032, M6077, M6120, M6121, M6126, M6127, M6128, M6144, W3112,

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
170	1:1HCL	MP83499	12/09/2024	01/30/2025	Eman Mughal	None	None	Sarabjit Jaswal
								12/09/2024

FROM 1250.00000ml of M6121 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP83500	12/06/2024	01/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								12/09/2024

FROM 125.00000ml of M6121 + 2350.00000ml of W3112 + 25.00000ml of M6126 = Final Quantity: 2500.000 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>
169	1:1HNO3	MP84041	01/14/2025	07/14/2025	Eman Mughal	None	None	Sarabjit Jaswal
								01/16/2025

FROM 1250.00000ml of M6126 + 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>
1122	ICPMS CALIB BLANK(S0/ICB/CCB)	MP84042	01/14/2025	02/07/2025	Sarabjit Jaswal	None	METALS_PIP ETTE_3 (A)	Mohan Bera
								01/16/2025

FROM 25.00000ml of M6121 + 4925.00000ml of W3112 + 50.00000ml of M6126 = Final Quantity: 5000.000 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>
994	ICPAES ISM01.2 S1 (CONC.)	MP84063	01/14/2025	02/14/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/16/2025

FROM 0.02000ml of M5815 + 0.03000ml of M5429 + 0.10000ml of M5798 + 0.10000ml of M6028 + 0.14000ml of M5799 + 0.20000ml of M5298 + 0.20000ml of M5476 + 0.20000ml of M5658 + 0.20000ml of M5801 + 0.20000ml of M5817 + 0.20000ml of M5976 + 0.20000ml of M6025 + 0.20000ml of M6030 + 0.30000ml of M6128 + 0.40000ml of M5496 + 0.50000ml of M5697 + 0.50000ml of M6023 + 0.70000ml of M5962 + 0.80000ml of M5961 + 1.00000ml of M5800 + 1.00000ml of M6021 + 1.20000ml of M5802 + 1.20000ml of M5819 + 10.00000ml of M5497 + 10.00000ml of M5519 + 10.00000ml of M5806 + 10.00000ml of M6127 + 2.00000ml of M5942 + 4.00000ml of M6032 + 34.24000ml of MP83500 = 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>
921	ICPAES SPIKE SOL#6	MP84070	01/14/2025	02/14/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/16/2025

FROM 2.50000ml of M5962 + 50.00000ml of M5565 + 50.00000ml of M5990 + 147.50000ml of MP83500 = Final Quantity: 250.000 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>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP84204	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/27/2025

FROM 125.00000ml of M6121 + 2350.00000ml of W3112 + 25.00000ml of M6126 = 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>
2480	ICP AES STD 6 ISM01.3	MP84206	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/27/2025

FROM 4.00000ml of M5289 + 4.00000ml of M5298 + 4.00000ml of M5497 + 4.00000ml of M6127 + 4.00000ml of M6144 + 30.00000ml of MP84204 = Final Quantity: 50.000 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>
1004	ICPAES ISM01.2 (S5)	MP84207	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
FROM 0.25000ml of M5798 + 0.50000ml of M5429 + 0.50000ml of M5476 + 0.50000ml of M5815 + 0.50000ml of M5817 + 12.50000ml of M5519 + 12.50000ml of M5819 + 12.50000ml of M6128 + 12.50000ml of M6144 + 13.75000ml of M5697 + 14.50000ml of M5298 + 14.50000ml of M5496 + 14.50000ml of M5658 + 2.00000ml of M5513 + 22.50000ml of M5497 + 22.50000ml of M6127 + 5.00000ml of M5393 + 5.00000ml of M5802 + 5.00000ml of M5875 + 5.00000ml of M6077 + 303.50000ml of MP84204 = 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>
1005	ICPAES ISM01.2(S4)	MP84208	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
FROM 250.00000ml of MP84204 + 250.00000ml of MP84207 = Final Quantity: 500.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1007	ICPAES ISM01.2(S3)	MP84209	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/27/2025

FROM 25.00000ml of MP84207 + 75.00000ml of MP84204 = 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>
1008	ICPAES ISM01.2(S2)	MP84210	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/27/2025

FROM 12.50000ml of MP84207 + 87.50000ml of MP84204 = 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>
994	ICPAES ISM01.2 S1 (CONC.)	MP84211	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
FROM 0.02000ml of M5815 + 0.03000ml of M5429 + 0.10000ml of M5798 + 0.10000ml of M6028 + 0.14000ml of M5799 + 0.20000ml of M5298 + 0.20000ml of M5476 + 0.20000ml of M5658 + 0.20000ml of M5801 + 0.20000ml of M5817 + 0.20000ml of M5977 + 0.20000ml of M6025 + 0.20000ml of M6030 + 0.30000ml of M6128 + 0.40000ml of M5496 + 0.50000ml of M5697 + 0.50000ml of M6023 + 0.70000ml of M5962 + 0.80000ml of M5961 + 1.00000ml of M5800 + 1.00000ml of M6021 + 1.20000ml of M5802 + 1.20000ml of M5819 + 10.00000ml of M5497 + 10.00000ml of M5519 + 10.00000ml of M6127 + 10.00000ml of M6144 + 2.00000ml of M5978 + 4.00000ml of M6032 + 34.24000ml of MP84204 = 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>
1003	ICPAES ISM01.2 S1	MP84212	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
FROM 0.50000ml of MP84211 + 99.50000ml of MP84204 = 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>
912	ICP AES ICV SOLN	MP84213	01/24/2025	02/05/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
FROM 0.02500ml of M5429 + 0.02500ml of M5815 + 0.02500ml of M5817 + 0.10000ml of M5466 + 0.25000ml of M5218 + 0.25000ml of M5472 + 10.00000ml of M5295 + 89.77500ml of MP84204 = 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>
904	ICP AES ICSA SOLN	MP84214	01/24/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
FROM 25.00000ml of M5130 + 225.00000ml of MP84204 = Final Quantity: 250.000 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>
905	ICP AES ICSAB SOLN	MP84215	01/24/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/27/2025

FROM 25.00000ml of M5130 + 25.00000ml of M5223 + 200.00000ml of MP84204 = 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>
1119	ICPAES ISM01.2(CCV)	MP84216	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/27/2025

FROM 0.75000ml of M5497 + 0.75000ml of M6127 + 1.22500ml of M5496 + 1.25000ml of M5298 + 1.25000ml of M6144 + 19.77500ml of MP84204 + 25.00000ml of MP84207 = Final Quantity: 50.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
919	ICP AES INTERNAL STD	MP84218	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
FROM 1.00000ml of M5959 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6126 = Final Quantity: 2000.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
903	ICP AES RINSE SOLN	MP84219	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
FROM 200.00000ml of M6126 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2782	CD-10PPM	MP84292	01/01/2025	01/30/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/31/2025

FROM 0.10000ml of M6028 + 9.90000ml of MP84204 = Final Quantity: 10.000 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>
2632	TL 100.00PPM	MP84293	01/01/2025	01/30/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/31/2025

FROM 1.00000ml of M6023 + 9.00000ml of MP84204 = Final Quantity: 10.000 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>
1028	PB 10PPM	MP84294	01/25/2025	01/31/2025	Sarabjit Jaswal	None	None	Mohan Bera
								01/31/2025

FROM 0.01000ml of M5513 + 9.99000ml of MP84042 = Final Quantity: 10.000 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>
3684	Co 100ppm	MP84296	01/25/2025	01/31/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/31/2025

FROM 1.00000ml of M5800 + 9.00000ml of MP84042 = Final Quantity: 10.000 ml

Wet Chemistry 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>
1788	HNO3 for TCLP, 1N	WP110804	11/21/2024	05/13/2025	Jignesh Parikh	None	None	Iwona Zarych
								11/21/2024

FROM 64.00000ml of M6120 + 936.00000ml of W3112 = Final Quantity: 1000.000 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>
291	SPLP FLUID#1	WP110806	11/21/2024	05/13/2025	Jignesh Parikh	WETCHEM_S CALE_8 (WC SC-7)	None	Iwona Zarych
								11/21/2024

FROM 0.80000gram of M6120 + 1.20000gram of M5173 + 20.00000L of W3112 = Final Quantity: 20.000 L

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	01/31/2025	05/20/2024 / jaswal	04/20/2021 / bin	M5130

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	0000281827	06/02/2025	06/01/2022 / jaswal	04/05/2022 / william	M5173

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	S2-MEB711674	11/02/2026	07/01/2022 / bin	09/10/2021 / bin	M5218

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	01/31/2025	05/20/2024 / jaswal	04/20/2021 / bin	M5223

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Aluminum (Al) 10,000PPM	070622	07/06/2025	09/02/2022 / jaswal	07/12/2022 / jaswal	M5289

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV-1014	02/05/2025	08/07/2024 / jaswal	04/20/2021 / bin	M5295

CHEMICAL RECEIPT LOG BOOK

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	020422	02/04/2025	05/02/2023 / jaswal	06/15/2022 / jaswal	M5298

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-MEB714159	01/13/2027	10/12/2022 / bin	09/19/2022 / bin	M5393

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57103 / Li, 10000 PPM, 125 ml	070622	07/06/2025	01/30/2023 / bin	01/26/2023 / bin	M5429

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57058 / Cerium, 1000PPM, 100ML	061322	06/13/2025	03/06/2023 / bin	03/01/2023 / bin	M5466

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	082922	08/29/2025	01/14/2025 / Jaswal	03/16/2023 / jaswal	M5472

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57138 / Sr, 10000 PPM, 125 ml	082922	08/29/2025	07/29/2024 / jaswal	03/16/2023 / jaswal	M5476

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Al, 10000 PPM, 500 ml	011623	01/16/2026	08/15/2023 / jaswal	03/17/2023 / bin	M5496

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58120 / Ca, 10000 PPM, 500 ml	031523	03/15/2026	03/18/2023 / bin	03/17/2023 / bin	M5497

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	061522	06/15/2025	03/19/2023 / bin	03/17/2023 / bin	M5513

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57119 / Potassium (K) 10,000PPM	120822	12/08/2025	01/08/2024 / bin	03/17/2023 / bin	M5519

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-1 / SOIL/WATER SPIKE SOLN 1, 125mL	T2-MEB721963	07/27/2027	05/30/2023 / jaswal	05/26/2023 / jaswal	M5565

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.	57004 / Be, 1000 PPM, 125 ml	102523	10/25/2026	02/09/2024 / bin	02/09/2024 / bin	M5798

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57050 / Sn, 1000 PPM, 125 ml	071123	07/11/2026	02/09/2024 / bin	02/09/2024 / bin	M5799

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57027 / CO, 1000 PPM, 125 ml	091923	09/19/2026	05/31/2024 / bin	02/09/2024 / bin	M5800

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57033 / As, 1000 PPM, 125 ml	111323	11/13/2026	02/09/2024 / bin	02/09/2024 / bin	M5801

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57051 / Sb, 1000 PPM, 125 ml	120523	12/05/2026	08/07/2024 / jaswal	01/03/2024 / jaswal	M5802

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	122223	12/22/2026	08/01/2024 / Jaswal	01/03/2024 / jaswal	M5806

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57115 / P, 10000 PPM, 125 ml	041723	04/17/2026	05/21/2024 / Jaswal	02/09/2024 / jaswal	M5815

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57116 / S, 10000 PPM, 125 ml	071123	07/11/2026	03/01/2024 / jaswal	02/09/2024 / jaswal	M5817

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	111623	11/16/2026	03/20/2024 / jaswal	02/09/2024 / jaswal	M5819

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	T2-MEB714417	01/27/2027	04/19/2024 / jaswal	02/22/2024 / jaswal	M5875

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	06/18/2024 / Jaswal	02/22/2024 / Jaswal	M5942

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	V2-Y740548	02/20/2029	07/01/2024 / Jaswal	06/14/2024 / Jaswal	M5959

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57028 / Ni, 1000 PPM, 125 ml	041124	04/11/2027	07/02/2024 / Jaswal	06/11/2024 / Jaswal	M5961

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 #
Inorganic Ventures	CGMO1-1 / MOLYBDENUM 125mL 1000ug/mL	T2-MO720876	07/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5976

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMO1-1 / MOLYBDENUM 125mL 1000ug/mL	T2-MO720876	07/17/2027	01/16/2025 / JANVI	02/22/2024 / Jaswal	M5977

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5978

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-5 / INDIUM 1 x 500 ml	U2-IN729349	02/21/2028	10/08/2024 / Jaswal	06/14/2024 / Jaswal	M5985

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-5 / CLP Spike Standard 5	V2-MEB742037	03/12/2029	10/04/2024 / Jaswal	02/22/2024 / Jaswal	M5990

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57023 / V, 1000 PPM, 125 ml	062424	06/24/2027	09/28/2024 / jaswal	08/05/2024 / Jaswal	M6021

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57081 / TI, 1000 PPM, 125 ml	0624724	06/27/2027	08/05/2024 / kareem	08/05/2024 / Jaswal	M6023

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57082 / Pb, 1000 PPM, 125 ml	061224	11/09/2026	08/05/2024 / Jaswal	08/05/2024 / Jaswal	M6025

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

CHEMICAL RECEIPT LOG BOOK

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	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 #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	2310662003	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6120

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)	0000275677	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6121

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	06/03/2025	12/03/2024 / Janvi	11/12/2024 / Janvi	M6126

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	112124	11/21/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6127

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Mn, 1000 PPM, 500 ml	101124	10/11/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6128

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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 #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / lwona	07/03/2024 / lwona	W3112

Certificate of Analysis

R: 02/22/24 M5986, M5987, M5988, M5989, M5990

P: 800-669-6799/540-585-3030

F: 540-585-3012

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CLPP-SPK-5
Lot Number: V2-MEB742037
Matrix: 5% (v/v) HNO₃
Value / Analyte(s):
100 µg/mL ea:
Antimony,
50 µg/mL ea:
Selenium, Thallium,
Cadmium,
40 µg/mL ea:
Arsenic,
20 µg/mL ea:
Lead

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.7 µg/mL	Arsenic, As	40.00 ± 0.26 µg/mL
Cadmium, Cd	49.99 ± 0.22 µg/mL	Lead, Pb	19.99 ± 0.09 µg/mL
Selenium, Se	50.00 ± 0.23 µg/mL	Thallium, Tl	50.00 ± 0.22 µg/mL

Density: 1.025 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
Cd	Calculated		See Sec. 4.2
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Pb	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Tl	ICP Assay	3158	151215
Tl	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:

$$w_i = (1/u_{char i}^2) / (\sum(1/(u_{char i}^2)))$$

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k(u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

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)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ In the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 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

- **March 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





CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57056
010924
Barium (Ba)

Lot #
Solvent: 24002546 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

0.058 Flask Uncertainty

2% 40.0 (mL) Nitric Acid

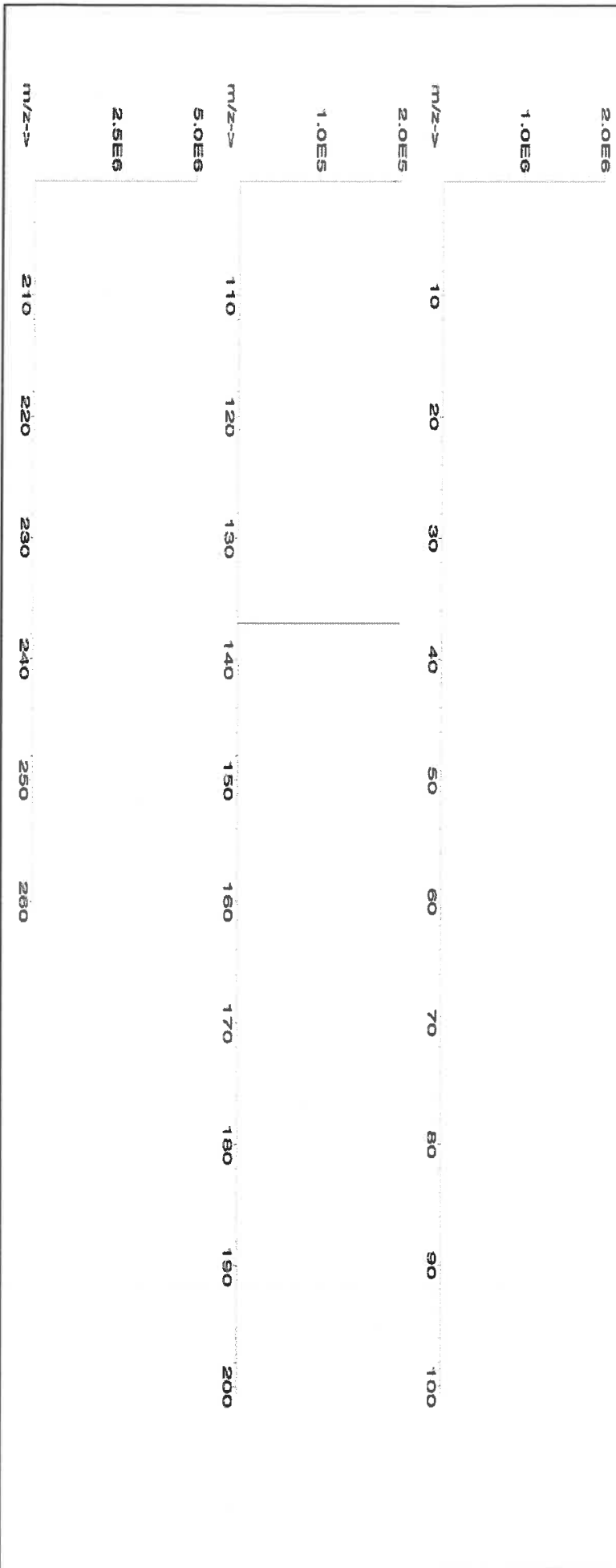
Giovanni Caporaso	
Formulated By:	Giovanni Esposito
	010924
Reviewed By:	Pedro L. Renteria
	010924

Compound

Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
------------	-----------------------	------------	-----------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. Barium nitrate (Ba) IN023 BA0022019A1 1000 99.999 0.10 52.3 3.82417 3.82441 1000.1 2.0 10022-31-8 0.5 mg/m3 or-hat 355 mg/kg 3104a

[1] Spectrum No.1 [12.514 sec]:58156.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

308

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:
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
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

SDS Information

1. Cadmium nitrate tetrahydrate (Cd)

INO24 CDM09221A1

1000

99.999

0.10

36.5

5.4797

5.4804

1000.1

2.0

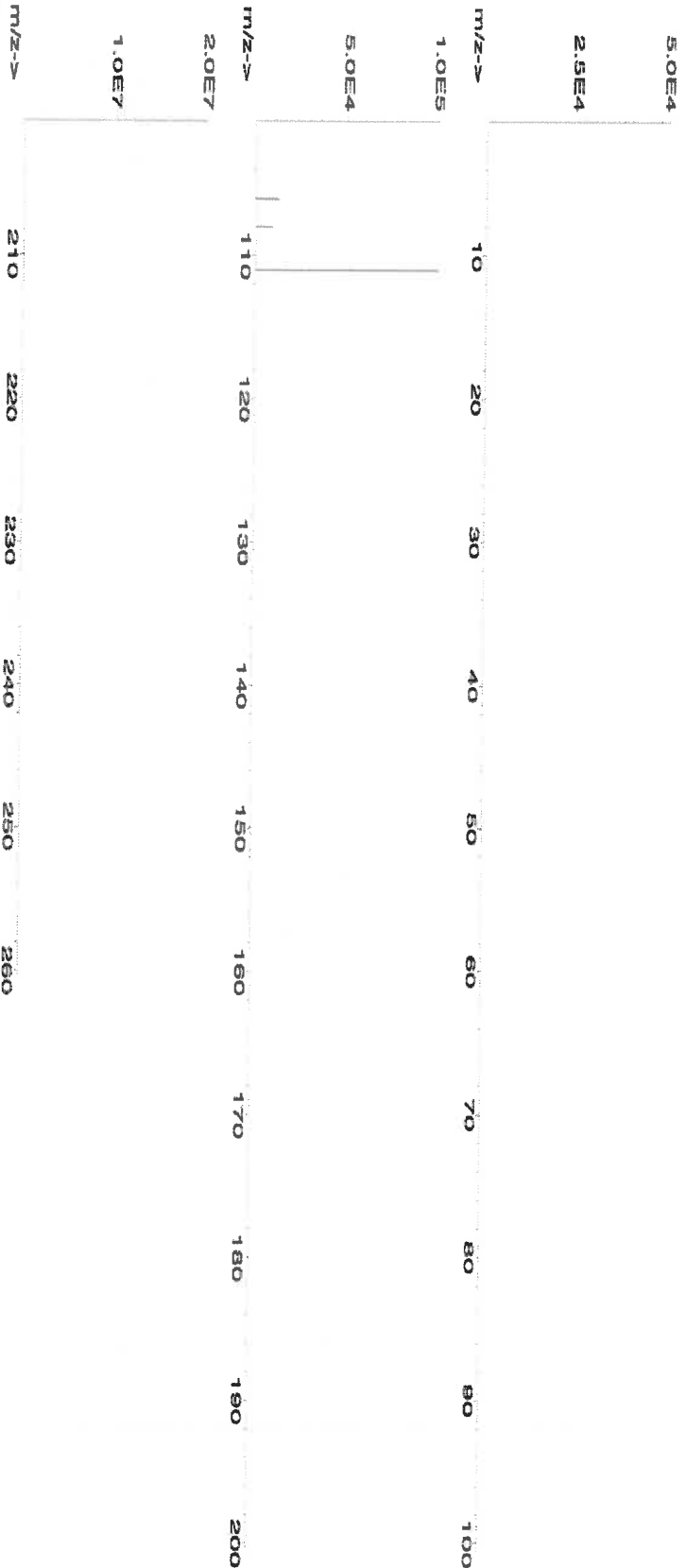
10022-68-1

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):

310

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).

Certificate of Analysis

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

P: 800-669-6799/540-585-3030
 F: 540-585-3012
 info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution	
Catalog Number:	CLPP-CAL-1	
Lot Number:	T2-MEB714417	
Matrix:	5% (v/v) HNO ₃	
Value / Analyte(s):	5 000 µg/mL ea:	Potassium, Sodium,
	Calcium, Magnesium,	
	2 000 µg/mL ea:	Barium,
	Aluminum,	
	1 000 µg/mL ea:	
	Iron,	
	500 µg/mL ea:	Vanadium, Cobalt,
	Nickel, Zinc, Manganese,	
	250 µg/mL ea:	Copper,
	Silver,	
	200 µg/mL ea:	
	Chromium,	
	50 µg/mL ea:	
	Beryllium	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.00 ± 0.26 µg/mL	Calcium, Ca	5 000 ± 22 µg/mL
Chromium, Cr	200.0 ± 1.0 µg/mL	Cobalt, Co	500.0 ± 2.4 µg/mL
Copper, Cu	250.0 ± 1.0 µg/mL	Iron, Fe	1 000 ± 4 µg/mL
Magnesium, Mg	5 000 ± 20 µg/mL	Manganese, Mn	500.0 ± 2.0 µg/mL
Nickel, Ni	500.0 ± 2.2 µg/mL	Potassium, K	5 000 ± 19 µg/mL
Silver, Ag	250.0 ± 1.1 µg/mL	Sodium, Na	5 000 ± 18 µg/mL
Vanadium, V	499.7 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.118 g/mL (measured at 20 ± 4 °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
Cr	Calculated		See Sec. 4.2
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, 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

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information.

<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 27, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- January 27, 2027

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
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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: CLPP-CAL-3
Lot Number: T2-MEB714159
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 ± 8 µg/mL	Cadmium, Cd	500.0 ± 2.1 µg/mL
Lead, Pb	1 000 ± 5 µg/mL	Selenium, Se	1 000 ± 8 µg/mL
Thallium, Tl	1 000 ± 7 µg/mL		

Density: 1.043 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

- 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

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 13, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 13, 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





CERTIFIED WEIGHT REPORT:

Part Number: **57182**
Lot Number: **110923**
Description: **Lead (Pb)**

Solvent: **24002546 Nitric Acid**
Lot #: **M6025**

Expiration Date: **110926**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **10000**
NIST Test Number: **6UTB**

2% **40.0** **Nitric Acid**
(mL)

Weight shown below was diluted to (mL): **2000.02** **0.058** **Flask Uncertainty**

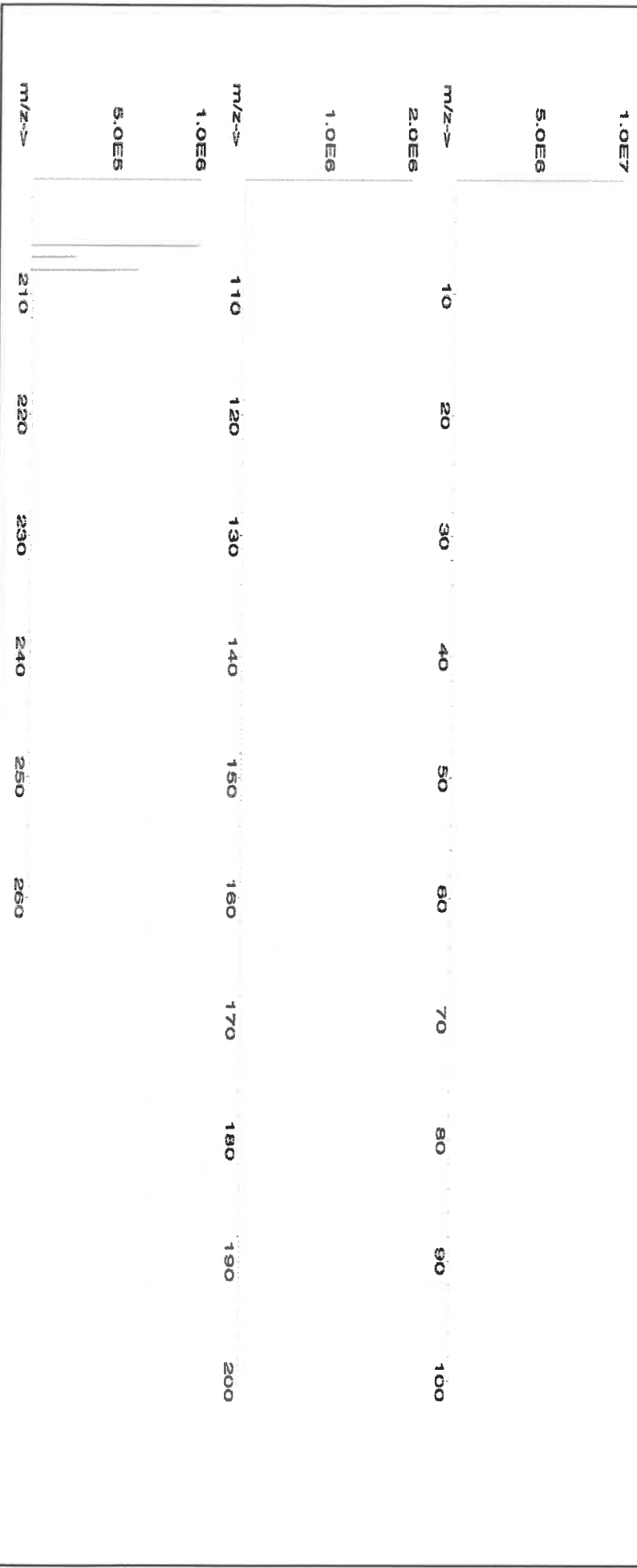
Formulated By:	Lawrence Barry
110923	
Reviewed By:	Pedro L. Rentas
110923	

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
-----	------------	-----------------------	------------	------------------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. **Lead(II) nitrate (Pb)** **IN029** **PED12016A1** **10000** **99.999** **0.10** **62.5** **32.0006** **32.0040** **10001.1** **20.0** **10099-74-8** **0.05 mg/m3** **intrins- 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).



QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

Instructions for QATS Reference Material: ICP-AES ICS

**QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)**

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) BREAKAGE OR MISSING ITEMS

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) ANALYSIS OF SAMPLES

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,



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.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



Material No.: 9530-33
Batch No.: 0000281827
Manufactured Date: 2021/03/30
Retest Date: 2026/03/29
Revision No: 1

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
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.189
ACS – Bromide (Br)	<= 0.005 %	< 0.005
ACS – Extractable Organic Substances	<= 5 ppm	< 1
ACS – Free Chlorine (as Cl ₂)	<= 0.5 ppm	< 0.5
Phosphate (PO ₄)	<= 0.05 ppm	< 0.03
Sulfate (SO ₄)	<= 0.5 ppm	< 0.3
Sulfite (SO ₃)	<= 0.8 ppm	0.3
Ammonium (NH ₄)	<= 3 ppm	< 1
Trace Impurities – Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities – Aluminum (Al)	<= 10.0 ppb	0.5
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities – Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities – Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities – Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities – Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities – Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities – Calcium (Ca)	<= 50.0 ppb	15.0
Trace Impurities – Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities – Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities – Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities – Gallium (Ga)	<= 1.0 ppb	< 0.2

Test	Specification	Result
Trace Impurities – Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities – Gold (Au)	<= 4.0 ppb	3.0
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities – Iron (Fe)	<= 15.0 ppb	1.0
Trace Impurities – Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities – Magnesium (Mg)	<= 10.0 ppb	< 0.4
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.2
Trace Impurities – Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities – Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	< 0.2
Trace Impurities – Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities – Selenium (Se), For Information Only	ppb	1.0
Trace Impurities – Silicon (Si)	<= 100.0 ppb	18.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Titanium (Ti)	<= 1.0 ppb	< 0.2
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	0.4
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use

Product Information (not specifications):

Appearance (clear, fuming liquid)

Meets ACS Specifications

Country of Origin: US

Packaging Site: Phillipsburg 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 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

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Certificate of Analysis

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

P: 800-669-6799/540-585-3030
 F: 540-585-3012
 info@inorganicventures.com

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-QC-4
 Lot Number: S2-MEB711674
 Matrix: 3% (v/v) HNO₃
 3% (v/v) HF
 Value / Analyte(s): 1 000 µg/mL ea:
 Boron, Molybdenum,
 Silicon, Tin,
 Titanium

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
Boron, B	1 000 ± 7 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	1 001 ± 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	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

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

- 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

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

November 02, 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

- **November 02, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





**QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)**

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(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 ± 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.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223



M5289

Certified Reference Material CRM

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ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 58113
Lot Number: 070622
Description: Aluminum (Al)

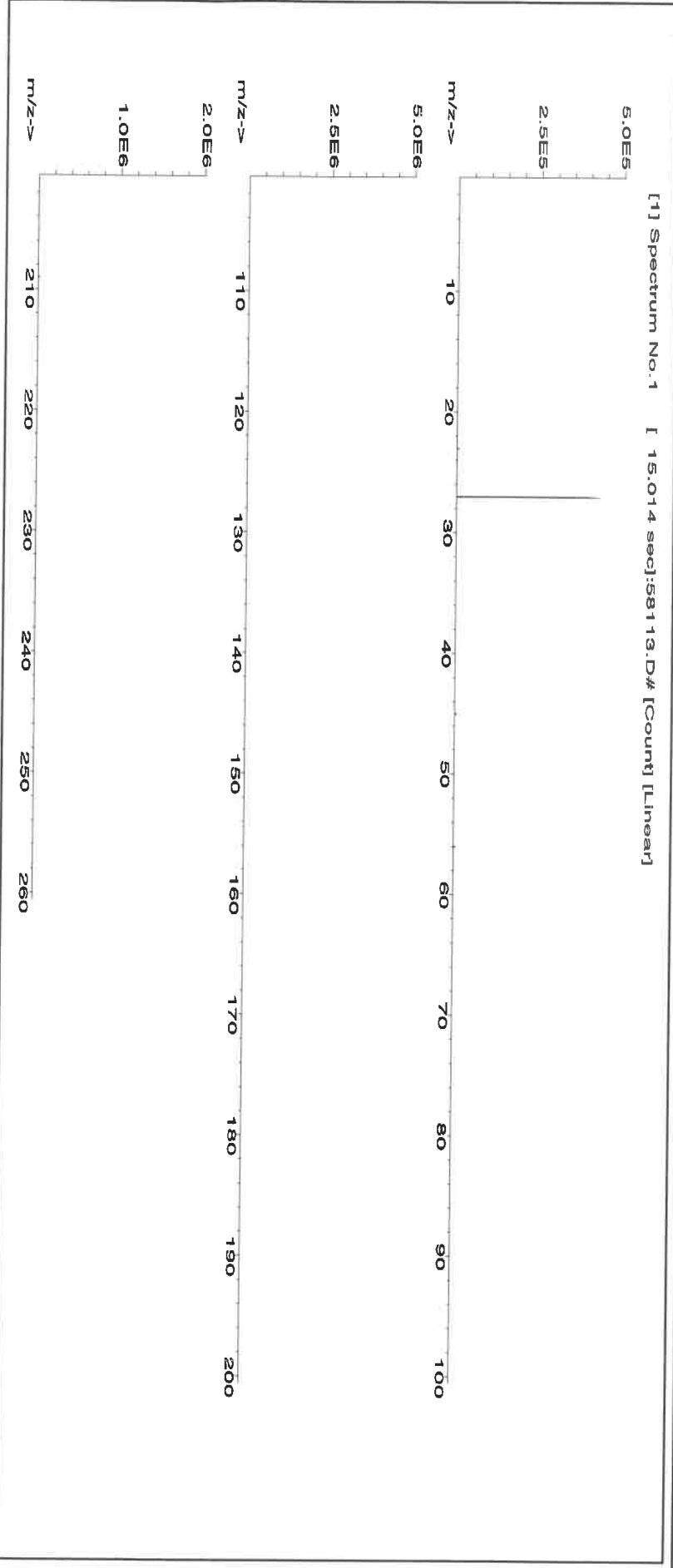
Solvent: 20370011 Nitric Acid
Lot #

Expiration Date: 070625
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	070622
Reviewed By:	Pedro L. Renteria	070622

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded			SDS Information
										Uncertainty +/- (µg/mL)	CAS#	(Solvent Safety Info. On Attached pg.)	
		</											

1. Aluminum nitrate nonahydrate (Al) IN022 ALD012021A1 10000 99.999 0.10 7.10 281.6956 281.6977 10000.1 20.0 7784-27-2 2 mg/m3 or-tal 3671 mg/kg 3101a





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	T	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	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	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



R: 4/20/21

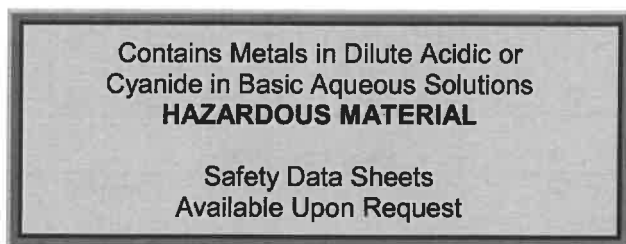
Instructions for QATS Reference Material: *Inorganic ICV Solutions*

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INITIAL CALIBRATION VERIFICATION SOLUTIONS
(ICV1, ICV5, AND ICV6)

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.



M5291
M15292
M15293
M15294
M15295

(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) BREAKAGE OR MISSING ITEMS

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) ANALYSIS OF SAMPLES

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.





Instructions for QATS Reference Material: *Inorganic ICV Solutions*

- ICV1-1014** For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.
- ICV5-0415** For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.
- ICV6-0400** For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS

ICV1-1014		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2500	500
Sb	1000	200
As	1000	200
Ba	520	100
Be	510	100
Cd	510	100
Ca	10000	2000
Cr	520	100
Co	520	100
Cu	510	100
Fe	10000	2000
Pb	1000	200
Mg	6000	1200
Mn	520	100
Ni	530	110
K	9900	2000
Se	1000	200
Ag	250	50
Na	10000	2000
Tl	1000	210
V	500	100
Zn	1000	200

ICV5-0415		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN ⁻	99



Certified Reference Material CRM

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58126
020422
Iron (Fe)

Lot #

Solvent: 20370011 Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

020425
Ambient (20 °C)
10000
6UTB
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

5.0%
150.0
(mL)
Nitric Acid

Weight shown below was diluted to (mL): 3000.41

Giovanni Esposito
Formulated By: Giovanni Esposito 020422

Pedro L. Rentas
Reviewed By: Pedro L. Rentas 020422

Expanded
Uncertainty
+/- (µg/mL)

Actual
Conc. (µg/mL)

Actual
Weight (g)

Target
Weight (g)

Assay
(%)

Purity
(%)

Nominal
Conc. (µg/mL)

Lot
Number

RM#

Compound

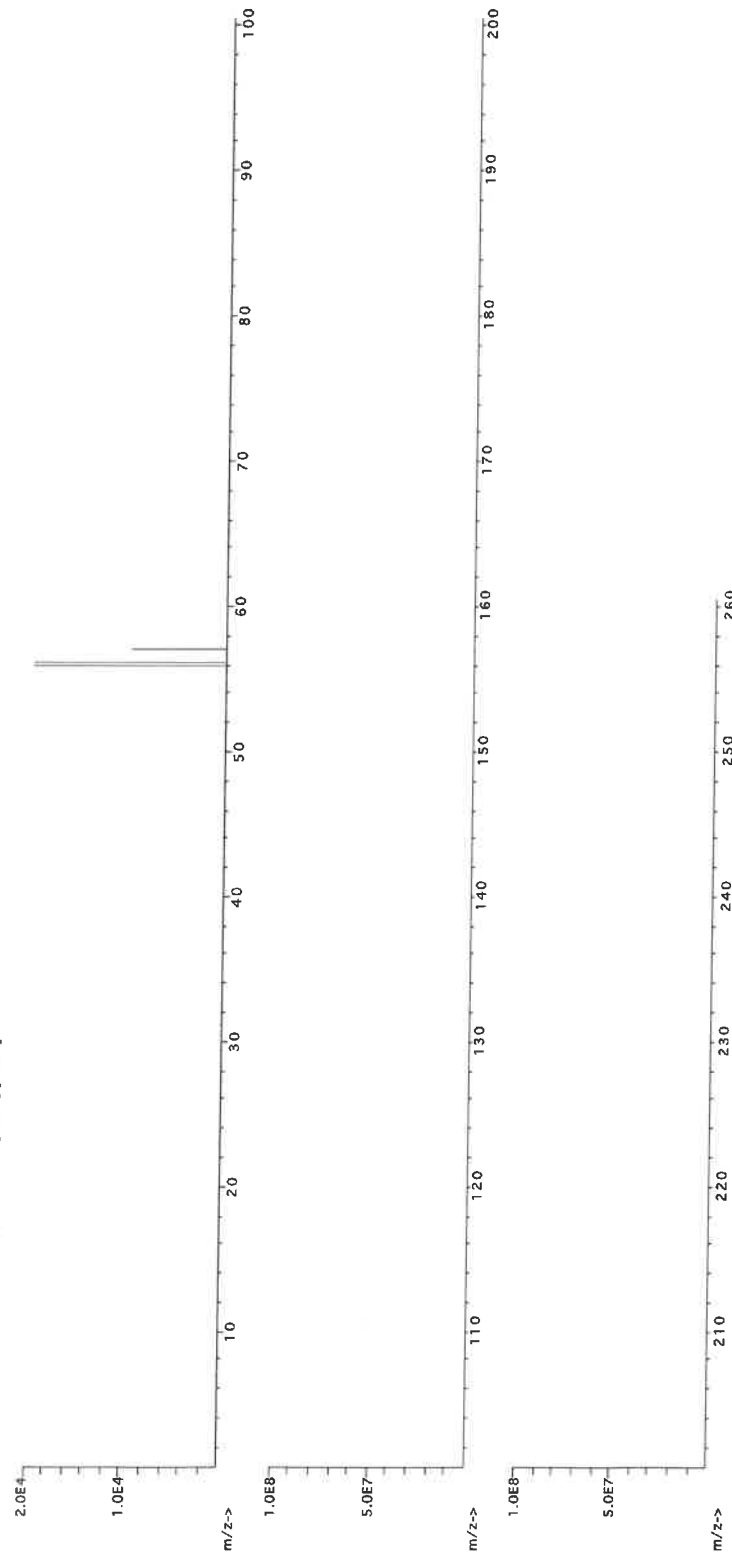
1. Iron(III) nitrate nonahydrate (Fe)

IN346 221035107 10000 99.999 0.10 100.0 30.0044 30.0090 10001.5 20.0 7782-61-8 5 mg/m3 or-hat 7500mg/kg 3126a

SDS Information
(Solvent Safety Info. On Attached pg.)
LD50
CAS#
OSHA PEL (TWA)

NIST
SRM

[1] Spectrum No.1 [30.763 sec]:58126.D# [Count] [Linear]



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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	<0.10	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.10	Mn	<0.10	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.5	Ga	<0.2	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.10	Ge	<0.02	La	<0.10	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.10	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are 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

M5429 R1 0126/23 (B)

CERTIFIED WEIGHT REPORT:

Part Number: 57103
Lot Number: 070622
Description: Lithium (Li)

Expiration Date: 070625
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 1000.12

Solvent: 20510011 Nitric Acid

2% 20.0 (mL)

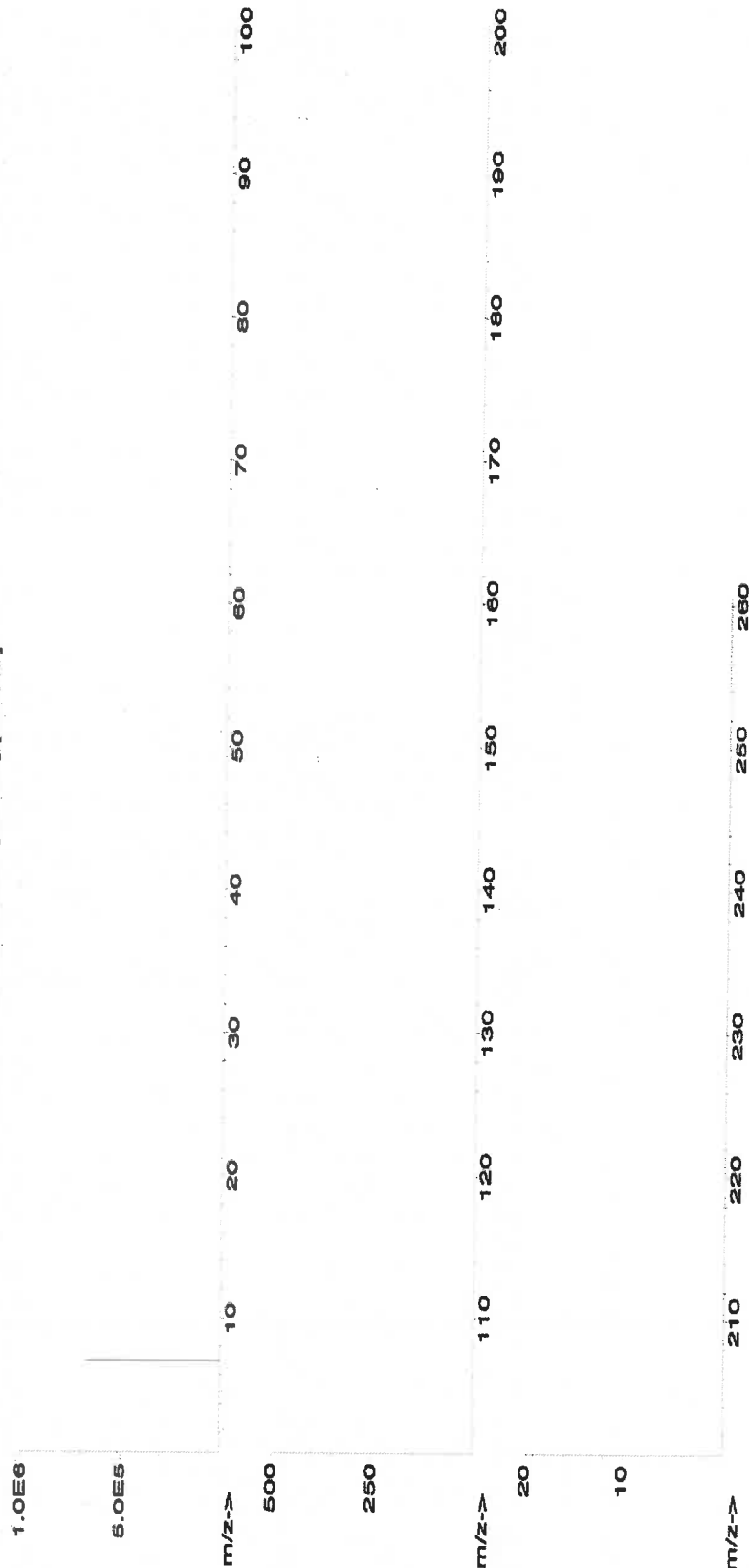
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	070622
Reviewed By:	Pedro L. Rentas	070622

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	CAS#	LD50	NIST SRM
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1. Lithium nitrate (Li)	IN019	10000	99.999	0.10	10.0	100.0134	100.0173	10000.4	20.0	7790-69-4	5 mg/m3	of-rat 1426 mg/kg	NA
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[1] Spectrum No.1 [9.619 sec]:58103.D# [Count] [Linear]



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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	<0.2	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	<0.01	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	<0.2	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	<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:

57058
061322
Cerium (Ce)

Solvent: 20510011 Nitric Acid

Lot #

2% 20.0 Nitric Acid

(mL)

Nitric Acid

Formulated By: Lawrence Barry

061322

Recommended Storage:
Nominal Concentration ($\mu\text{g/mL}$):

Ambient (20 °C)

NIST Test Number: 6UTB

Butte

SE-05 Balance Uncertainty

Weight shown below was diluted to (mL): 1000.12 0.058 Flask Uncertainty

0.058 Flank Uncertainty

Formulated By:	Lawrence Barry	061322
Reviewed By:	Pedro L. Renteria	061322

Reviewed By: Pedro L. Rentas

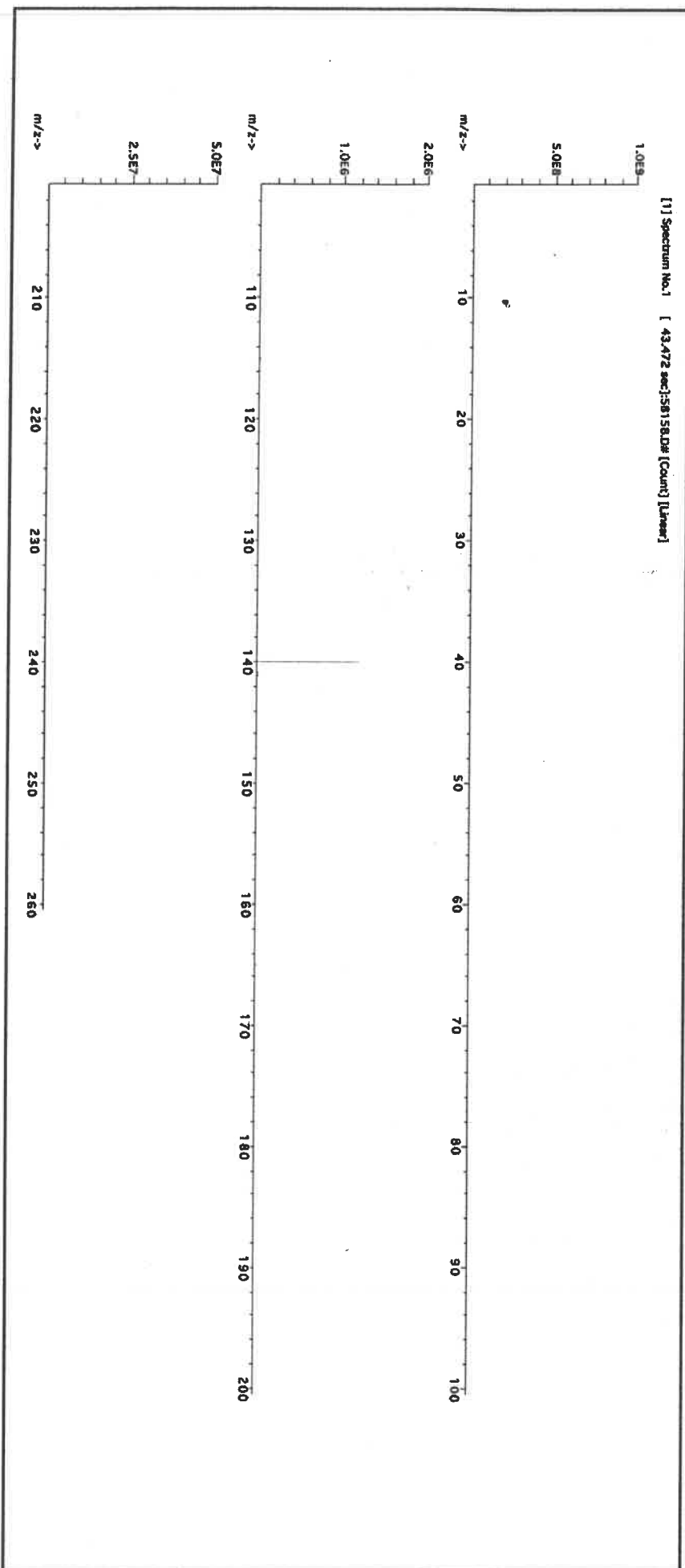
061322

SDS Information

[illegible]

Compound	R#	Conc.					
		Number	(%)	Purity (%)	Weight (g)	Weight (g) +/- (ug/mL)	CAS#
							OSHA PEL (TWA)
							LD50
							SRM

1. Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.5	3.04919	3.04923	1000.0	2.0	10294-41-4	NA	NA
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

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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	Rc	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	T	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	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

Physical Characterization:

(T) = Target analyte

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: **58113**
Lot Number: **011623**
Description: **Aluminum (Al)**

Solvent: **20510011 Nitric Acid**

Lot #

R 17/20/23

339

Part Number: **58113**
Lot Number: **011623**
Description: **Aluminum (Al)**

Expiration Date: **011626**

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

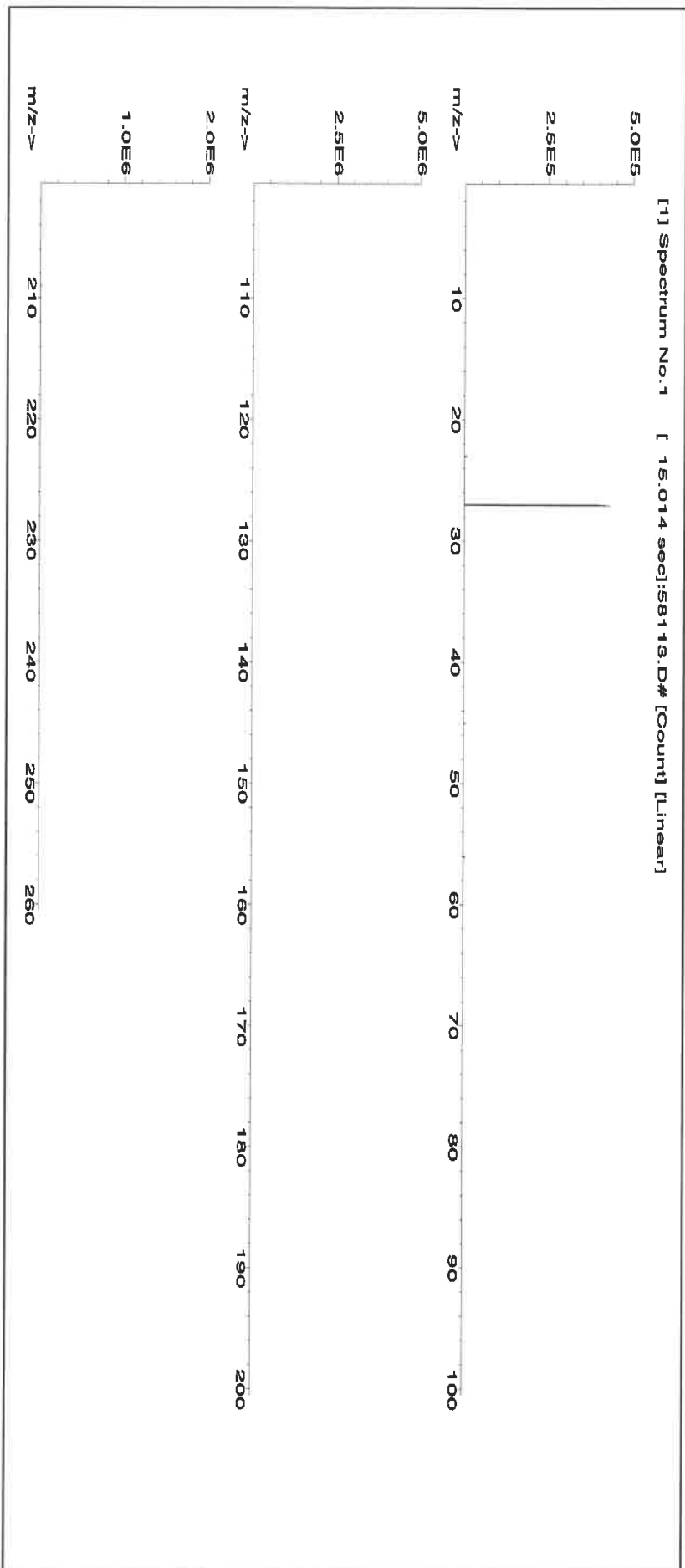
2% 40.0 (mL) Nitric Acid

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
	011623
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	011623

SDS Information

Compound	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Aluminum nitrate nonahydrate (Al)	ALM112021A1	10000	99.999	0.10	7.30	273.9779	274.0078	10001.1	20.0	7784-27-2	2 mg/m3	or-hat 3671 mg/kg	3101a

[1] Spectrum No. 1 [15.014 sec]:58113.D# [Count] [Linear]





15497-15498 R203/17/23(2)

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58120
031523
Calcium (Ca)

Solvent: 21110221 Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

031526
Ambient (20 °C)
10000
6UTB

2%
60.0
(mL)
Nitric Acid

Weight shown below was diluted to (mL): 3000.41
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito 031523
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas 031523

SDS Information

(Solvent Safety Info. On Attached pg.)
NIST
SRM

Expanded
Uncertainty

Actual
Conc. (µg/mL)

Actual
Weight (g)

Target
Weight (g)

Assay
(%)

Purity
(%)

Nominal
Conc. (µg/mL)

Lot
Number

RM#

Compound

1. Calcium carbonate (Ca)	IN014	CAD072022A1	10000	99.999	0.10	39.9	75.1990	75.2093	10001.4	20.0	471-34-1	5 mg/m3	or-rat >2000mg/kg	3109a
---------------------------	-------	-------------	-------	--------	------	------	---------	---------	---------	------	----------	---------	-------------------	-------

[1] Spectrum No.1 [12.514 sec]:58120.D# [Count] [Linear]



340



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02
Sb	<0.02	Ca	<0.02	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<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
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.2	Fe	<0.02	Hg	<0.2	P	<0.2	Ru	<0.02	Sr	<0.02	Tm	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02
																W	<0.02
																U	<0.02
																V	<0.02
																Yb	<0.02
																Y	<0.02
																Zn	<0.02
																Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57182
061522
Lead (Pb)

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

061525
Ambient (20 °C)
10000
6UTB

Weight shown below was diluted to (mL):

2000.02

5E-05 Balance Uncertainty

0.058 Flask Uncertainty

Lot #

Solvent: 20510011 Nitric Acid

2% 40.0 Nitric Acid
(mL)

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito 061522
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas 061522

Expanded Uncertainty

SDS Information

(Solvent Safety Info. On Attached pg.)

