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

DATA PACKAGE

METALS

PROJECT NAME : SHARKEY LANDFILL SITE FYR REUSE MORRIS COUNTY NJ

WSP USA INC.

401 Route 73 North Suite 205

Marlton, NJ - 08053

Phone No: 856-793-2005

ORDER ID : Q3688

ATTENTION : Tricia Landes

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

Cover Page

Order ID : Q3688

Project ID : Sharkey Landfill Site FYR Reuse Morris County NJ

Client : WSP USA Inc.

Lab Sample Number	Client Sample Number
Q3688-01	M-31S
Q3688-02	Q3688-01MS
Q3688-03	Q3688-01MSD
Q3688-04	RBGW-20251119
Q3688-05	TBGW-20251119
Q3688-06	M-32I
Q3688-07	VHBLK001
Q3688-09	M-31I
Q3688-10	M-32S
Q3688-11	RBGW-20251120
Q3688-12	M-30S
Q3688-13	M-30I
Q3688-14	TBGW-20251120
Q3688-15	FDGW-20251120
Q3688-16	WS-14
Q3688-17	M-29
Q3688-18	RBGW-20251121
Q3688-19	M-28I
Q3688-20	WS-1
Q3688-21	TBGW-20251121
Q3688-22	RBGW-20251124
Q3688-23	M-28S
Q3688-24	TBGW-20251124

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

Signature : _____

Date: 12/9/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

Alliance TECHNICAL GROUP

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 • Fax (908) 789-8922
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ALLIANCE PROJECT NO.
QUOTE NO. Q3688
COC Number 2044519

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: WSP USA INC.
ADDRESS: 350 MT KEMBLE AVE
CITY MORRISTOWN STATE: NJ ZIP: 07960
ATTENTION: TRICIA LANDES
PHONE: 8562468331 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: SHARKEY LF
PROJECT NO.: LOCATION: PARSIPPANY, NJ
PROJECT MANAGER: TRICIA LANDES
e-mail: patricia.landes@wsp.com
PHONE: 8562468331 FAX:

CLIENT BILLING INFORMATION

BILL TO: WSP USA INC. PO#:
ADDRESS: 350 MT KEMBLE AVE
CITY MORRISTOWN STATE: NJ :ZIP: 07960
ATTENTION: TRICIA LANDES PHONE: 856 2468331

DATA TURNAROUND INFORMATION

FAX (RUSH) _____ DAYS*
HARDCOPY (DATA PACKAGE): _____ DAYS*
EDD: _____ DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS

DATA DELIVERABLE INFORMATION

☐ Level 1 (Results Only) ☐ Level 4 (QC + Full Raw Data)
☐ Level 2 (Results + QC) ☑ NJ Reduced ☐ US EPA CLP
☐ Level 3 (Results + QC + Raw Data) ☐ NYS ASP A ☐ NYS ASP B ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
VOCs	SVOC's	1-4 DIOXANE	METALS					

ALLIANCE SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								A	E	E	B						← Specify Preservatives A-HCl D-NaOH B-HN03 E-ICE C-H2SO4 F-OTHER
1.	M-31S	GW		✓	11/19/25	1210	15	X	X	X	X						MS / MSD
2.	RBGW_20251119	GW		✓	11/19/25	1400	5	X	X	X	X						
3.	TBGW_20251119	GW		✓	11/19/25	—	2	X									
4.	M-32I	GW		✓	11/19/25	1620	5	X	X	X	X						
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1.	11/19/25 1635	1.
2.		2.
3.	11-19-25 1740	3.

Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☒ COOLER TEMP 2.7°C 2.7°C 2.7°C
Comments:

Page ____ of

CLIENT: ☐ Hand Delivered ☐ Other

Shipment Complete ☐ YES ☐ NO

WHITE - ALLIANCE COPY FOR RETURN TO CLIENT YELLOW - ALLIANCE COPY PINK - SAMPLER COPY

3

Alliance TECHNICAL GROUP

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ALLIANCE PROJECT NO.
QUOTE NO. Q3688
COC Number 2044520

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: WSP USA INC.
ADDRESS: 350 MT KEMBLE AVE
CITY MORRISTOWN STATE: NJ ZIP: 07960
ATTENTION: TRICIA LANDES
PHONE: 8562468331 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: SHARKEY LF
PROJECT NO.: LOCATION: PARSIPPANY, NJ
PROJECT MANAGER: TRICIA LANDES
e-mail: Patricia.Landes@wsp.com
PHONE: 8562468331 FAX:

CLIENT BILLING INFORMATION

BILL TO: WSP USA INC. PO#: 4
ADDRESS: 350 MT KEMBLE AVE
CITY MORRISTOWN STATE: NJ ZIP: 07960
ATTENTION: TRICIA LANDES PHONE: 8562468331

DATA TURNAROUND INFORMATION

FAX (RUSH) _____ DAYS*
HARDCOPY (DATA PACKAGE): _____ DAYS*
EDD: _____ DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS

DATA DELIVERABLE INFORMATION

- ☐ Level 1 (Results Only)
- ☐ Level 2 (Results + QC)
- ☐ Level 3 (Results + QC + Raw Data)
- ☐ Level 4 (QC + Full Raw Data)
- ☑ NJ Reduced
- ☐ US EPA CLP
- ☐ NYS ASP A
- ☐ NYS ASP B
- ☐ Other _____
- ☐ EDD FORMAT _____

ANALYSIS

1: VOC's
2: SVOC's
3: 1,4-Dioxane
4: METALS
5:
6:
7:
8:
9:

ALLIANCE SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1 (A)	2 (E)	3 (E)	4 (B)	5	6	7	8	9	COMMENTS
1.	MW-31I	GW		G	11/20/25	1210	5	X	X	X	X						pH 1.3 # 80A0441
2.	MW-32S					1235	5	X	X	X	X						
3.	RBGW_20251120					1340	5	X	X	X	X						
4.	MW-30S					1515	5	X	X	X	X						
5.	MW-30I					1545	5	X	X	X	X						
6.	TBGW_20251120					—	2	X									
7.	FDGW_20251120					0900	5	X	X	X	X						FIELD DUP pH 1.3
8.																	
9.																	
10.																	

PRESERVATIVES: ← Specify Preservatives
A-HCl D-NaOH
B-HN03 E-ICE
C-H2SO4 F-OTHER

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1.	11/20/25 1618	1.
2.		2.
3.	11.20.2025 1730	3.

Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☒ COOLER TEMP 2.1 °C
Comments: 2.1 +0 = 2.1

Page ____ of

CLIENT: ☐ Hand Delivered ☐ Other

Shipment Complete ☐ YES ☐ NO

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Alliance TECHNICAL GROUP

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ALLIANCE PROJECT NO. Q3688
QUOTE NO.
COC Number 2044521

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: WSP USA INC.
ADDRESS: 350 MT KEMBLE AVE
CITY MORRISTOWN STATE: NJ ZIP: 07960
ATTENTION: TRICIA LANDES
PHONE: 8562468331 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: SHARKEY LF
PROJECT NO.: LOCATION: PARSIPPANY, NJ
PROJECT MANAGER: TRICIA LANDES
e-mail: Patricia.Landes@wsp.com
PHONE: 8562468331 FAX:

CLIENT BILLING INFORMATION

BILL TO: WSP USA INC. PO#:
ADDRESS: 350 MT KEMBLE AVE
CITY MORRISTOWN STATE: NJ ZIP: 07960
ATTENTION: TRICIA LANDES PHONE: 8562468331

DATA TURNAROUND INFORMATION

FAX (RUSH) _____ DAYS*
HARDCOPY (DATA PACKAGE): _____ DAYS*
EDD: _____ DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS

DATA DELIVERABLE INFORMATION

☐ Level 1 (Results Only) ☐ Level 4 (QC + Full Raw Data)
☐ Level 2 (Results + QC) ☑ NJ Reduced ☐ US EPA CLP
☐ Level 3 (Results + QC + Raw Data) ☐ NYS ASP A ☐ NYS ASP B ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

1	2	3	4	5	6	7	8	9
VOCs	SVOCs	1,4-Dioxane	METALS					

ALLIANCE SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								A	E	E	B						← Specify Preservatives A-HCl D-NaOH B-HN03 E-ICE C-H2SO4 F-OTHER
1.	WS-14	GW		G	11/21/25	1025	5	X	X	X	X						pH 1.6 #80A0441
2.	M-29					1055	5	X	X	X	X						
3.	RBGW-20251121					1255	5	X	X	X	X						
4.	M-28I					1635	5	X	X	X	X						
5.	WS-1					1440	5	X	X	X	X						
6.	TBGW-20251121					—	2	X	X	X	X						
7.																	
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1.	11/21/25 1710	1.
2.		2.
3.	11.21.2025 1810	3.

Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☒ COOLER TEMP 2.0°C °C
Comments: 2.0 + 0 = 2.0°

Page ____ of

CLIENT: ☐ Hand Delivered ☐ Other

Shipment Complete ☐ YES ☐ NO

WHITE - ALLIANCE COPY FOR RETURN TO CLIENT YELLOW - ALLIANCE COPY PINK - SAMPLER COPY

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ALLIANCE PROJECT NO.
QUOTE NO. Q3688
COC Number 2044522

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: WSP USA INC.
ADDRESS: 350 MT KEMBLE AVE
CITY MORRISTOWN STATE: NJ ZIP 07960
ATTENTION: TRICIA LANDES
PHONE: 8562468331 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: SHARKEY LF
PROJECT NO.: LOCATION: PARSIPPANY, NJ
PROJECT MANAGER: TRICIA LANDES
e-mail: Patricia.Landes@wsp.com
PHONE: 8562468331 FAX:

CLIENT BILLING INFORMATION

BILL TO: WSP USA INC. PO#:
ADDRESS: 350 MT KEMBLE AVE
CITY MORRISTOWN STATE: NJ ZIP: 07960
ATTENTION: TRICIA LANDES PHONE: 856 246 8331

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DATA TURNAROUND INFORMATION

FAX (RUSH) _____ DAYS*
HARDCOPY (DATA PACKAGE): _____ DAYS*
EDD: _____ DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS

DATA DELIVERABLE INFORMATION

- ☐ Level 1 (Results Only)
- ☐ Level 2 (Results + QC)
- ☐ Level 3 (Results + QC + Raw Data)
- ☐ Level 4 (QC + Full Raw Data)
- ☑ NJ Reduced
- ☐ US EPA CLP
- ☐ NYS ASP A
- ☐ NYS ASP B
- ☐ Other _____
- ☐ EDD FORMAT _____

ANALYSIS

1: VOC's
2: SVOC's
3: 1,4-Dioxane
4: METALS
5:
6:
7:
8:
9:

ALLIANCE SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								A	E	E	B						← Specify Preservatives A-HCl D-NaOH B-HN03 E-ICE C-H2SO4 F-OTHER
1.	RBGW-20251124	GW		G	11/24/25	0800	5	X	X	X	X						
2.	M-28S					1115	5	X	X	X	X						
3.	TBGW-20251124					—	2	X									
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. Alexa Zitts	11/24/25 13:00	1. CK
2.		2.
3.		3.

Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☐ COOLER TEMP 2.3 °C
Comments: If 6 mth /

Page ____ of

CLIENT: ☐ Hand Delivered ☐ Other _____

Shipment Complete ☐ YES ☐ NO

WHITE - ALLIANCE COPY FOR RETURN TO CLIENT YELLOW - ALLIANCE COPY PINK - SAMPLER COPY

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page 1 of 4
Received By (Print Name) Cassanova Rona		Log-in Date 11/19/2025
Received By (Signature)		
Case Number Sharkey Landfill Site	SDG No. Q3688	MA No. N/A

Remarks:	
1. Custody Seal (s)	Absent
2. Custody Seal Nos.	N/A
3. Traffic Reports/Chain Of Custody Records	Absent
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	Alliance pickup 1
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	2.7 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	11/19/2025
12.Time Received	17:46

	EPA Sample #	Aqueous Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	M-31S	N/A		Q3688-01	Intact
2	Q3688-01MS	N/A		Q3688-02	Intact
3	Q3688-01MSD	N/A		Q3688-03	Intact
4	RBGW-20251119	N/A		Q3688-04	Intact
5	TBGW-20251119	N/A		Q3688-05	Intact
6	M-32I	N/A		Q3688-06	Intact
~~7~~	~~EMS~~	~~N/A~~		~~Q3688-08~~	Intact 11/19/25
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	Logbook No. N/A
Date 11/19/25	Logbook Page No. N/A

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC	Page 2 of 4
Received By (Print Name) Cassanova Raina	Log-in Date 11/20/2025
Received By (Signature)	
Case Number Sharkey Landfill Site SDG No. Q3688	MA No. N/A

Remarks:	
1. Custody Seal (s)	Absent
2. Custody Seal Nos.	N/A
3. Traffic Reports/Chain Of Custody Records	Absent
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	Alliance pickup 2
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	2.1 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	11/20/2025
12.Time Received	17:20

	EPA Sample #	Aqueous Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	M-31I	N/A		Q3688-09	Intact
2	M-32S	N/A		Q3688-10	Intact
3	RBGW-20251120	N/A		Q3688-11	Intact
4	M-30S	N/A		Q3688-12	Intact
5	M-30I	N/A		Q3688-13	Intact
6	TBGW-20251120	N/A		Q3688-14	Intact
7	FDGW-20251120	N/A		Q3688-15	Intact
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	Logbook No. N/A
Date 11/20/25	Logbook Page No. N/A

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC			Page 3 of 4
Received By (Print Name) Cassanova Rene			Log-in Date 11/21/2025
Received By (Signature)			
Case Number Sharkey Landfill Site	SDG No. Q3688		MA No. N/A

Remarks:	
1. Custody Seal (s)	Absent
2. Custody Seal Nos.	N/A
3. Traffic Reports/Chain Of Custody Records	Absent
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	Alliance pickup 3
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	2.0 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	11/21/2025
12.Time Received	18:10

	EPA Sample #	Aqueous Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	WS-14	N/A		Q3688-16	Intact
2	M-29	N/A		Q3688-17	Intact
3	RBGW-20251121	N/A		Q3688-18	Intact
4	M-28I	N/A		Q3688-19	Intact
5	WS-1	N/A		Q3688-20	Intact
6	TBGW-20251121	N/A		Q3688-21	Intact
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	Logbook No. N/A
Date 11/21/25	Logbook Page No. N/A

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC			Page 4 of 4
Received By (Print Name) Cassandra Reis			Log-in Date 11/24/2025
Received By (Signature)			
Case Number Sharkey Landfill Site	SDG No. Q3688		MA No. N/A

Remarks:	
1. Custody Seal (s)	Absent
2. Custody Seal Nos.	N/A
3. Traffic Reports/Chain Of Custody Records	Absent
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	Alliance pickup 4
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	2.3 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	11/24/2025
12.Time Received	13:00

	EPA Sample #	Aqueous Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	RBGW-20251124	N/A		Q3688-22	Intact
2	M-28S	N/A		Q3688-23	Intact
3	TBGW-20251124	N/A		Q3688-24	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		Logbook No.	N/A
Date	11/24/25	Logbook Page No.	N/A

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

LAB NAME	**Alliance Technical Group LLC**
LAB CODE	**ACE**
CONTRACT NO.	**68HERH20D0011**
CASE NO.	**Sharkey Landfill Site** SDG NO. **Q3688**
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: FROM	TO	CHECK LAB	REGION
1 . SDG Cover Page	1	2	✓	
2 . Sample TR/COCs	3	6	✓	
3 . Sample Login Sheet (DC-1)	7	10	✓	
4 . CSF Inventory Sheet (DC-2)	11	14	✓	
5 . SDG Narrative	15	17	✓	
Inorganic Analysis				
ICP-AES				
6 . Inorganic Analysis Data Sheet (Form 1-IN)	18	33	✓	
7 . Initial and Continuing Calibration Verification (Form 2-IN)	34	35	✓	
8 . Blanks (Form 3-IN)	36	36	✓	
9 . ICP Interference Check Sample (Form 4-IN)	37	37	✓	
10 . Matrix Spike Sample Recovery (Form 5A-IN)	38	38	✓	
11 . Post-Digestion Spike Sample Recovery (Form 5B-IN)	39	39	✓	
12 . Duplicates (Form 6-IN)	40	40	✓	
13 . Laboratory Control Sample (Form 7-IN)	41	41	✓	
14 . ICP-AES Serial Dilutions (Form 8-IN)	42	42	✓	
15 . Method Detection Limits (Form 9-IN)	43	43	✓	

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

	PAGE NOS: FROM	TO	CHECK LAB	REGION
16. ICP-AES Interelement Correction Factors (Form 10A-IN)	44	44	✓	
17. ICP-AES Interelement Correction Factors (Form 10B-IN)	45	46	✓	
18. Analysis Log (Form 12-IN)	47	47	✓	
19. Initial Calibration (Form 15-IN)	48	50	✓	
20. Initial Calibration Summary (Form 16-IN)	51	51	✓	
21. ICP-AES Raw Data	52	161	✓	
22. ICP-AES Preparation Log Books,Preparation records, Analysis records, and PE Instructions	162	303	✓	
ICP-MS				
23. Inorganic Analysis Data Sheet (Form 1-IN)	NA	NA	✓	
24. Initial and Continuing Calibration Verification (Form 2-IN)	NA	NA	✓	
25. Blanks (Form 3-IN)	NA	NA	✓	
26. ICP Interference Check Sample (Form 4-IN)	NA	NA	✓	
27. Matrix Spike Sample Recovery (Form 5A-IN)	NA	NA	✓	
28. Post-Digestion Spike Sample Recovery (Form 5B-IN)	NA	NA	✓	
29. Duplicates (Form 6-IN)	NA	NA	✓	
30. Laboratory Control Sample (Form 7-IN)	NA	NA	✓	
31. ICP-MS Serial Dilutions (Form 8-IN)	NA	NA	✓	
32. Method Detection Limits (Form 9-IN)	NA	NA	✓	
33. ICP-MS Internal Standard Association (Form 11-IN)	NA	NA	✓	
34. Analysis Log (Form 12-IN)	NA	NA	✓	
35. ICP-MS Tune (Form 13-IN)	NA	NA	✓	
36. ICP-MS Internal Standard Relative Intensity Summary (Form 14-IN)	NA	NA	✓	
37. Initial Calibration (Form 15-IN)	NA	NA	✓	

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

	PAGE NOS: FROM	TO	CHECK LAB	REGION
38 . Initial Calibration Summary (Form 16-IN)	NA	NA	✓	
39 . ICP-MS Raw Data	NA	NA	✓	
40 . ICP-MS Preparation Log Books,Preparation records, Analysis records, and PE Instructions	NA	NA	✓	
Mercury				
41 . Inorganic Analysis Data Sheet (Form 1-IN)	304	319	✓	
42 . Initial and Continuing Calibration Verification (Form 2-IN)	320	320	✓	
43 . Blanks (Form 3-IN)	321	321	✓	
44 . Matrix Spike Sample Recovery (Form 5A-IN)	322	322	✓	
45 . Duplicates (Form 6-IN)	323	323	✓	
46 . Method Detection Limits (Form 9-IN)	324	324	✓	
47 . Analysis Log (Form 12-IN)	325	325	✓	
48 . Initial Calibration (Form 15-IN)	326	327	✓	
49 . Initial Calibration Summary (Form 16-IN)	328	328	✓	
50 . Mercury Raw Data	329	330	✓	
51 . Mercury Preparation Log Books,Preparation records, Analysis records, and PE Instructions	331	360	✓	
Cyanide				
52 . Inorganic Analysis Data Sheet (Form 1-IN)	NA	NA	✓	
53 . Initial and Continuing Calibration Verification (Form 2-IN)	NA	NA	✓	
54 . Blanks (Form 3-IN)	NA	NA	✓	
55 . Matrix Spike Sample Recovery (Form 5A-IN)	NA	NA	✓	
56 . Post-Distillation Spike Sample Recovery (Form 5B-IN)	NA	NA	✓	
57 . Duplicates (Form 6-IN)	NA	NA	✓	
58 . Method Detection Limits (Form 9-IN)	NA	NA	✓	

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

	PAGE NOS: FROM	TO	CHECK LAB	REGION
59. Analysis Log (Form 12-IN)	NA	NA	✓	
60. Initial Calibration (Form 15-IN)	NA	NA	✓	
61. Initial Calibration Summary (Form 16-IN)	NA	NA	✓	
62. Cyanide Raw Data	NA	NA	✓	
63. Cyanide Preparation Log Books,Preparation records, Analysis records, and PE Instructions	NA	NA	✓	
Additional				
64. Percent Solids Determination Log	NA	NA	✓	
65. EPA Shipping/Receiving Documents	NA	NA	✓	
Airbill (No. of Shipments 0)	NA	NA	✓	
Sample Tags	NA	NA	✓	
Sample Log-In Sheet (Lab)	361	364	✓	
66. Misc. Shipping/Receiving Records(list all individual records)				
Communication Logs	NA	NA	✓	
67. Internal Lab Sample Transfer Records &				
Tracking Sheets (describe or list)	365	366	✓	
68. Other Records (describe or list) Communication Logs	NA	NA	✓	

69. Comments:

Completed by:
(CLP Lab) _____ Nimisha Pandya, Document Control Officer _____
(Signature) (Print Name & Title) (Date)

Audited by:
(EPA) _____ _____ _____
(Signature) (Print Name & Title) (Date)

284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # Q3688
CASE # Sharkey Landfill Site FYR Reuse Morris County NJ
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID # Q3688

A. Number of Samples and Date of Receipt

16 Water samples were delivered to the laboratory intact on 11/19/2025, 11/20/2025, 11/21/2025, 11/24/2025.

B. Parameters

Test requested for Metals CLP12 = Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver, & Mercury.

C. Cooler Temp

Indicator Bottle**: Presence/**Absence

Cooler: 2.7^{o}C, 2.1^{o}C, 2.0^{o}C, & 2.3^{o}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:

$$\text{Concentration or Result } (\mu g/L) = C \times \frac{Vf}{Vi} \times DF \times 1000$$

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 M-31S For Chromium:

If C = 0.0006719 ppm
Vf = 50 ml
Vi = 50 ml
DF = 1

Concentration or Result (µg/L) = $0.0006719 \times \frac{50}{50} \times 1 \times 1000$

= 0.6719 µg/L

= 0.67 µg/L (Reported Result with Signification)

Calculation for Hg Water Sample:

Concentration or Result (µg/L) = C x DF
Where,
C = Instrument response in µg/L from the calibration curve.
DF = Dilution Factor

Example Calculation :

If C = 0.0278 ppb
DF = 1

Concentration or Result (µg/L) = 0.0278 x 1

= 0.0278 µg/L

= 0.028 µg/L (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. Duplicate sample did meet requirements. Serial Dilution did meet requirements.

284 Sheffield Street
Mountainside, NJ 07092

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

EPA SAMPLE NO.

FDGW-20251120

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-15

% Solids: Date Received: 11/20/2025

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
7440-38-2	Arsenic	10	U	12/08/2025	1300
7440-39-3	Barium	300		12/08/2025	1300
7440-43-9	Cadmium	0.30	J	12/08/2025	1300
7440-47-3	Chromium	5.3	J	12/08/2025	1300
7439-92-1	Lead	5.7	J	12/08/2025	1300
7782-49-2	Selenium	35	U	12/08/2025	1300
7440-22-4	Silver	2.7	J	12/08/2025	1300

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

Comments:

EPA SAMPLE NO.

M-28I

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-19

% Solids: Date Received: 11/21/2025

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
7440-38-2	Arsenic	10	U	12/08/2025	1328
7440-39-3	Barium	88	J	12/08/2025	1328
7440-43-9	Cadmium	5.0	U	12/08/2025	1328
7440-47-3	Chromium	12		12/08/2025	1328
7439-92-1	Lead	2.9	J	12/08/2025	1328
7782-49-2	Selenium	35	U	12/08/2025	1328
7440-22-4	Silver	10	U	12/08/2025	1328

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

Comments:

EPA SAMPLE NO.

M-28S

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-23

% Solids: Date Received: 11/24/2025

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
7440-38-2	Arsenic	6.1	J	12/08/2025	1342
7440-39-3	Barium	40	J	12/08/2025	1342
7440-43-9	Cadmium	5.0	U	12/08/2025	1342
7440-47-3	Chromium	4.1	J	12/08/2025	1342
7439-92-1	Lead	10	U	12/08/2025	1342
7782-49-2	Selenium	35	U	12/08/2025	1342
7440-22-4	Silver	10	U	12/08/2025	1342

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

Comments:

EPA SAMPLE NO.

M-29

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-17

% Solids: Date Received: 11/21/2025

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
7440-38-2	Arsenic	3.8	J	12/08/2025	1310
7440-39-3	Barium	84	J	12/08/2025	1310
7440-43-9	Cadmium	5.0	U	12/08/2025	1310
7440-47-3	Chromium	13		12/08/2025	1310
7439-92-1	Lead	6.0	J	12/08/2025	1310
7782-49-2	Selenium	35	U	12/08/2025	1310
7440-22-4	Silver	10	U	12/08/2025	1310

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

Comments:

EPA SAMPLE NO.

M-30I

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-13

% Solids: Date Received: 11/20/2025

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
7440-38-2	Arsenic	10	U	12/08/2025	1256
7440-39-3	Barium	43	J	12/08/2025	1256
7440-43-9	Cadmium	5.0	U	12/08/2025	1256
7440-47-3	Chromium	1.8	J	12/08/2025	1256
7439-92-1	Lead	10	U	12/08/2025	1256
7782-49-2	Selenium	35	U	12/08/2025	1256
7440-22-4	Silver	10	U	12/08/2025	1256

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

Comments:

EPA SAMPLE NO.

M-30S

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-12

% Solids: Date Received: 11/20/2025

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
7440-38-2	Arsenic	4.2	J	12/08/2025	1251
7440-39-3	Barium	300		12/08/2025	1251
7440-43-9	Cadmium	5.0	U	12/08/2025	1251
7440-47-3	Chromium	10		12/08/2025	1251
7439-92-1	Lead	5.1	J	12/08/2025	1251
7782-49-2	Selenium	35	U	12/08/2025	1251
7440-22-4	Silver	1.6	J	12/08/2025	1251

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

Comments:

EPA SAMPLE NO.

M-31I

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-09

% Solids: Date Received: 11/20/2025

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
7440-38-2	Arsenic	7.7	J	12/08/2025	1221
7440-39-3	Barium	64	J	12/08/2025	1221
7440-43-9	Cadmium	5.0	U	12/08/2025	1221
7440-47-3	Chromium	8.2	J	12/08/2025	1221
7439-92-1	Lead	10	U	12/08/2025	1221
7782-49-2	Selenium	35	U	12/08/2025	1221
7440-22-4	Silver	10	U	12/08/2025	1221

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

Comments:

EPA SAMPLE NO.

M-31S

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-01

% Solids: Date Received: 11/19/2025

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
7440-38-2	Arsenic	10	U	12/08/2025	1153
7440-39-3	Barium	52	J	12/08/2025	1153
7440-43-9	Cadmium	5.0	U	12/08/2025	1153
7440-47-3	Chromium	0.67	J	12/08/2025	1153
7439-92-1	Lead	10	U	12/08/2025	1153
7782-49-2	Selenium	35	U	12/08/2025	1153
7440-22-4	Silver	10	U	12/08/2025	1153

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

Comments:

EPA SAMPLE NO.

M-32I

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-06

% Solids: Date Received: 11/19/2025

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
7440-38-2	Arsenic	12		12/08/2025	1216
7440-39-3	Barium	100	J	12/08/2025	1216
7440-43-9	Cadmium	5.0	U	12/08/2025	1216
7440-47-3	Chromium	7.0	J	12/08/2025	1216
7439-92-1	Lead	2.4	J	12/08/2025	1216
7782-49-2	Selenium	35	U	12/08/2025	1216
7440-22-4	Silver	10	U	12/08/2025	1216

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

Comments:

EPA SAMPLE NO.

M-32S

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-10

% Solids: Date Received: 11/20/2025

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
7440-38-2	Arsenic	10	U	12/08/2025	1242
7440-39-3	Barium	100	J	12/08/2025	1242
7440-43-9	Cadmium	5.0	U	12/08/2025	1242
7440-47-3	Chromium	7.8	J	12/08/2025	1242
7439-92-1	Lead	10	U	12/08/2025	1242
7782-49-2	Selenium	35	U	12/08/2025	1242
7440-22-4	Silver	10	U	12/08/2025	1242

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

Comments:

EPA SAMPLE NO.

RBGW-20251119

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-04

% Solids: Date Received: 11/19/2025

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
7440-38-2	Arsenic	10	U	12/08/2025	1212
7440-39-3	Barium	200	U	12/08/2025	1212
7440-43-9	Cadmium	5.0	U	12/08/2025	1212
7440-47-3	Chromium	10	U	12/08/2025	1212
7439-92-1	Lead	10	U	12/08/2025	1212
7782-49-2	Selenium	35	U	12/08/2025	1212
7440-22-4	Silver	10	U	12/08/2025	1212

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

Comments:

EPA SAMPLE NO.

RBGW-20251120

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-11

% Solids: Date Received: 11/20/2025

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
7440-38-2	Arsenic	10	U	12/08/2025	1247
7440-39-3	Barium	200	U	12/08/2025	1247
7440-43-9	Cadmium	5.0	U	12/08/2025	1247
7440-47-3	Chromium	10	U	12/08/2025	1247
7439-92-1	Lead	10	U	12/08/2025	1247
7782-49-2	Selenium	35	U	12/08/2025	1247
7440-22-4	Silver	10	U	12/08/2025	1247

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

Comments:

EPA SAMPLE NO.

RBGW-20251121

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-18

% Solids: Date Received: 11/21/2025

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
7440-38-2	Arsenic	10	U	12/08/2025	1323
7440-39-3	Barium	200	U	12/08/2025	1323
7440-43-9	Cadmium	5.0	U	12/08/2025	1323
7440-47-3	Chromium	10	U	12/08/2025	1323
7439-92-1	Lead	10	U	12/08/2025	1323
7782-49-2	Selenium	35	U	12/08/2025	1323
7440-22-4	Silver	10	U	12/08/2025	1323

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

Comments:

EPA SAMPLE NO.

RBGW-20251124

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-22

% Solids: Date Received: 11/24/2025

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
7440-38-2	Arsenic	10	U	12/08/2025	1337
7440-39-3	Barium	200	U	12/08/2025	1337
7440-43-9	Cadmium	5.0	U	12/08/2025	1337
7440-47-3	Chromium	10	U	12/08/2025	1337
7439-92-1	Lead	10	U	12/08/2025	1337
7782-49-2	Selenium	35	U	12/08/2025	1337
7440-22-4	Silver	10	U	12/08/2025	1337

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

Comments:

EPA SAMPLE NO.

WS-1

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-20

% Solids: Date Received: 11/21/2025

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
7440-38-2	Arsenic	10	U	12/08/2025	1333
7440-39-3	Barium	320		12/08/2025	1333
7440-43-9	Cadmium	5.0	U	12/08/2025	1333
7440-47-3	Chromium	36		12/08/2025	1333
7439-92-1	Lead	10	U	12/08/2025	1333
7782-49-2	Selenium	35	U	12/08/2025	1333
7440-22-4	Silver	10	U	12/08/2025	1333

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

Comments:

EPA SAMPLE NO.

WS-14

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-16

% Solids: Date Received: 11/21/2025

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
7440-38-2	Arsenic	10	U	12/08/2025	1305
7440-39-3	Barium	94	J	12/08/2025	1305
7440-43-9	Cadmium	5.0	U	12/08/2025	1305
7440-47-3	Chromium	33		12/08/2025	1305
7439-92-1	Lead	10	U	12/08/2025	1305
7782-49-2	Selenium	35	U	12/08/2025	1305
7440-22-4	Silver	0.35	J	12/08/2025	1305

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

Comments:

FORM 2 - IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

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

Lab Code: ACE Case No.: Sharkey Landf MA No. : SDG No.: Q3688

Initial Calibration Verification Source :

Continuing Calibration Verification Source :

Run Batch: LB138160 Analytical Method: ICP-AES

Concentration Units: µg/L

	Initial Calibration Verification				Continuing Calibration Verification						
	ID: ICV001				ID: CCV001				ID: CCV002		
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	Found	%R	%RSD
Arsenic	4000	3900	98	0	5000	5200	104	0	5300	105	0
Barium	8000	8800	110	1	10000	10000	104	0	11000	106	1
Cadmium	2000	2000	102	1	2500	2600	103	1	2600	102	0
Chromium	800	850	106	1	15500	16000	103	0	16000	102	0
Lead	4000	3800	94	0	25000	26000	102	0	26000	102	0
Selenium	4000	4100	102	1	5000	5300	106	1	5400	107	0
Silver	1000	1100	107	1	1250	1300	104	0	1300	102	0

FORM 2 - IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

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

Lab Code: ACE Case No.: Sharkey Landf MA No. : SDG No.: Q3688

Initial Calibration Verification Source :

Continuing Calibration Verification Source :

Run Batch: LB138160 Analytical Method: ICP-AES

Concentration Units: µg/L

	Initial Calibration Verification				Continuing Calibration Verification						
	ID:				ID: CCV003				ID:		
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	Found	%R	%RSD
Arsenic					5000	5200	105	1			
Barium					10000	11000	107	0			
Cadmium					2500	2500	101	1			
Chromium					15500	15000	100	0			
Lead					25000	25000	100	0			
Selenium					5000	5400	107	1			
Silver					1250	1300	102	0			

FORM 3 - IN
BLANKS

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

Lab Code: ACE Case No.: Sharkey Land MA No. : SDG No.: Q3688

Preparation Blank Matrix : Water

Preparation Blank Concentration Units (µg/L, mg/L, mg/kg dry weight, or µg): ug/L

Analytical Method: ICP-AES Preparation Batch: PB170814

Run Batch: LB138160 Preparation Method: 200.7

Analyte	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank/Leachate Extraction Blank	
	ID: ICB001	Q	ID: CCB001	Q	ID: CCB002	Q	ID: CCB003	Q	ID: PBW814	Q
Arsenic	10.0	U	10.0	U	10.0	U	-3.0	J	-3.8	J
Barium	200	U	200	U	200	U	200	U	200	U
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chromium	10.0	U	0.68	J	10.0	U	0.81	J	10.0	U
Lead	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Selenium	35.0	U	35.0	U	35.0	U	35.0	U	35.0	U
Silver	2.5	J	10.0	U	10.0	U	10.0	U	10.0	U

FORM 4 - IN

ICP INTERFERENCE CHECK SAMPLE

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

Lab Code: ACE Case No.: Sharkey Lan MA No. : SDG No.: Q3688

Analytical Method: ICP-AES ICSA Source: EPA-1211

Instrument ID: P4 ICSB Source: EPA-0710

Run Batch: LB138160

Concentration Units: ug/L

Analyte	True		Found			
	ICSA	ICSAB	ICSA	%R	ICSAB	%R
Aluminum	255000	247000	210000	84	220000	90
Antimony	0	618	11		600	97
Arsenic	0	104	5.4		91	87
Barium	6	537	7.2	119	520	96
Beryllium	0	495	0.47		530	106
Cadmium	1	972	0.82	82	860	89
Calcium	245000	235000	230000	93	240000	101
Chromium	52	542	61	118	610	113
Cobalt	0	476	3.1		520	109
Copper	2	511	-3.5	-175	510	100
Iron	101000	99300	92000	91	97000	97
Lead	0	49	2.0		51	104
Magnesium	255000	248000	220000	87	230000	93
Manganese	7	507	19	270	530	105
Nickel	2	954	8.5	423	1000	109
Potassium	0	0	160		-140	
Selenium	0	46	27		67	147
Silver	0	201	-8.1		170	85
Sodium	0	0	66		-740	
Thallium	0	108	6.0		87	81
Vanadium	0	491	-7.8		500	101
Zinc	0	952	-0.28		1000	107

EPA SAMPLE NO.

M-31SS

FORM 5A - IN

MATRIX SPIKE SAMPLE RECOVERY

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

Lab Code: ACE Case No.: Sharkey Lanc MA No. : SDG No.: Q3688

Matrix : Water Analytical Method: ICP-AES

% Solids:

Concentration Units (µg/L, mg/L or mg/kg dry weight): ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	Q	Sample Result (SR)	Q	Spike Added (SA)	%R	Q
Arsenic	75 - 125	32		10.0	U	40.0	79	
Barium	75 - 125	1900		52	J	2000	90	
Cadmium	75 - 125	43		5.0	U	50.0	86	
Chromium	75 - 125	220		0.67	J	200	108	
Lead	75 - 125	19		10.0	U	20.0	96	
Selenium	75 - 125	83		35.0	U	100	83	
Silver	75 - 125	48		10.0	U	50.0	96	

EPA SAMPLE NO.

FORM 5B - IN

POST-DIGESTION/DISTILLATION SPIKE
SAMPLE RECOVERY

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ MA No. : _____ SDG No.: _____

Matrix : _____ Analytical Method: _____

% Solids: _____

Concentration Units (µg/L, mg/L or mg/kg dry weight): _____

Analyte	Control Limit %R	Spiked Sample Result (SSR)	Q	Sample Result (SR)	Q	Spike Added (SA)	%R	Q

EPA SAMPLE NO.

M-31SD

FORM 6 - IN
DUPLICATES

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

Lab Code: ACE Case No.: Sharkey Landf MA No. : SDG No.: Q3688

Matrix : Water Analytical Method: ICP-AES

% Solids:

Concentration Units (µg/L, mg/L or mg/kg dry weight): ug/L

Analyte	Control Limit	Sample (S)	Q	Duplicate (D)	Q	RPD	Q
Arsenic		10.0	U	10.0	U		
Barium		52	J	52	J		
Cadmium		5.0	U	5.0	U		
Chromium		0.67	J	1.6	J		
Lead		10.0	U	10.0	U		
Selenium		35.0	U	35.0	U		
Silver		10.0	U	10.0	U		

EPA SAMPLE NO.

LCS814

FORM 7-IN

LABORATORY CONTROL SAMPLE

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

Lab Code: ACE Case No.: Sharkey Landfill SAS No.: SDG No.: Q3688

Matrix : Water Preparation Method: 200.7

Analytical Method: ICP-AES Preparation Batch: PB170814

Concentration Units (µg/L, mg/L, mg/kg dry weight, or µg): ug/L

Analyte	True	Found	%R
Arsenic	20	18	88
Barium	400	400	101
Cadmium	10	9.1	91
Chromium	20	22	112
Lead	20	21	102
Selenium	70	59	85
Silver	20	14	71

EPA SAMPLE NO.

M-31SL

FORM 8-IN

ICP-AES AND ICP-MS SERIAL DILUTIONS

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

Lab Code: ACE Case No.: Sharkey I MA No.: SDG No.: Q3688

Matrix : Water Analytical Method: ICP-AES

% Solids:

Concentration Units (µg/L, mg/L or mg/kg dry weight): ug/L

Analyte	Initial Sample Result (I)	Q	Serial Dilution Result(S)	Q	% Difference	Q
Arsenic	10.0	U	50.0	U		
Barium	52	J	47	J	10	
Cadmium	5.0	U	25.0	U		
Chromium	0.67	J	50.0	U	100	
Lead	10.0	U	50.0	U		
Selenium	35.0	U	180	U		
Silver	10.0	U	50.0	U		

FORM 9-IN

METHOD DETECTION LIMIT

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

Lab Code: ACE Case No.: Sharkey MA No.: SDG No.: Q3688

Analytical Method: ICP-AES Instrument ID: P4

Preparation Method:

Concentration Units (µg/L, µg or mg/kg): ug/L

Analyte	Wavelength/Mass	MDL	Date Analyzed
Arsenic	189.04	2.9	12/17/2024
Barium	493.41	3.8	12/17/2024
Cadmium	214.438	0.23	12/17/2024
Chromium	267.72	0.57	12/17/2024
Lead	220.35	2.3	12/17/2024
Selenium	196.09	4.7	12/17/2024
Silver	328.07	0.27	12/17/2024

FORM 10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS

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

Lab Code: ACE Case No.: Sharkey Landf MA No.: SDG No.: Q3688

Instrument ID: P4 Date : 01/10/2025

Analyte	Wave-Length (nm)	Interelement Correction Factors For				
		Al	Ca	Fe	Mg	Co
Aluminum	396.152	0	0	0	0	0
Antimony	206.833	0	0	0	0	0
Arsenic	189.042	0	0	-0.000094	0	0
Barium	493.409	0	0	0	0	0
Beryllium	234.861	0	0	0.000017	0	0
Cadmium	214.438	0	0	0.000033	0	0
Calcium	373.690	0	0	0	0	0
Chromium	267.716	0	0	0	0	0
Cobalt	228.616	0	0	0	0	0
Copper	324.754	0	0	-0.000073	0	0
Iron	259.837	0	0	0	0	0
Lead	220.353	-0.000145	0	0.000040	0	0
Magnesium	279.079	0	0	0	0	0
Manganese	257.61	0	0	-0.000069	0	0
Nickel	231.604	0	0	0	0	0.00082
Potassium	769.896	0	0	0	0	0
Selenium	196.09	0	0	-0.00035	0	-0.00092
Silver	328.068	0	0	-0.00018	0	0
Sodium	818.326	0	0	0	0	0
Thallium	190.856	0	0	-0.00010	0	0.00673
Vanadium	292.402	0	0	0.000094	0	0
Zinc	213.856	0	0	0.00016	0	0

FORM 10B-IN
ICP-AES INTERELEMENT CORRECTION FACTORS

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

Lab Code: ACE Case No.: Sharkey Landf MA No.: SDG No.: Q3688

Instrument ID: P4 Date : 01/10/2025

Analyte	Wave-Length (nm)	Interelement Correction Factors For				
		Cr	Cu	Mn	Mo	Ni
Aluminum	396.152	0	0	0	0.0365	0
Antimony	206.833	0.00944	0	0	-0.0056	0
Arsenic	189.042	-0.00080	0	0	0.0013	0
Barium	493.409	0	0	0	0	0
Beryllium	234.861	0	0	-0.00012	-0.00060	0
Cadmium	214.438	0	0	0	0	0
Calcium	373.690	0	0	0	0	0
Chromium	267.716	0	0	0.00026	0	0
Cobalt	228.616	0	0	0	0	0
Copper	324.754	0	0	0	-0.0015	0
Iron	259.837	0	0	0	0	0
Lead	220.353	0	0.00029	0	-0.0014	0
Magnesium	279.079	0	0	0	0	0
Manganese	257.61	0	0	0	0	0
Nickel	231.604	0	0	0	0	0
Potassium	769.896	0	0	0	0	0
Selenium	196.09	0	0	0.00058	0	0
Silver	328.068	0	0	0	0	0
Sodium	818.326	0	0	0	0	0
Thallium	190.856	0	0	0.00188	-0.0125	0
Vanadium	292.402	-0.0056	0	0	-0.0157	0
Zinc	213.856	0	0	0	0	0.0080

FORM 10B-IN
ICP-AES INTERELEMENT CORRECTION FACTORS

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

Lab Code: ACE Case No.: Sharkey Landf MA No.: SDG No.: Q3688

Instrument ID: P4 Date : 01/10/2025

Analyte	Wave-Length (nm)	Interelement Correction Factors For Pb	Ti	V	Zn	
Aluminum	396.152	0	0	0	0	
Antimony	206.833	0	0	-0.00184	0	
Arsenic	189.042	0	0	0	0	
Barium	493.409	0	0	0	0	
Beryllium	234.861	0	0	0	0	
Cadmium	214.438	0	0	0	0	
Calcium	373.690	0	0	0	0	
Chromium	267.716	0	0	0	0	
Cobalt	228.616	0	0.0019	0	0	
Copper	324.754	0	0	0	0	
Iron	259.837	0	0	0	0	
Lead	220.353	0	-0.00037	0	0	
Magnesium	279.079	0	0	0	0	
Manganese	257.61	0	0	0	0	
Nickel	231.604	0	0	0	0	
Potassium	769.896	0	0	0	0	
Selenium	196.09	0	0	0	0	
Silver	328.068	0	-0.00022	-0.00038	0	
Sodium	818.326	0	0	0	0	
Thallium	190.856	0	-0.0025	-0.02068	0	
Vanadium	292.402	0	0.0010	0	0	
Zinc	213.856	0	0	0	0	

FORM 12-IN
ANALYSIS LOG

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

Lab Code: ACE Case No.: Sharkey I MA No.: SDG No.: Q3688

Instrument ID: P4 Analytical Method: ICP-AES

Start Date: 12/08/2025 End Date: 12/08/2025

Run Batch: LB138160

EPA Sample No.	D/F	Time	Analytes																									
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
S0	1.0	1007			X	X		X		X				X						X	X							
S01	1.0	1012			X	X		X		X				X						X	X							
S02	1.0	1016			X	X		X		X				X						X	X							
S03	1.0	1021			X	X		X		X				X						X	X							
S04	1.0	1025			X	X		X		X				X						X	X							
S05	1.0	1029			X	X		X		X				X						X	X							
S06	1.0	1034			X	X		X		X				X						X	X							
ICV001	1.0	1106			X	X		X		X				X						X	X							
ICB001	1.0	1121			X	X		X		X				X						X	X							
ICSA001	1.0	1126	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ICSAB001	1.0	1140	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCV001	1.0	1144			X	X		X		X				X						X	X							
CCB001	1.0	1149			X	X		X		X				X						X	X							
M-31S	1.0	1153			X	X		X		X				X						X	X							
M-31SL	5.0	1158																										
M-31SD	1.0	1207			X	X		X		X				X						X	X							
RBGW-20251	1.0	1212			X	X		X		X				X						X	X							
M-32I	1.0	1216			X	X		X		X				X						X	X							
M-31I	1.0	1221			X	X		X		X				X						X	X							
M-31SS	1.0	1238			X	X		X		X				X						X	X							
M-32S	1.0	1242			X	X		X		X				X						X	X							
RBGW-20251	1.0	1247			X	X		X		X				X						X	X							
M-30S	1.0	1251			X	X		X		X				X						X	X							
M-30I	1.0	1256			X	X		X		X				X						X	X							
FDGW-20251	1.0	1300			X	X		X		X				X						X	X							
WS-14	1.0	1305			X	X		X		X				X						X	X							
M-29	1.0	1310			X	X		X		X				X						X	X							
CCV002	1.0	1314			X	X		X		X				X						X	X							
CCB002	1.0	1319			X	X		X		X				X						X	X							
RBGW-20251	1.0	1323			X	X		X		X				X						X	X							
M-28I	1.0	1328			X	X		X		X				X						X	X							
WS-1	1.0	1333			X	X		X		X				X						X	X							
RBGW-20251	1.0	1337			X	X		X		X				X						X	X							
M-28S	1.0	1342			X	X		X		X				X						X	X							
PBW814	1.0	1346			X	X		X		X				X						X	X							
LCS814	1.0	1413			X	X		X		X				X						X	X							
CCV003	1.0	1417			X	X		X		X				X						X	X							
CCB003	1.0	1422			X	X		X		X				X						X	X							

FORM 15-IN

INITIAL CALIBRATION

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

Lab Code: ACE Case No.: Sharkey Lar MA No.: _____ SDG No.: Q3688

Instrument ID: P4 Start Date: 12/08/2025

Analytical Method: ICP-AES Run Batch: LB138160

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Arsenic	0	0.0	0	10	7.6	-24	1250	1200	-4
Barium	0	0.030	0	200	180	-10	2500	2300	-8
Cadmium	0	0.0	0	5	4.1	-18	625	630	1
Chromium	0	-0	0	10	10	0	3875	4000	3
Lead	0	-0	0	10	11	10	6250	6100	-2
Selenium	0	0.010	0	35	26	-26	1250	1200	-4
Silver	0	0.0	0	10	7.9	-21	312.5	300	-4

FORM 15-IN

INITIAL CALIBRATION

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

Lab Code: ACE Case No.: Sharkey Lar MA No.: _____ SDG No.: Q3688

Instrument ID: P4 Start Date: 12/08/2025

Analytical Method: ICP-AES Run Batch: LB138160

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Arsenic	2500	2400	-4	5000	4900	-2	10000	10000	0
Barium	5000	4900	-2	10000	9900	-1	20000	20000	0
Cadmium	1250	1300	4	2500	2500	0	5000	5000	0
Chromium	7750	8100	5	15500	16000	3	31000	30000	-3
Lead	12500	12000	-4	25000	25000	0	50000	50000	0
Selenium	2500	2500	0	5000	4900	-2	10000	10000	0
Silver	625	620	-1	1250	1200	-4	2500	2500	0

FORM 15-IN

INITIAL CALIBRATION

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

Lab Code: ACE Case No.: Sharkey Lar MA No.: _____ SDG No.: Q3688

Instrument ID: P4 Start Date: 12/08/2025

Analytical Method: ICP-AES Run Batch: LB138160

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Arsenic	0	0.0	0						
Barium	0	0.0	0						
Cadmium	0	0.0	0						
Chromium	0	0.0	0						
Lead	0	0.0	0						
Selenium	0	0.0	0						
Silver	0	0.0	0						

FORM 16-IN

INITIAL CALIBRATION SUMMARY

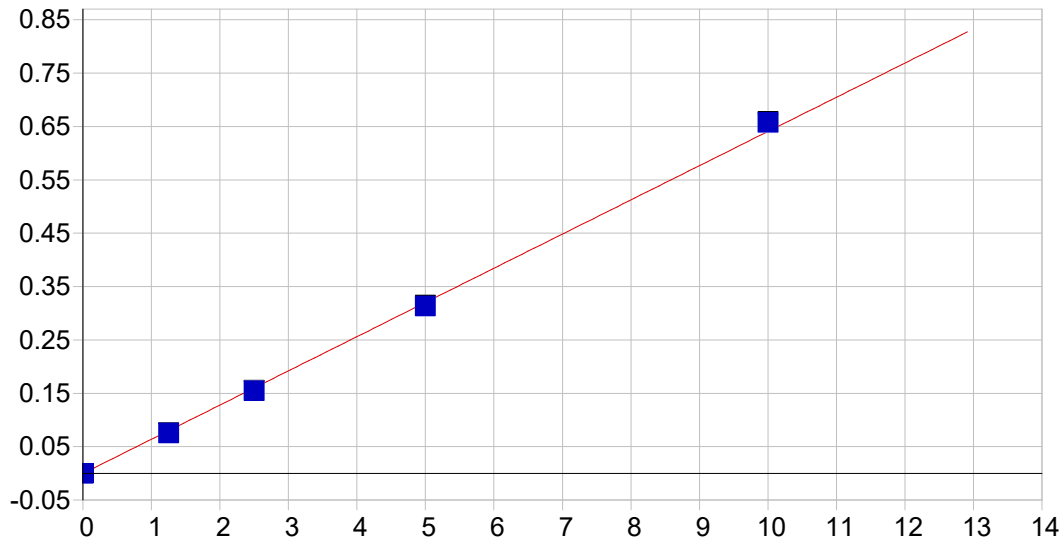
Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: Sharkey Land MA No.: SDG No.: Q3688

Instrument ID: P4 Start Date : 12/08/2025

Analytical Method: ICP-AES Run Batch : LB138160

Analyte	Corr. Coeff.	Slope	Intercept	Calib. Type	Weighting
Aluminum	0.995501	0.013717	-0.000111	Lin. Reg	NONE
Antimony	0.999539	0.101085	0.000903	Lin. Reg	NONE
Arsenic	0.999569	0.064094	-0.000280	Lin. Reg	NONE
Barium	0.999673	0.256771	0.002482	Lin. Reg	NONE
Beryllium	0.999662	5.526770	-0.002990	Lin. Reg	NONE
Cadmium	0.999948	2.067768	-0.000634	Lin. Reg	NONE
Calcium	0.997249	0.007664	0.000170	Lin. Reg	NONE
Chromium	0.999696	0.135036	0.000131	Lin. Reg	NONE
Cobalt	0.999986	0.929949	-0.000389	Lin. Reg	NONE
Copper	0.999967	0.109722	0.002818	Lin. Reg	NONE
Iron	0.997714	0.003637	0.000018	Lin. Reg	NONE
Lead	0.999973	0.171293	0.000075	Lin. Reg	NONE
Magnesium	0.995546	0.001597	0.000002	Lin. Reg	NONE
Manganese	0.999953	0.050170	-0.000004	Lin. Reg	NONE
Nickel	0.999985	0.525269	-0.001059	Lin. Reg	NONE
Phosphorus	0.999589	0.039135	-0.000884	Lin. Reg	NONE
Potassium	0.999115	0.002302	0.005352	Lin. Reg	NONE
Selenium	0.999741	0.078185	0.000319	Lin. Reg	NONE
Silver	0.999819	0.227650	-0.000649	Lin. Reg	NONE
Sodium	0.997847	0.002729	-0.005729	Lin. Reg	NONE
Thallium	0.999165	0.038741	0.000342	Lin. Reg	NONE
Tin	0.999116	0.120441	0.003106	Lin. Reg	NONE
Titanium	0.999961	0.288418	0.001670	Lin. Reg	NONE
Vanadium	0.999975	0.126563	0.000031	Lin. Reg	NONE
Zinc	0.999721	0.202225	0.001023	Lin. Reg	NONE

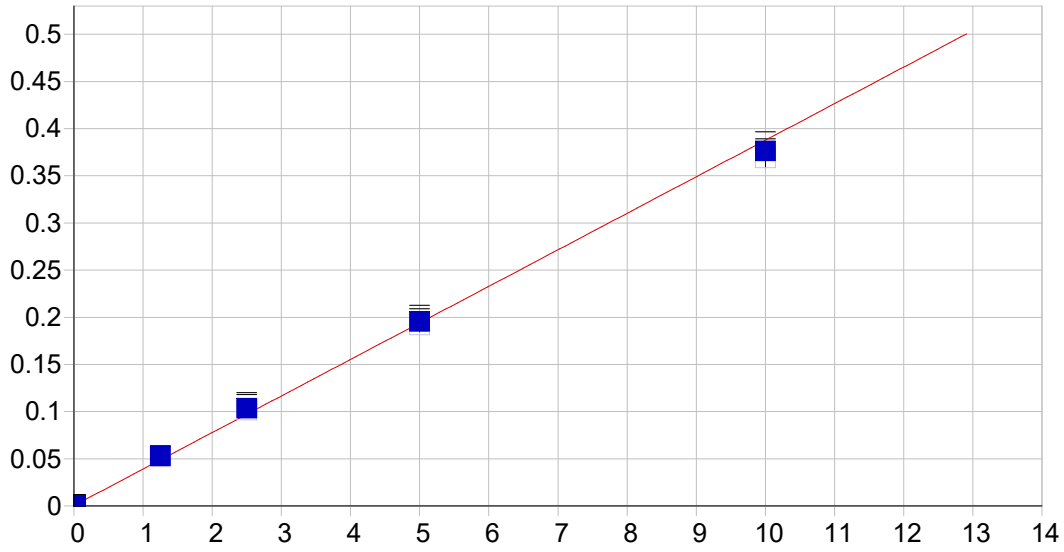


As 189.042 {479}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000280	Re-Slope:	1.000000
A1 (Gain):	0.064094	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999569	Status:	OK.
Std Error of Est:	0.000031		
Predicted MDL:	0.003757		
Predicted MQL:	0.012524		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00028	.000	1
S1	.01000	.00755	-.002	-24.5	.00020	.000	1
S3	2.5000	2.4165	-.084	-3.34	.15432	.001	1
S4	5.0000	4.8903	-.110	-2.19	.31259	.002	1
S5	10.000	10.262	.262	2.62	.65628	.002	1
S2	1.2500	1.1841	-.066	-5.27	.07547	.000	1

