SDG COVER PAGE

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

Lab Code: ACE Case No.: 51835 MA No.: SDG No.: MBH6M7

SOW No. : SFAM01.1

EPA Sample No.	Lab Sample Id	Analysis Method ICP-AES	ICP-MS	Mercury	Cyanide
MBH6M7	P4623-01	X		X	X
MBH6M8	P4623-02	X		X	X
MBH6M9	P4623-03	X		X	X
MBH6N0	P4623-04	X		X	X
MBH6N1	P4623-05	X		X	X
MBH8M6	P4623-06	X		X	X
MBH6N2	P4623-07	X		X	X
MBH6N3	P4623-08	X		X	X
MBH6N4	P4623-09	X		X	X
MBH6N5	P4623-10	X		X	X
MBH6N6	P4623-11	X		X	X
MBH6N6D	P4623-12	X		X	X
MBH6N6S	P4623-13	X		X	X
MBH6N7	P4623-14	X		X	X

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

Signature: Name:

Date: Title:

68HERH20D0011

SDG # MBH6M7

USEPA CLP COC (LAB COPY)

DateShipped: 10/29/2024

CarrierName: Hand Deliver

AirbillNo: N/A

CHAIN OF CUSTODY RECORD

Case #: 51835

Cooler #: 1

No: 2-1029-0300-0041-03

Lab: Alliance Technical Group, LLC - CLP

Lab Contact: Mohammad Ahmed

Lab Phone: 908-728-3151

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Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
P001-CF07-01	BH6M7	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1723 (4 C), 1727 (4 C) (3)	CF07	10/29/2024 10:10	
P001-CF08-01	BH6M8	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1731 (4 C), 1735 (4 C) (3)	CF08	10/29/2024 10:15	
P001-CF09-01	BH6M9	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1739 (4 C), 1743 (4 C) (3)	CF09	10/29/2024 10:20	
P001-CF10-01	BH6N0	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1747 (4 C), 1751 (4 C) (3)	CF10	10/29/2024 10:30	
P001-CF11-01	BH6N1	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1755 (4 C), 1759 (4 C) (3)	CF11	10/29/2024 10:40	
P001-CF06-01	BH8M6	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1382 (4 C), 1627 (4 C) (3)	CF06	10/29/2024 10:05	
P001-CF07-01	MBH6M7	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1724 (4 C), 1728 (4 C) (3)	CF07	10/29/2024 10:10	1 SPLP spell
P001-CF08-01	MBH6M8	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1732 (4 C), 1736 (4 C) (3)	CF08	10/29/2024 10:15	2
P001-CF09-01	MBH6M9	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1740 (4 C), 1744 (4 C) (3)	CF09	10/29/2024 10:20	3
P001-CF10-01	MBH6N0	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1748 (4 C), 1752 (4 C) (3)	CF10	10/29/2024 10:30	4

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: SPLP SVOC + Pest=SPLP SVOCs + Pesticides, TAL SVOCs+Pest+PCB=TAL SVOC+Pest+PCB, SPLP Metals + Hg=SPLP Metals + Hg&CN, TAL Metals+Hg+CN=TAL Metals+Hg+CN

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ALL ANALYSIS	WESTON SOLUTIONS	10/29/24 1440		1500 10-29-24	IR Gun #1 Temp 2.4 C Custody Seal intact Temp blank present

68HERH20D0011

SDG # MBH6M7

USEPA CLP COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 2-1029-0300-0041-03

DateShipped: 10/29/2024

CarrierName: Hand Deliver

AirbillNo: N/A

Case #: 51835

Cooler #: 1

Lab: Alliance Technical Group, LLC - CLP

Lab Contact: Mohammad Ahmed

Lab Phone: 908-728-3151

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Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
P001-CF11-01	MBH6N1	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1756 (4 C), 1760 (4 C) (3)	CF11	10/29/2024 10:40	5
P001-CF06-01	MBH8M6	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1384 (4 C), 1628 (4 C) (3)	CF06	10/29/2024 10:05	6

Special Instructions:	**Shipment for Case Complete? N**
	Samples Transferred From Chain of Custody #

Analysis Key: SPLP SVOC + Pest=SPLP SVOCs + Pesticides, TAL SVOCs+Pest+PCB=TAL SVOC+Pest+PCB, SPLP Metals + Hg=SPLP Metals + Hg&CN, TAL Metals+Hg+CN=TAL Metals+Hg+CN

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ALL ANALYSIS	WESTON SOLUTIONS	10/29/24 1440		10-29-24 1500	IR Gun # 1 Temp 2.4 C custody seal intact Temp blank present

68HERH20D0011

SDG # MBH6M7

USEPA CLP COC (LAB COPY)

DateShipped: 10/29/2024

CarrierName: Hand Deliver

AirbillNo: N/A

CHAIN OF CUSTODY RECORD

Case #: 51835

Cooler #: 1

No: 2-1029-0300-0041-04

Lab: Alliance Technical Group, LLC - CLP

Lab Contact: Mohammad Ahmed

Lab Phone: 908-728-3151

4

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
P001-CF12-01	BH6N2	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1763 (4 C), 1767 (4 C) (3)	CF12	10/29/2024 10:45	
P001-CF13-01	BH6N3	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1771 (4 C), 1775 (4 C) (3)	CF13	10/29/2024 10:50	
P001-CF14-01	BH6N4	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1779 (4 C), 1783 (4 C) (3)	CF14	10/29/2024 10:55	
P001-CF15-01	BH6N5	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1787 (4 C), 1791 (4 C) (3)	CF15	10/29/2024 11:00	
P001-CF16-01	BH6N6	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1795 (4 C), 1799 (4 C) (4)	CF16	10/29/2024 11:05	
P001-CF16-02	BH6N7	Soil/ START V	Grab	SPLP SVOC + Pest(7), TAL SVOCs+Pest+PCB(7)	1803 (4 C), 1807 (4 C) (3)	CF16	10/29/2024 11:10	
P001-CF12-01	MBH6N2	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1764 (4 C), 1768 (4 C) (3)	CF12	10/29/2024 10:45	7
P001-CF13-01	MBH6N3	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1772 (4 C), 1776 (4 C) (3)	CF13	10/29/2024 10:50	8
P001-CF14-01	MBH6N4	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1780 (4 C), 1784 (4 C) (3)	CF14	10/29/2024 10:55	9
P001-CF15-01	MBH6N5	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1788 (4 C), 1792 (4 C) (3)	CF15	10/29/2024 11:00	10

Sample(s) to be used for Lab QC: P001-CF16-01 Tag 1795, P001-CF16-01 Tag 1799, P001-CF16-01 Tag 1796, P001-CF16-01 Tag 1800

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: SPLP SVOC + Pest=SPLP SVOCs + Pesticides, TAL SVOCs+Pest+PCB=TAL SVOC+Pest+PCB, SPLP Metals + Hg=SPLP Metals + Hg&CN, TAL Metals+Hg+CN=TAL Metals+Hg+CN

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ALL ANALYS	WESTON SOLUTIONS	10/29/24 1440		1500 10-29-24	IR Gun # 1 Temp 2.8°C Custody Seal intact Temp blank present

68HERH20D0011

SDG # MBH6M7

USEPA CLP COC (LAB COPY)

DateShipped: 10/29/2024

CarrierName: Hand Deliver

AirbillNo: N/A

CHAIN OF CUSTODY RECORD

Case #: 51835

Cooler #: 1

No: 2-1029-0300-0041-04

Lab: Alliance Technical Group, LLC - CLP

Lab Contact: Mohammad Ahmed

Lab Phone: 908-728-3151

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Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
P001-CF16-01	MBH6N6	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1796 (4 C), 1800 (4 C) (6)	CF16	10/29/2024 11:05	11
P001-CF16-02	MBH6N7	Soil/ START V	Grab	SPLP Metals + Hg(7), TAL Metals+Hg+CN(7)	1804 (4 C), 1808 (4 C) (3)	CF16	10/29/2024 11:10	12

Sample(s) to be used for Lab QC: P001-CF16-01 Tag 1800

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: SPLP SVOC + Pest=SPLP SVOCs + Pesticides, TAL SVOCs+Pest+PCB=TAL SVOC+Pest+PCB, SPLP Metals + Hg=SPLP Metals + Hg&CN, TAL Metals+Hg+CN=TAL Metals+Hg+CN

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ALL ANALYSES	WESTON SOLUTIONS	10/29/24 1440		1500 10-29-24	IR Gun #1 Temp 2.8c Custody Seal intact Temp blank present

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page 1 of 2
Received By (Print Name) Esperanza Leiva		Log-in Date 10/29/2024
Received By (Signature)		
Case Number 51835	SDG No. MBH6M7	MA No. N/A

Remarks:	
1. Custody Seal (s)	Present, Intact
2. Custody Seal Nos.	n/a
3. Traffic Reports/Chain Of Custody Records	Present
4. Airbill	Absent
5. Airbill No. and Shipping Container ID No.	HAND DELIVERED 1
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	2.4 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	10/29/2024
12.Time Received	15:00

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding		Remarks: Condition of Sample Shipment, etc.
			Sample Tag #	Assigned Lab #	
1	MBH6M7	N/A	1724	P4623-01	Intact
2	MBH6M8	N/A	1732	P4623-02	Intact
3	MBH6M9	N/A	1740	P4623-03	Intact
4	MBH6N0	N/A	1748	P4623-04	Intact
5	MBH6N1	N/A	1756	P4623-05	Intact
6	MBH8M6	N/A	1384	P4623-06	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	10/29/24	Logbook Page No.	N/A

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page 2 of 2
Received By (Print Name) Esparza		Log-in Date **10/29/2024**
Received By (Signature)		
Case Number 51835	SDG No. MBH6M7	MA No. N/A

Remarks:	
1. Custody Seal (s)	Present, Intact
2. Custody Seal Nos.	n/a
3. Traffic Reports/Chain Of Custody Records	Present
4. Airbill	Absent
5. Airbill No. and Shipping Container ID No.	HAND DELIVERED 2
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	2.8 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	10/29/2024
12.Time Received	15:00

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MBH6N2	N/A	1764	P4623-07	Intact
2	MBH6N3	N/A	1772	P4623-08	Intact
3	MBH6N4	N/A	1780	P4623-09	Intact
4	MBH6N5	N/A	1788	P4623-10	Intact
5	MBH6N6	N/A	1796	P4623-11	Intact
6	MBH6N6D	N/A	1796	P4623-12	Intact
7	MBH6N6S	N/A	1796	P4623-13	Intact
8	MBH6N7	N/A	1804	P4623-14	Intact
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	10/29/24	Logbook Page No.	N/A

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

LAB NAME	**Alliance Technical Group, LLC**		
LAB CODE	**ACE**		
CONTRACT NO.	**68HERH20D0011**		
CASE NO.	**51835**	SDG NO.	**MBH6M7**
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	PAGE NOs: TO	CHECK LAB	CHECK REGION
1. SDG Cover Page	1	1	✓	
2. Traffic Report/Chain of Custody Record(s)	2	5	✓	
3. Sample Log-In Sheet (DC-1)	6	7	✓	
4. CSF Inventory Sheet (DC-2)	8	10	✓	
5. SDG Narrative	11	14	✓	
6. Communication Logs	15	19	✓	
7. Percent Solids Log	NA	NA	✓	
Analysis Forms and Data (ICP-AES)				
8. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	20	31	✓	
9. Instrument raw data by instrument in analysis order	32	251	✓	
Other Data				
10. Standard and Reagent Preparation Logs	252	397	✓	
11. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	398	399	✓	
12. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	400	412	✓	
13. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	NA	NA	✓	
14. Extraction Logs for TCLP and SPLP	413	416	✓	
15. Raw GPC Data	NA	NA	✓	
16. Raw Florisil Data	NA	NA	✓	
Analysis Forms and Data (ICP-MS)				
17. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	NA	NA	✓	
18. Instrument raw data by instrument in analysis order	NA	NA	✓	
Other Data				
19. Standard and Reagent Preparation Logs	NA	NA	✓	
20. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	NA	NA	✓	
21. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	NA	NA	✓	
22. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	NA	NA	✓	

	PAGE NOs: FROM	TO	CHECK LAB	REGION
23. Extraction Logs for TCLP and SPLP	NA	NA	✓	
24. Raw GPC Data	NA	NA	✓	
25. Raw Florisil Data	NA	NA	✓	
Analysis Forms and Data (Mercury)				
26. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	417	428	✓	
27. Instrument raw data by instrument in analysis order	429	430	✓	
Other Data				
28. Standard and Reagent Preparation Logs	431	462	✓	
29. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	463	464	✓	
30. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	465	466	✓	
31. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	NA	NA	✓	
32. Extraction Logs for TCLP and SPLP	467	470	✓	
33. Raw GPC Data	NA	NA	✓	
34. Raw Florisil Data	NA	NA	✓	
Analysis Forms and Data (Cyanide)				
35. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	471	482	✓	
36. Instrument raw data by instrument in analysis order	483	485	✓	
Other Data				
37. Standard and Reagent Preparation Logs	486	517	✓	
38. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	518	519	✓	
39. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	520	521	✓	
40. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	NA	NA	✓	
41. Extraction Logs for TCLP and SPLP	522	525	✓	
42. Raw GPC Data	NA	NA	✓	
43. Raw Florisil Data	NA	NA	✓	

	PAGE NOs: FROM	TO	CHECK LAB	REGION
Additional				
44. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 0)	NA	NA	✓	
Sample Tags	NA	NA	✓	
Sample Log-In Sheet (Lab)	526	527	✓	
45. Misc. Shipping/Receiving Records (list all individual records)				
	NA	NA	✓	
46. Internal Lab Sample Transfer Records and Tracking Sheets (describe or list)				
	528	530	✓	
47. Other Records and related Communication Logs (describe or list)				
	NA	NA	✓	

48. Comments:

Completed by:
(CLP Lab)

(Signature)	Nimisha Pandya, Document Control Officer (Print Name & Title)	(Date)

Audited by:
(EPA)

(Signature)	(Print Name & Title)	(Date)

284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # MBH6M7
CASE # 51835
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID #P4623

A. Number of Samples and Date of Receipt

12 Soil samples were delivered to the laboratory intact on 10/29/2024.

B. Parameters

Test requested for SPLP MetalGroup3 = Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc & SPLP Hg & SPLP Cyanide.

C. Cooler Temp

Indicator Bottle**: Presence/**Absence

Cooler: 2.4^{o}C, 2.8^{o}C

D. Detail Documentation (related to Sample Handling Shipping, Analytical Problem, Temp of Cooler etc):

Issue 1: A "P" or "M" prefix was listed at the beginning of a CLP sample ID.

Issue 2: The attached COCs lists a 7-day TAT, but a 14-day TAT is scheduled for this Case.

E. Corrective Action taken for above:

Resolution 1: To maintain COC integrity, ASB requests no changes to the Sample IDs. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Resolution 2: Per Region 2, the laboratory should note the issue in the SDG Narrative and proceed with the analysis of the samples as scheduled (14-day TAT).

F. 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.

G. 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 MBH6M7 For Arsenic:

If C = 0.0411259 ppm
Vf = 50 ml
Vi = 50 ml
DF = 1

$$\text{Concentration or Result } (\mu g/L) = 0.0411259 \times \frac{50}{50} \times 1 \times 1000$$

$$= 41.1259\ \mu g/L$$

$$= 41\ \mu g/L \text{ (Reported Result with Signification)}$$

Calculation for Hg Water Sample:

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

Where,

C = Instrument response in µg/L from the calibration curve.
DF = Dilution Factor

Example Calculation For Sample MBH6M7:

If C = 0.0973 ppb
DF = 1

Concentration or Result (µg/L) = 0.0973 x 1
= 0.0973 µg/L
= 0.097 µg/L (Reported Result with Signification)

Calculation for CN Water Sample:

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

Where,
C = Instrument response in µg/L CN from the calibration curve.
Vf = Final prepared (absorbing solution) volume (mL)
Vi = Initial aliquot amount (mL) (Sample amount taken in prep)
DF = Dilution Factor

Example Calculation:

If C = 7.2182 ppb
Vf = 50 ml
Vi = 50 ml
DF = 1

$$\text{Concentration or Result (µg/L)} = 7.2182 \times \frac{50}{50} \times 1$$

= 7.2182 µg/L

= 7.2 µg/L(Reported Result with Signification)

H. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. Spike sample did meet requirements except for SPLP Mercury. Duplicate sample did meet requirements. Serial Dilution did meet requirements.