OSHA PEL (TWA)

CAS#

LD50

NIST SRM

10098-74-8

0.05 mg/m3

inhalation 8h mg/kg

3128

1. Lead(II) nitrate (Pb)

IN029 PBD12201641

10000

99.999

0.10

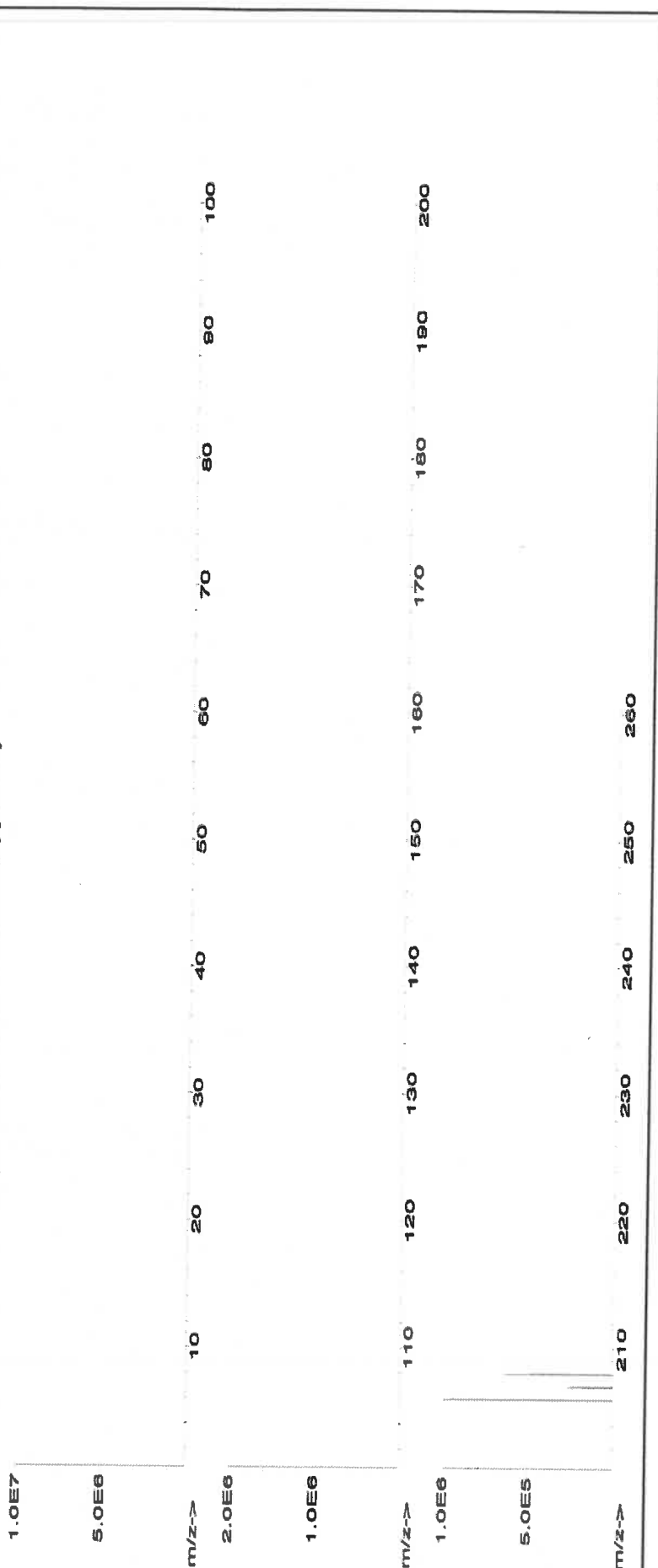
82.5

32.0006

32.0041

10001.1

[1] Spectrum No.1 [17.284 sec]:58182.D# [Count] [Linear]



342



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	<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	<0.2	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pr	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
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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

CERTIFIED WEIGHT REPORT:

Part Number: **58119**
Lot Number: **120822**
Description: **Potassium (K)**

Solvent: 20510011 Nitric Acid

Lot #

Giovanni Esposito

Formulated By: Giovanni Esposito 120822

Expiration Date: 120825
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

2% 60.0 (mL) Nitric Acid

Pedro L. Renteria

Reviewed By: Pedro L. Renteria 120822

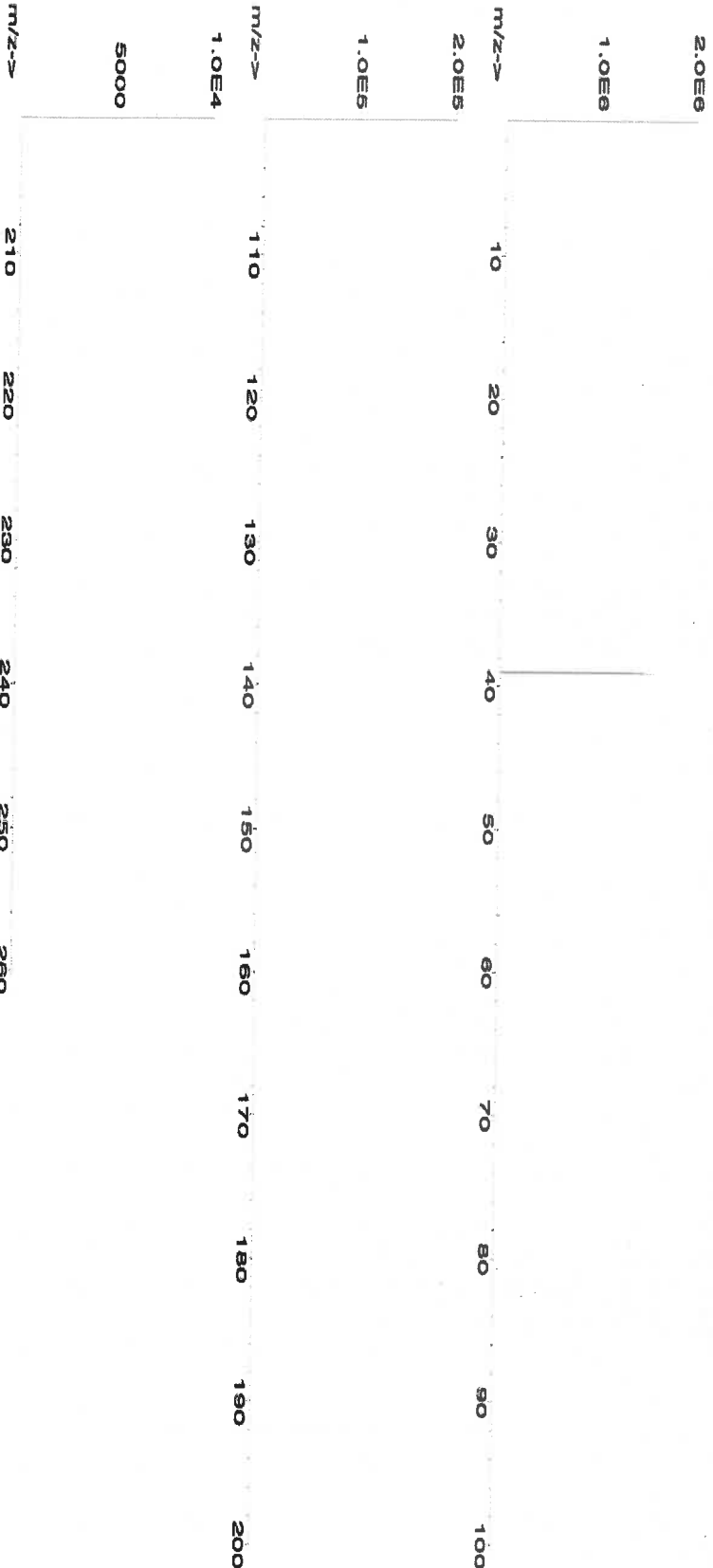
Weight shown below was diluted to (mL): 3000.4 0.06 Flask Uncertainty

Compound

Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	SDS Information	NIST
RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	SRM

1. Potassium nitrate (K) IN034 KD022021A1 10000 99.989 0.10 37.6 79.7990 79.8075 10001.1 20.0 7757-79-1 5 mg/m3 or/air 3015 mg/kg 3141a

[1] Spectrum No.1 [35.763 sec]:58119.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

345

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	<0.02	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).

Certificate of Analysis

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: CLPP-SPK-1
 Lot Number: T2-MEB721963
 Matrix: 7% (v/v) HNO₃
 Value / Analyte(s):
 2 000 µg/mL ea:
 Aluminum, Barium,
 1 000 µg/mL ea:
 Iron,
 500 µg/mL ea:
 Manganese, Nickel,
 Vanadium, Zinc,
 Cobalt,
 250 µg/mL ea:
 Copper,
 200 µg/mL ea:
 Chromium,
 50 µg/mL ea:
 Beryllium, Silver

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.00 ± 0.26 µg/mL	Chromium, Cr	200.0 ± 1.1 µg/mL
Cobalt, Co	500.0 ± 2.4 µg/mL	Copper, Cu	250.0 ± 1.0 µg/mL
Iron, Fe	1 000 ± 4 µg/mL	Manganese, Mn	500.0 ± 2.0 µg/mL
Nickel, Ni	500.0 ± 2.2 µg/mL	Silver, Ag	50.00 ± 0.22 µg/mL
Vanadium, V	500.0 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.070 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Ag	Calculated		See Sec. 4.2
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

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:

$$X_{CRM/RM} = (\bar{X}_a) (u_{char\ a})$$

$\bar{X}_a$ = 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)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information.

<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va, 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 27, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- July 27, 2027

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number: 58024
Lot Number: 060523
Description: Chromium (Cr)

Lot #
21110221
Solvent: Nitric Acid

2.0%

40.0 (mL)
Nitric Acid

Formulated By: *Lawrence Barry*
Reviewed By: *Pedro L. Renteria*

Expiration Date: 060526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000

Formulated By: *Lawrence Barry*
Reviewed By: *Pedro L. Renteria*

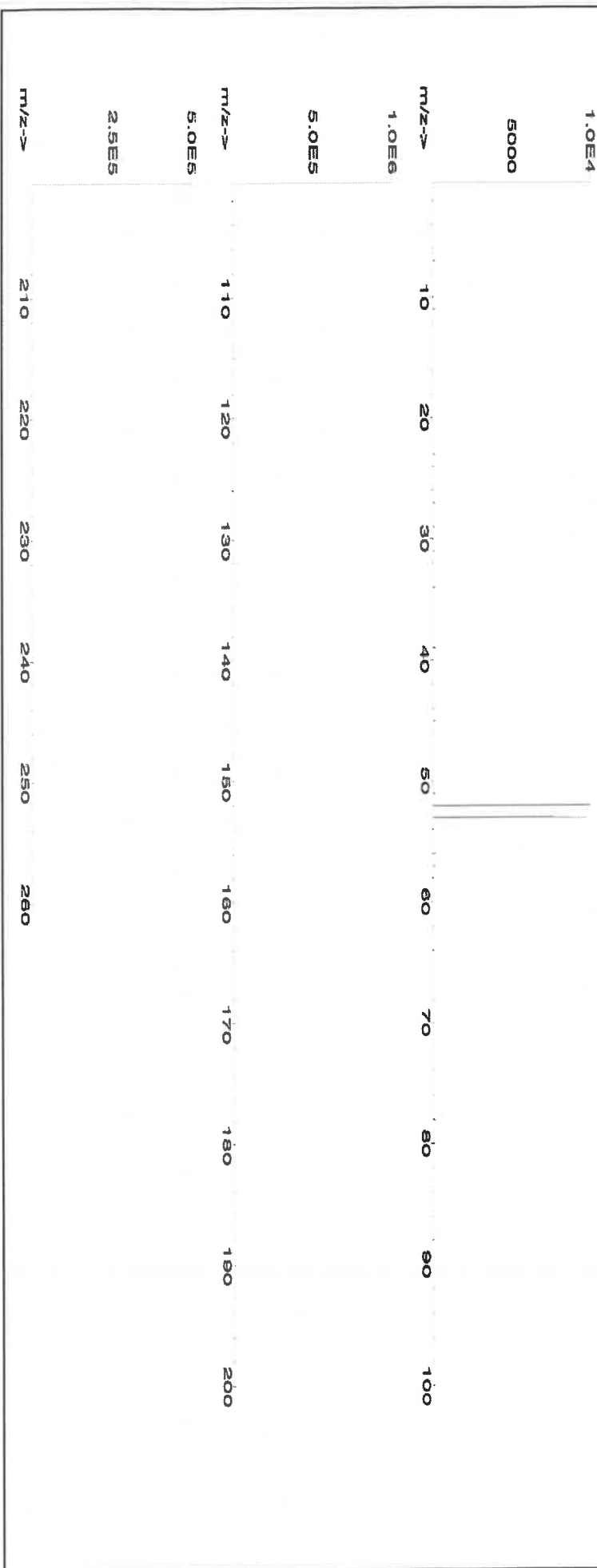
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	-------------	------------	-----------------	-------------------	------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. Chromium(III) nitrate nonahydrate (Cr) 58124 071122 0.1000 200.0 0.084 1000 10000.1 1000.0 2.2 7789-02-8 0.5 mg(Cr)/m3 or rat 3250 mg/kg 3112a

[1] Spectrum No.1 [31.393 sec]:57024.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	T	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 58029
Lot Number: 102523
Description: Copper (Cu)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date: 102526

2.0%

40.0 (mL) Nitric Acid

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

NIST Test Number: 6UTB

5E-05 Balance Uncertainty

Volume shown below was diluted to (mL): 2000.02

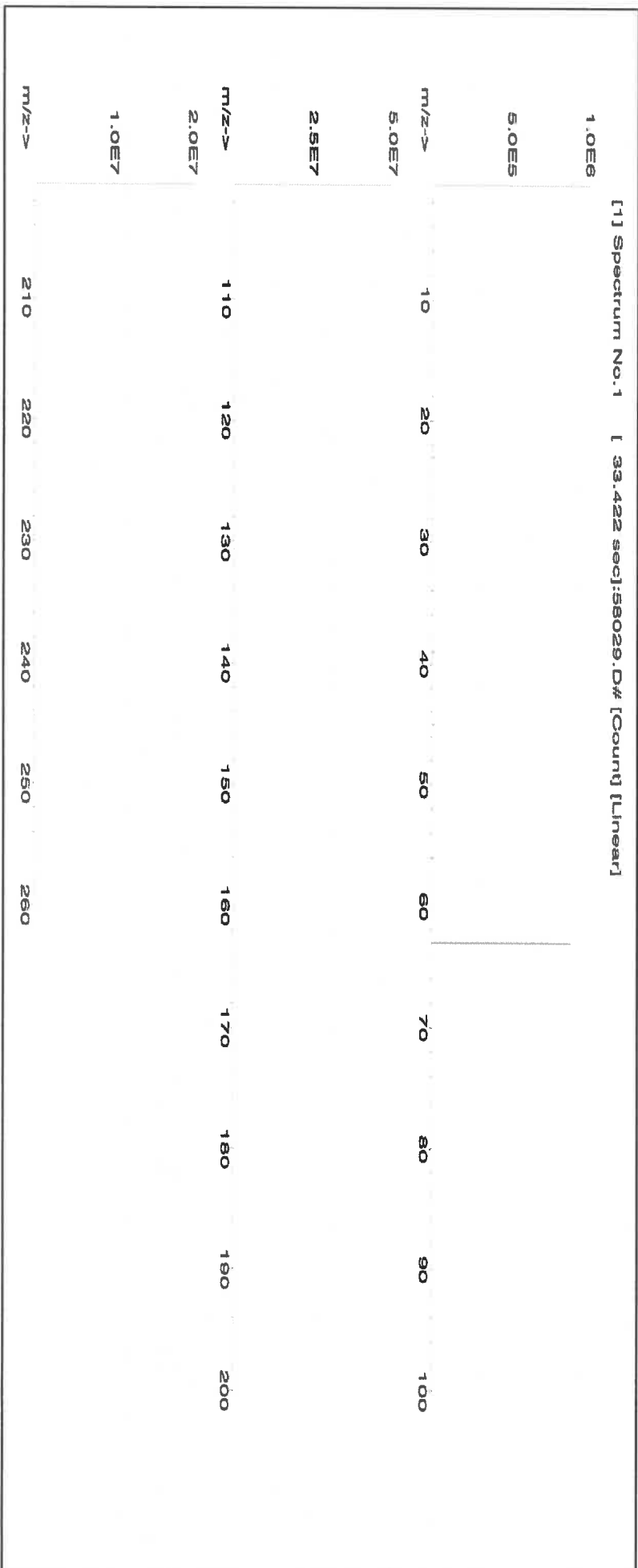
0.058 Flask Uncertainty

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. 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 or-rat 794 mg/kg 3114

[1] Spectrum No.1 [33.422 sec]:58029.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	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	T	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57004
Lot Number: 102523
Description: Beryllium (Be)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date:

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL):

NIST Test Number: 6UTB

Volume shown below was diluted to (mL): 2000.02

2.0%

40.0 (mL)

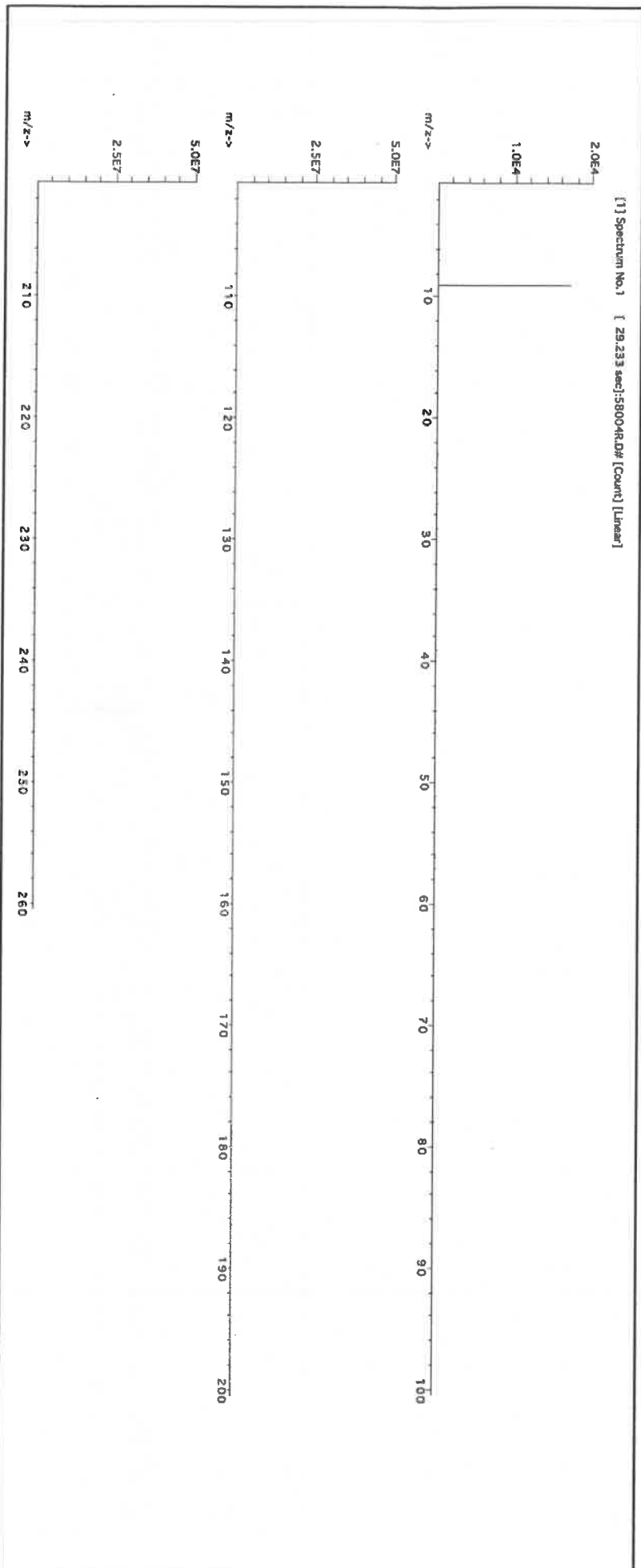
Nitric Acid

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 (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	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	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ta	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

355



Certified Reference Material CRM

CERTIFIED WEIGHT REPORT:

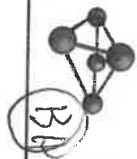
Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

Solvents: 21110221 Nitric Acid
22D0562008 Hydrochloric acid

Lot #

R-02509124

M599



356

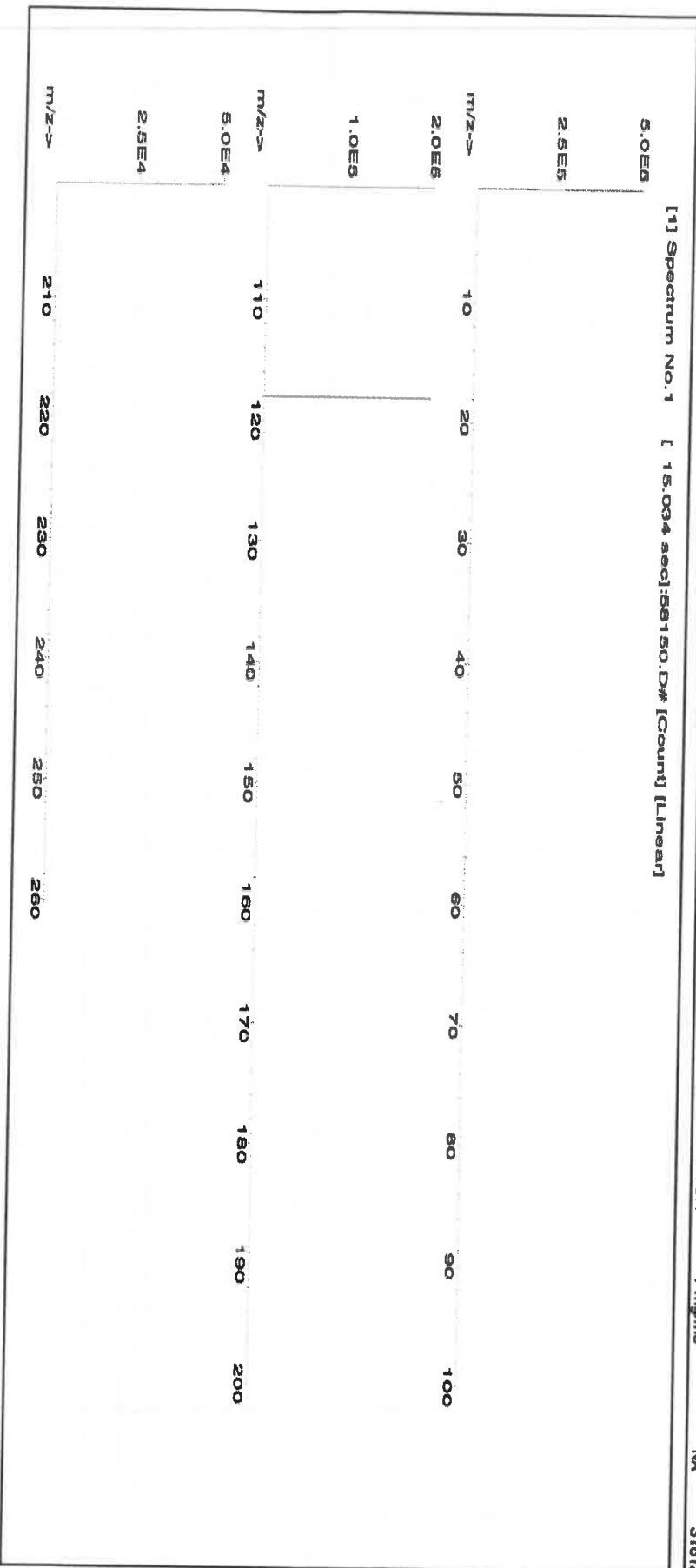
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By: Benson Chan	
071123	
Reviewed By: Pedro L. Rientas	
071123	

SDS Information															NIST		
Compound		Lot		Nominal		Purity		Uncertainty		Assay		Target		Actual		Expanded	
RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	(%)

1. Ammonium hexafluoroantimonate(V) (Sn) INO10 SMD042023A1 1000 99.999 0.10 44.2 1.13107 1.13286 1001.6 2.0 16919-24-7 7 mg/m3 NA 3161a

[1] Spectrum No. 1 [15.034 sec]:56150.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

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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	Sa	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	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).



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)

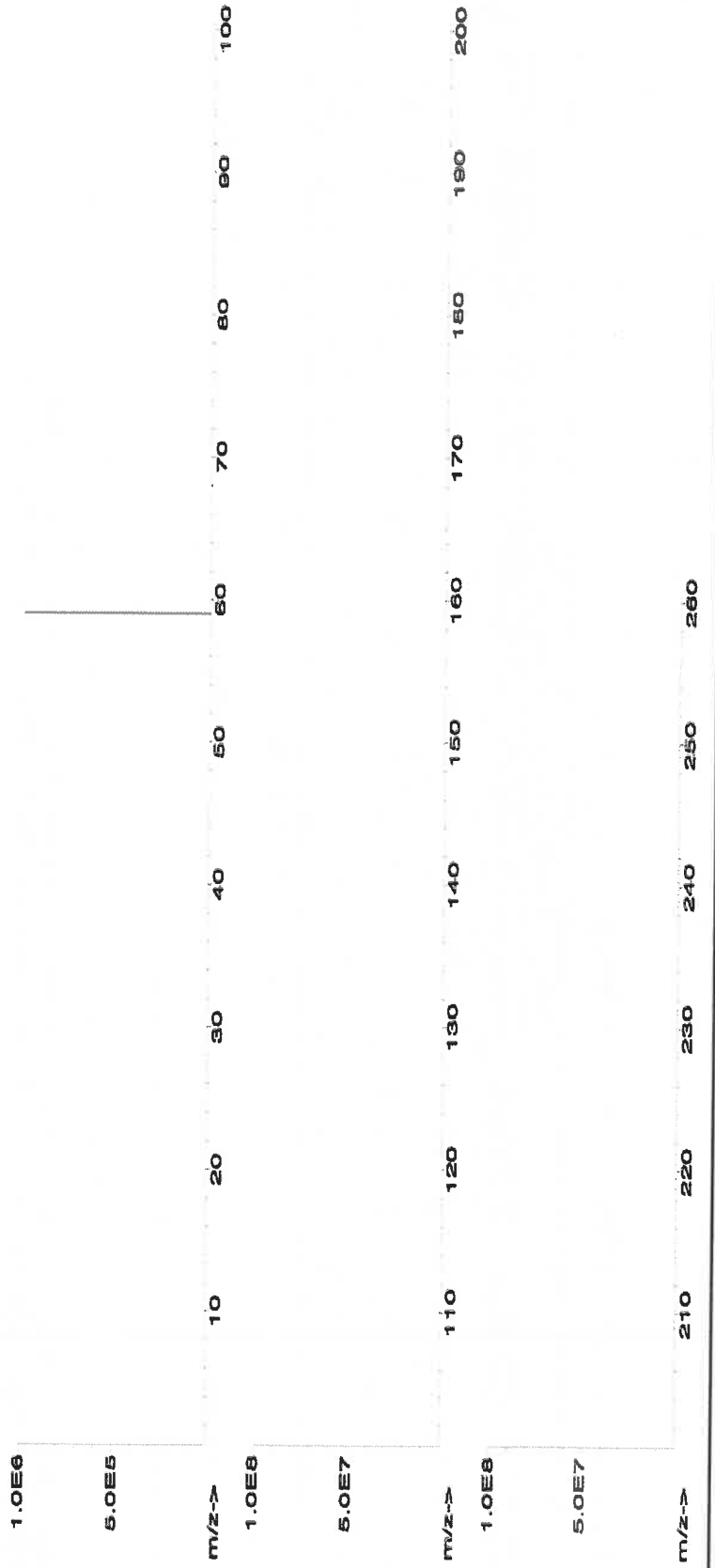
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas

SDS Information

Expanded Uncertainty +/- (µg/mL)
NIST SRM
(Solvent Safety Info. On Attached pg.)
CAS# OSHA PEL (TWA) LD50

1. Cobalt(II) nitrate hexahydrate (Co) 58127 050923 0.1000 200.0 0.084 1000 10000.0 1000.0 2.2 10026-22-9 0.02 mg/m3 orl-rat 691 mg/kg 3113

[1] Spectrum No.1 [34.243 sec]:58027.D# [Count] [Linear]



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Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.2	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	T	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



AR: 02/09/24

M5801

BA



CERTIFIED WEIGHT REPORT:

Part Number: 57033
Lot Number: 111323
Description: Arsenic (As)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date: 111326

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6LUTB

Volume shown below was diluted to (mL): 4000.0

Balance Uncertainty: 5E-05
Flask Uncertainty: 0.06

2.0%

80.0 (mL)