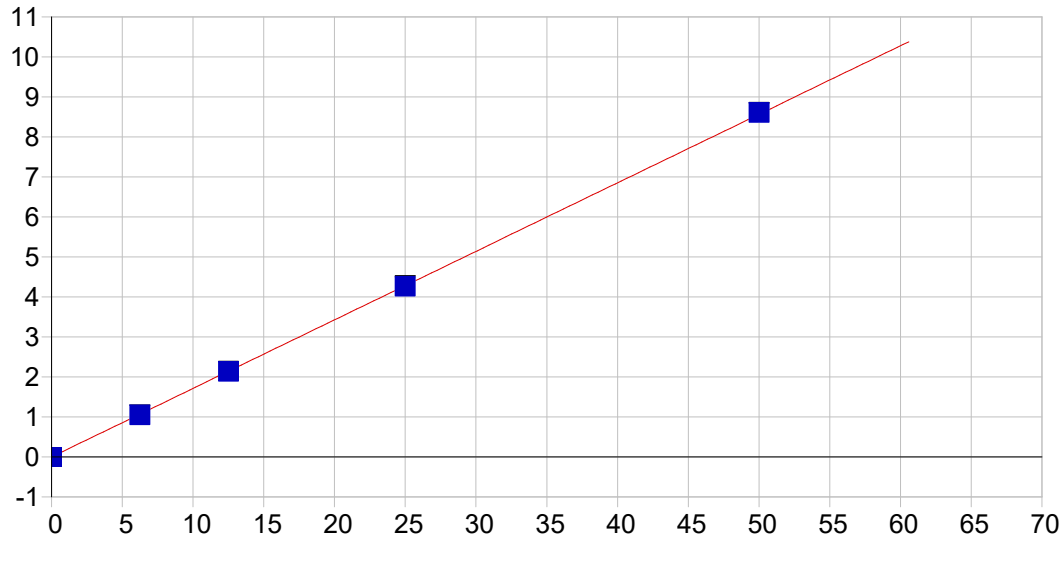


Tl 190.856 {477}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000342	Re-Slope:	1.000000
A1 (Gain):	0.038741	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999165	Status:	OK.
Std Error of Est:	0.000041		
Predicted MDL:	0.004207		
Predicted MQL:	0.014024		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00034	.000	1
S1	.02500	.01907	-.006	-23.7	.00104	.000	1
S3	2.5000	2.6603	.160	6.41	.10153	.006	1
S4	5.0000	5.0332	.033	.665	.19159	.007	1
S5	10.000	9.7034	-.297	-2.97	.36878	.010	1
S2	1.2500	1.3588	.109	8.71	.05205	.000	1

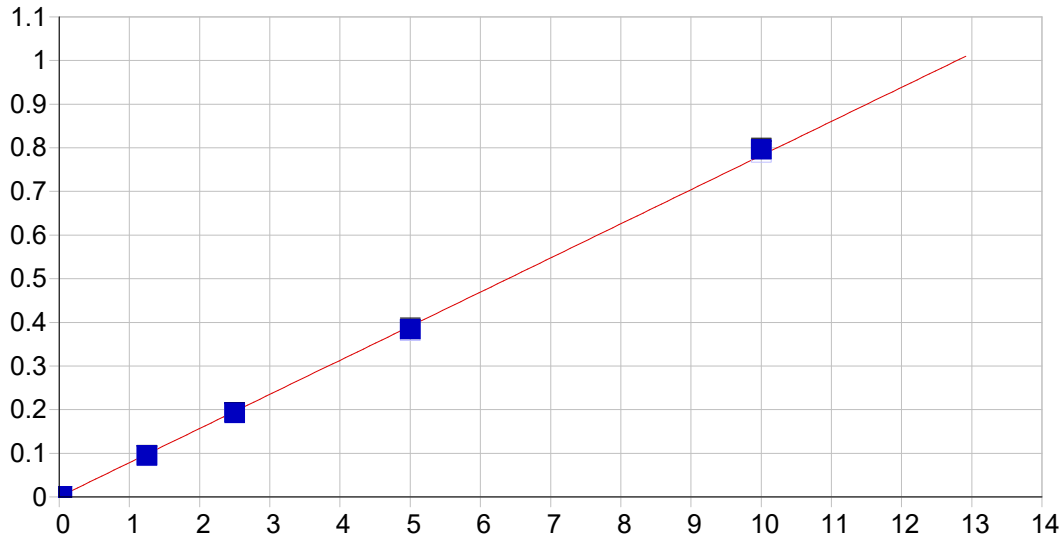


Pb 220.353 {453}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000075	Re-Slope:	1.000000
A1 (Gain):	0.171293	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999973	Status:	OK.
Std Error of Est:	0.000047		
Predicted MDL:	0.002076		
Predicted MQL:	0.006920		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00007	.000	1
S1	.01000	.01104	.001	10.4	.00195	.000	1
S3	12.500	12.466	-.034	-.273	2.1336	.006	1
S4	25.000	24.910	-.090	-.359	4.2634	.013	1
S5	50.000	50.263	.263	.526	8.6025	.008	1
S2	6.2500	6.1101	-.140	-2.24	1.0458	.001	1

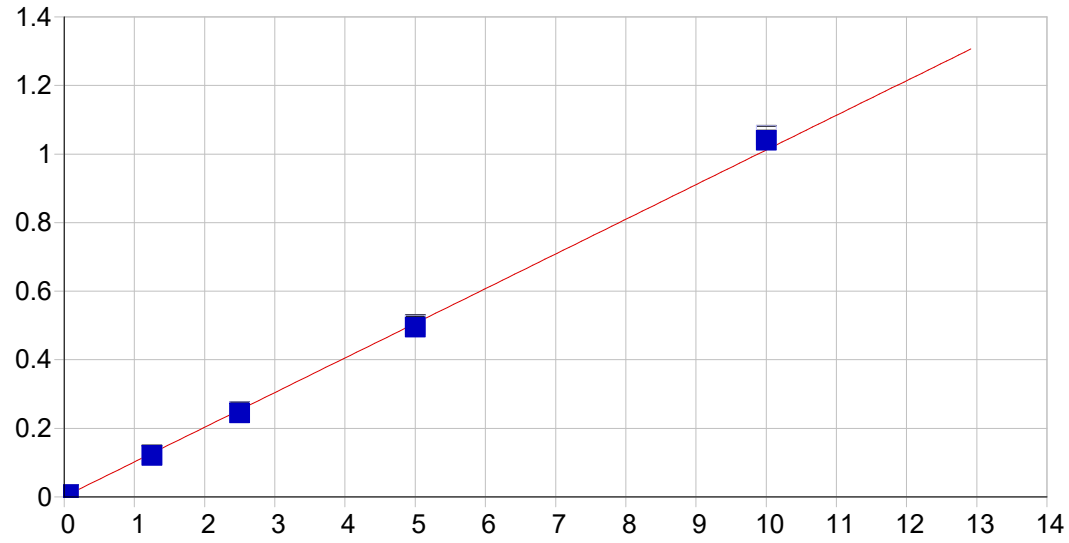


Se 196.090 {472}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000319	Re-Slope:	1.000000
A1 (Gain):	0.078185	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999741	Status:	OK.
Std Error of Est:	0.000055		
Predicted MDL:	0.003791		
Predicted MQL:	0.012635		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00032	.000	1
S1	.03500	.02603	-.009	-25.6	.00235	.000	1
S3	2.5000	2.4624	-.038	-1.51	.19104	.001	1
S4	5.0000	4.9094	-.091	-1.81	.38056	.003	1
S5	10.000	10.183	.183	1.83	.78929	.003	1
S2	1.2500	1.2040	-.046	-3.68	.09355	.001	1

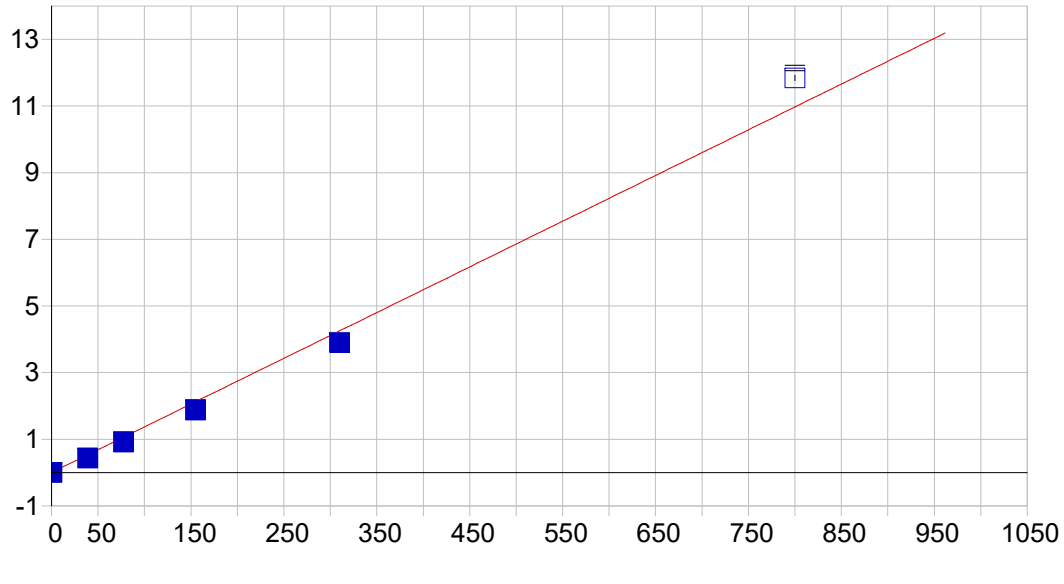


Sb 206.833 {463}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000903	Re-Slope:	1.000000
A1 (Gain):	0.101085	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999539	Status:	OK.
Std Error of Est:	0.000128		
Predicted MDL:	0.002625		
Predicted MQL:	0.008751		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00090	.000	1
S1	.06000	.05510	-.005	-8.17	.00646	.000	1
S3	2.5000	2.4145	-.086	-3.42	.24834	.001	1
S4	5.0000	4.8853	-.115	-2.29	.50148	.002	1
S5	10.000	10.277	.277	2.77	1.0533	.001	1
S2	1.2500	1.1778	-.072	-5.78	.12165	.000	1

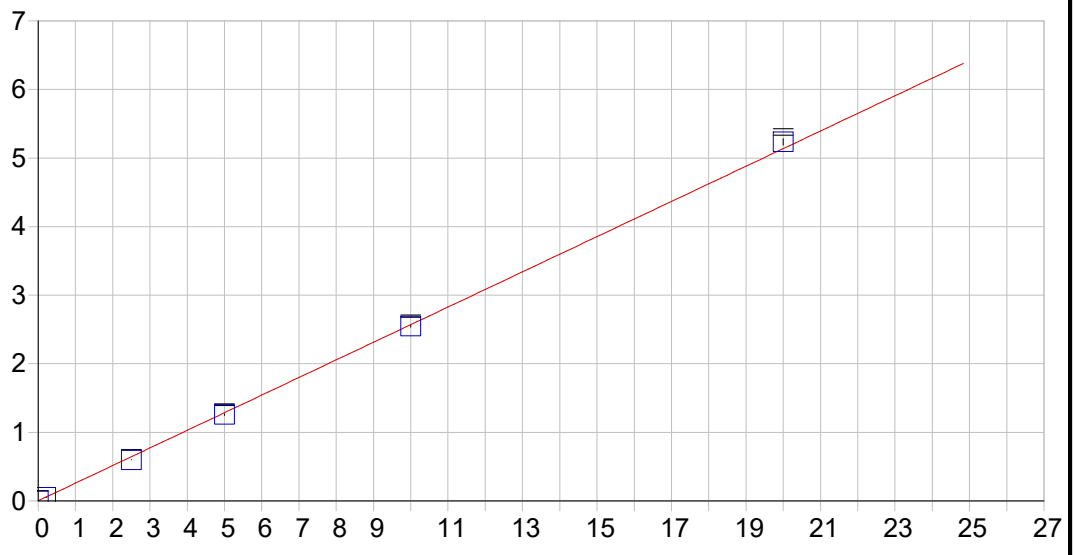


Al 396.152 { 85}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000111	Re-Slope:	1.000000
A1 (Gain):	0.013717	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.995501	Status:	OK.
Std Error of Est:	0.000812		
Predicted MDL:	0.009387		
Predicted MQL:	0.031291		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00013	.000	.000	-.00011	.000	1
S1	.20000	.16521	-.035	-17.4	.00216	.000	1
S3	77.500	66.543	-11.0	-14.1	.91388	.005	1
S4	155.00	136.33	-18.7	-12.0	1.8723	.015	1
S5	310.00	283.86	-26.1	-8.43	3.8986	.010	1
S2	38.750	31.164	-7.59	-19.6	.42798	.002	1
S6	800.00	863.46	63.5	7.93	11.844	.078	1

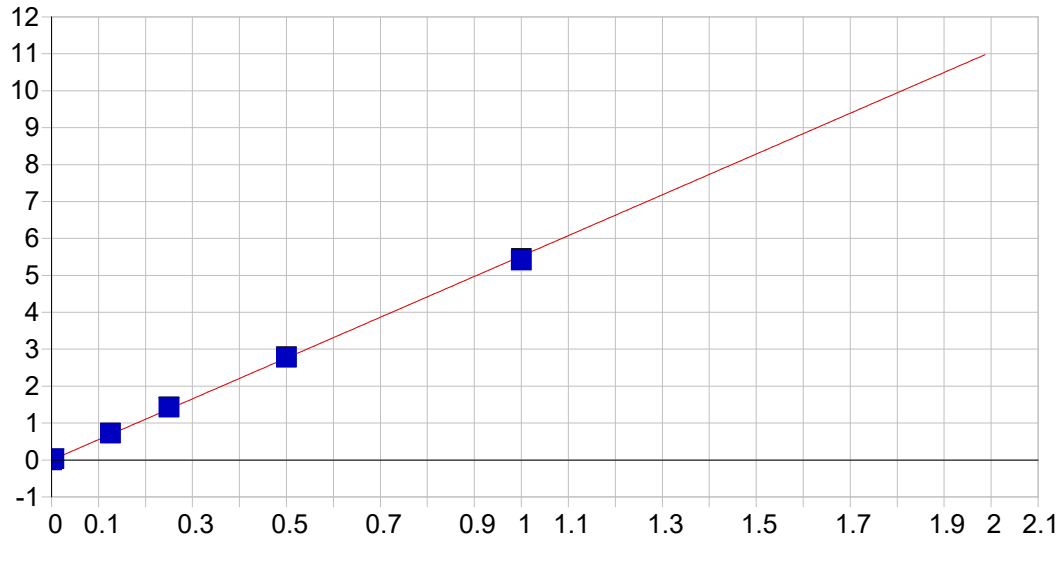


Ba 493.409 { 68}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002482	Re-Slope:	1.000000
A1 (Gain):	0.256771	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999673	Status:	OK.
Std Error of Est:	0.000698		
Predicted MDL:	0.001374		
Predicted MQL:	0.004580		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	.00249	.000	1
S1	.20000	.18361	-.016	-8.20	.04963	.000	1
S3	5.0000	4.8885	-.111	-2.23	1.2577	.012	1
S4	10.000	9.9223	-.078	-.777	2.5502	.016	1
S5	20.000	20.385	.385	1.92	5.2366	.047	1
S2	2.5000	2.3211	-.179	-7.16	.59847	.002	1

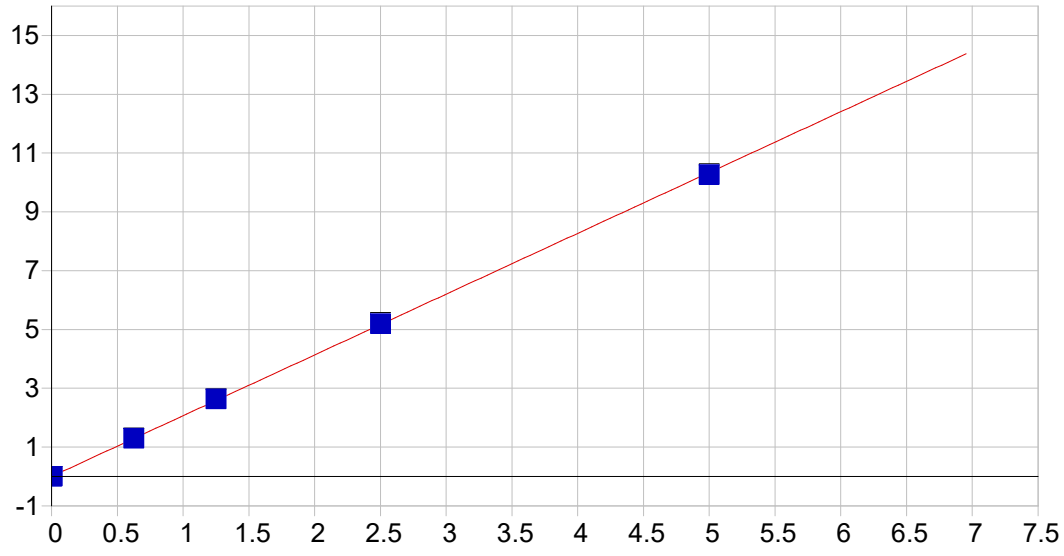


Be 234.861 {144}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002990	Re-Slope:	1.000000
A1 (Gain):	5.526770	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999662	Status:	OK.
Std Error of Est:	0.000537		
Predicted MDL:	0.000101		
Predicted MQL:	0.000336		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00300	.000	1
S1	.00500	.00596	.001	19.3	.02993	.000	1
S3	.25000	.25919	.009	3.68	1.4233	.007	1
S4	.50000	.50409	.004	.818	2.7706	.011	1
S5	1.0000	.97971	-.020	-2.03	5.3868	.044	1
S2	.12500	.13104	.006	4.83	.71813	.003	1

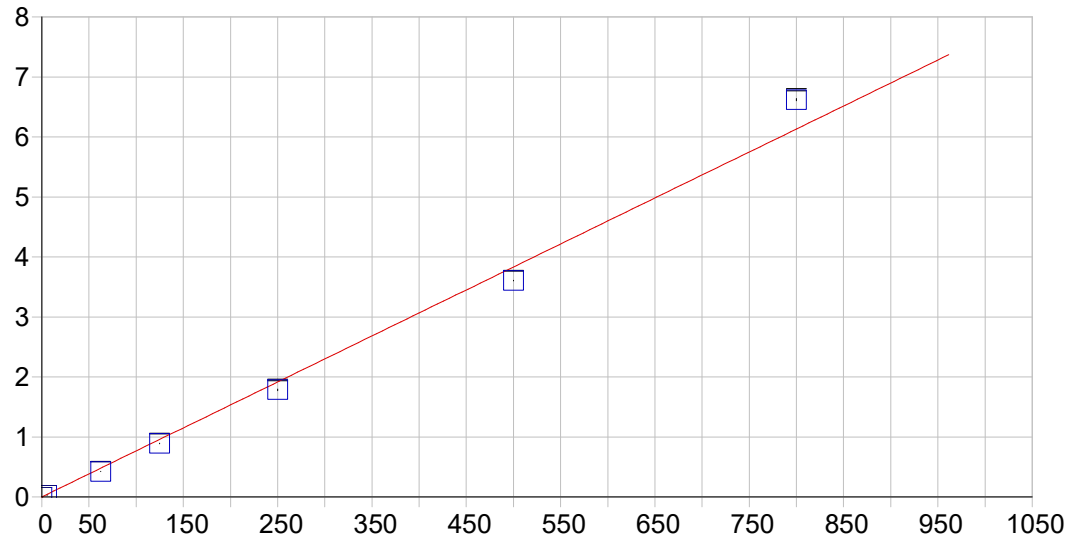


Cd 214.438 {457}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000634	Re-Slope:	1.000000
A1 (Gain):	2.067768	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999948	Status:	OK.
Std Error of Est:	0.000177		
Predicted MDL:	0.000106		
Predicted MQL:	0.000354		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00063	.000	1
S1	.00500	.00408	-.001	-18.4	.00781	.000	1
S3	1.2500	1.2733	.023	1.86	2.6373	.013	1
S4	2.5000	2.5111	.011	.443	5.2019	.037	1
S5	5.0000	4.9618	-.038	-.764	10.280	.016	1
S2	.62500	.62975	.005	.760	1.3041	.000	1

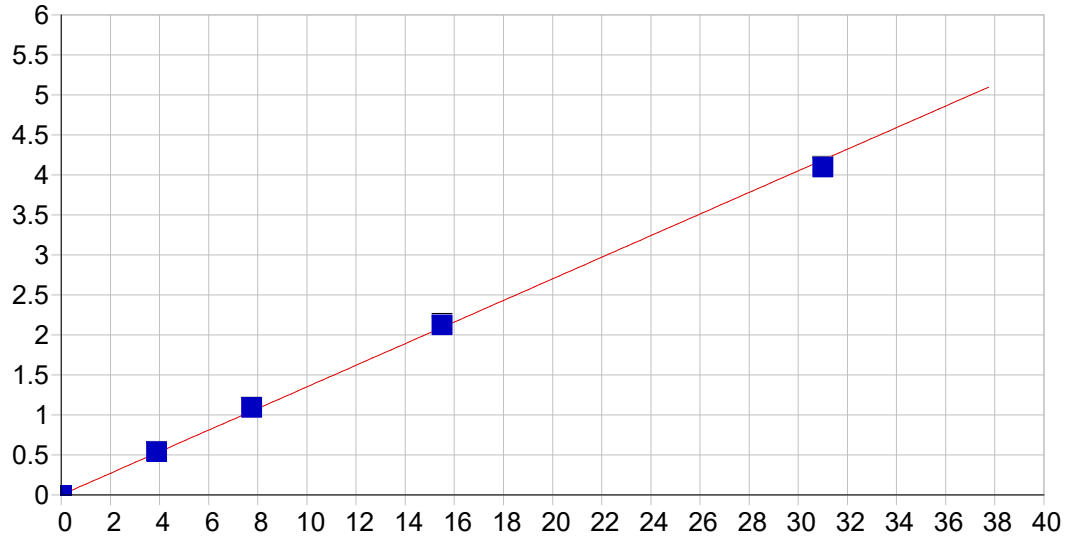


Ca 373.690 { 90}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000170	Re-Slope:	1.000000
A1 (Gain):	0.007664	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.997249	Status:	OK.
Std Error of Est:	0.001988		
Predicted MDL:	0.013339		
Predicted MQL:	0.044464		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00184	.002	.000	.00018	.000	1
S2	62.500	55.219	-7.28	-11.7	.42339	.002	1
S3	125.00	116.02	-8.98	-7.18	.88940	.006	1
S4	250.00	232.78	-17.2	-6.89	1.7843	.012	1
S5	500.00	470.29	-29.7	-5.94	3.6047	.007	1
S1	5.0000	4.3476	-.652	-13.0	.03349	.000	1
S6	800.00	863.85	63.8	7.98	6.6211	.018	1

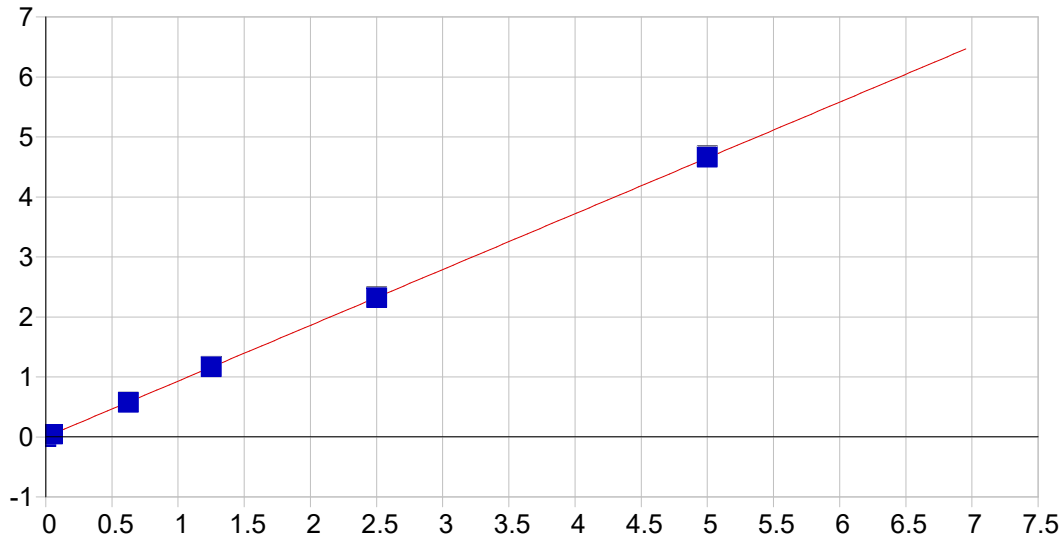


Cr 267.716 {126}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000131	Re-Slope:	1.000000
A1 (Gain):	0.135036	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999696	Status:	OK.
Std Error of Est:	0.000098		
Predicted MDL:	0.000662		
Predicted MQL:	0.002206		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00013	.000	1
S1	.01000	.01022	.000	2.20	.00151	.000	1
S3	7.7500	8.0750	.325	4.19	1.0918	.003	1
S4	15.500	15.714	.214	1.38	2.1246	.021	1
S5	31.000	30.330	-.670	-2.16	4.1009	.007	1
S2	3.8750	4.0058	.131	3.38	.54170	.002	1

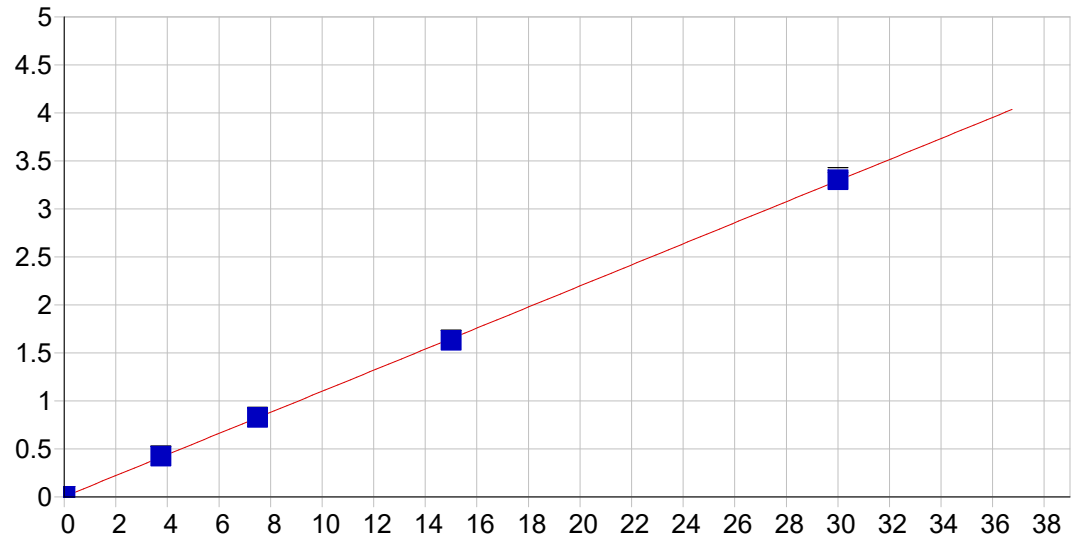


Co 228.616 {448}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000389	Re-Slope:	1.000000
A1 (Gain):	0.929949	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999986	Status:	OK.
Std Error of Est:	0.000130		
Predicted MDL:	0.000286		
Predicted MQL:	0.000952		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00039	.000	1
S1	.05000	.04774	-.002	-4.52	.04418	.001	1
S3	1.2500	1.2556	.006	.445	1.1716	.002	1
S4	2.5000	2.4929	-.007	-.282	2.3268	.008	1
S5	5.0000	5.0113	.011	.225	4.6775	.007	1
S2	.62500	.61750	-.008	-1.20	.57606	.001	1

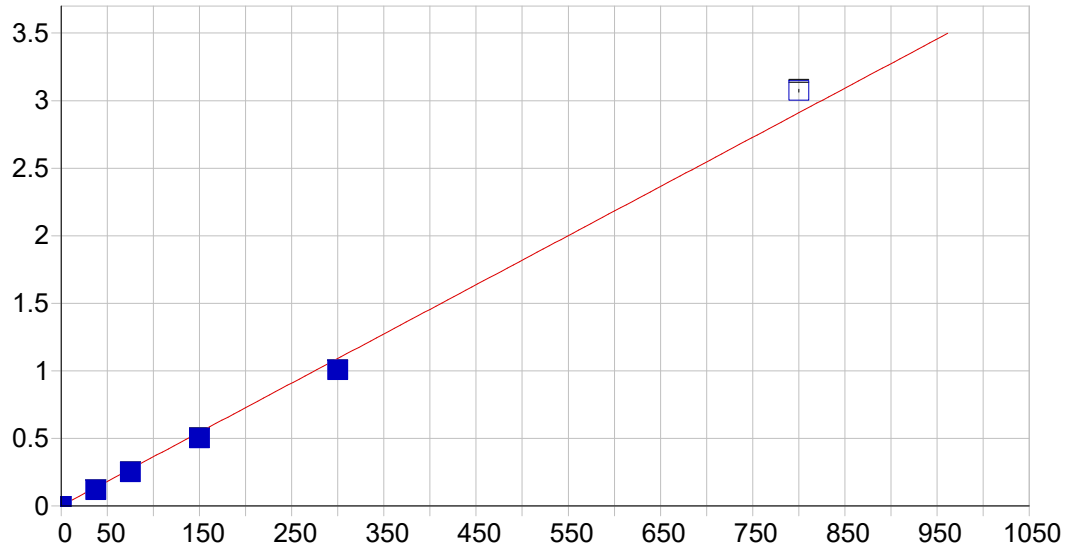


Cu 324.754 {104}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002818	Re-Slope:	1.000000
A1 (Gain):	0.109722	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999967	Status:	OK.
Std Error of Est:	0.000041		
Predicted MDL:	0.004358		
Predicted MQL:	0.014527		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00282	.000	1
S1	.02500	.02324	-.002	-7.05	.00537	.001	1
S3	7.5000	7.5070	.007	.093	.82642	.004	1
S4	15.000	14.844	-.156	-1.04	1.6314	.001	1
S5	30.000	30.067	.067	.224	3.3015	.025	1
S2	3.7500	3.8332	.083	2.22	.42337	.002	1

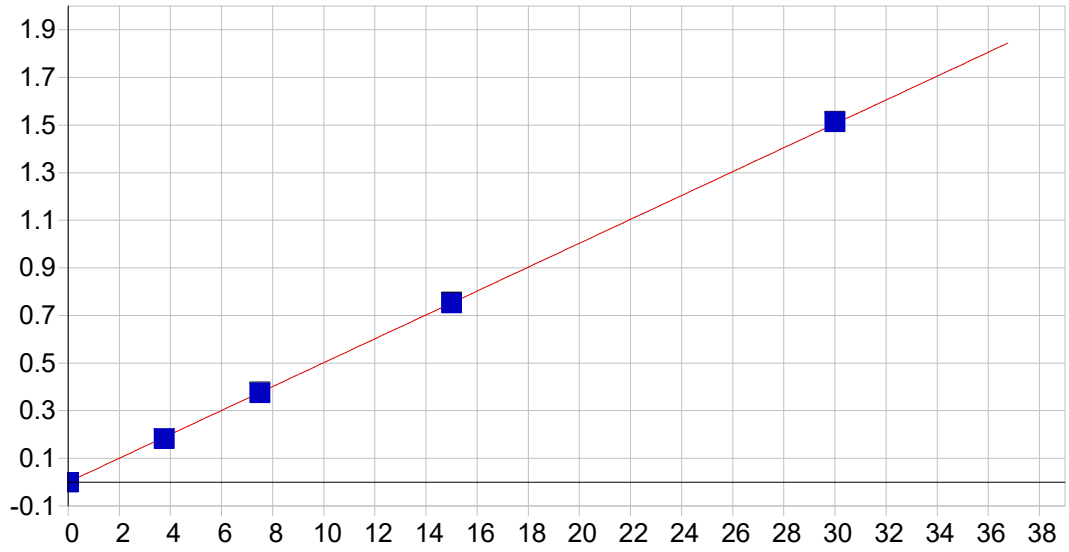


Fe 259.837 {130}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000018	Re-Slope:	1.000000
A1 (Gain):	0.003637	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.997714	Status:	OK.
Std Error of Est:	0.000108		
Predicted MDL:	0.010796		
Predicted MQL:	0.035986		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00004	.000	.000	.00002	.000	1
S1	.10000	.08571	-.014	-14.3	.00032	.000	1
S3	75.000	69.322	-5.68	-7.57	.25190	.002	1
S4	150.00	138.28	-11.7	-7.81	.50246	.003	1
S5	300.00	276.92	-23.1	-7.69	1.0062	.002	1
S2	37.500	32.841	-4.66	-12.4	.11934	.001	1
S6	800.00	845.11	45.1	5.64	3.0741	.011	1

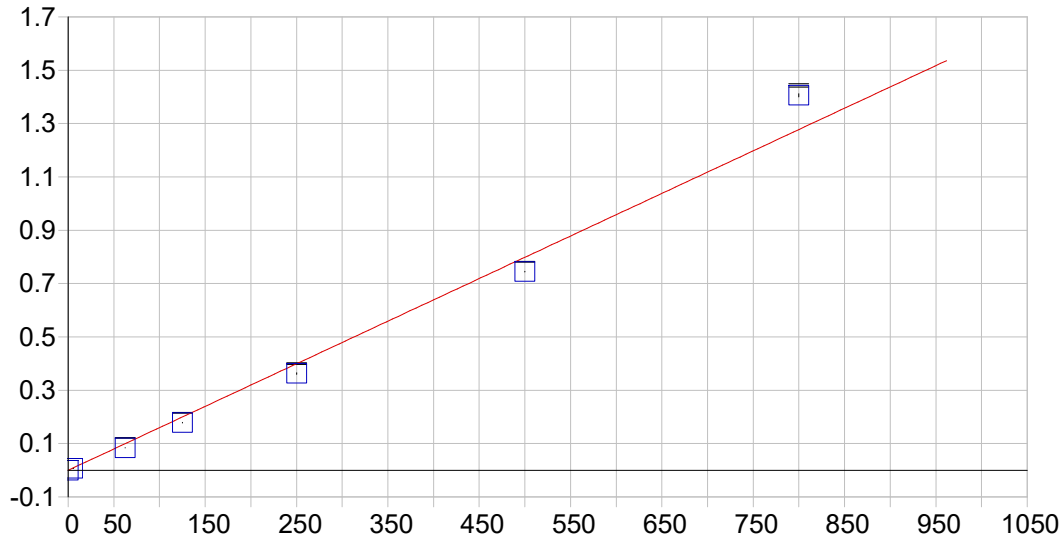


Mn 257.610 {131}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000004	Re-Slope:	1.000000
A1 (Gain):	0.050170	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999953	Status:	OK.
Std Error of Est:	0.000017		
Predicted MDL:	0.000742		
Predicted MQL:	0.002474		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00000	.000	1
S1	.01500	.01462	-.000	-2.54	.00073	.000	1
S3	7.5000	7.4744	-.026	-.341	.37473	.003	1
S4	15.000	14.984	-.016	-.105	.75125	.004	1
S5	30.000	30.168	.168	.560	1.5125	.002	1
S2	3.7500	3.6236	-.126	-3.37	.18167	.001	1

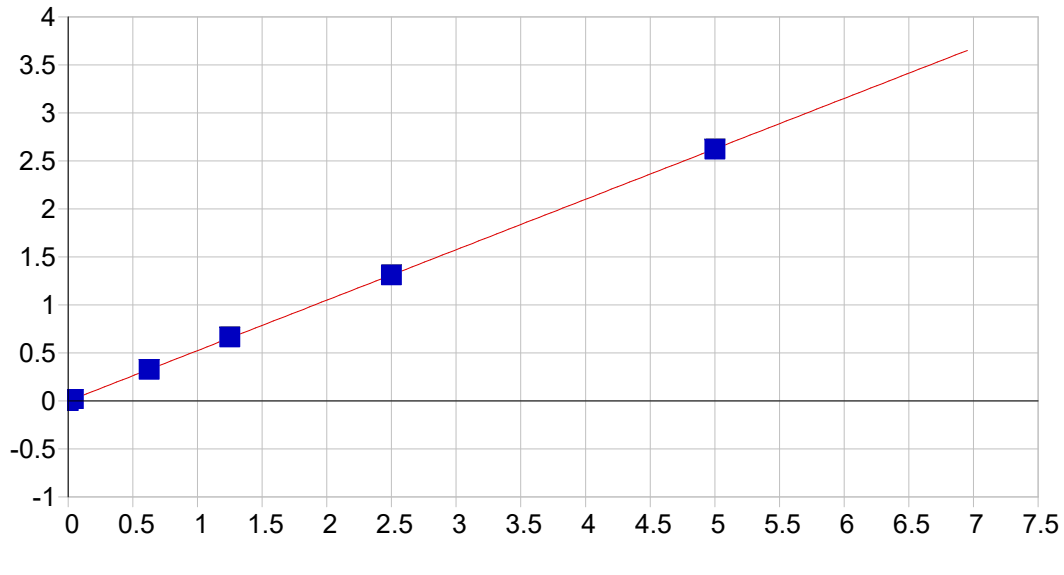


Mg 279.079 {121}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000002	Re-Slope:	1.000000
A1 (Gain):	0.001597	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.995546	Status:	OK.
Std Error of Est:	0.000528		
Predicted MDL:	0.030049		
Predicted MQL:	0.100163		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00246	.002	.000	.00001	.000	1
S2	62.500	52.529	-9.97	-16.0	.08390	.000	1
S3	125.00	111.75	-13.2	-10.6	.17849	.002	1
S4	250.00	227.10	-22.9	-9.16	.36271	.003	1
S5	500.00	466.35	-33.6	-6.73	.74483	.002	1
S1	5.0000	4.1581	-.842	-16.8	.00664	.000	1
S6	800.00	880.61	80.6	10.1	1.4065	.006	1

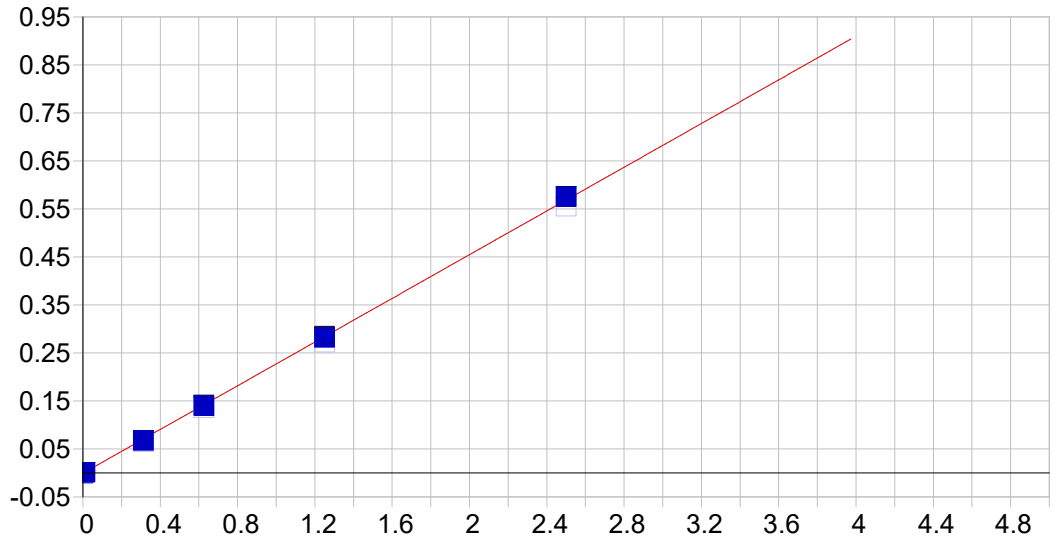


Ni 231.604 {446}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001059	Re-Slope:	1.000000
A1 (Gain):	0.525269	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999985	Status:	OK.
Std Error of Est:	0.000070		
Predicted MDL:	0.000543		
Predicted MQL:	0.001809		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00106	.000	1
S1	.04000	.03874	-.001	-3.15	.01931	.000	1
S3	1.2500	1.2666	.017	1.33	.66580	.002	1
S4	2.5000	2.4975	-.003	-.101	1.3139	.004	1
S5	5.0000	4.9887	-.011	-.227	2.6255	.004	1
S2	.62500	.62350	-.001	-.240	.32722	.001	1

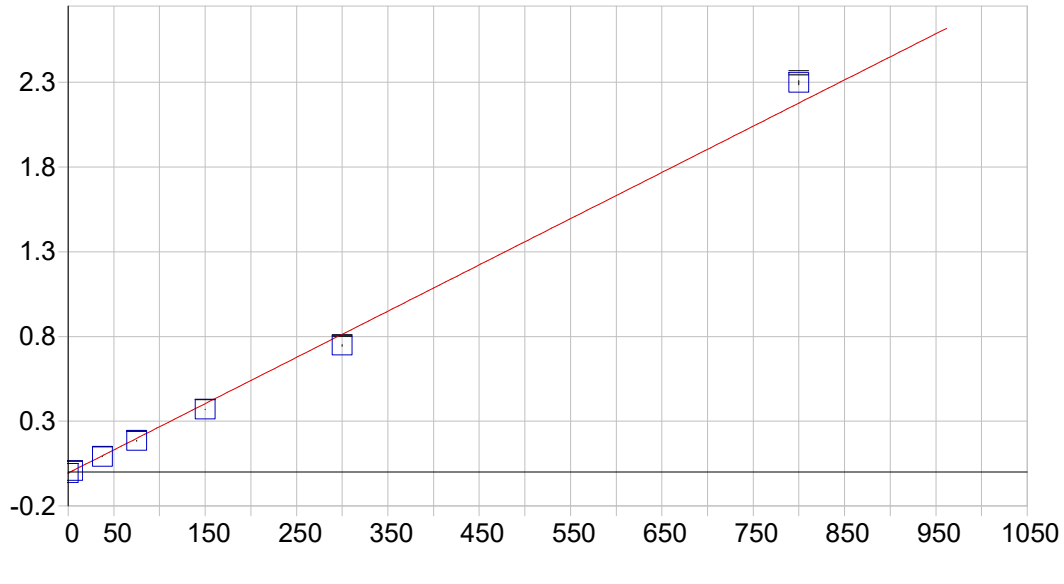


Ag 328.068 {103}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000649	Re-Slope:	1.000000
A1 (Gain):	0.227650	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999819	Status:	OK.
Std Error of Est:	0.000035		
Predicted MDL:	0.000654		
Predicted MQL:	0.002181		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00065	.000	1
S1	.01000	.00792	-.002	-20.8	.00114	.000	1
S3	.62500	.61890	-.006	-.975	.13523	.001	1
S4	1.2500	1.2411	-.009	-.711	.27186	.003	1
S5	2.5000	2.5312	.031	1.25	.55553	.000	1
S2	.31250	.29837	-.014	-4.52	.06477	.000	1

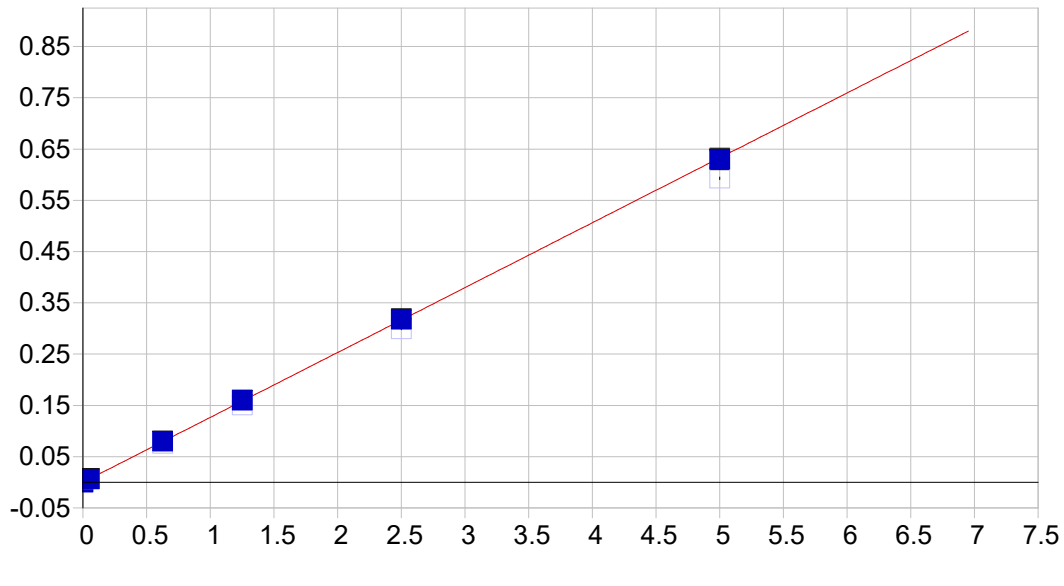


Na 818.326 { 41}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.005729	Re-Slope:	1.000000
A1 (Gain):	0.002729	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.997847	Status:	OK.
Std Error of Est:	0.000555		
Predicted MDL:	0.532030		
Predicted MQL:	1.773433		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00139	.001	.000	-.00573	.001	1
S2	37.500	35.499	-2.00	-5.34	.09115	.001	1
S3	75.000	69.649	-5.35	-7.13	.18435	.002	1
S4	150.00	137.53	-12.5	-8.32	.36960	.001	1
S5	300.00	275.91	-24.1	-8.03	.74726	.005	1
S1	5.0000	4.7787	-.221	-4.43	.00731	.001	1
S6	800.00	844.14	44.1	5.52	2.2981	.013	1

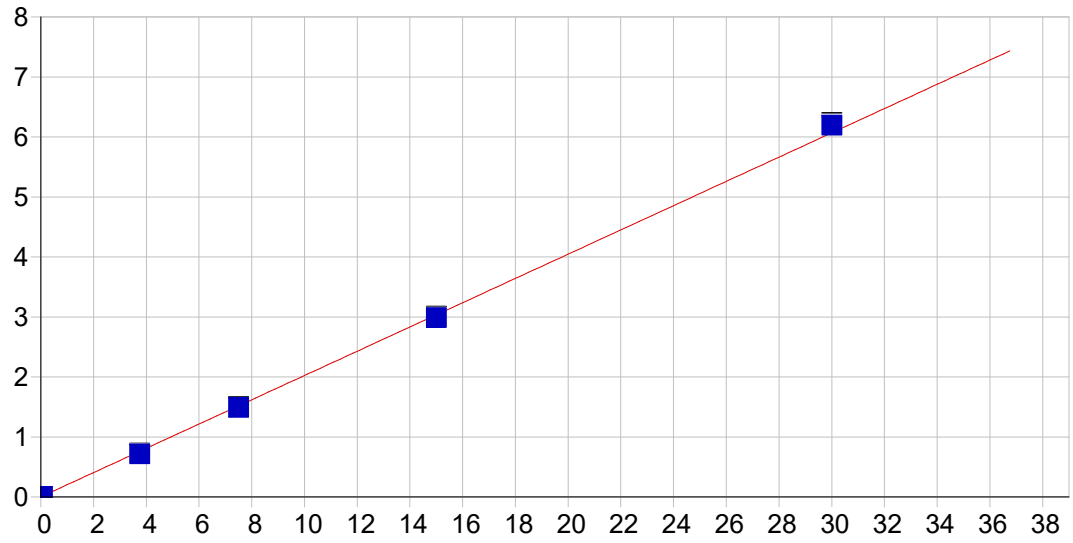


V 292.402 {115}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000031	Re-Slope:	1.000000
A1 (Gain):	0.126563	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999975	Status:	OK.
Std Error of Est:	0.000022		
Predicted MDL:	0.003311		
Predicted MQL:	0.011035		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00003	.000	1
S1	.05000	.04773	-.002	-4.54	.00606	.000	1
S3	1.2500	1.2622	.012	.977	.15053	.001	1
S4	2.5000	2.5085	.008	.339	.29901	.001	1
S5	5.0000	4.9759	-.024	-.482	.59279	.002	1
S2	.62500	.63082	.006	.932	.07524	.001	1

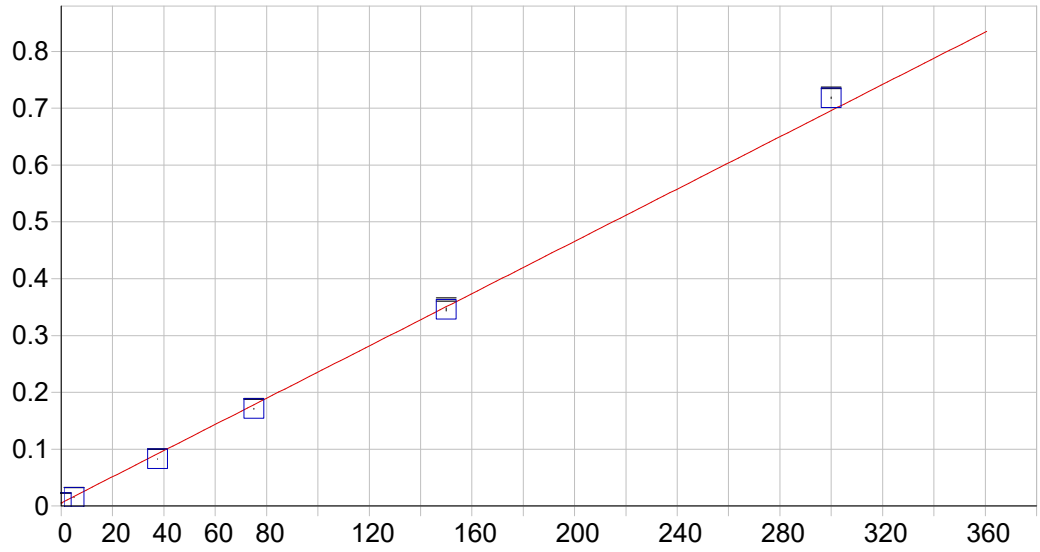


Zn 213.856 {158}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001023	Re-Slope:	1.000000
A1 (Gain):	0.202225	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999721	Status:	OK.
Std Error of Est:	0.000341		
Predicted MDL:	0.002758		
Predicted MQL:	0.009193		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00103	.000	1
S1	.06000	.05212	-.008	-13.1	.01163	.000	1
S3	7.5000	7.3441	-.156	-2.08	1.4919	.013	1
S4	15.000	14.770	-.230	-1.53	2.9994	.014	1
S5	30.000	30.603	.603	2.01	6.2126	.028	1
S2	3.7500	3.5403	-.210	-5.59	.71982	.008	1

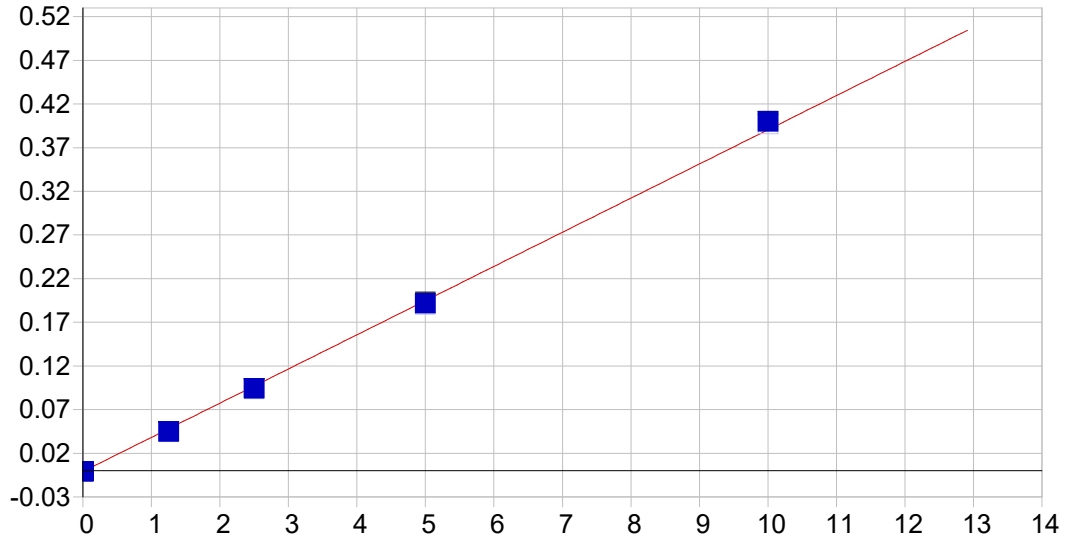


K 769.896 { 44}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.005352	Re-Slope:	1.000000
A1 (Gain):	0.002302	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999115	Status:	OK.
Std Error of Est:	0.000200		
Predicted MDL:	0.091229		
Predicted MQL:	0.304097		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00140	.001	.000	.00535	.000	1
S2	37.500	33.537	-3.96	-10.6	.08255	.000	1
S3	75.000	71.969	-3.03	-4.04	.17103	.001	1
S4	150.00	147.97	-2.03	-1.35	.34599	.003	1
S5	300.00	309.79	9.79	3.26	.71849	.001	1
S1	5.0000	4.2361	-.764	-15.3	.01510	.000	1