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

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

From: Bett, Daisy <Daisy.Bett@gdit.com>
Sent: Wednesday, October 30, 2024 11:51 AM
To: Deepak Parmar; Sohil Jodhani; Mohammad Ahmed
Cc: Leung.christina@epa.gov; Brandon-Bazile, Kim; Feranda, Jennifer; Bauer, Heather E; Johnson, Matthew
Subject: Region 02 | Case 51835 | Lab ACE | Issue Discrepancies with tags, jars, and/or COC | FINAL
Attachments: SKM_95824102915230.pdf

EXTERNAL EMAIL - This email was sent by a person from outside your organization. Exercise caution when clicking links, opening attachments or taking further action, before validating its authenticity.

Secured by Check Point

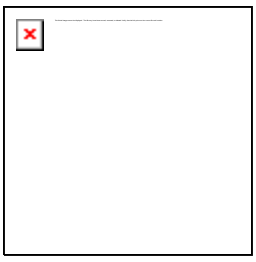
Good morning,

Issue: The attached COCs lists a 7-day TAT, but a 14-day TAT is scheduled for this Case.
Resolution: Per Region 2, the laboratory should note the issue in the SDG Narrative and proceed with the analysis of the samples as scheduled (14-day TAT).

Please note that the laboratory may contact the appropriate CLP PM should any defects need to be waived for this issue.

Thank you,
Daisy Bett
Research Analyst Associate
GDIT Federal Civilian Division
EPA Region 2&3 CLP QSS Coordinator
Under contract to the EPA

T: 571.454.0186
daisy.bett@gdit.com
15036 Conference Center Drive
Chantilly, VA 20151
www.gdit.com



GENERAL DYNAMICS
Information Technology

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From: Leung, Christina (she/her/hers) <Leung.Christina@epa.gov>
Sent: Wednesday, October 30, 2024 9:38 AM
To: Bett, Daisy <Daisy.Bett@gdit.com>
Cc: Feranda, Jennifer <Feranda.Jennifer@epa.gov>; Brandon-Bazile, Kim <Brandon-Bazile.Kim@epa.gov>
Subject: RE: Region 02 | Case 51835 | Lab ACE | Issue Discrepancies with tags, jars, and/or COC

This Message Is From an External Sender

Please use caution with links, attachments, and any requests for credentials.

Hi Daisy,

Sampler is OK with 14 day TAT now, please proceed with analysis with 14 day TAT.
Apologies for the unnecessary back and forth.

Regards,

Christina Leung
Regional Sample Control Center (RSCC)
USEPA Region 2
LSASD-HWSB-HWSS
732-906-6995
Leung.christina@epa.gov
Updated CLPSS Address: https://clpss.epa.gov/uaa/login

From: Bett, Daisy <Daisy.Bett@gdit.com>
Sent: Wednesday, October 30, 2024 9:37 AM
To: Leung, Christina (she/her/hers) <Leung.Christina@epa.gov>
Cc: Feranda, Jennifer <Feranda.Jennifer@epa.gov>; Brandon-Bazile, Kim <Brandon-Bazile.Kim@epa.gov>
Subject: RE: Region 02 | Case 51835 | Lab ACE | Issue Discrepancies with tags, jars, and/or COC

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Good morning Christina,

Would the Region please confirm whether the 7-day TAT change would need to be applied for all organic samples.
Please note that the SPLP analyses cannot be scheduled with a 7-day TAT.

Thank you,
Daisy Bett
Research Analyst Associate
GDIT Federal Civilian Division
EPA Region 2&3 CLP QSS Coordinator

Under contract to the EPA

T: 571.454.0186
daisy.bett@gdit.com
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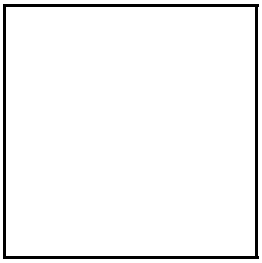
Chantilly, VA 20151
www.gdit.com



GENERAL DYNAMICS
Information Technology

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From: Leung, Christina (she/her/hers) <Leung.Christina@epa.gov>
Sent: Tuesday, October 29, 2024 6:57 PM
To: Bett, Daisy <Daisy.Bett@gdit.com>
Cc: Feranda, Jennifer <Feranda.Jennifer@epa.gov>; Brandon-Bazile, Kim <Brandon-Bazile.Kim@epa.gov>
Subject: RE: Region 02 | Case 51835 | Lab ACE | Issue Discrepancies with tags, jars, and/or COC

This Message Is From an External Sender

Please use caution with links, attachments, and any requests for credentials.

Hi Daisy,

Per the sampler, would it be possible to change the TAT from 14 days to 7 days?

Regards,

Christina Leung
Regional Sample Control Center (RSCC)
USEPA Region 2
LSASD-HWSB-HWSS
732-906-6995
Leung.christina@epa.gov
Updated CLPSS Address: https://clpss.epa.gov/uaa/login

From: Bett, Daisy <Daisy.Bett@gdit.com>
Sent: Tuesday, October 29, 2024 5:30 PM
To: Leung, Christina (she/her/hers) <Leung.Christina@epa.gov>
Cc: Feranda, Jennifer <Feranda.Jennifer@epa.gov>; Brandon-Bazile, Kim <Brandon-Bazile.Kim@epa.gov>
Subject: Region 02 | Case 51835 | Lab ACE | Issue Discrepancies with tags, jars, and/or COC

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

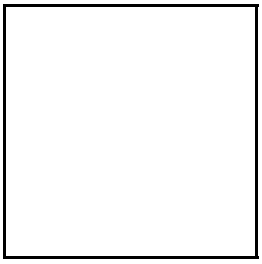
Good afternoon,

Please see the below issue from ACE.

Issue: The attached COCs lists a 7-day TAT, but a 14-day TAT is scheduled for this Case.

Thank you,
Daisy Bett
Research Analyst Associate
GDIT Federal Civilian Division
EPA Region 2&3 CLP QSS Coordinator
Under contract to the EPA

T: 571.454.0186
daisy.bett@gdit.com
15036 Conference Center Drive
Chantilly, VA 20151
www.gdit.com



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From: Deepak Parmar <Deepak.Parmar@alliancetg.com>
Sent: Tuesday, October 29, 2024 4:11 PM
To: Bett, Daisy <Daisy.Bett@gdit.com>
Cc: Sohil Jodhani <Sohil.Jodhani@AllianceTG.com>
Subject: Region 02 | Case 51835 | Lab ACE | Issue Discrepancies with tags, jars, and/or COC

This Message Is From an External Sender

Please use caution with links, attachments, and any requests for credentials.

Good afternoon,

As per ASR case 51835 is 14 days TAT but all COC received today for this case mentioned 7 days TAT there for lab would like to confirm they should proceed with analysis ?

Please see attachment for your reference.

Thanks & Regards,

Deepak Parmar
QA/QC
An Alliance Technical Group Company
Main: 908-789-8900
Address: 284 Sheffield St, Ste 1, Mountainside, NJ 07092
www.alliancetg.com

EPA SAMPLE NO.

MBH6M7

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-01

% Solids: Date Received: 10/29/2024

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
7440-36-0	Antimony	60	U	11/08/2024	1956
7440-38-2	Arsenic	41		11/08/2024	1956
7440-39-3	Barium	95	J	11/08/2024	1956
7440-41-7	Beryllium	9.1		11/08/2024	1956
7440-43-9	Cadmium	1.0	J	11/08/2024	1956
7440-47-3	Chromium	18		11/08/2024	1956
7440-48-4	Cobalt	23	J	11/08/2024	1956
7440-50-8	Copper	4000		11/08/2024	1956
7439-92-1	Lead	3.9	J	11/08/2024	1956
7439-96-5	Manganese	5400		11/08/2024	1956
7440-02-0	Nickel	41		11/08/2024	1956
7782-49-2	Selenium	35	U	11/08/2024	1956
7440-22-4	Silver	10	U	11/08/2024	1956
7440-28-0	Thallium	25	U	11/08/2024	1956
7440-62-2	Vanadium	130		11/08/2024	1956
7440-66-6	Zinc	510		11/08/2024	1956

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

Comments:

EPA SAMPLE NO.

MBH6M8

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-02

% Solids: Date Received: 10/29/2024

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
7440-36-0	Antimony	60	U	11/08/2024	2001
7440-38-2	Arsenic	50		11/08/2024	2001
7440-39-3	Barium	85	J	11/08/2024	2001
7440-41-7	Beryllium	11		11/08/2024	2001
7440-43-9	Cadmium	0.78	J	11/08/2024	2001
7440-47-3	Chromium	18		11/08/2024	2001
7440-48-4	Cobalt	24	J	11/08/2024	2001
7440-50-8	Copper	2000		11/08/2024	2001
7439-92-1	Lead	4.5	J	11/08/2024	2001
7439-96-5	Manganese	4700		11/08/2024	2001
7440-02-0	Nickel	44		11/08/2024	2001
7782-49-2	Selenium	35	U	11/08/2024	2001
7440-22-4	Silver	10	U	11/08/2024	2001
7440-28-0	Thallium	25	U	11/08/2024	2001
7440-62-2	Vanadium	140		11/08/2024	2001
7440-66-6	Zinc	510		11/08/2024	2001

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

Comments:

EPA SAMPLE NO.

MBH6M9

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-03

% Solids: Date Received: 10/29/2024

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
7440-36-0	Antimony	60	U	11/08/2024	2005
7440-38-2	Arsenic	55		11/08/2024	2005
7440-39-3	Barium	84	J	11/08/2024	2005
7440-41-7	Beryllium	9.6		11/08/2024	2005
7440-43-9	Cadmium	1.2	J	11/08/2024	2005
7440-47-3	Chromium	20		11/08/2024	2005
7440-48-4	Cobalt	27	J	11/08/2024	2005
7440-50-8	Copper	3600		11/08/2024	2005
7439-92-1	Lead	7.0	J	11/08/2024	2005
7439-96-5	Manganese	6700		11/08/2024	2005
7440-02-0	Nickel	48		11/08/2024	2005
7782-49-2	Selenium	35	U	11/08/2024	2005
7440-22-4	Silver	10	U	11/08/2024	2005
7440-28-0	Thallium	25	U	11/08/2024	2005
7440-62-2	Vanadium	130		11/08/2024	2005
7440-66-6	Zinc	520		11/08/2024	2005

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

Comments:

EPA SAMPLE NO.

MBH6N0

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-04

% Solids: Date Received: 10/29/2024

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
7440-36-0	Antimony	60	U	11/08/2024	2010
7440-38-2	Arsenic	47		11/08/2024	2010
7440-39-3	Barium	81	J	11/08/2024	2010
7440-41-7	Beryllium	10		11/08/2024	2010
7440-43-9	Cadmium	1.2	J	11/08/2024	2010
7440-47-3	Chromium	20		11/08/2024	2010
7440-48-4	Cobalt	28	J	11/08/2024	2010
7440-50-8	Copper	3100		11/08/2024	2010
7439-92-1	Lead	8.9	J	11/08/2024	2010
7439-96-5	Manganese	5300		11/08/2024	2010
7440-02-0	Nickel	49		11/08/2024	2010
7782-49-2	Selenium	35	U	11/08/2024	2010
7440-22-4	Silver	10	U	11/08/2024	2010
7440-28-0	Thallium	25	U	11/08/2024	2010
7440-62-2	Vanadium	140		11/08/2024	2010
7440-66-6	Zinc	550		11/08/2024	2010

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

Comments:

EPA SAMPLE NO.

MBH6N1

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-05

% Solids: Date Received: 10/29/2024

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
7440-36-0	Antimony	60	U	11/08/2024	2014
7440-38-2	Arsenic	51		11/08/2024	2014
7440-39-3	Barium	73	J	11/08/2024	2014
7440-41-7	Beryllium	9.5		11/08/2024	2014
7440-43-9	Cadmium	1.5	J	11/08/2024	2014
7440-47-3	Chromium	28		11/08/2024	2014
7440-48-4	Cobalt	33	J	11/08/2024	2014
7440-50-8	Copper	2100		11/08/2024	2014
7439-92-1	Lead	6.7	J	11/08/2024	2014
7439-96-5	Manganese	5600		11/08/2024	2014
7440-02-0	Nickel	57		11/08/2024	2014
7782-49-2	Selenium	35	U	11/08/2024	2014
7440-22-4	Silver	10	U	11/08/2024	2014
7440-28-0	Thallium	25	U	11/08/2024	2014
7440-62-2	Vanadium	160		11/08/2024	2014
7440-66-6	Zinc	500		11/08/2024	2014

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

Comments:

EPA SAMPLE NO.

MBH6N2

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-07

% Solids: Date Received: 10/29/2024

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
7440-36-0	Antimony	60	U	11/08/2024	2023
7440-38-2	Arsenic	50		11/08/2024	2023
7440-39-3	Barium	78	J	11/08/2024	2023
7440-41-7	Beryllium	9.7		11/08/2024	2023
7440-43-9	Cadmium	1.3	J	11/08/2024	2023
7440-47-3	Chromium	23		11/08/2024	2023
7440-48-4	Cobalt	29	J	11/08/2024	2023
7440-50-8	Copper	3400		11/08/2024	2023
7439-92-1	Lead	7.9	J	11/08/2024	2023
7439-96-5	Manganese	7700		11/08/2024	2023
7440-02-0	Nickel	52		11/08/2024	2023
7782-49-2	Selenium	35	U	11/08/2024	2023
7440-22-4	Silver	10	U	11/08/2024	2023
7440-28-0	Thallium	25	U	11/08/2024	2023
7440-62-2	Vanadium	130		11/08/2024	2023
7440-66-6	Zinc	490		11/08/2024	2023

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

Comments:

EPA SAMPLE NO.

MBH6N3

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-08

% Solids: Date Received: 10/29/2024

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
7440-36-0	Antimony	60	U	11/08/2024	2027
7440-38-2	Arsenic	49		11/08/2024	2027
7440-39-3	Barium	89	J	11/08/2024	2027
7440-41-7	Beryllium	9.5		11/08/2024	2027
7440-43-9	Cadmium	1.3	J	11/08/2024	2027
7440-47-3	Chromium	25		11/08/2024	2027
7440-48-4	Cobalt	31	J	11/08/2024	2027
7440-50-8	Copper	2400		11/08/2024	2027
7439-92-1	Lead	7.7	J	11/08/2024	2027
7439-96-5	Manganese	6200		11/08/2024	2027
7440-02-0	Nickel	54		11/08/2024	2027
7782-49-2	Selenium	35	U	11/08/2024	2027
7440-22-4	Silver	10	U	11/08/2024	2027
7440-28-0	Thallium	25	U	11/08/2024	2027
7440-62-2	Vanadium	150		11/08/2024	2027
7440-66-6	Zinc	560		11/08/2024	2027

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

Comments:

EPA SAMPLE NO.

MBH6N4

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-09

% Solids: Date Received: 10/29/2024

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
7440-36-0	Antimony	60	U	11/08/2024	2031
7440-38-2	Arsenic	47		11/08/2024	2031
7440-39-3	Barium	77	J	11/08/2024	2031
7440-41-7	Beryllium	10		11/08/2024	2031
7440-43-9	Cadmium	0.93	J	11/08/2024	2031
7440-47-3	Chromium	18		11/08/2024	2031
7440-48-4	Cobalt	24	J	11/08/2024	2031
7440-50-8	Copper	3200		11/08/2024	2031
7439-92-1	Lead	9.8	J	11/08/2024	2031
7439-96-5	Manganese	5100		11/08/2024	2031
7440-02-0	Nickel	44		11/08/2024	2031
7782-49-2	Selenium	35	U	11/08/2024	2031
7440-22-4	Silver	10	U	11/08/2024	2031
7440-28-0	Thallium	25	U	11/08/2024	2031
7440-62-2	Vanadium	120		11/08/2024	2031
7440-66-6	Zinc	550		11/08/2024	2031

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

Comments:

EPA SAMPLE NO.