Nitric Acid

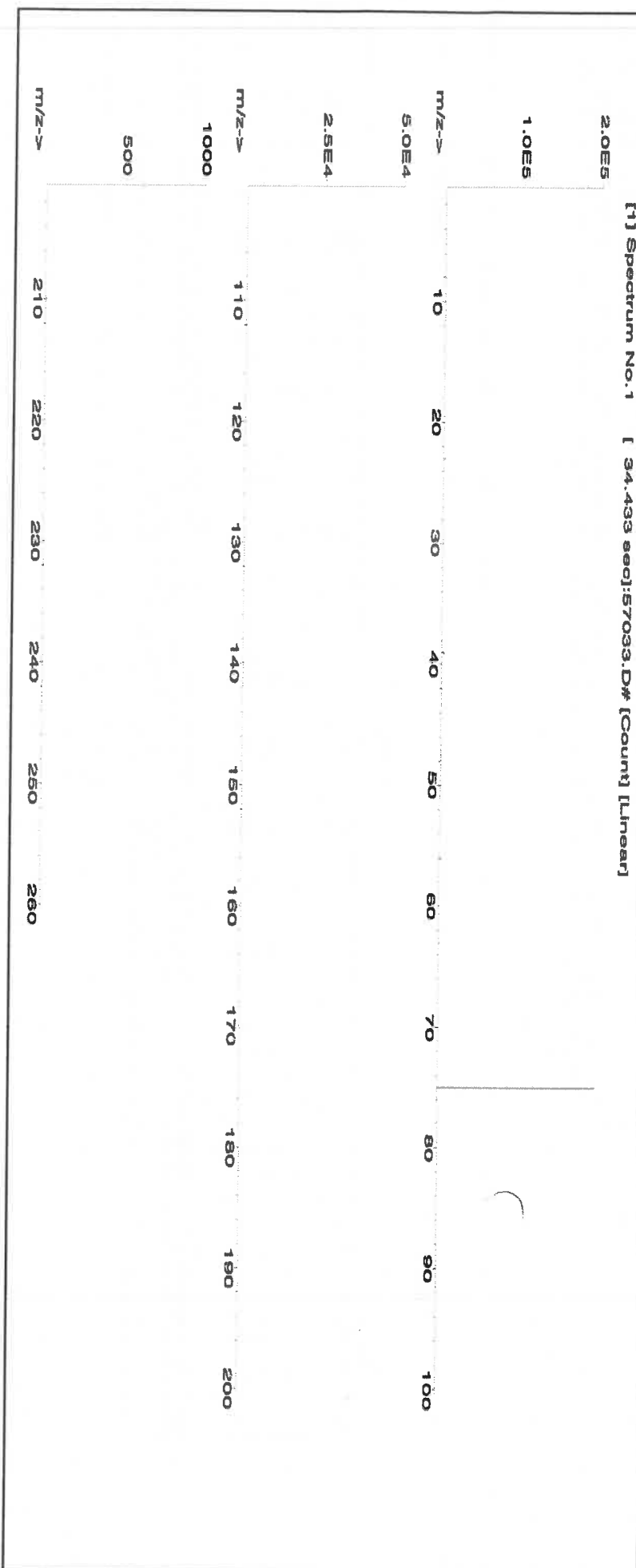
Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rendas	111323

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. Arsenic (As)	58133	020522	0.1000	400.0	0.084	1000	10001.0	1000.0	2.0	7440-38-2	0.5 mg/m3	or-rat 500 mg/kg	3103a
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[1] Spectrum No. 1 [34.433 sec]:57033.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	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	T	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	Tl	<0.02	Yb	<0.02
Bc	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge*	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sa	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57115
Lot Number: 041723
Description: Phosphorous (P)

Solvent: 21110221 Nitric Acid

Lot #

362

Expiration Date: 041726
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

2% 40.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): 2000.02 0.056 Balance Uncertainty
Flask Uncertainty

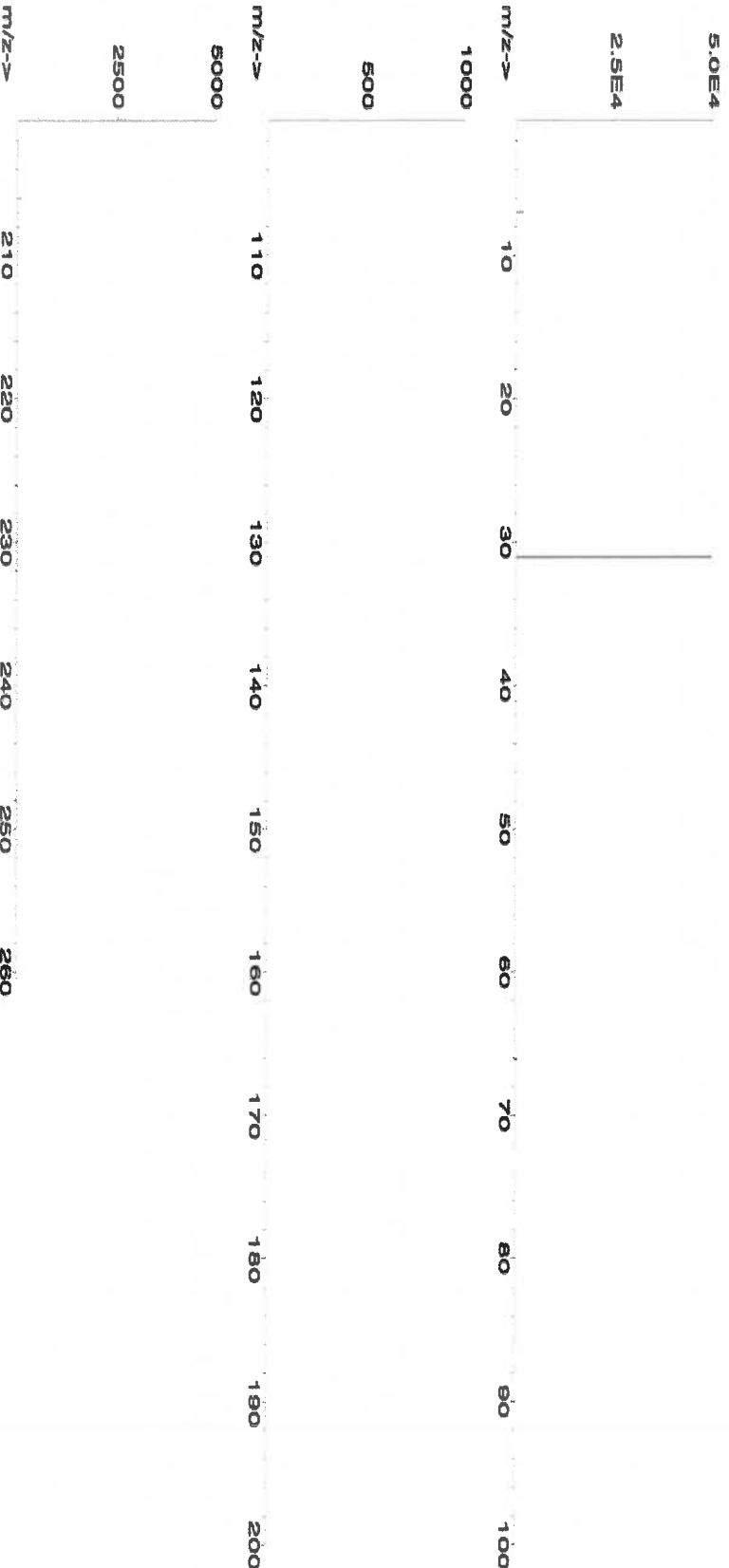
Formulated By: Lawrence Barry	041723
Reviewed By: Pedro L. Rentas	041723

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium dihydrogen phosphate (P) IN008 P082019A1 10000 99.999 0.10 27.5 72.7287 72.7289 10000.0 20.0 7722-76-1 5 mg/m3 or-hal->2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.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	T	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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: **57116**
Lot Number: **071123**
Description: **Sulfur (S)**

Lot #
Solvent: 071123
ASTM Type 1 Water

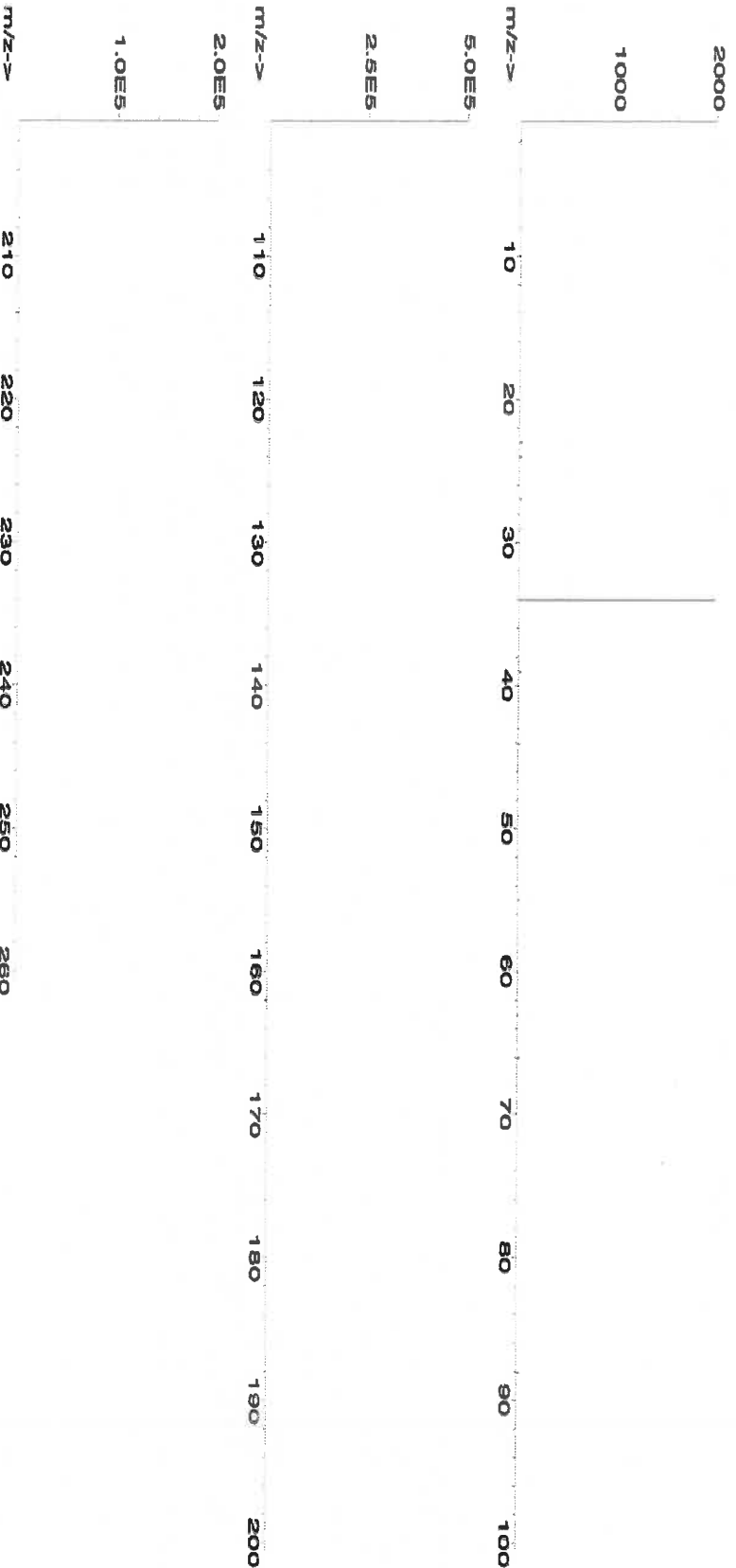
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas
071123	

364

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1999.48
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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)
Ammonium sulfate (S)	IN117 SLBR7225V	10000	99.9	0.10	24.3	82.4675	82.4692	10000.1	20.0
						7763-20-2	NA	oralal 4250mg/kg	3181

[1] Spectrum No. 1 [24.004 sec]:58116.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	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	T	Ti	<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			Zr	<0.02

Physical Characterization:

(T)= Target analyte

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: 58030
Lot Number: 111623
Description: Zinc (Zn)

Solvent: 24002546 Nitric Acid

Lot # R: 02109124 MS819

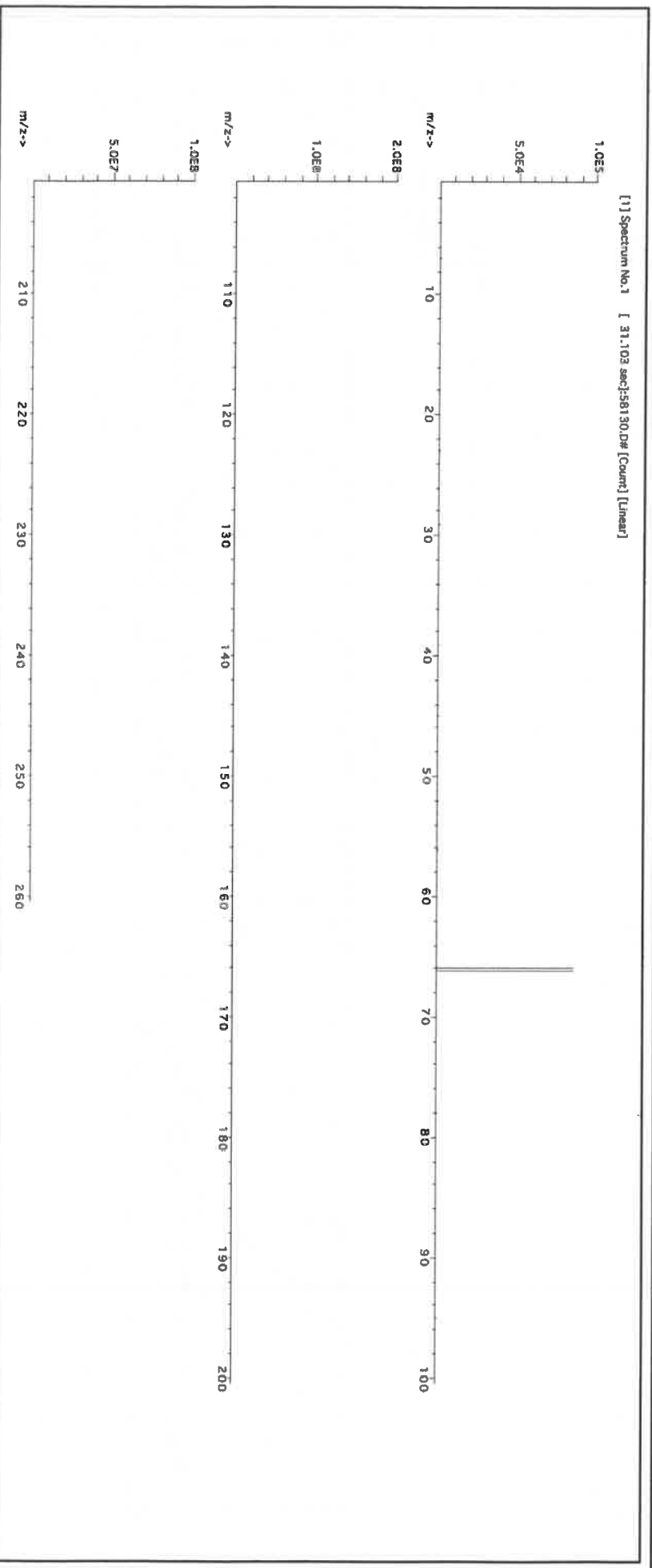
2% 60.0 (mL) Nitric Acid

Expiration Date: 111626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Formulated By:	Benson Chan
Reviewed By:	Pedro L. Reitas
111623	

Weight shown below was diluted to (mL): 3000.4 0.06 Balance Uncertainty Flask Uncertainty

SDS Information									
Expanded					(Solvent Safety Info. On Attached pg.)				
Compound	RW#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)
1. Zinc nitrate hexahydrate (Zn)	IN016	ZNE03021A1	1000	99.999	0.10	24.3	12.3475	12.3502	1000.2
									2.0
									10196-16-6
									1 mg/mL
									on-rat 1190mg/kg
									3168





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	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).

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R: 02/22/24 M.5942

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: CGT11
Lot Number: T2-TI719972
Matrix: 2% (v/v) HNO₃
tr. HF
Value / Analyte(s): 1 000 µg/mL ea:
Titanium
Starting Material: Ti Metal
Starting Material Lot#: 2094
Starting Material Purity: 99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL
Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 1002 ± 4 µg/mL
ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{char i}^2) / (\sum (1/u_{char i}^2))$$

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum (w_i)^2 (u_{char i}^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = (X_a) (u_{char a})$$

X_a = mean of Assay Method A with

$u_{char a}$ = the standard uncertainty of characterization Method A

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000536	M	Eu	<	0.000268	O	Na	<	0.032670	M	Se		0.001204	O	Zn	<	0.003267
O	Al		0.000872	O	Fe		0.003225	O	Nb	<	0.043560	O	Si		0.004735	O	Zr	<	0.043560
M	As	<	0.008586	M	Ga	<	0.000268	M	Nd	<	0.000268	M	Sm	<	0.000268				
M	Au	<	0.004577	M	Gd	<	0.000268	O	Ni	<	0.010890	M	Sn		0.000096				
O	B	<	0.008929	M	Ge	<	0.002146	M	Os	<	0.000269	O	Sr		0.000096				
M	Ba	<	0.002683	M	Hf		0.002161	O	P	<	0.054450	M	Ta		0.010560				
M	Be	<	0.005366	M	Hg	<	0.003231	M	Pb	<	0.001073	M	Tb	<	0.000268				
M	Bi	<	0.001609	M	Ho	<	0.000268	M	Pd	<	0.000268	M	Te	<	0.001341				
O	Ca		0.000676	M	In	<	0.002683	M	Pr	<	0.000268	M	Th	<	0.053663				
M	Cd	<	0.000268	M	Ir	<	0.000269	M	Pt	<	0.000536	s	Ti	<					
M	Ce	<	0.000268	M	K		0.001172	M	Rb	<	0.000268	M	Tl	<	0.000268				
M	Co	<	0.004293	M	La	<	0.000268	M	Re	<	0.000268	M	Tm	<	0.000268				
M	Cr		0.000752	O	Li	<	0.027225	M	Rh	<	0.000268	M	U	<	0.000268				
M	Cs	<	0.000268	M	Lu	<	0.000268	M	Ru	<	0.000269	M	V	<	0.019855				
O	Cu	<	0.010890	O	Mg	<	0.005445	i	S	<		M	W		0.000473				
M	Dy	<	0.000268	O	Mn	<	0.003267	M	Sb	<	0.006976	M	Y	<	0.002146				
M	Er	<	0.000268	M	Mo		0.000774	O	Sc	<	0.004900	M	Yb	<	0.000536				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 +4 6 Ti(F)6-2

Chemical Compatibility - Soluble in concentrated HCl, HF, H3PO4 H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)6-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)6-2 chemically stable for years in 2-5% HNO3 / trace HF in an LDPE container.

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution -powder reacts violently); Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); Oxide - high temperature history (~800EC) brookite (fuse in Pt0 with K2S2O7); Ores (fuse in Pt0 with KF + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystalline form).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	Ce, Ar, Ni
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	W, Mo, Co

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- June 17, 2027

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



M5959 R: 6/14/24

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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: 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:

$$w_i = (1/u_{char i}^2) / (\sum(1/u_{char i}^2))$$

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k(u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum(w_i)^2(u_{char i}^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = (X_a)(u_{char a})$$

X_a = mean of Assay Method A with

$u_{char a}$ = the standard uncertainty of characterization Method A

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k(u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag <	0.004600	M Eu	0.009037	M Na	0.086360	M Se <	0.005200	M Zn	0.030125
M Al	0.014862	O Fe	0.002410	M Nb <	0.000570	O Si	0.024100	O Zr <	0.002600
M As <	0.003500	M Ga <	0.000570	M Nd	0.000923	M Sm	0.000461		
M Au <	0.001700	M Gd <	0.003500	M Ni <	0.005700	M Sn <	0.002300		
O B	0.002209	M Ge <	0.005200	M Os <	0.001200	M Sr <	0.004600		
O Ba <	0.002500	M Hf <	0.000570	n P <		M Ta <	0.000570		
O Be <	0.001400	M Hg <	0.000570	M Pb	0.005020	M Tb	0.001044		
M Bi <	0.003500	M Ho	0.009037	M Pd <	0.005100	M Te <	0.002300		
O Ca	0.009841	M In <	0.002300	M Pr <	0.002300	M Th <	0.000570		
M Cd <	0.000570	M Ir <	0.000570	M Pt <	0.000570	M Ti <	0.003500		
M Ce <	0.002300	O K	0.018677	M Rb <	0.000570	M Tl <	0.000570		
M Co <	0.000570	M La	0.000461	M Re <	0.000570	M Tm <	0.003500		
M Cr <	0.004000	O Li <	0.009300	M Rh <	0.008000	M U <	0.000570		
M Cs <	0.000570	M Lu	0.000582	M Ru <	0.000570	M V	0.001265		
M Cu	0.002610	O Mg	0.001486	n S <		M W <	0.002300		
M Dy	0.003815	M Mn	0.000582	M Sb	0.005422	s Y <			
M Er	0.003615	M Mo <	0.005700	M Sc <	0.001200	M Yb	0.001827		

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 88.91 +3 6 Y(OH)(H₂O)_{x+2}

Chemical Compatibility -Soluble in HCl, H₂SO₄ and HNO₃. Avoid HF, H₃PO₄ and neutral to basic media.

Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride.

Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H₂O / HNO₃); Ores (Carbonate fusion in 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





CERTIFIED WEIGHT REPORT:

MS961 R-611/24

Part Number:

Solvent:

Lot #

Lot Number:
Description:

2%

5.0

Formulated By: Brian Geddes
041124

Reviewed By: Pedro L. Rentas
041124

041124

376

Expiration Date:

Recommended Storage:

Nominal Concentration (µg/mL):

NIST Test Number:

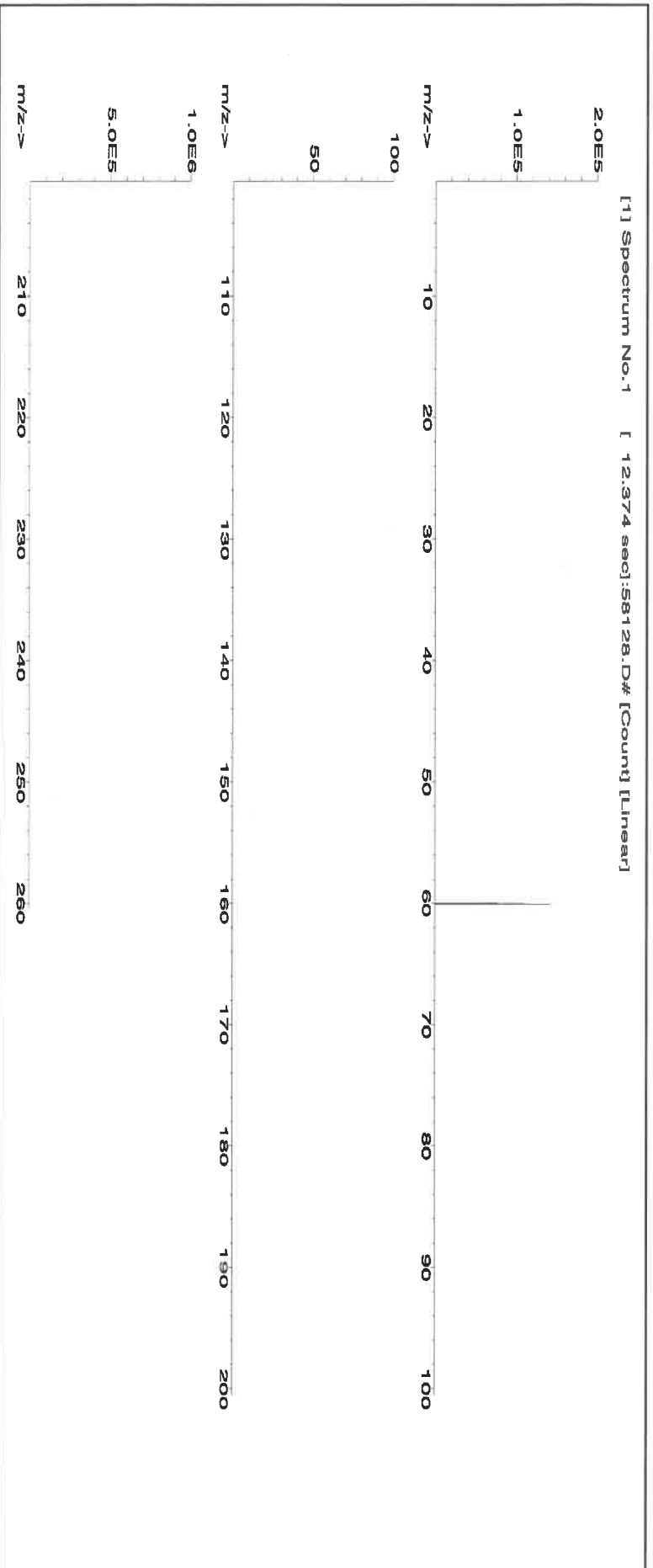
Weight shown below was diluted to (mL):

Compound

RM#	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Assay	Target Weight (g)	(Solvent Safety Info. On Attached pg.)					NIST
						Actual Weight (g)	Actual Conc. (µg/mL)	Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	

1. Nickel(II) nitrate hexahydrate (NI) IN033 NIM052023A1 1000 99.999 0.10 20.2 1.2369 1.2369 1000.0 2.0 13478-00-7 1 mg/m3 or-rat 1620 mg/kg 3136

[1] Spectrum No.1 [12.374 sec]:58128.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	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	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	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	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Bc	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	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	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	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM
M5962 **R1061424**



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57034
Lot Number: 060624
Description: Selenium (Se)

Lot # 24002546
Solvent: Nitric Acid

2.0% 40.0 (mL) Nitric Acid

Expiration Date: 060627

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

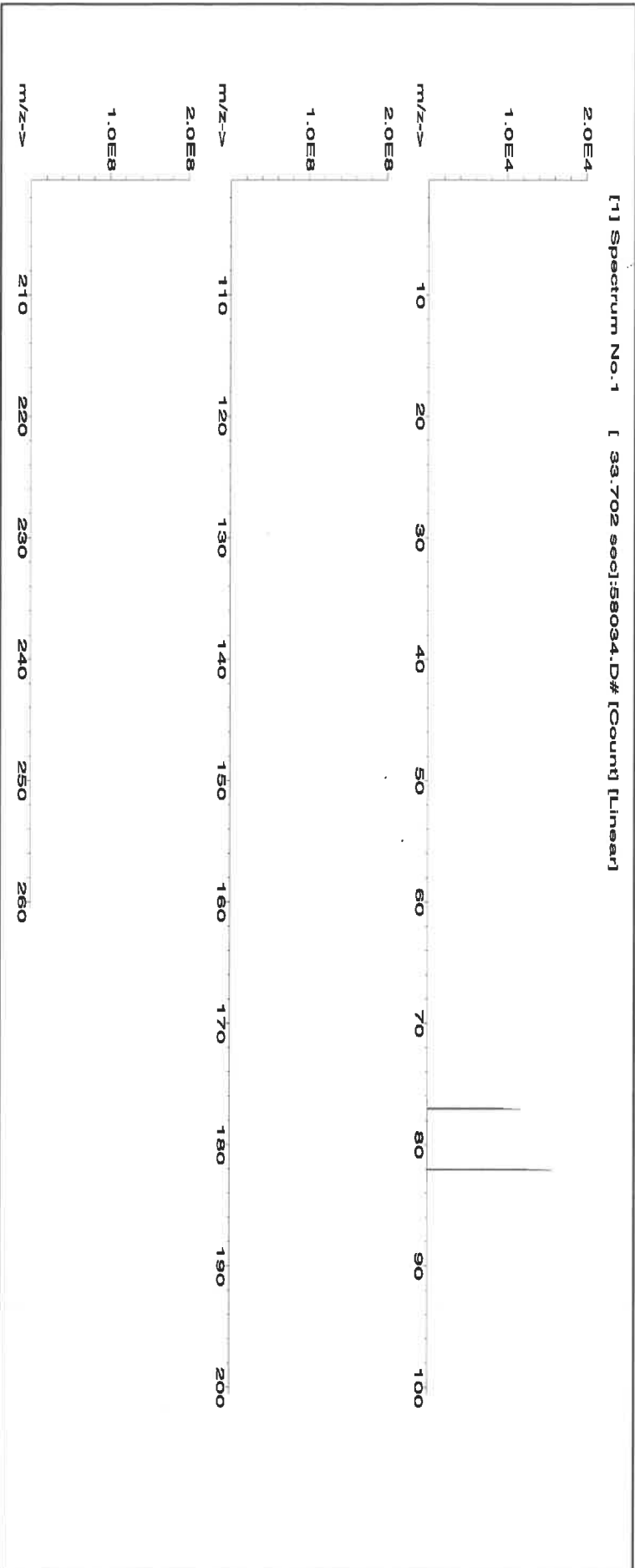
NIST Test Number: 6UTB

Volume shown below was diluted to (mL): 2000.07

SE-05 Balance Uncertainty
0.100 Flask Uncertainty

Formulated By:	Benson Chan
	060624
Reviewed By:	Pedro L. Rantas
	060624

SDS Information									
Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
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	31.49





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

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Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.02	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Sr	<0.02	S	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02			Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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: CGMO1
Lot Number: T2-MO720876
Matrix: H2O
tr. NH4OH
Value / Analyte(s): 1 000 µg/mL ea:
Molybdenum
Starting Material: Ammonium Molybdate
Starting Material Lot#: 2361
Starting Material Purity: 99.9893%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 998 ± 7 µg/mL
Density: 1.000 g/mL (measured at 20 ± 4 °C)
Assay Information:

Assay Method #1 **998 ± 4 µg/mL**
ICP Assay NIST SRM 3134 Lot Number: 130418

- 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	<	0.000590	M	Eu	<	0.000300	M	Na		0.000879	M	Se	<	0.008000	M	Zn		0.000598
M	Al		0.000563	M	Fe	<	0.006500	M	Nb	<	0.029000	i	Si	<		M	Zr	<	0.001800
M	As	<	0.002100	M	Ga	<	0.000300	i	Nd	<		M	Sm	<	0.000300				
M	Au	<	0.000300	M	Gd	<	0.000300	M	Ni	<	0.008000	M	Sn	<	0.008900				
M	B	<	0.003300	M	Ge	<	0.000300	M	Os	<	0.000590	M	Sr		0.000175				
M	Ba		0.001689	M	Hf	<	0.001800	i	P	<		M	Ta	<	0.004200				
M	Be	<	0.000890	M	Hg	<	0.003300	M	Pb	<	0.000300	M	Tb	<	0.000300				
M	Bi	<	0.000890	M	Ho	<	0.000300	M	Pd	<	0.001800	M	Te	<	0.021000				
O	Ca		0.006334	M	In	<	0.032000	M	Pr	<	0.013000	M	Th	<	0.000300				
O	Cd	<	0.026000	M	Ir	<	0.000300	M	Pt	<	0.000300	O	Ti	<	0.032000				
M	Ce	<	0.008300	M	K		0.130213	M	Rb		0.004575	M	Tl		0.001266				
M	Co		0.000598	M	La	<	0.000300	M	Re	<	0.000300	M	Tm	<	0.000300				
M	Cr		0.000527	O	Li		0.000059	M	Rh	<	0.000300	M	U	<	0.005300				
M	Cs		0.000527	M	Lu	<	0.000300	M	Ru	<	0.079000	M	V	<	0.000890				
M	Cu		0.002252	M	Mg		0.000563	i	S	<		M	W		0.087982				
M	Dy	<	0.000300	M	Mn	<	0.005900	M	Sb		0.001513	M	Y	<	0.000300				
M	Er	<	0.000300	s	Mo	<		M	Sc	<	0.001200	M	Yb	<	0.000300				

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 - 95.94 +6 6,7,8,9

[MoO₄]-2(chemical form as received)

Chemical Compatibility -Mo is received in a NH₄OH matrix giving the operator the option of using HCl or HF to stabilize acidic solutions. The [MoO₄]-2 is soluble in concentrated HCl [MoOCl₅]-2, dilute HF / HNO₃ [MoOF₅]-2 and basic media [MoO₄]-2. Stable at ppm levels with some metals provided it is fluorinated. Do not mix with Alkaline or Rare Earths when HF is present. Stable with most inorganic anions provided it is in the [MoO₄]-2 chemical form.