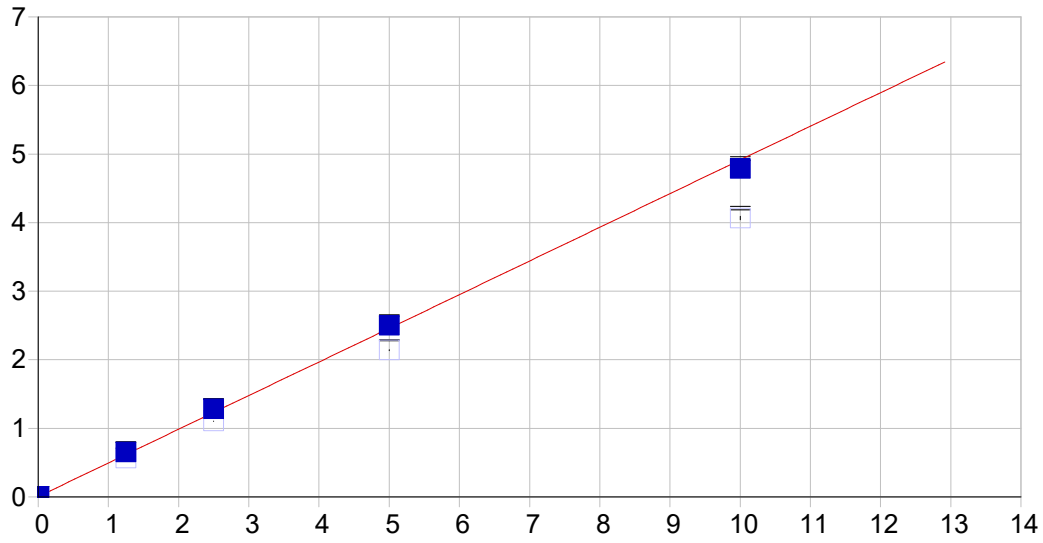


P 177.495 {490}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000884	Re-Slope:	1.000000
A1 (Gain):	0.039135	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999589	Status:	OK.
Std Error of Est:	0.000019		
Predicted MDL:	0.002882		
Predicted MQL:	0.009607		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00088	.000	1
S1	.01000	.00773	-.002	-22.7	-.00058	.000	1
S3	2.5000	2.4277	-.072	-2.89	.09342	.000	1
S4	5.0000	4.9212	-.079	-1.58	.19031	.002	1
S5	10.000	10.238	.238	2.38	.39699	.000	1
S2	1.2500	1.1655	-.085	-6.76	.04438	.000	1

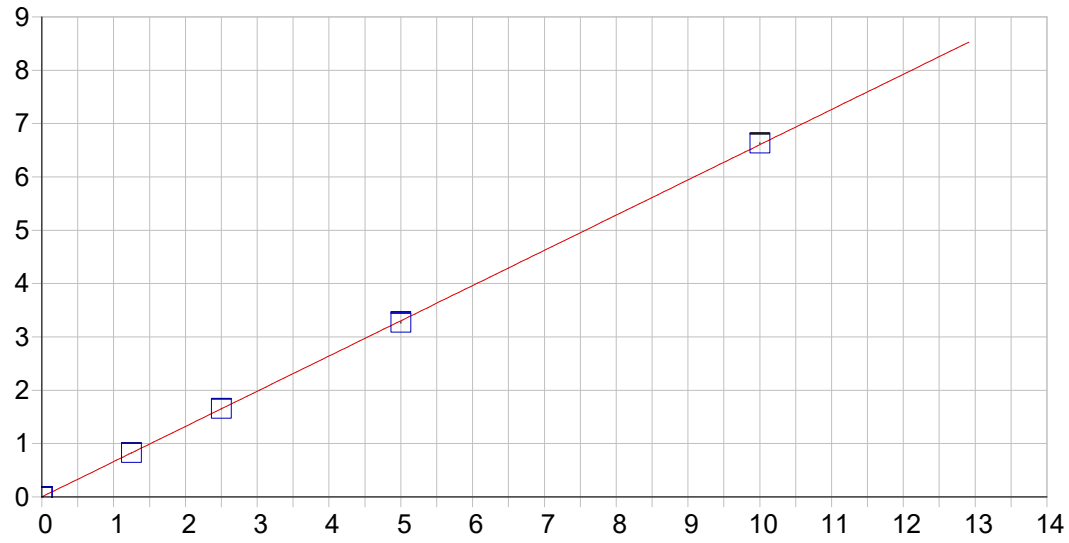


B 249.678 {135}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.004781	Re-Slope:	1.000000
A1 (Gain):	0.490879	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999061	Status:	OK.
Std Error of Est:	0.000304		
Predicted MDL:	0.001406		
Predicted MQL:	0.004688		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00479	.000	1
S1	.01000	.00068	-.009	-93.2	.00486	.000	1
S3	2.5000	2.6074	.107	4.29	1.1042	.004	1
S4	5.0000	5.0849	.085	1.70	2.1398	.009	1
S5	10.000	9.7441	-.256	-2.56	4.0659	.027	1
S2	1.2500	1.3240	.074	5.92	.56443	.001	1

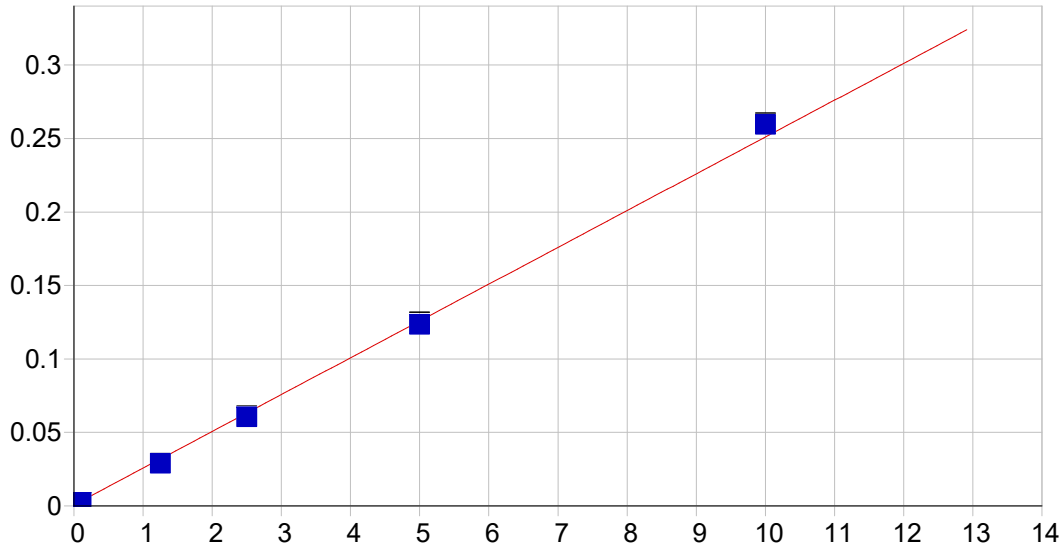


Mo 202.030 {467}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000657	Re-Slope:	1.000000
A1 (Gain):	0.660355	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999984	Status:	OK.
Std Error of Est:	0.000062		
Predicted MDL:	0.000380		
Predicted MQL:	0.001268		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00066	.000	1
S1	.01000	.01006	.000	.579	.00730	.000	1
S3	2.5000	2.5047	.005	.187	1.6546	.005	1
S4	5.0000	4.9548	-.045	-.904	3.2726	.014	1
S5	10.000	10.041	.041	.413	6.6315	.012	1
S2	1.2500	1.2492	-.001	-.063	.82558	.001	1

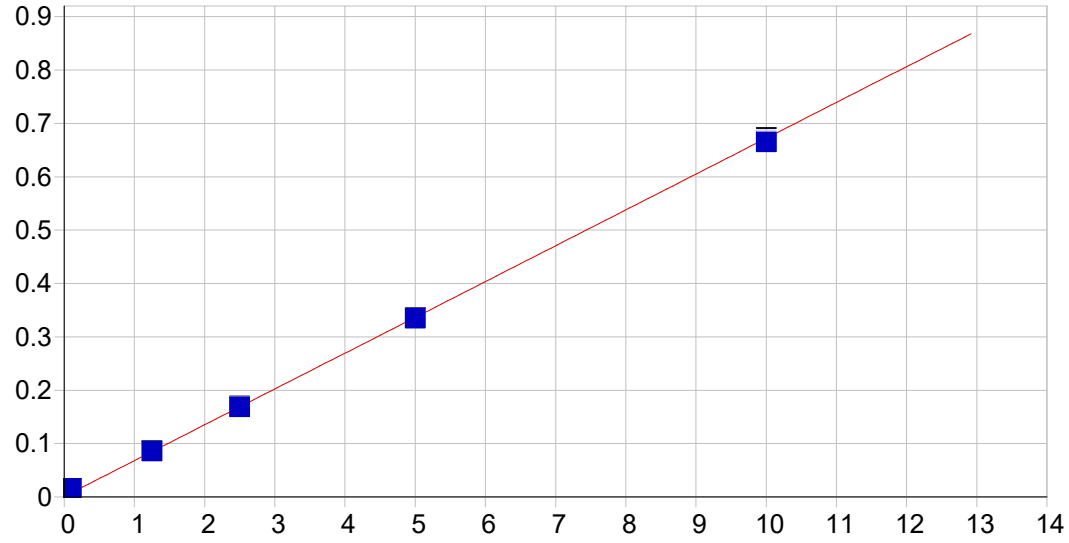


S 182.034 {485}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000656	Re-Slope:	1.000000
A1 (Gain):	0.025036	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999122	Status:	OK.
Std Error of Est:	0.000056		
Predicted MDL:	0.004873		
Predicted MQL:	0.016242		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	.00066	.000	1
S1	.10000	.08112	-.019	-18.9	.00269	.000	1
S3	2.5000	2.3953	-.105	-4.19	.06070	.001	1
S4	5.0000	4.9076	-.092	-1.85	.12368	.001	1
S5	10.000	10.339	.339	3.39	.25982	.001	1
S2	1.2500	1.1271	-.123	-9.83	.02891	.000	1

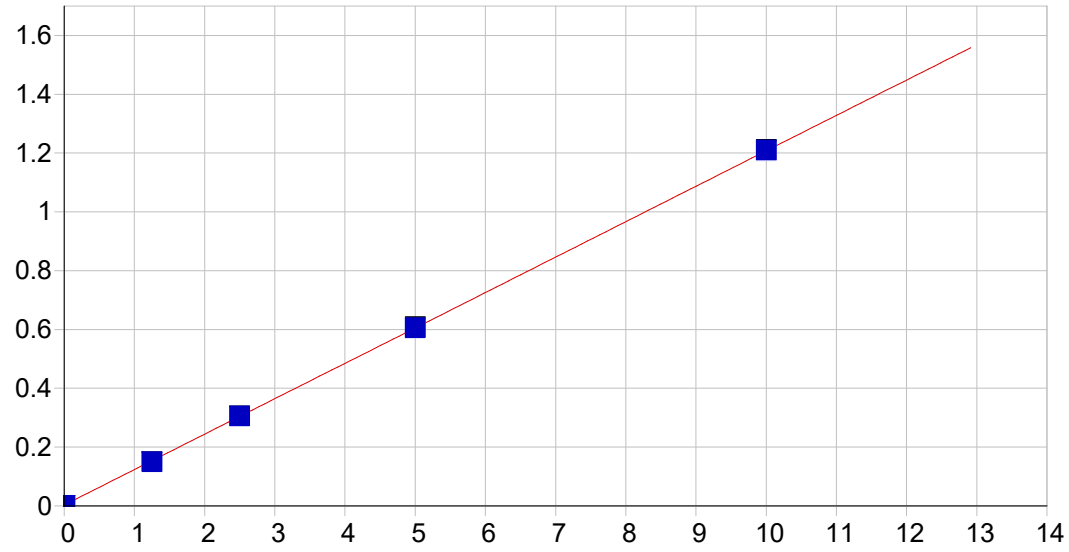


Si 251.611 {134}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000880	Re-Slope:	1.000000
A1 (Gain):	0.067126	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.996044	Status:	OK.
Std Error of Est:	0.000319		
Predicted MDL:	0.004153		
Predicted MQL:	0.013842		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00012	-.000	.000	.00087	.000	1
S1	.10000	.22224	.122	122.	.01580	.000	1
S3	2.5000	2.4980	-.002	-.080	.16906	.001	1
S4	5.0000	4.9692	-.031	-.617	.33545	.001	1
S5	10.000	9.8985	-.102	-1.02	.66734	.006	1
S2	1.2500	1.2624	.012	.995	.08587	.000	1

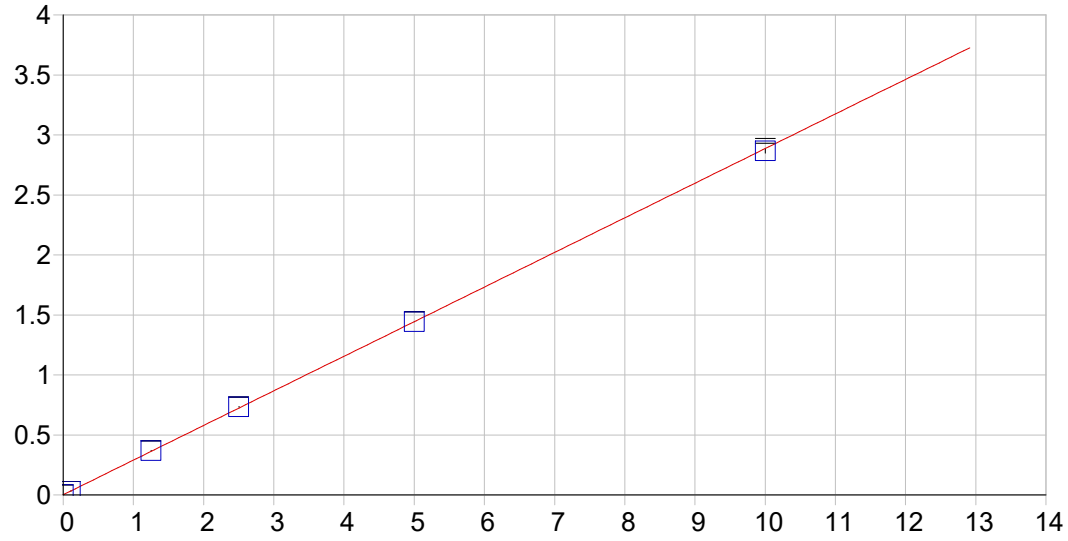


Sn 189.989 {478}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.003106	Re-Slope:	1.000000
A1 (Gain):	0.120441	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999116	Status:	OK.
Std Error of Est:	0.000071		
Predicted MDL:	0.001089		
Predicted MQL:	0.003631		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00002	.000	.000	.00311	.000	1
S1	.00700	-.00796	-.015	-214.	.00211	.000	1
S3	2.5000	2.5119	.012	.477	.30471	.001	1
S4	5.0000	5.0083	.008	.166	.60444	.003	1
S5	10.000	10.027	.027	.271	1.2070	.002	1
S2	1.2500	1.2171	-.033	-2.64	.14922	.000	1

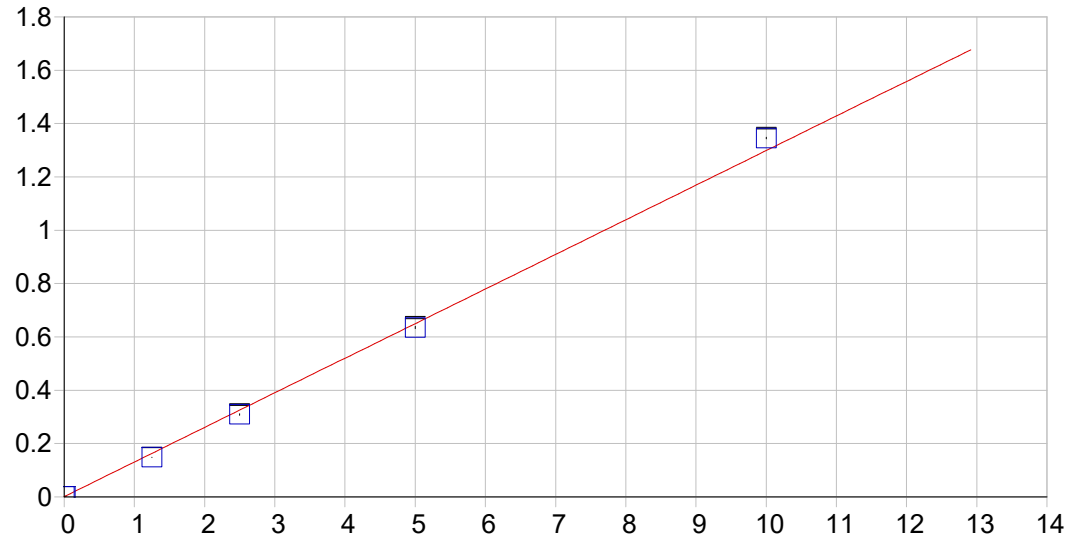


Ti 336.121 {100}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001670	Re-Slope:	1.000000
A1 (Gain):	0.288418	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999961	Status:	OK.
Std Error of Est:	0.000136		
Predicted MDL:	0.001885		
Predicted MQL:	0.006284		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00167	.000	1
S1	.10000	.10311	.003	3.11	.03141	.000	1
S3	2.5000	2.5367	.037	1.47	.73331	.001	1
S4	5.0000	5.0006	.001	.013	1.4439	.002	1
S5	10.000	9.9360	-.064	-.640	2.8674	.020	1
S2	1.2500	1.2735	.023	1.88	.36896	.000	1

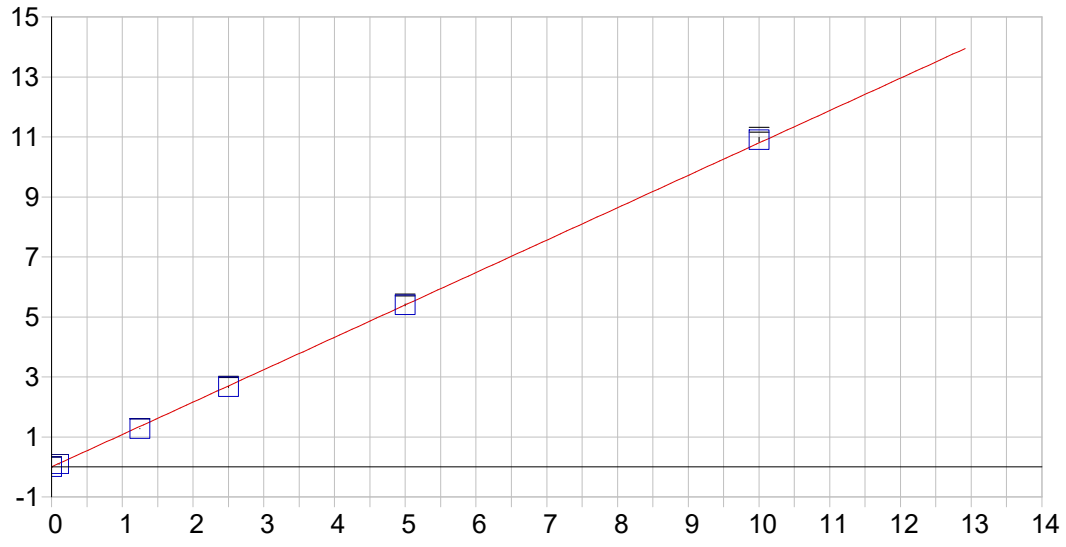


Li 670.784 { 50}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001115	Re-Slope:	1.000000
A1 (Gain):	0.129752	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999111	Status:	OK.
Std Error of Est:	0.000112		
Predicted MDL:	0.001800		
Predicted MQL:	0.005999		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00112	.000	1
S5	10.000	10.360	.360	3.60	1.3454	.003	1
S4	5.0000	4.8852	-.115	-2.30	.63498	.004	1
S3	2.5000	2.3732	-.127	-5.07	.30904	.003	1
S1	.01500	.01176	-.003	-21.6	.00264	.000	1
S2	1.2500	1.1346	-.115	-9.23	.14834	.001	1

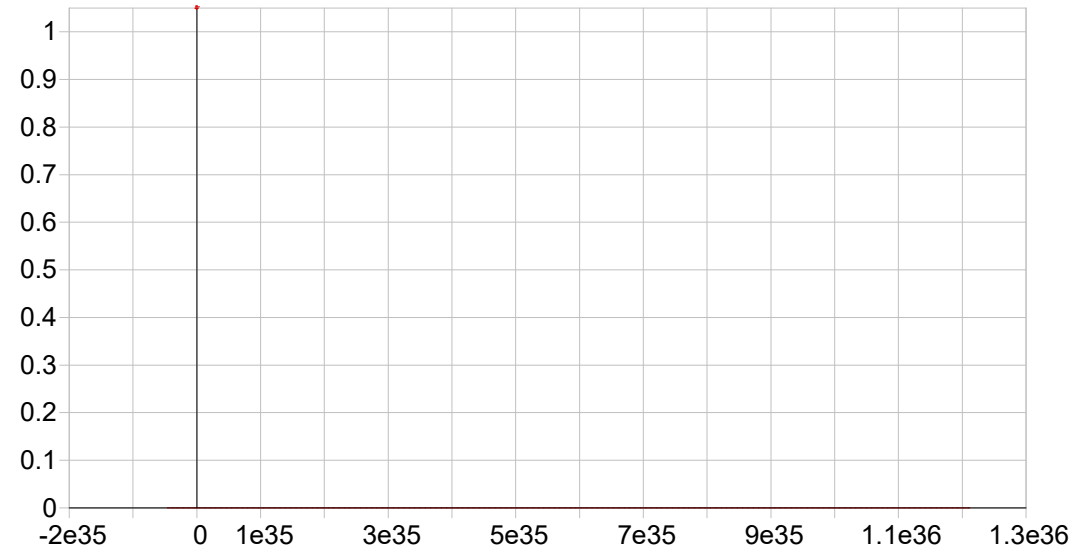


Sr 407.771 { 83}

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000028	Re-Slope:	1.000000
A1 (Gain):	1.079853	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999844	Status:	OK.
Std Error of Est:	0.001014		
Predicted MDL:	0.000114		
Predicted MQL:	0.000381		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00004	.000	1
S1	.10000	.09192	-.008	-8.08	.09928	.001	1
S3	2.5000	2.4762	-.024	-.952	2.6740	.021	1
S4	5.0000	5.0003	.000	.007	5.3997	.027	1
S5	10.000	10.102	.102	1.02	10.909	.076	1
S2	1.2500	1.1796	-.070	-5.63	1.2738	.006	1

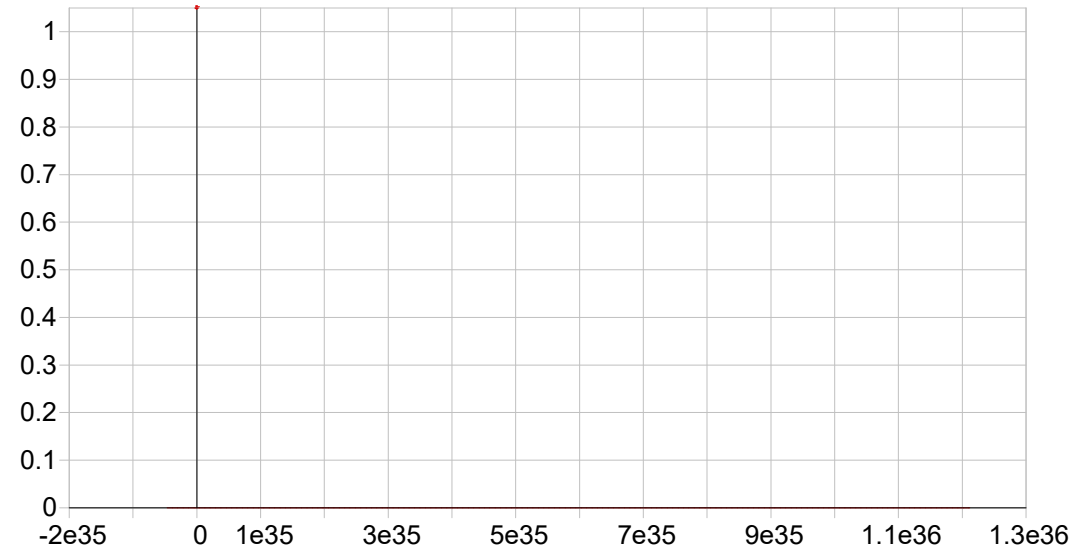


Y 224.306 {450}*

Date of Fit:	12/8/2025 10:48:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.000000	Status:	Warning Zero Gain
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

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



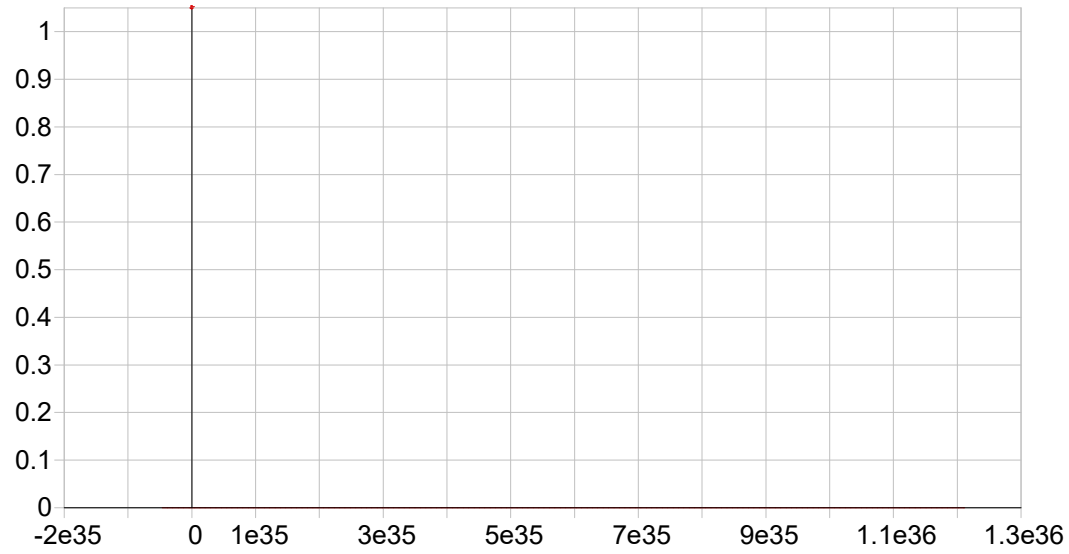
Y 360.073 { 94}*

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

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

A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

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

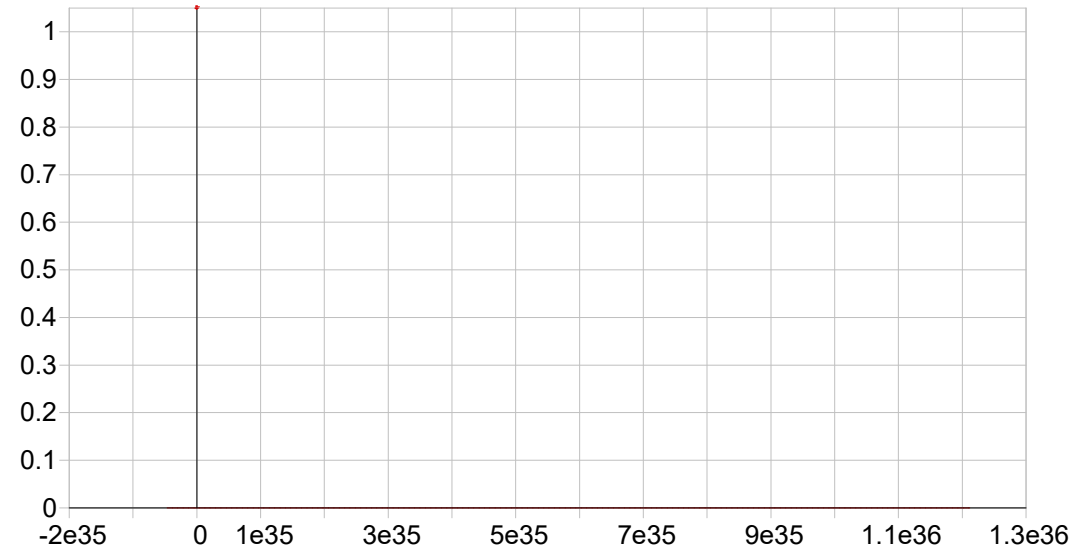


Y 371.030 { 91}*

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

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.000000	Status:	Warning Zero Gain
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

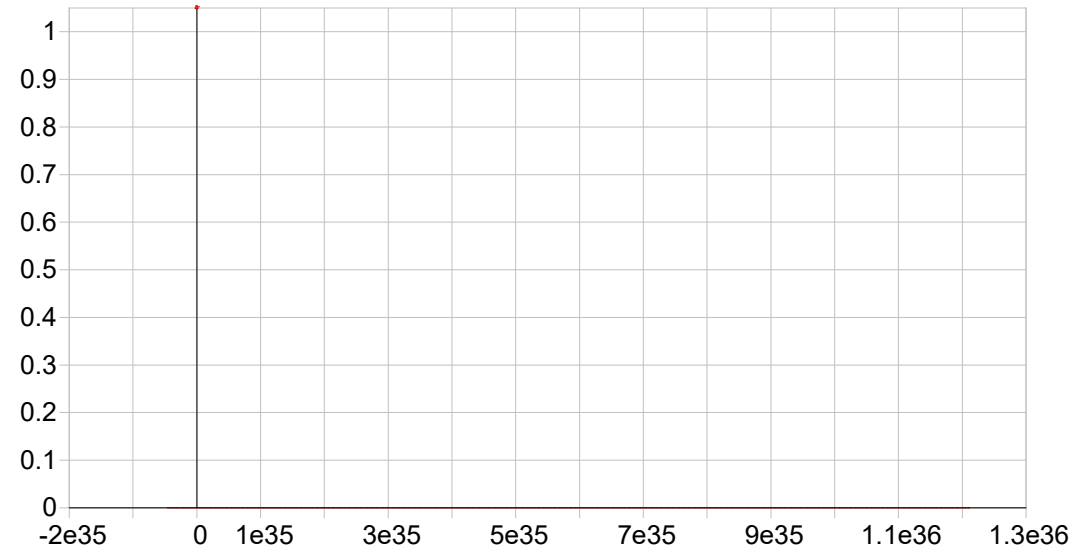
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Y 224.306 {150}*

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

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



In 230.606 {446}*

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

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

Sample Name: S0 Acquired: 12/8/2025 10:07:24 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	**-.00028**	**.00034**	**.00007**	**.00032**	**.00090**	**-.00011**	**.00249**	**-.00300**
Stddev	.00022	.00016	.00009	.00024	.00017	.00006	.00017	.00027
%RSD	77.071	46.743	116.12	75.109	18.564	55.654	6.9180	8.9508
#1	-.00003	.00022	.00017	.00050	.00086	-.00007	.00246	-.00318
#2	-.00040	.00029	.00000	.00041	.00109	-.00018	.00234	-.00269
#3	-.00041	.00052	.00005	.00005	.00076	-.00008	.00268	-.00312

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	**-.00063**	**.00018**	**.00013**	**-.00039**	**.00282**	**.00002**	**-.00000**	**.00001**
Stddev	.00009	.00006	.00004	.00012	.00018	.00001	.00003	.00003
%RSD	14.858	33.871	29.037	29.866	6.2439	46.835	804.52	488.22
#1	-.00055	.00023	.00017	-.00026	.00262	.00003	-.00001	.00003
#2	-.00061	.00011	.00009	-.00048	.00287	.00002	-.00004	-.00003
#3	-.00074	.00021	.00013	-.00042	.00296	.00001	.00003	.00002

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	**-.00106**	**-.00065**	**-.00573**	**.00003**	**.00103**	**.00535**	**-.00088**	**.00479**
Stddev	.00008	.00002	.00084	.00018	.00019	.00029	.00005	.00027
%RSD	7.3701	3.4683	14.656	576.48	18.193	5.4848	5.7759	5.6178
#1	-.00099	-.00064	-.00543	-.00018	.00109	.00503	-.00083	.00509
#2	-.00105	-.00067	-.00667	.00015	.00117	.00544	-.00093	.00461
#3	-.00114	-.00063	-.00507	.00012	.00081	.00560	-.00090	.00465

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	**.00066**	**.00066**	**.00087**	**.00311**	**.00167**	**.00112**	**.00004**
Stddev	.00021	.00008	.00032	.00005	.00041	.00005	.00006
%RSD	31.610	12.101	37.134	1.4491	24.346	4.7546	130.69
#1	.00051	.00065	.00050	.00306	.00214	.00117	.00010
#2	.00089	.00074	.00111	.00312	.00141	.00107	-.00000
#3	.00057	.00058	.00100	.00315	.00146	.00110	.00003

Sample Name: S0 Acquired: 12/8/2025 10:07:24 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	2971.4	55726.	7085.3	2162.1	4161.5
Stddev	11.2	353.	8.1	7.9	16.1
%RSD	.37748	.63287	.11475	.36506	.38753
#1	2965.4	56122.	7094.5	2165.2	4149.2
#2	2964.5	55609.	7082.0	2153.1	4155.4
#3	2984.3	55446.	7079.2	2167.9	4179.8

Sample Name: S1 Acquired: 12/8/2025 10:12:08 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	**.00020**	**.00104**	**.00195**	**.00235**	**.00646**	**.00216**	**.04963**	**.02993**
Stddev	.00020	.00026	.00033	.00006	.00010	.00006	.00032	.00039
%RSD	95.771	24.773	17.104	2.7024	1.4877	2.6912	.64972	1.2902
#1	.00043	.00077	.00189	.00242	.00640	.00221	.04944	.03036
#2	.00008	.00128	.00232	.00233	.00641	.00210	.04944	.02983
#3	.00010	.00108	.00166	.00230	.00657	.00218	.05000	.02961

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	**.00781**	**.03349**	**.00151**	**.04418**	**.00537**	**.00032**	**.00073**	**.00664**
Stddev	.00010	.00029	.00010	.00050	.00051	.00002	.00001	.00006
%RSD	1.3158	.87408	6.7789	1.1320	9.4739	4.6596	1.6700	.88498
#1	.00779	.03319	.00142	.04384	.00591	.00031	.00074	.00662
#2	.00772	.03351	.00149	.04396	.00528	.00033	.00073	.00671
#3	.00792	.03378	.00163	.04476	.00491	.00033	.00072	.00660

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	**.01931**	**.00114**	**.00731**	**.00606**	**.01163**	**.01510**	**-.00058**	**.00486**
Stddev	.00021	.00004	.00081	.00043	.00011	.00018	.00006	.00025
%RSD	1.0867	3.1979	11.074	7.1540	.90348	1.1873	9.7585	5.1552
#1	.01948	.00118	.00789	.00598	.01155	.01490	-.00052	.00467
#2	.01939	.00113	.00766	.00653	.01160	.01521	-.00064	.00515
#3	.01908	.00111	.00639	.00567	.01175	.01521	-.00059	.00478

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	**.00730**	**.00269**	**.01580**	**.00211**	**.03141**	**.00264**	**.09928**
Stddev	.00007	.00002	.00027	.00014	.00048	.00009	.00066
%RSD	.97894	.75995	1.7046	6.4835	1.5270	3.5698	.66408
#1	.00738	.00270	.01593	.00214	.03194	.00258	.09852
#2	.00724	.00266	.01598	.00196	.03127	.00275	.09968
#3	.00727	.00269	.01549	.00223	.03101	.00259	.09965

Sample Name: S1 Acquired: 12/8/2025 10:12:08 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	2962.4	56108.	6837.3	2204.0	4062.5
Stddev	5.5	159.	95.9	10.0	7.4
%RSD	.18708	.28346	1.4027	.45236	.18111
#1	2963.5	56199.	6754.2	2204.4	4062.4
#2	2967.4	55924.	6815.6	2193.9	4069.9
#3	2956.4	56200.	6942.2	2213.8	4055.1

Sample Name: S2 Acquired: 12/8/2025 10:16:52 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.07547**	**.05205**	**1.0458**	**.09355**	**.12165**	**.42798**	**.59847**	**.71813**	**1.3041**
Stddev	.00005	.00030	.0012	.00066	.00033	.00208	.00231	.00281	.0001
%RSD	.06064	.57153	.11127	.70228	.27378	.48564	.38666	.39136	.00494
#1	.07545	.05239	1.0450	.09367	.12143	.42959	.60109	.71566	1.3040
#2	.07545	.05186	1.0453	.09414	.12147	.42871	.59758	.72119	1.3041
#3	.07553	.05189	1.0471	.09285	.12203	.42563	.59673	.71754	1.3041

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.42339**	**.54170**	**.57606**	**.42337**	**.11934**	**.18167**	**.08390**	**.32722**	**.06477**
Stddev	.00181	.00176	.00126	.00217	.00068	.00063	.00031	.00071	.00021
%RSD	.42817	.32560	.21932	.51245	.56578	.34760	.37436	.21587	.32671
#1	.42488	.54133	.57506	.42247	.11989	.18226	.08402	.32652	.06490
#2	.42393	.54361	.57563	.42178	.11955	.18173	.08414	.32720	.06487
#3	.42137	.54014	.57748	.42584	.11859	.18100	.08354	.32793	.06452

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.09115**	**.07524**	**.71982**	**.08255**	**.04438**	**.56443**	**.82558**	**.02891**	**.08587**
Stddev	.00095	.00086	.00840	.00030	.00015	.00111	.00100	.00014	.00033
%RSD	1.0460	1.1365	1.1665	.36051	.33902	.19621	.12105	.47236	.38827
#1	.09173	.07609	.72935	.08283	.04426	.56340	.82572	.02884	.08585
#2	.09005	.07526	.71351	.08259	.04433	.56429	.82451	.02883	.08555
#3	.09168	.07438	.71660	.08224	.04455	.56560	.82650	.02907	.08622

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.14922**	**.36896**	**.14834**	**1.2738**
Stddev	.00022	.00021	.00057	.0063
%RSD	.14867	.05776	.38486	.49563
#1	.14917	.36907	.14881	1.2805
#2	.14903	.36872	.14850	1.2732
#3	.14947	.36911	.14770	1.2679

Sample Name: S2 Acquired: 12/8/2025 10:16:52 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	2825.8	54581.	6867.5	2080.2	3649.8
Stddev	3.5	246.	18.2	11.8	5.6
%RSD	.12382	.45156	.26485	.56722	.15352
#1	2825.6	54574.	6883.3	2068.9	3651.1
#2	2829.4	54339.	6847.6	2079.3	3654.7
#3	2822.4	54831.	6871.5	2092.4	3643.7

Sample Name: S3 Acquired: 12/8/2025 10:21:14 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.15432**	**.10153**	**2.1336**	**.19104**	**.24834**	**.91388**	**1.2577**	**1.4233**	**2.6373**
Stddev	.00094	.00616	.0055	.00077	.00098	.00523	.0117	.0071	.0135
%RSD	.60966	6.0660	.25877	.40106	.39396	.57225	.92647	.49899	.51123
#1	.15460	.10826	2.1294	.19190	.24864	.90904	1.2538	1.4312	2.6529
#2	.15327	.10016	2.1315	.19045	.24725	.91942	1.2708	1.4174	2.6290
#3	.15509	.09617	2.1398	.19075	.24914	.91317	1.2485	1.4212	2.6301

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.88940**	**1.0918**	**1.1716**	**.82642**	**.25190**	**.37473**	**.17849**	**.66580**	**.13523**
Stddev	.00598	.0029	.0019	.00375	.00163	.00302	.00159	.00181	.00078
%RSD	.67204	.26543	.15910	.45374	.64519	.80518	.89363	.27232	.57837
#1	.88551	1.0939	1.1715	.82667	.25044	.37356	.17702	.66484	.13608
#2	.89629	1.0931	1.1698	.83003	.25365	.37816	.18018	.66466	.13506
#3	.88642	1.0885	1.1735	.82255	.25161	.37247	.17826	.66789	.13455

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.18435**	**.15053**	**1.4919**	**.17103**	**.09342**	**1.1042**	**1.6546**	**.06070**	**.16906**
Stddev	.00203	.00054	.0126	.00101	.00029	.0038	.0051	.00055	.00143
%RSD	1.1018	.35834	.84362	.59294	.30713	.34459	.31015	.90217	.84787
#1	.18578	.14993	1.4846	.16995	.09374	1.1078	1.6581	.06128	.16856
#2	.18525	.15068	1.5064	.17196	.09317	1.1002	1.6487	.06019	.17068
#3	.18203	.15098	1.4847	.17117	.09337	1.1045	1.6571	.06063	.16795

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.30471**	**.73331**	**.30904**	**2.6740**
Stddev	.00056	.00106	.00267	.0210
%RSD	.18244	.14454	.86256	.78591
#1	.30518	.73282	.30795	2.6665
#2	.30410	.73453	.31208	2.6977
#3	.30486	.73259	.30710	2.6577

Sample Name: S3 Acquired: 12/8/2025 10:21:14 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	2685.2	51342.	6837.6	1950.9	3399.8
Stddev	3.1	179.	23.7	7.7	1.6
%RSD	.11543	.34916	.34603	.39620	.04710
#1	2685.8	51288.	6810.3	1947.9	3399.6
#2	2688.1	51195.	6852.4	1945.2	3401.5
#3	2681.9	51541.	6850.1	1959.7	3398.4

Sample Name: S4 Acquired: 12/8/2025 10:25:36 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.31259	.19159	4.2634	.38056	.50148	1.8723	2.5502	2.7706	5.2019
Stddev	.00201	.00700	.0134	.00276	.00172	.0150	.0163	.0110	.0369
%RSD	.64284	3.6518	.31408	.72582	.34311	.79966	.63948	.39522	.70965
#1	.31270	.19669	4.2772	.38263	.50272	1.8737	2.5490	2.7654	5.2350
#2	.31052	.18361	4.2504	.37743	.49952	1.8567	2.5346	2.7631	5.1621
#3	.31454	.19447	4.2627	.38163	.50220	1.8866	2.5671	2.7831	5.2087

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.7843	2.1246	2.3268	1.6314	.50246	.75125	.36271	1.3139	.27186
Stddev	.0119	.0214	.0080	.0014	.00339	.00436	.00267	.0044	.00254
%RSD	.66795	1.0049	.34442	.08717	.67484	.58004	.73696	.33692	.93494
#1	1.7831	2.1179	2.3331	1.6301	.50294	.75060	.36305	1.3185	.27121
#2	1.7730	2.1074	2.3178	1.6312	.49885	.74725	.35989	1.3097	.26972
#3	1.7968	2.1485	2.3294	1.6329	.50558	.75589	.36520	1.3134	.27467

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.36960	.29901	2.9994	.34599	.19031	2.1398	3.2726	.12368	.33545
Stddev	.00136	.00108	.0138	.00288	.00150	.0086	.0144	.00146	.00112
%RSD	.36922	.36214	.46146	.83230	.78826	.40260	.44052	1.1774	.33393
#1	.37098	.30014	2.9929	.34617	.19030	2.1336	3.2825	.12473	.33417
#2	.36825	.29798	2.9900	.34302	.18882	2.1362	3.2560	.12202	.33628
#3	.36958	.29890	3.0153	.34877	.19182	2.1496	3.2791	.12430	.33588

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.60444	1.4439	.63498	5.3997
Stddev	.00301	.0025	.00425	.0271
%RSD	.49848	.17061	.66921	.50113
#1	.60684	1.4412	.63520	5.3753
#2	.60106	1.4448	.63062	5.3949
#3	.60543	1.4459	.63911	5.4288

Sample Name: S4 Acquired: 12/8/2025 10:25:36 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	2560.3	50037.	6792.4	1878.8	3186.3
Stddev	6.5	391.	15.3	14.4	10.0
%RSD	.25492	.78144	.22503	.76442	.31412
#1	2554.9	50117.	6798.2	1885.7	3175.1
#2	2567.5	50381.	6804.0	1888.4	3194.4
#3	2558.6	49612.	6775.1	1862.3	3189.3

Sample Name: S5 Acquired: 12/8/2025 10:29:59 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.65628	.36878	8.6025	.78929	1.0533	3.8986	5.2366	5.3868	10.280
Stddev	.00184	.00984	.0082	.00298	.0011	.0103	.0465	.0445	.016
%RSD	.28007	2.6670	.09559	.37769	.10214	.26422	.88874	.82521	.15220
#1	.65776	.37924	8.5932	.79267	1.0521	3.9076	5.2799	5.3373	10.286
#2	.65686	.36738	8.6055	.78815	1.0536	3.8873	5.1874	5.3999	10.292
#3	.65423	.35971	8.6088	.78705	1.0542	3.9008	5.2427	5.4232	10.262

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.6047	4.1009	4.6775	3.3015	1.0062	1.5125	.74483	2.6255	.55553
Stddev	.0070	.0072	.0073	.0248	.0019	.0019	.00158	.0045	.00028
%RSD	.19296	.17594	.15668	.75061	.19362	.12372	.21245	.16997	.05097
#1	3.6111	4.0991	4.6693	3.2763	1.0079	1.5123	.74589	2.6205	.55586
#2	3.5973	4.1089	4.6799	3.3024	1.0041	1.5107	.74301	2.6292	.55533
#3	3.6057	4.0948	4.6833	3.3259	1.0066	1.5145	.74560	2.6267	.55542

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.74726	.59279	6.2126	.71849	.39699	4.0659	6.6315	.25982	.66734
Stddev	.00522	.00248	.0285	.00125	.00035	.0268	.0124	.00092	.00614
%RSD	.69848	.41760	.45815	.17362	.08701	.65991	.18712	.35483	.91968
#1	.74160	.59029	6.1798	.71984	.39689	4.0363	6.6458	.26043	.66067
#2	.74829	.59284	6.2306	.71738	.39737	4.0729	6.6245	.26027	.66860
#3	.75189	.59524	6.2275	.71825	.39670	4.0886	6.6241	.25876	.67274

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.2070	2.8674	1.3454	10.909
Stddev	.0017	.0196	.0029	.076
%RSD	.13673	.68200	.21208	.69369
#1	1.2079	2.8487	1.3479	10.858
#2	1.2081	2.8657	1.3423	10.872
#3	1.2051	2.8877	1.3459	10.996

Sample Name: S5 Acquired: 12/8/2025 10:29:59 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	2316.0	47726.	6640.6	1729.5	2871.3
Stddev	4.7	104.	40.0	3.3	6.0
%RSD	.20180	.21887	.60230	.19199	.20783
#1	2320.1	47620.	6682.5	1729.2	2877.9
#2	2317.0	47829.	6636.5	1726.4	2869.5
#3	2310.9	47730.	6602.8	1733.0	2866.4

Sample Name: S6 Acquired: 12/8/2025 10:34:38 Type: Cal
Method: EPA SFAM01.0(v73) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	11.844	6.6211	3.0741	1.4065	2.2981
Stddev	.078	.0181	.0107	.0059	.0125
%RSD	.65504	.27414	.34699	.42085	.54566
#1	11.793	6.6004	3.0652	1.4018	2.2853
#2	11.804	6.6285	3.0712	1.4044	2.3103
#3	11.933	6.6344	3.0859	1.4131	2.2986

Int. Std.	Y_3600	Y_3710
Units	Cts/S	Cts/S
Avg	44998.	6623.4
Stddev	179.	13.2
%RSD	.39851	.19901
#1	45124.	6612.8
#2	45076.	6619.3
#3	44792.	6638.1

Sample Name: ICV001 Acquired: 12/8/2025 11:06:43 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICV001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**3.936817**	**4.240247**	**3.756511**	**4.064447**	**3.796468**	**7.485015**	**8.778467**
Stddev	.014137	.265961	.007520	.030830	.008374	.047489	.052979
%RSD	.3590884	6.272308	.2001771	.7585279	.2205674	.6344580	.6035058
#1	3.953120	4.495978	3.748163	4.092244	3.801549	7.431489	8.739987
#2	3.927949	4.259647	3.762755	4.069811	3.801052	7.501463	8.756523
#3	3.929383	3.965117	3.758613	4.031287	3.786803	7.522094	8.838892

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2672846**	**2.048487**	**20.82703**	**.8496799**	**2.438803**	**1.274348**	**3.940075**
Stddev	.0008646	.014872	.19405	.0050222	.005324	.008646	.047044
%RSD	.3234786	.7260106	.9317104	.5910707	.2183202	.6784450	1.193976
#1	.2682161	2.060027	20.64585	.8461929	2.436431	1.282196	3.889678
#2	.2665077	2.053732	20.80345	.8474106	2.444902	1.265080	3.947716
#3	.2671301	2.031703	21.03179	.8554363	2.435078	1.275767	3.982830

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.200739**	**19.06725**	**2.469542**	**1.073363**	**23.26083**	**2.512541**	**2.207731**
Stddev	.015708	.19362	.002868	.007671	.72908	.007443	.022960
%RSD	.7137615	1.015473	.1161245	.7146648	3.134386	.2962236	1.039992
#1	2.186061	18.85301	2.469526	1.069017	23.95555	2.519428	2.204828
#2	2.198850	19.11900	2.472418	1.068852	23.32527	2.513550	2.186360
#3	2.217306	19.22974	2.466682	1.082220	22.50166	2.504645	2.232005

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**20.57587**	**.0095149**	**.0286919**	**.0044807**	**.0103774**	**-.000268**	**-.010707**
Stddev	.29392	.0025243	.0008858	.0000663	.0050017	.001609	.001100
%RSD	1.428451	26.52959	3.087143	1.480045	48.19834	600.3495	10.27699
#1	20.29890	.0067913	.0278272	.0044084	.0159117	-.001274	-.011661
#2	20.54448	.0117759	.0295973	.0045388	.0061800	-.001117	-.009503
#3	20.88422	.0099775	.0286511	.0044948	.0090404	.001587	-.010958

Sample Name: ICV001 Acquired: 12/8/2025 11:06:43 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICV001 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.003362	.0003374	.0003538
Stddev	.002787	.0012620	.0001058
%RSD	82.90802	373.9808	29.89414
#1	-.004827	.0017124	.0002547
#2	-.005111	-.000768	.0004652
#3	-.000148	.000068	.0003415

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2863.827	55726.55	6695.935	2099.374	3808.718
Stddev	7.837	323.06	27.328	7.172	10.922
%RSD	.2736448	.5797251	.4081213	.3416335	.2867577
#1	2869.996	55993.81	6664.689	2103.918	3812.939
#2	2855.009	55818.30	6707.741	2103.099	3796.316
#3	2866.475	55367.53	6715.375	2091.106	3816.900

Sample Name: ICB001 Acquired: 12/8/2025 11:21:39 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICB001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000171	.0030517	.0015216	-.004305	.0029239	.0177152	.0023401
Stddev	.003052	.0028760	.0011566	.000703	.0016328	.0086230	.0013593
%RSD	1785.007	94.24115	76.01325	16.33152	55.84315	48.67569	58.08652
#1	-.001084	.0018268	.0003148	-.005030	.0014997	.0182751	.0027032
#2	-.002662	.0063374	.0016296	-.004259	.0025661	.0088259	.0008361
#3	.003233	.0009910	.0026204	-.003626	.0047059	.0260446	.0034809

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001354	.0001524	.0187358	.0003100	.0005005	-.003656	.0310069
Stddev	.0000802	.0000601	.0082434	.0007561	.0001268	.004727	.0054509
%RSD	59.27693	39.43124	43.99814	243.8979	25.33042	129.2945	17.57966
#1	.0000927	.0001066	.0281840	-.000345	.0006003	.001711	.0359371
#2	.0000855	.0002204	.0150128	.001137	.0005434	-.007200	.0251532
#3	.0002279	.0001301	.0130106	.000138	.0003579	-.005478	.0319303

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011140	.0153339	.0006993	.0025315	-.045776	-.003793	.0021696
Stddev	.0005122	.0134786	.0001501	.0001656	.245734	.001367	.0012527
%RSD	45.97431	87.90040	21.46086	6.541071	536.8173	36.04986	57.73706
#1	.0015493	.0281289	.0007480	.0026775	-.328614	-.005173	.0035693
#2	.0005497	.0012626	.0005310	.0025653	.075964	-.003765	.0011536
#3	.0012432	.0166103	.0008191	.0023516	.115322	-.002439	.0017861

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6216700	.0064920	-.001069	.0009829	.0015227	-.001092	-.005820
Stddev	.0537152	.0031386	.002638	.0001710	.0041450	.004388	.000315
%RSD	8.640470	48.34582	246.8534	17.39559	272.2154	401.9924	5.409820
#1	.5664681	.0079532	.000097	.0009915	.0054048	-.005836	-.005982
#2	.6737635	.0028892	.000786	.0011495	-.002843	-.000259	-.006020
#3	.6247786	.0086337	-.004089	.0008078	.002006	.002820	-.005457

Sample Name: ICB001 Acquired: 12/8/2025 11:21:39 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICB001 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008707	.0009679	.0004575
Stddev	.0011319	.0011343	.0000989
%RSD	130.0012	117.1911	21.60619
#1	.0019760	-.000140	.0005715
#2	.0009220	.002127	.0004059
#3	-.000286	.000916	.0003952

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2946.976	56054.85	6999.436	2160.209	4176.840
Stddev	17.878	92.03	3.340	7.030	27.494
%RSD	.6066727	.1641819	.0477251	.3254325	.6582487
#1	2927.513	55949.24	7002.070	2152.210	4147.005
#2	2950.748	56117.86	6995.679	2165.407	4182.359
#3	2962.668	56097.46	7000.561	2163.010	4201.155

Sample Name: ICSA001 Acquired: 12/8/2025 11:26:19 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0054430**	**.0060145**	**.0019969**	**.0272419**	**.0111412**	F **214.0711**
Stddev	.0014225	.0028449	.0022100	.0057201	.0042314	1.0631
%RSD	26.13381	47.30103	110.6713	20.99730	37.98009	.4966150
#1	.0070852	.0031170	-.000280	.0208460	.0158467	212.8704
#2	.0045946	.0088037	.004134	.0290118	.0076489	214.4502
#3	.0046492	.0061228	.002137	.0318677	.0099279	214.8927

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0071595**	**.0004694**	**.0008221**	**228.4417**	**.0614311**	**.0030605**
Stddev	.0008142	.0000329	.0001091	.9193	.0002576	.0004883
%RSD	11.37225	7.000849	13.27502	.4024062	.4193671	15.95416
#1	.0063404	.0004353	.0009162	227.4324	.0611357	.0028865
#2	.0079687	.0004721	.0007025	228.6617	.0615492	.0036119
#3	.0071694	.0005009	.0008476	229.2309	.0616086	.0026830