MBH6N5

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-10

% Solids: Date Received: 10/29/2024

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
7440-36-0	Antimony	60	U	11/08/2024	2036
7440-38-2	Arsenic	54		11/08/2024	2036
7440-39-3	Barium	77	J	11/08/2024	2036
7440-41-7	Beryllium	9.8		11/08/2024	2036
7440-43-9	Cadmium	1.2	J	11/08/2024	2036
7440-47-3	Chromium	17		11/08/2024	2036
7440-48-4	Cobalt	27	J	11/08/2024	2036
7440-50-8	Copper	5400		11/08/2024	2036
7439-92-1	Lead	6.5	J	11/08/2024	2036
7439-96-5	Manganese	6700		11/08/2024	2036
7440-02-0	Nickel	48		11/08/2024	2036
7782-49-2	Selenium	35	U	11/08/2024	2036
7440-22-4	Silver	10	U	11/08/2024	2036
7440-28-0	Thallium	25	U	11/08/2024	2036
7440-62-2	Vanadium	130		11/08/2024	2036
7440-66-6	Zinc	520		11/08/2024	2036

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

Comments:

EPA SAMPLE NO.

MBH6N6

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-11

% Solids: Date Received: 10/29/2024

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
7440-36-0	Antimony	60	U	11/12/2024	1529
7440-38-2	Arsenic	34		11/12/2024	1529
7440-39-3	Barium	79	J	11/12/2024	1529
7440-41-7	Beryllium	8.1		11/12/2024	1529
7440-43-9	Cadmium	1.6	J	11/12/2024	1529
7440-47-3	Chromium	19		11/12/2024	1529
7440-48-4	Cobalt	22	J	11/12/2024	1529
7440-50-8	Copper	2200		11/12/2024	1529
7439-92-1	Lead	4.0	J	11/12/2024	1529
7439-96-5	Manganese	6700		11/12/2024	1529
7440-02-0	Nickel	38	J	11/12/2024	1529
7782-49-2	Selenium	35	U	11/12/2024	1529
7440-22-4	Silver	10	U	11/12/2024	1529
7440-28-0	Thallium	25	U	11/12/2024	1529
7440-62-2	Vanadium	120		11/12/2024	1529
7440-66-6	Zinc	480		11/12/2024	1529

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

Comments:

EPA SAMPLE NO.

MBH6N7

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-14

% Solids: Date Received: 10/29/2024

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
7440-36-0	Antimony	60	U	11/08/2024	2107
7440-38-2	Arsenic	59		11/08/2024	2107
7440-39-3	Barium	84	J	11/08/2024	2107
7440-41-7	Beryllium	10		11/08/2024	2107
7440-43-9	Cadmium	1.4	J	11/08/2024	2107
7440-47-3	Chromium	22		11/08/2024	2107
7440-48-4	Cobalt	30	J	11/08/2024	2107
7440-50-8	Copper	1900		11/08/2024	2107
7439-92-1	Lead	6.2	J	11/08/2024	2107
7439-96-5	Manganese	6300		11/08/2024	2107
7440-02-0	Nickel	52		11/08/2024	2107
7782-49-2	Selenium	35	U	11/08/2024	2107
7440-22-4	Silver	10	U	11/08/2024	2107
7440-28-0	Thallium	25	U	11/08/2024	2107
7440-62-2	Vanadium	160		11/08/2024	2107
7440-66-6	Zinc	520		11/08/2024	2107

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

Comments:

EPA SAMPLE NO.

MBH8M6

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-06

% Solids: Date Received: 10/29/2024

Analytical Method: ICP_AES

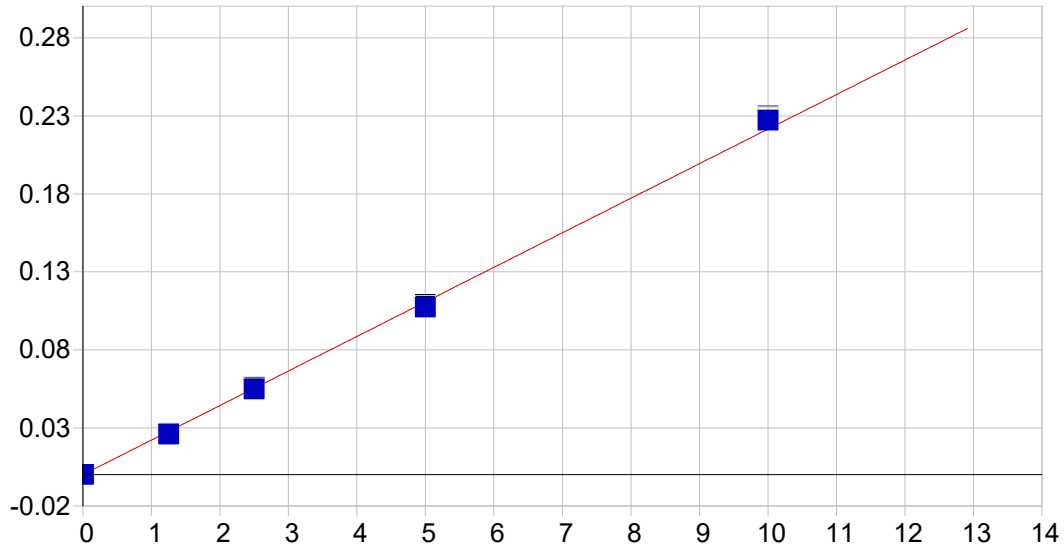
Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7440-36-0	Antimony	60	U	11/08/2024	2018
7440-38-2	Arsenic	63		11/08/2024	2018
7440-39-3	Barium	74	J	11/08/2024	2018
7440-41-7	Beryllium	10		11/08/2024	2018
7440-43-9	Cadmium	1.3	J	11/08/2024	2018
7440-47-3	Chromium	26		11/08/2024	2018
7440-48-4	Cobalt	31	J	11/08/2024	2018
7440-50-8	Copper	2900		11/08/2024	2018
7439-92-1	Lead	5.7	J	11/08/2024	2018
7439-96-5	Manganese	6700		11/08/2024	2018
7440-02-0	Nickel	55		11/08/2024	2018
7782-49-2	Selenium	35	U	11/08/2024	2018
7440-22-4	Silver	10	U	11/08/2024	2018
7440-28-0	Thallium	25	U	11/08/2024	2018
7440-62-2	Vanadium	150		11/08/2024	2018
7440-66-6	Zinc	500		11/08/2024	2018

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

Comments:

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



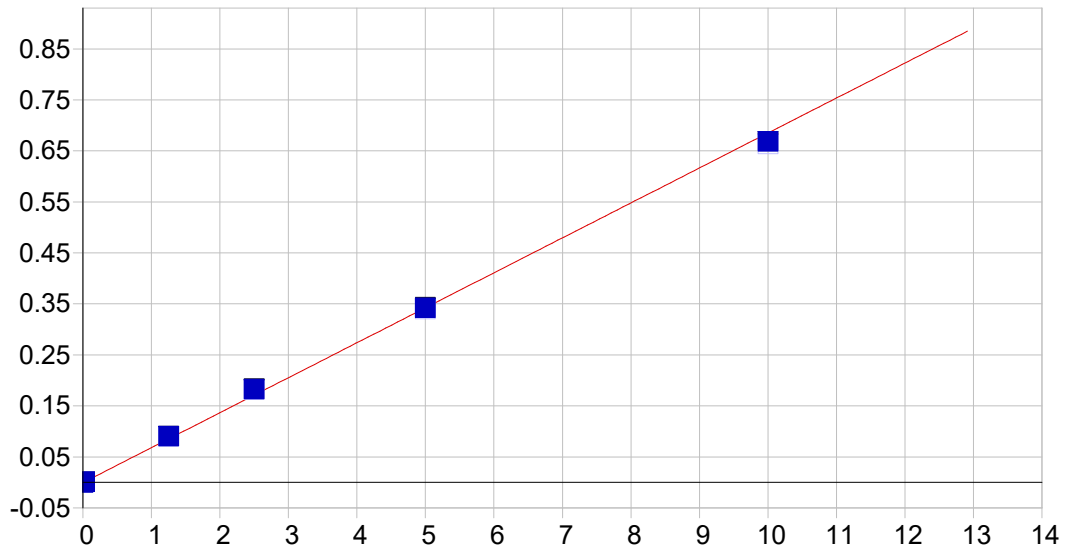
As 189.042 {479}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000089	Re-Slope:	1.000000
A1 (Gain):	0.022138	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999560	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	0.010389		
Predicted MQL:	0.034631		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00009	.000	1
S1	.01000	.01202	.002	20.2	.00036	.000	1
S2	1.2500	1.1714	-.079	-6.29	.02634	.000	1
S3	2.5000	2.4772	-.023	-.911	.05556	.000	1
S4	5.0000	4.8444	-.156	-3.11	.10860	.001	1
S5	10.000	10.255	.255	2.55	.22964	.000	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



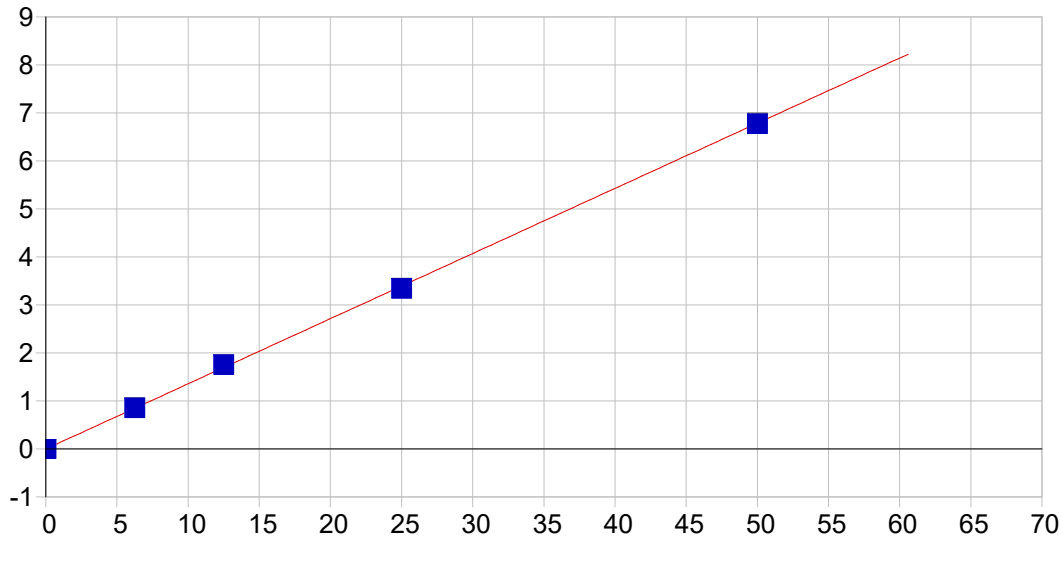
Tl 190.856 {477}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000407	Re-Slope:	1.000000
A1 (Gain):	0.068545	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999390	Status:	OK.
Std Error of Est:	0.000063		
Predicted MDL:	0.003071		
Predicted MQL:	0.010238		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00041	.000	1
S1	.02500	.02662	.002	6.49	.00138	.000	1
S2	1.2500	1.3231	.073	5.85	.08970	.000	1
S3	2.5000	2.6750	.175	7.00	.18177	.001	1
S4	5.0000	4.9947	-.005	-.106	.33959	.001	1
S5	10.000	9.7556	-.244	-2.44	.66357	.000	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



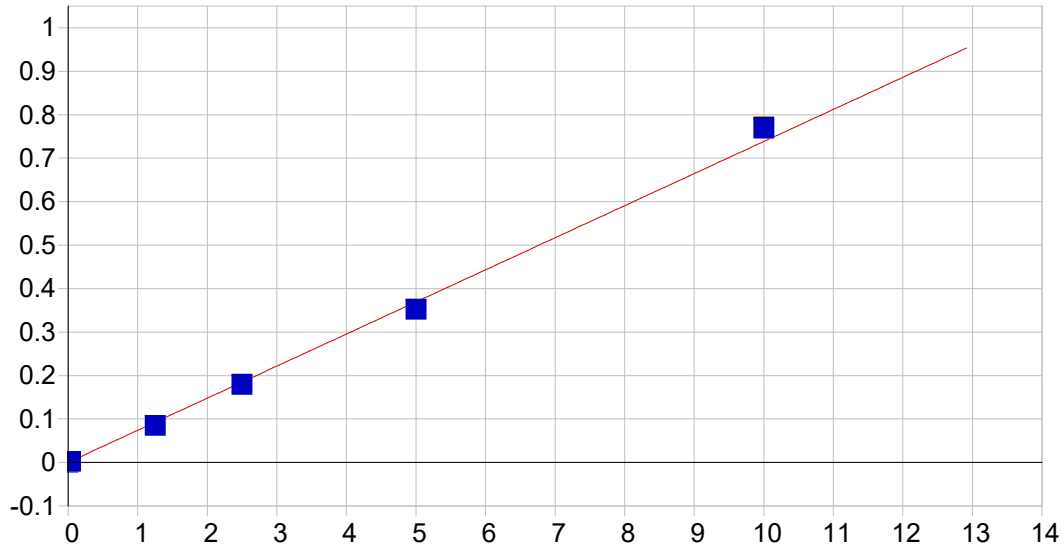
Pb 220.353 {453}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001223	Re-Slope:	1.000000
A1 (Gain):	0.135729	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999881	Status:	OK.
Std Error of Est:	0.000078		
Predicted MDL:	0.003392		
Predicted MQL:	0.011305		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00122	.001	1
S1	.01000	.00778	-.002	-22.2	-.00016	.001	1
S2	6.2500	6.2763	.026	.421	.85044	.003	1
S3	12.500	12.939	.439	3.52	1.7546	.002	1
S4	25.000	24.608	-.392	-1.57	3.3379	.005	1
S5	50.000	49.929	-.071	-.142	6.7739	.009	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



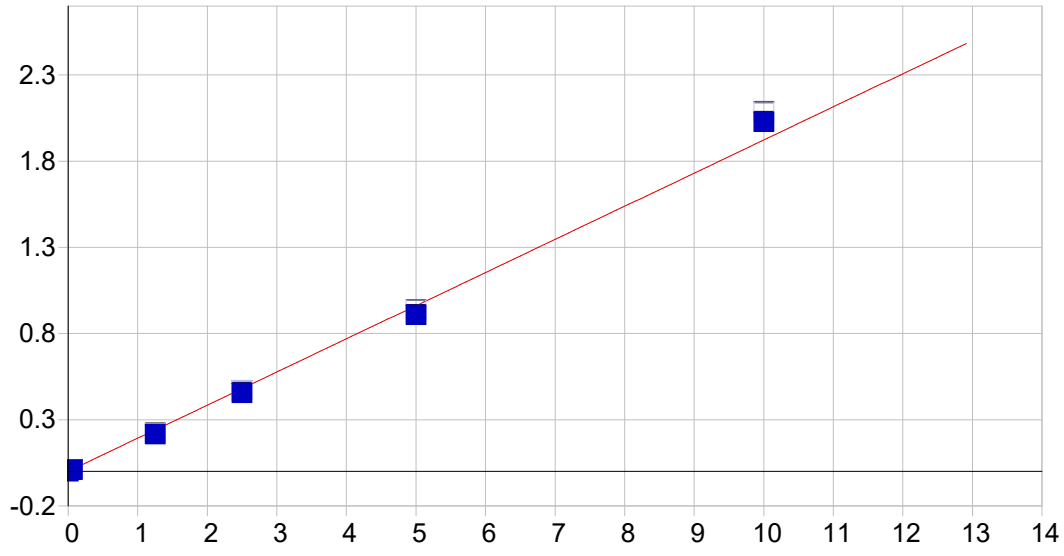
Se 196.090 {472}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000201	Re-Slope:	1.000000
A1 (Gain):	0.073814	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998955	Status:	OK.
Std Error of Est:	0.000106		
Predicted MDL:	0.005525		
Predicted MQL:	0.018416		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00020	.001	1
S1	.03500	.03233	-.003	-7.63	.00258	.000	1
S2	1.2500	1.1494	-.101	-8.05	.08487	.000	1
S3	2.5000	2.4241	-.076	-3.04	.17878	.001	1
S4	5.0000	4.7630	-.237	-4.74	.35107	.001	1
S5	10.000	10.416	.416	4.16	.76766	.003	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