Stability - 2-100 ppb levels stable (alone or mixed with all other metals that are at comparable levels) as the [MoOF₅]-2 for months in 1% HNO₃ / LDPE container. 1-10,000 ppm single element solutions as the [MoO₄]-2 chemically stable for years in 1% NH₄OH in a LDPE container.

Mo Containing Samples (Preparation and Solution) -Metal (Soluble in HF / HNO₃ or hot dilute HCl); Oxide (soluble in HF or NH₄OH) ; Organic Matrices (Dry ash at 450EC in Pt0 and dissolve oxide with HF or 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 95 amu	3 ppt	n/a	40Ar39K16O,79Br16O,190Os2+,190Pt2+
ICP-OES 202.030 nm	0.008 / 0.0002 µg/mL	1	Os, Hf
ICP-OES 203.844 nm	0.012 / 0.002 µg/mL	1	
ICP-OES 204.598 nm	0.012 / 0.001 µg/mL	1	Ir, Ta

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: 800.569.6798; 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 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

- July 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 Prepared By:

Uyen Truong
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Technical



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



M5976, M5977

R: 02/22/24

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGMO1
Lot Number: T2-MO720876
Matrix: H2O
tr. NH4OH
Value / Analyte(s): 1 000 µg/mL ea:
Molybdenum
Starting Material: Ammonium Molybdate
Starting Material Lot#: 2361
Starting Material Purity: 99.9893%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 998 ± 7 µg/mL
Density: 1.000 g/mL (measured at 20 ± 4 °C)
Assay Information:

Assay Method #1 998 ± 4 µg/mL
ICP Assay NIST SRM 3134 Lot Number: 130418

- 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	<	0.000590	M	Eu	<	0.000300	M	Na		0.000879	M	Se	<	0.008000	M	Zn		0.000598
M	Al		0.000563	M	Fe	<	0.006500	M	Nb	<	0.029000	i	Si	<		M	Zr	<	0.001800
M	As	<	0.002100	M	Ga	<	0.000300	i	Nd	<		M	Sm	<	0.000300				
M	Au	<	0.000300	M	Gd	<	0.000300	M	Ni	<	0.008000	M	Sn	<	0.008900				
M	B	<	0.003300	M	Ge	<	0.000300	M	Os	<	0.000590	M	Sr		0.000175				
M	Ba		0.001689	M	Hf	<	0.001800	i	P	<		M	Ta	<	0.004200				
M	Be	<	0.000890	M	Hg	<	0.003300	M	Pb	<	0.000300	M	Tb	<	0.000300				
M	Bi	<	0.000890	M	Ho	<	0.000300	M	Pd	<	0.001800	M	Te	<	0.021000				
O	Ca		0.006334	M	In	<	0.032000	M	Pr	<	0.013000	M	Th	<	0.000300				
O	Cd	<	0.026000	M	Ir	<	0.000300	M	Pt	<	0.000300	O	Tl	<	0.032000				
M	Ce	<	0.008300	M	K		0.130213	M	Rb		0.004575	M	Tl		0.001266				
M	Co		0.000598	M	La	<	0.000300	M	Re	<	0.000300	M	Tm	<	0.000300				
M	Cr		0.000527	O	Li		0.000059	M	Rh	<	0.000300	M	U	<	0.005300				
M	Cs		0.000527	M	Lu	<	0.000300	M	Ru	<	0.079000	M	V	<	0.000890				
M	Cu		0.002252	M	Mg		0.000563	i	S	<		M	W		0.087982				
M	Dy	<	0.000300	M	Mn	<	0.005900	M	Sb		0.001513	M	Y	<	0.000300				
M	Er	<	0.000300	s	Mo	<		M	Sc	<	0.001200	M	Yb	<	0.000300				

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 - 95.94 +6 6,7,8,9

[MoO4]-2(chemical form as received)

Chemical Compatibility -Mo is received in a NH4OH matrix giving the operator the option of using HCl or HF to stabilize acidic solutions. The [MoO4]-2 is soluble in concentrated HCl [MoOCl5]-2, dilute HF / HNO3 [MoOF5]-2 and basic media [MoO4]-2. Stable at ppm levels with some metals provided it is fluorinated. Do not mix with Alkaline or Rare Earths when HF is present. Stable with most inorganic anions provided it is in the [MoO4]-2 chemical form.

Stability - 2-100 ppb levels stable (alone or mixed with all other metals that are at comparable levels) as the [MoOF5]-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the [MoO4]-2 chemically stable for years in 1% NH4OH in a LDPE container.

Mo Containing Samples (Preparation and Solution) -Metal (Soluble in HF / HNO3 or hot dilute HCl); Oxide (soluble in HF or NH4OH) ; Organic Matrices (Dry ash at 450EC in Pt0 and dissolve oxide with HF or 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 95 amu	3 ppt	n/a	40Ar39K16O,79Br16O,190Os2+,190Pt2+
ICP-OES 202.030 nm	0.008 / 0.0002 µg/mL	1	Os, Hf
ICP-OES 203.844 nm	0.012 / 0.002 µg/mL	1	
ICP-OES 204.598 nm	0.012 / 0.001 µg/mL	1	Ir, Ta

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: 800.669.6798; 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 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

- July 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 Prepared By:

Uyen Truong
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Technical



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Certificate of Analysis

Refine your results. Redefine your industry.

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

R: 2/22/24

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com



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).

1.0 ACCREDITATION / REGISTRATION

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

1 000 µg/mL ea.

Titanium

Ti Metal

Starting Material Lot#: 2094

Starting Material Purity: 99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Method #1

1002 ± 4 µg/mL

ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods
Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = (X_p / U_{CRM})$

X_p = mean of Assay Method A with

U_{CRM} = the standard uncertainty of characterization Method A

k = coverage factor = 2

$U_{CRM} = k \sqrt{U_{CRM}^2 + U_{LAB}^2 + U_{ST}^2 + U_{TR}^2}$

U_{LAB} = the mean from characterization

U_{ST} = bottle to bottle homogeneity standard uncertainty

U_{TR} = long term stability standard uncertainty (storage)

U_{CRM} = transport stability standard uncertainty

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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	<	0.00096		
O B	<	0.008929	M Ge	<	0.002146	M Os	<	0.000269	O Sr	<	0.00096		
M Ba	<	0.002683	M Hf	<	0.002161	O P	<	0.054450	M Ta	<	0.010560		
M Be	<	0.005366	M Hg	<	0.003231	M Pb	<	0.001073	M Tb	<	0.000268		
M Bi	<	0.001609	M Ho	<	0.000268	M Pd	<	0.000268	M Th	<	0.001341		
O Ca	<	0.000676	M In	<	0.002683	M Pr	<	0.000268	M Tl	<	0.053663		
M Cd	<	0.000268	M Ir	<	0.000269	M Pt	<	0.000536	S Ti	<			
M Co	<	0.000268	M K	<	0.001172	M Rb	<	0.000268	M Tl	<	0.000268		
M Cr	<	0.000752	O Li	<	0.002268	M Re	<	0.000268	M Tm	<	0.000268		
M Cs	<	0.000268	M Lu	<	0.000268	M Rh	<	0.000268	M U	<	0.000268		
O Cu	<	0.010890	O Mg	<	0.005445	I S	<	0.006976	M Y	<	0.002146		
M Dy	<	0.000268	O Mn	<	0.003267	M Sb	<	0.004900	M Yb	<	0.000536		
M Er	<	0.000268	M Mo	<	0.000774	O Sc	<	0.004900	M Yb	<	0.000536		

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 ± 4.6 Ti(F)₆-2 media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)₆-2 for months in 1% HNO₃ / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)₆-2 chemically stable for years in 2-5% HNO₃ / trace HF in an LDPE container.

TI Containing Samples (Preparation and Solution) - Metal (Soluble in H₂O / HF caution - powder reacts violently). Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H₂O / HF / H₂SO₄); K₂SiO₇ - no KF if silica not present); Organic Matrices (Dry ash at 450EC in P10 and dissolve by heating with 1:1:1 H₂O / HF / H₂SO₄ or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystaline form).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

ICP-MS 48 amu	14 ppt	N/A	Order	Interferences (underlined indicates severe)
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	32S16O, 32S14N,	14N16O18O,
ICP-OES 334.941 nm	0.0038 / 0.00028 µg/mL	1	14N17N2, 36Ar12C,	48Ca, [96X=2
ICP-OES 336.121 nm	0.0053 / 0.00034 µg/mL	1	W, Mo, Co	
		1	Nb, Ta, Cr, U	
		1	Ce, Ar, Ni	
		1	Ru]]	

(where X = Zr, Mo,

8.0

HAZARDOUS INFORMATION

HF Note: This standard should not be prepared or stored in glass.

9.0

HOMOGENEITY

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

10.0

QUALITY STANDARD DOCUMENTATION

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY
Inorganic Ventures, 300 Technology Drive, Chesapeake, VA 24073, USA. Telephone: 800.868.6786; 540.565.3030; Fax: 540.565.3030; Email: info@inorganicventures.com

11.1 Certification Issue Date
June 17, 2022

11.2 Lot Expiration Date
- 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.

11.3 Period of Validity
- 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.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS
- 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.

Certificate Approved By: Thomas Kozlikowski
Manager, Quality Control

Certifying Officer: Paul Gaines
Chairman / Senior Technical Director

Paul R. Gaines

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
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info@inorganicventures.com

M5985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGIN10
Lot Number: U2-IN729349
Matrix: 5% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Indium
Starting Material: Indium Metal
Starting Material Lot#: 2511
Starting Material Purity: 99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL
Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10021 ± 56 µg/mL ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	10035 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	10001 ± 33 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{char i}^2) / (\sum (1/u_{char i}^2))$$

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

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_{Its} = 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

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{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)

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



300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

M6074

M6075

M6076

M6077

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

EXP: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746762
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 5 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 000 ± 6 µg/mL		

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum(w_i)(X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum(1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2(u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a)(u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 06, 2029**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Nitric Acid 69%
CMOS

avantor™



R → 10/13/24
Metali g

Material No.: 9606-03
Batch No.: 2310662003
Manufactured Date: 2023-08-21
Retest Date: 2028-08-19
Revision No.: 0

M 6120

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.5 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	10
Residue after Ignition	≤ 2 ppm	< 2 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.08 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.10 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 40.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 5.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 20.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 50 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	< 50.0 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	30.0 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 20 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 20 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 100 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 40.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 20.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 20 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 20.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

 **avantorsTM**



Material No.: 9606-03
Batch No.: 2310662003

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 50.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 50 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 50 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 20.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 150.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 30.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 20.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 20.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 10.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	60 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	10 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantor™**

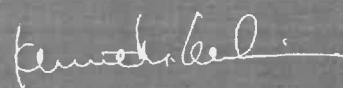


Material No.: 9606-03
Batch No.: 2310662003

Test	Specification	Result
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For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



Ken Koehnlein
Sr. Manager, Quality Assurance

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Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™



R → 16/13/24
Met dig

M 6121

Material No.: 9530-33
Batch No.: 0000275677
Manufactured Date: 2020/12/16
Retest Date: 2025/12/15
Revision No: 1

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
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.190
ACS – Bromide (Br)	≤ 0.005 %	< 0.005
ACS – Extractable Organic Substances	≤ 5 ppm	1
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5
Phosphate (PO ₄)	≤ 0.05 ppm	< 0.03
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3
Sulfite (SO ₃)	≤ 0.8 ppm	0.3
Ammonium (NH ₄)	≤ 3 ppm	< 1
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	≤ 5 ppb	< 3
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 0.2
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	29.7
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	< 0.4
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

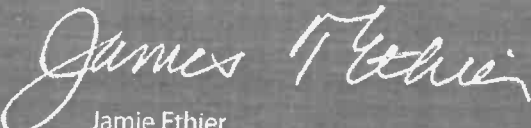
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

403

Test	Specification	Result
Trace Impurities – Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities – Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities – Iron (Fe)	<= 15.0 ppb	< 1
Trace Impurities – Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	0.2
Trace Impurities – Magnesium (Mg)	<= 10.0 ppb	0.4
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities – Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities – Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	< 0.2
Trace Impurities – Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities – Selenium (Se), For Information Only	ppb	1.0
Trace Impurities – Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Titanium (Ti)	<= 1.0 ppb	0.2
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg 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 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

Nitric Acid 69%
CMOS

avantor™



R → 11/12/24

M6126

Material No.: 9606-03
Batch No.: 24D1062002
Manufactured Date: 2024-03-26
Retest Date: 2029-03-25
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

 **avantor**TM



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

406



CERTIFIED WEIGHT REPORT:

Part Number: 58112
Lot # 24012496
Description: Magnesium (Mg)
Solvent: Nitric Acid

Expiration Date: 11/13/25
Recommended Storage: Ambient (20 °C)
Nitric Acid 2% (40.0 mL)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6LUB

Weight shown below was diluted to (mL): 2000.07 0.100 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Rentas
	112124

Compound

Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	SDS Information	NIST
RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	(Solvent Safety Info. On Attached pg.)	SRM
								± (µg/mL)	OSHA PEL (TWA)	LD50

1. Magnesium nitrate hexahydrate (Mg) IN030 MG000023A1 10000 99.999 0.10 8.51 234.9183 234.9459 10001.2 20.0 13446-18-9 NA off-rat 5440 mg/kg 3131a

[1] Spectrum No. 1 [19.823 sec]:58112.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	Rc	<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	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	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	Sm	<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	Sc	<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			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:

58025
101124
Manganese (Mn)

R-71113128

Lot #
Solvent: 24002546 Nitric Acid

Expiration Date:

101127

2% 80.0 (mL) Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

4000.2 0.10 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Renteria</i>
	101124

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
-----	------------	-----------------------	------------	------------------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

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													
2.5E6													
m/z->	10	20	30	40	50	60	70	80	90	100			
1.0E6													
5.0E7													
m/z->	110	120	130	140	150	160	170	180	190	200			
1.0E6													
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).



CERTIFIED WEIGHT REPORT:

Part Number: 58111
Lot Number: 072424
Description: Sodium (Na)

Lot #

R-1113/25

Solvent: 24002546 Nitric Acid

Expiration Date: 072427
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

M6144

2% 80.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): 4000.2 0.10 Flask Uncertainty

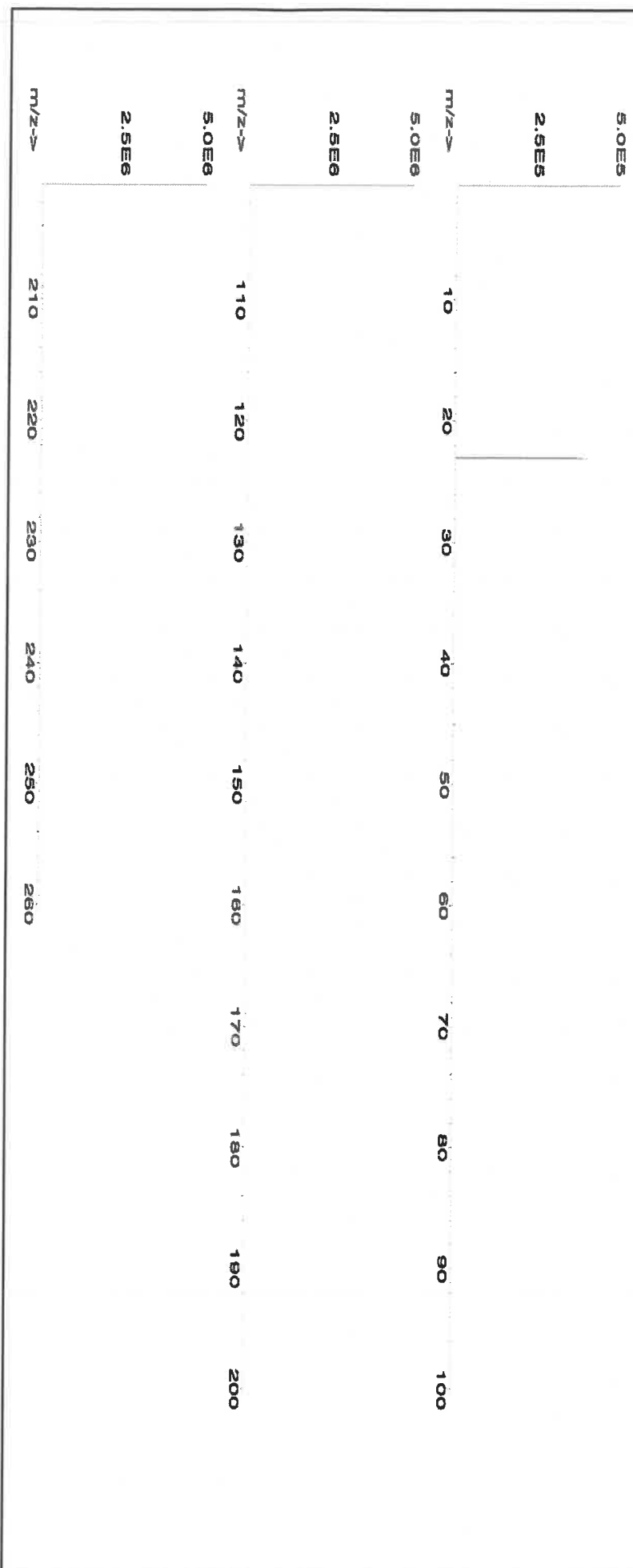
Formulated By:	Benson Chan	072424
Reviewed By:	Pedro L. Renteria	072424

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)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Sodium nitrate (Na) IN036 NAV01201511 10000 99.999 0.10 26.9 148.7096 ##### 10000.0 20.0 7631-99-4 5 mg/m3 orl-rat 3430 mg/kg 3152a

[1] Spectrum No. 1 [8.935 sec]:58111.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

412

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rb	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	T	Tb	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 58111
Lot Number: 122223
Description: Sodium (Na)

Solvent: 24002546 Nitric Acid

Lot #

Aleah O Brady
Formulated By: Aleah O Brady

122223

Expiration Date: 122226

2% 60.0 Nitric Acid
(mL)

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB 5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 3000.4 0.06 Flask Uncertainty

Pedro L Rentas
Reviewed By: Pedro L Rentas

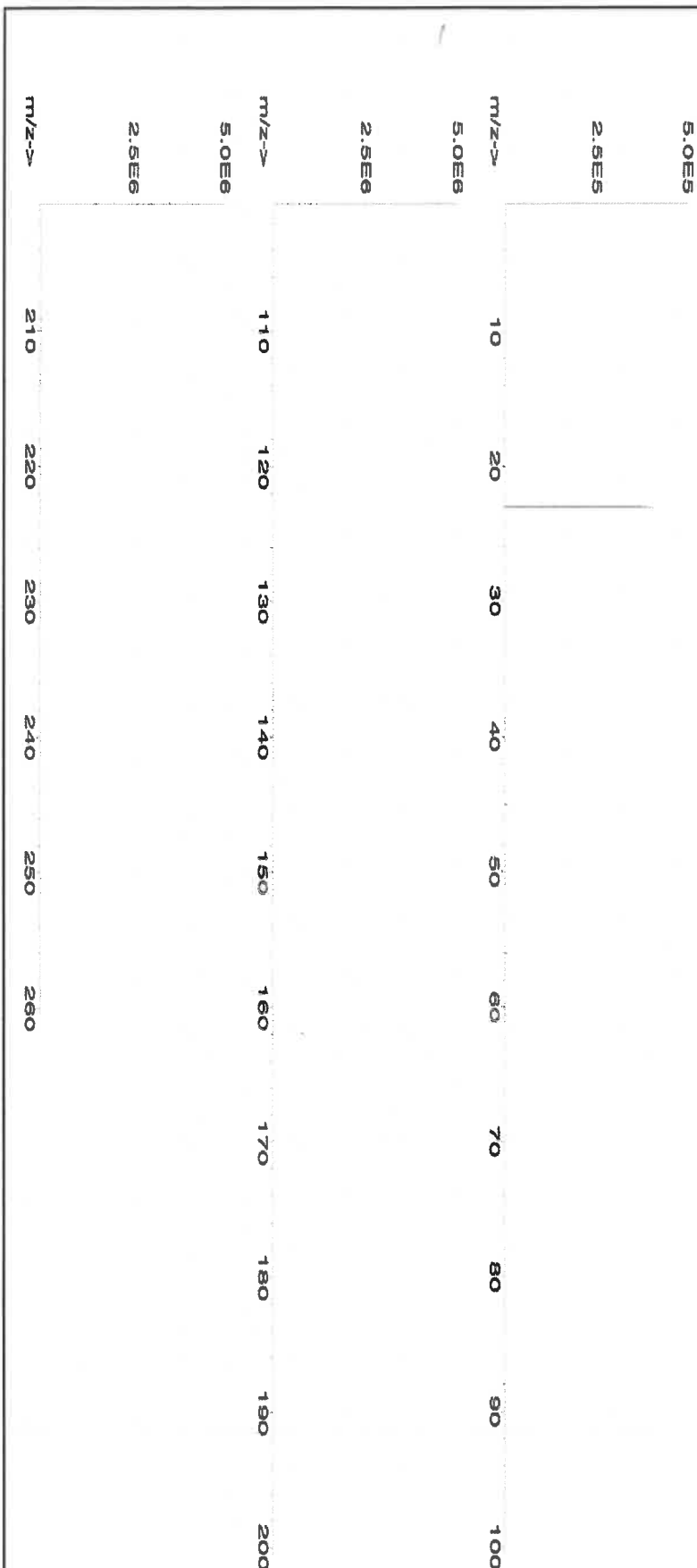
122223

SDS Information

Compound	Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	(Solvent Safety Info. On Attached pg.)	NIST
RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	CAS#	SRM

1. Sodium nitrate (Na) IN036 NAV01201511 10000 99.999 0.10 26.9 111.5406 111.5479 10000.7 20.0 7631-99-4 5 mg/m3 or-trat 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	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	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	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	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	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	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	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:

57051
120523
Antimony (Sb)

Lot #
Solvent:

24002546
Nitric Acid

2.0%

60.0
(mL)
Nitric Acid

Formulated By: *Lawrence Barry*
Lawrence Barry
120523

Reviewed By: *Pedro L. Renteria*
Pedro L. Renteria
120523

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):

120526
Ambient (20 °C)
1000

NIST Test Number:

6U7B

Volume shown below was diluted to (mL):

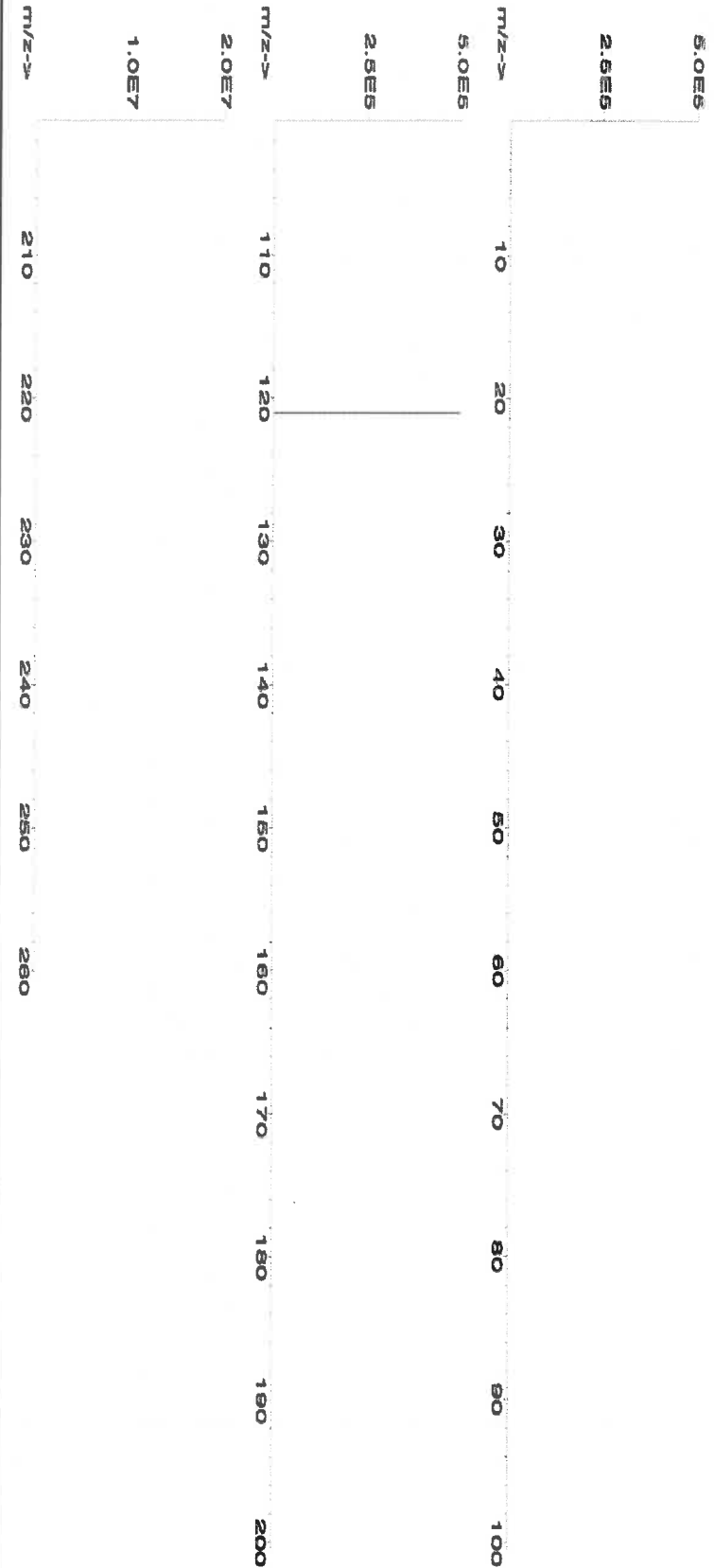
3000.41
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Antimony (Sb)	58151	100923	0.1000	300.0	0.084	1000	10001.4	1000.0	2.1	7440-36-0	0.5 mg/m3	or-rel 7000 mg/kg	3102a
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[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	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	T	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
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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).