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003496**	**92.34860**	**.0188935**	**221.8778**	**.0084618**	**-.008054**
Stddev	.000958	.53912	.0001428	1.0985	.0003220	.000196
%RSD	27.39893	.5837846	.7557692	.4950909	3.805292	2.435418
#1	-.004595	91.75639	.0190574	220.6736	.0087051	-.008240
#2	-.003056	92.47854	.0187964	222.1349	.0085837	-.007849
#3	-.002837	92.81088	.0188266	222.8250	.0080967	-.008074

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0662063**	**-.007784**	**-.000282**	**.1609791**	F **.0182964**	F **.4288204**
Stddev	.5720544	.000865	.002127	.0308332	.0037424	.0025656
%RSD	864.0479	11.11354	755.0631	19.15351	20.45411	.5982871
#1	.7159014	-.007722	-.002226	.1707729	.0144592	.4265539
#2	-.155353	-.006951	-.000609	.1264385	.0219361	.4283016
#3	-.361930	-.008678	.001990	.1857258	.0184939	.4316057

Sample Name: ICSA001 Acquired: 12/8/2025 11:26:19 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA001 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014011	.0270450	.0027268	F -.015564	-.005174	.0023878
Stddev	.0001930	.0065163	.0013790	.001900	.000500	.0028073
%RSD	13.77674	24.09438	50.57198	12.20927	9.670817	117.5704
#1	.0012999	.0195423	.0042854	-.013389	-.005662	-.000563
#2	.0012798	.0312916	.0016653	-.016903	-.004662	.002700
#3	.0016237	.0303009	.0022297	-.016400	-.005196	.005026

Elem	Sr4077
Units	ppm
Avg	F .1011008
Stddev	.0003336
%RSD	.3299951
#1	.1007957
#2	.1010495
#3	.1014570

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2663.019	51257.22	6724.929	1952.865	3345.639
Stddev	11.485	189.93	29.880	12.069	10.967
%RSD	.4312878	.3705475	.4443152	.6180242	.3278117
#1	2664.798	51410.31	6746.201	1966.269	3343.153
#2	2650.748	51316.69	6737.818	1949.466	3336.127
#3	2673.511	51044.67	6690.768	1942.860	3357.635

Sample Name: ICSAB001 Acquired: 12/8/2025 11:40:00 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0907277**	**.0872380**	**.0511912**	**.0674341**	**.5972358**	**222.1257**
Stddev	.0050155	.0033788	.0012085	.0033651	.0030982	.4264
%RSD	5.528078	3.873039	2.360713	4.990165	.5187487	.1919751
#1	.0921567	.0855729	.0500783	.0711315	.5974989	221.6346
#2	.0948737	.0850149	.0510186	.0666202	.5940145	222.3402
#3	.0851528	.0911261	.0524767	.0645507	.6001940	222.4023

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5178444**	**.5266290**	**.8624661**	**237.1384**	**.6130710**	**.5165973**
Stddev	.0013157	.0033157	.0011975	.0944	.0040432	.0016938
%RSD	.2540791	.6296014	.1388495	.0398212	.6595043	.3278684
#1	.5193277	.5284335	.8638295	237.1474	.6129929	.5169087
#2	.5168181	.5286510	.8619842	237.2281	.6171527	.5147694
#3	.5173874	.5228024	.8615847	237.0399	.6090674	.5181138

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5099537**	**96.47418**	**.5307129**	**230.5860**	**1.035167**	**.1708001**
Stddev	.0039946	.14621	.0008938	.5445	.001462	.0017520
%RSD	.7833223	.1515568	.1684077	.2361295	.1412585	1.025771
#1	.5116050	96.34287	.5302749	229.9934	1.035838	.1693405
#2	.5128579	96.63173	.5317412	231.0642	1.033489	.1727430
#3	.5053982	96.44793	.5301227	230.7002	1.036173	.1703168

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.743376**	**.4977555**	**1.022595**	**-.140906**	F **.0111159**	F **.4555535**
Stddev	.478739	.0007087	.004134	.062281	.0057269	.0019599
%RSD	64.40073	.1423837	.4043038	44.20033	51.52028	.4302124
#1	-.247335	.4985631	1.017959	-.113433	.0057394	.4553714
#2	-1.20270	.4974663	1.025899	-.097085	.0171385	.4575980
#3	-.78009	.4972371	1.023928	-.212200	.0104697	.4536910

Sample Name: ICSAB001 Acquired: 12/8/2025 11:40:00 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB001 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017461	.0320547	.0022901	F -.015342	-.008530	.0059401
Stddev	.0007008	.0088275	.0035338	.000509	.001481	.0005762
%RSD	40.13502	27.53896	154.3044	3.318270	17.36648	9.700380
#1	.0017695	.0309687	-.000181	-.014982	-.006956	.0062142
#2	.0010340	.0413750	.000714	-.015925	-.009896	.0052780
#3	.0024350	.0238204	.006338	-.015120	-.008739	.0063281

Elem	Sr4077
Units	ppm
Avg	F .1036412
Stddev	.0002409
%RSD	.2324377
#1	.1037308
#2	.1033684
#3	.1038245

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2661.872	50520.10	6938.119	1917.115	3349.026
Stddev	6.293	282.81	44.641	8.543	8.062
%RSD	.2364279	.5597899	.6434115	.4456173	.2407383
#1	2657.845	50478.15	6910.836	1916.917	3345.961
#2	2669.124	50260.61	6913.885	1908.673	3358.171
#3	2658.646	50821.54	6989.635	1925.756	3342.945

Sample Name: CCV001 Acquired: 12/8/2025 11:44:29 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.224857**	**5.325694**	**25.55646**	**5.285608**	**5.227247**	**378.5596**
Stddev	.015709	.264797	.07804	.043175	.016017	1.6308
%RSD	.3006579	4.972057	.3053581	.8168335	.3064135	.4307902
#1	5.225107	5.320713	25.54342	5.294718	5.220776	377.6269
#2	5.209024	5.063424	25.48577	5.238605	5.215478	380.4427
#3	5.240439	5.592946	25.64020	5.323500	5.245487	377.6093

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.42784**	**.5178211**	**2.584990**	**387.8610**	**16.00816**	**2.587348**
Stddev	.03775	.0018957	.019944	.9400	.03003	.006056
%RSD	.3620298	.3660927	.7715303	.2423553	.1875839	.2340444
#1	10.41099	.5191776	2.580856	387.0338	15.99824	2.586667
#2	10.40145	.5186307	2.567437	387.6662	16.04190	2.581662
#3	10.47108	.5156550	2.606677	388.8832	15.98435	2.593716

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**15.41433**	**379.6975**	**15.39749**	**383.8179**	**2.577317**	**1.295762**
Stddev	.06237	.4375	.09216	1.0842	.007774	.002207
%RSD	.4046010	.1152294	.5985675	.2824695	.3016165	.1703256
#1	15.35152	379.5407	15.29226	382.8833	2.573240	1.298040
#2	15.41523	379.3599	15.43634	383.5638	2.572430	1.295612
#3	15.47624	380.1918	15.46386	385.0065	2.586281	1.293634

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**378.1444**	**2.573212**	**15.75468**	**160.6288**	**5.187843**	F **6.186649**
Stddev	1.4726	.009725	.18604	.2115	.046245	.021065
%RSD	.3894281	.3779141	1.180828	.1316523	.8914159	.3404865
#1	376.4661	2.583120	15.56816	160.4646	5.152265	6.204634
#2	378.7466	2.572834	15.75566	160.5544	5.171148	6.191840
#3	379.2204	2.563682	15.94022	160.8675	5.240118	6.163475

Sample Name: CCV001 Acquired: 12/8/2025 11:44:29 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV001 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.150759**	**5.325184**	**5.135836**	**5.167720**	**5.194523**	**5.332194**
Stddev	.022296	.057999	.031137	.027343	.007919	.027268
%RSD	.4328741	1.089153	.6062638	.5291177	.1524505	.5113871
#1	5.148165	5.282874	5.099954	5.170753	5.186582	5.304818
#2	5.129872	5.301380	5.155741	5.138987	5.202420	5.332410
#3	5.174238	5.391298	5.151814	5.193421	5.194568	5.359353

Elem	Sr4077
Units	ppm
Avg	**5.278797**
Stddev	.037758
%RSD	.7152717
#1	5.271908
#2	5.319525
#3	5.244957

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2364.384**	**47239.33**	**6509.436**	**1716.964**	**2905.242**
Stddev	3.134	70.93	24.323	8.445	5.195
%RSD	.1325307	.1501500	.3736588	.4918329	.1788143
#1	2363.106	47256.38	6491.233	1717.694	2903.477
#2	2367.955	47161.43	6500.015	1725.021	2911.090
#3	2362.092	47300.18	6537.061	1708.179	2901.160

Reviewed By:mohan
On:12/9/2025 3:04:33 PM
Inst Id :P4

Sample Name: CCB001 Acquired: 12/8/2025 11:49:06 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB001 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000315**	**-.002820**	**.0009348**	**-.001649**	**.0015630**	**.0050751**	**.0001727**
Stddev	.002322	.000787	.0011167	.001057	.0015661	.0103521	.0007612
%RSD	737.4051	27.92369	119.4650	64.07167	100.1983	203.9799	440.7012
#1	-.002762	-.002352	.0001063	-.002772	.0010507	-.006875	-.000379
#2	.001856	-.002379	.0022048	-.000674	.0033210	.010795	-.000144
#3	-.000038	-.003729	.0004933	-.001501	.0003172	.011306	.001041

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000010**	**-.000059**	**.0039039**	**.0006846**	**.0001568**	**.0001005**	**.0142019**
Stddev	.000089	.000031	.0138905	.0002803	.0002020	.0031272	.0137527
%RSD	852.9063	51.83329	355.8087	40.94448	128.8292	3110.930	96.83667
#1	.000081	-.000031	.0186282	.0004028	.0002420	.0008137	-.001678
#2	-.000015	-.000092	-.008967	.0006875	.0003022	-.003322	.022263
#3	-.000097	-.000053	.002050	.0009634	-.000074	.002810	.022020

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0005135**	**.0014277**	**-.000300**	**-.000053**	**.0195239**	**-.000939**	**.0010178**
Stddev	.0001743	.0165056	.000400	.000115	.3541876	.001172	.0019761
%RSD	33.93501	1156.118	133.0686	215.7582	1814.120	124.8018	194.1653
#1	.0003883	-.000131	-.000661	-.000180	-.083713	.000363	.0032834
#2	.0004398	.018657	-.000370	.000046	-.271575	-.001909	.0001201
#3	.0007126	-.014243	.000130	-.000027	.413860	-.001271	-.000350

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0056343**	**.0007291**	**.0041459**	**.0000227**	**-.006362**	**-.003190**	F **-.014294**
Stddev	.0380780	.0008001	.0016582	.0003462	.000568	.003351	.000707
%RSD	675.8301	109.7432	39.99574	1526.914	8.933409	105.0472	4.949423
#1	.0389979	.0006188	.0060069	.0001633	-.005826	-.001598	-.013559
#2	-.035848	.0015787	.0036057	.0002764	-.006958	-.000931	-.014354
#3	.013753	-.000010	.0028252	-.000372	-.006303	-.007039	-.014970

Sample Name: CCB001 Acquired: 12/8/2025 11:49:06 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB001 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0002633	-.001033	-.000023
Stddev	.0019407	.001481	.000098
%RSD	737.0711	143.3444	427.9146
#1	-.001791	-.002599	.000013
#2	.000514	.000344	-.000133
#3	.002066	-.000844	.000052

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2942.600	56369.78	7357.243	2190.473	4097.729
Stddev	2.668	277.06	60.808	15.946	6.711
%RSD	.0906775	.4915027	.8265074	.7279855	.1637698
#1	2942.420	56067.79	7337.212	2172.523	4104.517
#2	2940.026	56612.22	7425.539	2195.892	4091.098
#3	2945.353	56429.32	7308.977	2203.003	4097.574

Sample Name: Q3688-01 Acquired: 12/8/2025 11:53:46 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-31S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000169**	**.0006929**	**-.000166**	**-.004221**	**.0001084**	**.0981119**	**.0523449**
Stddev	.002567	.0022421	.001970	.001395	.0015037	.0059904	.0003534
%RSD	1515.195	323.5633	1184.009	33.06019	1387.712	6.105657	.6750370
#1	-.002060	.0022685	.001466	-.004258	.0017243	.1031117	.0526621
#2	.002752	.0016843	.000390	-.002807	-.000149	.0997517	.0519641
#3	-.001200	-.001874	-.002355	-.005597	-.001250	.0914724	.0524085

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001219**	**-.000130**	**48.95571**	**.0006719**	**.0003237**	**-.001456**	**.0861453**
Stddev	.0000744	.000183	.24187	.0002518	.0001730	.003285	.0032657
%RSD	61.05626	140.7038	.4940612	37.48122	53.42903	225.5707	3.790942
#1	.0000484	-.000194	48.90993	.0004324	.0002240	.002332	.0825556
#2	.0001201	.000076	49.21720	.0006488	.0002238	-.003187	.0889405
#3	.0001973	-.000272	48.74000	.0009345	.0005234	-.003513	.0869397

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0428595**	**13.14782**	**.0009827**	**.0002308**	**190.7335**	**-.002003**	**.0382190**
Stddev	.0003662	.09004	.0002261	.0003958	1.4485	.001626	.0031572
%RSD	.8543751	.6848182	23.00805	171.5112	.7594315	81.19203	8.260696
#1	.0432559	13.16017	.0007460	-.000042	191.0549	-.003247	.0362345
#2	.0427889	13.23105	.0010055	.000685	191.9943	-.002599	.0365627
#3	.0425339	13.05225	.0011964	.000049	189.1513	-.000163	.0418596

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6901155**	**.0112278**	**.0463648**	**.0006729**	**8.006730**	**3.568968**	**-.025456**
Stddev	.0455026	.0015509	.0008270	.0001655	.038525	.016870	.000328
%RSD	6.593471	13.81326	1.783683	24.60065	.4811591	.4726950	1.288938
#1	.7164685	.0094705	.0471967	.0005372	8.006889	3.573790	-.025656
#2	.7163042	.0124051	.0463550	.0008573	7.968126	3.582903	-.025078
#3	.6375737	.0118079	.0455428	.0006241	8.045176	3.550212	-.025635

Sample Name: Q3688-01 Acquired: 12/8/2025 11:53:46 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-31S Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001161	-.000379	.2702229
Stddev	.001325	.001600	.0018209
%RSD	114.0968	421.7800	.6738494
#1	-.000292	-.001550	.2714435
#2	-.000505	-.001031	.2710952
#3	-.002686	.001444	.2681300

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2948.289	55971.87	7273.149	2212.064	3814.022
Stddev	14.329	335.57	45.474	1.684	17.381
%RSD	.4860095	.5995282	.6252302	.0761087	.4557198
#1	2931.877	56006.14	7276.004	2213.807	3795.591
#2	2958.311	55620.48	7226.315	2211.937	3830.117
#3	2954.679	56288.98	7317.129	2210.447	3816.357

Sample Name: Q3688-01LX5 Acquired: 12/8/2025 11:58:20 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-31SL Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001505**	**-.000102**	**.0004534**	**-.005931**	**-.001480**	**.0225761**	**.0093792**
Stddev	.001396	.001783	.0019423	.000965	.001007	.0058428	.0006947
%RSD	92.75033	1755.103	428.4109	16.26439	68.02134	25.88037	7.407291
#1	-.003002	-.001513	-.000811	-.005145	-.002303	.0165033	.0099930
#2	-.001273	.001902	-.000519	-.005642	-.000357	.0281579	.0086250
#3	-.000240	-.000694	.002690	-.007008	-.001780	.0230672	.0095197

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000609**	**-.000109**	**9.890377**	**-.000355**	**.0002894**	**-.001584**	**.0222765**
Stddev	.0000939	.000048	.079132	.000391	.0002586	.005535	.0126370
%RSD	154.2459	44.23016	.8000945	110.2591	89.37450	349.3243	56.72808
#1	.0001692	-.000160	9.799260	-.000727	.0002394	.001692	.0139938
#2	.0000092	-.000101	9.941876	-.000391	.0000594	.001529	.0160138
#3	.0000041	-.000065	9.929994	.000053	.0005693	-.007974	.0368217

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0082782**	**2.627284**	**.0001660**	**.0001003**	**36.77025**	**-.003092**	**.0059776**
Stddev	.0001723	.023872	.0005141	.0001539	.46589	.001002	.0018598
%RSD	2.081874	.9086042	309.7424	153.5562	1.267020	32.40871	31.11348
#1	.0081933	2.599720	.0006371	.0002779	36.99743	-.004241	.0078865
#2	.0084765	2.641128	.0002431	.0000156	37.07896	-.002639	.0058753
#3	.0081648	2.641006	-.000382	.0000073	36.23435	-.002397	.0041710

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3748059**	**.0028390**	**.0089847**	**-.000215**	**1.496351**	**.6898011**	**-.013756**
Stddev	.0499853	.0050994	.0008936	.000576	.008124	.0030107	.000724
%RSD	13.33632	179.6186	9.945735	267.6902	.5429391	.4364589	5.262281
#1	.3380729	.0071629	.0083048	-.000592	1.505404	.6866106	-.014287
#2	.4317281	.0041387	.0099968	.000448	1.493953	.6925921	-.012932
#3	.3546167	-.002784	.0086524	-.000501	1.489695	.6902006	-.014051

Sample Name: Q3688-01LX5 Acquired: 12/8/2025 11:58:20 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-31SL Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000517	-.001073	.0545454
Stddev	.000668	.000216	.0003763
%RSD	129.3648	20.10130	.6899431
#1	.000255	-.001274	.0541810
#2	-.000884	-.001099	.0549326
#3	-.000920	-.000845	.0545226

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2901.517	55101.48	7215.713	2109.316	3952.862
Stddev	1.546	209.22	15.532	6.509	1.182
%RSD	.0532891	.3797013	.2152548	.3085825	.0299095
#1	2900.097	55324.59	7203.409	2114.566	3951.575
#2	2903.164	55070.19	7210.564	2111.349	3953.900
#3	2901.289	54909.67	7233.166	2102.033	3953.112

Sample Name: Q3688-02 Acquired: 12/8/2025 12:07:25 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-31SD Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001684**	**-.001176**	**.0014923**	**-.002653**	**.0001428**	**.0789200**	**.0521833**
Stddev	.000813	.002004	.0008247	.001505	.0027811	.0081524	.0006812
%RSD	48.26581	170.3884	55.26092	56.70086	1946.944	10.32993	1.305418
#1	-.002098	-.000078	.0010765	-.002701	-.003045	.0700527	.0524152
#2	-.000748	-.003489	.0009583	-.004134	.001404	.0806168	.0514164
#3	-.002206	.000039	.0024422	-.001126	.002070	.0860904	.0527183

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001366**	**-.000127**	**52.38217**	**.0016041**	**.0004127**	**-.001874**	**.1040787**
Stddev	.0000505	.000063	.32463	.0007240	.0003084	.001141	.0077989
%RSD	36.96905	49.13760	.6197432	45.13343	74.74545	60.89330	7.493307
#1	.0001661	-.000173	52.09087	.0015079	.0004371	-.000726	.1027333
#2	.0000783	-.000056	52.73214	.0023714	.0000927	-.001888	.1124628
#3	.0001653	-.000153	52.32351	.0009330	.0007082	-.003008	.0970400

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0404160**	**14.22226**	**.0019423**	**-.000659**	**189.1492**	**-.002122**	**.0146319**
Stddev	.0007075	.11568	.0005944	.000072	3.8297	.003843	.0039269
%RSD	1.750457	.8133605	30.60490	10.95261	2.024678	181.0803	26.83783
#1	.0395992	14.16740	.0015666	-.000580	185.8154	.000183	.0185370
#2	.0408145	14.35517	.0016326	-.000677	188.2999	.000009	.0146753
#3	.0408343	14.14423	.0026276	-.000721	193.3322	-.006559	.0106836

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.8223569**	**.0137643**	**.0397616**	**.0005897**	**8.582571**	**3.641132**	**-.026660**
Stddev	.0896621	.0022806	.0012571	.0003361	.056776	.058501	.000207
%RSD	10.90306	16.56886	3.161531	56.99986	.6615250	1.606684	.7766686
#1	.8308317	.0128647	.0390284	.0003284	8.543815	3.596480	-.026422
#2	.9074807	.0163574	.0412131	.0009689	8.647742	3.619558	-.026792
#3	.7287584	.0120706	.0390433	.0004719	8.556156	3.707356	-.026767

Sample Name: Q3688-02 Acquired: 12/8/2025 12:07:25 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-31SD Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0000177	.0003721	.2839682
Stddev	.0002396	.0018049	.0023222
%RSD	1353.302	485.1109	.8177556
#1	-.000246	-.000594	.2813504
#2	.000222	-.000744	.2847743
#3	.000077	.002454	.2857798

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2881.665	55312.11	7345.878	2103.994	3747.925
Stddev	4.337	467.66	80.035	22.675	5.385
%RSD	.1504873	.8454888	1.089517	1.077712	.1436833
#1	2884.994	55667.01	7434.888	2124.696	3753.814
#2	2876.761	54782.18	7322.903	2079.761	3746.710
#3	2883.240	55487.13	7279.844	2107.526	3743.252

Sample Name: Q3688-04 Acquired: 12/8/2025 12:12:01 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: RBGW-2025111 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002839**	**-.004067**	**.0001510**	**-.002338**	**.0001022**	**.0027989**	**.0029518**
Stddev	.004168	.004498	.0008457	.001084	.0011577	.0036893	.0008304
%RSD	146.8207	110.5905	559.9340	46.37352	1132.867	131.8138	28.13158
#1	-.001806	-.000636	-.000571	-.001171	-.001152	.0066722	.0020457
#2	.000715	-.002406	-.000057	-.002529	.001130	.0023981	.0036765
#3	-.007426	-.009160	.001081	-.003313	.000328	-.000674	.0031332

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000014**	**-.000186**	**1.009627**	**.0002447**	**-.000058**	**-.001439**	**.0115434**
Stddev	.000046	.000059	.008898	.0006121	.000044	.002881	.0059054
%RSD	320.5952	31.65412	.8813497	250.1577	76.28909	200.2309	51.15796
#1	.000031	-.000226	1.005991	-.000174	-.000050	.001079	.0124689
#2	-.000013	-.000119	1.003123	.000947	-.000105	-.004580	.0169314
#3	-.000061	-.000215	1.019768	-.000040	-.000018	-.000814	.0052299

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0012901**	**.2274867**	**.0007210**	**-.000384**	**1.226438**	**-.005065**	**.0056639**
Stddev	.0001839	.0239825	.0000827	.000371	.234292	.001287	.0010588
%RSD	14.25174	10.54240	11.46621	96.73802	19.10348	25.41962	18.69380
#1	.0014462	.2051054	.0008007	-.000604	.958910	-.006544	.0067535
#2	.0010875	.2528008	.0006356	-.000593	1.325355	-.004195	.0055993
#3	.0013367	.2245540	.0007266	.000045	1.395049	-.004455	.0046389

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-1.84144**	**.0098114**	**.0028840**	**.0005403**	**.5742451**	**.0528063**	**-.023882**
Stddev	.05493	.0010756	.0012545	.0001386	.0055996	.0068577	.000787
%RSD	2.982837	10.96317	43.49925	25.65201	.9751305	12.98660	3.296587
#1	-1.86756	.0086178	.0025897	.0005038	.5757090	.0506472	-.023634
#2	-1.77832	.0107057	.0018028	.0004236	.5789674	.0472880	-.024763
#3	-1.87842	.0101108	.0042595	.0006935	.5680589	.0604838	-.023248

Sample Name: Q3688-04 Acquired: 12/8/2025 12:12:01 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: RBGW-2025111 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000064	-.005087	.0065772
Stddev	.000774	.001062	.0000750
%RSD	1217.446	20.87878	1.140472
#1	-.000957	-.004992	.0066586
#2	.000365	-.004075	.0065620
#3	.000402	-.006193	.0065109

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2988.216	57090.93	7396.632	2145.568	4237.032
Stddev	4.749	92.71	92.578	8.625	5.838
%RSD	.1589225	.1623820	1.251621	.4019831	.1377739
#1	2982.750	56988.03	7377.181	2143.822	4230.837
#2	2990.569	57116.82	7315.324	2137.950	4242.430
#3	2991.329	57167.94	7497.389	2154.932	4237.829

Sample Name: Q3688-06 Acquired: 12/8/2025 12:16:41 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-32I Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0116755**	**-.000136**	**.0024350**	**-.001814**	**.0010601**	**2.738829**
Stddev	.0005471	.001200	.0019806	.001676	.0016008	.035531
%RSD	4.686227	880.0867	81.33939	92.40072	151.0108	1.297306
#1	.0112788	.000982	.0013614	-.003730	.0004380	2.779855
#2	.0122997	.000013	.0012229	-.001086	.0028786	2.718516
#3	.0114480	-.001404	.0047205	-.000625	-.000136	2.718114

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1035112**	**.0002300**	**-.000177**	**19.27326**	**.0070326**	**.0024609**
Stddev	.0025794	.0001258	.000051	.19737	.0002045	.0000345
%RSD	2.491904	54.69466	28.93219	1.024047	2.907788	1.400695
#1	.1061475	.0002860	-.000170	19.49915	.0072675	.0024533
#2	.1033934	.0003180	-.000130	19.18646	.0069368	.0024309
#3	.1009928	.0000859	-.000232	19.13417	.0068937	.0024986

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0024545**	**4.194800**	**.0758396**	**1.208952**	**.0072562**	**-.000714**
Stddev	.0024604	.023916	.0010078	.026554	.0002582	.000029
%RSD	100.2429	.5701416	1.328910	2.196459	3.558515	4.061252
#1	.0027416	4.222179	.0765217	1.237965	.0070091	-.000748
#2	.0047587	4.177985	.0746819	1.203038	.0072354	-.000700
#3	-.000137	4.184234	.0763151	1.185854	.0075243	-.000695

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**91.25804**	**.0078337**	**.0150682**	**8.663226**	**.1117519**	**2.203524**
Stddev	.93780	.0014484	.0005177	.067421	.0026950	.004646
%RSD	1.027630	18.48982	3.435813	.7782411	2.411611	.2108552
#1	91.50184	.0068684	.0148128	8.734372	.1141339	2.202486
#2	90.22242	.0094992	.0147279	8.655024	.1088266	2.199485
#3	92.04986	.0071334	.0156640	8.600281	.1122951	2.208602

Sample Name: Q3688-06 Acquired: 12/8/2025 12:16:41 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-32I Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0795433	F 10.97616	5.347751	-.024406	.0632521	.0208261
Stddev	.0003758	.05325	.037237	.000773	.0005721	.0017978
%RSD	.4724964	.4851835	.6963029	3.168223	.9045014	8.632399
#1	.0799653	11.02002	5.360908	-.024431	.0629866	.0220874
#2	.0792446	10.91690	5.305722	-.023621	.0628609	.0216233
#3	.0794199	10.99155	5.376623	-.025167	.0639087	.0187675

Elem	Sr4077
Units	ppm
Avg	.5384958
Stddev	.0056466
%RSD	1.048594
#1	.5447806
#2	.5368570
#3	.5338498

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2975.698	56476.29	7497.312	2170.887	3936.432
Stddev	2.669	428.22	38.672	10.983	10.627
%RSD	.0896938	.7582365	.5158160	.5059084	.2699744
#1	2977.730	55992.12	7493.143	2158.209	3939.289
#2	2976.687	56631.44	7537.900	2177.494	3945.339
#3	2972.675	56805.32	7460.893	2176.959	3924.668

Sample Name: Q3688-09 Acquired: 12/8/2025 12:21:16 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-31I Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0076808**	**-.001954**	**.0019464**	**-.003920**	**-.000046**	**1.145033**
Stddev	.0008811	.002297	.0016380	.002426	.002019	.014647
%RSD	11.47119	117.5508	84.15314	61.88244	4360.817	1.279160
#1	.0083828	-.004372	.0029797	-.005067	-.002014	1.131557
#2	.0066921	-.001692	.0028017	-.005561	.002020	1.142920
#3	.0079676	.000200	.0000578	-.001134	-.000145	1.160622

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0635902**	**.0001742**	**.0000713**	**24.47974**	**.0082178**	**.0013647**
Stddev	.0007813	.0001111	.0000501	.14769	.0006455	.0001889
%RSD	1.228643	63.79652	70.20277	.6033181	7.854495	13.84470
#1	.0643225	.0002969	.0001283	24.31249	.0082845	.0012006
#2	.0636802	.0000804	.0000512	24.53452	.0075416	.0015712
#3	.0627677	.0001453	.0000344	24.59221	.0088274	.0013221

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000639**	**2.265597**	**.0882854**	**3.408660**	**.0049795**	**-.000334**
Stddev	.003742	.022411	.0023940	.036370	.0003214	.000057
%RSD	586.0231	.9891975	2.711663	1.066996	6.455440	17.05646
#1	-.003250	2.243801	.0856221	3.394344	.0046110	-.000364
#2	-.002314	2.264413	.0889758	3.381627	.0051254	-.000369
#3	.003649	2.288577	.0902584	3.450010	.0052021	-.000268

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**58.11761**	**-.000550**	**.0067566**	**-.493951**	**.1095900**	**1.033724**
Stddev	.89294	.002808	.0036804	.094952	.0048378	.019312
%RSD	1.536431	510.0660	54.47150	19.22299	4.414403	1.868196
#1	58.46142	.002692	.0026285	-.585318	.1104199	1.055730
#2	57.10388	-.002162	.0079461	-.500756	.1043910	1.019596
#3	58.78754	-.002181	.0096952	-.395780	.1139592	1.025847

Sample Name: Q3688-09 Acquired: 12/8/2025 12:21:16 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-31I Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054923	F 21.94599	4.930496	-.024736	.0324074	-.002367
Stddev	.0002394	.15543	.040428	.000971	.0012866	.001463
%RSD	4.359376	.7082331	.8199683	3.923687	3.970199	61.80783
#1	.0057601	21.76711	4.949220	-.024565	.0314283	-.002492
#2	.0052989	22.02282	4.884099	-.023863	.0319291	-.003763
#3	.0054178	22.04804	4.958167	-.025781	.0338646	-.000845

Elem	Sr4077
Units	ppm
Avg	.1560726
Stddev	.0015799
%RSD	1.012301
#1	.1543076
#2	.1565555
#3	.1573547

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2972.221	57034.29	7517.430	2221.186	3980.226
Stddev	12.869	431.19	145.690	14.743	15.235
%RSD	.4329747	.7560152	1.938028	.6637471	.3827725
#1	2986.060	56546.89	7352.656	2204.191	3995.793
#2	2960.614	57366.02	7629.191	2230.542	3965.346
#3	2969.989	57189.98	7570.441	2228.824	3979.538

Sample Name: Q3688-03 Acquired: 12/8/2025 12:38:00 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-31SS Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0316292**	**.0339785**	**.0191517**	**.0826014**	**.0983783**	**1.675194**	**1.852400**
Stddev	.0022689	.0032129	.0009445	.0009531	.0014948	.013976	.004454
%RSD	7.173456	9.455726	4.931453	1.153836	1.519461	.8343095	.2404260
#1	.0290288	.0324996	.0195404	.0837018	.1000381	1.685197	1.857346
#2	.0326533	.0376646	.0180750	.0820659	.0971381	1.659225	1.851147
#3	.0332055	.0317713	.0198399	.0820365	.0979588	1.681159	1.848707

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0533126**	**.0428965**	**45.84582**	**.2158287**	**.5008482**	**.2474073**	**.9623146**
Stddev	.0002040	.0001761	.06949	.0014312	.0017916	.0023435	.0138026
%RSD	.3826040	.4104371	.1515659	.6631037	.3577129	.9472103	1.434311
#1	.0532577	.0429698	45.91800	.2167525	.5026702	.2460508	.9775360
#2	.0535385	.0426957	45.84009	.2165534	.4990886	.2501133	.9506121
#3	.0531418	.0430241	45.77938	.2141801	.5007858	.2460578	.9587958

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5028941**	**12.47148**	**.5048808**	**.0479744**	**175.0254**	**.5060335**	**.5111318**
Stddev	.0014786	.02184	.0021641	.0005092	.4008	.0018461	.0055029
%RSD	.2940142	.1750821	.4286387	1.061395	.2289892	.3648180	1.076612
#1	.5045667	12.44819	.5062956	.0480995	174.6171	.5053126	.5154385
#2	.5017614	12.47478	.5023896	.0484094	175.0410	.5046566	.5130247
#3	.5023541	12.49148	.5059573	.0474143	175.4182	.5081313	.5049323

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4451318**	**.0143425**	**.0503330**	**.0003490**	**7.664420**	**3.352836**	**-.025603**
Stddev	.0413073	.0012488	.0021492	.0000871	.023831	.008240	.000445
%RSD	9.279789	8.706831	4.269970	24.96152	.3109288	.2457768	1.738185
#1	.4741271	.0157046	.0482972	.0004167	7.691847	3.362193	-.025876
#2	.3978356	.0132515	.0525801	.0003797	7.648770	3.349657	-.025844
#3	.4634328	.0140716	.0501218	.0002507	7.652643	3.346659	-.025090

Sample Name: Q3688-03 Acquired: 12/8/2025 12:38:00 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-31SS Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.002230	-.001314	.2489292
Stddev	.001390	.000848	.0005985
%RSD	62.34035	64.52163	.2404102
#1	-.002162	-.002198	.2495396
#2	-.003653	-.001235	.2483435
#3	-.000875	-.000508	.2489044

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2941.355	57004.26	7196.192	2149.148	3831.768
Stddev	9.805	406.56	28.955	19.941	14.644
%RSD	.3333655	.7132083	.4023678	.9278667	.3821681
#1	2932.606	56647.22	7175.781	2135.012	3818.050
#2	2951.954	56918.79	7183.464	2140.474	3847.189
#3	2939.506	57446.75	7229.331	2171.957	3830.065

Sample Name: Q3688-10 Acquired: 12/8/2025 12:42:28 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-32S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001953**	**.0022625**	**-.000591**	**-.004728**	**.0015160**	**.0656300**
Stddev	.001465	.0033328	.002901	.003010	.0016245	.0066433
%RSD	74.98026	147.3043	490.8072	63.66657	107.1524	10.12242
#1	-.003037	-.000256	-.000313	-.006496	-.000280	.0642903
#2	-.002536	.006042	-.003621	-.001252	.002883	.0728410
#3	-.000287	.001002	.002161	-.006435	.001945	.0597585

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1030231**	**.0002303**	**.0001780**	**44.73743**	**.0077513**	**.0009527**
Stddev	.0002954	.0000242	.0000525	.38891	.0002161	.0000781
%RSD	.2867601	10.52449	29.51020	.8693195	2.788080	8.194202
#1	.1032751	.0002437	.0001536	44.33859	.0080001	.0008640
#2	.1030963	.0002024	.0001421	45.11558	.0076102	.0010109
#3	.1026980	.0002450	.0002383	44.75813	.0076435	.0009833

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0038678**	**.1203808**	**.9570695**	**7.841622**	**.0040111**	**.0000816**
Stddev	.0060770	.0061619	.0077556	.076794	.0002613	.0006121
%RSD	157.1165	5.118651	.8103530	.9793076	6.514352	750.0962
#1	.0090600	.1238317	.9481985	7.762302	.0037224	-.000624
#2	-.002816	.1240440	.9604422	7.915612	.0042314	.000401
#3	.005360	.1132668	.9625677	7.846951	.0040795	.000468

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**320.8267**	**-.001644**	**.0010160**	**7.308388**	**.0197276**	**.1547310**
Stddev	.5741	.001760	.0001676	.169664	.0012012	.0017959
%RSD	.1789318	107.0543	16.49793	2.321491	6.088796	1.160660
#1	321.4028	-.003538	.0010520	7.115684	.0189300	.1557501
#2	320.8225	-.001338	.0011627	7.435312	.0191438	.1526574
#3	320.2547	-.000057	.0008333	7.374169	.0211092	.1557855

Sample Name: Q3688-10 Acquired: 12/8/2025 12:42:28 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-32S Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003178	F 16.06085	1.751146	-.026540	-.000692	-.002750
Stddev	.0004806	.07860	.005598	.001039	.001421	.002104
%RSD	151.2385	.4893788	.3196613	3.916220	205.3638	76.50884
#1	.0000654	16.00395	1.754516	-.027738	-.002315	-.005143
#2	.0000159	16.02808	1.754239	-.025882	-.000085	-.001187
#3	.0008720	16.15054	1.744685	-.026001	.000325	-.001921

Elem	Sr4077
Units	ppm
Avg	.2389505
Stddev	.0021131
%RSD	.8843371
#1	.2365346
#2	.2404549
#3	.2398619

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2849.549	53714.73	7056.211	2065.163	3646.974
Stddev	5.730	408.01	40.557	15.251	8.686
%RSD	.2010967	.7595894	.5747765	.7384746	.2381572
#1	2849.404	54180.81	7037.374	2082.741	3652.496
#2	2855.350	53422.13	7028.498	2055.450	3651.464
#3	2843.892	53541.23	7102.762	2057.300	3636.963

Sample Name: Q3688-11 Acquired: 12/8/2025 12:47:04 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: RBGW-2025112 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003558**	**-.001034**	**-.000197**	**-.003528**	**-.000095**	**.0095954**	**-.000865**
Stddev	.003426	.002472	.001191	.003132	.002000	.0046833	.000364
%RSD	96.29195	238.9315	604.0077	88.77951	2096.324	48.80786	42.10322
#1	-.001024	.001100	.001177	-.006699	.002201	.0147173	-.000612
#2	-.007456	-.003742	-.000831	-.003448	-.001035	.0055318	-.000701
#3	-.002195	-.000461	-.000938	-.000437	-.001452	.0085370	-.001282

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000065**	**-.000121**	**-.008721**	**.0003859**	**-.000085**	**-.002807**	**.0022190**
Stddev	.0000377	.000119	.003834	.0004397	.000115	.003700	.0021777
%RSD	583.8514	98.44101	43.96262	113.9485	134.1999	131.8255	98.13947
#1	.0000421	-.000020	-.004350	.0008611	-.000109	-.000089	.0007774
#2	-.000033	-.000091	-.010298	.0003034	.000039	-.007020	.0047241
#3	.000010	-.000253	-.011515	-.000007	-.000186	-.001310	.0011555

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0007085**	**.0014089**	**.0001447**	**-.000374**	**-.221071**	**-.000070**	**.0009600**
Stddev	.0003636	.0088762	.0005263	.000568	.206553	.001595	.0020212
%RSD	51.32679	630.0224	363.7603	151.8460	93.43292	2276.816	210.5500
#1	.0004084	.0099604	-.000064	-.000902	-.004246	.000761	-.000249
#2	.0006042	-.007760	.000743	-.000446	-.243435	-.001910	-.000164
#3	.0011129	.002026	-.000245	.000227	-.415532	.000938	.003293

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-2.02230**	**.0021850**	**-.002140**	**-.000060**	**-.002453**	**-.006974**	**-.023472**
Stddev	.03571	.0007223	.001211	.000058	.003036	.002344	.000709
%RSD	1.765887	33.05791	56.59498	97.19896	123.7856	33.61169	3.022161
#1	-1.98441	.0017269	-.002844	-.000013	.000179	-.007573	-.023426
#2	-2.02716	.0030176	-.002836	-.000042	-.001763	-.004389	-.022788
#3	-2.05533	.0018104	-.000742	-.000125	-.005775	-.008961	-.024204

Reviewed By:mohan
On:12/9/2025 3:04:33 PM
Inst Id :P4

Sample Name: Q3688-11 Acquired: 12/8/2025 12:47:04 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: RBGW-2025112 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000524	-.006088	.0000115
Stddev	.001370	.000788	.0000879
%RSD	261.3869	12.94807	766.1161
#1	-.000299	-.006962	.0000952
#2	-.001993	-.005432	-.000080
#3	.000720	-.005869	.000019

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2986.796	57299.64	7533.894	2165.751	4213.511
Stddev	11.498	231.74	74.429	11.601	13.760
%RSD	.3849579	.4044386	.9879230	.5356505	.3265631
#1	2987.620	57128.40	7619.558	2156.139	4217.123
#2	2997.861	57563.34	7497.065	2178.637	4225.104
#3	2974.909	57207.18	7485.060	2162.477	4198.305

Sample Name: Q3688-12 Acquired: 12/8/2025 12:51:44 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-30S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0041773**	**-.017092**	**.0050684**	**-.001572**	**-.000801**	**.0650459**	**.2997282**
Stddev	.0014209	.006086	.0019650	.000949	.003140	.0030057	.0037691
%RSD	34.01551	35.60556	38.77055	60.37758	391.8943	4.620872	1.257501
#1	.0038246	-.014701	.0029534	-.002528	-.001286	.0631932	.3037937
#2	.0029659	-.012566	.0068376	-.000630	-.003672	.0634307	.2963503
#3	.0057413	-.024011	.0054140	-.001558	.002553	.0685139	.2990404

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0013699**	**.0001921**	**170.1589**	**.0100070**	**.0057263**	**.0001447**	**28.19523**
Stddev	.0000745	.0001724	1.9875	.0007424	.0001826	.0030306	.28061
%RSD	5.435016	89.71882	1.168004	7.418483	3.188024	2094.765	.9952441
#1	.0014520	.0000023	172.2758	.0104350	.0058202	.0023290	28.47748
#2	.0013068	.0003390	168.3329	.0104362	.0055159	.0014203	27.91629
#3	.0013510	.0002351	169.8680	.0091498	.0058428	-.003315	28.19192

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**24.58833**	**56.82069**	**.0096364**	**.0015971**	**327.8003**	**-.009690**	**-.001161**
Stddev	.33876	.56919	.0000512	.0000453	3.1716	.002744	.001477
%RSD	1.377716	1.001734	.5309799	2.835836	.9675419	28.32090	127.2453
#1	24.94555	57.47684	.0096580	.0016076	330.9262	-.012324	-.002541
#2	24.27169	56.45973	.0095780	.0015475	324.5849	-.009900	-.001338
#3	24.54775	56.52550	.0096732	.0016363	327.8896	-.006847	.000397

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.973866**	**.0581313**	**.1861747**	**.0027005**	**2.724347**	**5.891156**	**-.027930**
Stddev	.075402	.0030090	.0013173	.0002789	.010431	.048589	.001168
%RSD	1.515971	5.176197	.7075454	10.32610	.3828986	.8247840	4.180675
#1	5.048487	.0548292	.1875116	.0025023	2.719826	5.935671	-.028302
#2	4.897706	.0607183	.1848780	.0030194	2.716939	5.839323	-.028866
#3	4.975406	.0588464	.1861345	.0025800	2.736277	5.898475	-.026622

Sample Name: Q3688-12 Acquired: 12/8/2025 12:51:44 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-30S Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.007914	.0047022	.9120367
Stddev	.001508	.0010348	.0112326
%RSD	19.05927	22.00788	1.231597
#1	-.009218	.0058044	.9241978
#2	-.006262	.0045508	.9020506
#3	-.008263	.0037514	.9098618

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2774.350	52439.20	7346.727	2001.264	3492.485
Stddev	10.907	457.42	25.765	25.718	15.711
%RSD	.3931360	.8722931	.3507038	1.285086	.4498390
#1	2783.308	51965.68	7331.763	1975.529	3503.277
#2	2777.538	52878.62	7376.478	2026.965	3499.716
#3	2762.204	52473.28	7331.941	2001.299	3474.460

Sample Name: Q3688-13 Acquired: 12/8/2025 12:56:20 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-30I Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0005666**	**.0011711**	**.0020156**	**-.005443**	**.0029183**	**.2392390**
Stddev	.0032352	.0015965	.0020351	.001568	.0017014	.0019381
%RSD	571.0059	136.3309	100.9687	28.80834	58.30027	.8100998
#1	-.001329	.0004113	.0033680	-.004018	.0035120	.2412360
#2	-.001273	.0030056	-.000325	-.007123	.0009996	.2373657
#3	.004302	.0000963	.003004	-.005188	.0042434	.2391153

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0428609**	**.0001140**	**.0000118**	**199.7263**	**.0018339**	**.0001420**
Stddev	.0012438	.0000638	.0001017	.1425	.0003604	.0002481
%RSD	2.901904	55.97988	859.5774	.0713671	19.65123	174.7541
#1	.0441338	.0000414	.0000720	199.7834	.0020630	.0002591
#2	.0428004	.0001395	-.000106	199.5640	.0014185	.0003099
#3	.0416485	.0001611	.000069	199.8314	.0020202	-.000143

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002441**	**.2532492**	**.0184233**	**6.694736**	**.0013827**	**-.000520**
Stddev	.003737	.0095748	.0001552	.018471	.0002785	.000405
%RSD	153.0870	3.780791	.8425364	.2759058	20.13858	77.87555
#1	-.001107	.2476519	.0182609	6.715153	.0015059	-.000861
#2	-.006662	.2477907	.0184389	6.679185	.0015783	-.000627
#3	.000446	.2643049	.0185702	6.689869	.0010639	-.000072

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**130.7031**	**.0053293**	**.0019168**	**2.431117**	**.0130588**	**2.227918**
Stddev	.8248	.0031859	.0018973	.043857	.0020187	.009655
%RSD	.6310258	59.78020	98.98149	1.803999	15.45864	.4333768
#1	130.1149	.0078696	.0040815	2.442127	.0118865	2.228403
#2	130.3486	.0063634	.0011266	2.468420	.0153898	2.218029
#3	131.6459	.0017548	.0005424	2.382804	.0119001	2.237321

Sample Name: Q3688-13 Acquired: 12/8/2025 12:56:20 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-30I Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0100247	F 220.1755	2.484791	-.027917	-.003876	.0061806
Stddev	.0004451	1.6728	.025319	.001301	.000421	.0005334
%RSD	4.440146	.7597439	1.018958	4.660782	10.85644	8.630552
#1	.0104252	221.6406	2.491336	-.029413	-.004090	.0065807
#2	.0095455	218.3529	2.456843	-.027294	-.003391	.0055750
#3	.0101033	220.5330	2.506195	-.027045	-.004146	.0063862

Elem	Sr4077
Units	ppm
Avg	.6589117
Stddev	.0011957
%RSD	.1814669
#1	.6584478
#2	.6580174
#3	.6602698

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2856.416	55067.04	7243.692	2112.552	3697.565
Stddev	11.031	123.92	39.741	14.060	16.347
%RSD	.3861788	.2250318	.5486292	.6655377	.4420998
#1	2852.266	54968.42	7230.088	2109.662	3688.430
#2	2868.919	55206.14	7288.448	2127.832	3716.438
#3	2848.061	55026.57	7212.539	2100.162	3687.828

Sample Name: Q3688-15 Acquired: 12/8/2025 13:00:54 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: FDGW-2025112 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0014582**	**-.018999**	**.0056648**	**-.001746**	**-.000220**	**.0703452**	**.3007501**
Stddev	.0033231	.000907	.0027055	.001998	.003824	.0112812	.0027634
%RSD	227.8930	4.775191	47.76017	114.4329	1735.445	16.03688	.9188325
#1	.0034406	-.019720	.0027296	-.003824	-.004054	.0622778	.2992631
#2	.0033123	-.019297	.0080588	.000161	.003595	.0832362	.2990486
#3	-.002378	-.017980	.0062062	-.001576	-.000202	.0655215	.3039386

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0013208**	**.0002995**	**165.1916**	**.0053303**	**.0059926**	**-.003728**	**25.41319**
Stddev	.0000232	.0000467	.7857	.0004707	.0001695	.000607	.10845
%RSD	1.756997	15.57910	.4756394	8.830595	2.828952	16.27690	.4267558
#1	.0012941	.0002862	164.8226	.0052310	.0058140	-.004406	25.30158
#2	.0013363	.0003514	164.6584	.0058427	.0061514	-.003540	25.41980
#3	.0013320	.0002609	166.0939	.0049171	.0060124	-.003237	25.51818

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**24.98875**	**54.58350**	**.0047275**	**.0026658**	**353.3318**	**-.011846**	**.0005776**
Stddev	.17171	.27231	.0002117	.0001283	2.1378	.002702	.0005995
%RSD	.6871508	.4988888	4.478212	4.811333	.6050453	22.80946	103.8029
#1	24.95506	54.34121	.0049049	.0025420	353.2416	-.009525	.0003845
#2	24.83638	54.53109	.0044932	.0026574	351.2405	-.014812	.0012498
#3	25.17480	54.87821	.0047845	.0027981	355.5133	-.011201	.0000983

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.678762**	**.0532100**	**.1788389**	**.0025969**	**2.782625**	**6.173449**	**-.027619**
Stddev	.015374	.0030397	.0017674	.0003796	.022200	.012123	.001701
%RSD	.3285891	5.712637	.9882681	14.61880	.7978202	.1963661	6.160118
#1	4.696433	.0540398	.1769617	.0024538	2.767436	6.171488	-.029058
#2	4.671397	.0557486	.1804709	.0030272	2.772336	6.162427	-.025741
#3	4.668457	.0498416	.1790842	.0023095	2.808103	6.186433	-.028058

Sample Name: Q3688-15 Acquired: 12/8/2025 13:00:54 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: FDGW-2025112 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.007978	.0034050	.8995169
Stddev	.001139	.0016127	.0061777
%RSD	14.27916	47.36309	.6867749
#1	-.009218	.0052207	.8988326
#2	-.007736	.0021393	.8937099
#3	-.006979	.0028549	.9060083

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2701.462	51252.84	6827.750	2030.091	3388.577
Stddev	12.451	255.07	17.986	12.684	20.928
%RSD	.4608850	.4976672	.2634237	.6247785	.6176145
#1	2715.020	51420.50	6839.329	2040.501	3411.503
#2	2698.822	51378.71	6836.891	2033.808	3383.733
#3	2690.542	50959.30	6807.030	2015.964	3370.496

Sample Name: Q3688-16 Acquired: 12/8/2025 13:05:29 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: WS-14 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001532**	**-.000300**	**.0005808**	**-.002950**	**-.001790**	**.0320711**	**.0943447**
Stddev	.000410	.003288	.0007216	.001689	.002210	.0160189	.0010561
%RSD	26.75126	1094.705	124.2548	57.26940	123.4769	49.94799	1.119377
#1	-.001064	-.000930	-.000241	-.004899	-.002631	.0505680	.0931862
#2	-.001828	-.003228	.001110	-.001894	-.003456	.0228001	.0945940
#3	-.001705	.003257	.000873	-.002057	.000717	.0228450	.0952537

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002952**	**-.000153**	**48.32285**	**.0327839**	**.0004954**	**-.001176**	**4.201850**
Stddev	.0001506	.000073	.49753	.0003078	.0002657	.002749	.046787
%RSD	51.03438	47.57795	1.029588	.9389203	53.62689	233.7169	1.113491
#1	.0003633	-.000195	48.31957	.0325986	.0002468	-.004302	4.181279
#2	.0003997	-.000069	48.82200	.0331393	.0007754	-.000089	4.255399
#3	.0001225	-.000194	47.82697	.0326140	.0004641	.000863	4.168873

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.314496**	**22.88355**	**.0337834**	**.0003463**	**131.1950**	**.0010374**	**-.000477**
Stddev	.008407	.24679	.0005363	.0006981	2.0319	.0018745	.002271
%RSD	.6395792	1.078475	1.587301	201.5506	1.548799	180.6983	476.2598
#1	1.316571	22.87756	.0336232	.0008570	132.9023	-.000640	.001954
#2	1.321671	23.13328	.0333456	.0006312	128.9476	.000691	-.000840
#3	1.305245	22.63980	.0343815	-.000449	131.7352	.003061	-.002544

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-1.32465**	**.0622571**	**.1058441**	**.0007385**	**2.112751**	**9.789192**	**-.021530**
Stddev	.09368	.0026444	.0003218	.0000124	.012904	.093796	.001210
%RSD	7.071675	4.247580	.3040644	1.674465	.6107763	.9581625	5.619357
#1	-1.39866	.0652271	.1058586	.0007268	2.113451	9.882481	-.021421
#2	-1.35596	.0601578	.1055153	.0007373	2.099511	9.694897	-.022791
#3	-1.21933	.0613864	.1061584	.0007514	2.125291	9.790199	-.020379

Sample Name: Q3688-16 Acquired: 12/8/2025 13:05:29 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: WS-14 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001894	.0050785	.2014538
Stddev	.001902	.0002374	.0014095
%RSD	100.4382	4.675379	.6996424
#1	.000124	.0053435	.2024649
#2	-.002151	.0048851	.2020527
#3	-.003655	.0050069	.1998438

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2859.175	54002.61	7071.786	2104.109	3735.726
Stddev	2.499	239.13	63.275	19.796	3.931
%RSD	.0874154	.4428085	.8947513	.9408432	.1052246
#1	2858.920	54101.94	7047.094	2100.528	3733.646
#2	2861.792	53729.82	7143.684	2086.347	3740.260
#3	2856.813	54176.06	7024.580	2125.451	3733.273

Sample Name: Q3688-17 Acquired: 12/8/2025 13:10:04 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-29 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0037951**	**-.005512**	**.0060006**	**-.005443**	**.0021514**	**1.462691**
Stddev	.0014312	.001549	.0004029	.000942	.0045047	.012102
%RSD	37.71261	28.10621	6.714781	17.30535	209.3848	.8274056
#1	.0051888	-.004721	.0055415	-.006461	-.000766	1.476638
#2	.0038673	-.007296	.0062954	-.005263	-.000119	1.456475
#3	.0023291	-.004517	.0061650	-.004603	.007340	1.454959

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0841057**	**.0004193**	**-.000068**	**90.20224**	**.0124864**	**.0052535**
Stddev	.0017806	.0000755	.000033	.85475	.0005096	.0002685
%RSD	2.117151	18.00842	47.94856	.9475906	4.081210	5.111459
#1	.0858578	.0004724	-.000077	90.99387	.0121446	.0054684
#2	.0822978	.0003329	-.000032	89.29595	.0130721	.0053396
#3	.0841616	.0004528	-.000096	90.31691	.0122425	.0049524

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0201271**	**5.069044**	**.7809211**	**26.52305**	**.0090311**	**-.000620**
Stddev	.0011340	.026291	.0088523	.15339	.0005906	.000120
%RSD	5.634458	.5186609	1.133566	.5783404	6.539632	19.28507
#1	.0188383	5.098787	.7875000	26.64579	.0094021	-.000516
#2	.0209721	5.059443	.7708566	26.35109	.0083500	-.000751
#3	.0205710	5.048904	.7844066	26.57227	.0093412	-.000594