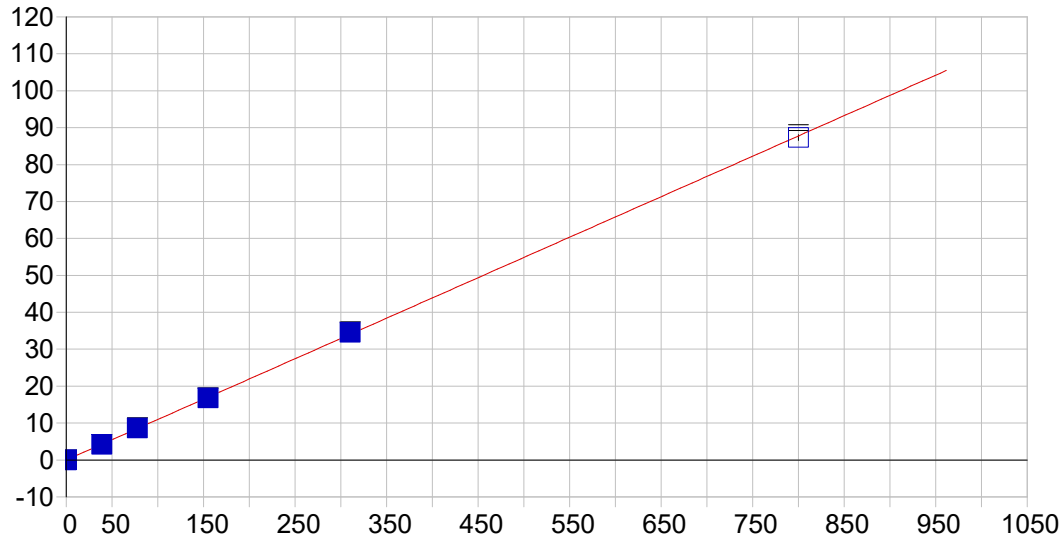
Sb 206.833 {463}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000127	Re-Slope:	1.000000
A1 (Gain):	0.192281	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998319	Status:	OK.
Std Error of Est:	0.000473		
Predicted MDL:	0.002540		
Predicted MQL:	0.008468		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00002	.000	.000	.00013	.000	1
S1	.06000	.05435	-.006	-9.41	.01058	.001	1
S2	1.2500	1.1179	-.132	-10.6	.22217	.001	1
S3	2.5000	2.3681	-.132	-5.28	.46965	.001	1
S4	5.0000	4.7207	-.279	-5.59	.93621	.002	1
S5	10.000	10.549	.549	5.49	2.0852	.004	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



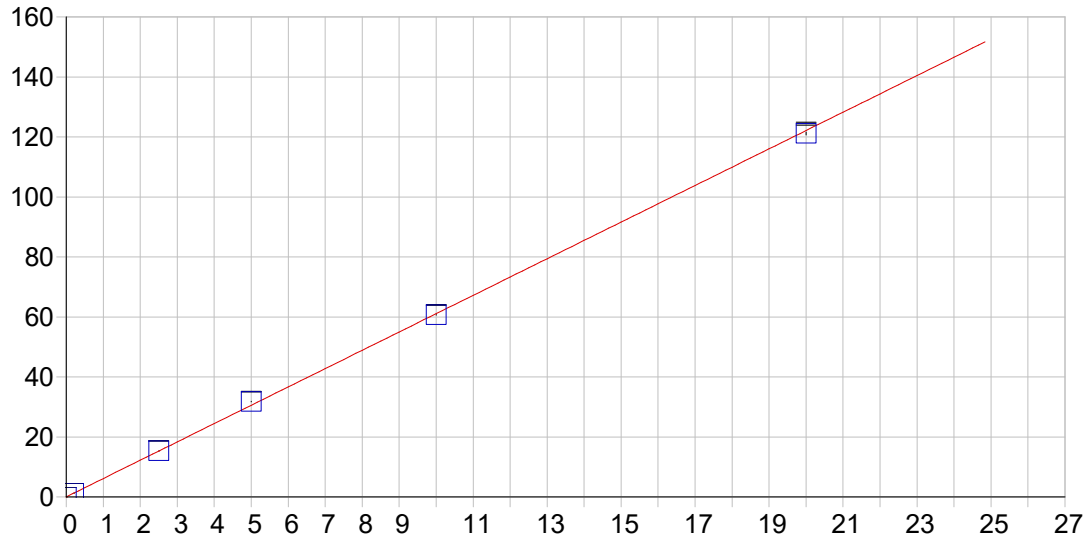
Al 396.152 { 85}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001441	Re-Slope:	1.000000
A1 (Gain):	0.109710	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999942	Status:	OK.
Std Error of Est:	0.000733		
Predicted MDL:	0.014104		
Predicted MQL:	0.047012		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00144	.001	1
S1	.20000	.18839	-.012	-5.81	.01927	.001	1
S2	38.750	38.294	-.456	-1.18	4.2049	.013	1
S3	77.500	78.839	1.34	1.73	8.6582	.038	1
S4	155.00	153.01	-1.99	-1.28	16.806	.022	1
S5	310.00	315.12	5.12	1.65	34.612	.132	1
S6	800.00	795.99	-4.01	-.501	87.327	.788	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



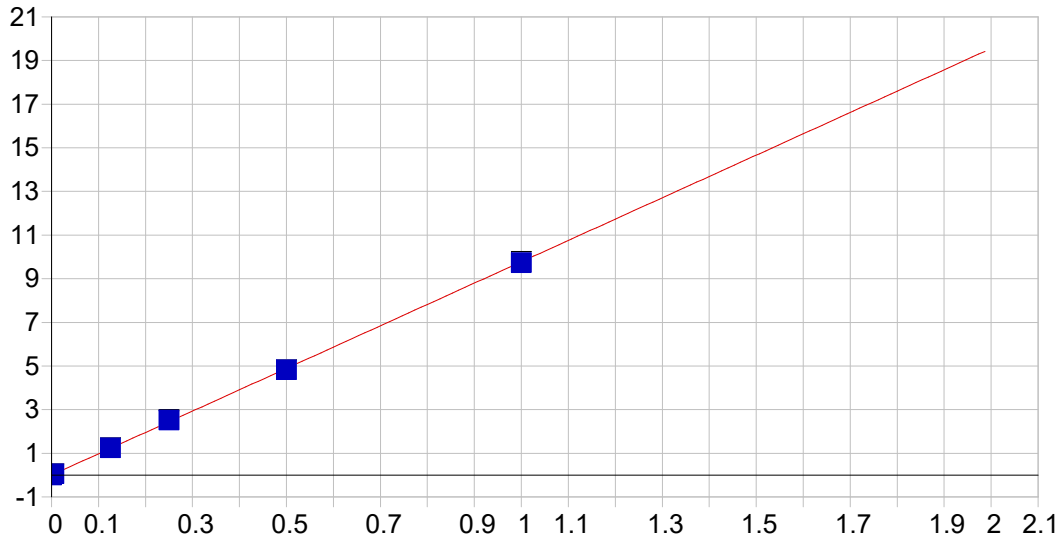
Ba 493.409 { 68}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.022896	Re-Slope:	1.000000
A1 (Gain):	6.105327	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999865	Status:	OK.
Std Error of Est:	0.010675		
Predicted MDL:	0.000822		
Predicted MQL:	0.002740		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	-.000	.000	.02279	.001	1
S1	.20000	.21156	.012	5.78	1.3146	.005	1
S2	2.5000	2.5170	.017	.680	15.390	.019	1
S3	5.0000	5.1963	.196	3.93	31.748	.107	1
S4	10.000	9.9373	-.063	-.627	60.693	.067	1
S5	20.000	19.838	-.162	-.811	121.14	.460	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



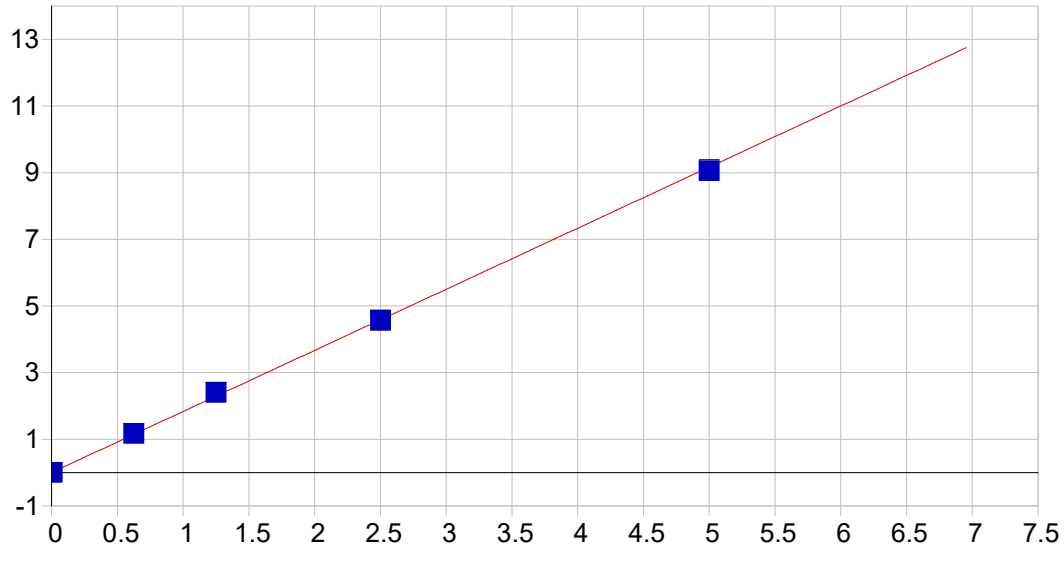
Be 234.861 {144}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001382	Re-Slope:	1.000000
A1 (Gain):	9.777438	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999893	Status:	OK.
Std Error of Est:	0.000536		
Predicted MDL:	0.000091		
Predicted MQL:	0.000302		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00139	.001	1
S1	.00500	.00536	.000	7.19	.05099	.001	1
S2	.12500	.12796	.003	2.36	1.2477	.007	1
S3	.25000	.25731	.007	2.92	2.5105	.020	1
S4	.50000	.49409	-.006	-1.18	4.8217	.003	1
S5	1.0000	.99528	-.005	-.472	9.7142	.059	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



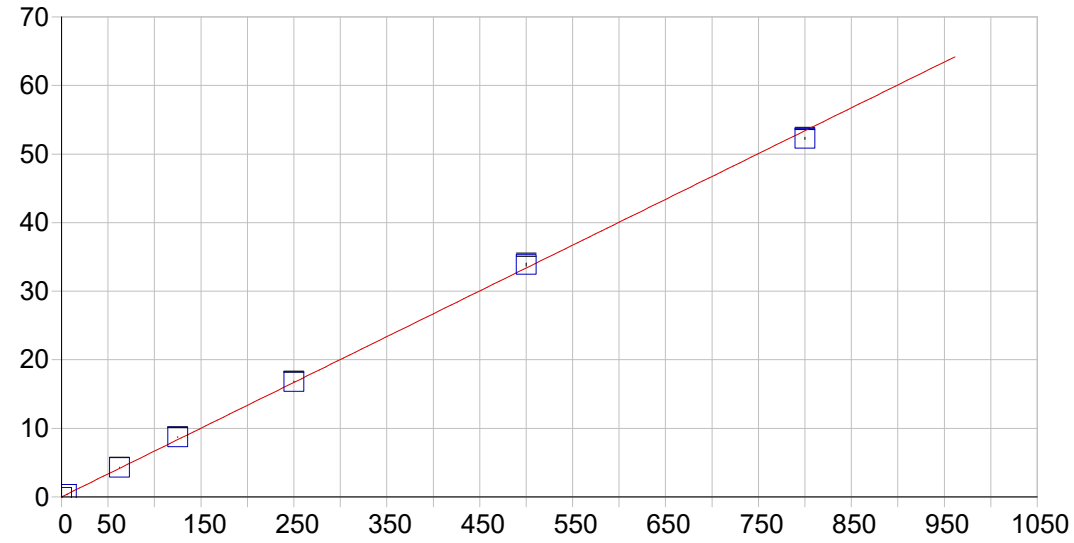
Cd 214.438 {457}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000095	Re-Slope:	1.000000
A1 (Gain):	1.833481	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999795	Status:	OK.
Std Error of Est:	0.000312		
Predicted MDL:	0.000151		
Predicted MQL:	0.000504		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00009	.000	1
S1	.00500	.00531	.000	6.28	.00985	.000	1
S2	.62500	.63671	.012	1.87	1.1702	.003	1
S3	1.2500	1.3095	.059	4.76	2.4065	.001	1
S4	2.5000	2.4896	-.010	-.417	4.5757	.003	1
S5	5.0000	4.9389	-.061	-1.22	9.0775	.015	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



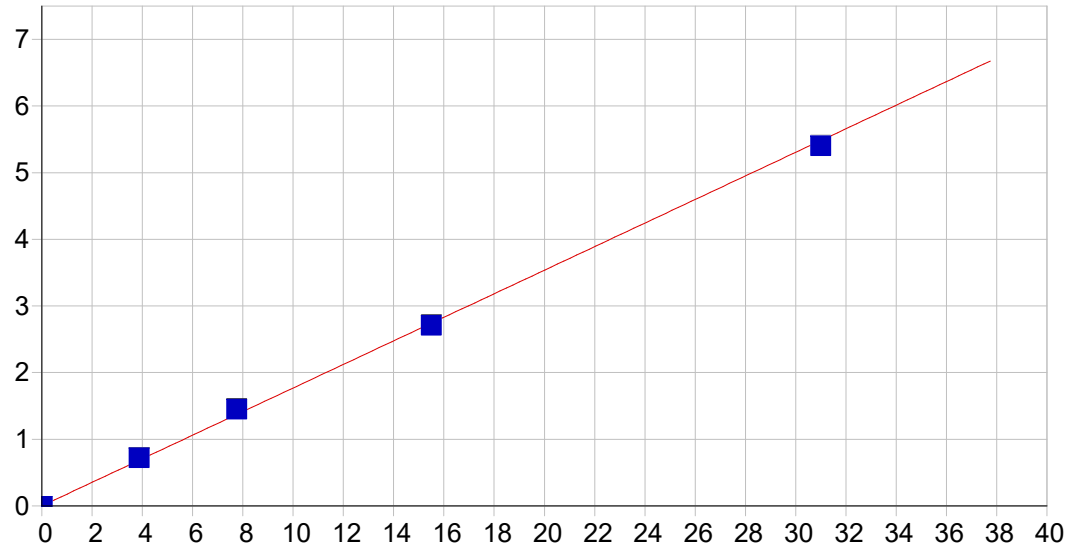
Ca 373.690 { 90}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.006616	Re-Slope:	1.000000
A1 (Gain):	0.066747	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999772	Status:	OK.
Std Error of Est:	0.004980		
Predicted MDL:	0.018275		
Predicted MQL:	0.060918		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00079	-.001	.000	.00656	.001	1
S1	5.0000	5.4197	.420	8.39	.36837	.001	1
S2	62.500	64.338	1.84	2.94	4.3010	.016	1
S3	125.00	130.48	5.48	4.38	8.7158	.051	1
S4	250.00	251.76	1.76	.706	16.811	.080	1
S5	500.00	507.22	7.22	1.44	33.862	.233	1
S6	800.00	783.27	-16.7	-2.09	52.288	.151	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