M6030



CERTIFIED WEIGHT REPORT:

Part Number: **57047**
Lot Number: **122823**
Description: **Silver (Ag)**

Lot #
Solvent: 24002546 Nitric Acid

Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas
	122823

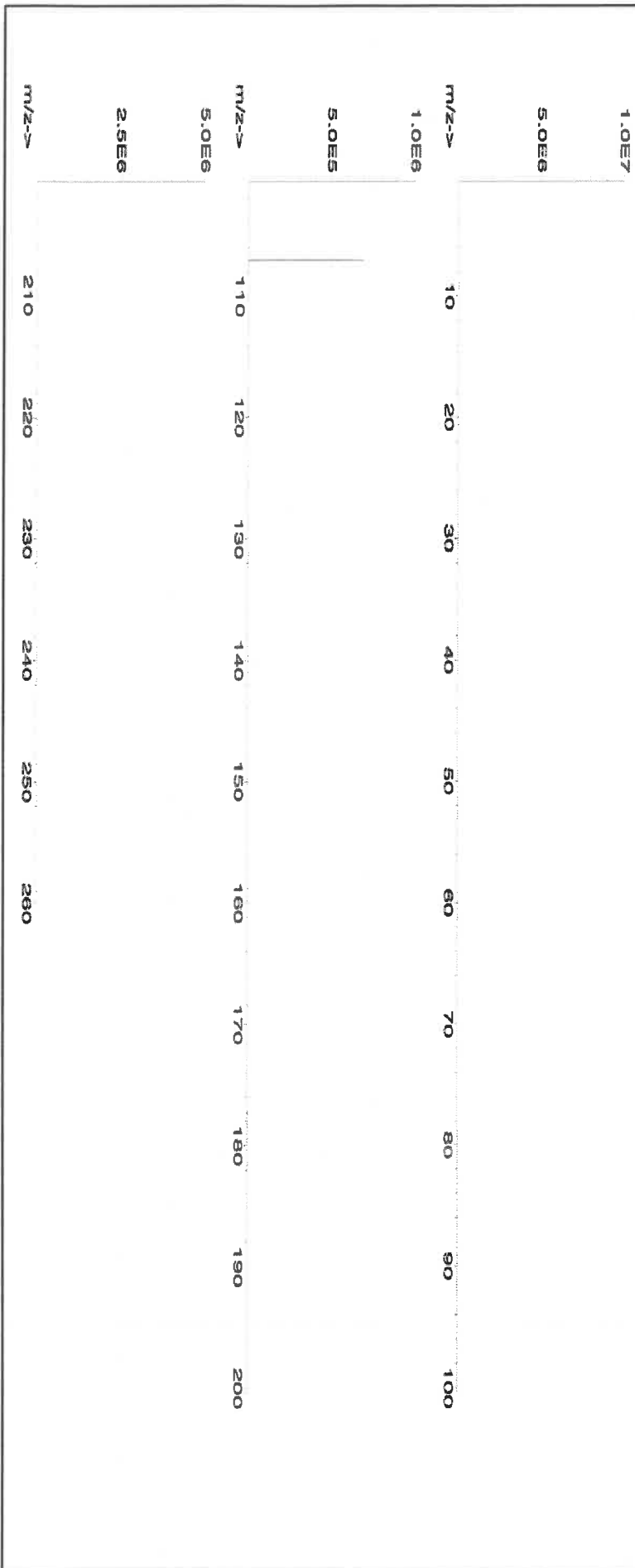
2% 80.0 (mL) Nitric Acid

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty		CAS#	SDS Information		NIST SRM
										+/- (µg/mL)	(µg/mL)		(Solvent Safety Info. On Attached pg.)	OSHA PEL (TWA)	

1. Silver nitrate (Ag)	IN035	J0612AGA1	1000.0	99.9996	0.10	63.7	6.27992	6.27998	1000.0	2.0	7761-88-8	10 µg/m ³	NA		3151
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[1] Spectrum No. 1 [14.044 sec]:58147.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

418

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	T	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 meghom deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

R: 8/5/24

M6019

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.comP: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com**1.0 ACCREDITATION / REGISTRATION**

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

**2.0 PRODUCT DESCRIPTION**

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGSR1
Lot Number: U2-SR730227
Matrix: 0.1% (v/v) HNO₃
Value / Analyte(s): 1 000 µg/mL ea:
Strontium
Starting Material: SrCO₃
Starting Material Lot#: M2-2192
Starting Material Purity: 99.9993%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1001 ± 3 µg/mL
Density: 1.000 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	998 ± 4 µg/mL ICP Assay NIST SRM Traceable to 3153a Lot Number: K2-SR650985
Assay Method #2	1001 ± 3 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	1001 ± 2 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

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	<	0.001980	M	Eu	<	0.000495	O	Na	0.000200	M	Se	<	0.013862	O	Zn	0.000143	
O	Al	0.000370	O	Fe	0.000410	M	Nb	<	0.000495	i	Si	<			M	Zr	<	0.000495
M	As	<	0.000495	M	Ga	<	0.000495	M	Nd	<	0.000495	M	Sm	<	0.000495			
M	Au	<	0.000989	M	Gd	<	0.000495	O	Ni	<	0.007631	M	Sn	<	0.000990			
M	B	<	0.039606	M	Ge	<	0.000495	M	Os	<	0.000494	s	Sr	<				
M	Ba	0.006486	M	Hf	<	0.000495	i	P	<			M	Ta	<	0.000495			
M	Be	<	0.000990	M	Hg	<	0.000989	M	Pb	<	0.002970	M	Tb	<	0.000495			
M	Bi	<	0.000495	M	Ho	<	0.000495	M	Pd	<	0.003957	M	Te	<	0.027724			
O	Ca	0.004255	M	In	<	0.000495	M	Pr	<	0.000495	M	Th	<	0.000990				
M	Cd	0.001339	M	Ir	<	0.000494	M	Pt	<	0.002970	M	Ti	<	0.005940				
M	Ce	<	0.004950	O	K	<	0.008184	M	Rb	<	0.002970	M	Tl	<	0.000495			
M	Co	<	0.000495	M	La	<	0.000495	M	Re	<	0.000495	M	Tm	<	0.000495			
O	Cr	<	0.003207	O	Li	<	0.000884	O	Rh	<	0.012829	M	U	<	0.001485			
M	Cs	<	0.000990	M	Lu	<	0.002970	M	Ru	<	0.000989	M	V	<	0.001980			
M	Cu	0.000099	O	Mg	0.000064	i	S	<				M	W	<	0.003960			
M	Dy	<	0.000495	O	Mn	0.000066	M	Sb	<	0.014852	O	Y	<	0.000995				
M	Er	<	0.000495	M	Mo	<	0.001980	M	Sc	<	0.001980	M	Yb	<	0.000495			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 87.62 +2 6 Sr(H₂O)₆+2

Chemical Compatibility - Soluble in HCl, and HNO₃. Avoid H₂SO₄, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO₃ / LDPE container.

Sr Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO₃); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Dry ash and dissolution in dilute HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 88 amu	1200 ppt	N/A	72Ge16O, 176Yb+2, 176Lu+2 , 176Hf+2
ICP-OES 407.771 nm	0.0004 / 0.00006 µg/mL	1	U, Ce
ICP-OES 421.552 nm	0.0008 / 0.00004 µg/mL	1	Rb
ICP-OES 460.733 nm	0.07 / 0.003 µg/mL	1	Ce

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 03, 2023

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- March 03, 2028

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

R: 03/16/23 MS473 MS474 MS475 MS476

Lot #

Part Number:

Solvent: 20510011 Nitric Acid

Lot Number:

2% 20.0 Nitric Acid

Description:

2% 20.0 Nitric Acid

Expiration Date:

2% 20.0 Nitric Acid

Recommended Storage:

2% 20.0 Nitric Acid

Nominal Concentration (µg/mL):

2% 20.0 Nitric Acid

NIST Test Number:

2% 20.0 Nitric Acid

Weight shown below was diluted to (mL):

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	082922
Reviewed By:	Pedro L. Renteria	082922

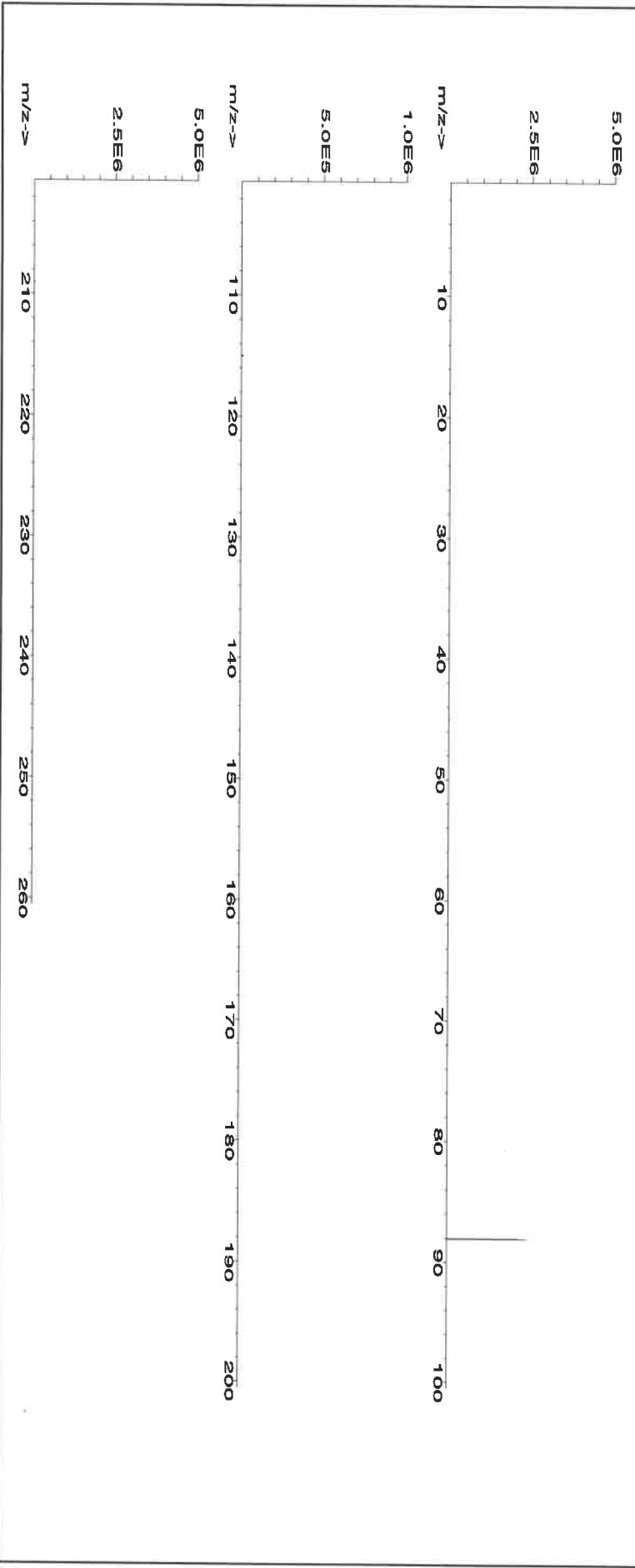
SDS Information

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	NIST SRM
-----	------------	-----------------------	------------	-----------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1.	Strontium nitrate (Sr)	IN017	SR2022018A1	10000	99.997	0.10	41.2	24.2756	24.2758	10000.1	20.0	10042-76-9	NA	or-rat >2000mg/kg 3153a
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[1] Spectrum No. 1 [14.495 sec]: 58138.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	T	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57081
Lot Number: 062724
Description: Thallium (TI)

Lot #

Solvent: 24002546 Nitric Acid

Aleah O'Brady
Formulated By: Aleah O'Brady 062724

Expiration Date:

062727

2% 40.0 Nitric Acid (mL)

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 2000.1 0.10 Flask Uncertainty

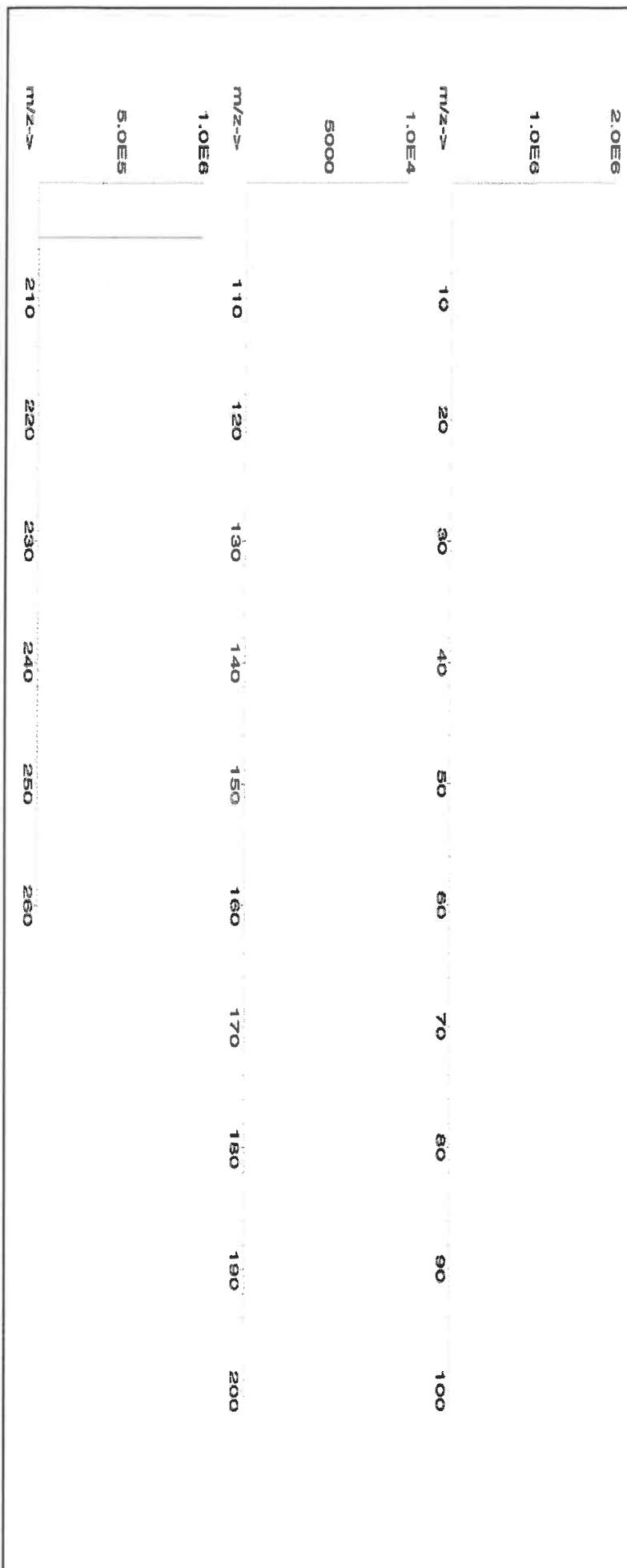
Pedro L. Rendas
Reviewed By: Pedro L. Rendas 062724

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
----------	------------	-----------------------	------------	-----------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

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):

426

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	Sc	<0.02	Ta	<0.02			Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

M6021



CERTIFIED WEIGHT REPORT:

Part Number: **57023**
Lot Number: **062424**
Description: **Vanadium (V)**

Lot # **24002546**
Solvent: **Nitric Acid**

<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
Reviewed By:	Pedro L. Rantas

<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
Reviewed By:	Pedro L. Rantas

Expiration Date: **062427**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**

2.0%

40.0 (mL)

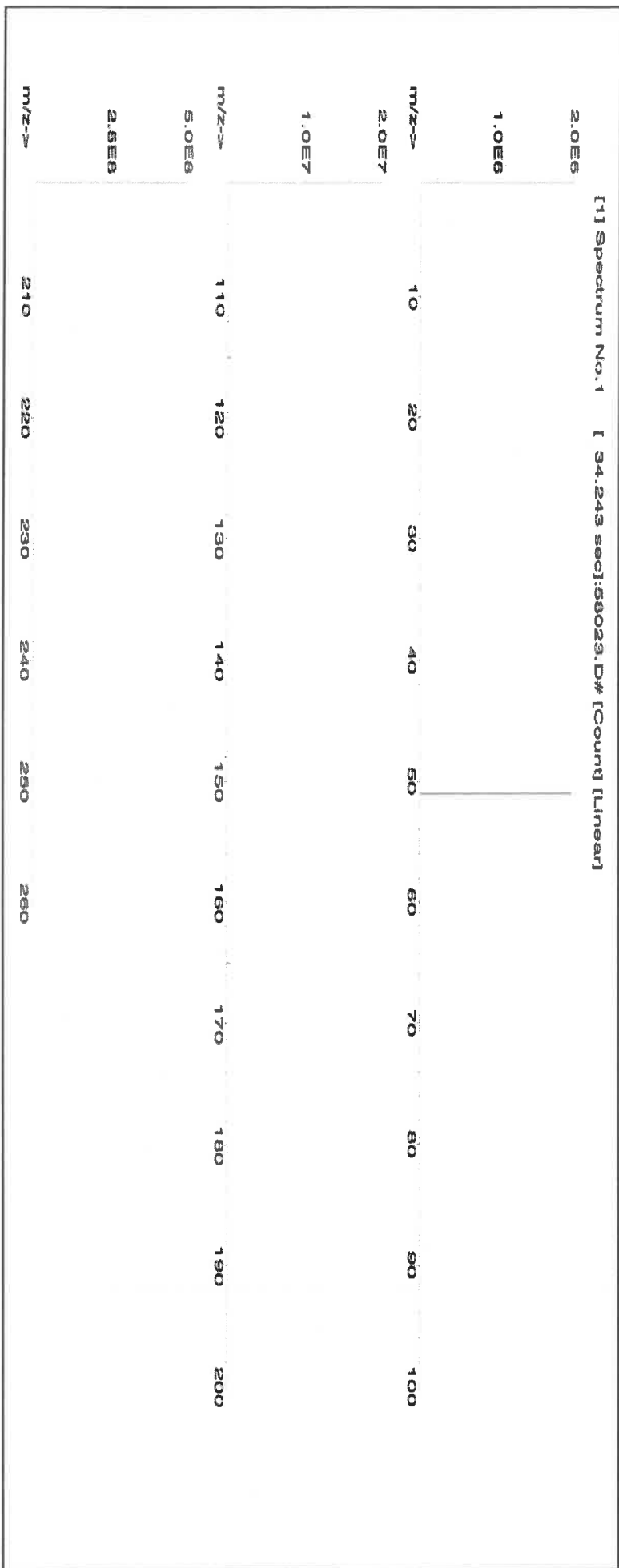
Nitric Acid

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 (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
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]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

428

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	T
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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).

JS
02/03/25

M200.7-Trace Elements-22

SOP ID : M3010A-Digestion-17, MSFAM01.1-Trace Metals-2

SDG No : YE8F7

Start Digest Date: 01/24/2025 **Time :** 12:05 **Temp :** 96 °C

Matrix : WATER

End Digest Date: 01/24/2025 **Time :** 14:10 **Temp :** 96 °C

Pipette ID: ICP A

Digestion tube ID: M5595

Balance ID : N/A

Block thermometer ID: MET-DIG. #1

Filter paper ID : N/A

Dig Technician Signature: SJS.

pH Strip ID : M6069

Supervisor Signature: [Signature]

Hood ID : #3

Temp : 1. 96°C 2. N/A

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

Standard Name	MLS USED	STD REF. # FROM LOG
LCSS	1.00	MP84063
Spike Sol 6	1.00	MP84070
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
1:1 HNO3	1.00	MP84041
1:1 HCL	0.50	MP84297 MP83499
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

SJ
02/03/25

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK #1 CELL #55 : 96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
01/27/25 13:10	SJS. met dig.	[Signature]
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
PB166225BL	PBW225	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	1
PB166225BS	LCS225	<2	50	50	Colorless	Colorless	Clear	Clear	MP84063	2
PB166225TB	LEB225	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	19
Q1136-01	YE8F5	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	3
Q1136-02	YE8F7	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	4
Q1136-03	YE8F7D	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	5
Q1136-04	YE8F7S	<2	50	50	Colorless	Colorless	Clear	Clear	MP84070	6
Q1136-05	YE8F8	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	7
Q1136-06	YE8E3	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	8
Q1136-07	YE8E4	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	9
Q1136-08	YE8E5	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	10
Q1136-09	YE8E6	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	11
Q1136-10	YE8E7	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	12
Q1136-11	YE8E8	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	13
Q1136-12	YE8D1	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	14
Q1136-13	YE8D2	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	15
Q1136-14	YE8D4	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	16
Q1136-15	YE8C3	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	17
Q1136-17	YE8D5	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	18

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134438

Review By	Sarabjit Jaswal	Review On	1/28/2025 6:59:17 AM
Supervise By	Kareem Khairalla	Supervise On	1/28/2025 12:16:01 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84204,MP84212,MP84210,MP84209,MP84208,MP84207,MP84206		
ICV Standard	MP84213		
CCV Standard	MP84216		
ICSA Standard	MP84214,MP84215		
CRI Standard			
LCS Standard	MP84063		
Chk Standard	MP84218,MP84219		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	01/27/25 14:23		Kareem	OK
2	S1	S01	CAL2	01/27/25 14:27		Kareem	OK
3	S2	S02	CAL3	01/27/25 14:32		Kareem	OK
4	S3	S03	CAL4	01/27/25 14:36		Kareem	OK
5	S4	S04	CAL5	01/27/25 14:40		Kareem	OK
6	S5	S05	CAL6	01/27/25 14:44		Kareem	OK
7	S6	S06	CAL7	01/27/25 14:48		Kareem	OK
8	ICV003	ICV003	ICV	01/27/25 15:41	Inst. paused for calibration review	Kareem	OK
9	ICB003	ICB003	ICB	01/27/25 15:45		Kareem	OK
10	ICSA003	ICSA003	ICSA	01/27/25 15:56	Inst. paused for review	Kareem	OK
11	ICSAB003	ICSAB003	ICSAB	01/27/25 16:01		Kareem	OK
12	CCV021	CCV021	CCV	01/27/25 16:10	Inst. paused for review	Kareem	OK
13	CCB021	CCB021	CCB	01/27/25 16:14		Kareem	OK
14	Q1106-01DL	YE8G3	SAM	01/27/25 16:19	2x for Ca	Kareem	Confirms
15	Q1106-02DL	YE8G5	SAM	01/27/25 16:23	2x for Mn	Kareem	Confirms
16	Q1106-07DL	YE8H1	SAM	01/27/25 16:27	2x for Mn	Kareem	Confirms
17	Q1106-12DL	YE8H6	SAM	01/27/25 16:31	2x for Mn	Kareem	Confirms
18	Q1045-17DL	GCCQ12	SAM	01/27/25 16:39	2x for Ba	Kareem	Confirms

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134438

Review By	Sarabjit Jaswal	Review On	1/28/2025 6:59:17 AM
Supervise By	Kareem Khairalla	Supervise On	1/28/2025 12:16:01 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84204,MP84212,MP84210,MP84209,MP84208,MP84207,MP84206		
ICV Standard	MP84213		
CCV Standard	MP84216		
ICSA Standard	MP84214,MP84215		
CRI Standard			
LCS Standard	MP84063		
Chk Standard	MP84218,MP84219		

19	PB166225TB	LEB225	MB	01/27/25 16:43		Kareem	OK
20	Q1136-01	YE8F5	SAM	01/27/25 16:47		Kareem	OK
21	Q1136-02	YE8F7	SAM	01/27/25 16:56	NOT USE	Kareem	Not Ok
22	Q1105-01DL	YE8G3	SAM	01/27/25 17:00	5x for Ca	Kareem	Confirms
23	Q1136-03	YE8F7D	DUP	01/27/25 17:04	NOT USE	Kareem	Not Ok
24	Q1136-02L	YE8F7L	SD	01/27/25 17:08	NOT USE	Kareem	Not Ok
25	Q1136-04	YE8F7S	MS	01/27/25 17:12	NOT USE	Kareem	Not Ok
26	Q1136-05	YE8F8	SAM	01/27/25 17:16		Kareem	OK
27	Q1136-06	YE8E3	SAM	01/27/25 17:20		Kareem	OK
28	Q1136-07	YE8E4	SAM	01/27/25 17:24		Kareem	OK
29	Q1136-08	YE8E5	SAM	01/27/25 17:28		Kareem	OK
30	Q1136-09	YE8E6	SAM	01/27/25 17:32		Kareem	OK
31	Q1136-10	YE8E7	SAM	01/27/25 17:36		Kareem	OK
32	Q1136-11	YE8E8	SAM	01/27/25 17:40		Kareem	OK
33	Q1136-12	YE8D1	SAM	01/27/25 17:44		Kareem	OK
34	CCV022	CCV022	CCV	01/27/25 17:57		Kareem	OK
35	CCB022	CCB022	CCB	01/27/25 18:01		Kareem	OK
36	Q1136-13	YE8D2	SAM	01/27/25 18:05		Kareem	OK
37	Q1136-14	YE8D4	SAM	01/27/25 18:09		Kareem	OK
38	Q1136-15	YE8C3	SAM	01/27/25 18:13		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134438

Review By	Sarabjit Jaswal	Review On	1/28/2025 6:59:17 AM
Supervise By	Kareem Khairalla	Supervise On	1/28/2025 12:16:01 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84204,MP84212,MP84210,MP84209,MP84208,MP84207,MP84206		
ICV Standard	MP84213		
CCV Standard	MP84216		
ICSA Standard	MP84214,MP84215		
CRI Standard			
LCS Standard	MP84063		
Chk Standard	MP84218,MP84219		

39	Q1136-17	YE8D5	SAM	01/27/25 18:17		Kareem	OK
40	PB166225BL	PBW225	MB	01/27/25 18:21		Kareem	OK
41	PB166225BS	LCS225	LCS	01/27/25 18:26		Kareem	OK
42	Q1151-01	MC0AZ0	SAM	01/27/25 18:30	NOT USE	Kareem	Not Ok
43	Q1151-02	MC0AZ1	SAM	01/27/25 18:34	Co,Ni high	Kareem	Dilution
44	Q1151-03	MC0AZ2	SAM	01/27/25 18:38	Co,Ni high	Kareem	Dilution
45	Q1151-04	MC0AZ3	SAM	01/27/25 18:42		Kareem	OK
46	Q1151-05	MC0AZ4	SAM	01/27/25 18:46	Co high	Kareem	Dilution
47	Q1151-06	MC0AZ5	SAM	01/27/25 18:50		Kareem	OK
48	Q1151-07	MC0AZ6	SAM	01/27/25 18:54		Kareem	OK
49	Q1151-08	MC0AZ7	SAM	01/27/25 18:58		Kareem	OK
50	Q1151-09	MC0AZ7D	DUP	01/27/25 19:01		Kareem	OK
51	Q1151-08L	MC0AZ7L	SD	01/27/25 19:05		Kareem	OK
52	Q1151-10	MC0AZ7S	MS	01/27/25 19:09	MS fail for As(76.26 ppb), Be(17.66 ppb), Cu(243.04 ppb), Mn(384.13 ppb), Zn(541.32 ppb) & Sb,Se,Ag (Below RL)	Kareem	OK
53	Q1151-11	MC0B00	SAM	01/27/25 19:13		Kareem	OK
54	CCV023	CCV023	CCV	01/27/25 19:21		Kareem	OK
55	CCB023	CCB023	CCB	01/27/25 19:26		Kareem	OK
56	Q1151-12	MC0B01	SAM	01/27/25 19:30		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134438