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**50.27309**	**.0012775**	**.0185484**	**-.405681**	**.5097240**	**.3378331**
Stddev	.78945	.0024696	.0047554	.090212	.0043601	.0025103
%RSD	1.570318	193.3099	25.63766	22.23721	.8553821	.7430497
#1	51.14280	-.001202	.0135939	-.509368	.5109248	.3353810
#2	49.60175	.001298	.0230758	-.362497	.5133578	.3403978
#3	50.07472	.003737	.0189757	-.345179	.5048893	.3377207

Sample Name: Q3688-17 Acquired: 12/8/2025 13:10:04 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-29 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0026628	F 30.47052	5.038918	-.027051	.0179349	.0026737
Stddev	.0002651	.12917	.010271	.000959	.0025424	.0010307
%RSD	9.956972	.4239172	.2038390	3.544761	14.17575	38.55000
#1	.0025475	30.61872	5.049115	-.028043	.0150260	.0035531
#2	.0024749	30.38179	5.028574	-.026981	.0190464	.0015395
#3	.0029661	30.41107	5.039063	-.026129	.0197323	.0029287

Elem	Sr4077
Units	ppm
Avg	.2870047
Stddev	.0034317
%RSD	1.195678
#1	.2896339
#2	.2831227
#3	.2882576

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2873.269	54318.82	6852.960	2070.346	3762.292
Stddev	9.146	198.69	46.526	8.138	8.563
%RSD	.3183207	.3657842	.6789137	.3930853	.2275916
#1	2876.651	54346.92	6905.124	2070.822	3764.594
#2	2880.242	54501.96	6815.749	2078.235	3769.468
#3	2862.913	54107.57	6838.006	2061.980	3752.814

Sample Name: CCV002 Acquired: 12/8/2025 13:14:37 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV002 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.273802**	**5.066565**	**25.51271**	**5.356440**	**5.314610**	**378.2853**
Stddev	.014496	.131251	.01328	.015410	.016870	2.3368
%RSD	.2748590	2.590534	.0520428	.2876906	.3174242	.6177438
#1	5.281080	4.950653	25.49925	5.354728	5.318909	376.5702
#2	5.283216	5.039961	25.51310	5.372634	5.328914	377.3388
#3	5.257109	5.209079	25.52580	5.341957	5.296007	380.9469

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.61340**	**.4909306**	**2.560399**	**393.2781**	**15.82128**	**2.597313**
Stddev	.05427	.0006456	.011892	2.2312	.06438	.003156
%RSD	.5113532	.1315137	.4644504	.5673423	.4069221	.1215133
#1	10.58809	.4906881	2.548556	390.7583	15.75080	2.593936
#2	10.67571	.4904413	2.560301	394.0729	15.83606	2.597816
#3	10.57641	.4916624	2.572339	395.0032	15.87699	2.600188

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**15.77144**	**384.7603**	**15.76505**	**385.4401**	**2.585840**	**1.269194**
Stddev	.06207	2.2100	.06727	2.7114	.003575	.001557
%RSD	.3935442	.5743933	.4266818	.7034606	.1382417	.1226949
#1	15.70755	382.5386	15.68738	382.5013	2.582601	1.267483
#2	15.77527	384.7838	15.80410	385.9746	2.585244	1.269570
#3	15.83151	386.9585	15.80367	387.8445	2.589676	1.270528

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**385.9459**	**2.591314**	**16.41942**	**162.7743**	**5.221850**	F **6.000746**
Stddev	1.1984	.005916	.11408	1.3575	.026521	.019478
%RSD	.3105072	.2282879	.6947670	.8339772	.5078839	.3245982
#1	384.9640	2.584855	16.31998	161.2179	5.191980	5.980014
#2	385.5923	2.592618	16.39433	163.3906	5.230941	6.003560
#3	387.2813	2.596469	16.54396	163.7142	5.242631	6.018664

Sample Name: CCV002 Acquired: 12/8/2025 13:14:37 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV002 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.223856**	**5.320727**	**5.201065**	**5.183510**	**5.261937**	**5.464418**
Stddev	.005747	.032354	.010022	.001949	.022826	.035053
%RSD	.1100233	.6080820	.1926831	.0376031	.4337939	.6414735
#1	5.230482	5.286787	5.196449	5.185758	5.237359	5.424082
#2	5.220207	5.351220	5.194184	5.182484	5.265983	5.481682
#3	5.220880	5.324173	5.212563	5.182288	5.282470	5.487491

Elem	Sr4077
Units	ppm
Avg	**5.366353**
Stddev	.033100
%RSD	.6168094
#1	5.386844
#2	5.384049
#3	5.328166

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2313.365**	**47890.46**	**6654.783**	**1704.641**	**2852.556**
Stddev	4.760	155.43	12.290	5.786	4.316
%RSD	.2057457	.3245437	.1846758	.3394339	.1513152
#1	2308.490	48051.17	6664.450	1709.644	2848.195
#2	2313.604	47879.30	6658.947	1705.974	2852.648
#3	2318.000	47740.92	6640.952	1698.304	2856.826

Reviewed By:mohan
On:12/9/2025 3:04:33 PM
Inst Id :P4

Sample Name: CCB002 Acquired: 12/8/2025 13:19:16 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB002 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001881**	**-.003552**	**.0020414**	**-.003347**	**.0004973**	**.0337561**	**-.000056**
Stddev	.001021	.001495	.0009705	.001804	.0018565	.0371516	.002353
%RSD	54.29945	42.07249	47.54102	53.91497	373.3015	110.0590	4213.379
#1	-.001912	-.002958	.0013566	-.002525	.0013292	.0765953	.002627
#2	-.000844	-.005253	.0016156	-.002100	-.001630	.0103763	-.001026
#3	-.002886	-.002447	.0031520	-.005416	.001792	.0142966	-.001769

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001430**	**.0000860**	**.0314610**	**.0000218**	**.0002361**	**.0013307**	**.0379377**
Stddev	.0000994	.0001049	.0296889	.0003405	.0000103	.0039845	.0626316
%RSD	69.50704	122.0313	94.36733	1558.229	4.361403	299.4212	165.0905
#1	.0002463	.0000117	.0634573	.0002995	.0002406	.0058933	.1099703
#2	.0001346	.0000403	.0048041	-.000358	.0002243	-.000437	-.003663
#3	.0000481	.0002060	.0261217	.000124	.0002434	-.001464	.007506

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0021951**	**.0824544**	**-.000050**	**.0001564**	**.0507405**	**-.004579**	**-.000775**
Stddev	.0029153	.1296230	.000216	.0005132	.3357045	.001123	.000644
%RSD	132.8133	157.2057	430.3996	328.0506	661.6106	24.51177	83.01885
#1	.0055610	.2305395	-.000294	.0005114	.4300058	-.005849	-.000743
#2	.0004708	.0272592	.000114	.0003899	-.069495	-.004170	-.001434
#3	.0005533	-.010436	.000030	-.000432	-.208289	-.003719	-.000148

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0233250**	**.0013582**	**.0033901**	**.0001171**	**.0017406**	**.0279726**	F **-.014069**
Stddev	.0509260	.0007956	.0008535	.0001838	.0028423	.0489494	.000420
%RSD	218.3323	58.57577	25.17659	157.0224	163.2948	174.9908	2.985504
#1	.0175755	.0019084	.0042090	-.000073	.0050038	.0844909	-.014169
#2	.0768818	.0017200	.0025058	.000293	-.000195	-.000834	-.014430
#3	-.024482	.0004460	.0034555	.000131	.000413	.000261	-.013608

Sample Name: CCB002 Acquired: 12/8/2025 13:19:16 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB002 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0010049	.0020140	.0002011
Stddev	.0025281	.0006047	.0004892
%RSD	251.5837	30.02362	243.3408
#1	.0036981	.0013459	.0007598
#2	.0006334	.0021724	-.000151
#3	-.001317	.0025237	-.000006

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2869.142	54296.69	7071.063	2057.081	4045.105
Stddev	10.891	74.45	73.176	6.347	11.140
%RSD	.3795877	.1371165	1.034871	.3085313	.2753945
#1	2860.933	54229.96	6996.842	2064.408	4038.566
#2	2864.996	54376.99	7143.148	2053.286	4038.782
#3	2881.497	54283.11	7073.197	2053.548	4057.968

Sample Name: Q3688-18 Acquired: 12/8/2025 13:23:55 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: RBGW-2025112 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002266**	**-.003928**	**.0013506**	**-.000970**	**.0016644**	**.0094821**	**.0015143**
Stddev	.002019	.001243	.0005916	.000702	.0014502	.0010193	.0014723
%RSD	89.10521	31.64954	43.80680	72.31218	87.13322	10.74980	97.22795
#1	-.000487	-.003041	.0017292	-.001772	.0000898	.0093144	.0001703
#2	-.001850	-.003395	.0006688	-.000669	.0019579	.0085569	.0030880
#3	-.004460	-.005349	.0016537	-.000470	.0029454	.0105748	.0012847

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000076**	**-.000045**	**-.012215**	**.0002196**	**.0000545**	**-.001341**	**.0006484**
Stddev	.0000529	.000016	.005873	.0000995	.0000963	.002234	.0076960
%RSD	693.7074	36.41090	48.08262	45.31109	176.5633	166.5913	1186.926
#1	.0000165	-.000063	-.005657	.0001288	.0001209	-.001872	.0027762
#2	-.000049	-.000036	-.013997	.0002041	-.000056	.001111	-.007888
#3	.000055	-.000034	-.016990	.0003260	.000099	-.003263	.007057

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000901**	**-.015792**	**-.000016**	**-.000458**	**.0326298**	**-.002132**	**.0000856**
Stddev	.0010183	.032846	.000264	.000490	.2442450	.003323	.0024174
%RSD	1130.086	207.9868	1673.155	107.0438	748.5337	155.8546	2825.304
#1	.0001849	-.053272	.000276	-.000234	-.132843	.001643	-.000550
#2	.0010577	-.002082	-.000237	-.001020	-.082420	-.003425	-.001950
#3	-.000972	.007977	-.000086	-.000120	.313153	-.004614	.002757

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-1.91684**	**-.000478**	**.0001476**	**-.000027**	**-.009823**	**-.005277**	**-.020680**
Stddev	.02364	.003628	.0009842	.000217	.000210	.001665	.000180
%RSD	1.233344	759.3376	666.7216	813.3645	2.141099	31.54684	.8685041
#1	-1.91064	.002514	-.000546	.000223	-.009829	-.004493	-.020871
#2	-1.94296	-.004513	-.000285	-.000168	-.009610	-.007190	-.020514
#3	-1.89691	.000565	.001274	-.000135	-.010030	-.004150	-.020655

Sample Name: Q3688-18 Acquired: 12/8/2025 13:23:55 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: RBGW-2025112 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000554	-.004564	-.000019
Stddev	.000381	.000508	.000084
%RSD	68.72837	11.13279	436.0103
#1	-.000994	-.005148	-.000103
#2	-.000329	-.004226	.000066
#3	-.000340	-.004317	-.000021

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2956.401	55959.16	7306.203	2138.471	4177.711
Stddev	7.168	287.12	60.607	12.618	15.209
%RSD	.2424538	.5130953	.8295286	.5900699	.3640563
#1	2952.656	55659.40	7352.867	2126.473	4163.505
#2	2964.666	56231.71	7328.039	2151.630	4193.756
#3	2951.882	55986.39	7237.704	2137.311	4175.872

Sample Name: Q3688-19 Acquired: 12/8/2025 13:28:35 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-28I Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000660**	**-.001431**	**.0029079**	**-.007355**	**.0007883**	**1.071401**
Stddev	.0020313	.000521	.0021355	.001525	.0017834	.018196
%RSD	3077.825	36.40780	73.43711	20.73073	226.2449	1.698318
#1	.0000511	-.002015	.0053693	-.005598	.0020599	1.050908
#2	.0021047	-.001016	.0018063	-.008131	-.001250	1.077632
#3	-.001958	-.001260	.0015482	-.008335	.001555	1.085662

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0881861**	**.0002653**	**.0000738**	**52.66856**	**.0122245**	**.0011101**
Stddev	.0011582	.0000278	.0000188	.86702	.0002714	.0005122
%RSD	1.313332	10.46836	25.43557	1.646179	2.220367	46.14010
#1	.0877559	.0002858	.0000830	51.80165	.0119706	.0015620
#2	.0894978	.0002337	.0000522	52.66834	.0125106	.0005537
#3	.0873046	.0002764	.0000862	53.53569	.0121923	.0012148

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0037976**	**1.737816**	**.1338042**	**12.68261**	**.0044309**	**-.000687**
Stddev	.0023810	.017799	.0010305	.16899	.0005220	.000256
%RSD	62.69692	1.024246	.7701777	1.332437	11.78161	37.25357
#1	.0026315	1.718347	.1329265	12.51872	.0041684	-.000779
#2	.0065368	1.741845	.1335473	12.67285	.0040921	-.000884
#3	.0022244	1.753255	.1349389	12.85627	.0050320	-.000398

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**20.44163**	**.0039643**	**.0106485**	**-.825060**	**.0687944**	**1.632651**
Stddev	.19624	.0006853	.0017855	.076664	.0027138	.002637
%RSD	.9599862	17.28668	16.76724	9.291980	3.944800	.1614953
#1	20.39545	.0040643	.0092907	-.912679	.0717380	1.635623
#2	20.27261	.0032344	.0126710	-.770313	.0663920	1.631736
#3	20.65684	.0045940	.0099839	-.792188	.0682532	1.630593

Sample Name: Q3688-19 Acquired: 12/8/2025 13:28:35 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-28I Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018081	F 16.93537	5.327937	-.024940	.0163655	-.000379
Stddev	.0002395	.14864	.016525	.000156	.0012492	.000962
%RSD	13.24816	.8777145	.3101602	.6267611	7.632790	253.8417
#1	.0017459	16.78321	5.308942	-.024934	.0152449	-.001161
#2	.0020725	16.94266	5.335862	-.025099	.0177123	.000696
#3	.0016057	17.08023	5.339006	-.024787	.0161394	-.000672

Elem	Sr4077
Units	ppm
Avg	.1989677
Stddev	.0032722
%RSD	1.644600
#1	.1956150
#2	.1991352
#3	.2021530

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2934.633	55362.83	7201.730	2126.604	3961.435
Stddev	5.303	601.91	8.354	20.330	2.553
%RSD	.1807089	1.087206	.1160053	.9559959	.0644416
#1	2939.031	55975.88	7196.186	2146.429	3962.871
#2	2936.123	55339.88	7197.665	2127.579	3962.946
#3	2928.744	54772.72	7211.339	2105.804	3958.487

Sample Name: Q3688-20 Acquired: 12/8/2025 13:33:08 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: WS-1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001946**	**-.002547**	**.0015425**	**-.000552**	**-.000690**	**.0676082**
Stddev	.002874	.003697	.0022469	.003225	.002297	.0023439
%RSD	147.6372	145.1158	145.6709	583.9850	332.7104	3.466916
#1	.001287	-.006743	.0004524	.000409	.001533	.0649347
#2	-.004209	-.001127	.0041265	.002083	-.000549	.0685798
#3	-.002918	.000229	.0000486	-.004148	-.003055	.0693101

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3166538**	**.0002942**	**.0000590**	**159.1090**	**.0358288**	**.0136429**
Stddev	.0015883	.0000371	.0001125	.7406	.0000221	.0001585
%RSD	.5015736	12.60019	190.4561	.4654865	.0616434	1.161816
#1	.3181915	.0002955	.0000930	158.9535	.0358540	.0134643
#2	.3150194	.0003305	-.000066	158.4585	.0358192	.0136975
#3	.3167505	.0002565	.000151	159.9150	.0358130	.0137669

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0021328**	**3.578854**	**1.323702**	**33.09557**	**.0854957**	**-.000447**
Stddev	.0012076	.019931	.001895	.09604	.0001449	.000185
%RSD	56.62239	.5569007	.1431528	.2901847	.1695337	41.33783
#1	.0030522	3.578547	1.323433	33.07798	.0853834	-.000590
#2	.0025810	3.559078	1.321956	33.00954	.0854443	-.000238
#3	.0007651	3.598936	1.325717	33.19918	.0856593	-.000511

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**558.0168**	**-.001526**	**.0189164**	**4.198010**	**.0262974**	**.1155130**
Stddev	3.6452	.002101	.0024868	.066497	.0008981	.0014803
%RSD	.6532396	137.6955	13.14634	1.584014	3.415265	1.281518
#1	559.2161	-.000587	.0181576	4.271372	.0273014	.1158551
#2	553.9230	-.003932	.0168974	4.141698	.0260204	.1138916
#3	560.9111	-.000058	.0216943	4.180960	.0255704	.1167924

Sample Name: Q3688-20 Acquired: 12/8/2025 13:33:08 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: WS-1 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0042926	F 29.83686	4.201222	-.027812	-.006121	.0013885
Stddev	.0001876	.10872	.040049	.000236	.000092	.0010386
%RSD	4.369759	.3643866	.9532732	.8493787	1.506670	74.80437
#1	.0040760	29.90178	4.231340	-.027586	-.006014	.0024034
#2	.0044001	29.89746	4.155772	-.027794	-.006180	.0014344
#3	.0044016	29.71135	4.216554	-.028057	-.006167	.0003276

Elem	Sr4077
Units	ppm
Avg	.7827714
Stddev	.0019273
%RSD	.2462189
#1	.7821334
#2	.7812440
#3	.7849369

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2692.668	51115.14	7108.531	1956.809	3371.682
Stddev	16.440	140.06	37.772	5.479	12.852
%RSD	.6105352	.2740141	.5313621	.2799739	.3811622
#1	2711.557	51135.82	7070.003	1958.698	3384.968
#2	2684.861	50965.88	7145.499	1961.093	3370.763
#3	2681.587	51243.71	7110.091	1950.636	3359.315

Sample Name: Q3688-22 Acquired: 12/8/2025 13:37:44 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: RBGW-2025112 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002484**	**-.004836**	**.0009878**	**-.003403**	**-.000193**	**.0059374**	**-.001274**
Stddev	.001533	.003529	.0006398	.002345	.003608	.0057973	.001351
%RSD	61.72016	72.97880	64.76377	68.92366	1871.861	97.64000	106.0637
#1	-.004022	-.001776	.0002531	-.001754	.002922	.0049040	-.002833
#2	-.002472	-.004035	.0012893	-.002366	.000645	.0007263	-.000549
#3	-.000956	-.008697	.0014212	-.006087	-.004146	.0121818	-.000440

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000184**	**-.000073**	**-.012843**	**.0001127**	**-.000080**	**-.000042**	**-.000645**
Stddev	.0000896	.000092	.006103	.0001761	.000055	.001103	.003812
%RSD	486.5597	126.6695	47.51880	156.2018	68.60527	2640.283	591.0608
#1	.0001148	.000020	-.016731	.0000944	-.000032	.001121	.001207
#2	.0000029	-.000074	-.015989	.0002972	-.000140	-.001074	.001887
#3	-.000062	-.000164	-.005809	-.000053	-.000068	-.000173	-.005029

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0006643**	**-.007101**	**-.000030**	**-.000249**	**.2293263**	**-.001944**	**.0013506**
Stddev	.0007104	.020507	.000346	.000484	.2724914	.002077	.0016286
%RSD	106.9273	288.7839	1169.862	193.9954	118.8226	106.8681	120.5828
#1	.0007621	-.029264	-.000087	-.000806	.4991117	-.002894	.0013830
#2	-.000090	.011199	-.000343	-.000006	-.045793	-.003376	.0029628
#3	.001321	-.003238	.000341	.000065	.234660	.000439	-.000294

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-1.94956**	**.0007472**	**-.001259**	**.0002759**	**-.006146**	**-.005981**	**-.024545**
Stddev	.01628	.0011376	.000424	.0000536	.001419	.001985	.000062
%RSD	.8352279	152.2506	33.70137	19.40788	23.08747	33.19335	.2541935
#1	-1.96750	-.000034	-.000921	.0003334	-.005713	-.007745	-.024519
#2	-1.94545	.000224	-.001736	.0002670	-.007731	-.003831	-.024499
#3	-1.93572	.002052	-.001121	.0002274	-.004994	-.006365	-.024616

Sample Name: Q3688-22 Acquired: 12/8/2025 13:37:44 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: RBGW-2025112 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000305	-.004706	-.000174
Stddev	.001926	.000736	.000043
%RSD	631.2882	15.64951	24.83669
#1	.001833	-.005441	-.000211
#2	-.001905	-.003968	-.000184
#3	-.000843	-.004707	-.000127

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2962.046	55466.82	7604.985	2109.309	4192.294
Stddev	34.997	821.00	72.730	42.244	49.111
%RSD	1.181502	1.480162	.9563486	2.002756	1.171464
#1	2964.749	55203.99	7584.959	2090.743	4199.705
#2	2925.776	56387.05	7685.630	2157.657	4139.899
#3	2995.612	54809.41	7544.365	2079.528	4237.279

Sample Name: Q3688-23 Acquired: 12/8/2025 13:42:24 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-285 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060951	-.003294	.0013774	-.004672	.0015581	.1568128
Stddev	.0033045	.000612	.0012265	.002014	.0033983	.0102263
%RSD	54.21551	18.56944	89.04113	43.11571	218.1093	6.521349
#1	.0023195	-.003227	.0026864	-.004168	-.001430	.1454289
#2	.0075052	-.002719	.0011913	-.002957	.000849	.1652217
#3	.0084606	-.003937	.0002547	-.006890	.005255	.1597879

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0395292	.0001397	-.000186	50.62899	.0041269	.0008541
Stddev	.0022859	.0000436	.000155	.43281	.0005881	.0000681
%RSD	5.782789	31.19019	83.48952	.8548570	14.24961	7.977313
#1	.0369085	.0001146	-.000030	50.13049	.0034595	.0007844
#2	.0411124	.0001900	-.000187	50.84759	.0043522	.0009206
#3	.0405665	.0001145	-.000340	50.90890	.0045690	.0008572

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002682	.5120533	.3498669	12.71097	.0193047	-.000023
Stddev	.002572	.0162306	.0025112	.04808	.0002803	.000555
%RSD	95.87116	3.169720	.7177634	.3782327	1.452076	2462.532
#1	-.003685	.5004460	.3471609	12.65803	.0192360	.000246
#2	-.004602	.5306000	.3503175	12.72295	.0190652	-.000660
#3	.000239	.5051138	.3521223	12.75191	.0196130	.000347

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	53.53192	-.000844	.0007341	-.894166	.0648298	1.466537
Stddev	1.26361	.002006	.0010400	.029209	.0016154	.025286
%RSD	2.360470	237.7509	141.6716	3.266608	2.491722	1.724199
#1	52.76409	-.000694	.0003380	-.905988	.0666900	1.454270
#2	52.84134	.001084	-.000050	-.860899	.0640197	1.449723
#3	54.99032	-.002921	.001914	-.915610	.0637798	1.495616

Sample Name: Q3688-23 Acquired: 12/8/2025 13:42:24 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: M-285 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0091514	F 16.02440	3.709731	-.026367	.0013532	-.003803
Stddev	.0004011	.23880	.026112	.000328	.0015759	.001230
%RSD	4.382894	1.490251	.7038831	1.243733	116.4567	32.35204
#1	.0093133	15.98950	3.682525	-.026729	.0002208	-.004957
#2	.0094462	15.80496	3.712078	-.026090	.0031529	-.003944
#3	.0086946	16.27873	3.734591	-.026281	.0006858	-.002508

Elem	Sr4077
Units	ppm
Avg	.3390281
Stddev	.0029376
%RSD	.8664609
#1	.3357171
#2	.3400453
#3	.3413218

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2931.644	56999.83	7628.960	2212.686	3920.090
Stddev	26.507	445.38	86.331	32.710	41.015
%RSD	.9041681	.7813657	1.131620	1.478311	1.046277
#1	2946.252	57507.41	7688.238	2250.363	3941.549
#2	2947.634	56817.67	7668.731	2191.545	3945.924
#3	2901.047	56674.41	7529.912	2196.150	3872.797

Sample Name: PB170814BL Acquired: 12/8/2025 13:46:58 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: PBW814 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003765**	**-.001423**	**.0006249**	**-.004343**	**.0006532**	**-.003191**	**-.003152**
Stddev	.001417	.002243	.0014253	.000787	.0008212	.005041	.001201
%RSD	37.62685	157.6296	228.0760	18.11173	125.7301	157.9878	38.10710
#1	-.005396	-.001267	-.001011	-.003460	.0010653	.002508	-.004538
#2	-.002848	.000738	.001288	-.004969	.0011866	-.005011	-.002486
#3	-.003049	-.003739	.001598	-.004601	-.000293	-.007070	-.002431

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000636**	**-.000149**	**-.000666**	**-.000132**	**.0003400**	**-.002521**	**.0015475**
Stddev	.0001404	.000023	.005104	.000345	.0002915	.000829	.0026894
%RSD	220.6118	15.36480	765.8916	262.1599	85.72602	32.89977	173.7887
#1	.0001450	-.000158	.001802	-.000370	.0001090	-.003476	-.000168
#2	-.000098	-.000123	.002735	-.000288	.0002435	-.002104	.004647
#3	.000144	-.000165	-.006536	.000264	.0006675	-.001982	.000164

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0005997**	**-.029836**	**.0001761**	**-.000231**	**-.230692**	**-.002143**	**-.000726**
Stddev	.0006894	.012852	.0003646	.000562	.705503	.003688	.001924
%RSD	114.9570	43.07738	207.0476	243.4564	305.8210	172.1192	265.0824
#1	.0008297	-.021506	.0000788	-.000800	-.665202	-.000801	-.001989
#2	-.000175	-.023363	-.000130	.000324	-.610207	.000687	-.001677
#3	.001145	-.044637	.000579	-.000217	.583334	-.006314	.001489

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0914985**	**.0017676**	**-.000161**	**-.000173**	**.0040985**	**-.006366**	F **-.013733**
Stddev	.0673664	.0014722	.000830	.000116	.0060217	.001779	.000418
%RSD	73.62572	83.28897	517.0452	67.23911	146.9233	27.95117	3.043066
#1	.0367417	.0011078	.000450	-.000204	-.002791	-.008209	-.013695
#2	.1667257	.0007407	.000175	-.000271	.008359	-.006230	-.014169
#3	.0710282	.0034543	-.001106	-.000044	.006727	-.004658	-.013335

Sample Name: PB170814BL Acquired: 12/8/2025 13:46:58 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: PBW814 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000458	.0011364	-.000070
Stddev	.000760	.0007652	.000041
%RSD	165.8572	67.33731	58.23590
#1	.000102	.0011678	-.000058
#2	-.000154	.0003559	-.000116
#3	-.001323	.0018854	-.000037

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2898.521	55324.90	7171.316	2141.238	4102.020
Stddev	7.903	118.46	14.130	5.423	15.112
%RSD	.2726528	.2141228	.1970408	.2532603	.3684095
#1	2900.810	55426.70	7180.722	2142.931	4099.367
#2	2889.726	55194.87	7155.067	2135.170	4088.410
#3	2905.027	55353.13	7178.159	2145.612	4118.283

Sample Name: PB170814BS Acquired: 12/8/2025 14:13:05 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LCS814 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0175441**	**.0448133**	**.0204957**	**.0593201**	**.1210554**	**.3660451**	**.4041272**
Stddev	.0028210	.0011063	.0021859	.0019462	.0013983	.0132326	.0030713
%RSD	16.07958	2.468694	10.66510	3.280868	1.155119	3.615017	.7599741
#1	.0202097	.0438963	.0213224	.0573667	.1201980	.3640379	.4021090
#2	.0178328	.0460420	.0180171	.0612591	.1226690	.3539308	.4026110
#3	.0145899	.0445017	.0221478	.0593345	.1202991	.3801666	.4076618

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0116322**	**.0090763**	**9.842261**	**.0223652**	**.1027698**	**.0492657**	**.1989230**
Stddev	.0000779	.0000626	.049039	.0005402	.0005434	.0033327	.0055536
%RSD	.6694644	.6895883	.4982497	2.415210	.5287453	6.764823	2.791815
#1	.0116967	.0091158	9.798410	.0229793	.1030693	.0472233	.1954754
#2	.0116543	.0091090	9.833160	.0219637	.1030977	.0474622	.2053295
#3	.0115457	.0090041	9.895213	.0221525	.1021426	.0531115	.1959641

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0328718**	**9.377541**	**.0836470**	**.0141130**	**9.426000**	**.1027584**	**.1263769**
Stddev	.0002152	.034862	.0006770	.0006520	.059048	.0026652	.0052914
%RSD	.6545437	.3717599	.8093952	4.619684	.6264397	2.593660	4.187019
#1	.0327191	9.347438	.0844280	.0135435	9.444471	.1057626	.1229742
#2	.0331179	9.369448	.0832856	.0139713	9.359924	.1006780	.1324732
#3	.0327785	9.415738	.0832273	.0148241	9.473604	.1018346	.1236834

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.556327**	**.0193061**	**-.000541**	**.0219966**	**.1867774**	**.4361078**	**.0014171**
Stddev	.100184	.0008711	.000760	.0002483	.0040789	.0015269	.0009323
%RSD	1.048357	4.512016	140.5864	1.129059	2.183844	.3501134	65.79381
#1	9.519944	.0190349	-.001308	.0217766	.1835829	.4378428	.0016994
#2	9.479418	.0186029	-.000526	.0219472	.1913720	.4349690	.0003762
#3	9.669619	.0202805	.000212	.0222659	.1853774	.4355115	.0021756

Sample Name: PB170814BS Acquired: 12/8/2025 14:13:05 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LCS814 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2094267	.0278183	.2047936
Stddev	.0002755	.0003202	.0012403
%RSD	.1315496	1.150873	.6056194
#1	.2097408	.0276135	.2039751
#2	.2093134	.0276541	.2041851
#3	.2092260	.0281872	.2062206

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2869.717	55399.98	7481.416	2089.189	3934.044
Stddev	10.167	237.62	29.157	5.296	13.665
%RSD	.3542917	.4289086	.3897283	.2535108	.3473572
#1	2864.995	55474.98	7447.885	2091.849	3922.558
#2	2862.770	55591.04	7500.803	2092.629	3930.418
#3	2881.387	55133.91	7495.561	2083.090	3949.157

Sample Name: CCV003 Acquired: 12/8/2025 14:17:42 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV003 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.229573**	**5.189058**	**25.10967**	**5.359590**	**5.262233**	**373.8298**
Stddev	.026154	.179410	.06139	.033160	.015695	2.2758
%RSD	.5001155	3.457461	.2444735	.6187079	.2982488	.6087744
#1	5.252912	5.395936	25.15623	5.394132	5.279381	371.4537
#2	5.201306	5.076198	25.04011	5.328011	5.248582	375.9898
#3	5.234502	5.095039	25.13267	5.356627	5.258735	374.0458

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.74446**	**.4877719**	**2.522803**	**389.0782**	**15.49231**	**2.540735**
Stddev	.04690	.0027841	.015358	.7097	.03775	.009145
%RSD	.4365277	.5707754	.6087765	.1824050	.2436696	.3599407
#1	10.77855	.4877054	2.539714	389.6877	15.52741	2.548147
#2	10.76386	.4905886	2.509723	388.2991	15.49715	2.530515
#3	10.69097	.4850216	2.518970	389.2478	15.45238	2.543543

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**15.26084**	**385.4407**	**15.79552**	**383.0428**	**2.539306**	**1.275340**
Stddev	.06103	.7873	.05153	.4480	.007414	.004353
%RSD	.3999037	.2042649	.3262092	.1169586	.2919593	.3413152
#1	15.32764	386.0265	15.84337	382.8756	2.543438	1.276742
#2	15.20801	384.5457	15.74097	382.7024	2.530748	1.278818
#3	15.24686	385.7499	15.80222	383.5503	2.543734	1.270458

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**365.2336**	**2.519026**	**16.06191**	**161.8597**	**5.103775**	F **5.965944**
Stddev	1.8767	.009741	.02405	.3852	.036385	.031320
%RSD	.5138391	.3866930	.1497513	.2379569	.7129053	.5249829
#1	367.3345	2.521899	16.08951	162.0153	5.145713	5.969316
#2	364.6432	2.527008	16.05089	161.4211	5.080621	5.995442
#3	363.7231	2.508172	16.04536	162.1428	5.084990	5.933074

Sample Name: CCV003 Acquired: 12/8/2025 14:17:42 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV003 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.112041**	**5.328596**	**5.028649**	**5.104588**	**5.097038**	**5.417411**
Stddev	.019451	.058733	.012768	.025952	.002036	.023790
%RSD	.3805010	1.102228	.2539014	.5084001	.0399491	.4391459
#1	5.128448	5.395643	5.016149	5.134217	5.099382	5.435148
#2	5.090554	5.286232	5.041669	5.085891	5.096024	5.390375
#3	5.117121	5.303913	5.028128	5.093655	5.095707	5.426709

Elem	Sr4077
Units	ppm
Avg	**5.398429**
Stddev	.050976
%RSD	.9442662
#1	5.370042
#2	5.457278
#3	5.367966

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2406.987**	**48983.62**	**7019.543**	**1782.264**	**2973.446**
Stddev	3.894	177.50	35.080	6.975	8.339
%RSD	.1617846	.3623625	.4997450	.3913710	.2804608
#1	2406.059	48791.45	7000.342	1774.317	2964.408
#2	2411.261	49017.99	6998.255	1785.104	2980.842
#3	2403.640	49141.42	7060.032	1787.372	2975.088

Sample Name: CCB003 Acquired: 12/8/2025 14:22:22 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB003 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002976**	**-.000662**	**-.000108**	**-.003678**	**.0006453**	**.0076582**	**-.002476**
Stddev	.000737	.002410	.001504	.001370	.0012250	.0020166	.001412
%RSD	24.75447	364.3163	1390.726	37.26234	189.8430	26.33233	57.05095
#1	-.003367	-.000095	.000715	-.005092	.0010628	.0097516	-.003583
#2	-.003434	.001415	.000805	-.003586	.0016070	.0057285	-.002959
#3	-.002126	-.003305	-.001844	-.002356	-.000734	.0074945	-.000885

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000357**	**-.000087**	**.0016863**	**.0008116**	**.0000822**	**-.001332**	**.0089998**
Stddev	.0000539	.000045	.0064263	.0002333	.0001005	.000853	.0063219
%RSD	151.0575	52.17330	381.0946	28.74390	122.2358	64.04941	70.24449
#1	.0000682	-.000051	-.001340	.0005487	.0000077	-.001346	.0159893
#2	-.000027	-.000138	-.002668	.0009939	.0001965	-.002177	.0036812
#3	.000065	-.000071	.009067	.0008923	.0000424	-.000472	.0073290

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000140**	**-.012306**	**-.000007**	**.0001890**	**.0953431**	**-.003323**	**.0000389**
Stddev	.0001722	.034149	.000207	.0002653	.1542418	.001346	.0016605
%RSD	1226.921	277.5069	3010.142	140.3938	161.7754	40.50240	4272.977
#1	-.000174	-.038081	.000233	-.000098	-.079312	-.004782	-.001815
#2	.000052	-.025261	-.000133	.000425	.212874	-.003058	.000543
#3	.000164	.026425	-.000120	.000240	.152467	-.002130	.001389

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.149448**	**.0016350**	**.0030690**	**-.000117**	**-.003637**	**-.005593**	F **-.013944**
Stddev	.074616	.0008167	.0010078	.000190	.002429	.001843	.000719
%RSD	49.92750	49.95058	32.83785	162.5282	66.78002	32.94542	5.156943
#1	-.092617	.0012660	.0041257	-.000054	-.001785	-.005445	-.013230
#2	-.233946	.0025711	.0021186	.000034	-.006387	-.007506	-.014668
#3	-.121782	.0010679	.0029626	-.000330	-.002740	-.003829	-.013935

Sample Name: CCB003 Acquired: 12/8/2025 14:22:22 Type: Unk
Method: EPA SFAM01.0(v73) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB003 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000826	.0004796	-.000012
Stddev	.000890	.0002040	.000076
%RSD	107.7982	42.53929	643.6590
#1	-.001833	.0006384	.000075
#2	-.000143	.0002495	-.000042
#3	-.000502	.0005511	-.000069

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2987.439	58633.30	7419.962	2203.743	4260.778
Stddev	4.212	375.25	73.031	15.991	3.114
%RSD	.1409755	.6399877	.9842448	.7256460	.0730771
#1	2990.356	58986.94	7347.919	2218.213	4257.505
#2	2982.610	58673.30	7493.942	2206.442	4261.127
#3	2989.349	58239.65	7418.024	2186.574	4263.702

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB170814

SOP ID : M200.7-Trace Elements-22, MSFAM01.1-Trace Metals-2

SDG No : N/A

Matrix : WATER

Pippete ID: ICP A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #3

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

Start Digest Date: 12/04/2025 **Time :** 10:35 **Temp :** 96 °C

End Digest Date: 12/04/2025 **Time :** 12:40 **Temp :** 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: SKB

Supervisor Signature: MMB

Temp : 1. 96°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LCSW	0.50	MP88122
Spike Sol 6	0.25	MP88213
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	MP88081
1:1 HCL	0.50	MP87148
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK#1 CELL# 50 96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
12/04/25 13:40	SKB met dig	MMB met/ms
	Preparation Group	**Analysis Group**

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB170814

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
PB170814BL	PBW814	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	1
PB170814BS	LCS814	<2	50	50	Colorless	Colorless	Clear	Clear	MP88122	2
Q3688-01	M-31S	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	3
Q3688-02	Q3688-01MS	<2	50	50	Colorless	Colorless	Clear	Clear	MP88213	4
Q3688-03	Q3688-01MSD	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	5
Q3688-04	RBGW-20251119	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	6
Q3688-06	M-32I	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	7
Q3688-09	M-31I	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	8
Q3688-10	M-32S	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	9
Q3688-11	RBGW-20251120	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	10
Q3688-12	M-30S	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	11
Q3688-13	M-30I	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	12
Q3688-15	FDGW-20251120	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	13
Q3688-16	WS-14	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	14
Q3688-17	M-29	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	15
Q3688-18	RBGW-20251121	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	16
Q3688-19	M-28I	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	17
Q3688-20	WS-1	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	18
Q3688-22	RBGW-20251124	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	19
Q3688-23	M-28S	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	20

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

Prep Standard - Chemical Standard Summary

Order ID : Q3688

Test : Metals CLP12

Prepbatch ID : PB170814,

Sequence ID/Qc Batch ID: LB138160,

Standard ID :
MP87148,MP88081,MP88101,MP88124,MP88125,MP88126,MP88128,MP88129,MP88248,MP88250,MP88251,MP88252,MP88253,MP88254,MP88255,MP88256,MP88257,MP88258,

Chemical ID :
M5658,M5751,M5798,M5799,M5800,M5801,M5811,M5815,M5817,M5942,M5960,M5962,M5985,M5990,M5998,M5999,M6021,M6023,M6025,M6026,M6028,M6030,M6032,M6058,M6077,M6127,M6128,M6137,M6138,M6140,M6144,M6145,M6151,M6159,M6160,M6163,M6164,M6165,M6171,M6174,M6179,M6182,M6184,M6187,M6200,W3112,

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Metals STANDARD PREPARATION LOG

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

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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
169	1:1HNO3	MP88081	11/25/2025	01/28/2026	Sagar Kanani	None	None	Sarabjit Jaswal 12/04/2025

FROM 1250.00000ml of M6187 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP88101	11/25/2025	01/25/2026	Sarabjit Jaswal	None	None	Mohan Bera 12/09/2025

FROM 125.00000ml of M6200 + 2350.00000ml of W3112 + 25.00000ml of M6187 = Final Quantity: 2500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4163	NEW ICV-060925	MP88124	11/25/2025	01/25/2026	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 12/09/2025

FROM 0.20000ml of M6058 + 0.40000ml of M6163 + 0.40000ml of M6164 + 0.40000ml of M6165 + 48.60000ml of MP88101 = Final Quantity: 50.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
904	ICP AES ICSA SOLN	MP88125	11/25/2025	01/25/2026	Sarabjit Jaswal	None	None	Mohan Bera 12/09/2025

FROM 5.00000ml of M6182 + 45.00000ml of MP88101 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
905	ICP AES ICSAB SOLN	MP88126	11/25/2025	01/25/2026	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 12/09/2025

FROM 0.05000ml of M6077 + 5.00000ml of M6182 + 5.00000ml of M6184 + 39.95000ml of MP88101 = Final Quantity: 50.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
919	ICP AES INTERNAL STD	MP88128	11/25/2025	01/25/2026	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 12/09/2025

FROM 1.00000ml of M6179 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6187 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
903	ICP AES RINSE SOLN	MP88129	11/25/2025	01/25/2026	Sarabjit Jaswal	None	None	Mohan Bera 12/09/2025

FROM 200.00000ml of M6187 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
921	ICPAES SPIKE SOL#6	MP88248	12/01/2025	01/25/2026	Sarabjit Jaswal	None	None	Mohan Bera 12/09/2025

FROM 2.50000ml of M5962 + 50.00000ml of M5990 + 50.00000ml of M5999 + 147.50000ml of MP88101 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP88250	12/01/2025	01/26/2026	Sarabjit Jaswal	None	None	Mohan Bera 12/09/2025

FROM 125.00000ml of M6200 + 2350.00000ml of W3112 + 25.00000ml of M6187 = Final Quantity: 2500.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1004	ICPAES ISM01.2 (S5)	MP88251	12/01/2025	01/26/2026	Sarabjit Jaswal	None	None	Mohan Bera 12/09/2025

FROM 0.25000ml of M5798 + 0.50000ml of M5815 + 0.50000ml of M5817 + 12.50000ml of M6128 + 12.50000ml of M6144 + 12.50000ml of M6145 + 13.75000ml of M5751 + 14.50000ml of M5658 + 14.50000ml of M5811 + 14.50000ml of M6159 + 2.00000ml of M6026 + 22.50000ml of M6138 + 22.50000ml of M6171 + 5.00000ml of M5998 + 5.00000ml of M6077 + 5.00000ml of M6137 + 5.00000ml of M6160 + 5.00000ml of M6174 + 332.00000ml of MP88250 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1005	ICPAES ISM01.2(S4)	MP88252	12/01/2025	01/26/2026	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 12/09/2025

FROM 50.00000ml of MP88250 + 50.00000ml of MP88251 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1007	ICPAES ISM01.2(S3)	MP88253	12/01/2025	01/26/2026	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 12/09/2025

FROM 25.00000ml of MP88251 + 75.00000ml of MP88250 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1008	ICPAES ISM01.2(S2)	MP88254	12/01/2025	01/26/2026	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 12/09/2025

FROM 12.50000ml of MP88251 + 87.50000ml of MP88250 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
994	ICPAES ISM01.2 S1 (CONC.)	MP88255	12/01/2025	01/26/2026	Sarabjit Jaswal	None	None	Mohan Bera 12/09/2025

FROM 0.02000ml of M5815 + 0.10000ml of M5798 + 0.10000ml of M6028 + 0.14000ml of M5799 + 0.20000ml of M5658 + 0.20000ml of M5801 + 0.20000ml of M5811 + 0.20000ml of M5817 + 0.20000ml of M6025 + 0.20000ml of M6030 + 0.30000ml of M6128 + 0.40000ml of M6159 + 0.50000ml of M5751 + 0.50000ml of M6023 + 0.70000ml of M5962 + 0.80000ml of M5960 + 1.00000ml of M5800 + 1.00000ml of M6021 + 1.20000ml of M6145 + 1.20000ml of M6160 + 10.00000ml of M6127 + 10.00000ml of M6137 + 10.00000ml of M6138 + 10.00000ml of M6144 + 2.00000ml of M5942 + 4.00000ml of M6032 + 44.84000ml of MP88250 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1003	ICPAES ISM01.2 S1	MP88256	12/01/2025	01/26/2026	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 12/09/2025

FROM 0.50000ml of MP88255 + 99.50000ml of MP88250 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1119	ICPAES ISM01.2(CCV)	MP88257	12/01/2025	01/26/2026	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 12/09/2025

FROM 0.75000ml of M6127 + 0.75000ml of M6138 + 1.22500ml of M6159 + 1.25000ml of M6140 + 1.25000ml of M6144 + 19.77500ml of MP88250 + 25.00000ml of MP88251 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2480	ICP AES STD 6 ISM01.3	MP88258	12/01/2025	01/25/2026	Sarabjit Jaswal	None	None	Mohan Bera 12/09/2025

FROM 4.00000ml of M6127 + 4.00000ml of M6138 + 4.00000ml of M6140 + 4.00000ml of M6144 + 4.00000ml of M6159 + 30.00000ml of MP88250 = Final Quantity: 50.000 ml

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	060523	06/05/2026	08/28/2023 / jaswal	08/25/2023 / jaswal	M5658

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57004 / Be, 1000 PPM, 125 ml	102523	10/25/2026	02/09/2024 / bin	02/09/2024 / bin	M5798

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57050 / Sn, 1000 PPM, 125 ml	071123	07/11/2026	02/09/2024 / bin	02/09/2024 / bin	M5799

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57027 / CO, 1000 PPM, 125 ml	091923	09/19/2026	05/31/2024 / bin	02/09/2024 / bin	M5800

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57033 / As, 1000 PPM, 125 ml	111323	11/13/2026	02/09/2024 / bin	02/09/2024 / bin	M5801

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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	051523	05/15/2026	02/06/2025 / kareem	01/03/2024 / jaswal	M5811

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 #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	06/18/2024 / Jaswal	02/22/2024 / Jaswal	M5942

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57028 / Ni, 1000 PPM, 125 ml	041124	04/11/2027	07/03/2024 / kareem	06/11/2024 / kareem	M5960

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

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-5 / INDIUM 1 x 500 ml	U2-IN729349	02/21/2028	10/08/2024 / Jaswal	06/14/2024 / Jaswal	M5985

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-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 #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	T2-MEB727800	07/30/2026	07/30/2025 / Janvi	02/22/2024 / kareem	M5998

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-1 / SOIL/WATER SPIKE SOLN 1, 125mL	T2-MEB721963	07/27/2027	09/04/2024 / Jaswal	02/22/2024 / kareem	M5999

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57023 / V, 1000 PPM, 125 ml	062424	06/24/2027	09/28/2024 / jaswal	08/05/2024 / Jaswal	M6021

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57081 / Tl, 1000 PPM, 125 ml	0624724	06/27/2027	08/05/2024 / kareem	08/05/2024 / Jaswal	M6023

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	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.	57182 / Pb, 10000 PPM, 125 ml	110923	11/09/2026	12/05/2024 / janvi	08/05/2024 / Jaswal	M6026

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57048 / Cd, 1000 PPM, 125 ml	070124	07/01/2027	08/05/2024 / kareem	08/05/2024 / Jaswal	M6028

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57047 / Ag, 1000 PPM, 125 ml	122823	12/28/2026	08/05/2024 / kareem	08/05/2024 / Jaswal	M6030

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57056 / Ba, 1000 PPM, 125 ml	010924	01/09/2027	01/14/2025 / Jaswal	08/05/2024 / Jaswal	M6032

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	V2-MEB746173	01/29/2026	01/29/2025 / JANVI	08/22/2024 / Jaswal	M6058

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	V2-MEB746762	09/06/2029	01/23/2025 / kareem	09/19/2024 / kareem	M6077

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58112 / Mg, 10000 PPM, 500 ml	112124	11/21/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6127

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Mn, 1000 PPM, 500 ml	101124	10/11/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6128

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSI1-1 / SILICON 125mL 1000ug/mL	V2-SI744713	07/10/2029	01/14/2025 / Jaswal	10/03/2024 / Jaswal	M6137

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58120 / Ca, 10000 PPM, 500 ml	121824	12/18/2027	04/17/2025 / Janvi	01/13/2025 / Jaswal	M6138

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58126 / Fe, 10000 PPM, 500 ml	011025	01/10/2028	06/25/2025 / Janvi	01/13/2025 / Jaswal	M6140

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58111 / Na, 10000 PPM, 500 ml	072424	07/24/2027	01/23/2025 / kareem	01/13/2025 / Jaswal	M6144

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	121724	12/17/2027	02/04/2025 / Jaswal	01/13/2025 / Jaswal	M6145

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	22G2862015	02/17/2026	02/18/2025 / Sagar	01/15/2025 / Sagar	M6151

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Al, 10000 PPM, 500 ml	011325	03/18/2026	03/18/2025 / kareem	02/09/2025 / kareem	M6159

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57051 / Sb, 1000 PPM, 125 ml	071724	07/17/2027	03/24/2025 / kareem	10/18/2024 / kareem	M6160

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	QCP-CICV-1-125ML / EPA CLP ICP Verification Standard1	V2-MEB744107	06/08/2026	06/09/2025 / jaswal	06/06/2025 / jaswal	M6163

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	QCP-CICV-2-125ML / EPA CLP ICP Verification Standard2	U2-MEB733713	06/08/2026	06/09/2025 / jaswal	06/09/2025 / jaswal	M6164

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	QCP-CICV-3-125ML / EPA CLP ICP Verification Standard3	V2-MEB749572	06/08/2026	06/09/2025 / jaswal	06/09/2025 / jaswal	M6165

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58112 / Mg, 10000 PPM, 500 ml	011525	01/15/2028	07/15/2025 / Janvi	02/13/2025 / Janvi	M6171

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	V2-MEB742428	07/31/2026	07/31/2025 / Janvi	05/05/2025 / Janvi	M6174

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	V2-Y740548	08/05/2026	08/06/2025 / Janvi	06/02/2024 / Janvi	M6179

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	02/05/2026	08/06/2025 / Janvi	03/06/2024 / Janvi	M6182

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	02/05/2026	08/06/2025 / Janvi	03/06/2024 / Janvi	M6184

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24H0162012	01/28/2026	08/29/2025 / Sagar	08/08/2025 / Sagar	M6187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	24D1562005	02/10/2026	09/11/2025 / Sagar	08/25/2025 / Sagar	M6200

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / Iwona	07/03/2024 / Iwona	W3112

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Certificate of Analysis

R: 02/22/24 M5986 M5987, M5988, M5989-M5990

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CLPP-SPK-5
Lot Number:	V2-MEB742037
Matrix:	5% (v/v) HNO_3
Value / Analyte(s):	100 µg/mL ea: Antimony,
	50 µg/mL ea: Selenium, Cadmium, Thallium,
	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:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2 (u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

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

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CERTIFIED WEIGHT REPORT:

Part Number:	**57056**		**Lot #**		
Lot Number:	**010924**	**Solvent:**	24002546	Nitric Acid	
Description:	**Barium (Ba)**				
		2%	40.0 (mL)	Nitric Acid	
Expiration Date:	010927				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

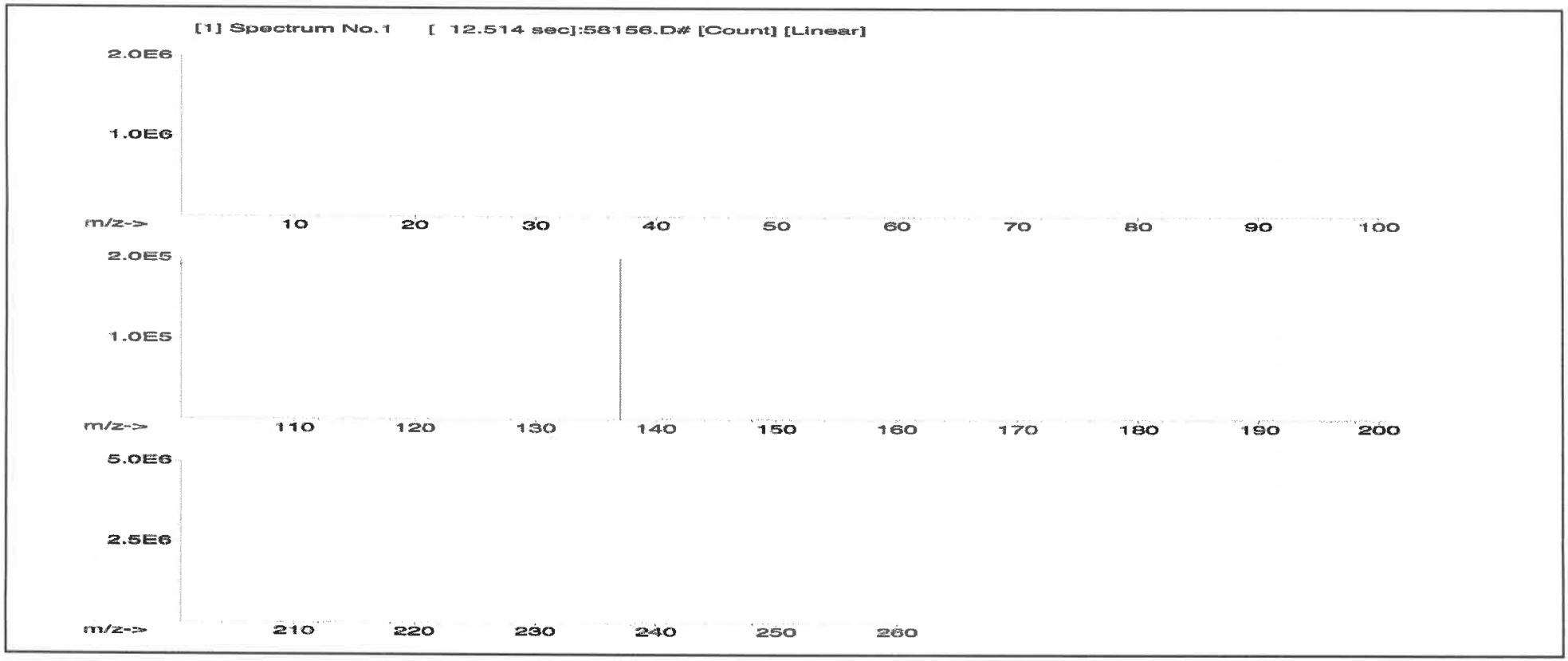
Giovanni Esposito

Formulated By:	Giovanni Esposito	010924

Pedro Rentas

Reviewed By:	Pedro L. Rentas	010924

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Barium nitrate (Ba)	IN023	BAD022019A1	1000	99.999	0.10	52.3	3.82417	3.82441	**1000.1**	**2.0**	10022-31-8	0.5 mg/m3	orl-rat 355 mg/kg	3104a



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	T	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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R 8/5/24

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CERTIFIED WEIGHT REPORT:

Part Number:	**57048**		**Lot #**		
Lot Number:	**070124**	**Solvent:**	24002546	Nitric Acid	
Description:	**Cadmium (Cd)**				
		2%	40.0 (mL)	Nitric Acid	
Expiration Date:	070127				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