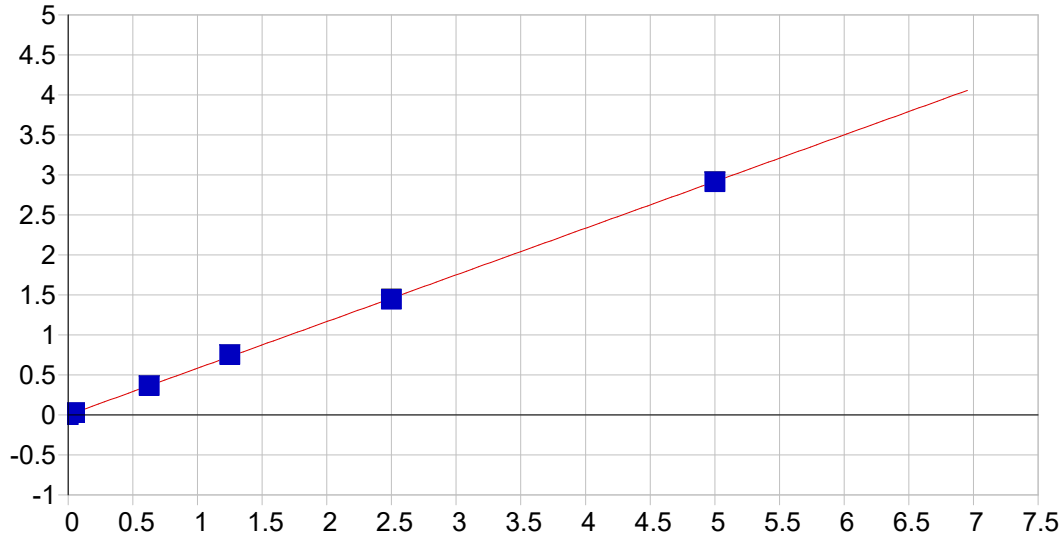
Cr 267.716 {126}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000100	Re-Slope:	1.000000
A1 (Gain):	0.176845	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999617	Status:	OK.
Std Error of Est:	0.000145		
Predicted MDL:	0.000976		
Predicted MQL:	0.003254		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00010	.000	1
S1	.01000	.01067	.001	6.72	.00199	.000	1
S2	3.8750	4.0686	.194	5.00	.72038	.001	1
S3	7.7500	8.1987	.449	5.79	1.4515	.003	1
S4	15.500	15.319	-.181	-1.17	2.7123	.003	1
S5	31.000	30.538	-.462	-1.49	5.4067	.004	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



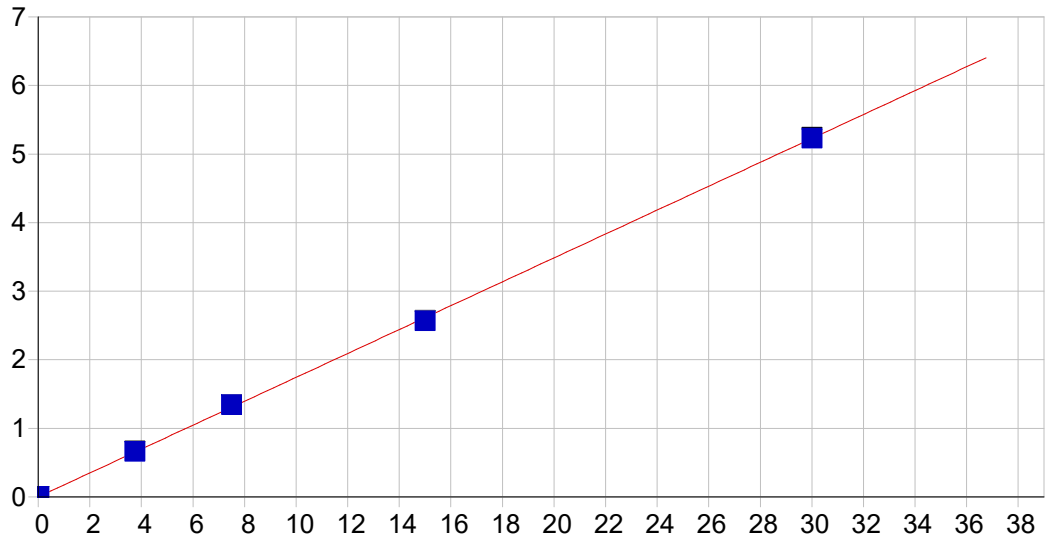
Co 228.616 {448}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000092	Re-Slope:	1.000000
A1 (Gain):	0.583404	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999912	Status:	OK.
Std Error of Est:	0.000206		
Predicted MDL:	0.000545		
Predicted MQL:	0.001815		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00009	.000	1
S1	.05000	.04983	-.000	-.347	.02908	.000	1
S2	.62500	.62284	-.002	-.345	.36372	.002	1
S3	1.2500	1.2908	.041	3.27	.75387	.000	1
S4	2.5000	2.4731	-.027	-1.08	1.4445	.002	1
S5	5.0000	4.9884	-.012	-.232	2.9137	.003	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



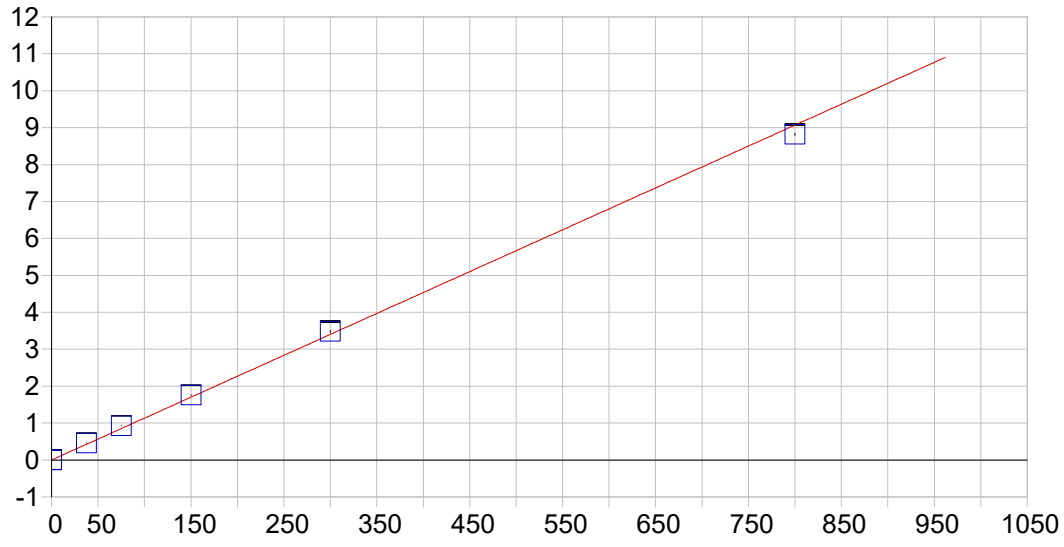
Cu 324.754 {104}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000778	Re-Slope:	1.000000
A1 (Gain):	0.174243	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999894	Status:	OK.
Std Error of Est:	0.000116		
Predicted MDL:	0.004240		
Predicted MQL:	0.014134		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00078	.000	1
S1	.02500	.02865	.004	14.6	.00577	.000	1
S2	3.7500	3.7948	.045	1.20	.66158	.005	1
S3	7.5000	7.7085	.208	2.78	1.3431	.006	1
S4	15.000	14.726	-.274	-1.83	2.5649	.007	1
S5	30.000	30.018	.018	.058	5.2278	.013	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



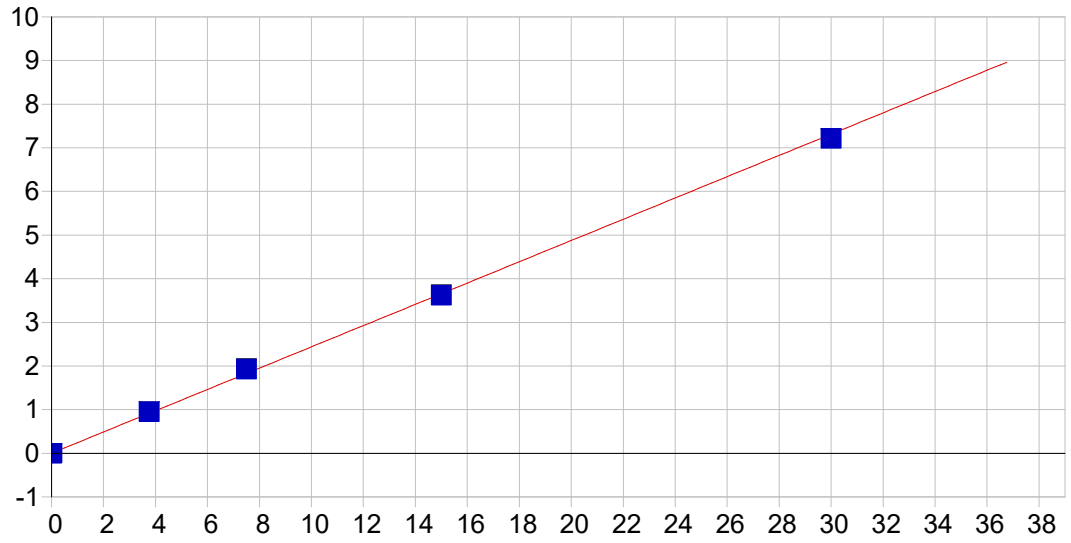
Fe 259.837 {130}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000088	Re-Slope:	1.000000
A1 (Gain):	0.011336	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999338	Status:	OK.
Std Error of Est:	0.000180		
Predicted MDL:	0.030869		
Predicted MQL:	0.102897		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00005	-.000	.000	.00009	.000	1
S1	.10000	.12589	.026	25.9	.00152	.000	1
S2	37.500	40.497	3.00	7.99	.45916	.002	1
S3	75.000	81.819	6.82	9.09	.92759	.005	1
S4	150.00	155.06	5.06	3.38	1.7579	.007	1
S5	300.00	307.06	7.06	2.35	3.4809	.026	1
S6	800.00	778.04	-22.0	-2.75	8.8200	.024	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



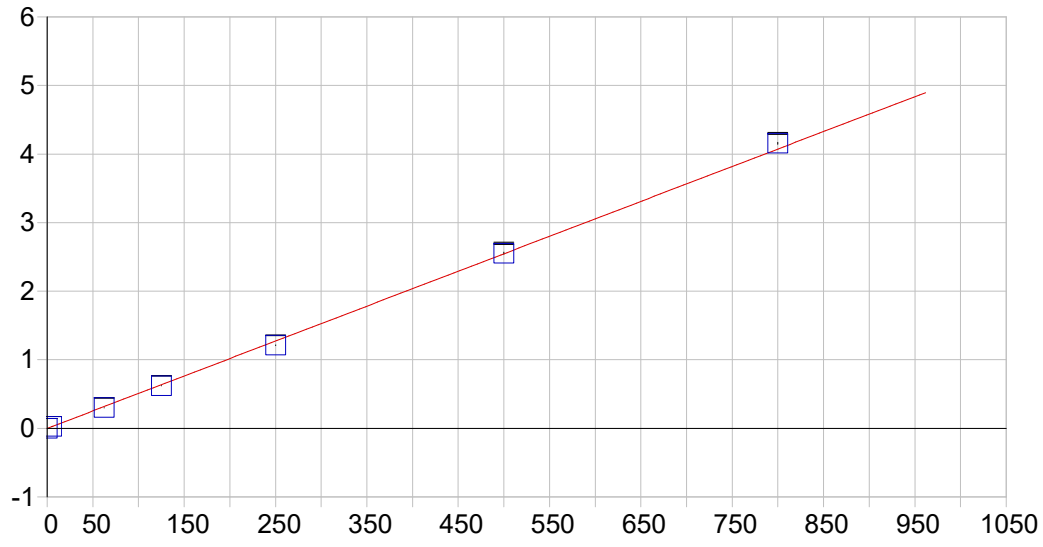
Mn 257.610 {131}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000297	Re-Slope:	1.000000
A1 (Gain):	0.243781	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999661	Status:	OK.
Std Error of Est:	0.000226		
Predicted MDL:	0.001512		
Predicted MQL:	0.005039		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00030	.000	1
S1	.01500	.01885	.004	25.6	.00431	.000	1
S2	3.7500	3.9129	.163	4.34	.95373	.003	1
S3	7.5000	7.9112	.411	5.48	1.9286	.006	1
S4	15.000	14.846	-.154	-1.03	3.6194	.005	1
S5	30.000	29.576	-.424	-1.41	7.2109	.005	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



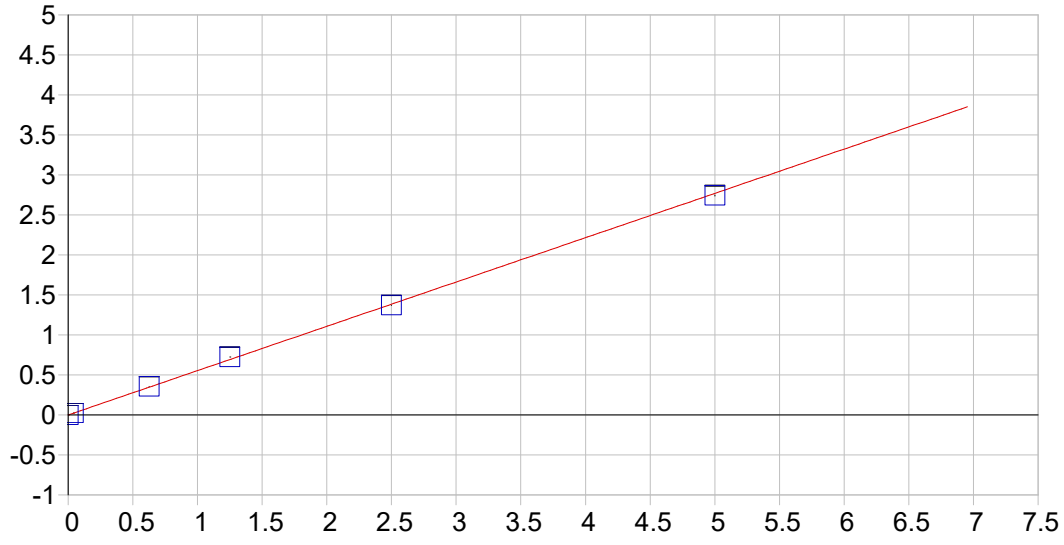
Mg 279.079 {121}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000487	Re-Slope:	1.000000
A1 (Gain):	0.005092	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999667	Status:	OK.
Std Error of Est:	0.000459		
Predicted MDL:	0.079499		
Predicted MQL:	0.264997		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00023	.000	.000	-.00049	.000	1
S1	5.0000	5.2690	.269	5.38	.02635	.001	1
S2	62.500	59.274	-3.23	-5.16	.30136	.002	1
S3	125.00	122.14	-2.86	-2.29	.62150	.003	1
S4	250.00	238.00	-12.0	-4.80	1.2115	.006	1
S5	500.00	501.43	1.43	.286	2.5530	.017	1
S6	800.00	816.38	16.4	2.05	4.1568	.014	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5