Review By	Sarabjit Jaswal	Review On	1/28/2025 6:59:17 AM
Supervise By	Kareem Khairalla	Supervise On	1/28/2025 12:16:01 PM

STD. NAME	STD REF.#
ICAL Standard	MP84204,MP84212,MP84210,MP84209,MP84208,MP84207,MP84206
ICV Standard	MP84213
CCV Standard	MP84216
ICSA Standard	MP84214,MP84215
CRI Standard	
LCS Standard	MP84063
Chk Standard	MP84218,MP84219

57	Q1163-01	ME2946	SAM	01/27/25 19:34	Fe high	Kareem	Dilution
58	Q1163-02	ME2947	SAM	01/27/25 19:38	Ca high	Kareem	Dilution
59	Q1163-03	ME2947D	DUP	01/27/25 19:42	Ca high	Kareem	Dilution
60	Q1163-02L	ME2947L	SD	01/27/25 19:47	Ca high	Kareem	Dilution
61	Q1163-04	ME2947S	MS	01/27/25 19:51		Kareem	OK
62	PB166229BL	PBS229	MB	01/27/25 19:55		Kareem	OK
63	PB166229BS	LCS229	LCS	01/27/25 19:59		Kareem	OK
64	Q1181-01	MBHH96	SAM	01/27/25 20:03		Kareem	OK
65	Q1181-02	MBHH97	SAM	01/27/25 20:07		Kareem	OK
66	Q1181-03	MBHH98	SAM	01/27/25 20:11		Kareem	OK
67	Q1181-04	MBHH99	SAM	01/27/25 20:15		Kareem	OK
68	Q1181-05	MBHH99D	DUP	01/27/25 20:19		Kareem	OK
69	Q1181-04L	MBHH99L	SD	01/27/25 20:23		Kareem	OK
70	Q1181-06	MBHH99S	MS	01/27/25 20:27		Kareem	OK
71	PB166278BL	PBS278	MB	01/27/25 20:31		Kareem	OK
72	PB166278BS	LCS278	LCS	01/27/25 20:35		Kareem	OK
73	CCV024	CCV024	CCV	01/27/25 20:44		Kareem	OK
74	CCB024	CCB024	CCB	01/27/25 20:48		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134475

Review By	Kareem Khairalla	Review On	1/30/2025 3:36:15 PM
Supervise By	Mohan Bera	Supervise On	1/31/2025 7:33:47 AM
STD. NAME	STD REF.#		
ICAL Standard	MP84204,MP84212,MP84210,MP84209,MP84208,MP84207,MP84206		
ICV Standard	MP84213		
CCV Standard	MP84216		
ICSA Standard	MP84214,MP84215		
CRI Standard	MP84292,MP84296,MP84294,M5961,MP84293,WP110806,WP110804		
LCS Standard			
Chk Standard	MP84218,MP84219		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	01/29/25 14:56		Kareem	OK
2	S1	S01	CAL2	01/29/25 15:00		Kareem	OK
3	S2	S02	CAL3	01/29/25 15:04		Kareem	OK
4	S3	S03	CAL4	01/29/25 15:08		Kareem	OK
5	S4	S04	CAL5	01/29/25 15:12		Kareem	OK
6	S5	S05	CAL6	01/29/25 15:16		Kareem	OK
7	S6	S06	CAL7	01/29/25 15:21		Kareem	OK
8	ICV005	ICV005	ICV	01/29/25 15:31	Inst. paused for calibration review	Kareem	OK
9	ICB005	ICB005	ICB	01/29/25 15:35		Kareem	OK
10	ICSA005	ICSA005	ICSA	01/29/25 15:41	Inst. paused for review	Kareem	OK
11	ICSAB005	ICSAB005	ICSAB	01/29/25 15:45		Kareem	OK
12	CCV028	CCV028	CCV	01/29/25 15:49		Kareem	OK
13	CCB028	CCB028	CCB	01/29/25 15:53		Kareem	OK
14	Q1136-02	YE8F7	SAM	01/29/25 15:58		Kareem	OK
15	Q1136-03	YE8F7D	DUP	01/29/25 16:01		Kareem	OK
16	Q1136-02L	YE8F7L	SD	01/29/25 16:05		Kareem	OK
17	Q1136-04	YE8F7S	MS	01/29/25 16:09	MS fail for Cd,Co,Pb,Ni,Ag,Tl	Kareem	OK
18	Q1151-01DL	MC0AZ0	SAM	01/29/25 16:13	20x for Cr,Co,Ni, Still Co,Ni high	Kareem	Dilution

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134475

Review By	Kareem Khairalla	Review On	1/30/2025 3:36:15 PM
Supervise By	Mohan Bera	Supervise On	1/31/2025 7:33:47 AM
STD. NAME	STD REF.#		
ICAL Standard	MP84204,MP84212,MP84210,MP84209,MP84208,MP84207,MP84206		
ICV Standard	MP84213		
CCV Standard	MP84216		
ICSA Standard	MP84214,MP84215		
CRI Standard	MP84292,MP84296,MP84294,M5961,MP84293,WP110806,WP110804		
LCS Standard			
Chk Standard	MP84218,MP84219		

19	Q1151-02DL	MC0AZ1	SAM	01/29/25 16:18	5x for Co,Ni	Kareem	Confirms
20	Q1159-01	YE8C9	SAM	01/29/25 16:21		Kareem	OK
21	Q1151-01DL2	MC0AZ0	SAM	01/29/25 16:25	40x for Co,Ni	Kareem	Confirms
22	Q1159-02	YE8C9D	DUP	01/29/25 16:29		Kareem	OK
23	Q1159-01L	YE8C9L	SD	01/29/25 16:33		Kareem	OK
24	Q1159-03	YE8C9S	MS	01/29/25 16:38		Kareem	OK
25	Q1159-04	YE8D1	SAM	01/29/25 16:42		Kareem	OK
26	Q1159-05	YE8D3	SAM	01/29/25 16:46		Kareem	OK
27	Q1159-06	YE8E2	SAM	01/29/25 16:50		Kareem	OK
28	PB166301BL	PBS301	MB	01/29/25 16:54		Kareem	OK
29	PB166301BS	LCS301	LCS	01/29/25 16:58		Kareem	OK
30	CCV029	CCV029	CCV	01/29/25 17:02		Kareem	OK
31	CCB029	CCB029	CCB	01/29/25 17:06		Kareem	OK
32	Q1136-02A	YE8F7A	PS	01/29/25 17:49	PS for Cd,Co,Pb,Ni,Tl(0.01 ML MP84292, 0.02 ML MP84296, 0.02 ML MP84294, 0.002 ML M5961, 0.005 ML MP84293)	Kareem	OK
33	CCV030	CCV030	CCV	01/29/25 18:01		Kareem	OK
34	CCB030	CCB030	CCB	01/29/25 18:06		Kareem	OK

SOP ID : M1312-SPLP-10
SDG No : YE8F7
Weigh By : JP
Balance ID : WC SC-7
pH Meter ID : WC PH METER-1
Extraction By : JP
Filter By : JP
Pipette ID : WC
Tumbler ID : T-1 / T-2
TCLP Filter ID : 115525

Start Prep Date : 01/23/2025 Time : 14:00
End Prep Date : 01/24/2025 Time : 07:15
Combination Ratio : 20
ZHE Cleaning Batch : N/A
Initial Room Temperature: 23 °C
Final Room Temperature: 22 °C
TCLP Technician Signature : *JP*
Supervisor By : *12*

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

Chemical Used	ML/SAMPLE U	Lot Number
SPLP FLUID	N/A	WP110806
N/A	N/A	N/A
HNO3-TCLP,1N	N/A	WP110804
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
120ml Plastic bottle	N/A	405130101
1:1 HNO3	N/A	MP84041

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after filtration and before preservation. TUMBLER T-1 / T-2 Checked,30 rpm.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
<i>01/23/25</i>	<i>JP</i> <i>TCLP Room</i>	<i>S/27.</i> <i>1 Det Nry</i>
	Preparation Group	Analysis Group

01/24/25 09:30

SPLP EXTRACTION LOGPAGE

PB166194

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
PB166194TB	LEB194	15	N/A	2000	N/A	N/A	N/A	4.24	1.05	T-2
Q1136-01	YE8F5	01	100.02	2000	N/A	N/A	N/A	2.26	1.18	T-1
Q1136-02	YE8F7	02	100.03	2000	N/A	N/A	N/A	2.16	1.11	T-1
Q1136-03	YE8F7D	02	100.03	2000	N/A	N/A	N/A	2.16	1.11	T-1
Q1136-04	YE8F7S	02	100.03	2000	N/A	N/A	N/A	2.16	1.11	T-1
Q1136-05	YE8F8	03	100.02	2000	N/A	N/A	N/A	2.40	1.37	T-1
Q1136-06	YE8E3	04	100.00	2000	N/A	N/A	N/A	2.12	1.08	T-1
Q1136-07	YE8E4	05	100.02	2000	N/A	N/A	N/A	1.78	N/A	T-1
Q1136-08	YE8E5	06	100.03	2000	N/A	N/A	N/A	2.17	1.14	T-1
Q1136-09	YE8E6	07	100.04	2000	N/A	N/A	N/A	1.83	1.55	T-1
Q1136-10	YE8E7	08	100.02	2000	N/A	N/A	N/A	2.04	1.06	T-1
Q1136-11	YE8E8	09	100.02	2000	N/A	N/A	N/A	1.99	N/A	T-1
Q1136-12	YE8D1	10	100.02	2000	N/A	N/A	N/A	2.33	1.33	T-1
Q1136-13	YE8D2	11	100.02	2000	N/A	N/A	N/A	1.91	N/A	T-2
Q1136-14	YE8D4	12	100.05	2000	N/A	N/A	N/A	2.17	1.19	T-2
Q1136-15	YE8C3	13	100.02	2000	N/A	N/A	N/A	2.23	1.23	T-2
Q1136-17	YE8D5	14	100.02	2000	N/A	N/A	N/A	5.37	1.39	T-2

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
PB166194TB	LEB194	N/A	N/A	N/A	N/A	N/A	N/A
Q1136-01	YE8F5	N/A	N/A	N/A	N/A	100	N/A
Q1136-02	YE8F7	N/A	N/A	N/A	N/A	100	N/A
Q1136-03	YE8F7D	N/A	N/A	N/A	N/A	100	N/A
Q1136-04	YE8F7S	N/A	N/A	N/A	N/A	100	N/A
Q1136-05	YE8F8	N/A	N/A	N/A	N/A	100	N/A
Q1136-06	YE8E3	N/A	N/A	N/A	N/A	100	N/A
Q1136-07	YE8E4	N/A	N/A	N/A	N/A	100	N/A
Q1136-08	YE8E5	N/A	N/A	N/A	N/A	100	N/A
Q1136-09	YE8E6	N/A	N/A	N/A	N/A	100	N/A
Q1136-10	YE8E7	N/A	N/A	N/A	N/A	100	N/A
Q1136-11	YE8E8	N/A	N/A	N/A	N/A	100	N/A
Q1136-12	YE8D1	N/A	N/A	N/A	N/A	100	N/A
Q1136-13	YE8D2	N/A	N/A	N/A	N/A	100	N/A
Q1136-14	YE8D4	N/A	N/A	N/A	N/A	100	N/A
Q1136-15	YE8C3	N/A	N/A	N/A	N/A	100	N/A
Q1136-17	YE8D5	N/A	N/A	N/A	N/A	100	N/A

Hot Block ID : WC S-1 /WC S-2
Thermometer ID : FLASHPOINT

SampleID	ClientID	Sample Weight (g)	Volume DI Water (mL)	PH after 5 min stir	PH after 10 min stir	Extraction Fluid 1 or 2	pH Extraction Fluid
PB166194TB	LEB194	N/A	N/A	N/A	N/A	#1	4.24
Q1136-01	YE8F5	N/A	N/A	N/A	N/A	#1	4.24
Q1136-02	YE8F7	N/A	N/A	N/A	N/A	#1	4.24
Q1136-03	YE8F7D	N/A	N/A	N/A	N/A	#1	4.24
Q1136-04	YE8F7S	N/A	N/A	N/A	N/A	#1	4.24
Q1136-05	YE8F8	N/A	N/A	N/A	N/A	#1	4.24
Q1136-06	YE8E3	N/A	N/A	N/A	N/A	#1	4.24
Q1136-07	YE8E4	N/A	N/A	N/A	N/A	#1	4.24
Q1136-08	YE8E5	N/A	N/A	N/A	N/A	#1	4.24
Q1136-09	YE8E6	N/A	N/A	N/A	N/A	#1	4.24
Q1136-10	YE8E7	N/A	N/A	N/A	N/A	#1	4.24
Q1136-11	YE8E8	N/A	N/A	N/A	N/A	#1	4.24
Q1136-12	YE8D1	N/A	N/A	N/A	N/A	#1	4.24
Q1136-13	YE8D2	N/A	N/A	N/A	N/A	#1	4.24
Q1136-14	YE8D4	N/A	N/A	N/A	N/A	#1	4.24
Q1136-15	YE8C3	N/A	N/A	N/A	N/A	#1	4.24
Q1136-17	YE8D5	N/A	N/A	N/A	N/A	#1	4.24

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

YE8E6

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011
Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8F7
Matrix: Water Lab Sample ID: Q1136-09
% Solids: Date Received: 01/22/2025
Analytical Method: Hg
Concentration Units ($\mu\text{g/L}$, mg/L , mg/kg dry weight, μg , or $\mu\text{g/cm}^2$): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7439-97-6	Mercury	0.20	U	01/28/2025	1038

NOTE: Hardness (total) is reported in mg/L

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
YE8F7

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011
Lab Code: ACE Case No.: 51955 MA No. : SDG No.: YE8F7
Matrix: Water Lab Sample ID: Q1136-02
% Solids: Date Received: 01/18/2025
Analytical Method: Hg
Concentration Units ($\mu\text{g/L}$, mg/L , mg/kg dry weight, μg , or $\mu\text{g/cm}^2$): $\mu\text{g/L}$

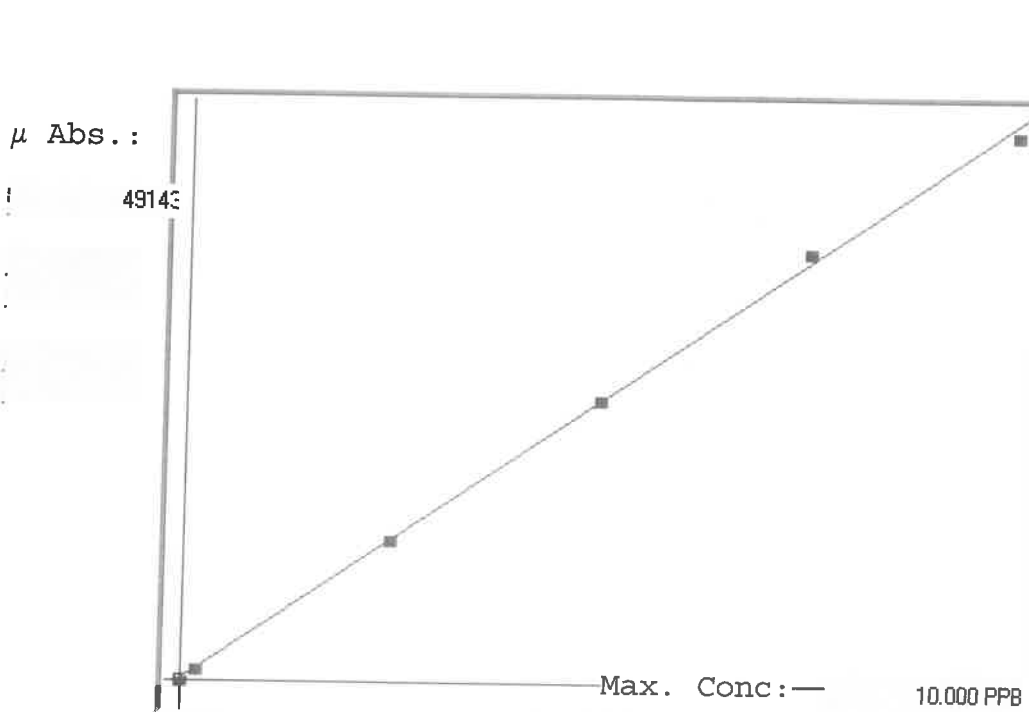
CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7439-97-6	Mercury	0.076	J	01/28/2025	1022

NOTE: Hardness (total) is reported in mg/L

Comments:

LB134449

SFAM01.1 / INSTRUMENT ID: CV1



Linear

A= 0.0000e+000
B= 2.0069e-004 slope
C= -3.6258e-002 y-intercept
Rho= 0.9995703
Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	W, D
0.00	0.000	-0.046	-0.046	-48	0.000	-48					
0.05	0.050										
0.20	0.200	0.175	-0.025	1053	0.0 %	1053					-13
2.50	2.500	2.506	0.006	12668	0.0 %	12668					0
5.00	5.000	5.053	0.053	25357	0.0 %	25357					1
7.50	7.500	7.686	0.186	38477	0.0 %	38477					2
10.0	10.000	9.826	-0.174	49143	0.0 %	49143					2

LB134449

INSTRUMENT ID : CV1

Sample ID	Extended ID	μ Abs.	Conc.	Stnd Conc	Method	Units	Date	Type
	0 S0	-48	-		0 SFAM01.1	PPB	1/28/2025 9:49	Std
	0.2 S01	1053	-		0.2 SFAM01.1	PPB	1/28/2025 9:51	Std
	2.5 S02	12668	-		2.5 SFAM01.1	PPB	1/28/2025 9:53	Std
	5 S03	25357	-		5 SFAM01.1	PPB	1/28/2025 9:56	Std
	7.5 S04	38477	-		7.5 SFAM01.1	PPB	1/28/2025 10:01	Std
	10 S05	49143	-		10 SFAM01.1	PPB	1/28/2025 10:03	Std
ICV071	ICV071	19079	3.7927 -		SFAM01.1	PPB	1/28/2025 10:06	SMPL
ICB071	ICB071	-221	-0.0806 -		SFAM01.1	PPB	1/28/2025 10:08	SMPL
CCV077	CCV077	25319	5.045 -		SFAM01.1	PPB	1/28/2025 10:11	SMPL
CCB077	CCB077	-238	-0.084 -		SFAM01.1	PPB	1/28/2025 10:13	SMPL
PB166296BL	PBW296	426	0.0492 -		SFAM01.1	PPB	1/28/2025 10:15	SMPL
PB166296TB	LEB296	444	0.0528 -		SFAM01.1	PPB	1/28/2025 10:17	SMPL
Q1136-01	YE8F5	1211	0.2068 -		SFAM01.1	PPB	1/28/2025 10:20	SMPL
Q1136-02	YE8F7	558	0.0757 -		SFAM01.1	PPB	1/28/2025 10:22	SMPL
Q1136-03	YE8F7D	431	0.0502 -		SFAM01.1	PPB	1/28/2025 10:24	SMPL
Q1136-04	YE8F7S	4298	0.8263 -		SFAM01.1	PPB	1/28/2025 10:26	SMPL
Q1136-05	YE8F8	870	0.1383 -		SFAM01.1	PPB	1/28/2025 10:29	SMPL
Q1136-06	YE8E3	1074	0.1793 -		SFAM01.1	PPB	1/28/2025 10:31	SMPL
Q1136-07	YE8E4	202	0.0043 -		SFAM01.1	PPB	1/28/2025 10:33	SMPL
Q1136-08	YE8E5	656	0.0954 -		SFAM01.1	PPB	1/28/2025 10:36	SMPL
Q1136-09	YE8E6	185	0.0009 -		SFAM01.1	PPB	1/28/2025 10:38	SMPL
Q1136-10	YE8E7	265	0.0169 -		SFAM01.1	PPB	1/28/2025 10:40	SMPL
Q1136-11	YE8E8	366	0.0372 -		SFAM01.1	PPB	1/28/2025 10:42	SMPL
Q1136-12	YE8D1	510	0.0661 -		SFAM01.1	PPB	1/28/2025 10:45	SMPL
Q1136-13	YE8D2	583	0.0807 -		SFAM01.1	PPB	1/28/2025 10:47	SMPL
Q1136-14	YE8D4	477	0.0595 -		SFAM01.1	PPB	1/28/2025 10:49	SMPL
Q1136-15	YE8C3	368	0.0376 -		SFAM01.1	PPB	1/28/2025 10:51	SMPL
Q1136-17	YE8D5	706	0.1054 -		SFAM01.1	PPB	1/28/2025 10:54	SMPL
CCV078	CCV078	24707	4.9222 -		SFAM01.1	PPB	1/28/2025 10:56	SMPL
CCB078	CCB078	-205	-0.0774 -		SFAM01.1	PPB	1/28/2025 10:58	SMPL

Prep Standard - Chemical Standard Summary

Order ID : Q1136

Test : SPLP Mercury

Prepbatch ID : PB166296,

Sequence ID/Qc Batch ID: LB134449,

Standard ID :

MP83691,MP83692,MP83693,MP83694,MP84187,MP84188,MP84190,MP84191,MP84192,MP84193,MP84194,MP841
95,MP84196,MP84197,MP84198,MP84249,

Chemical ID :

M4371,M4465,M4916,M5062,M5532,M5792,M5882,M5884,M6041,M6126,W3112,

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>
3965	2:1 H2SO4 : HNO3	MP83691	12/18/2024	06/03/2025	Mohan Bera	None	None	Sarabjit Jaswal
								12/18/2024

FROM 1600.00000ml of M6041 + 800.00000ml of M6126 = Final Quantity: 3200.000 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 %	MP83692	12/18/2024	06/18/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
								12/18/2024

FROM 100.00000gram of M4916 + 2000.00000ml of W3112 = Final Quantity: 2000.000 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>
66	POTASSIUM PERSULFATE SOLUTION 5 %	MP83693	12/18/2024	06/18/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
12/18/2024								

FROM 100.00000ml of M4465 + 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	MP83694	12/18/2024	06/18/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
12/18/2024								

FROM 2000.00000ml of W3112 + 240.00000gram of M4371 + 240.00000gram of M5884 = Final Quantity: 2000.000 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>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP84187	01/27/2025	01/28/2025	Mohan Bera	None	METALS_PIP ETTE_5 (HG A)	Sarabjit Jaswal 01/27/2025
FROM 1.00000ml of M6126 + 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	MP84188	01/27/2025	01/28/2025	Mohan Bera	None	METALS_PIP ETTE_5 (HG A)	Sarabjit Jaswal 01/27/2025
FROM 2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 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>
1341	Hg 0.2 PPB STD	MP84190	01/27/2025	01/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/27/2025
FROM 2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP84187 = 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	MP84191	01/27/2025	01/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/27/2025
FROM 2.50000ml of M6126 + 245.00000ml of W3112 + 2.50000ml of MP84187 = Final Quantity: 250.000 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>
1343	Hg 5.0 PPB STD	MP84192	01/27/2025	01/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/27/2025
FROM 2.50000ml of M6126 + 242.50000ml of W3112 + 5.00000ml of MP84187 = 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	MP84193	01/27/2025	01/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/27/2025
FROM 2.50000ml of M6126 + 240.00000ml of W3112 + 7.50000ml of MP84187 = Final Quantity: 250.000 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>
1345	Hg 10.0 PPB STD	MP84194	01/27/2025	01/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/27/2025
FROM 2.50000ml of M6126 + 237.50000ml of W3112 + 10.00000ml of MP84187 = 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	MP84195	01/27/2025	01/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/27/2025
FROM 2.50000ml of M5532 + 2.50000ml of M6126 + 245.00000ml of W3112 = Final Quantity: 250.000 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>
1351	ICB (Hg 0.00 PPB SOLUTION)	MP84196	01/27/2025	01/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/27/2025
FROM 2.50000ml of M6126 + 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)	MP84197	01/27/2025	01/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/27/2025
FROM 485.00000ml of W3112 + 5.00000ml of M6126 + 10.00000ml of MP84187 = Final Quantity: 500.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1352	CCB (Hg 0.00 PPB SOLUTION)	MP84198	01/27/2025	01/28/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/27/2025
FROM 495.00000ml of W3112 + 5.00000ml of M6126 = 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>
68	STANNOUS CHLORIDE SOLUTION	MP84249	01/28/2025	01/29/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 01/28/2025
FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M5792 = Final Quantity: 500.000 ml								

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	0000234156	08/06/2025	07/23/2019 / jaswal	07/25/2019 / manojkumar	M4465

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3227-05 / Potassium Permanganate (2.5kg)	210800	03/31/2026	11/30/2022 / mohan	07/28/2021 / mohan	M4916

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	MSHG-10PPM / MERCURY HCl 125mL 10ug/mL	S2-HG709270	09/22/2026	05/28/2022 / mohan	01/27/2022 / mohan	M5062

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV5-0415	02/28/2025	01/02/2025 / jaswal	03/30/2023 / mohan	M5532

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)	22D1462006	08/05/2025	02/05/2024 / Al-Terek	02/24/2022 / Al-Terek	M5792

CHEMICAL RECEIPT LOG BOOK

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 #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	08/16/2024 / mohan	08/16/2024 / mohan	M6041

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	06/03/2025	12/03/2024 / Janvi	11/12/2024 / Janvi	M6126

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / lwona	07/03/2024 / lwona	W3112

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.