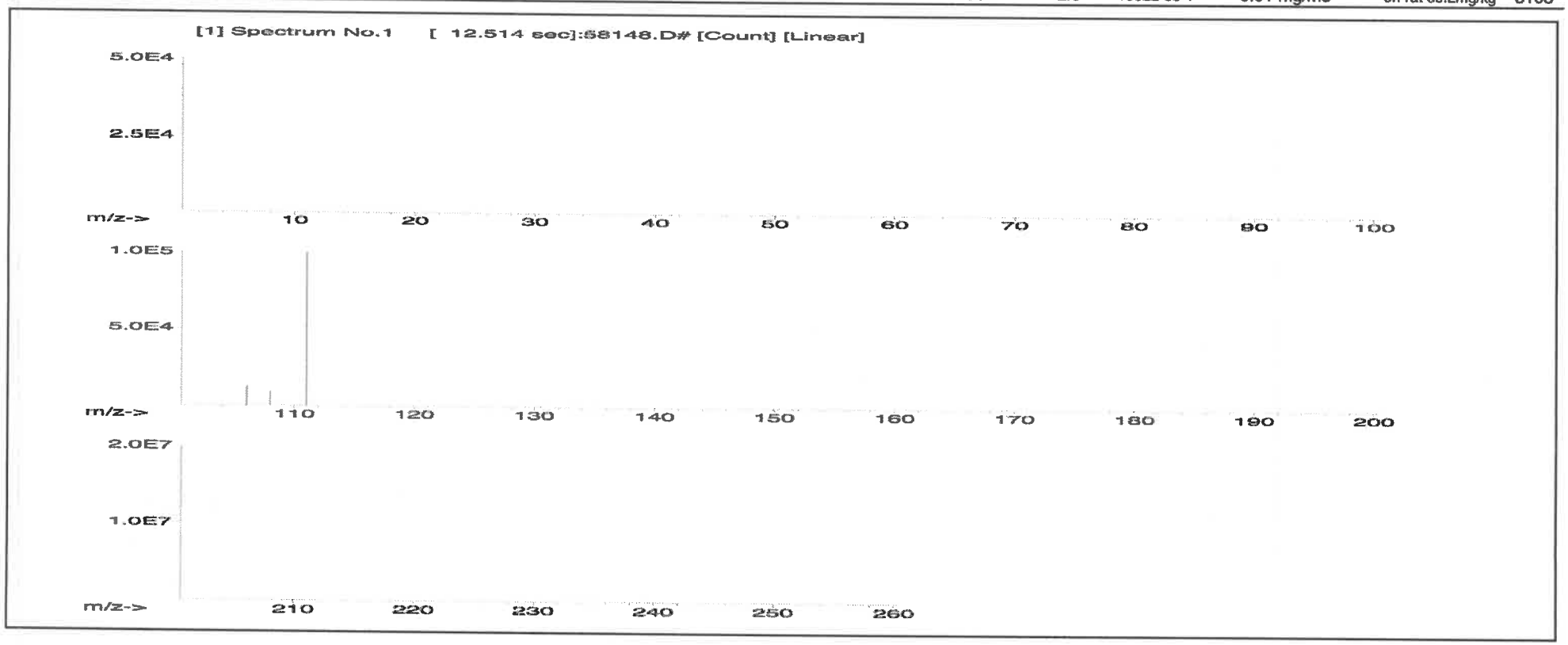
Aleah O'Brady

Formulated By:	Aleah O'Brady	070124

Pedro Rentas

Reviewed By:	Pedro L. Rentas	070124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cadmium nitrate tetrahydrate (Cd)	IN024	CDM092021A1	1000	99.999	0.10	36.5	5.4797	5.4804	**1000.1**	**2.0**	10022-68-1	0.01 mg/m3	orl-rat 60.2mg/kg	3108



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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	T	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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Certified Reference Material CRM

R : 01/03/24. M5810, M5811

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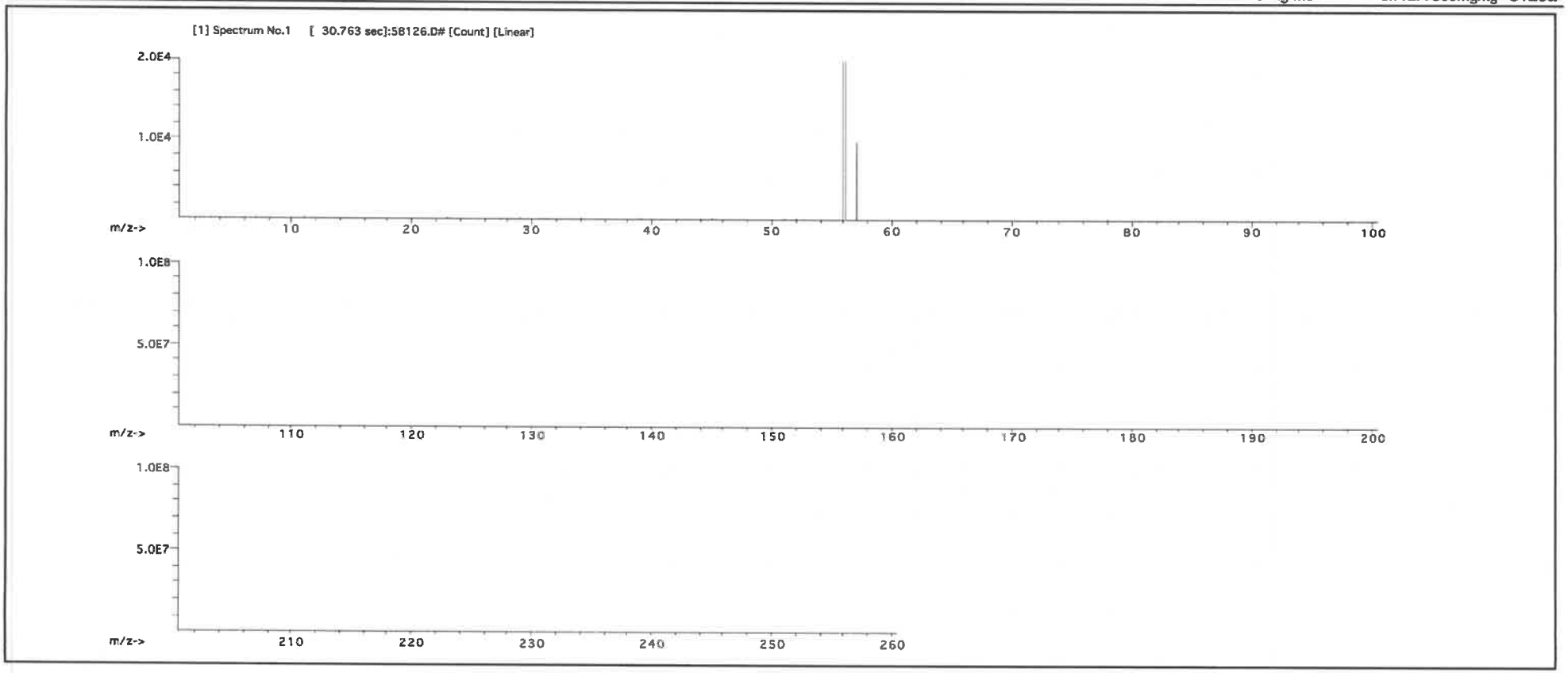
CERTIFIED WEIGHT REPORT:

		Lot #		
Part Number:	**58126**	**Solvent:**	21110221	Nitric Acid
Lot Number:	**051523**			
Description:	**Iron (Fe)**		5.0%	250.0 (mL) Nitric Acid
Expiration Date:	051526			
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):	5000.1	0.12	Flask Uncertainty	

Giovanni Esposito

Formulated By:	Giovanni Esposito	051523
Reviewed By:	Pedro L. Rentas	051523

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Iron (Fe)	IN346	2302010-500	10000	99.995	0.10	100.0	50.0034	50.0111	**10001.5**	**20.0**	7439-89-6	5 mg/m3	orl-rat 7500mg/kg	3126a



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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	<0.02	Mn	<0.10	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.05	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.10	Ge	<0.10	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.10
B	<0.02	Cu	<0.10	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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Certified Reference Material CRM

R: 8/5/24 M6025

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192

CERTIFIED WEIGHT REPORT:

Part Number: 57182
Lot Number: 110923
Description: Lead (Pb)

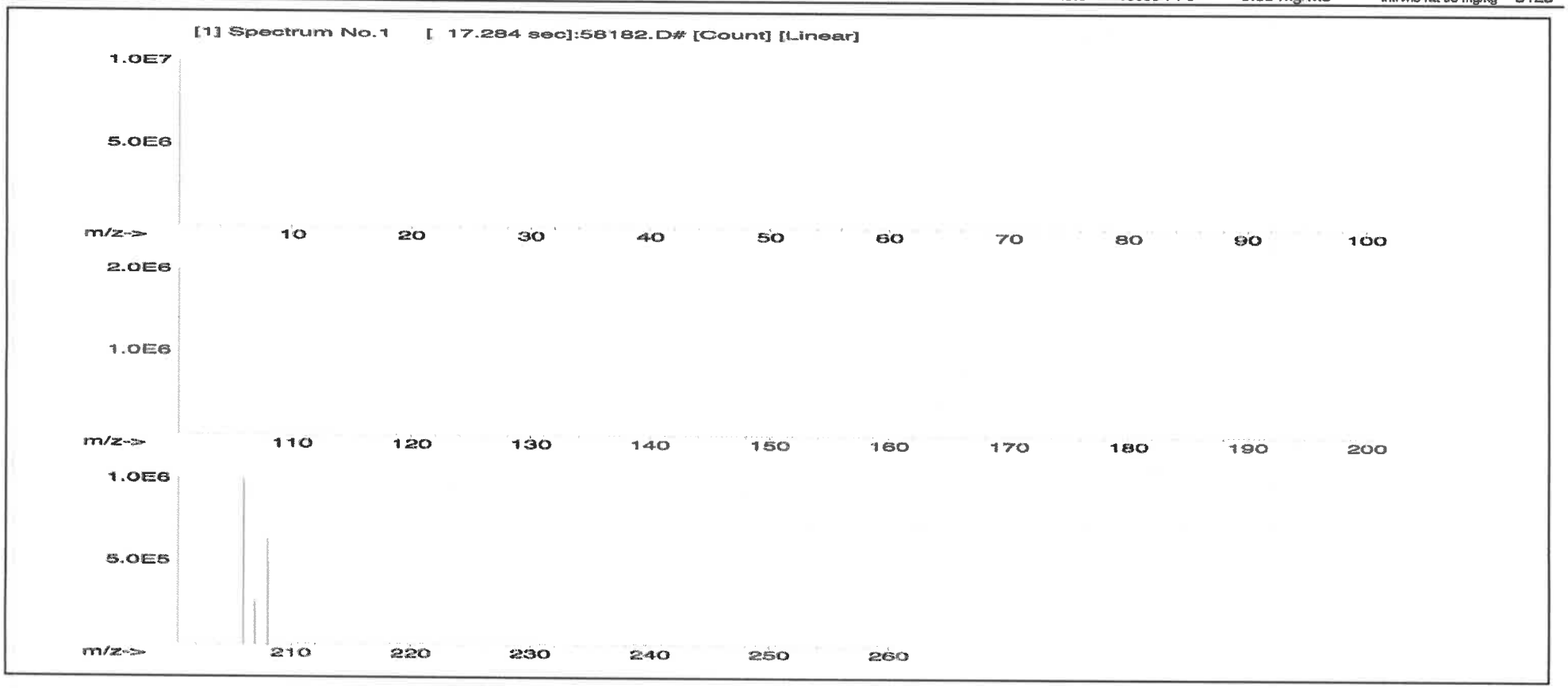
Expiration Date: 110926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

		Lot #	
Solvent:	24002546		Nitric Acid
2%	40.0 (mL)		Nitric Acid
	5E-05	Balance Uncertainty	

Formulated By:	Lawence 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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lead(II) nitrate (Pb)	IN029	PBD122016A1	10000	99.999	0.10	62.5	32.0006	32.0040	**10001.1**	**20.0**	10099-74-8	0.05 mg/m3	intrvns-rat 93 mg/kg	3128



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	T	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
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* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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194

CERTIFIED WEIGHT REPORT:

Part Number: 57182
Lot Number: 110923
Description: Lead (Pb)

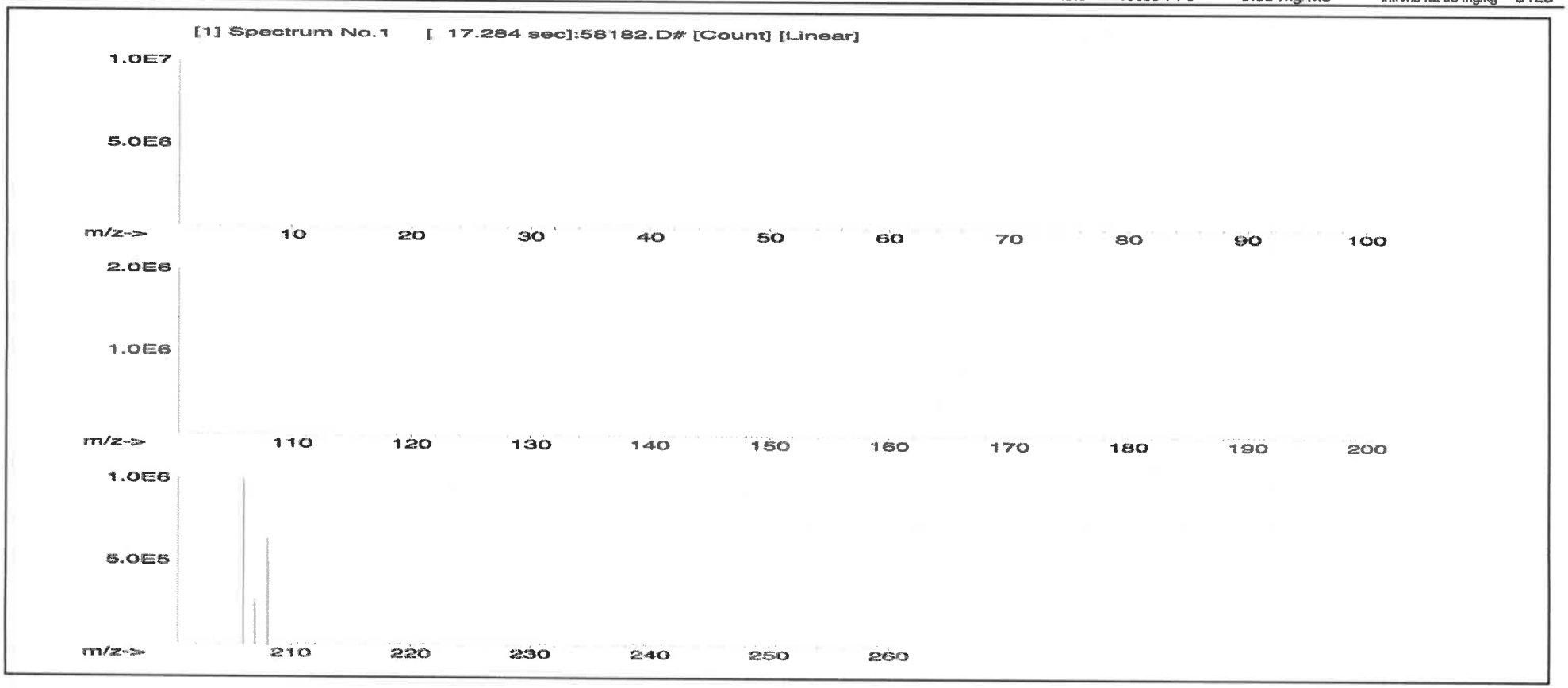
Expiration Date: 110926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawence 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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lead(II) nitrate (Pb)	IN029	PBD122016A1	10000	99.999	0.10	62.5	32.0006	32.0040	**10001.1**	**20.0**	10099-74-8	0.05 mg/m3	intrvns-rat 93 mg/kg	3128



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	T	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

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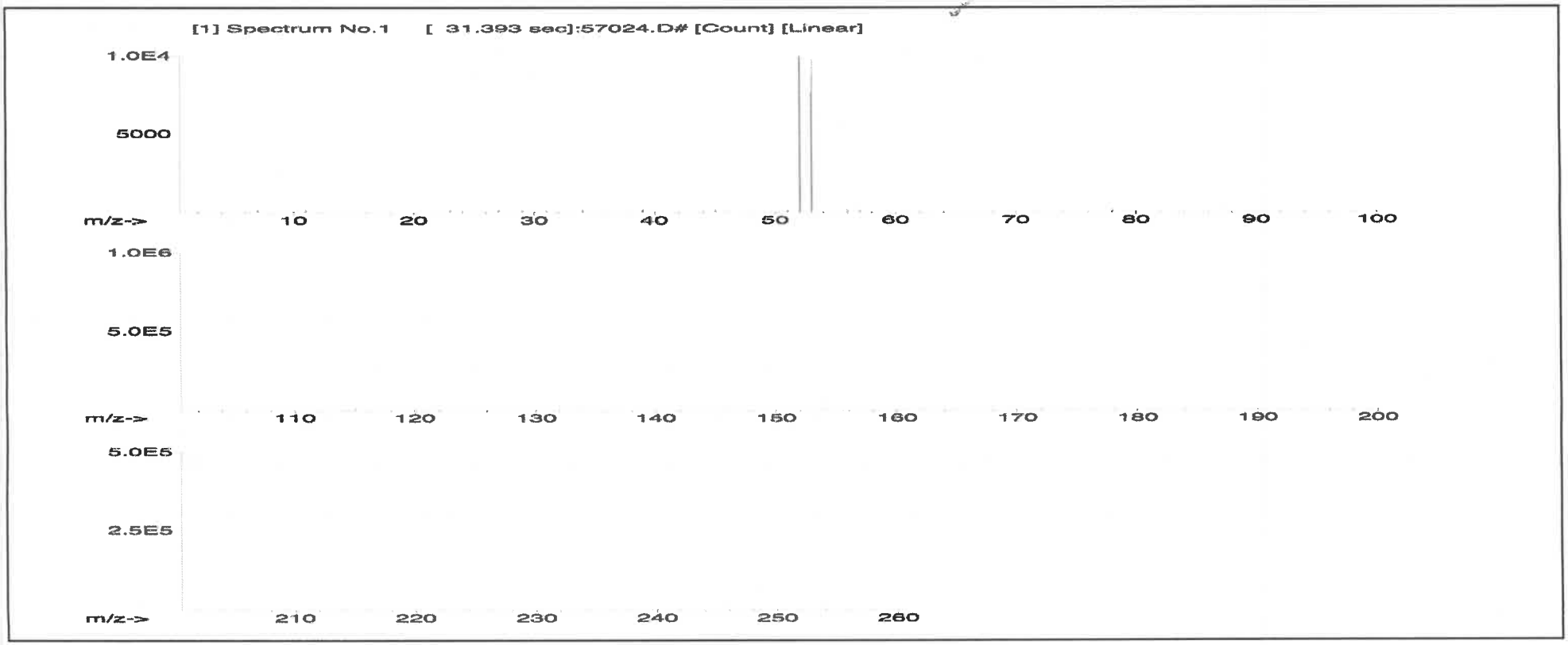
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58024**	21110221	Nitric Acid	
Lot Number:	**060523**			
Description:	**Chromium (Cr)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	060526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

Formulated By:	Lawrence Barry	060523
Reviewed By:	Pedro L. Rentas	060523

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Chromium(III) nitrate nonahydrate (Cr)	58124	071122	0.1000	200.0	0.084	1000	10000.1	**1000.0**	**2.2**	7789-02-8	0.5 mg(Cr)/m3	orl-rat 3250 mg/kg	3112a



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	T	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

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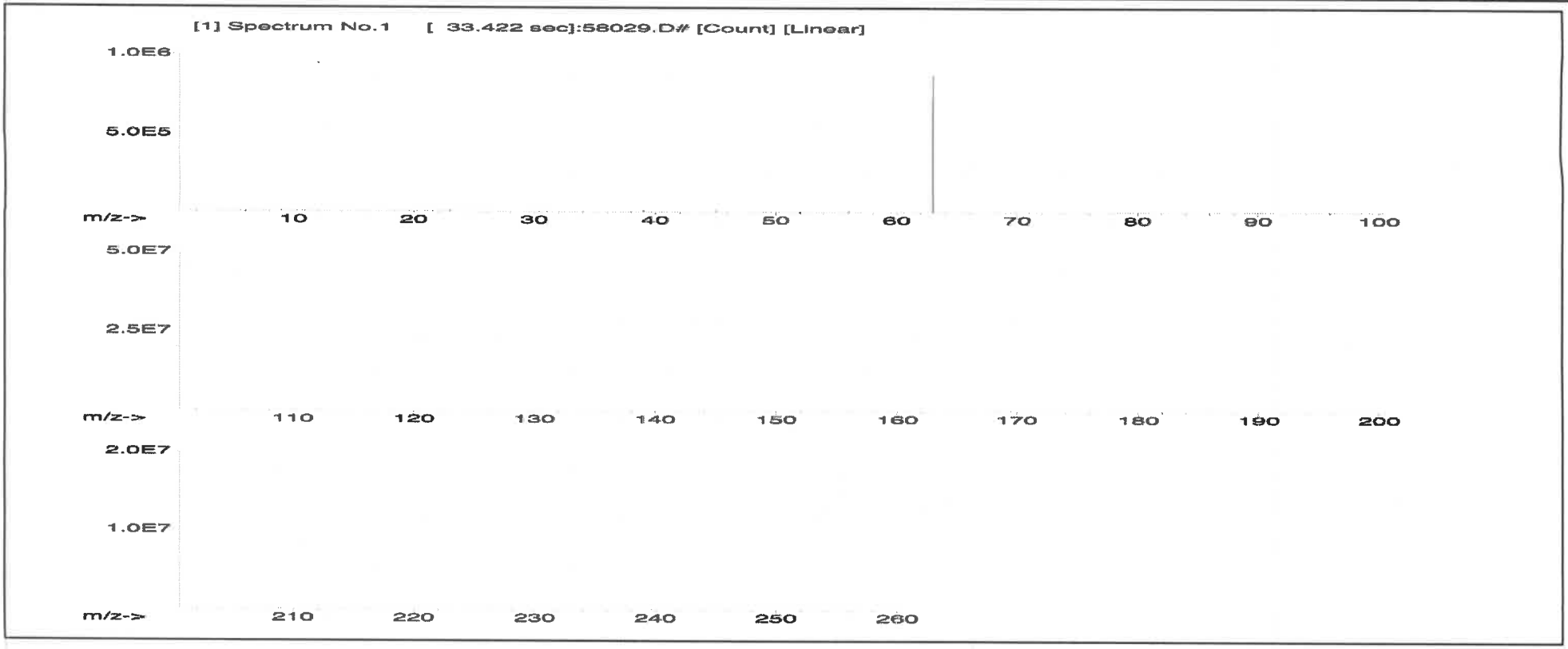
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58029**	21110221	Nitric Acid	
Lot Number:	**071723**			
Description:	**Copper (Cu)**	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	071726			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

Formulated By:	Benson Chan	071723
Reviewed By:	Pedro L. Rentas	071723

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Copper(II) nitrate trihydrate (Cu)	58129	022723	0.1000	200.0	0.084	1000	10000.5	**1000.0**	**2.2**	10031-43-3	1 mg/m3	orl-rat 794 mg/kg	3114



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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	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.

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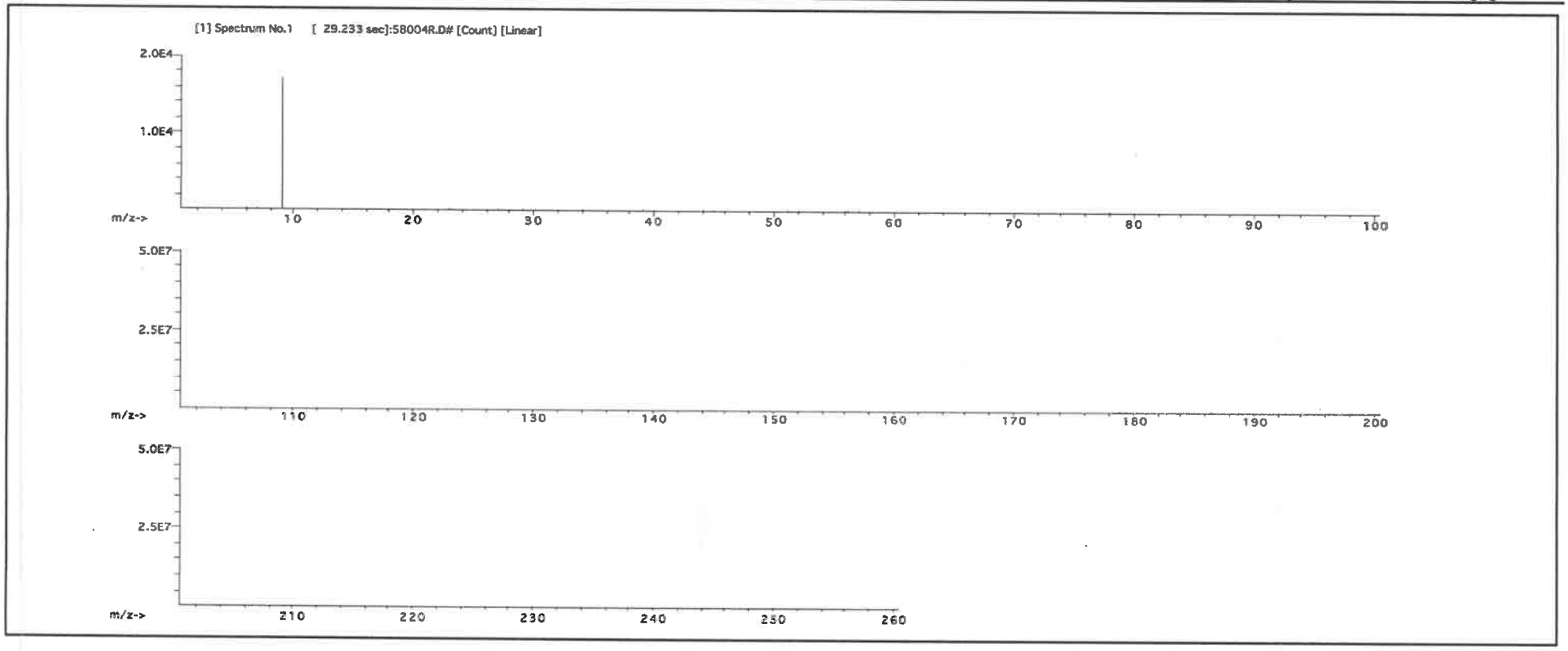
200

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57004**	24002546	Nitric Acid	
Lot Number:	**102523**			
Description:	**Beryllium (Be)**	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	102526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	**1000.0**	**2.2**	13597-99-4	0.2ug/m3	intrvns-rat 3.16mg/kg	NA



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	T	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

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202

CERTIFIED WEIGHT REPORT:

Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

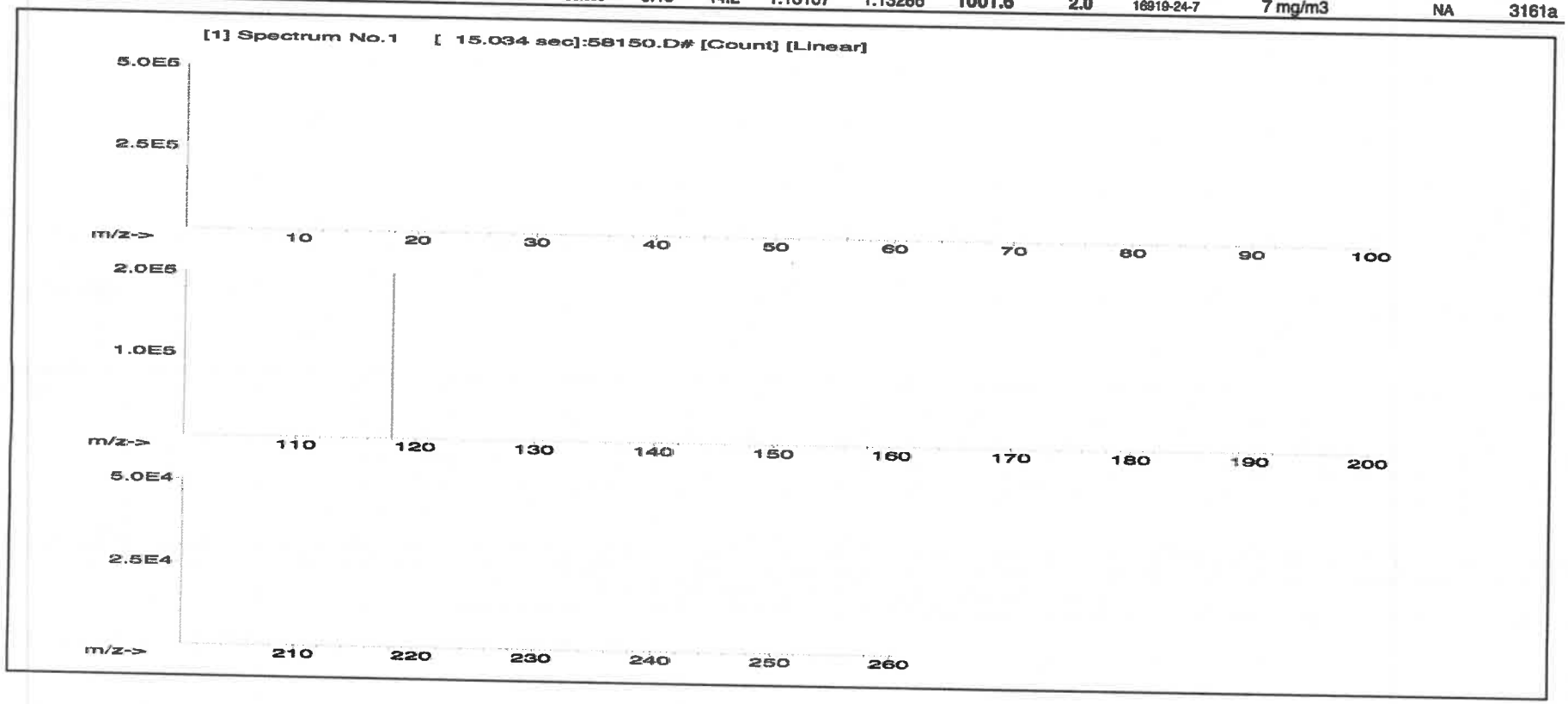
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

	Lot #	
Solvents:	21110221	Nitric Acid
	22D0562008	Hydrochloric acid
2%	10.0	Nitric Acid
6%	30.0	Hydrochloric acid
	(mL)	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Benson Chan	071123
Reviewed By:	Pedro L. Rentas	071123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium hexafluorostannate(IV) (Sn)	IN010	SND042023A1	1000	99.999	0.10	44.2	1.13107	1.13286	**1001.6**	**2.0**	16919-24-7	7 mg/m3	NA	3161a



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	T	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

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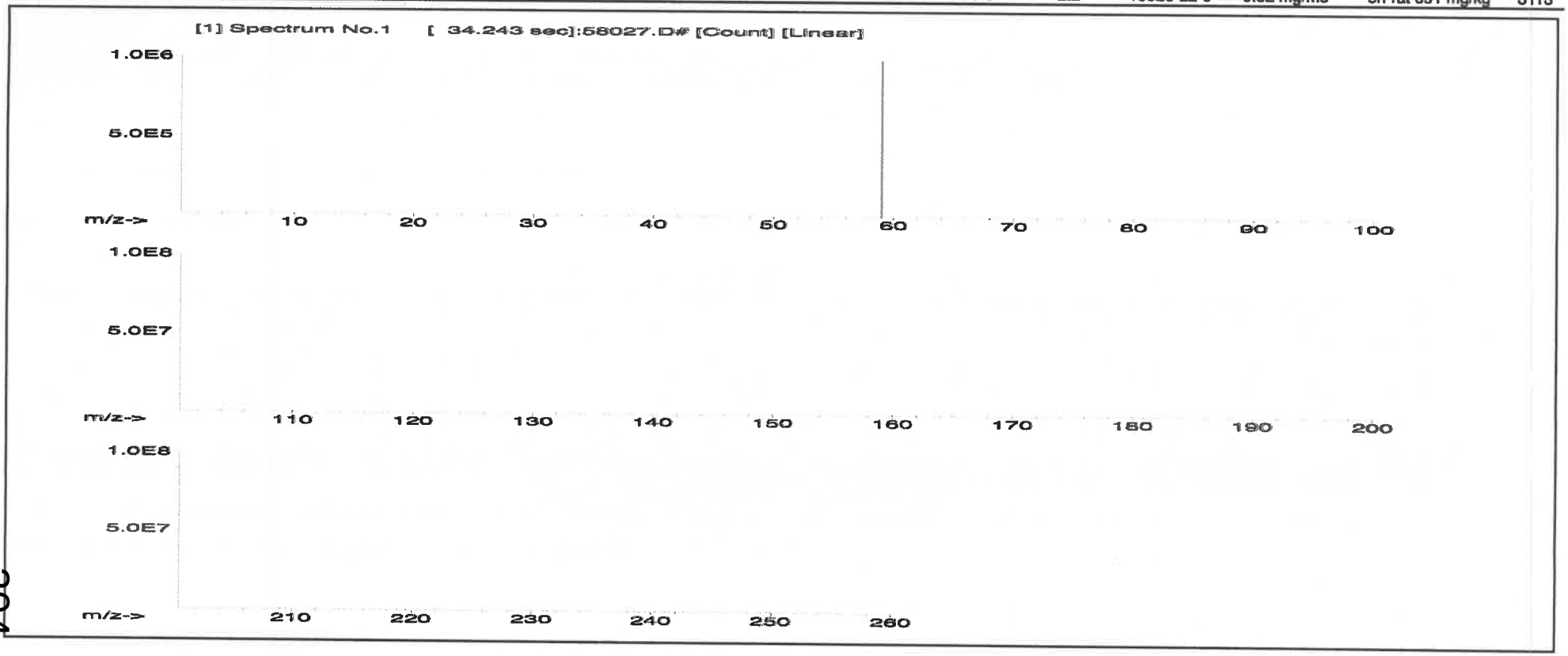
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**57027**	24002546	Nitric Acid		
Lot Number:	**091923**				
Description:	**Cobalt (Co)**	2.0%	40.0 (mL)	Nitric Acid	
Expiration Date:	091926				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By: Lawrence Barry 091923

Reviewed By: Pedro L. Rentas 091923

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cobalt(II) nitrate hexahydrate (Co)	58127	050923	0.1000	200.0	0.084	1000	10000.0	**1000.0**	2.2	10026-22-9	0.02 mg/m3	orl-rat 691 mg/kg	3113



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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	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	T	Gé	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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Certified Reference Material CRM

R: 02/09/24 IM5801 BH

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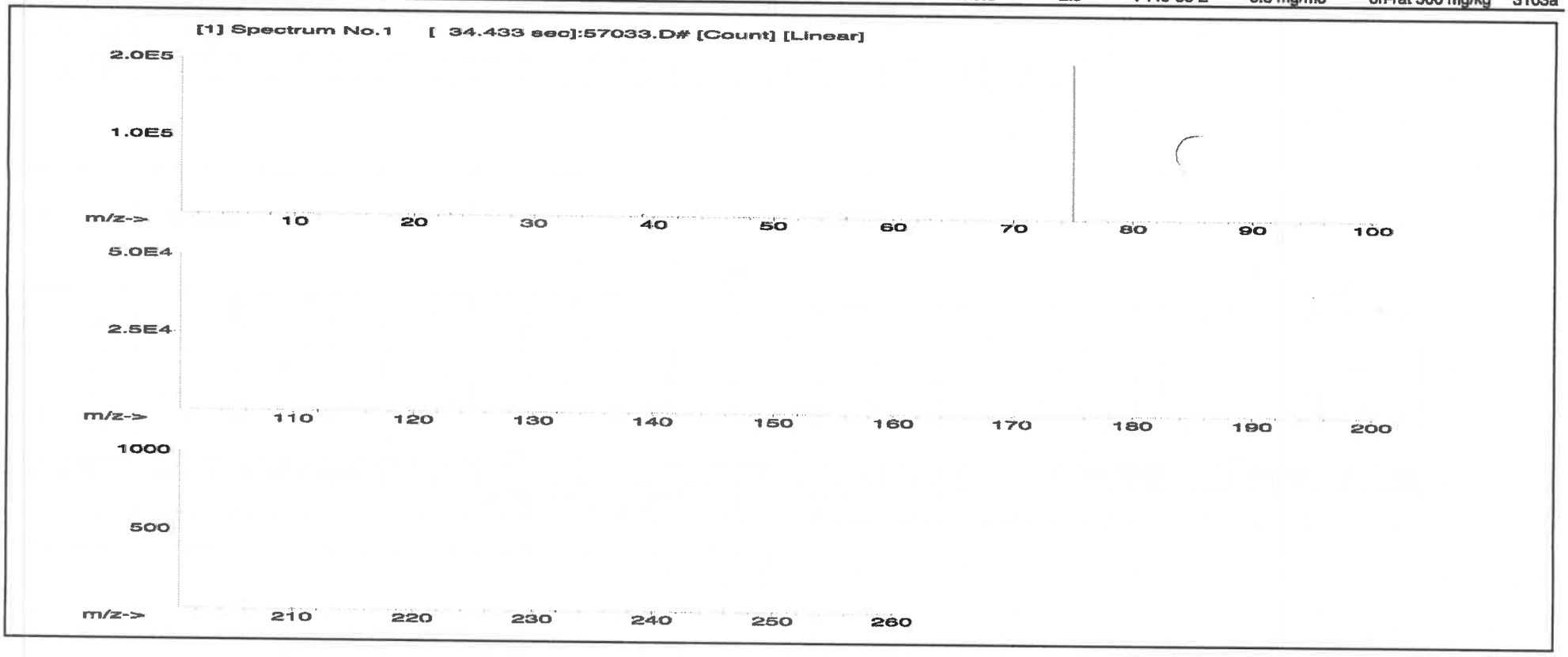
CERTIFIED **WEIGHT** REPORT:

		Lot #	Solvent:		
Part Number:	**57033**	24002546	Nitric Acid		
Lot Number:	**111323**				
Description:	**Arsenic (As)**	2.0%	80.0 (mL)	Nitric Acid	
Expiration Date:	111326				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	4000.0	0.06	Flask Uncertainty		

Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rentas	111323

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Arsenic (As)	58133	020522	0.1000	400.0	0.084	1000	10001.0	**1000.0**	**2.0**	7440-38-2	0.5 mg/m3	orl-rat 500 mg/kg	3103a



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	T	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge*	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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R1 02/09/24. M58165

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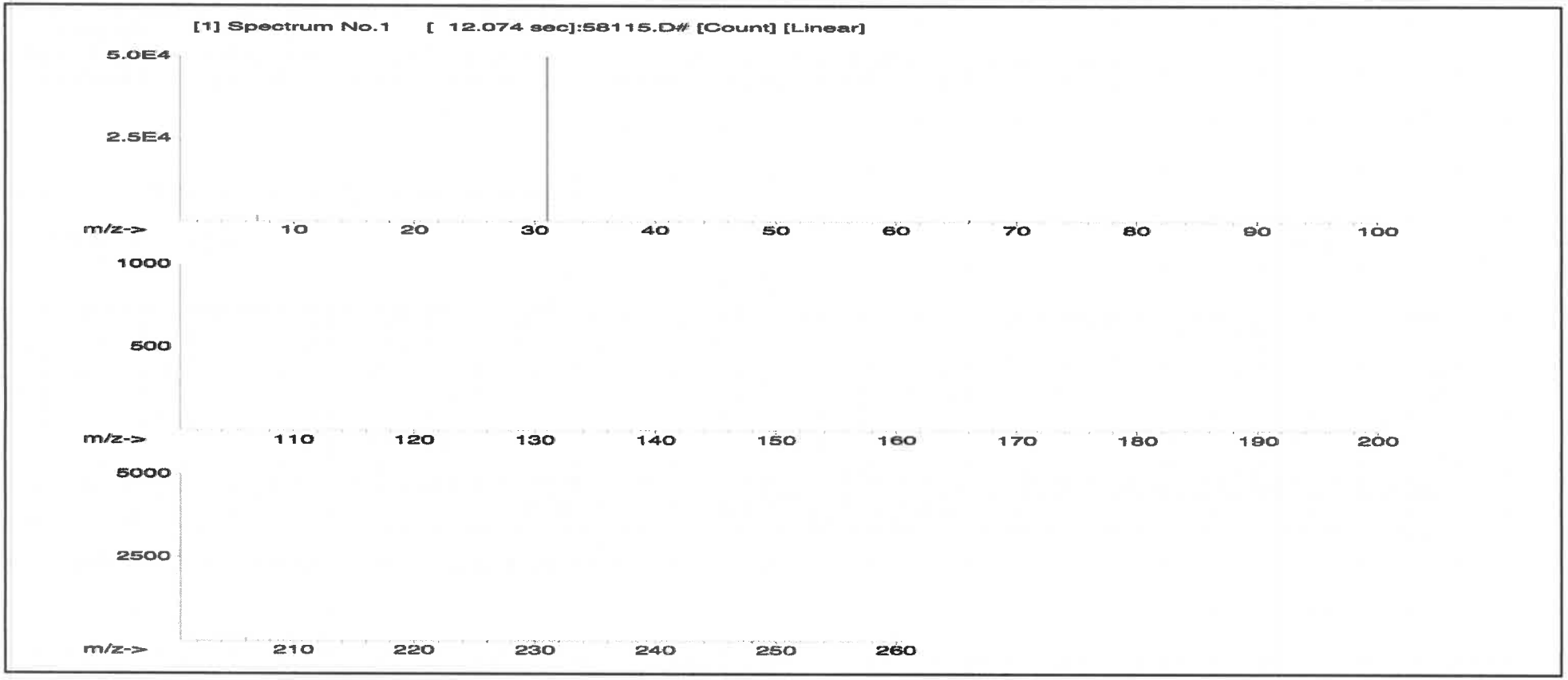
CERTIFIED WEIGHT REPORT:

			Lot #	
Part Number:	**57115**	**Solvent:**	21110221	Nitric Acid
Lot Number:	**041723**			
Description:	**Phosphorous (P)**	2%	40.0 (mL)	Nitric Acid
Expiration Date:	041726			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**10000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

Formulated By:	Lawrence Barry	041723
Reviewed By:	Pedro L. Rentas	041723

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium dihydrogen phosphate (P)	IN008	PV082019A1	10000	99.999	0.10	27.5	72.7287	72.7289	**10000.0**	**20.0**	7722-76-1	5 mg/m3	orl-rat >2000mg/kg	3186



Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	T	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

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CERTIFIED WEIGHT REPORT:

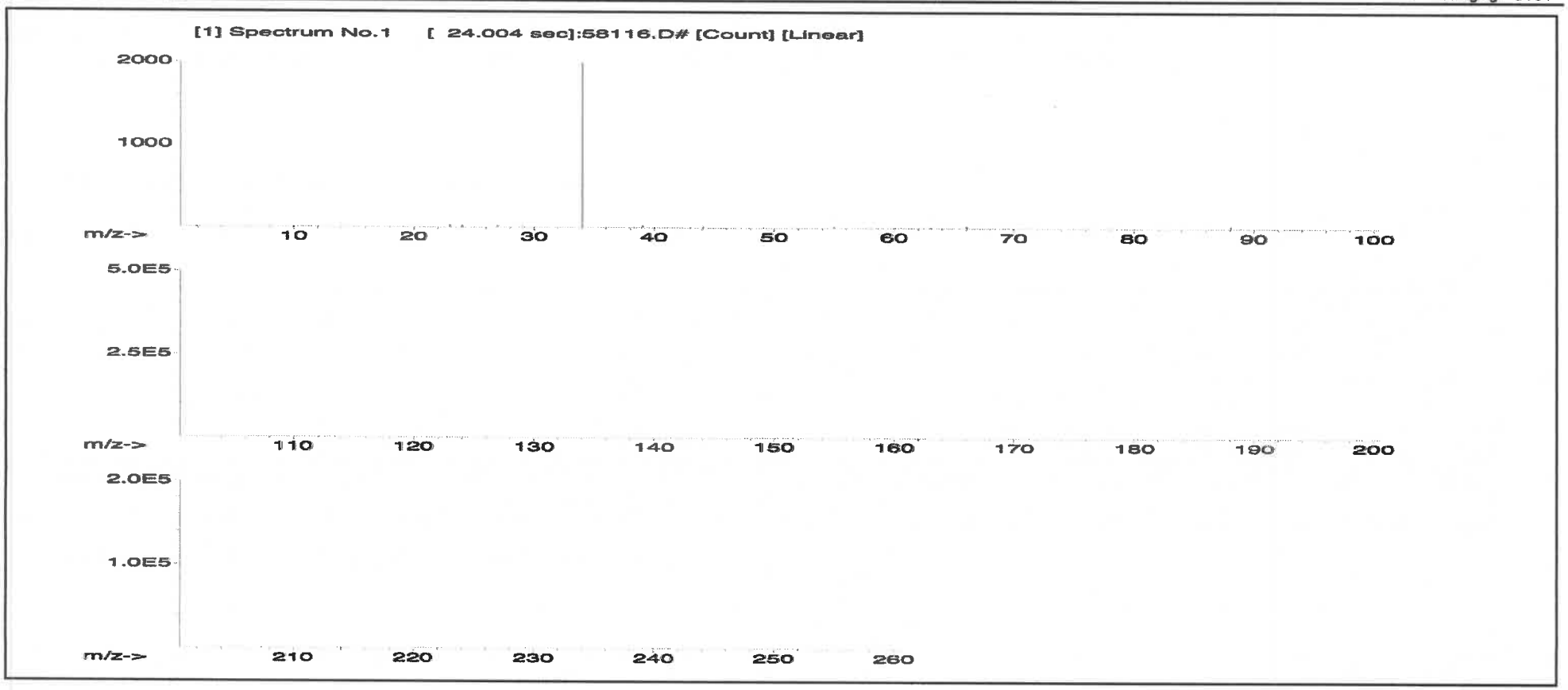
Part Number: 57116
Lot Number: 071123
Description: Sulfur (S)

Lot #
Solvent: 071123 ASTM Type 1 Water

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB 5E-05 Balance Uncertainty
Weight shown below was diluted to (mL): 1999.48 0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	071123
Reviewed By:	Pedro L. Rentas	071123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium sulfate (S)	IN117	SLBR7225V	10000	99.9	0.10	24.3	82.4675	82.4682	**10000.1**	**20.0**	7783-20-2	NA	ori-rat 4250mg/kg	3181



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	T	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

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* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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Certificate of Analysis

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Christiansburg, VA 24073 USA
inorganicventures.com

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F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGTI1
Lot Number:	T2-TI719972
Matrix:	2% (v/v) 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:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000536	M	Eu	<	0.000268	O	Na	<	0.032670	M	Se		0.001204	O	Zn	<	0.003267
O	Al		0.000872	O	Fe		0.003225	O	Nb	<	0.043560	O	Si		0.004735	O	Zr	<	0.043560
M	As	<	0.008586	M	Ga	<	0.000268	M	Nd	<	0.000268	M	Sm	<	0.000268				
M	Au	<	0.004577	M	Gd	<	0.000268	O	Ni	<	0.010890	M	Sn		0.000096				
O	B	<	0.008929	M	Ge	<	0.002146	M	Os	<	0.000269	O	Sr		0.000096				
M	Ba	<	0.002683	M	Hf		0.002161	O	P	<	0.054450	M	Ta		0.010560				
M	Be	<	0.005366	M	Hg	<	0.003231	M	Pb	<	0.001073	M	Tb	<	0.000268				
M	Bi	<	0.001609	M	Ho	<	0.000268	M	Pd	<	0.000268	M	Te	<	0.001341				
O	Ca		0.000676	M	In	<	0.002683	M	Pr	<	0.000268	M	Th	<	0.053663				
M	Cd	<	0.000268	M	Ir	<	0.000269	M	Pt	<	0.000536	s	Ti	<					
M	Ce	<	0.000268	M	K		0.001172	M	Rb	<	0.000268	M	Tl	<	0.000268				
M	Co	<	0.004293	M	La	<	0.000268	M	Re	<	0.000268	M	Tm	<	0.000268				
M	Cr		0.000752	O	Li	<	0.027225	M	Rh	<	0.000268	M	U	<	0.000268				
M	Cs	<	0.000268	M	Lu	<	0.000268	M	Ru	<	0.000269	M	V	<	0.019855				
O	Cu	<	0.010890	O	Mg	<	0.005445	i	S	<		M	W		0.000473				
M	Dy	<	0.000268	O	Mn	<	0.003267	M	Sb	<	0.006976	M	Y	<	0.002146				
M	Er	<	0.000268	M	Mo		0.000774	O	Sc	<	0.004900	M	Yb	<	0.000536				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 +4 6 Ti(F)6-2

Chemical Compatibility - Soluble in concentrated HCl, HF, H3PO4 H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)6-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)6-2 chemically stable for years in 2-5% HNO3 / trace HF in an LDPE container.