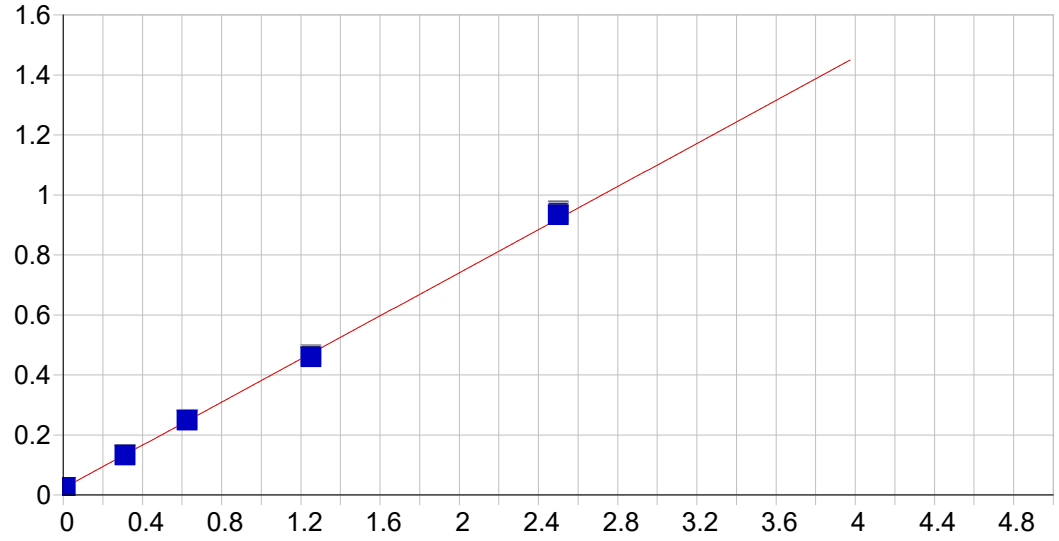
Ni 231.604 {446}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000199	Re-Slope:	1.000000
A1 (Gain):	0.553850	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999812	Status:	OK.
Std Error of Est:	0.000255		
Predicted MDL:	0.000612		
Predicted MQL:	0.002040		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00020	.000	1
S1	.04000	.04199	.002	4.98	.02306	.000	1
S2	.62500	.64024	.015	2.44	.35440	.001	1
S3	1.2500	1.3045	.055	4.36	.72232	.000	1
S4	2.5000	2.4761	-.024	-.956	1.3712	.002	1
S5	5.0000	4.9521	-.048	-.957	2.7425	.005	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

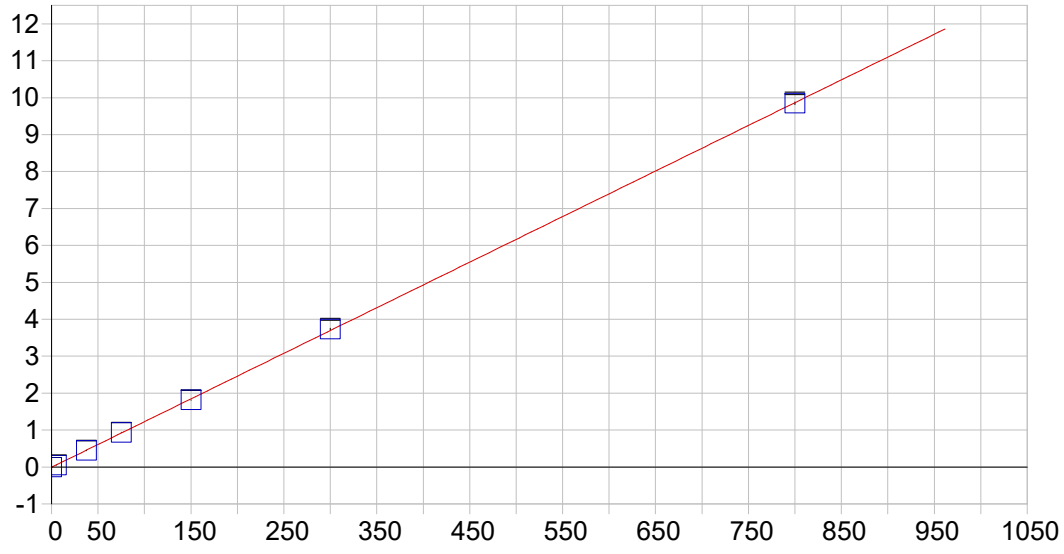


Ag 328.068 {103}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.022211	Re-Slope:	1.000000
A1 (Gain):	0.359158	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999838	Status:	OK.
Std Error of Est:	0.000055		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.02221	.000	1
S1	.01000	.00984	-.000	-1.60	.02573	.000	1
S2	.31250	.30516	-.007	-2.35	.13302	.000	1
S3	.62500	.62883	.004	.614	.25048	.001	1
S4	1.2500	1.2177	-.032	-2.59	.46439	.002	1
S5	2.5000	2.5360	.036	1.44	.94270	.003	1

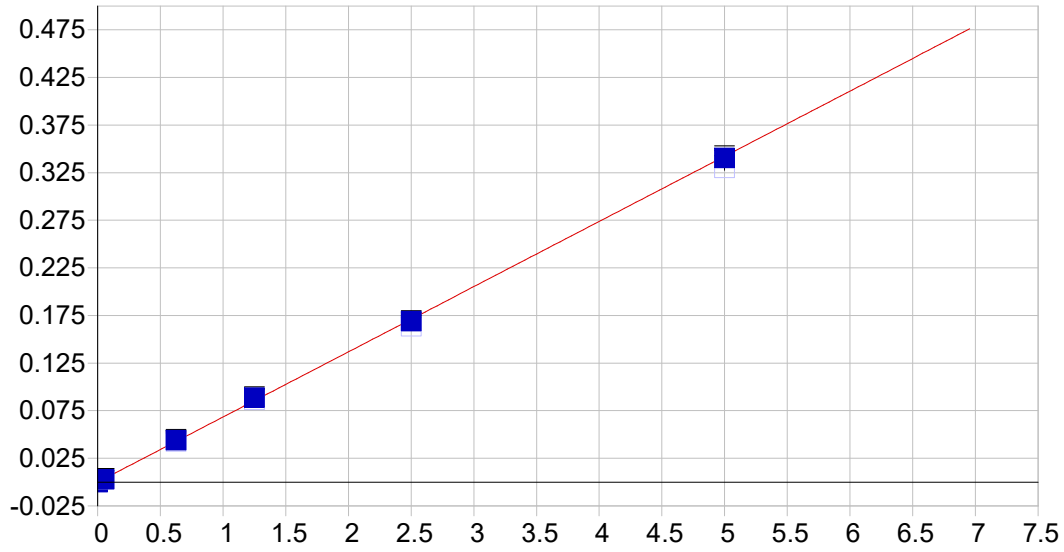


Na 818.326 { 41}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.007598	Re-Slope:	1.000000
A1 (Gain):	0.012341	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999964	Status:	OK.
Std Error of Est:	0.000324		
Predicted MDL:	0.288242		
Predicted MQL:	0.960805		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00014	.000	.000	-.00760	.002	1
S1	5.0000	4.8659	-.134	-2.68	.05245	.004	1
S2	37.500	37.104	-.396	-1.06	.45030	.009	1
S3	75.000	76.325	1.32	1.77	.93433	.003	1
S4	150.00	147.63	-2.37	-1.58	1.8143	.004	1
S5	300.00	302.90	2.90	.966	3.7305	.025	1
S6	800.00	798.67	-1.33	-.166	9.8488	.037	1



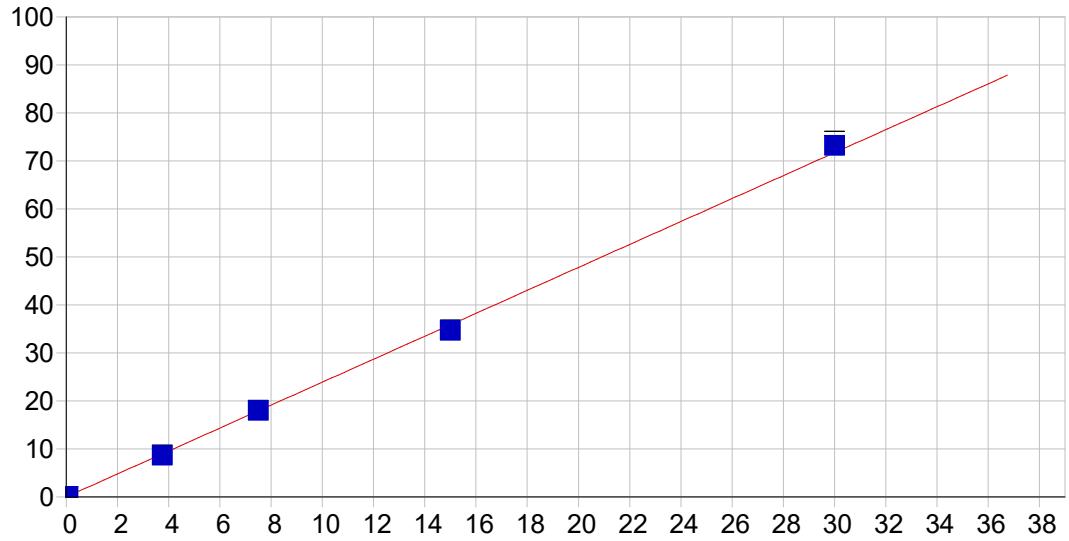
V 292.402 {115}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000085	Re-Slope:	1.000000
A1 (Gain):	0.068467	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999820	Status:	OK.
Std Error of Est:	0.000034		
Predicted MDL:	0.010534		
Predicted MQL:	0.035112		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00008	.001	1
S1	.05000	.04539	-.005	-9.23	.00302	.001	1
S2	.62500	.64159	.017	2.65	.04253	.001	1
S3	1.2500	1.2971	.047	3.77	.08609	.001	1
S4	2.5000	2.4678	-.032	-1.29	.16362	.001	1
S5	5.0000	4.9732	-.027	-.535	.32990	.002	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

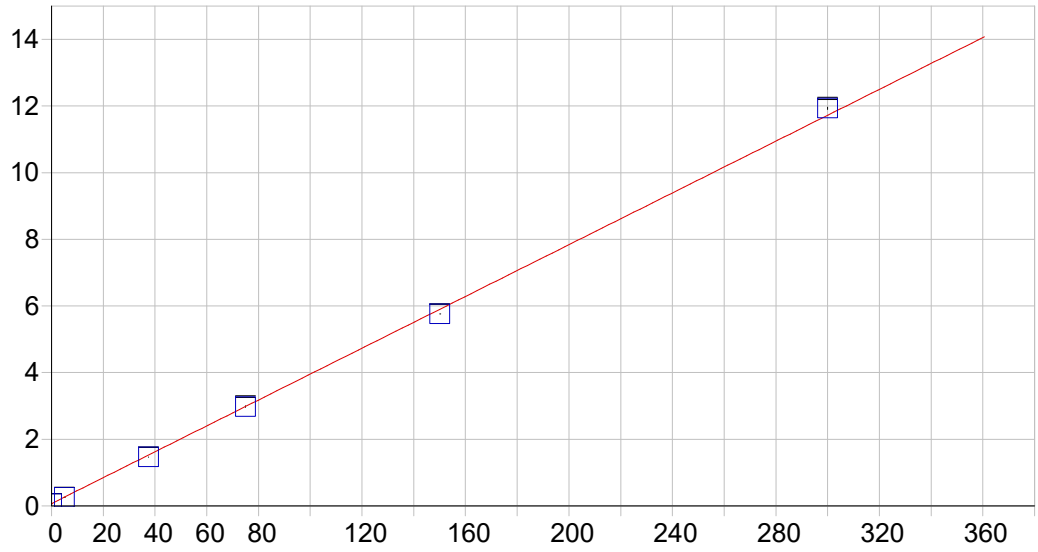


Zn 213.856 {158}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.005273	Re-Slope:	1.000000
A1 (Gain):	2.390318	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999698	Status:	OK.
Std Error of Est:	0.004185		
Predicted MDL:	0.000519		
Predicted MQL:	0.001731		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00528	.000	1
S1	.06000	.06095	.001	1.58	.15166	.001	1
S2	3.7500	3.6198	-.130	-3.47	8.6687	.032	1
S3	7.5000	7.5170	.017	.226	17.995	.050	1
S4	15.000	14.497	-.503	-3.36	34.700	.069	1
S5	30.000	30.616	.616	2.05	73.273	.853	1



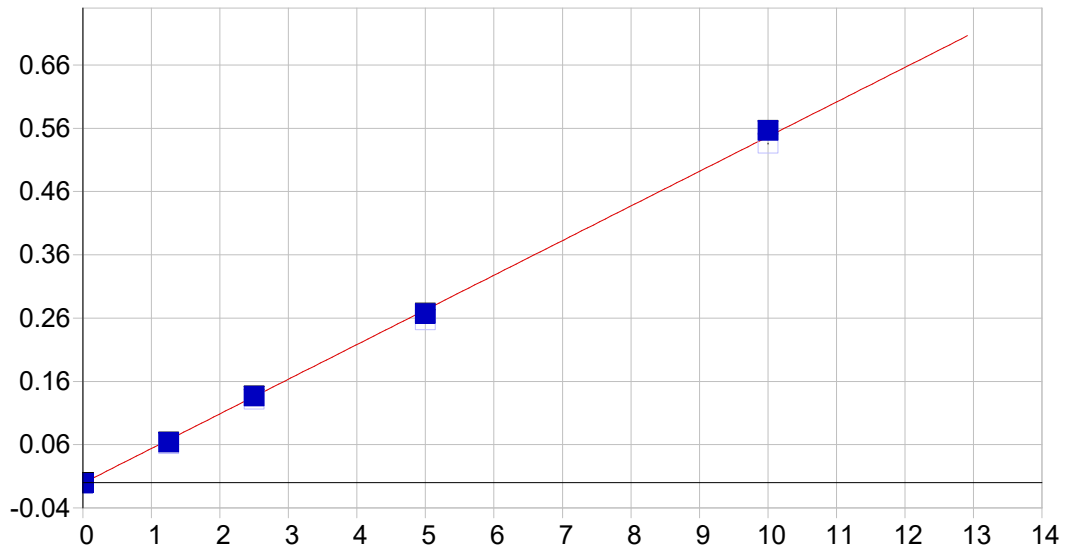
K 769.896 { 44}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.071377	Re-Slope:	1.000000
A1 (Gain):	0.038840	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999776	Status:	OK.
Std Error of Est:	0.001694		
Predicted MDL:	0.118770		
Predicted MQL:	0.395900		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00040	.000	.000	.07139	.003	1
S1	5.0000	4.8568	-.143	-2.86	.26002	.003	1
S2	37.500	35.871	-1.63	-4.34	1.4646	.002	1
S3	75.000	74.868	-.132	-.177	2.9793	.024	1
S4	150.00	146.50	-3.50	-2.33	5.7616	.002	1
S5	300.00	305.40	5.40	1.80	11.933	.034	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

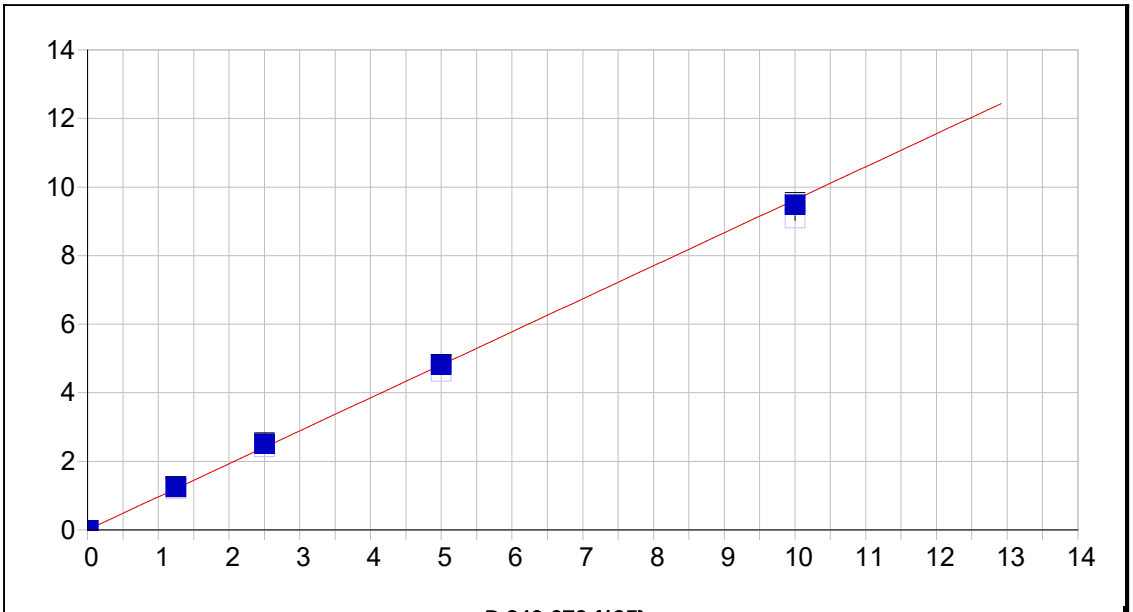


P 177.495 {490}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000901	Re-Slope:	1.000000
A1 (Gain):	0.054764	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999728	Status:	OK.
Std Error of Est:	0.000021		
Predicted MDL:	0.003308		
Predicted MQL:	0.011027		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00090	.000	1
S1	.01000	.01045	.000	4.47	-.00034	.000	1
S2	1.2500	1.1770	-.073	-5.84	.06104	.000	1
S3	2.5000	2.5063	.006	.253	.13132	.000	1
S4	5.0000	4.8947	-.105	-2.11	.25708	.001	1
S5	10.000	10.172	.172	1.72	.53600	.001	1