M4371

Hydroxylamine Hydrochloride, Crystal
BAKER ANALYZED® A.C.S. Reagent
Suitable for Mercury Determination
(hydroxylammonium chloride)

Rec - 06.07.19



avantortm

Material No.: 2196-01
Batch No.: 0000215387
Manufactured Date: 2018/06/27
Retest Date: 2025/06/25
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (NH ₂ OH · HCl) (by KMnO ₄ titrn)	>= 96.0 %	99.1
Clarity of Alcohol Solution	Passes Test	PT
Residue after Ignition	<= 0.050 %	0.017
Titrate Free Acid (meq/g)	<= 0.25	0.19
Ammonium (NH ₄)	Passes Test	PT
Sulfur Compounds (as SO ₄)	<= 0.005 %	< 0.003
Trace Impurities - ACS - Heavy Metals (as Pb)	<= 5 ppm	4
Trace Impurities - Iron (Fe)	<= 5 ppm	< 3
Trace Impurities - Mercury (Hg)	<= 0.050 ppm	< 0.005

For Laboratory, Research or Manufacturing Use

Country of Origin: CN
Packaging Site: Paris Mfg Ctr & DC

ISO

Phillipsburg, NJ 9001:2015, FSSC22000
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Gliwice, Poland 9001:2015, 13485:2012
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2015, 17025:2005
Panoli, India 9001:2015

James Ethier

Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087, U.S.A. Phone: 610.386.1700

469

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
 MS

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Mass Spec Solution
 Catalog Number: MSHG-10PPM
 Lot Number: S2-HG709270
 Matrix: 10% (v/v) HCl
 Value / Analyte(s): 10 µg/mL ea:
 Mercury
 Starting Material: Hg metal
 Starting Material Lot#: 1959
 Starting Material Purity: 99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL
Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
Hg	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$
 w_i = the weighting factors for each method calculated using the inverse square of the variance:
 $w_i = (1/u_{char i}^2) / (\sum (1/u_{char i}^2))$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum ((w_i)^2 (u_{char i})^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = (X_a) (u_{char a})$$

X_a = mean of Assay Method A with

$u_{char a}$ = the standard uncertainty of characterization Method A

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag	0.000011	M	Eu	<	0.000201	O	Na	0.000004	M	Se	<	0.015915	O	Zn	<	0.001510
O	Al	0.000001	O	Fe	0.000001	M	Nb	<	0.000201	O	Si	0.000005	M	Zr	<	0.000201	
M	As	<	0.000402	M	Ga	<	0.000201	M	Nd	<	0.000201	M	Sm	<	0.000201		
M	Au	<	0.003631	M	Gd	<	0.000201	M	Ni	<	0.000402	M	Sn	<	0.001007		
M	B	<	0.001208	M	Ge	<	0.000201	M	Os	<	0.000605	M	Sr	<	0.000201		
M	Ba	<	0.000201	M	Hf	<	0.000201	O	P	<	0.032370	M	Ta	<	0.000201		
M	Be	<	0.000201	s	Hg	<		M	Pb	<	0.000201	M	Tb	<	0.000201		
M	Bi	<	0.000201	M	Ho	<	0.000201	M	Pd	<	0.000403	M	Te	<	0.002216		
O	Ca	0.000007	M	In	<	0.000201	M	Pr	<	0.000201	M	Th	<	0.000201			
M	Cd	<	0.000201	M	Ir	<	0.000201	M	Pt	<	0.000402	M	Ti	<	0.000402		
M	Ce	<	0.000201	O	K	0.000020	M	Rb	<	0.000201	O	Tl	<	0.016508			
M	Co	<	0.000201	M	La	<	0.000201	M	Re	<	0.000201	M	Tm	<	0.000201		
O	Cr	<	0.003021	O	Li	<	0.000107	M	Rh	<	0.000201	M	U	<	0.008058		
M	Cs	<	0.001208	M	Lu	<	0.000201	M	Ru	<	0.000201	M	V	<	0.000201		
M	Cu	<	0.000402	O	Mg	0.000001	O	S	<	0.053950	M	W	<	0.000604			
M	Dy	<	0.000201	M	Mn	<	0.000604	M	Sb	<	0.001208	M	Y	<	0.000201		
M	Er	<	0.000201	M	Mo	0.000009	M	Sc	<	0.000201	M	Yb	<	0.000201			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+

Chemical Compatibility - Stable in HNO₃. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

Stability - 2-100 ppb levels not stable in 1% HNO₃ / LDPE container, stable in 10% HNO₃ packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO₃ packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO₃ / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO₃); Oxide (Soluble in HNO₃); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va, 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 22, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 22, 2026**

- The date after which this CRM/RM should not be used.
- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

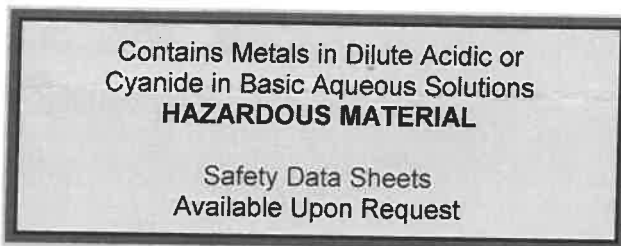
Instructions for QATS Reference Material: *Inorganic ICV Solutions*

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INITIAL CALIBRATION VERIFICATION SOLUTIONS
(ICV1, ICV5, AND ICV6)

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.



(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) BREAKAGE OR MISSING ITEMS

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) ANALYSIS OF SAMPLES

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.



QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

ICV1-1014 For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0415 For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS

ICV1-1014		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2500	500
Sb	1000	200
As	1000	200
Ba	520	100
Be	510	100
Cd	510	100
Ca	10000	2000
Cr	520	100
Co	520	100
Cu	510	100
Fe	10000	2000
Pb	1000	200
Mg	6000	1200
Mn	520	100
Ni	530	110
K	9900	2000
Se	1000	200
Ag	250	50
Na	10000	2000
Tl	1000	210
V	500	100
Zn	1000	200

ICV5-0415		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN ⁻	99

Sodium Chloride, Crystal
BAKER ANALYZED® A.C.S. Reagent



MS824
MB

Material No.: 3624-01

Batch No.: 0000281938

Manufactured Date: 2021-06-07

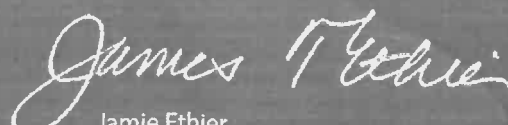
Retest Date: 2026-06-07

Revision No.: 1

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	$\geq 99.0 \%$	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	$\leq 0.005 \%$	0.003 %
Iodide (I)	$\leq 0.002 \%$	< 0.002 %
Bromide (Br)	$\leq 0.01 \%$	< 0.01 %
Chlorate and Nitrate (as NO ₃)	$\leq 0.003 \%$	< 0.001 %
ACS - Phosphate (PO ₄)	≤ 5 ppm	< 5 ppm
Sulfate (SO ₄)	$\leq 0.004 \%$	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	≤ 5 ppm	< 5 ppm
Iron (Fe)	≤ 2 ppm	< 1 ppm
Calcium (Ca)	$\leq 0.002 \%$	< 0.001 %
Magnesium (Mg)	$\leq 0.001 \%$	< 0.001 %
Potassium (K)	$\leq 0.005 \%$	0.001 %

For Laboratory, Research, or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs
Country of Origin: USA
Packaging Site: Paris Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Mansford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

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Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™



Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H ₂ SO ₄)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as SO ₂)	≤ 2 ppm	< 2 ppm
Ammonium (NH ₄)	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO ₃)	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO ₄)	≤ 0.5 ppm	< 0.1 ppm
Trace Impurities – Aluminum (Al)	≤ 30.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

 **avantor™**

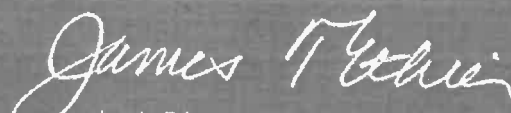


Material No.: 9673-33
Batch No.: 23D2462010

Test	Specification	Result
Trace Impurities – Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities – Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory, Research, or Manufacturing Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality 479

Nitric Acid 69%
CMOS



R → 11/12/24

M6126

Material No.: 9606-03
Batch No.: 24D1062002
Manufactured Date: 2024-03-26
Retest Date: 2029-03-25
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

 **avantor**TM



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

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SOP ID : M7470A-Mercury-19, MSFAM01.1-Mercury in Water-2

SDG No : YE8F7

Start Digest Date: 01/27/2025 Time : 15:10 Temp : 94 °C

Matrix : WATER

End Digest Date: 01/27/2025 Time : 17:10 Temp : 95 °C

Pipette ID: HG A

Digestion tube ID: M6054

Balance ID : N/A

Block thermometer ID: HG-DIG#1

Filter paper ID : NA

Dig Technician Signature:

pH Strip ID : M6069

Supervisor Signature:

Hood ID : #1

Temp : 1. 94°C 2. N/A

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

Standardized Name	MLS USED	STD REF. # FROM LOG
ICV	100mL	MP84195
CCV	100mL	MP84197
Matrix Spike	0.40mL	MP84187
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	7.5mL	MP83691
KMnO4 (5%)	15.0mL	MP83692
K2S2O8 (5%)	8.0mL	MP83693
Hydroxylamine HCL (12%)	6.0mL	MP83694
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	100mL	MP84188
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	100mL	MP84190
2.5 ppb	S2.5	100mL	MP84191
5.0 ppb	S5.0	100mL	MP84192
7.5 ppb	S7.5	100mL	MP84193
10.0 ppb	S10.0	100mL	MP84194
ICV	ICV	100mL	MP84195
ICB	ICB	100mL	MP84196
CCV	CCV	100mL	MP84197
CCB	CCB	100mL	MP84198
CRI	CRI	N/A	N/A
CHK STD	CHK STD	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

N/A		
Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
1/27/25 @ 17:40	AB - Dig. Lab	AB - Metal Lab
	Preparation Group	Analysis Group 482

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB166296BL	PBW296	100	100	<2	N/A	1-1
PB166296TB	LEB296	100	100	<2	N/A	2
Q1136-01	YE8F5	100	100	<2	N/A	3
Q1136-02	YE8F7	100	100	<2	N/A	4
Q1136-03	YE8F7D	100	100	<2	N/A	5
Q1136-04	YE8F7S	100	100	<2	MP84187	6
Q1136-05	YE8F8	100	100	<2	N/A	7
Q1136-06	YE8E3	100	100	<2	N/A	8
Q1136-07	YE8E4	100	100	<2	N/A	9
Q1136-08	YE8E5	100	100	<2	N/A	10
Q1136-09	YE8E6	100	100	<2	N/A	11
Q1136-10	YE8E7	100	100	<2	N/A	12
Q1136-11	YE8E8	100	100	<2	N/A	13
Q1136-12	YE8D1	100	100	<2	N/A	14
Q1136-13	YE8D2	100	100	<2	N/A	15
Q1136-14	YE8D4	100	100	<2	N/A	16
Q1136-15	YE8C3	100	100	<2	N/A	17
Q1136-17	YE8D5	100	100	<2	N/A	18

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134449

Review By	Mohan Bera	Review On	1/28/2025 7:15:43 PM
Supervise By	Sarabjit Jaswal	Supervise On	1/28/2025 7:18:32 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84188,MP84190,MP84191,MP84192,MP84193,MP84194		
ICV Standard	MP84195		
CCV Standard	MP84197		
ICSA Standard			
CRI Standard			
LCS Standard			
Chk Standard	MP84196,MP84198,MP84249		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	01/28/25 09:49		Mohan	OK
2	S0.2	S01	CAL2	01/28/25 09:51		Mohan	OK
3	S2.5	S02	CAL3	01/28/25 09:53		Mohan	OK
4	S5	S03	CAL4	01/28/25 09:56		Mohan	OK
5	S7.5	S04	CAL5	01/28/25 10:01		Mohan	OK
6	S10	S05	CAL6	01/28/25 10:03		Mohan	OK
7	ICV071	ICV071	ICV	01/28/25 10:06		Mohan	OK
8	ICB071	ICB071	ICB	01/28/25 10:08		Mohan	OK
9	CCV077	CCV077	CCV	01/28/25 10:11		Mohan	OK
10	CCB077	CCB077	CCB	01/28/25 10:13		Mohan	OK
11	PB166296BL	PBW296	MB	01/28/25 10:15		Mohan	OK
12	PB166296TB	LEB296	MB	01/28/25 10:17		Mohan	OK
13	Q1136-01	YE8F5	SAM	01/28/25 10:20		Mohan	OK
14	Q1136-02	YE8F7	SAM	01/28/25 10:22		Mohan	OK
15	Q1136-03	YE8F7D	DUP	01/28/25 10:24		Mohan	OK
16	Q1136-04	YE8F7S	MS	01/28/25 10:26		Mohan	OK
17	Q1136-05	YE8F8	SAM	01/28/25 10:29		Mohan	OK
18	Q1136-06	YE8E3	SAM	01/28/25 10:31		Mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134449

Review By	Mohan Bera	Review On	1/28/2025 7:15:43 PM
Supervise By	Sarabjit Jaswal	Supervise On	1/28/2025 7:18:32 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84188,MP84190,MP84191,MP84192,MP84193,MP84194		
ICV Standard	MP84195		
CCV Standard	MP84197		
ICSA Standard			
CRI Standard			
LCS Standard			
Chk Standard	MP84196,MP84198,MP84249		

19	Q1136-07	YE8E4	SAM	01/28/25 10:33		Mohan	OK
20	Q1136-08	YE8E5	SAM	01/28/25 10:36		Mohan	OK
21	Q1136-09	YE8E6	SAM	01/28/25 10:38		Mohan	OK
22	Q1136-10	YE8E7	SAM	01/28/25 10:40		Mohan	OK
23	Q1136-11	YE8E8	SAM	01/28/25 10:42		Mohan	OK
24	Q1136-12	YE8D1	SAM	01/28/25 10:45		Mohan	OK
25	Q1136-13	YE8D2	SAM	01/28/25 10:47		Mohan	OK
26	Q1136-14	YE8D4	SAM	01/28/25 10:49		Mohan	OK
27	Q1136-15	YE8C3	SAM	01/28/25 10:51		Mohan	OK
28	Q1136-17	YE8D5	SAM	01/28/25 10:54		Mohan	OK
29	CCV078	CCV078	CCV	01/28/25 10:56		Mohan	OK
30	CCB078	CCB078	CCB	01/28/25 10:58		Mohan	OK

SOP ID :	M1312-SPLP-10	
SDG No :	YE8F7	Start Prep Date : 01/23/2025 Time : 14:00
Welgh By :	JP	End Prep Date : 01/24/2025 Time : 07:15
Balance ID :	WC SC-7	Combination Ratio : 20
pH Meter ID :	WC PH METER-1	ZHE Cleaning Batch : N/A
Extraction By :	JP	Initial Room Temperature: 23 °C
Filter By :	JP	Final Room Temperature: 22 °C
Pippete ID :	WC	TCLP Technician Signature : <i>JP</i>
Tumbler ID :	T-1 / T-2	Supervisor By : <i>12</i>
TCLP Filter ID :	115525	

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

Chemical Used	ML/SAMPLE U	Lot Number
SPLP FLUID	N/A	WP110806
N/A	N/A	N/A
HNO3-TCLP,1N	N/A	WP110804
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
120ml Plastic bottle	N/A	405130101
1:1 HNO3	N/A	MP84041

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after fiftation and before preservation. TUMBLER T-1 / T-2 Checked,30 rpm.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
<i>01/23/25</i>	<i>JP</i> <i>1128 Room</i>	<i>S/27.</i> <i>1 Det Nry</i>
	Preparation Group	Analysis Group

01/24/25 09:30

SPLP EXTRACTION LOGPAGE

PB166194

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
PB166194TB	LEB194	15	N/A	2000	N/A	N/A	N/A	4.24	1.05	T-2
Q1136-01	YE8F5	01	100.02	2000	N/A	N/A	N/A	2.26	1.18	T-1
Q1136-02	YE8F7	02	100.03	2000	N/A	N/A	N/A	2.16	1.11	T-1
Q1136-03	YE8F7D	02	100.03	2000	N/A	N/A	N/A	2.16	1.11	T-1
Q1136-04	YE8F7S	02	100.03	2000	N/A	N/A	N/A	2.16	1.11	T-1
Q1136-05	YE8F8	03	100.02	2000	N/A	N/A	N/A	2.40	1.37	T-1
Q1136-06	YE8E3	04	100.00	2000	N/A	N/A	N/A	2.12	1.08	T-1
Q1136-07	YE8E4	05	100.02	2000	N/A	N/A	N/A	1.78	N/A	T-1
Q1136-08	YE8E5	06	100.03	2000	N/A	N/A	N/A	2.17	1.14	T-1
Q1136-09	YE8E6	07	100.04	2000	N/A	N/A	N/A	1.83	1.55	T-1
Q1136-10	YE8E7	08	100.02	2000	N/A	N/A	N/A	2.04	1.06	T-1
Q1136-11	YE8E8	09	100.02	2000	N/A	N/A	N/A	1.99	N/A	T-1
Q1136-12	YE8D1	10	100.02	2000	N/A	N/A	N/A	2.33	1.33	T-1
Q1136-13	YE8D2	11	100.02	2000	N/A	N/A	N/A	1.91	N/A	T-2
Q1136-14	YE8D4	12	100.05	2000	N/A	N/A	N/A	2.17	1.19	T-2
Q1136-15	YE8C3	13	100.02	2000	N/A	N/A	N/A	2.23	1.23	T-2
Q1136-17	YE8D5	14	100.02	2000	N/A	N/A	N/A	5.37	1.39	T-2

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
PB166194TB	LEB194	N/A	N/A	N/A	N/A	N/A	N/A
Q1136-01	YE8F5	N/A	N/A	N/A	N/A	100	N/A
Q1136-02	YE8F7	N/A	N/A	N/A	N/A	100	N/A
Q1136-03	YE8F7D	N/A	N/A	N/A	N/A	100	N/A
Q1136-04	YE8F7S	N/A	N/A	N/A	N/A	100	N/A
Q1136-05	YE8F8	N/A	N/A	N/A	N/A	100	N/A
Q1136-06	YE8E3	N/A	N/A	N/A	N/A	100	N/A
Q1136-07	YE8E4	N/A	N/A	N/A	N/A	100	N/A
Q1136-08	YE8E5	N/A	N/A	N/A	N/A	100	N/A
Q1136-09	YE8E6	N/A	N/A	N/A	N/A	100	N/A
Q1136-10	YE8E7	N/A	N/A	N/A	N/A	100	N/A
Q1136-11	YE8E8	N/A	N/A	N/A	N/A	100	N/A
Q1136-12	YE8D1	N/A	N/A	N/A	N/A	100	N/A
Q1136-13	YE8D2	N/A	N/A	N/A	N/A	100	N/A
Q1136-14	YE8D4	N/A	N/A	N/A	N/A	100	N/A
Q1136-15	YE8C3	N/A	N/A	N/A	N/A	100	N/A
Q1136-17	YE8D5	N/A	N/A	N/A	N/A	100	N/A

Hot Block ID : WC S-1 /WC S-2

Thermometer ID : FLASHPOINT

SampleID	ClientID	Sample Weight (g)	Volume DI Water (mL)	PH after 5 min stir	PH after 10 min stir	Extraction Fluid 1 or 2	pH Extraction Fluid
PB166194TB	LEB194	N/A	N/A	N/A	N/A	#1	4.24
Q1136-01	YE8F5	N/A	N/A	N/A	N/A	#1	4.24
Q1136-02	YE8F7	N/A	N/A	N/A	N/A	#1	4.24
Q1136-03	YE8F7D	N/A	N/A	N/A	N/A	#1	4.24
Q1136-04	YE8F7S	N/A	N/A	N/A	N/A	#1	4.24
Q1136-05	YE8F8	N/A	N/A	N/A	N/A	#1	4.24
Q1136-06	YE8E3	N/A	N/A	N/A	N/A	#1	4.24
Q1136-07	YE8E4	N/A	N/A	N/A	N/A	#1	4.24
Q1136-08	YE8E5	N/A	N/A	N/A	N/A	#1	4.24
Q1136-09	YE8E6	N/A	N/A	N/A	N/A	#1	4.24
Q1136-10	YE8E7	N/A	N/A	N/A	N/A	#1	4.24
Q1136-11	YE8E8	N/A	N/A	N/A	N/A	#1	4.24
Q1136-12	YE8D1	N/A	N/A	N/A	N/A	#1	4.24
Q1136-13	YE8D2	N/A	N/A	N/A	N/A	#1	4.24
Q1136-14	YE8D4	N/A	N/A	N/A	N/A	#1	4.24
Q1136-15	YE8C3	N/A	N/A	N/A	N/A	#1	4.24
Q1136-17	YE8D5	N/A	N/A	N/A	N/A	#1	4.24

ORIGIN ID:MHRA (786) 608-9500

ALLISON HUSA
EA ENGINEERING, SCIENCE & TECH
555 UNIVERSITY AVE
SUITE 182
SACRAMENTO, CA 95825
UNITED STATES US

SHIP DATE: 17JAN25
ACTWGT: 40.00 LB
CAD: 253267503INET4535

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TO SOHIL JODHANI

ALLIANCE TECHNICAL GROUP LLC
284 SHEFFIELD STREET

MOUNTAINSIDE NJ 07092

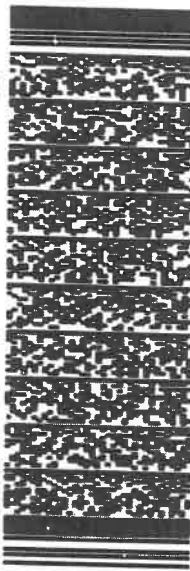
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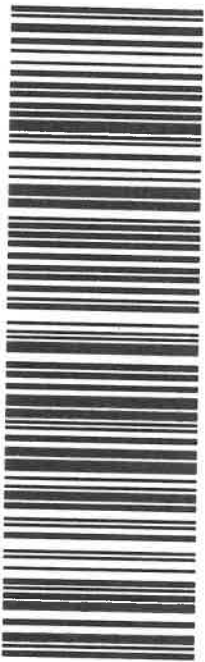
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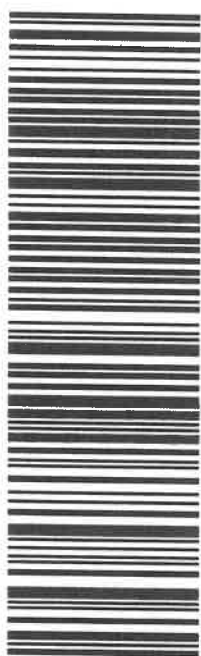
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SUITE 182
SACRAMENTO, CA 95825

SHIP DATE: 21JAN25
ACTWTG: 40.00 LB
CAD: 253267503/NET/4535

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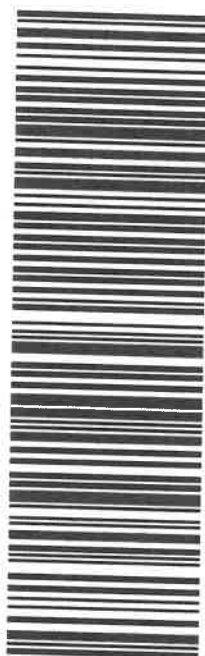
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SUITE 102
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SHIP DATE: 21JAN25
ACTWGT: 40.00 LB
CAD: 263267503/INET4535

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PC: DEPT: 2195

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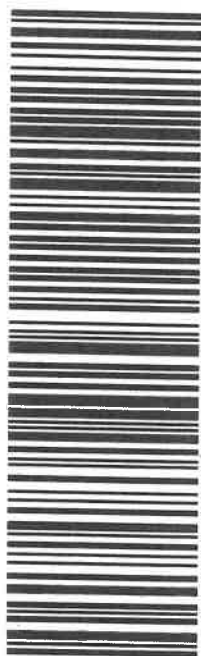
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SHIP DATE: 21JAN25
ACTWTG: 40.00 LB
CAD: 253267503/INET14535
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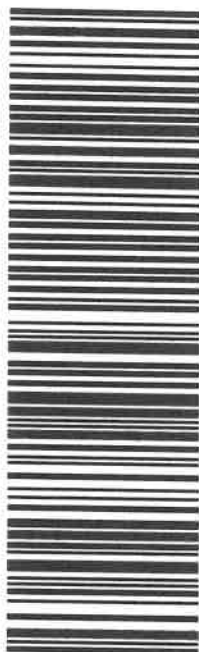
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555 UNIVERSITY AVE
SUITE 182
SACRAMENTO, CA 95825
UNITED STATES US

SHIP DATE: 21JAN25
ACTWGT: 25.00 LB
CAD: 253267503/INET74535

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DEPT: 2195

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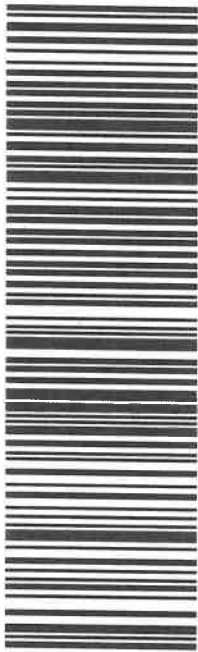
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020
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sars

Login Summary Report

Order ID :	Q1136	Order Date :	1/22/2025 10:15:00 AM	Project Mgr :	Deepak
Client :	USEPA CLP SMO	Project :	51955	Report Type :	USEPA CLP
Contact :	Anita Kapadia	Receive Date :	1/22/2025 10:15:00 AM	EDD Type :	EPA CLP
Date Sign Off :	1/23/2025 11:18:54 AM				

Sample ID	Client ID	Matrix	Sampling Date	Test	Test Group	Method	TAT Days	Fax Due Date	HC Due Date
Q1136-01	YE8F5	Solid	01/15/2025						
				SPLP Mercury		SFAM_HG	15	02/12/2025	02/12/2025
				SPLP MetalGroup3		SFAM_AES	15	02/12/2025	02/12/2025
Q1136-02	YE8F7	Solid	01/15/2025						
				SPLP Mercury		SFAM_HG	15	02/12/2025	02/12/2025
				SPLP MetalGroup3		SFAM_AES	15	02/12/2025	02/12/2025
Q1136-03	YE8F7D	Solid	01/15/2025						
				SPLP Mercury		SFAM_HG	15	02/12/2025	02/12/2025
				SPLP MetalGroup3		SFAM_AES	15	02/12/2025	02/12/2025
Q1136-04	YE8F7S	Solid	01/15/2025						
				SPLP Mercury		SFAM_HG	15	02/12/2025	02/12/2025
				SPLP MetalGroup3		SFAM_AES	15	02/12/2025	02/12/2025
Q1136-05	YE8F8	Solid	01/15/2025						
				SPLP Mercury		SFAM_HG	15	02/12/2025	02/12/2025
				SPLP MetalGroup3		SFAM_AES	15	02/12/2025	02/12/2025
Q1136-06	YE8E3	Solid	01/17/2025						
				SPLP Mercury		SFAM_HG	15	02/12/2025	02/12/2025
				SPLP MetalGroup3		SFAM_AES	15	02/12/2025	02/12/2025
Q1136-07	YE8E4	Solid	01/17/2025						
				SPLP Mercury		SFAM_HG	15	02/12/2025	02/12/2025
				SPLP MetalGroup3		SFAM_AES	15	02/12/2025	02/12/2025
Q1136-08	YE8E5	Solid	01/17/2025						
				SPLP Mercury		SFAM_HG	15	02/12/2025	02/12/2025
				SPLP MetalGroup3		SFAM_AES	15	02/12/2025	02/12/2025
Q1136-09	YE8E6	Solid	01/17/2025						
				SPLP Mercury		SFAM_HG	15	02/12/2025	02/12/2025
				SPLP MetalGroup3		SFAM_AES	15	02/12/2025	02/12/2025
Q1136-10	YE8E7	Solid	01/17/2025						
				SPLP Mercury		SFAM_HG	15	02/12/2025	02/12/2025
				SPLP MetalGroup3		SFAM_AES	15	02/12/2025	02/12/2025

Q1136-11	YE8E8	Solid	01/17/2025		
				SPLP Mercury	SFAM_HG 15 02/12/2025 02/12/2025
				SPLP MetalGroup3	SFAM_AES 15 02/12/2025 02/12/2025
Q1136-12	YE8D1	Solid	01/19/2025		
				SPLP Mercury	SFAM_HG 15 02/12/2025 02/12/2025
				SPLP MetalGroup3	SFAM_AES 15 02/12/2025 02/12/2025
Q1136-13	YE8D2	Solid	01/19/2025		
				SPLP Mercury	SFAM_HG 15 02/12/2025 02/12/2025
				SPLP MetalGroup3	SFAM_AES 15 02/12/2025 02/12/2025
Q1136-14	YE8D4	Solid	01/18/2025		
				SPLP Mercury	SFAM_HG 15 02/12/2025 02/12/2025
				SPLP MetalGroup3	SFAM_AES 15 02/12/2025 02/12/2025
Q1136-15	YE8C3	Solid	01/19/2025		
				SPLP Mercury	SFAM_HG 15 02/12/2025 02/12/2025
				SPLP MetalGroup3	SFAM_AES 15 02/12/2025 02/12/2025
Q1136-17	YE8D5	Solid	01/19/2025		
				SPLP Mercury	SFAM_HG 15 02/12/2025 02/12/2025
				SPLP MetalGroup3	SFAM_AES 15 02/12/2025 02/12/2025

WORKLIST(Hardcopy Internal Chain)

WorkList Name : splpq1136

WorkList ID : 187093

Department : TCLP Extraction

Date : 01-23-2025 11:20:47

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1136-01	YE8F5	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/15/2025	1312
Q1136-02	YE8F7	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/15/2025	1312
Q1136-03	YE8F7D	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/15/2025	1312
Q1136-04	YE8F7S	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/15/2025	1312
Q1136-05	YE8F8	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/15/2025	1312
Q1136-06	YE8E3	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/15/2025	1312
Q1136-07	YE8E4	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/17/2025	1312
Q1136-08	YE8E5	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/17/2025	1312
Q1136-09	YE8E6	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/17/2025	1312
Q1136-10	YE8E7	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/17/2025	1312
Q1136-11	YE8E8	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/17/2025	1312
Q1136-12	YE8D1	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/17/2025	1312
Q1136-13	YE8D2	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/19/2025	1312
Q1136-14	YE8D4	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/19/2025	1312
Q1136-15	YE8C3	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/18/2025	1312
Q1136-17	YE8D5	Solid	SPLP Extraction	Cool 4 deg C	USEP01	C11	01/19/2025	1312

4988

Date/Time 01/23/25 12:00
 Raw Sample Received by: JB WWC
 Raw Sample Relinquished by: AS

Date/Time 01/23/25 15:00
 Raw Sample Received by: CP SN
 Raw Sample Relinquished by: JB WWC