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution -powder reacts violently); Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); Oxide - high temperature history (~800EC) brookite (fuse in Pt0 with K2S2O7); Ores (fuse in Pt0 with KF + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystalline form).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	Ce, Ar, Ni
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	W, Mo, Co

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **June 17, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5960 KK R. 6/11/24

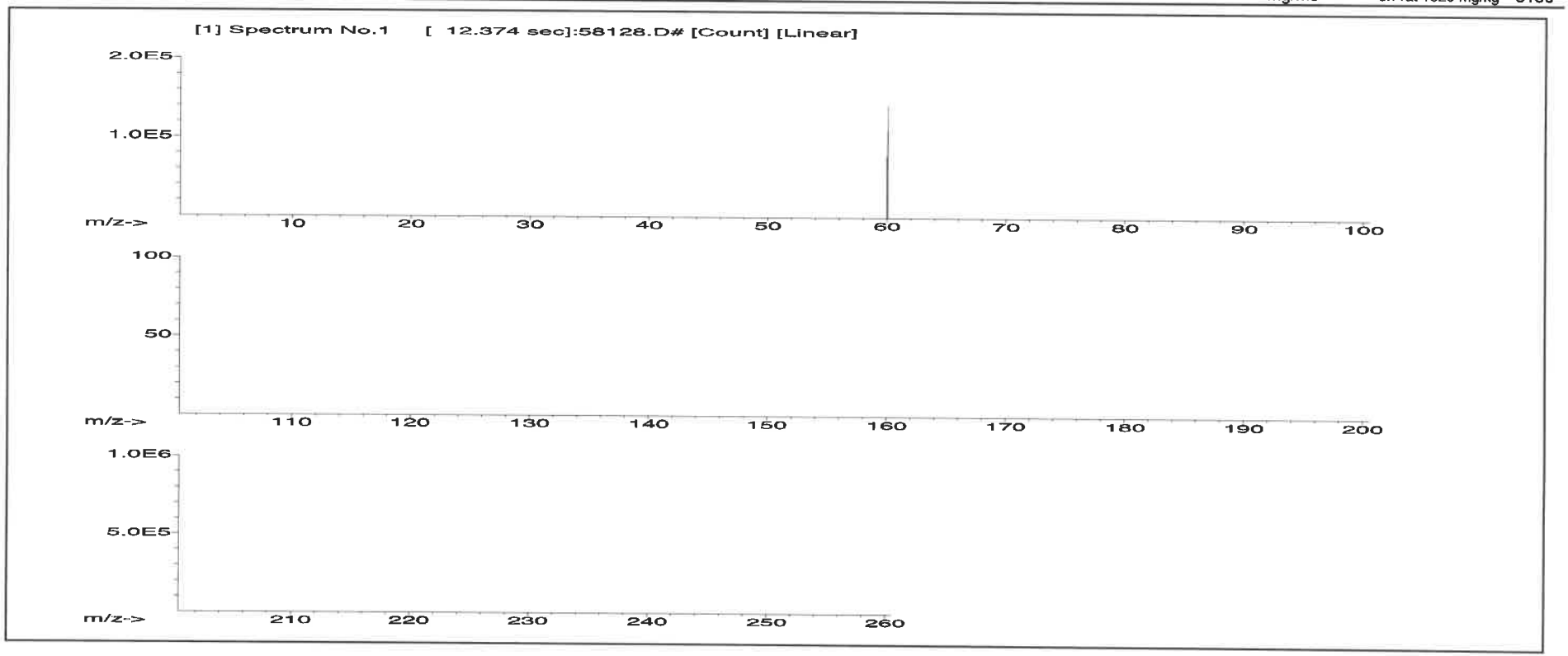
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

Part Number:	**57028**		**Lot #**		
Lot Number:	**041124**	**Solvent:**	24002546	Nitric Acid	
Description:	**Nickel (Ni)**				
		2%	5.0 (mL)	Nitric Acid	
Expiration Date:	041127				
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):	249.85	0.002	Flask Uncertainty		

Formulated By:	Brian Geddes	041124
Reviewed By:	Pedro L. Rentas	041124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	**Actual Conc. (µg/mL)**	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. 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	orl-rat 1620 mg/kg	3136



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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	T	Pr	<0.02	Sc	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5962 R! 06/14/24

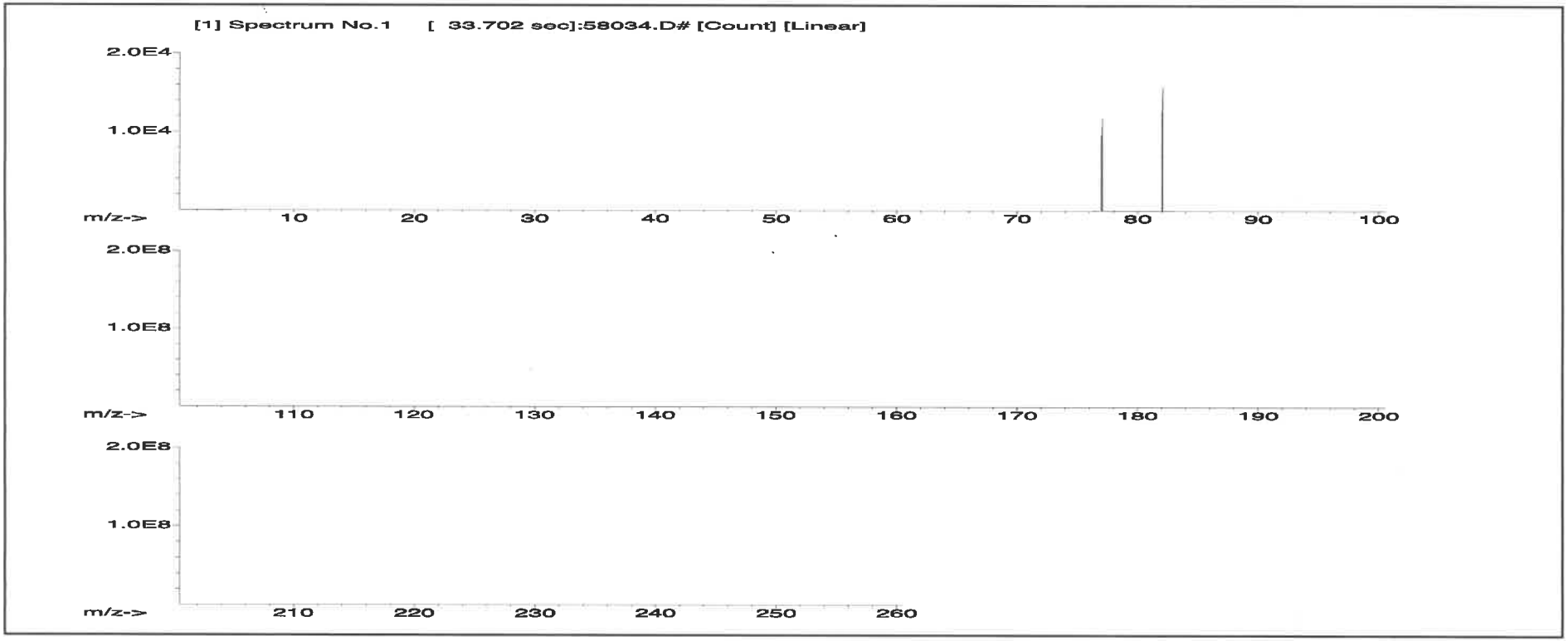
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57034**	24002546	Nitric Acid	
Lot Number:	**060624**			
Description:	**Selenium (Se)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	060627			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty	

Formulated By:	Benson Chan	060624
Reviewed By:	Pedro L. Rentas	060624

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Selenium (Se)	58134	071223	0.1000	200.0	0.084	1000	10002.5	**1000.0**	**2.2**	7782-49-2	0.2 mg/m3	orl-rat 6700 mg/kg	3149



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																		
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	T	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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Certificate of Analysis

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F: 540-585-3012
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MS985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 863.01
ACCREDITED Reference Material Producer Certificate 863.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGIN10
Lot Number:	U2-IN729349
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Indium
Starting Material:	Indium Metal
Starting Material Lot#:	2511
Starting Material Purity:	99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL

Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	**10021 ± 56 µg/mL** ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	**10035 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	**10001 ± 33 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000760	M	Eu	<	0.000760	O	Na		0.012771	M	Se	<	0.023000	M	Zn	<	0.006100
M	Al		0.003385	O	Fe		0.004462	M	Nb	<	0.000760	O	Si		0.024619	M	Zr	<	0.000760
M	As	<	0.004600	M	Ga	<	0.000760	M	Nd	<	0.000760	M	Sm	<	0.000760				
M	Au	<	0.002300	M	Gd	<	0.000760	O	Ni	<	0.005100	M	Sn	<	0.000760				
O	B		0.003692	M	Ge	<	0.001600	M	Os	<	0.000760	O	Sr	<	0.000610				
M	Ba	<	0.001600	M	Hf	<	0.000760	n	P	<		M	Ta	<	0.000760				
O	Be	<	0.000130	M	Hg	<	0.003100	M	Pb		0.001400	M	Tb	<	0.000760				
M	Bi	<	0.000760	M	Ho	<	0.000760	M	Pd	<	0.001600	M	Te	<	0.000760				
O	Ca		0.004616	s	In	<		M	Pr	<	0.000760	M	Th	<	0.000760				
M	Cd	<	0.000760	M	Ir	<	0.000760	M	Pt	<	0.000760	O	Ti	<	0.001100				
M	Ce	<	0.000760	O	K		0.007078	M	Rb	<	0.000760	M	Tl	<	0.000760				
M	Co	<	0.000760	M	La	<	0.000760	M	Re	<	0.000760	M	Tm	<	0.000760				
O	Cr	<	0.001300	O	Li	<	0.000130	M	Rh	<	0.000760	M	U	<	0.000760				
M	Cs	<	0.000760	M	Lu	<	0.000760	M	Ru	<	0.000760	M	V	<	0.001600				
M	Cu	<	0.003800	O	Mg		0.000707	n	S	<		M	W	<	0.001600				
M	Dy	<	0.000760	O	Mn		0.000149	M	Sb	<	0.000760	M	Y	<	0.000760				
M	Er	<	0.000760	M	Mo	<	0.002300	M	Sc	<	0.000760	M	Yb	<	0.000760				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 114.82 +3 6 In(H2O)6+3

Chemical Compatibility -Soluble in HCl, HNO3, and H2SO4. Avoid neutral and basic media. Stable with most metals and inorganic anions. The oxalate, sulfide, carbonate, hydroxide and phosphate are insoluble in water.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

In Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO3); Oxide (Soluble in mineral acids); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in dilute HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 115 amu	1 ppt	n/a	115Sn, 99Ru16O
ICP-OES 158.583 nm	0.05 / 0.002 µg/mL	1	
ICP-OES 230.606 nm	0.1 / 0.03 µg/mL	1	Ni, Os
ICP-OES 325.609 nm	0.2 / 0.05 µg/mL	1	Mn, Mo, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

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Certificate of Analysis

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R: 2/22/24
MS-997

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CLPP-CAL-3
Lot Number:	T2-MEB727800
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Arsenic, Lead, Selenium, Thallium, 500 µg/mL ea: Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	**1 000 ± 7 µg/mL**	**Cadmium, Cd**	**500.0 ± 2.2 µg/mL**
Lead, Pb	**1 000 ± 4 µg/mL**	**Selenium, Se**	**1 000 ± 6 µg/mL**
Thallium, Tl	**1 000 ± 7 µg/mL**		

Density: 1.042 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
As	Calculated		See Sec. 4.2
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

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Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i}^2) / (\Sigma(1/(u_{char\ i}^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i}^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 21, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- December 21, 2027

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Certificate of Analysis

Refine your results. Redefine your industry.

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CLPP-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:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

- 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

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

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CHEM-CLP-4
Lot Number:	V2-MEB746172
Matrix:	3% (v/v) HNO3 3% (v/v) HF
Value / Analyte(s):	1 000 µg/mL ea: Boron, Molybdenum, Silicon, Tin, Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 5 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 000 ± 6 µg/mL		

Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 12, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- August 12, 2029

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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EXP.: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CHEM-CLP-4
Lot Number:	V2-MEB746762
Matrix:	3% (v/v) HNO3 3% (v/v) HF
Value / Analyte(s):	1 000 µg/mL ea: Boron, Molybdenum, Silicon, Tin, Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 5 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 000 ± 6 µg/mL		

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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CERTIFIED WEIGHT REPORT:

R→ 1/13/25

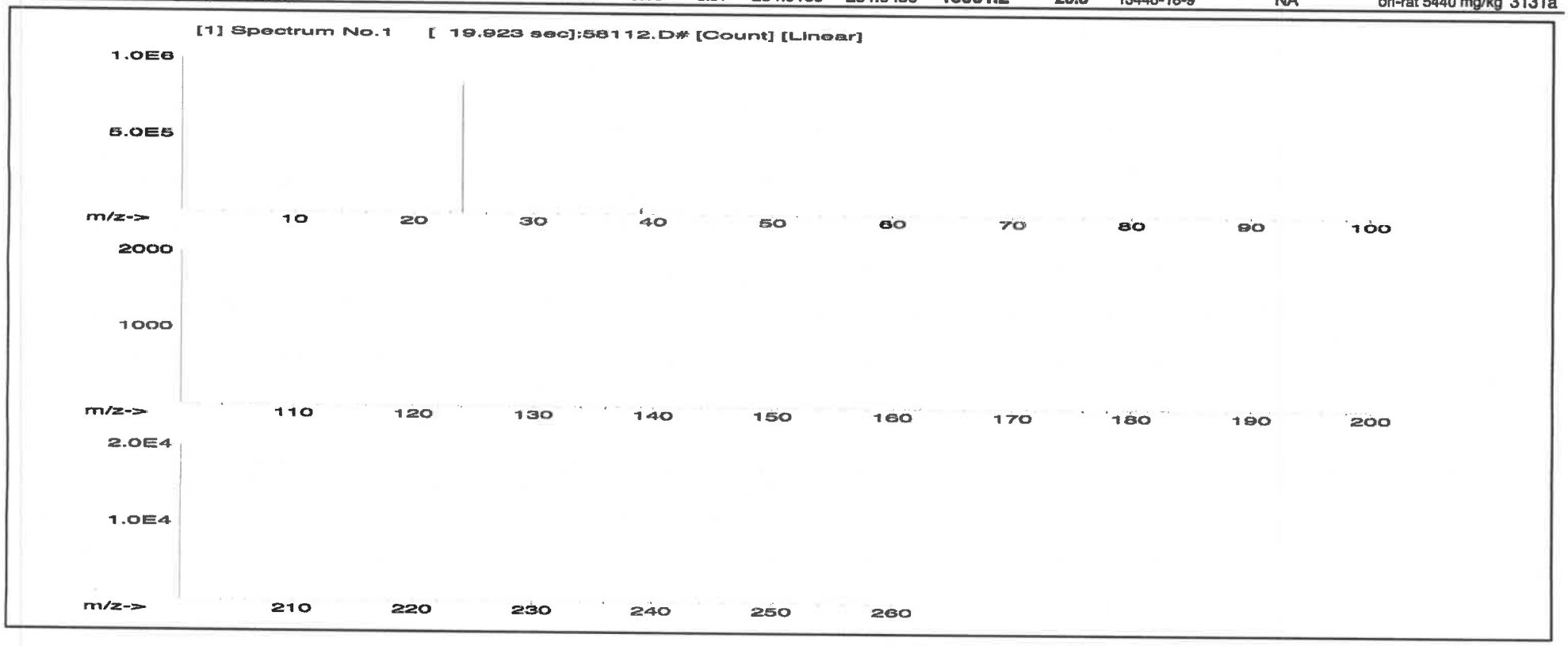
M 6127

Part Number:	**58112**		**Lot #**		
Lot Number:	**112124**	**Solvent:**	24012496	Nitric Acid	
Description:	**Magnesium (Mg)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	112127				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

Giovanni Esposito

Formulated By:	Giovanni Esposito	112124
Reviewed By:	Pedro L. Rentas	112124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Magnesium nitrate hexahydrate (Mg)	IN030	MGD052023A1	10000	99.999	0.10	8.51	234.9183	234.9459	**10001.2**	**20.0**	13446-18-9	NA	orl-rat 5440 mg/kg	3131a



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	T	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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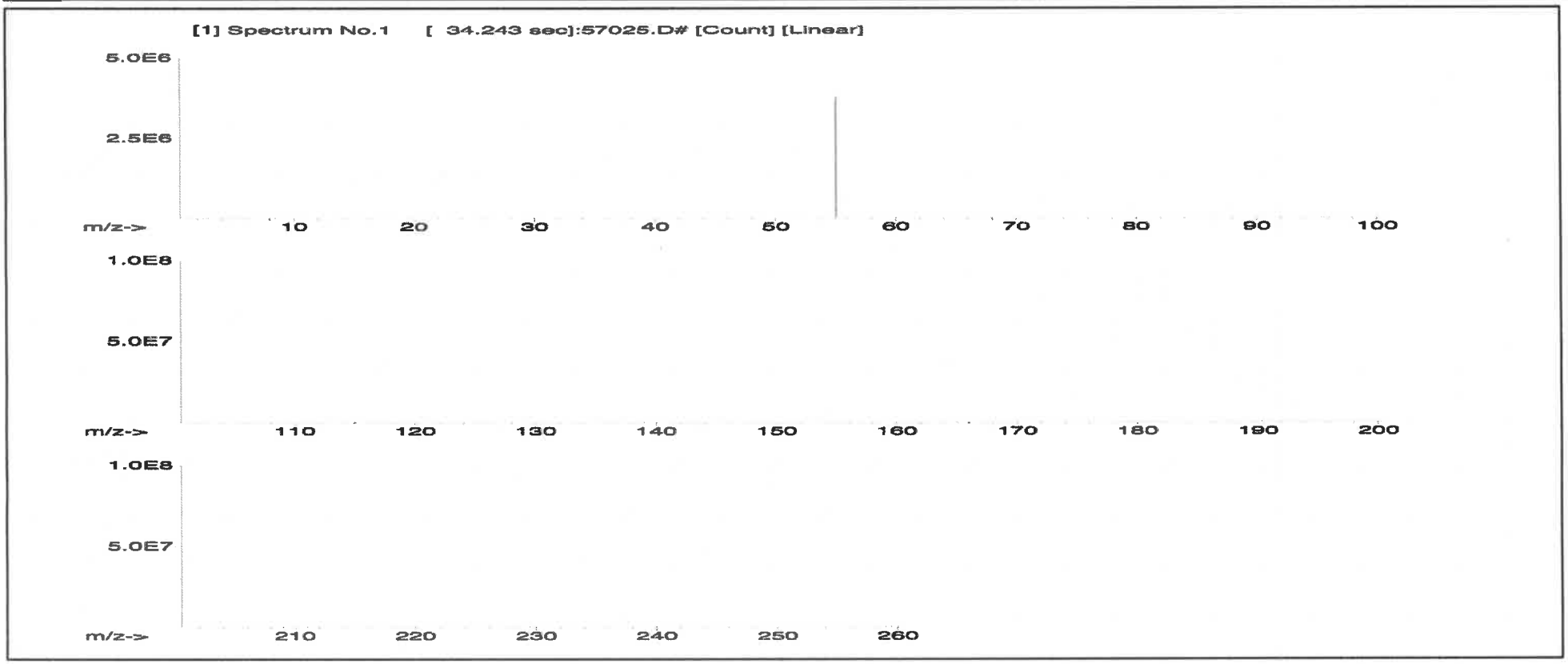
CERTIFIED WEIGHT REPORT:

R->1/13/25
M6128

Part Number:	**58025**		**Solvent:**	**Lot #** 24002546	Nitric Acid
Lot Number:	**101124**				
Description:	**Manganese (Mn)**		2%	80.0 (mL)	Nitric Acid
Expiration Date:	101127				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	4000.2	0.10	Flask Uncertainty		

Giovanni Esposito	
Formulated By:	Giovanni Esposito 101124
Pedro Rentas	
Reviewed By:	Pedro L. Rentas 101124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Manganese(II) nitrate hydrate (Mn)	IN031	MNM092020A1	1000	99.999	0.10	20.8	19.2322	19.2344	**1000.1**	**2.0**	15710-66-4	5 mg/m3	orl-rat >300mg/kg	3132



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	T	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

INORGANIC VENTURES
Refine your results. Redefine your industry.

Certificate of Analysis

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M6137 R→10/3/24

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSI1
Lot Number:	V2-SI744713
Matrix:	tr. HNO3 tr. HF
Value / Analyte(s):	1 000 µg/mL ea: Silicon
Starting Material:	Silica
Starting Material Lot#:	1771
Starting Material Purity:	99.9981%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 999 ± 6 µg/mL

Density: 1.003 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	**999 ± 5 µg/mL** ICP Assay NIST SRM Traceable to 3150 Lot Number: S2-SI702546
Assay Method #2	**1000 ± 7 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000310	M	Eu	<	0.000310	O	Na		0.001656	M	Se	<	0.022000	M	Zn	<	0.002500
M	Al		0.010787	M	Fe	<	0.027000	M	Nb	<	0.001300	s	Si	<		O	Zr	<	0.001900
M	As	<	0.001900	M	Ga	<	0.001300	M	Nd	<	0.000310	M	Sm	<	0.000310				
M	Au	<	0.000910	M	Gd	<	0.000310	M	Ni	<	0.005500	M	Sn		0.000096				
M	B		0.016180	M	Ge	<	0.001900	M	Os	<	0.000610	O	Sr		0.000092				
M	Ba		0.000096	M	Hf		0.000423	i	P	<		M	Ta		0.002542				
O	Be	<	0.000570	M	Hg	<	0.000610	M	Pb	<	0.000310	M	Tb	<	0.000310				
M	Bi	<	0.000310	M	Ho	<	0.000610	M	Pd	<	0.000610	M	Te	<	0.000910				
O	Ca		0.011557	M	In	<	0.000310	M	Pr	<	0.000310	M	Th	<	0.001900				
M	Cd	<	0.000310	M	Ir	<	0.000310	M	Pt	<	0.000310	M	Ti		0.001078				
M	Ce	<	0.000610	O	K		0.000577	M	Rb	<	0.009100	M	Tl	<	0.000310				
M	Co	<	0.001600	M	La	<	0.000310	M	Re	<	0.000310	M	Tm	<	0.000310				
M	Cr	<	0.010000	O	Li	<	0.000460	M	Rh	<	0.000310	M	U	<	0.000310				
M	Cs	<	0.000310	M	Lu	<	0.000310	M	Ru	<	0.000310	O	V	<	0.001300				
M	Cu	<	0.002500	O	Mg		0.001348	O	S	<	0.570000	M	W	<	0.001900				
M	Dy	<	0.000310	M	Mn	<	0.002500	M	Sb	<	0.000310	M	Y	<	0.000310				
M	Er	<	0.000310	M	Mo	<	0.000310	O	Sc	<	0.000590	M	Yb	<	0.000310				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 28.09 +4 6 Si(OH)x(F)y2-

Chemical Compatibility -Soluble in HCl, HF, H3PO4 H2SO4 and HNO3 as the Si(OH)x(F)y2-. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths, or high levels of transition elements unless they are fluorinated. Stable with most inorganic anions with a tendency to hydrolyze forming silicic acid (silicic acid is soluble up to ∼100 ppm in water) in all dilute acids except HF.

Stability - 2-100 ppb levels - stability unknown - (alone or mixed with all other metals) as the Si(OH)x(F)y2-. 1-10,000 ppm single element solutions as the Si(OH)x(F)y2- chemically stable for years in 2-5 % HNO3 / trace HF in a LDPE container.

Si Containing Samples (Preparation and Solution) -Metal (Soluble in 1:1:1 H2O / HF / HNO3); Oxide - SiO2, amorphic (dissolve by heating in 1:1:1 H2O / HF / HNO3); Oxide - quartz (fuse in Pt0 with Na2CO3); Geological Samples(fuse in Pt0with Na2CO3 followed by HCl solution of the fuseate); Organic Matrices containing silicates and non volatile silicon compounds (dry ash at 4500C in Pt0 and dissolve by gently warming with 1:1:1 H2O / HF / H2SO4 or fuse / ash with Na2CO3 and dissolve fuseate with HCl / H2O); Silicone Oils - dimethyl silicones depolymerize to form volatile monomer units when heated (Measure directly in alcoholic KOH / xylene mixture where sample is treated first with the KOH at 60-1000C to "unzip" the Si- O-Si polymeric structure or digest with conc. H2SO4 / H2O2 followed by cooling and dissolution of the dehydrated silica with HF.) Note that the direct analysis of silicone oils in an organic solvent will result in false high results due to high vapor pressure of volatile monomer units like hexamethylcyclotrisiloxane. The KOH forms the K2+Si(CH3)2O= salt which is not volatile at room temperature.

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 28 amu	4000 - 8000 ppt	N/A	N2, 12C16O
ICP-OES 212.412 nm	0.02/0.01 µg/mL	1	Hf, Os, Mo, Ta
ICP-OES 251.611 nm	0.012/0.003 µg/mL	1	Ta, U, Zn, Th
ICP-OES 288.158 nm	0.03/0.004 µg/mL	1	Ta, Ce, Cr, Cd, Th

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 10, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **July 10, 2029**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor

Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

M6138
R->1/13/25

CERTIFIED WEIGHT REPORT:

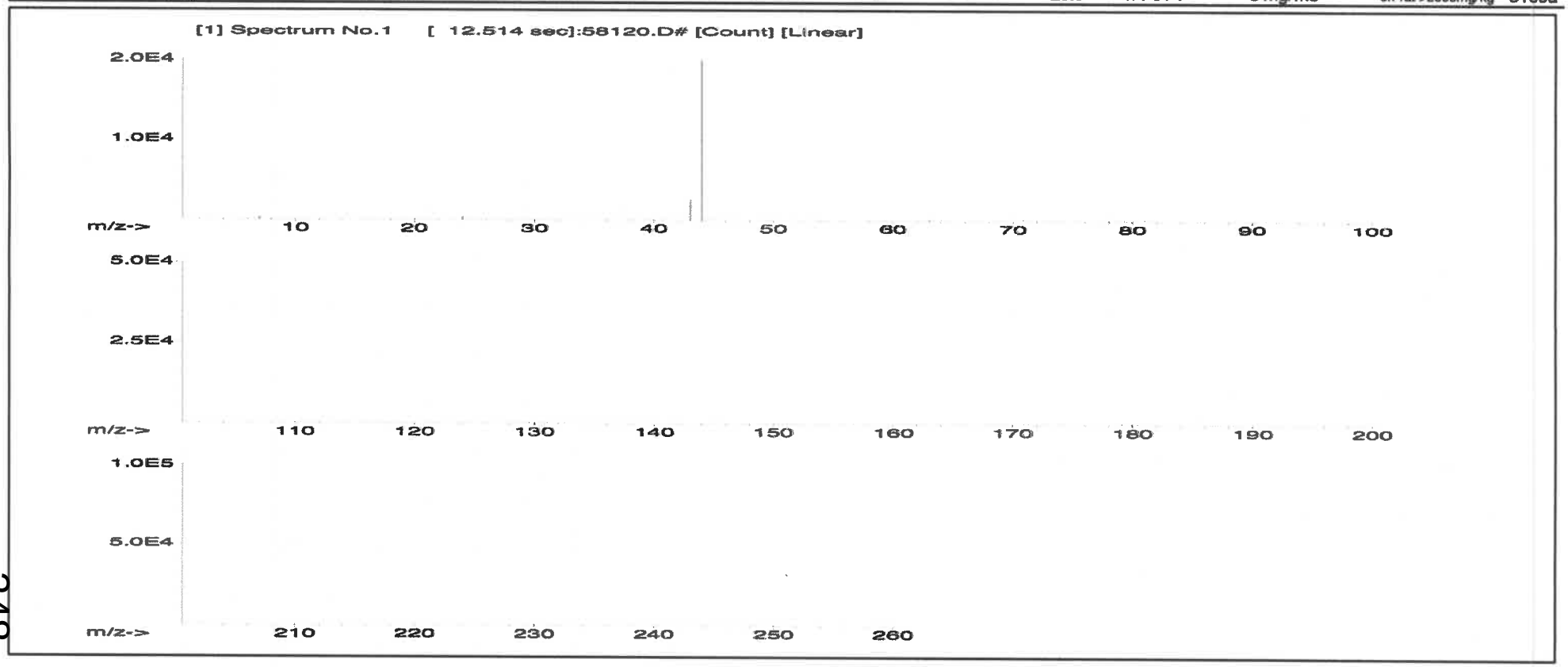
Part Number: 58120
Lot Number: 121824
Description: Calcium (Ca)
Expiration Date: 121827
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.1

	Lot #			
Solvent:	24012496	Nitric Acid		
2%	80.0 (mL)	Nitric Acid		
			5E-05	Balance Uncertainty
			0.15	Flask Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	121824
Reviewed By:	Pedro L. Rentas	121824

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Calcium carbonate (Ca)	IN014	CAD03203B3	10000	99.999	0.10	39.9	100.2537	100.2677	**10001.4**	**20.0**	471-34-1	5 mg/m3	orl-rat >2000mg/kg	3109a



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	T	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	30	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

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* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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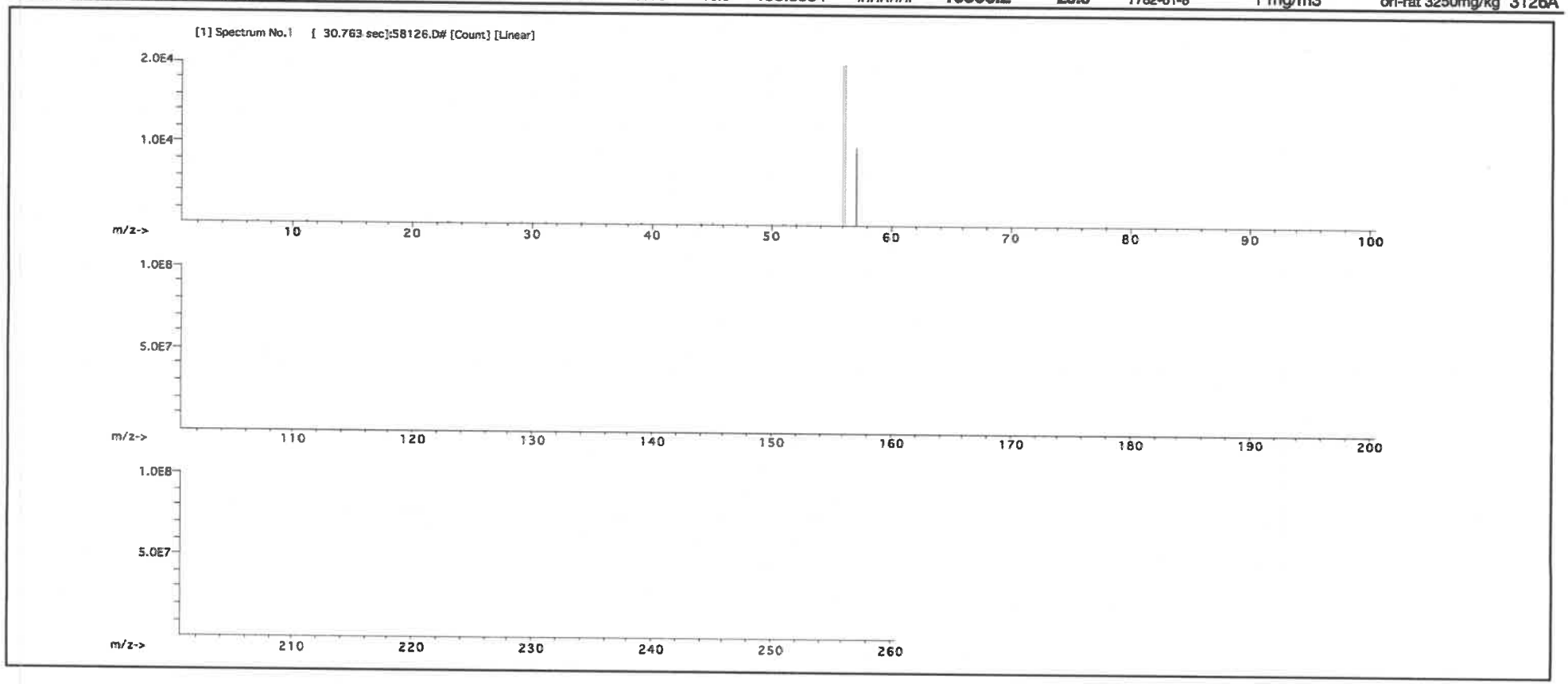
CERTIFIED WEIGHT REPORT:

Part Number:	**58126** R->1|8|25		**Lot #**		
Lot Number:	**011025**	**Solvent:**	24012496	Nitric Acid	
Description:	**Iron (Fe)** M6140				
		2%	40.0 (mL)	Nitric Acid	
Expiration Date:	011028				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

Formulated By:	Benson Chan 011025
Reviewed By:	Pedro L. Rentas 011025

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Iron(III) nitrate nonahydrate (Fe)	IN028	FED082023A1	10000	99.999	0.10	13.0	153.8534	######	**10000.2**	**20.0**	7782-61-8	1 mg/m3	orl-rat 3250mg/kg	3126A



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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	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	T	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

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* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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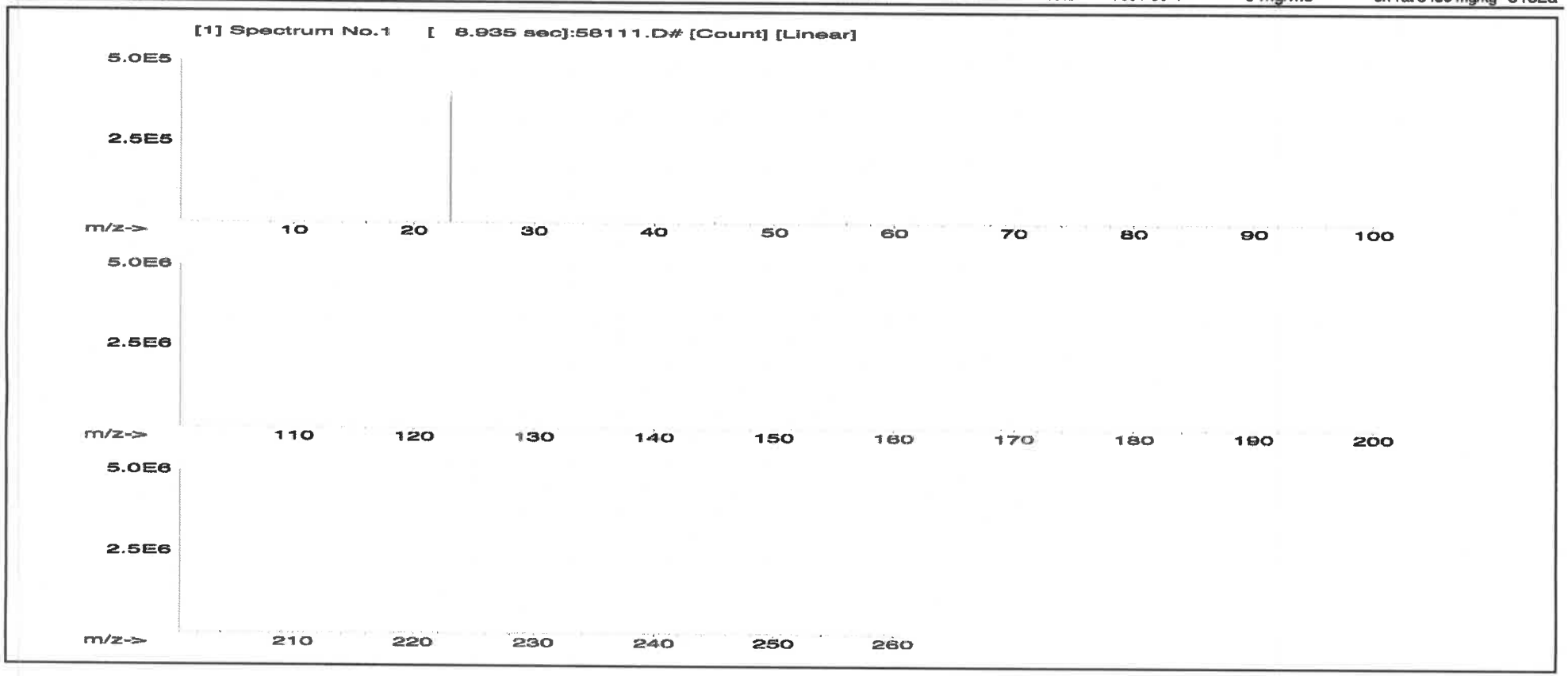
CERTIFIED WEIGHT REPORT:

R->1/13/25

Part Number:	**58111**		**Lot #**		
Lot Number:	**072424**	**Solvent:**	24002546	Nitric Acid	
Description:	**Sodium (Na)**				
		MG144 2%	80.0 (mL)	Nitric Acid	
Expiration Date:	072427				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	4000.2	0.10	Flask Uncertainty		

Formulated By:	Benson Chan	072424
Reviewed By:	Pedro L. Rentas	072424

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Sodium nitrate (Na)	IN036	NAV012015I1	10000	99.999	0.10	26.9	148.7096	######	**10000.0**	**20.0**	7631-99-4	5 mg/m3	orl-rat 3430 mg/kg	3152a



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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	Pr	<0.02	Sc	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	T	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

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CERTIFIED WEIGHT REPORT:

Part Number: 58030
Lot Number: 121724
Description: Zinc (Zn)

R → 1/13/25

M6145

Expiration Date: 121727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

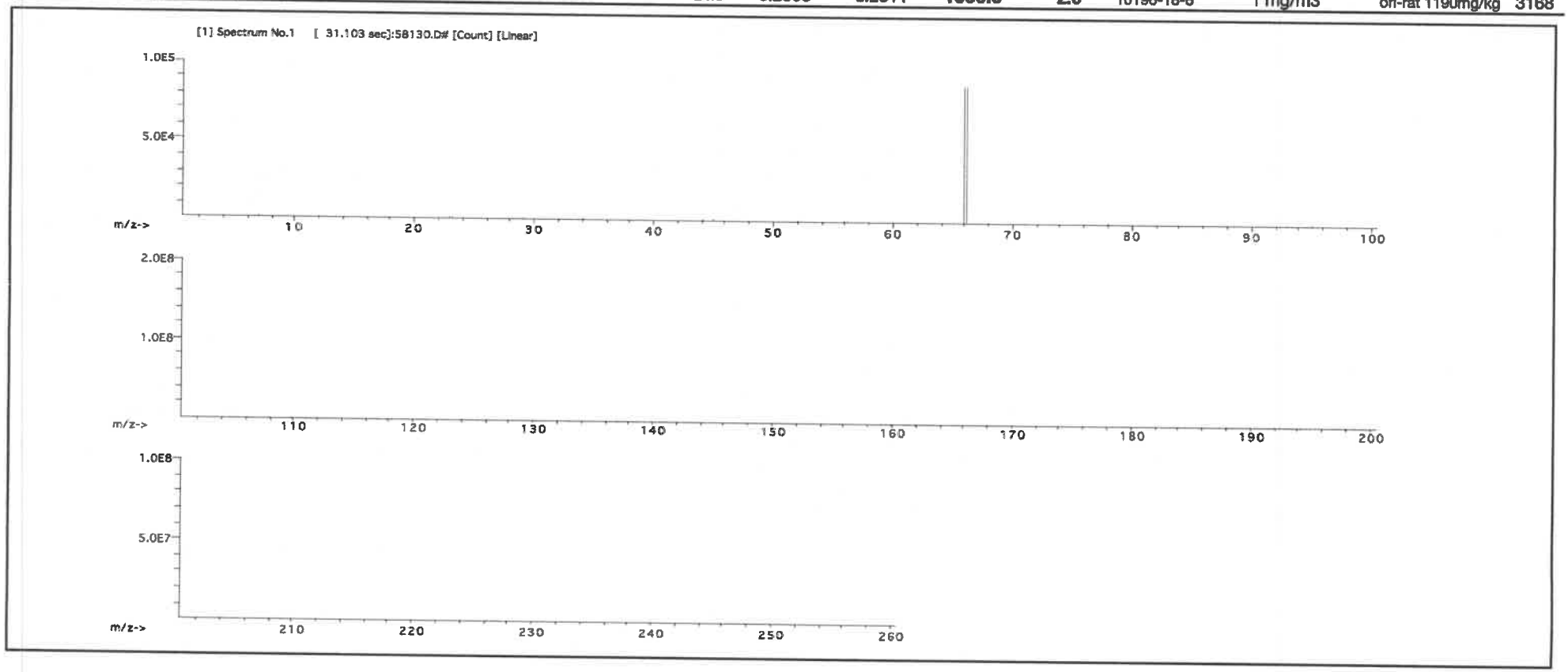
		Lot #	
Solvent:	24012496	Nitric Acid	
	2%	40.0 (mL)	Nitric Acid

5E-05 Balance Uncertainty
Weight shown below was diluted to (mL): 2000.1 0.10 Flask Uncertainty

Aleah O'Brady
Formulated By: Aleah O'Brady 121724

Pedro Rentas
Reviewed By: Pedro L. Rentas 121724

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Zinc nitrate hexahydrate (Zn)	IN016	ZNE032021A1	1000	99.999	0.10	24.3	8.2308	8.2311	**1000.0**	**2.0**	10196-18-6	1 mg/m3	orl-rat 1190mg/kg	3168



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	T
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

M6151

R→ 1/15/25

Material No.: 9530-33
Batch No.: 22G2862015
Manufactured Date: 2022-06-15
Retest Date: 2027-06-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.9 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.191
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl_2)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO_4)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO_3)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH_4)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	1.3 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	163.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.7 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	0.6 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result
Trace Impurities - Lead (Pb)	≤ 1.0 ppb	< 0.5 ppb
Trace Impurities - Lithium (Li)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Magnesium (Mg)	≤ 10.0 ppb	2.9 ppb
Trace Impurities - Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities - Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities - Molybdenum (Mo)	≤ 10.0 ppb	< 3.0 ppb
Trace Impurities - Nickel (Ni)	≤ 4.0 ppb	< 0.3 ppb
Trace Impurities - Niobium (Nb)	≤ 1.0 ppb	0.8 ppb
Trace Impurities - Potassium (K)	≤ 9.0 ppb	< 2.0 ppb
Trace Impurities - Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities - Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities - Silver (Ag)	≤ 1.0 ppb	0.5 ppb
Trace Impurities - Sodium (Na)	≤ 100.0 ppb	2.3 ppb
Trace Impurities - Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Tantalum (Ta)	≤ 1.0 ppb	1.6 ppb
Trace Impurities - Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	4.0 ppb
Trace Impurities - Titanium (Ti)	≤ 1.0 ppb	1.5 ppb
Trace Impurities - Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	0.8 ppb
Trace Impurities - Zirconium (Zr)	≤ 1.0 ppb	0.3 ppb

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result

For Laboratory,Research,or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

James T Ethier

Jamie Ethier
Vice President Global Quality

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Certificate of Analysis

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inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	QCP-CICV-1
Lot Number:	V2-MEB744107
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	2 500 µg/mL ea: Calcium, Potassium, Magnesium, Sodium, 1 000 µg/mL ea: Aluminum, Barium, 500 µg/mL ea: Iron, 250 µg/mL ea: Nickel, Vanadium, Zinc, Cobalt, Manganese, 125 µg/mL ea: Silver, Copper, 100 µg/mL ea: Chromium, 25 µg/mL ea: Beryllium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	1 000 ± 4 µg/mL	Barium, Ba	1 000 ± 6 µg/mL
Beryllium, Be	24.98 ± 0.12 µg/mL	Calcium, Ca	2 500 ± 8 µg/mL
Chromium, Cr	99.9 ± 0.6 µg/mL	Cobalt, Co	250.2 ± 1.2 µg/mL
Copper, Cu	125.0 ± 0.5 µg/mL	Iron, Fe	500.0 ± 2.2 µg/mL
Magnesium, Mg	2 500 ± 11 µg/mL	Manganese, Mn	249.9 ± 1.1 µg/mL
Nickel, Ni	250.0 ± 1.2 µg/mL	Potassium, K	2 500 ± 11 µg/mL
Silver, Ag	125.0 ± 0.6 µg/mL	Sodium, Na	2 500 ± 11 µg/mL
Vanadium, V	250.0 ± 1.1 µg/mL	Zinc, Zn	249.9 ± 1.1 µg/mL

Density: 1.081 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

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

May 22, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 22, 2029**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

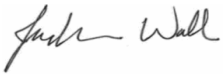
12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor

Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	QCP-CICV-2
Lot Number:	U2-MEB733713
Matrix:	3% (w/v) Tartaric acid 1% (v/v) HNO3
Value / Analyte(s):	500 µg/mL ea: Antimony

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	**500.0 ± 2.8 µg/mL**		

Density: 1.017 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Sb	ICP Assay	3102a	140911

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$
w_i = the weighting factors for each method calculated using the inverse square of the variance:
$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2
$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method
u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)(u_{char\ a})$

X_a = mean of Assay Method A with
$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2
$u_{char\ a}$ = the errors from characterization
u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

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7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 01, 2023

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **June 01, 2028**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

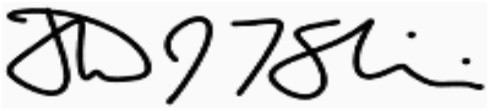
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	QCP-CICV-3
Lot Number:	V2-MEB749572
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	500 µg/mL ea: Arsenic, Lead, Selenium, Thallium, 250 µg/mL ea: Cadmium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	**500.0 ± 3.1 µg/mL**	**Cadmium, Cd**	**250.1 ± 1.1 µg/mL**
Lead, Pb	**500.0 ± 2.3 µg/mL**	**Selenium, Se**	**500.0 ± 3.2 µg/mL**
Thallium, Tl	**500.0 ± 3.0 µg/mL**		

Density: 1.040 g/mL (measured at 20 ± 4 ºC)

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

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$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

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k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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u_{ts} = transport stability standard uncertainty

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$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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u_{ts} = transport stability standard uncertainty

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4.3 Glassware Calibration

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5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

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- 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

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- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 02, 2025

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 02, 2030**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

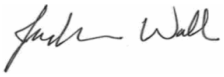
12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor

Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

R -> 2/13/25

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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CERTIFIED WEIGHT REPORT:

M 6171

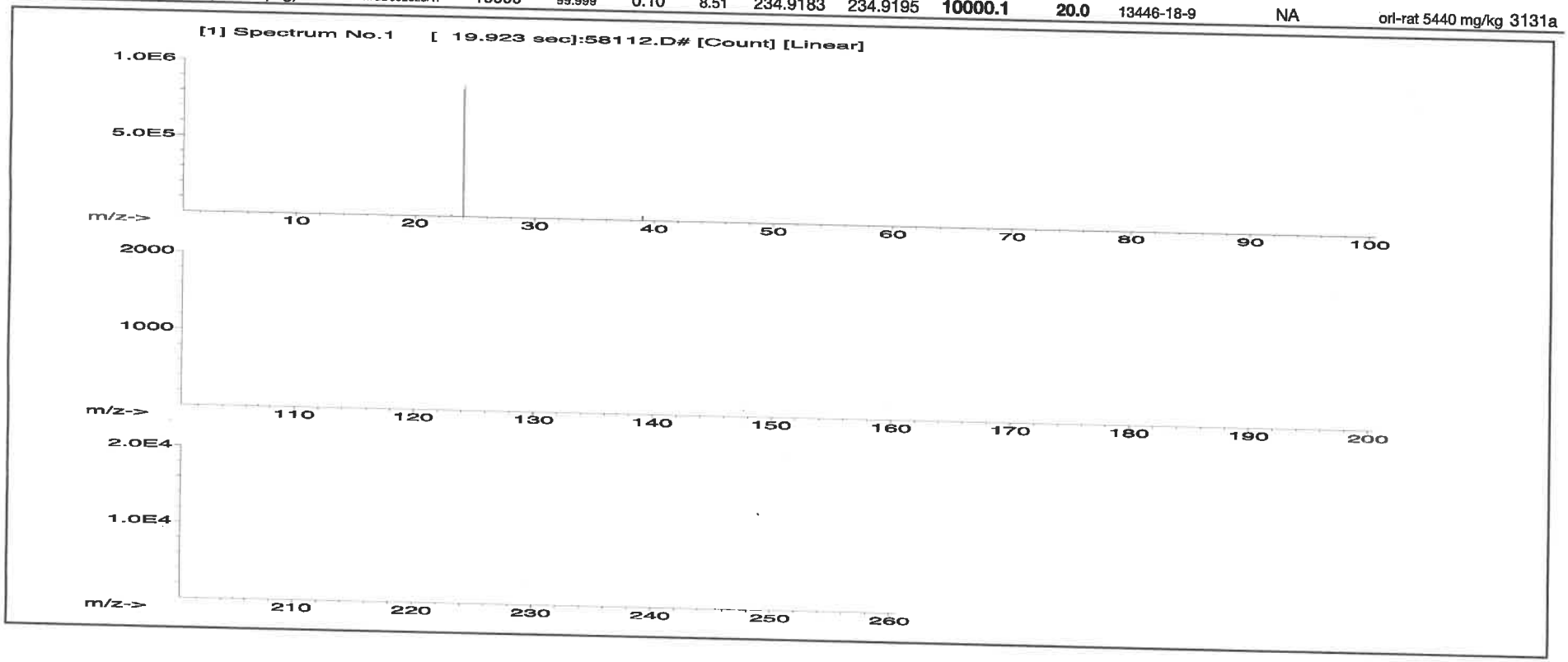
Part Number: 58112
Lot Number: 011525
Description: Magnesium (Mg)

Expiration Date: 011528
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.07

	Lot #		
Solvent:	24012496	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	
5E-05	Balance Uncertainty		
0.100	Flask Uncertainty		

Formulated By:	Benson Chan	011525
Reviewed By:	Pedro L. Rentas	011525

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	**Actual Conc. (µg/mL)**	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Magnesium nitrate hexahydrate (Mg)	IN030	MGD052023A1	10000	99.999	0.10	8.51	234.9183	234.9195	**10000.1**	**20.0**	13446-18-9	NA	orl-rat 5440 mg/kg	3131a



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	T	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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F: 540-585-3012
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1.0 ACCREDITATION / REGISTRATION

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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CLPP-CAL-1
Lot Number:	V2-MEB742428
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	5 000 µg/mL ea:
	Calcium, Potassium,
	Magnesium, Sodium,
	2 000 µg/mL ea:
	Aluminum, Barium,
	1 000 µg/mL ea:
	Iron,
	500 µg/mL ea:
	Nickel, Vanadium,
	Zinc, Cobalt,
	Manganese,
	250 µg/mL ea:
	Silver, Copper,
	200 µg/mL ea:
	Chromium,
	50 µg/mL ea:
	Beryllium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.03 ± 0.30 µg/mL	Calcium, Ca	5 000 ± 16 µg/mL
Chromium, Cr	200.0 ± 1.1 µg/mL	Cobalt, Co	500.0 ± 2.3 µg/mL
Copper, Cu	250.0 ± 1.1 µg/mL	Iron, Fe	1 000 ± 4 µg/mL
Magnesium, Mg	5 000 ± 22 µg/mL	Manganese, Mn	499.9 ± 2.2 µg/mL
Nickel, Ni	500.1 ± 2.3 µg/mL	Potassium, K	5 000 ± 22 µg/mL
Silver, Ag	250.0 ± 1.1 µg/mL	Sodium, Na	5 000 ± 22 µg/mL
Vanadium, V	500.0 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.117 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

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

March 22, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- March 22, 2029

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor

Certificate Approved By:

Jodie Wall
Stock VSM Coordinator

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

INORGANIC VENTURES
Refine your results. Redefine your industry.