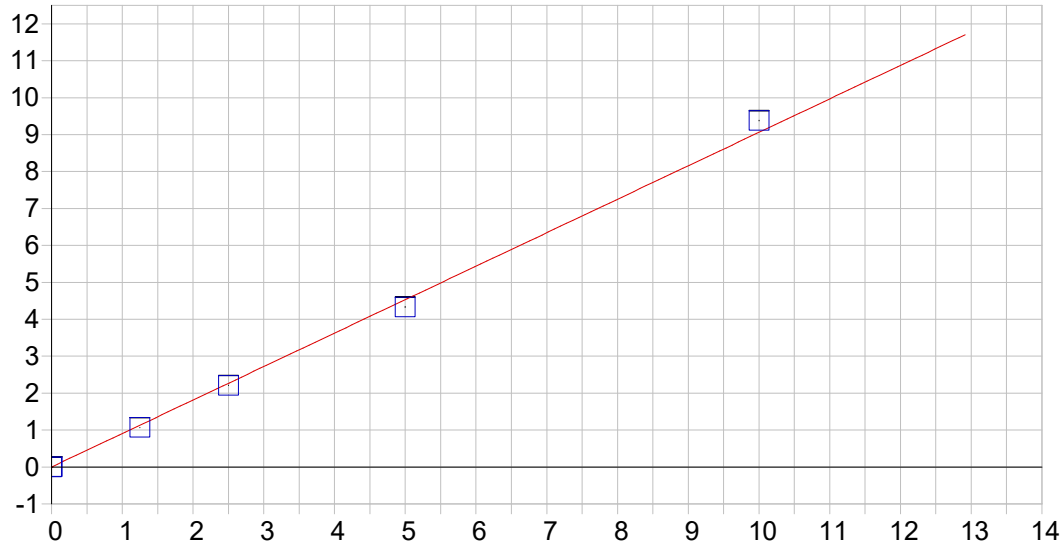
B 249.678 {135}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001580	Re-Slope:	1.000000
A1 (Gain):	0.962706	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999492	Status:	OK.
Std Error of Est:	0.000494		
Predicted MDL:	0.001069		
Predicted MQL:	0.003564		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00159	.000	1
S1	.01000	.00087	-.009	-91.3	.00233	.001	1
S2	1.2500	1.2999	.050	3.99	1.2045	.006	1
S3	2.5000	2.6103	.110	4.41	2.4174	.024	1
S4	5.0000	5.0030	.003	.060	4.6237	.009	1
S5	10.000	9.8462	-.154	-1.54	9.0920	.071	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

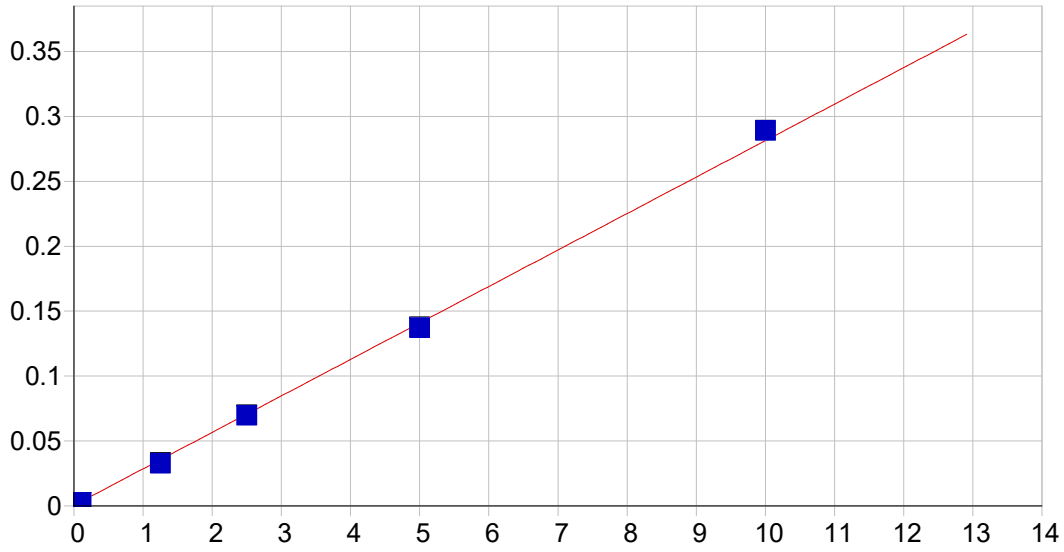


Mo 202.030 {467}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000078	Re-Slope:	1.000000
A1 (Gain):	0.906160	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999255	Status:	OK.
Std Error of Est:	0.000587		
Predicted MDL:	0.000484		
Predicted MQL:	0.001613		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00008	.000	1
S1	.01000	.00981	-.000	-1.94	.00896	.000	1
S2	1.2500	1.1780	-.072	-5.76	1.0675	.004	1
S3	2.5000	2.4372	-.063	-2.51	2.2086	.003	1
S4	5.0000	4.7801	-.220	-4.40	4.3316	.011	1
S5	10.000	10.355	.355	3.55	9.3832	.010	1



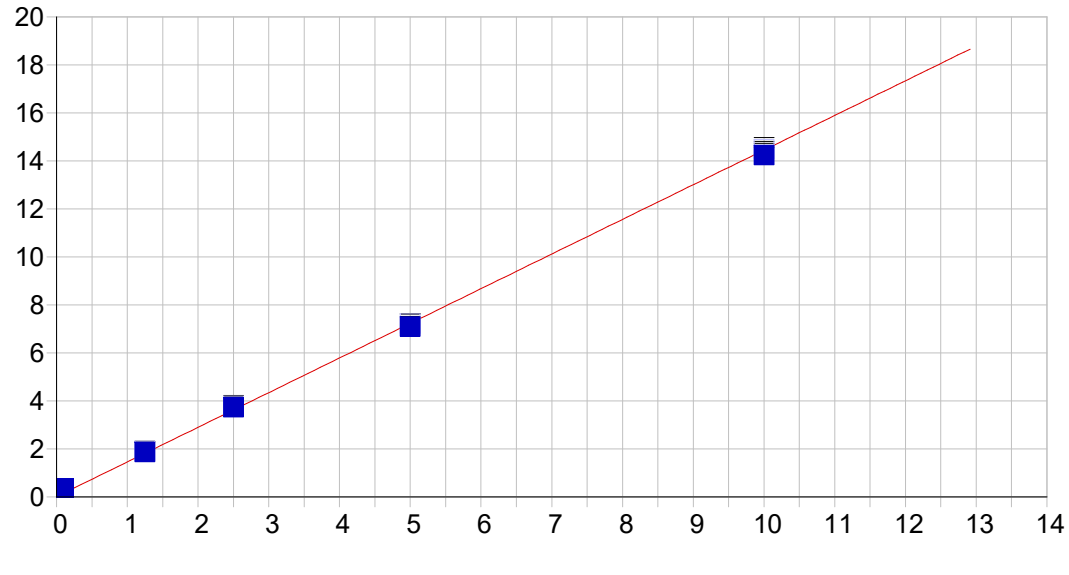
S 182.034 {485}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000474	Re-Slope:	1.000000
A1 (Gain):	0.028089	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999446	Status:	OK.
Std Error of Est:	0.000050		
Predicted MDL:	0.006305		
Predicted MQL:	0.021018		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00002	.000	.000	.00047	.000	1
S1	.10000	.08580	-.014	-14.2	.00288	.000	1
S2	1.2500	1.1524	-.098	-7.81	.03285	.000	1
S3	2.5000	2.4677	-.032	-1.29	.06979	.000	1
S4	5.0000	4.8707	-.129	-2.59	.13730	.000	1
S5	10.000	10.273	.273	2.73	.28907	.000	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

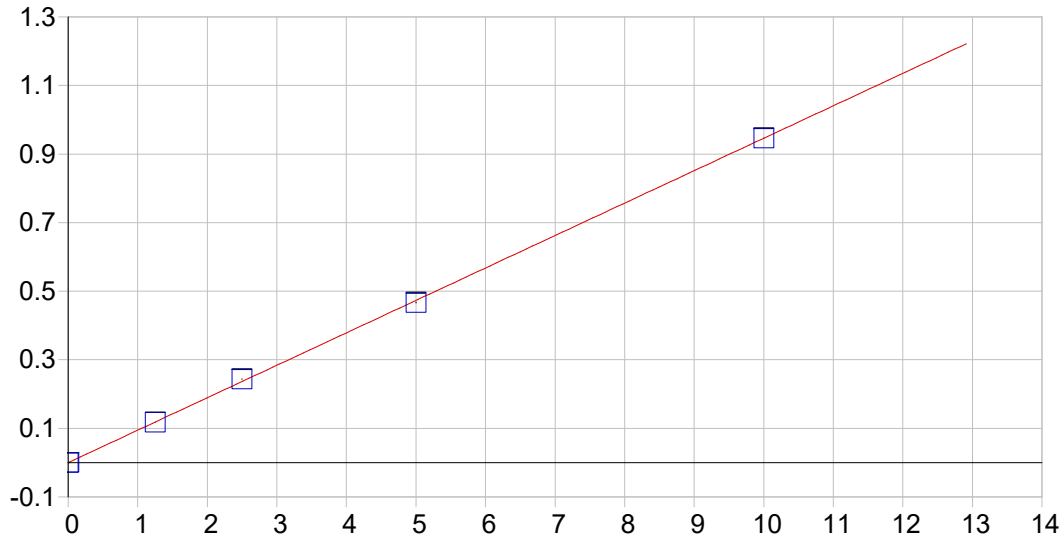


Si 251.611 {134}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.013287	Re-Slope:	1.000000
A1 (Gain):	1.443793	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.995662	Status:	OK.
Std Error of Est:	0.007286		
Predicted MDL:	0.000604		
Predicted MQL:	0.002012		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00013	-.000	.000	.01310	.000	1
S1	.10000	.22756	.128	128.	.34281	.002	1
S2	1.2500	1.2872	.037	2.97	1.9009	.010	1
S3	2.5000	2.5733	.073	2.93	3.7870	.031	1
S4	5.0000	4.9063	-.094	-1.87	7.2137	.012	1
S5	10.000	9.8568	-.143	-1.43	14.478	.082	1



Sn 189.989 {478}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000063	Re-Slope:	1.000000
A1 (Gain):	0.094607	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999920	Status:	OK.
Std Error of Est:	0.000017		
Predicted MDL:	0.001875		
Predicted MQL:	0.006252		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00006	.000	1
S1	.00700	.00776	.001	10.9	.00080	.000	1
S2	1.2500	1.2453	-.005	-.375	.11788	.000	1
S3	2.5000	2.5703	.070	2.81	.24324	.001	1
S4	5.0000	4.9317	-.068	-1.37	.46663	.001	1
S5	10.000	10.002	.002	.019	.94632	.001	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
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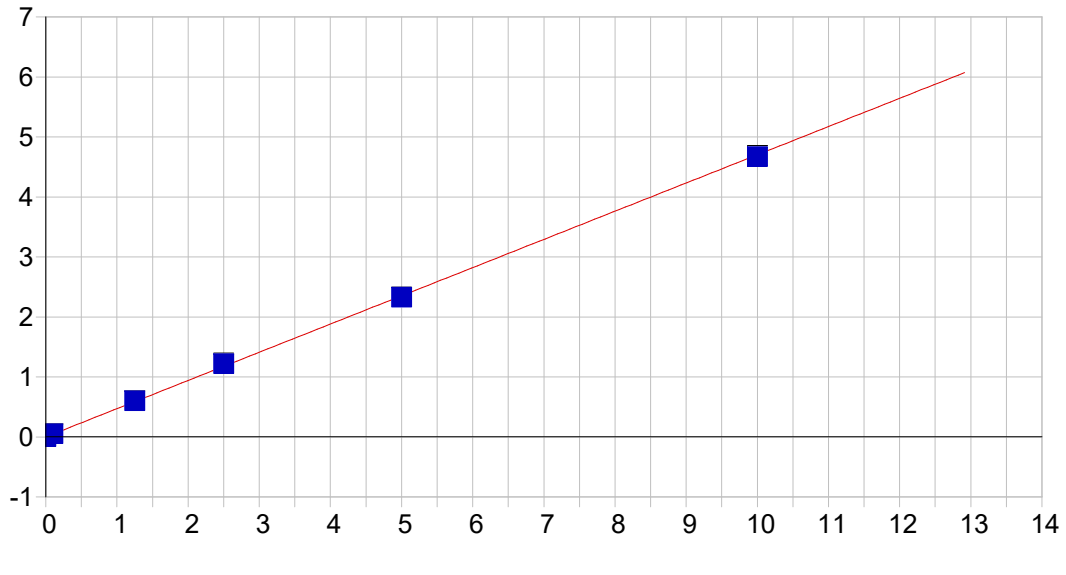
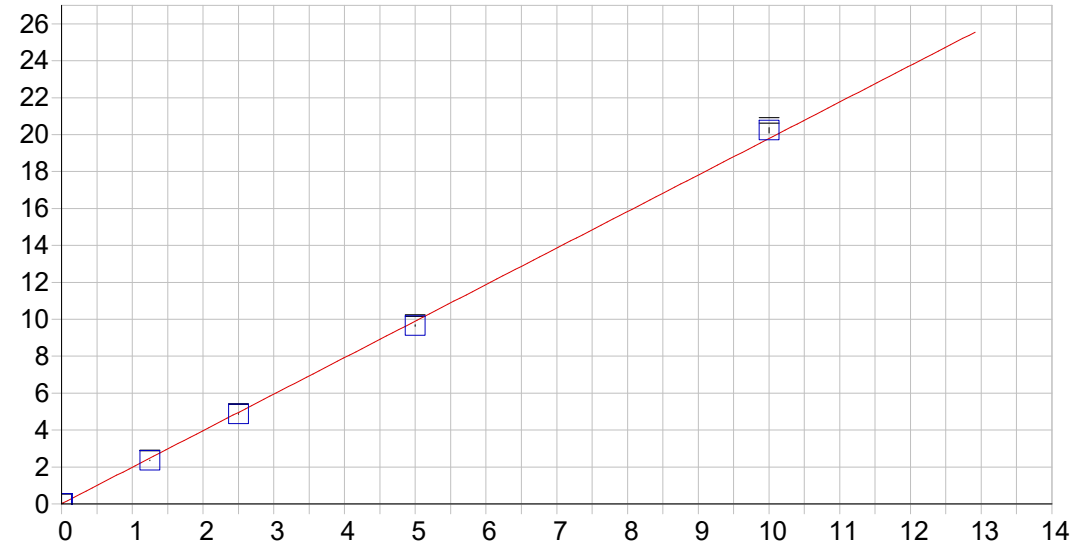


Ti 336.121 {100}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000192	Re-Slope:	1.000000
A1 (Gain):	0.470218	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999861	Status:	OK.
Std Error of Est:	0.000417		
Predicted MDL:	0.001825		
Predicted MQL:	0.006085		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00019	.001	1
S1	.10000	.10334	.003	3.34	.04877	.000	1
S2	1.2500	1.2750	.025	2.00	.59944	.001	1
S3	2.5000	2.5945	.095	3.78	1.2196	.007	1
S4	5.0000	4.9463	-.054	-1.07	2.3249	.004	1
S5	10.000	9.9308	-.069	-.692	4.6675	.020	1