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

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGY10
Lot Number:	V2-Y740548
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Yttrium
Starting Material:	Yttrium Oxide
Starting Material Lot#:	2661 and 06230520YL
Starting Material Purity:	99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL

Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	**10011 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	**9997 ± 50 µg/mL** ICP Assay NIST SRM 3167a Lot Number: 190730
Assay Method #3	**9984 ± 31 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.004600	M	Eu		0.009037	M	Na		0.086360	M	Se	<	0.005200	M	Zn		0.030125
M	Al		0.014862	O	Fe		0.002410	M	Nb	<	0.000570	O	Si		0.024100	O	Zr	<	0.002600
M	As	<	0.003500	M	Ga	<	0.000570	M	Nd		0.000923	M	Sm		0.000461				
M	Au	<	0.001700	M	Gd	<	0.003500	M	Ni	<	0.005700	M	Sn	<	0.002300				
O	B		0.002209	M	Ge	<	0.005200	M	Os	<	0.001200	M	Sr	<	0.004600				
O	Ba	<	0.002500	M	Hf	<	0.000570	n	P	<		M	Ta	<	0.000570				
O	Be	<	0.001400	M	Hg	<	0.000570	M	Pb		0.005020	M	Tb		0.001044				
M	Bi	<	0.003500	M	Ho		0.009037	M	Pd	<	0.005100	M	Te	<	0.002300				
O	Ca		0.009841	M	In	<	0.002300	M	Pr	<	0.002300	M	Th	<	0.000570				
M	Cd	<	0.000570	M	Ir	<	0.000570	M	Pt	<	0.000570	M	Ti	<	0.003500				
M	Ce	<	0.002300	O	K		0.018677	M	Rb	<	0.000570	M	Tl	<	0.000570				
M	Co	<	0.000570	M	La		0.000461	M	Re	<	0.000570	M	Tm	<	0.003500				
M	Cr	<	0.004000	O	Li	<	0.009300	M	Rh	<	0.008000	M	U	<	0.000570				
M	Cs	<	0.000570	M	Lu		0.000582	M	Ru	<	0.000570	M	V		0.001265				
M	Cu		0.002610	O	Mg		0.001486	n	S	<		M	W	<	0.002300				
M	Dy		0.003815	M	Mn		0.000582	M	Sb		0.005422	s	Y	<					
M	Er		0.003615	M	Mo	<	0.005700	M	Sc	<	0.001200	M	Yb		0.001827				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 88.91 +3 6 Y(OH)(H2O)x+2

Chemical Compatibility -Soluble in HCl, H2SO4 and HNO3. Avoid HF, H3PO4 and neutral to basic media. Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride. Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H2O/ HNO3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H2O / HCl or HNO3).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 89 amu	0.8 ppt	N/A	73Ge16O, 178Hf+2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- February 20, 2029

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor

Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

QATS LABORATORY INORGANIC REFERENCE MATERIAL INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

M6182

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,

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSAB solution by ICP-AES.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)*

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

R→03/06/24

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

M6184

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) *ANALYSIS OF SAMPLES*

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSAB solution by ICP-AES.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)*

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

Nitric Acid 69%
CMOS

M6187
R.D :- 08/08/25

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	0.1 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 1 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

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Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 1 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	1 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 1.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	13 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	5 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result

For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

M6200
R.0 → 08/25/25

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005
Manufactured Date: 2024-03-18
Retest Date: 2029-03-17
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.192
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl_2)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO_4)	≤ 0.05 ppm	0.03 ppm
Sulfate (SO_4)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO_3)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH_4)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result
Trace Impurities - Lead (Pb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Lithium (Li)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities - Magnesium (Mg)	≤ 10.0 ppb	2.2 ppb
Trace Impurities - Manganese (Mn)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities - Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Nickel (Ni)	≤ 4.0 ppb	0.2 ppb
Trace Impurities - Niobium (Nb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Potassium (K)	≤ 9.0 ppb	< 1.0 ppb
Trace Impurities - Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities - Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities - Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities - Sodium (Na)	≤ 100.0 ppb	2.0 ppb
Trace Impurities - Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Tantalum (Ta)	≤ 1.0 ppb	< 0.9 ppb
Trace Impurities - Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	< 0.4 ppb
Trace Impurities - Titanium (Ti)	≤ 1.0 ppb	0.2 ppb
Trace Impurities - Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities - Zirconium (Zr)	≤ 1.0 ppb	< 0.1 ppb

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result

For Laboratory,Research,or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production

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www.absolutestandards.com

Certified Reference Material CRM

M6030

R: 8/5/24

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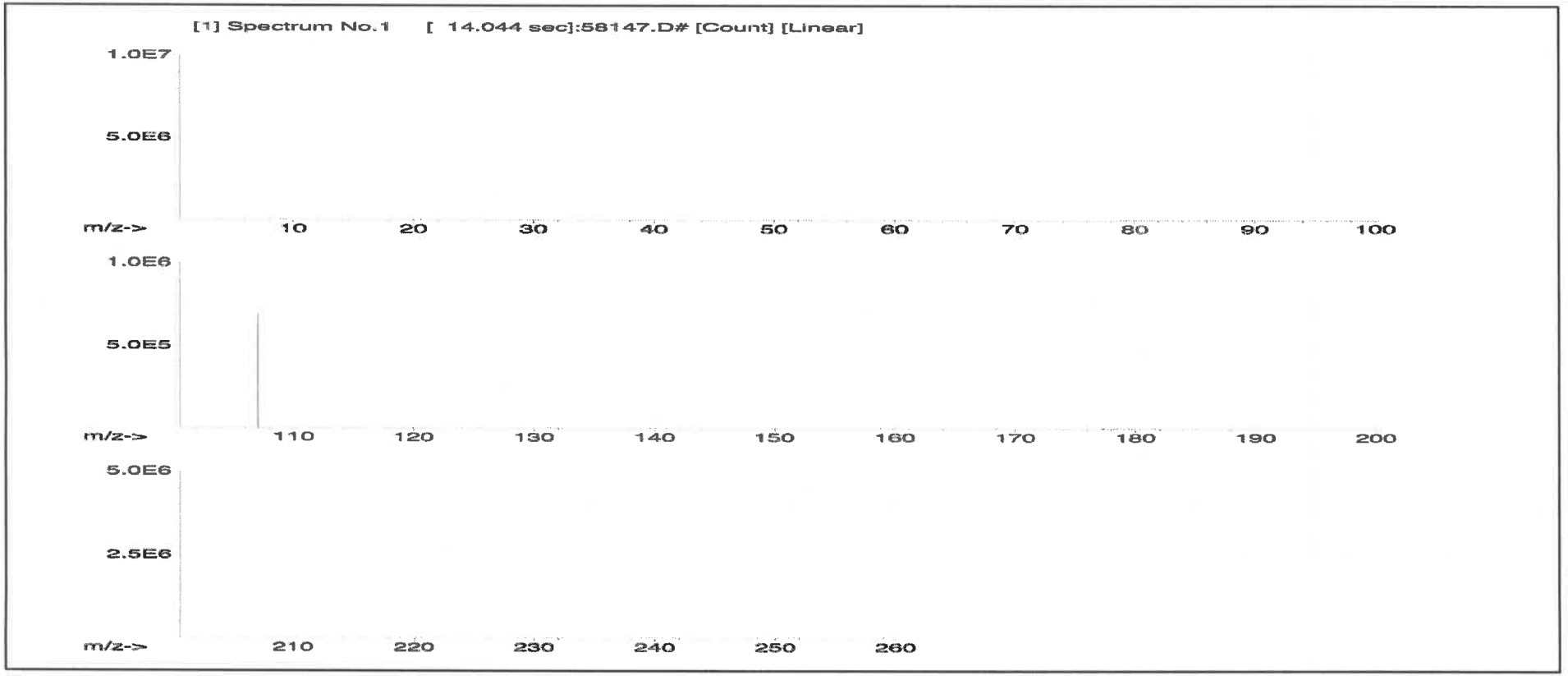
CERTIFIED WEIGHT REPORT:

Part Number:	**57047**			**Lot #**	
Lot Number:	**122823**	**Solvent:**	24002546	Nitric Acid	
Description:	**Silver (Ag)**				
		2%	80.0 (mL)	Nitric Acid	
Expiration Date:	122826				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	4000.30	0.058	Flask Uncertainty		

Formulated By:	Benson Chan	122823
Reviewed By:	Pedro L. Rentas	122823

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Silver nitrate (Ag)	IN035	J0612AGA1	1000.0	99.9999	0.10	63.7	6.27992	6.27998	**1000.0**	**2.0**	7761-88-8	10 ug/m3	NA	3151



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	T	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

opened : 3/24/25

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CERTIFIED WEIGHT REPORT: M6160

		Lot #	Solvent:		
Part Number:	**57051**	24002546	Nitric Acid		
Lot Number:	**071724**				
Description:	**Antimony (Sb)**	2.0%	40.0 (mL)	Nitric Acid	
Expiration Date:	071727				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	2000.26	0.058	Flask Uncertainty		

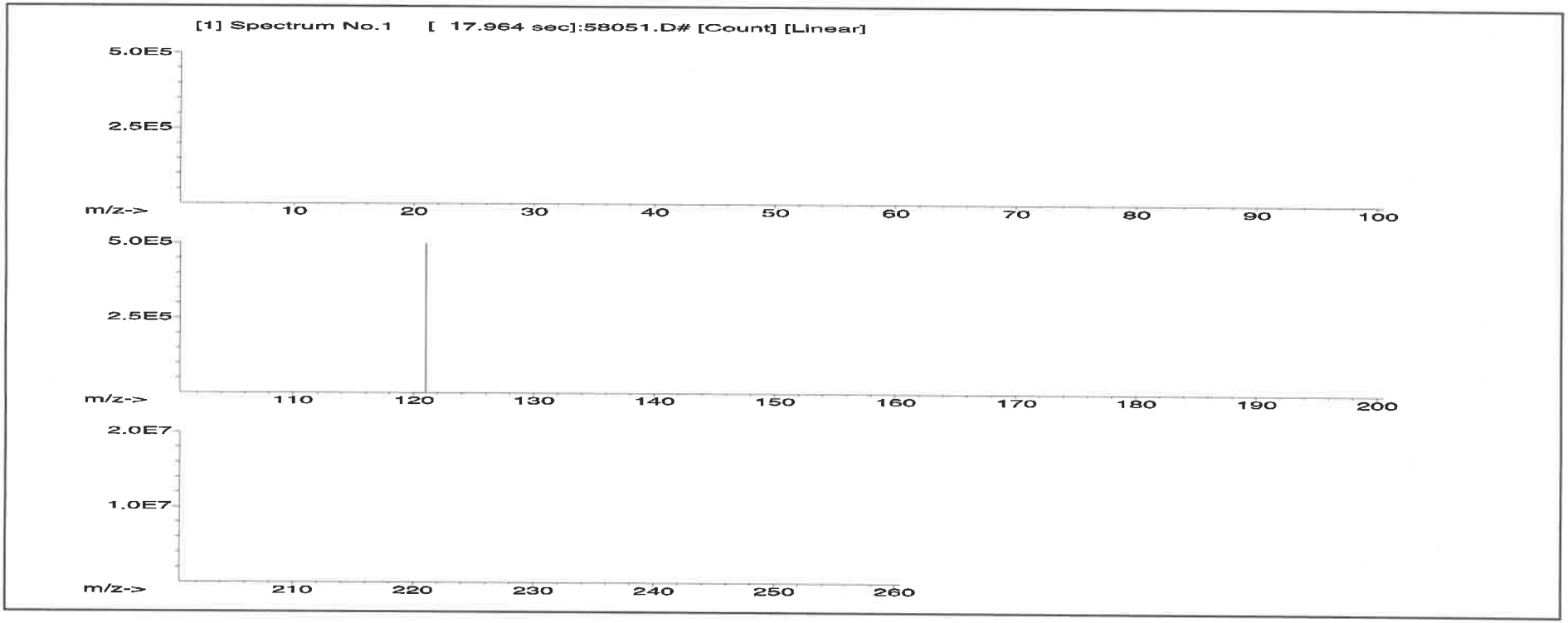
Giovanni Esposito

Formulated By:	Giovanni Esposito	071724

Pedro Rentas

Reviewed By:	Pedro L. Rentas	071724

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Antimony (Sb)	58151	060324	0.1000	200.0	0.084	1000	10001.4	**1000.0**	**2.2**	7440-36-0	0.5 mg/m3	orl-rat 7000 mg/kg	3102a



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	T	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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M6023

R ! 8/5/24

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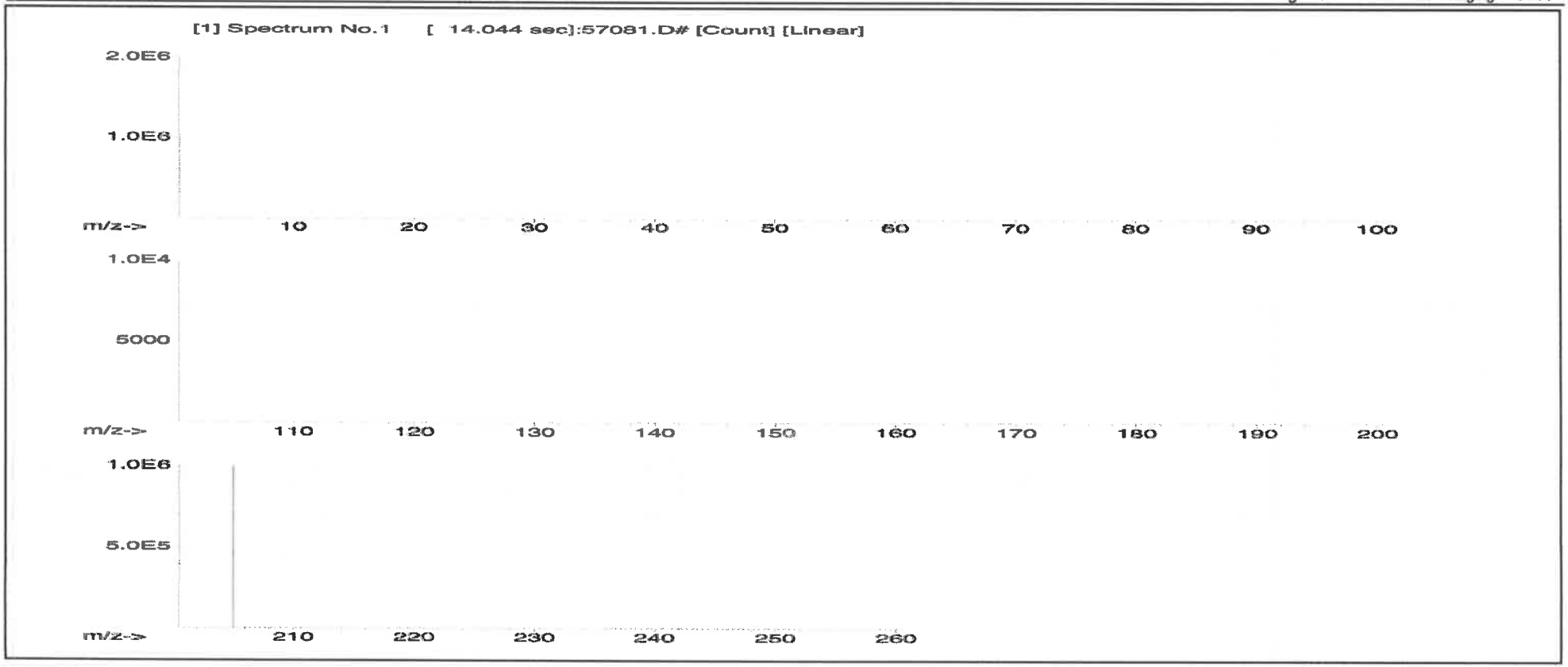
CERTIFIED WEIGHT REPORT:

Part Number:	**57081**		**Lot #**		
Lot Number:	**062724**	**Solvent:**	24002546	Nitric Acid	
Description:	**Thallium (Tl)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	062727				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.1	0.10	Flask Uncertainty		

Aleah O'Brady

Formulated By:	Aleah O'Brady	062724
Reviewed By:	Pedro L. Rentas	062724

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Thallium nitrate (Tl)	IN037	BCCF4399	1000	99.999	0.10	77.0	2.5975	2.5977	**1000.1**	**2.0**	10102-45-1	0.1 mg/m3	orl-mus 15mg/kg	3158



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	T	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6021

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

Rc. 8/5/24

300

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57023**	24002546	Nitric Acid	
Lot Number:	**062424**			
Description:	**Vanadium (V)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	062427			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.3	0.06	Flask Uncertainty	

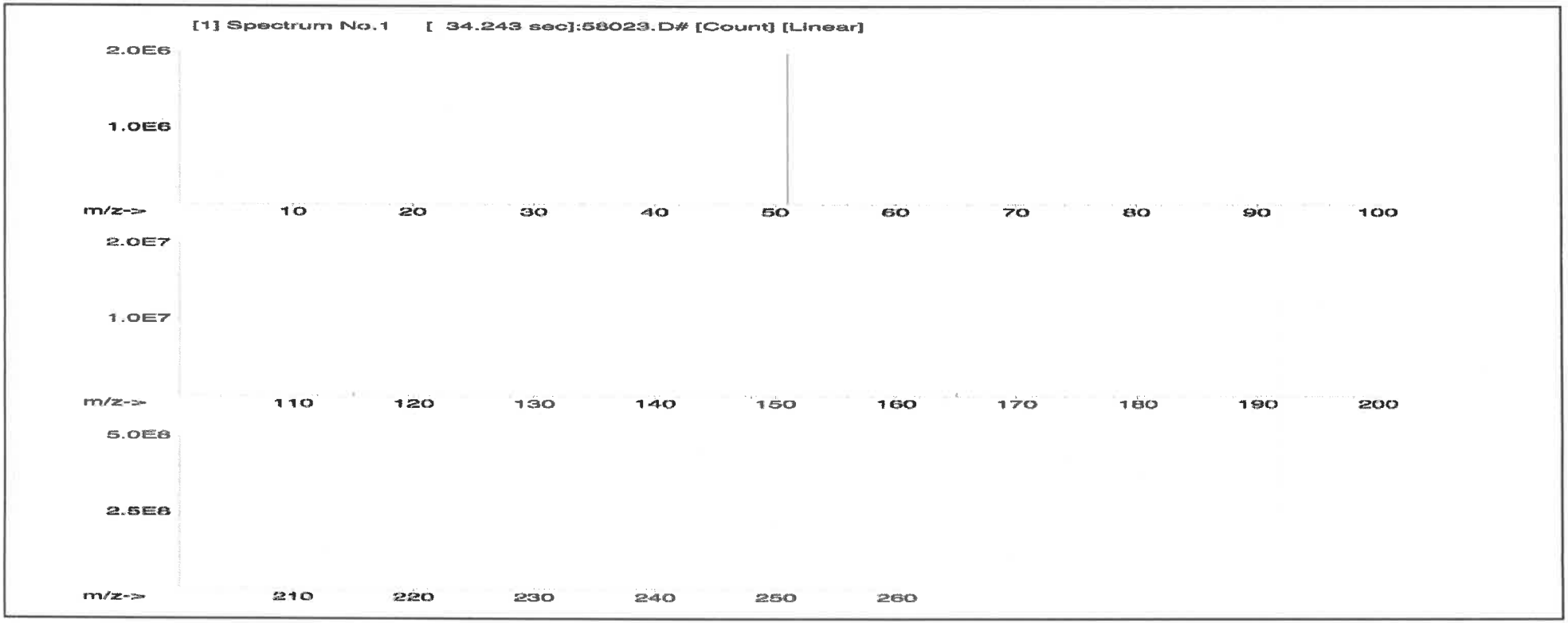
Aleah O'Brady

Formulated By:	Aleah O'Brady	062424

Pedro Rentas

Reviewed By:	Pedro L. Rentas	062424

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium metavanadate (V)	58123	021224	0.1000	200.0	0.084	1000	10000.3	**1000.0**	**2.2**	7803-55-6	0.05 mg/m3	orl-rat 58.1mg/kg	3165



301

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	T
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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

Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB138160

Review By	JASWAL	Review On	12/9/2025 11:57:37 AM
Supervise By	mohan	Supervise On	12/9/2025 3:04:33 PM

STD. NAME	STD REF.#
ICAL Standard	MP88250,MP88256,MP88254,MP88253,MP88252,MP88251,MP88258
ICV Standard	MP88124
CCV Standard	MP88257
ICSA Standard	MP88125,MP88126
CRI Standard	
LCS Standard	
Chk Standard	MP88128,MP88129

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	12/08/25 10:07		Jaswal	OK
2	S1	S01	CAL2	12/08/25 10:12		Jaswal	OK
3	S2	S02	CAL3	12/08/25 10:16		Jaswal	OK
4	S3	S03	CAL4	12/08/25 10:21		Jaswal	OK
5	S4	S04	CAL5	12/08/25 10:25		Jaswal	OK
6	S5	S05	CAL6	12/08/25 10:29		Jaswal	OK
7	S6	S06	CAL7	12/08/25 10:34		Jaswal	OK
8	ICV001	ICV001	ICV	12/08/25 11:06		Jaswal	OK
9	ICB001	ICB001	ICB	12/08/25 11:21		Jaswal	OK
10	ICSA001	ICSA001	ICSA	12/08/25 11:26		Jaswal	OK
11	ICSAB001	ICSAB001	ICSAB	12/08/25 11:40		Jaswal	OK
12	CCV001	CCV001	CCV	12/08/25 11:44		Jaswal	OK
13	CCB001	CCB001	CCB	12/08/25 11:49		Jaswal	OK
14	Q3688-01	M-31S	SAM	12/08/25 11:53		Jaswal	OK
15	Q3688-01L	M-31SL	SD	12/08/25 11:58		Jaswal	OK
16	Q3688-02	M-31SD	DUP	12/08/25 12:07		Jaswal	OK
17	Q3688-04	RBGW-20251119	SAM	12/08/25 12:12		Jaswal	OK
18	Q3688-06	M-32I	SAM	12/08/25 12:16		Jaswal	OK

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

Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB138160

Review By	JASWAL	Review On	12/9/2025 11:57:37 AM
Supervise By	mohan	Supervise On	12/9/2025 3:04:33 PM

STD. NAME	STD REF.#
ICAL Standard	MP88250,MP88256,MP88254,MP88253,MP88252,MP88251,MP88258
ICV Standard	MP88124
CCV Standard	MP88257
ICSA Standard	MP88125,MP88126
CRI Standard	
LCS Standard	
Chk Standard	MP88128,MP88129

19	Q3688-09	M-31I	SAM	12/08/25 12:21		Jaswal	OK
20	Q3688-03	M-31SS	MS	12/08/25 12:38		Jaswal	OK
21	Q3688-10	M-32S	SAM	12/08/25 12:42		Jaswal	OK
22	Q3688-11	RBGW-20251120	SAM	12/08/25 12:47		Jaswal	OK
23	Q3688-12	M-30S	SAM	12/08/25 12:51		Jaswal	OK
24	Q3688-13	M-30I	SAM	12/08/25 12:56		Jaswal	OK
25	Q3688-15	FDGW-20251120	SAM	12/08/25 13:00		Jaswal	OK
26	Q3688-16	WS-14	SAM	12/08/25 13:05		Jaswal	OK
27	Q3688-17	M-29	SAM	12/08/25 13:10		Jaswal	OK
28	CCV002	CCV002	CCV	12/08/25 13:14		Jaswal	OK
29	CCB002	CCB002	CCB	12/08/25 13:19		Jaswal	OK
30	Q3688-18	RBGW-20251121	SAM	12/08/25 13:23		Jaswal	OK
31	Q3688-19	M-28I	SAM	12/08/25 13:28		Jaswal	OK
32	Q3688-20	WS-1	SAM	12/08/25 13:33		Jaswal	OK
33	Q3688-22	RBGW-20251124	SAM	12/08/25 13:37		Jaswal	OK
34	Q3688-23	M-28S	SAM	12/08/25 13:42		Jaswal	OK
35	PB170814BL	PBW814	MB	12/08/25 13:46		Jaswal	OK
36	PB170814BS	LCS814	LCS	12/08/25 14:13		Jaswal	OK
37	CCV003	CCV003	CCV	12/08/25 14:17		Jaswal	OK
38	CCB003	CCB003	CCB	12/08/25 14:22		Jaswal	OK

EPA SAMPLE NO.

FDGW-20251120

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-15

% Solids: Date Received: 11/20/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1209

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

Comments:

EPA SAMPLE NO.

M-28I

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-19

% Solids: Date Received: 11/21/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1218

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

Comments:

EPA SAMPLE NO.

M-28S

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-23

% Solids: Date Received: 11/24/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1225

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

Comments:

EPA SAMPLE NO.

M-29

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-17

% Solids: Date Received: 11/21/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1213

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

Comments:

EPA SAMPLE NO.

M-30I

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-13

% Solids: Date Received: 11/20/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1206

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

Comments:

EPA SAMPLE NO.

M-30S

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-12

% Solids: Date Received: 11/20/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1204

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

Comments:

EPA SAMPLE NO.

M-31I

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-09

% Solids: Date Received: 11/20/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1157

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

Comments:

EPA SAMPLE NO.

M-31S

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-01

% Solids: Date Received: 11/19/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1146

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

Comments:

EPA SAMPLE NO.

M-32I

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-06

% Solids: Date Received: 11/19/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1155

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

Comments:

EPA SAMPLE NO.

M-32S

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-10

% Solids: Date Received: 11/20/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1200

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

Comments:

EPA SAMPLE NO.

RBGW-20251119

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-04

% Solids: Date Received: 11/19/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1153

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

Comments:

EPA SAMPLE NO.

RBGW-20251120

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-11

% Solids: Date Received: 11/20/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1202

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

Comments:

EPA SAMPLE NO.

RBGW-20251121

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-18

% Solids: Date Received: 11/21/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1216

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

Comments:

EPA SAMPLE NO.

RBGW-20251124

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-22

% Solids: Date Received: 11/24/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1222

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

Comments:

EPA SAMPLE NO.

WS-1

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-20

% Solids: Date Received: 11/21/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1220

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

Comments:

EPA SAMPLE NO.

WS-14

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: Sharkey Landfi MA No. : SDG No.: Q3688

Matrix: Water Lab Sample ID: Q3688-16

% Solids: Date Received: 11/21/2025

Analytical Method: Hg

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
7439-97-6	Mercury	0.20	U	12/05/2025	1211

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

Comments:

FORM 2 - IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

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

Lab Code: ACE Case No.: Sharkey Landf MA No. : SDG No.: Q3688

Initial Calibration Verification Source : MP88222

Continuing Calibration Verification Source : MP88224

Run Batch: LB138122 Analytical Method: CVAA

Concentration Units: µg/L

	Initial Calibration Verification				Continuing Calibration Verification						
	ID: ICV001				ID: CCV069				ID: CCV070		
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	Found	%R	%RSD
Mercury	4.0	3.8	96		5.0	5.1	103		5.0	100	

FORM 3 - IN
BLANKS

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

Lab Code: ACE Case No.: Sharkey Land MA No. : SDG No.: Q3688

Preparation Blank Matrix : Water

Preparation Blank Concentration Units (µg/L, mg/L, mg/kg dry weight, or µg): ug/L

Analytical Method: CVAA Preparation Batch: PB170832

Run Batch: LB138122 Preparation Method: 7470A

Analyte	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank/Leachate Extraction Blank	
	ID: ICB001	Q	ID: CCB069	Q	ID: CCB070	Q	ID:	Q	ID: PBW832	Q
Mercury	0.2	U	0.2	U	0.2	U			0.2	U

EPA SAMPLE NO.

M-31SS

FORM 5A - IN

MATRIX SPIKE SAMPLE RECOVERY

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

Lab Code: ACE Case No.: Sharkey Lanc MA No. : SDG No.: Q3688

Matrix : Water Analytical Method: CVAA

% Solids:

Concentration Units (µg/L, mg/L or mg/kg dry weight): ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	Q	Sample Result (SR)	Q	Spike Added (SA)	%R	Q
Mercury	75 - 125	1.1		0.2	U	1.0	110	

EPA SAMPLE NO.

M-31SD

FORM 6 - IN
DUPLICATES

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

Lab Code: ACE Case No.: Sharkey Landf MA No. : SDG No.: Q3688

Matrix : Water Analytical Method: CVAA

% Solids:

Concentration Units (µg/L, mg/L or mg/kg dry weight): ug/L

Analyte	Control Limit	Sample (S)	Q	Duplicate (D)	Q	RPD	Q
Mercury		0.2	U	0.2	U		

FORM 9-IN

METHOD DETECTION LIMIT

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

Lab Code: ACE Case No.: Sharkey MA No.: SDG No.: Q3688

Analytical Method: CVAA Instrument ID: CV1

Preparation Method: 7470A

Concentration Units (µg/L, µg or mg/kg): ug/L

Analyte	Wavelength/Mass	MDL	Date Analyzed
Mercury	253.70	0.022	02/12/2025

FORM 12-IN
ANALYSIS LOG

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

Lab Code: ACE Case No.: Sharkey I MA No.: SDG No.: Q3688

Instrument ID: CV1 Analytical Method: CVAA

Start Date: 12/05/2025 End Date: 12/05/2025

Run Batch: LB138122

EPA Sample No.	D/F	Time	Analytes																									
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
S0	1.0	1112															X											
S01	1.0	1114															X											
S02	1.0	1116															X											
S03	1.0	1119															X											
S04	1.0	1126															X											
S05	1.0	1128															X											
ICV001	1.0	1135															X											
ICB001	1.0	1137															X											
CCV069	1.0	1139															X											
CCB069	1.0	1141															X											
PBW832	1.0	1144															X											
M-31S	1.0	1146															X											
M-31SD	1.0	1148															X											
M-31SS	1.0	1150															X											
RBGW-20251	1.0	1153															X											
M-32I	1.0	1155															X											
M-31I	1.0	1157															X											
M-32S	1.0	1200															X											
RBGW-20251	1.0	1202															X											
M-30S	1.0	1204															X											
M-30I	1.0	1206															X											
FDGW-20251	1.0	1209															X											
WS-14	1.0	1211															X											
M-29	1.0	1213															X											
RBGW-20251	1.0	1216															X											
M-28I	1.0	1218															X											
WS-1	1.0	1220															X											
RBGW-20251	1.0	1222															X											
M-28S	1.0	1225															X											
CCV070	1.0	1227															X											
CCB070	1.0	1229															X											

FORM 15-IN

INITIAL CALIBRATION

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

Lab Code: ACE Case No.: Sharkey Lar MA No.: _____ SDG No.: Q3688

Instrument ID: CV1 Start Date: 12/05/2025

Analytical Method: CVAA Run Batch: LB138122

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Mercury	0	0.0	0	0.2	0.16	-21	2.5	2.5	0

FORM 15-IN

INITIAL CALIBRATION

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

Lab Code: ACE Case No.: Sharkey Lar MA No.: _____ SDG No.: Q3688

Instrument ID: CV1 Start Date: 12/05/2025

Analytical Method: CVAA Run Batch: LB138122

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Mercury	5	5.3	6	7.5	7.3	-3	10	10	0

FORM 16-IN

INITIAL CALIBRATION SUMMARY

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

Lab Code: ACE Case No.: Sharkey Land MA No.: SDG No.: Q3688

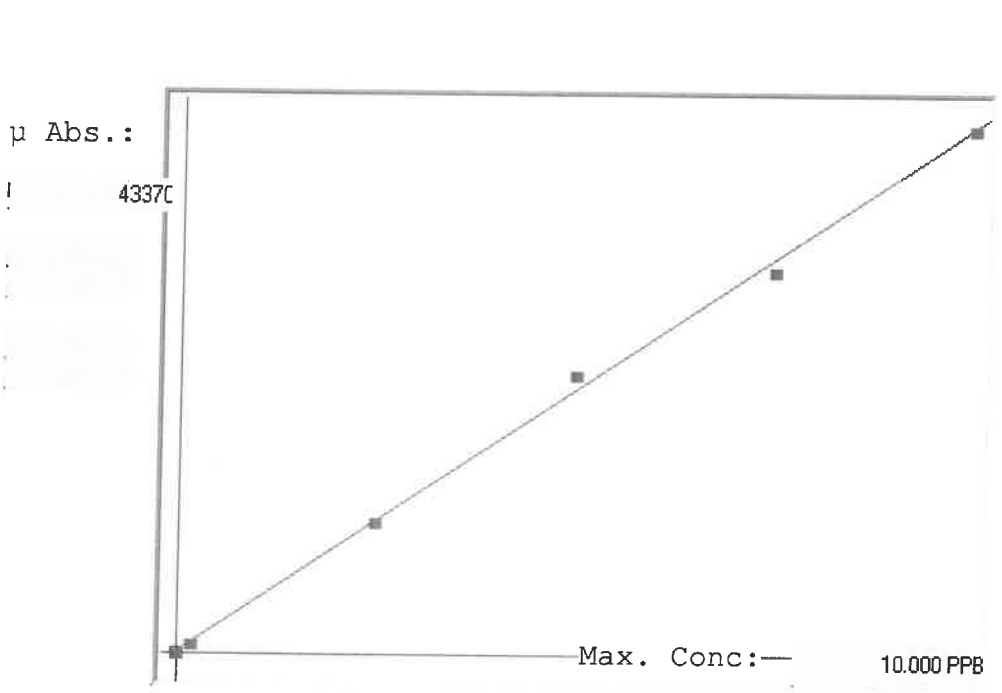
Instrument ID: CV1 Start Date : 12/05/2025

Analytical Method: CVAA Run Batch : LB138122

Analyte	Corr. Coeff.	Slope	Intercept	Calib. Type	Weighting
Mercury	0.999000	0.000231	-0.025900	Lin. Reg	NONE

LB138122

SFAM01.1 Instrument ID: CV1



A= 0.0000e+000

B= 2.3111e-004 slop

C= -2.5892e-002 intercept

Rho= 0.9990624

Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	C/.D
0.00	0.000	-0.040	-0.040	-59	0.000	-59					-
0.05	0.050										-21
0.20	0.200	0.158	-0.042	797	0.0 %	797					0
2.50	2.500	2.492	-0.008	10893	0.0 %	10893					6
5.00	5.000	5.316	0.316	23113	0.0 %	23113					-3
7.50	7.500	7.276	-0.224	31596	0.0 %	31596					0
10.0	10.000	9.997	-0.003	43370	0.0 %	43370					

LB138122

INSTRUMENT ID:CV1

Sample ID	Extended ID	µ Abs.	Conc.		Stnd Conc	Method	Units	Date	Type
0	S0	-59	-		0	SFAM01.1	PPB	12/5/2025 11:12	S
0.2	S01	797	-		0.2	SFAM01.1	PPB	12/5/2025 11:14	S
2.5	S02	10893	-		2.5	SFAM01.1	PPB	12/5/2025 11:16	S
5	S03	23113	-		5	SFAM01.1	PPB	12/5/2025 11:19	S
7.5	S04	31596	-		7.5	SFAM01.1	PPB	12/5/2025 11:26	S
10	S05	43370	-		10	SFAM01.1	PPB	12/5/2025 11:28	S
ICV001	ICV001	16740	3.8429	-		SFAM01.1	PPB	12/5/2025 11:35	U
ICB001	ICB001	-152	-0.061	-		SFAM01.1	PPB	12/5/2025 11:37	U
CCV069	CCV069	22306	5.1293	-		SFAM01.1	PPB	12/5/2025 11:39	U
CCB069	CCB069	-54	-0.0384	-		SFAM01.1	PPB	12/5/2025 11:41	U
PB170832BL	PBW832	11	-0.0233	-		SFAM01.1	PPB	12/5/2025 11:44	U
Q3688-01	M-31S	51	-0.0141	-		SFAM01.1	PPB	12/5/2025 11:46	U
Q3688-02	Q3688-01D	35	-0.0178	-		SFAM01.1	PPB	12/5/2025 11:48	U
Q3688-03	Q3688-01MS	4854	1.0959	-		SFAM01.1	PPB	12/5/2025 11:50	U
Q3688-04	RBGW-20251119	-8	-0.0277	-		SFAM01.1	PPB	12/5/2025 11:53	U
Q3688-06	M-32I	47	-0.015	-		SFAM01.1	PPB	12/5/2025 11:55	U
Q3688-09	M-31I	36	-0.0176	-		SFAM01.1	PPB	12/5/2025 11:57	U
Q3688-10	M-32S	60	-0.012	-		SFAM01.1	PPB	12/5/2025 12:00	U
Q3688-11	RBGW-20251120	-17	-0.0298	-		SFAM01.1	PPB	12/5/2025 12:02	U
Q3688-12	M-30S	92	-0.0046	-		SFAM01.1	PPB	12/5/2025 12:04	U
Q3688-13	M-30I	20	-0.0213	-		SFAM01.1	PPB	12/5/2025 12:06	U
Q3688-15	FDGW-20251120	101	-0.0025	-		SFAM01.1	PPB	12/5/2025 12:09	U
Q3688-16	WS-14	23	-0.0206	-		SFAM01.1	PPB	12/5/2025 12:11	U
Q3688-17	M-29	59	-0.0123	-		SFAM01.1	PPB	12/5/2025 12:13	U
Q3688-18	RBGW-20251121	32	-0.0185	-		SFAM01.1	PPB	12/5/2025 12:16	U
Q3688-19	M-28I	61	-0.0118	-		SFAM01.1	PPB	12/5/2025 12:18	U
Q3688-20	WS-1	68	-0.0102	-		SFAM01.1	PPB	12/5/2025 12:20	U
Q3688-22	RBGW-20251124	32	-0.0185	-		SFAM01.1	PPB	12/5/2025 12:22	U
Q3688-23	M-28S	38	-0.0171	-		SFAM01.1	PPB	12/5/2025 12:25	U
CCV070	CCV070	21825	5.0181	-		SFAM01.1	PPB	12/5/2025 12:27	U
CCB070	CCB070	-38	-0.0347	-		SFAM01.1	PPB	12/5/2025 12:29	U

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB170832

SOP ID : N/A

SDG No : NA

Matrix : WATER

Pippete ID: HG A

Balance ID : N/A

Filter paper ID : NA

pH Strip ID : M6069

Hood ID : #1

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

Start Digest Date: 12/05/2025 **Time :** 08:10 **Temp :** 93 °C

End Digest Date: 12/05/2025 **Time :** 10:10 **Temp :** 94 °C

Digestion tube ID: M6054

Block thermometer ID: HG-DIG. #1

Dig Technician Signature: [signature]

Supervisor Signature: [signature]

Temp : 1. 93°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
ICV	100mL	MP88222
CCV	100mL	MP88224
Matrix Spike	1.00mL	MP88214
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	MP87633
KMnO4 (5%)	15mL	MP87634
K2S2O8 (5%)	8mL	MP87635
Hydroxylamine HCL (12%)	6mL	MP87636
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	MP88215
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	100mL	MP88217
2.5 ppb	S2.5	100mL	MP88218
5.0 ppb	S5.0	100mL	MP88219
7.5 ppb	S7.5	100mL	MP88220
10.0 ppb	S10.0	100mL	MP88221
ICV	ICV	100mL	MP88222
ICB	ICB	100mL	MP88223
CCV	CCV	100mL	MP88224
CCB	CCB	100mL	MP88225
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
12/05/25 11:10	[signature]	[signature]
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB170832

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB170832BL	PBW832	100	100	<2	N/A	1-1
Q3688-01	M-31S	100	100	<2	N/A	2
Q3688-02	Q3688-01MS	100	100	<2	N/A	3
Q3688-03	Q3688-01MSD	100	100	<2	MP88214	4
Q3688-04	RBGW-20251119	100	100	<2	N/A	5
Q3688-06	M-32I	100	100	<2	N/A	6
Q3688-09	M-31I	100	100	<2	N/A	7
Q3688-10	M-32S	100	100	<2	N/A	8
Q3688-11	RBGW-20251120	100	100	<2	N/A	9
Q3688-12	M-30S	100	100	<2	N/A	10
Q3688-13	M-30I	100	100	<2	N/A	11
Q3688-15	FDGW-20251120	100	100	<2	N/A	12
Q3688-16	WS-14	100	100	<2	N/A	13
Q3688-17	M-29	100	100	<2	N/A	14
Q3688-18	RBGW-20251121	100	100	<2	N/A	15
Q3688-19	M-28I	100	100	<2	N/A	16
Q3688-20	WS-1	100	100	<2	N/A	17
Q3688-22	RBGW-20251124	100	100	<2	N/A	18
Q3688-23	M-28S	100	100	<2	N/A	19

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Prep Standard - Chemical Standard Summary

Order ID : Q3688

Test : Mercury

Prepbatch ID : PB170832,

Sequence ID/Qc Batch ID: LB138122,

Standard ID :
MP87633,MP87634,MP87635,MP87636,MP88214,MP88215,MP88217,MP88218,MP88219,MP88220,MP88221,MP88222,MP88223,MP88224,MP88225,MP88229,

Chemical ID :
M4916,M5062,M5501,M5882,M6157,M6161,M6187,M6196,M6200,M6213,W3112,

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3965	2:1 H2SO4 : HNO3	MP87633	10/17/2025	12/29/2025	Sagar Kanani	None	None	Sarabjit Jaswal 10/28/2025

FROM 1600.00000ml of M6157 + 800.00000ml of M6187 = Final Quantity: 3200.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP87634	10/17/2025	03/31/2026	Sagar Kanani	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 10/28/2025

FROM 100.00000gram of M4916 + 2000.00000ml of W3112 = Final Quantity: 2000.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
66	POTASSIUM PERSULFATE SOLUTION 5 %	MP87635	10/17/2025	02/02/2026	Sagar Kanani	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 10/28/2025

FROM 100.00000ml of M6213 + 2000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP87636	10/17/2025	02/03/2026	Sagar Kanani	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 10/28/2025

FROM 2000.00000ml of W3112 + 240.00000gram of M5501 + 240.00000ml of M6196 = Final Quantity: 2000.000 ml

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP88214	12/05/2025	12/06/2025	Mohan Bera	None	None	Sarabjit Jaswal 12/09/2025

FROM 1.00000ml of M6187 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1340	Hg 0.00 PPB STD	MP88215	12/05/2025	12/06/2025	Mohan Bera	None	None	Sarabjit Jaswal 12/09/2025

FROM 2.50000ml of M6187 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1341	Hg 0.2 PPB STD	MP88217	12/05/2025	12/06/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/09/2025

FROM 2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP88214 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1342	Hg 2.5 PPB STD	MP88218	12/05/2025	12/06/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/09/2025

FROM 2.50000ml of M6187 + 245.00000ml of W3112 + 2.50000ml of MP88214 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1343	Hg 5.0 PPB STD	MP88219	12/05/2025	12/06/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/09/2025

FROM 2.50000ml of M6187 + 242.50000ml of W3112 + 5.00000ml of MP88214 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1344	Hg 7.5 PPB STD	MP88220	12/05/2025	12/06/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/09/2025

FROM 2.50000ml of M6187 + 240.00000ml of W3112 + 7.50000ml of MP88214 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1345	Hg 10.0 PPB STD	MP88221	12/05/2025	12/06/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/09/2025

FROM 2.50000ml of M6187 + 237.50000ml of W3112 + 10.00000ml of MP88214 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1346	Hg ICV SOLUTION	MP88222	12/05/2025	12/06/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/09/2025

FROM 2.50000ml of M6161 + 2.50000ml of M6187 + 245.00000ml of W3112 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1351	ICB (Hg 0.00 PPB SOLUTION)	MP88223	12/05/2025	12/06/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/09/2025

FROM 2.50000ml of M6187 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1358	CCV (Hg 5.0 PPB SOLUTION)	MP88224	12/05/2025	12/06/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/09/2025

FROM 485.00000ml of W3112 + 5.00000ml of M6187 + 10.00000ml of MP88214 = Final Quantity: 500.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1352	CCB (Hg 0.00 PPB SOLUTION)	MP88225	12/05/2025	12/06/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 12/09/2025

FROM 495.00000ml of W3112 + 5.00000ml of M6187 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
68	STANNOUS CHLORIDE SOLUTION	MP88229	12/05/2025	12/06/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 12/09/2025

FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6200 = Final Quantity: 500.000 ml

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-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 #
Seidler Chemical	BA-3624-05 / Sodium Chloride, Crystal (cs/4x2.5kg)	0000281938	07/06/2026	07/24/2023 / mohan	04/14/2023 / mohan	M5501

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-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	24i1262013	11/07/2025	05/07/2025 / RUPESH	02/18/2025 / Mohan	M6157

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV 5 0415	12/31/2025	05/01/2025 / mohan	03/30/2024 / mohan	M6161

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24H0162012	01/28/2026	08/29/2025 / Sagar	08/08/2025 / Sagar	M6187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	H330-500 / HYDROXYLAMINE HYDROCHLORIDE ACS 500G	243373	02/03/2026	09/04/2025 / mohan	08/04/2025 / mohan	M6196

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	24D1562005	02/10/2026	09/11/2025 / Sagar	08/25/2025 / Sagar	M6200

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	216224-	02/02/2026	10/08/2025 / Sagar	10/07/2025 / Sagar	M6213

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / Iwona	07/03/2024 / Iwona	W3112

Certificate of Analysis

ThermoFisher SCIENTIFIC

M5882 M3

Certificate of Analysis

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.

ThermoFisher SCIENTIFIC

M4913-16

MB

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120632

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	P279	Quality Test / Release Date	01/12/2021
Lot Number	210306		
Description	POTASSIUM PERMANGANATE, A.C.S.		
Country of Origin	United States	Suggested Retest Date	Jan/2026

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Dark purple to purple green crystals
ASSAY	%	>= 99	99.3
CHLORIDE & CHLORATE	%	<= 0.005	<0.005
IDENTIFICATION	PASS/FAIL	= PASS TEST	pass test
INSOLUBLE MATTER	%	<= 0.2	<0.2
MERCURY (Hg)	ppm	<= 0.05	<0.004
SULFATE (SO4)	%	<= 0.02	<0.02

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

INORGANIC VENTURES
Refine your results. Redefine your industry.

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

M5062
M5063
M3

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Mass Spec Solution
Catalog Number:	MSHG-10PPM
Lot Number:	S2-HG709270
Matrix:	10% (v/v) HCl
Value / Analyte(s):	10 µg/mL ea: Mercury
Starting Material:	Hg metal
Starting Material Lot#:	1959
Starting Material Purity:	99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL

Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
Hg	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \Sigma(w_i)(X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance.

$$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = (X_a)\,(u_{char\ a})$$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag		0.000011	M	Eu	<	0.000201	O	Na		0.000004	M	Se	<	0.015915	O	Zn	<	0.001510
O	Al		0.000001	O	Fe		0.000001	M	Nb	<	0.000201	O	Si		0.000005	M	Zr	<	0.000201
M	As	<	0.000402	M	Ga	<	0.000201	M	Nd	<	0.000201	M	Sm	<	0.000201				
M	Au	<	0.003631	M	Gd	<	0.000201	M	Ni	<	0.000402	M	Sn	<	0.001007				
M	B	<	0.001208	M	Ge	<	0.000201	M	Os	<	0.000605	M	Sr	<	0.000201				
M	Ba	<	0.000201	M	Hf	<	0.000201	O	P	<	0.032370	M	Ta	<	0.000201				
M	Be	<	0.000201	s	Hg	<		M	Pb	<	0.000201	M	Tb	<	0.000201				
M	Bi	<	0.000201	M	Ho	<	0.000201	M	Pd	<	0.000403	M	Te	<	0.002216				
O	Ca		0.000007	M	In	<	0.000201	M	Pr	<	0.000201	M	Th	<	0.000201				
M	Cd	<	0.000201	M	Ir	<	0.000201	M	Pt	<	0.000402	M	Ti	<	0.000402				
M	Ce	<	0.000201	O	K		0.000020	M	Rb	<	0.000201	O	Tl	<	0.016508				
M	Co	<	0.000201	M	La	<	0.000201	M	Re	<	0.000201	M	Tm	<	0.000201				
O	Cr	<	0.003021	O	Li	<	0.000107	M	Rh	<	0.000201	M	U	<	0.008058				
M	Cs	<	0.001208	M	Lu	<	0.000201	M	Ru	<	0.000201	M	V	<	0.000201				
M	Cu	<	0.000402	O	Mg		0.000001	O	S	<	0.053950	M	W	<	0.000604				
M	Dy	<	0.000201	M	Mn	<	0.000604	M	Sb	<	0.001208	M	Y	<	0.000201				
M	Er	<	0.000201	M	Mo		0.000009	M	Sc	<	0.000201	M	Yb	<	0.000201				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+

Chemical Compatibility - Stable in 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

Sodium Chloride, Crystal
BAKER ANALYZED® A.C.S. Reagent

M5497 – M5508
Rec'd on 4/14/23
MG

avantor™ | J.T.Baker®

Material No.: 3624-01
Batch No.: 0000281938
Manufactured Date: 2021-06-07
Retest Date: 2026-06-07
Revision No.: 2

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	≥ 99.0 %	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	≤ 0.005 %	0.003 %
Iodide (I)	≤ 0.002 %	< 0.002 %
Bromide (Br)	≤ 0.01 %	< 0.01 %
Chlorate and Nitrate (as NO_3)	≤ 0.003 %	< 0.001 %
ACS - Phosphate (PO_4)	≤ 5 ppm	< 5 ppm
Sulfate (SO_4)	≤ 0.004 %	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	≤ 5 ppm	< 5 ppm
Iron (Fe)	≤ 2 ppm	< 1 ppm
Calcium (Ca)	≤ 0.002 %	< 0.001 %
Magnesium (Mg)	≤ 0.001 %	< 0.001 %
Potassium (K)	≤ 0.005 %	0.001 %

For Laboratory,Research,or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs
Country of Origin: USA
Packaging Site: Paris Mfg Ctr & DC

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

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™ J.T.Baker

M6157
AB

Material No.: 9673-33
Batch No.: 2411262013
Manufactured Date: 2024-08-07
Retest Date:2029-08-06
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS - Assay (H_2SO_4)	95.0 - 98.0 %	96.2 %
Appearance	Passes Test	Passes Test
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	<1 ppm
ACS - Substances Reducing Permanganate(as SO2)	<= 2 ppm	<2 ppm
Ammonium (NH_4)	<= 1 ppm	<1 ppm
Chloride (Cl)	<= 0.1 ppm	<0.1 ppm
Nitrate (NO_3)	<= 0.2 ppm	0.1 ppm
Phosphate (PO_4)	<= 0.5 ppm	<0.1 ppm
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	<5.0 ppb
Arsenic & Antimony (as As)	<= 4.0 ppb	<2.0 ppb
Trace Impurities - Boron (B)	<= 10.0 ppb	<5.0 ppb
Trace Impurities - Cadmium (Cd)	<= 2.0 ppb	<1.0 ppb
Trace Impurities - Chromium (Cr)	<= 6.0 ppb	<1.0 ppb
Trace Impurities - Cobalt (Co)	<= 0.5 ppb	<0.3 ppb
Trace Impurities - Copper (Cu)	<= 1.0 ppb	<1.0 ppb
Trace Impurities - Gold (Au)	<= 10.0 ppb	<5.0 ppb
Heavy Metals (as Pb)	<= 500.0 ppb	<100.0 ppb
Trace Impurities - Iron (Fe)	<= 50.0 ppb	<1.0 ppb
Trace Impurities - Lead (Pb)	<= 0.5 ppb	<0.5 ppb
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	<1.0 ppb
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	<1.0 ppb
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	<0.1 ppb
Trace Impurities - Nickel (Ni)	<= 2.0 ppb	<0.3 ppb
Trace Impurities - Potassium (K)	<= 500.0 ppb	<10.0 ppb
Trace Impurities - Selenium (Se)	<= 50.0 ppb	7.2 ppb
Trace Impurities - Silicon (Si)	<= 100.0 ppb	12.8 ppb
Trace Impurities - Silver (Ag)	<= 1.0 ppb	<1.0 ppb

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™ | J.T.Baker

Material No.: 9673-33
Batch No.: 24I1262013

Test	Specification	Result
Trace Impurities - Sodium (Na)	<= 500.0 ppb	<5.0 ppb
Trace Impurities - Strontium (Sr)	<= 5.0 ppb	<1.0 ppb
Trace Impurities - Tin (Sn)	<= 5.0 ppb	1.1 ppb
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	<1.0 ppb

For Laboratory,Research,or Manufacturing Use

Country of Origin: United States
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Nitric Acid 69%
CMOS

M6187
R.D :- 08/08/25

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	0.1 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 1 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 1 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	1 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 1.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	13 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	5 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result

For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

M6200
R.0 → 08/25/25

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005
Manufactured Date: 2024-03-18
Retest Date: 2029-03-17
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.192
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl_2)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO_4)	≤ 0.05 ppm	0.03 ppm
Sulfate (SO_4)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO_3)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH_4)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

For questions on this Certificate of Analysis please contact Technical Services at 855 282 6867 or +1 610 386 1700

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result
Trace Impurities - Lead (Pb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Lithium (Li)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities - Magnesium (Mg)	≤ 10.0 ppb	2.2 ppb
Trace Impurities - Manganese (Mn)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities - Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Nickel (Ni)	≤ 4.0 ppb	0.2 ppb
Trace Impurities - Niobium (Nb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Potassium (K)	≤ 9.0 ppb	< 1.0 ppb
Trace Impurities - Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities - Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities - Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities - Sodium (Na)	≤ 100.0 ppb	2.0 ppb
Trace Impurities - Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Tantalum (Ta)	≤ 1.0 ppb	< 0.9 ppb
Trace Impurities - Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	< 0.4 ppb
Trace Impurities - Titanium (Ti)	≤ 1.0 ppb	0.2 ppb
Trace Impurities - Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities - Zirconium (Zr)	≤ 1.0 ppb	< 0.1 ppb

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result

For Laboratory,Research,or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production

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

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB138122

Review By	mohan	Review On	12/5/2025 1:11:47 PM
Supervise By	jaswal	Supervise On	12/9/2025 2:37:02 PM

STD. NAME	STD REF.#
ICAL Standard	MP88215,MP88217,MP88218,MP88219,MP88220,MP88221
ICV Standard	MP88222
CCV Standard	MP88224
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	MP88223,MP88225,MP88229

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	12/05/25 11:12		mohan	OK
2	S0.2	S01	CAL2	12/05/25 11:14		mohan	OK
3	S2.5	S02	CAL3	12/05/25 11:16		mohan	OK
4	S5	S03	CAL4	12/05/25 11:19		mohan	OK
5	S7.5	S04	CAL5	12/05/25 11:26		mohan	OK
6	S10	S05	CAL6	12/05/25 11:28		mohan	OK
7	ICV001	ICV001	ICV	12/05/25 11:35		mohan	OK
8	ICB001	ICB001	ICB	12/05/25 11:37		mohan	OK
9	CCV069	CCV069	CCV	12/05/25 11:39		mohan	OK
10	CCB069	CCB069	CCB	12/05/25 11:41		mohan	OK
11	PB170832BL	PBW832	MB	12/05/25 11:44		mohan	OK
12	Q3688-01	M-31S	SAM	12/05/25 11:46		mohan	OK
13	Q3688-02	M-31SD	DUP	12/05/25 11:48		mohan	OK
14	Q3688-03	M-31SS	MS	12/05/25 11:50		mohan	OK
15	Q3688-04	RBGW-20251119	SAM	12/05/25 11:53		mohan	OK
16	Q3688-06	M-32I	SAM	12/05/25 11:55		mohan	OK
17	Q3688-09	M-31I	SAM	12/05/25 11:57		mohan	OK
18	Q3688-10	M-32S	SAM	12/05/25 12:00		mohan	OK

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

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB138122

Review By	mohan	Review On	12/5/2025 1:11:47 PM
Supervise By	jaswal	Supervise On	12/9/2025 2:37:02 PM

STD. NAME	STD REF.#
ICAL Standard	MP88215,MP88217,MP88218,MP88219,MP88220,MP88221
ICV Standard	MP88222
CCV Standard	MP88224
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	MP88223,MP88225,MP88229

19	Q3688-11	RBGW-20251120	SAM	12/05/25 12:02		mohan	OK
20	Q3688-12	M-30S	SAM	12/05/25 12:04		mohan	OK
21	Q3688-13	M-30I	SAM	12/05/25 12:06		mohan	OK
22	Q3688-15	FDGW-20251120	SAM	12/05/25 12:09		mohan	OK
23	Q3688-16	WS-14	SAM	12/05/25 12:11		mohan	OK
24	Q3688-17	M-29	SAM	12/05/25 12:13		mohan	OK
25	Q3688-18	RBGW-20251121	SAM	12/05/25 12:16		mohan	OK
26	Q3688-19	M-28I	SAM	12/05/25 12:18		mohan	OK
27	Q3688-20	WS-1	SAM	12/05/25 12:20		mohan	OK
28	Q3688-22	RBGW-20251124	SAM	12/05/25 12:22		mohan	OK
29	Q3688-23	M-28S	SAM	12/05/25 12:25		mohan	OK
30	CCV070	CCV070	CCV	12/05/25 12:27		mohan	OK
31	CCB070	CCB070	CCB	12/05/25 12:29		mohan	OK

Alliance TECHNICAL GROUP 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Login Summary Report

Order ID :	Q3688	Order Date :	11/24/2025 1:00:00 PM	Project Mgr :	Yazmeen
Client :	WSP USA Inc.	Project :	Sharkey Landfill Site FYR Reuse Morris County NJ	Report Type :	Level 4
Contact :	Tricia Landes	Receive Date :	11/24/2025 1:00:00 PM	EDD Type :	HAZ/EXCEL
Date Sign Off :	11/20/2025 11:33:00 AM				

Sample ID	Client ID	Matrix	Sampling Date	Test	Test Group	Method	TAT Days	Fax Due Date	HC Due Date
Q3688-01	M-31S	Water	11/19/2025						
				Mercury		SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12		SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1		SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1		SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM		SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-02	Q3688-01MS	Water	11/19/2025						
				Mercury		SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12		SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1		SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1		SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM		SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-03	Q3688-01MSD	Water	11/19/2025						
				Mercury		SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12		SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1		SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1		SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM		SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-04	RBGW-20251119	Water	11/19/2025						
				Mercury		SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12		SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1		SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1		SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM		SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-05	TBGW-20251119	Water	11/19/2025						
				VOC-SFAM		SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-06	M-32I	Water	11/19/2025						
				Mercury		SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12		SFAM_AES	10	12/08/2025	12/08/2025

				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-07	VHBLK001	Water	11/19/2025					
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-09	M-31I	Water	11/20/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-10	M-32S	Water	11/20/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-11	RBGW-20251120	Water	11/20/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-12	M-30S	Water	11/20/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-13	M-30I	Water	11/20/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-14	TBGW-20251120	Water	11/20/2025					
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-15	FDGW-20251120	Water	11/20/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025

				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-16	WS-14	Water	11/21/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-17	M-29	Water	11/21/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-18	RBGW-20251121	Water	11/21/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-19	M-28I	Water	11/21/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-20	WS-1	Water	11/21/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-21	TBGW-20251121	Water	11/21/2025					
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-22	RBGW-20251124	Water	11/24/2025					
				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-23	M-28S	Water	11/24/2025					

				Mercury	SFAM_HG	10	12/08/2025	12/08/2025
				Metals CLP12	SFAM_AES	10	12/08/2025	12/08/2025
				SVOC-SIMGroup1	SFAM_SVOASIM	10	12/08/2025	12/08/2025
				SVOCMS Group1	SFAM_SVOC	10	12/08/2025	12/08/2025
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025
Q3688-24	TBGW-20251124	Water	11/24/2025					
				VOC-SFAM	SFAM_VOC	10	12/08/2025	12/08/2025

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB170814 **WorkList ID :** 193469 **Department :** Digestion **Date :** 12-04-2025 09:39:58

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3688-01	M-31S	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_AES
Q3688-02	Q3688-01MS	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_AES
Q3688-03	Q3688-01MSD	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_AES
Q3688-04	RBGW-20251119	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_AES
Q3688-06	M-32I	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_AES
Q3688-09	M-31I	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_AES
Q3688-10	M-32S	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_AES
Q3688-11	RBGW-20251120	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_AES
Q3688-12	M-30S	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_AES
Q3688-13	M-30I	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_AES
Q3688-15	FDGW-20251120	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_AES
Q3688-16	WS-14	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_AES
Q3688-17	M-29	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/21/2025	SFAM_AES
Q3688-18	RBGW-20251121	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/21/2025	SFAM_AES
Q3688-19	M-28I	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/21/2025	SFAM_AES
Q3688-20	WS-1	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/21/2025	SFAM_AES
Q3688-22	RBGW-20251124	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/24/2025	SFAM_AES
Q3688-23	M-285	Water	Metals CLP12	1:1 HNO3 to pH < 2	WSPU02	D41	11/24/2025	SFAM_AES

365

Date/Time 12/04/2025 10:10
Raw Sample Received by: SKgmetdig
Raw Sample Relinquished by: CPCSm)

Date/Time 12/04/2025 11:10
Raw Sample Received by: CPCSm)
Raw Sample Relinquished by: SKgmetdig

WORKLIST(Hardcopy Internal Chain)

WorkList Name : Q3688_HgW **WorkList ID :** 193483 **Department :** Digestion **Date :** 12-05-2025 07:34:32

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3688-01	M-31S	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_HG
Q3688-02	Q3688-01MS	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_HG
Q3688-03	Q3688-01MSD	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_HG
Q3688-04	RBGW-20251119	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_HG
Q3688-06	M-32I	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_HG
Q3688-09	M-31I	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/19/2025	SFAM_HG
Q3688-10	M-32S	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_HG
Q3688-11	RBGW-20251120	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_HG
Q3688-12	M-30S	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_HG
Q3688-13	M-30I	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_HG
Q3688-15	FDGW-20251120	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_HG
Q3688-16	WS-14	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/20/2025	SFAM_HG
Q3688-17	M-29	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/21/2025	SFAM_HG
Q3688-18	RBGW-20251121	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/21/2025	SFAM_HG
Q3688-19	M-28I	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/21/2025	SFAM_HG
Q3688-20	WS-1	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/21/2025	SFAM_HG
Q3688-22	RBGW-20251124	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/24/2025	SFAM_HG
Q3688-23	M-28S	Water	Mercury	1:1 HNO3 to pH < 2	WSPU02	D41	11/24/2025	SFAM_HG

Date/Time 12/05/25 07:50
Raw Sample Received by: Siamech Lig
Raw Sample Relinquished by: Ed(sm)

Date/Time 12/05/25 9:30
Raw Sample Received by: Ed(sm)
Raw Sample Relinquished by: Siamechdig