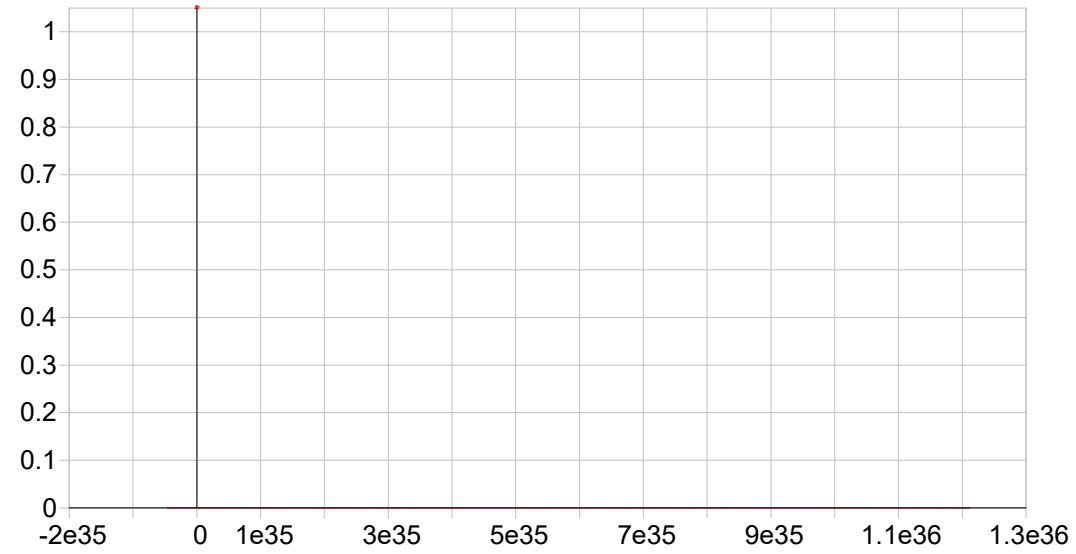
Li 670.784 { 50}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.010157	Re-Slope:	1.000000
A1 (Gain):	1.977791	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999688	Status:	OK.
Std Error of Est:	0.001015		
Predicted MDL:	0.001770		
Predicted MQL:	0.005899		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.01016	.002	1
S5	10.000	10.225	.225	2.25	20.233	.156	1
S4	5.0000	4.8784	-.122	-2.43	9.6587	.044	1
S3	2.5000	2.4584	-.042	-1.66	4.8724	.022	1
S2	1.2500	1.1894	-.061	-4.85	2.3626	.017	1
S1	.01500	.01392	-.001	-7.22	.03768	.000	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

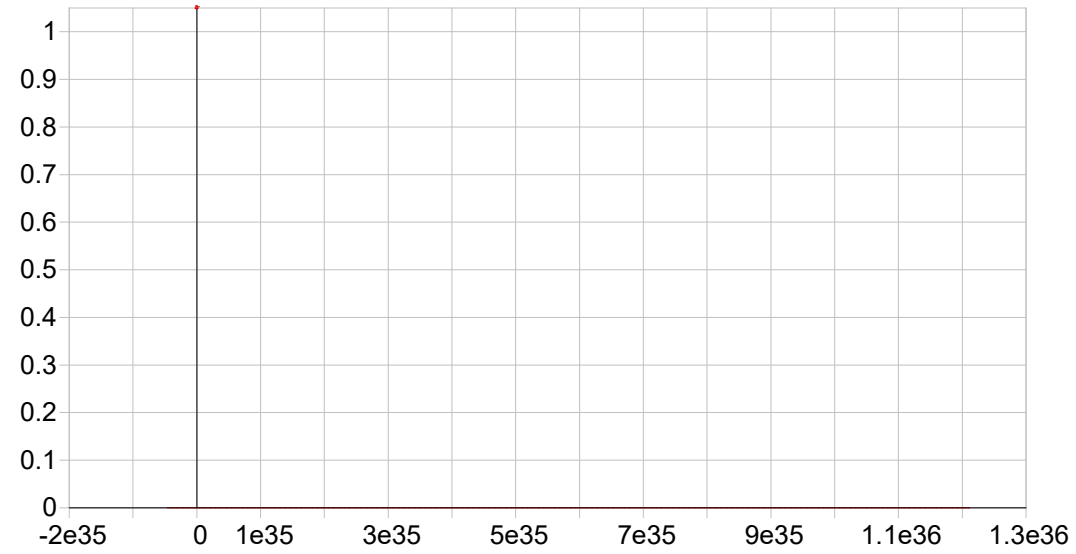


Y 224.306 {450}*

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 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

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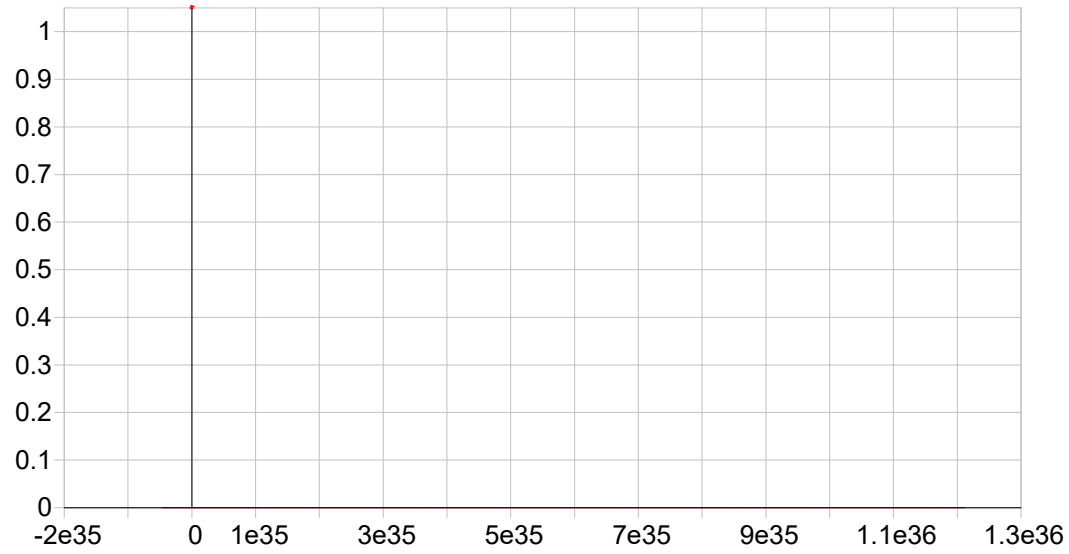
On:11/12/2024 3:09:59 AM
Inst Id :P5

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					

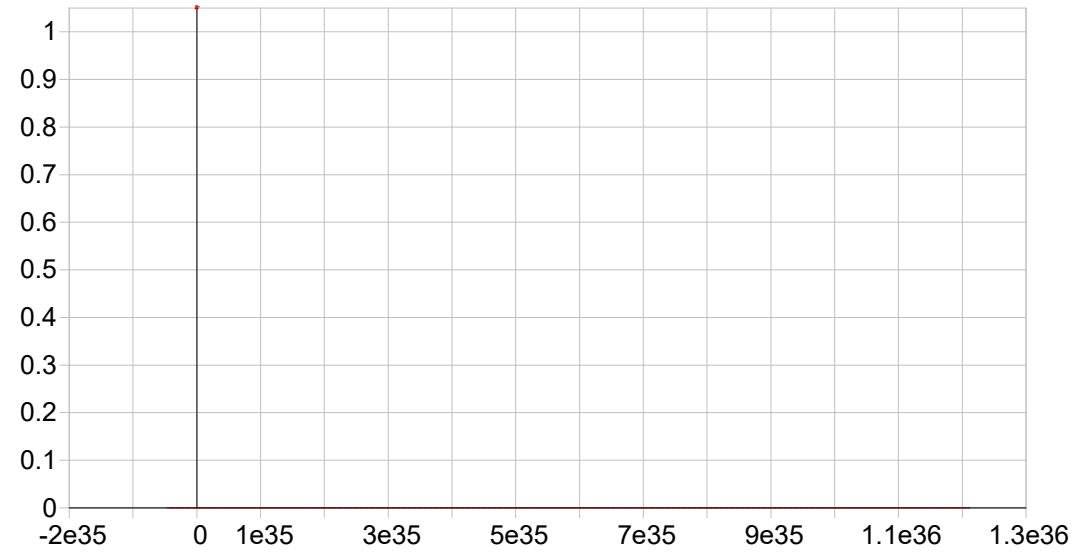
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



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				

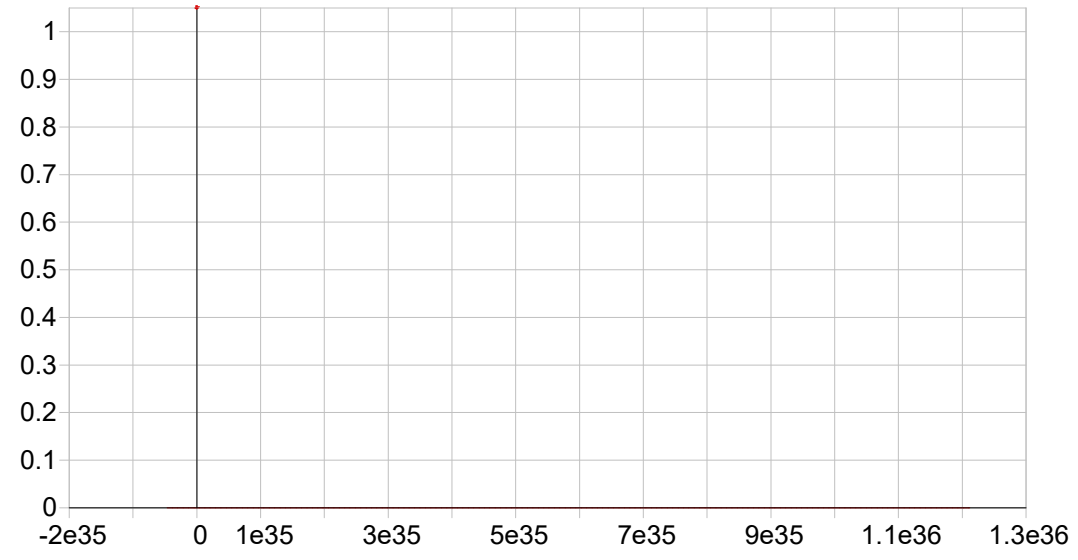
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



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



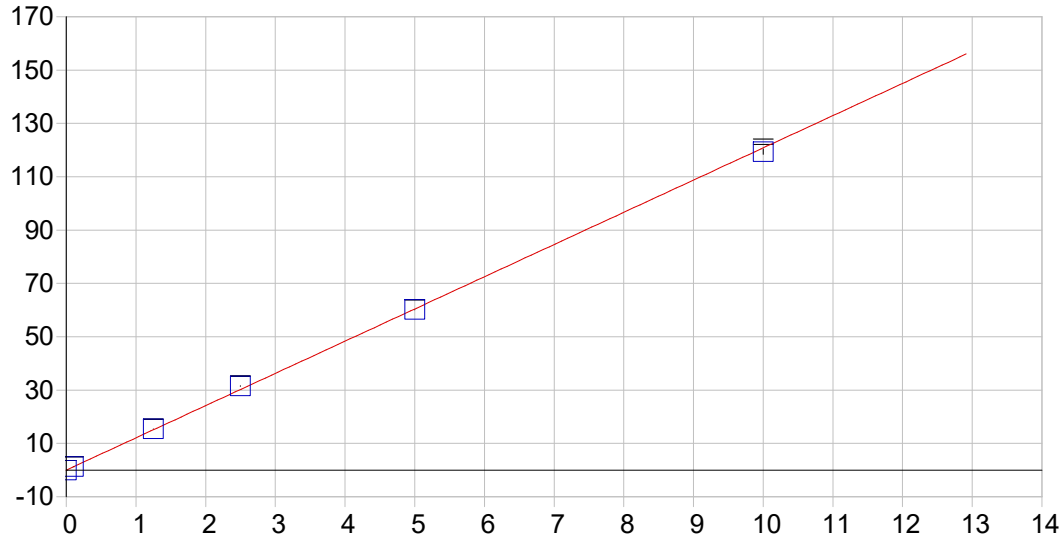
In 230.606 {446}*

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	

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

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



Sr 407.771 { 83}

Date of Fit:	11/08/2024 16:00:24	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000371	Re-Slope:	1.000000
A1 (Gain):	12.083401	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999818	Status:	OK.
Std Error of Est:	0.012266		
Predicted MDL:	0.000118		
Predicted MQL:	0.000392		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00025	.001	1
S1	.10000	.10500	.005	5.00	1.2691	.002	1
S2	1.2500	1.2730	.023	1.84	15.382	.038	1
S3	2.5000	2.6090	.109	4.36	31.526	.133	1
S4	5.0000	4.9804	-.020	-.392	60.181	.077	1
S5	10.000	9.8826	-.117	-1.17	119.42	1.03	1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S0 Acquired: 11/08/2024 15:31:47 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00009	-.00041	-.00122	.00020	.00013	-.00144	.02279	-.00139
Stddev	.00016	.00021	.00056	.00062	.00030	.00111	.00088	.00056
%RSD	175.35	51.631	45.814	307.91	230.03	77.017	3.8537	40.269
#1	-.00009	-.00019	-.00077	-.00041	.00047	-.00112	.02246	-.00085
#2	.00017	-.00043	-.00185	.00018	-.00002	-.00053	.02378	-.00135
#3	.00019	-.00061	-.00105	.00083	-.00007	-.00267	.02212	-.00197

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	.00009	.00656	.00010	-.00009	.00078	.00009	-.00030	-.00049
Stddev	.00035	.00062	.00009	.00018	.00027	.00037	.00031	.00025
%RSD	366.34	9.4121	85.448	191.51	35.138	419.74	103.32	51.183
#1	-.00003	.00704	.00010	-.00029	.00099	.00051	.00005	-.00077
#2	.00049	.00587	.00018	.00004	.00087	-.00011	-.00051	-.00036
#3	-.00017	.00679	.00001	-.00002	.00047	-.00014	-.00044	-.00032

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	-.00020	.02221	-.00760	-.00008	.00528	.07139	-.00090	.00159
Stddev	.00019	.00008	.00240	.00057	.00006	.00288	.00007	.00008
%RSD	95.432	.35187	31.657	674.76	1.1225	4.0321	8.2900	5.3300
#1	-.00029	.02230	-.00524	.00058	.00522	.07165	-.00092	.00160
#2	.00002	.02214	-.01005	-.00038	.00534	.06840	-.00082	.00167
#3	-.00033	.02220	-.00749	-.00045	.00528	.07414	-.00097	.00150

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	.00008	.00047	.01310	.00006	.00019	.01016	.00025
Stddev	.00029	.00014	.00026	.00010	.00067	.00196	.00117
%RSD	366.36	28.766	1.9619	165.88	352.44	19.335	461.39
#1	-.00002	.00056	.01337	.00018	.00006	.00859	.00036
#2	.00041	.00055	.01285	.00001	-.00040	.01237	-.00097
#3	-.00015	.00032	.01308	-.00001	.00091	.00952	.00137

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S0 Acquired: 11/08/2024 15:31:47 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	947.45	24020.	2705.9	846.03	1887.4
Stddev	1.67	120.	11.4	.72	4.5
%RSD	.17642	.50095	.42297	.08538	.24023
#1	945.62	23881.	2695.2	845.39	1882.6
#2	948.90	24085.	2704.5	845.90	1888.0
#3	947.84	24093.	2718.0	846.81	1891.6

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S1 Acquired: 11/08/2024 15:36:25 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00036	.00138	-.00016	.00258	.01058	.01927	1.3146	.05099
Stddev	.00008	.00021	.00060	.00037	.00077	.00061	.0050	.00080
%RSD	23.506	15.340	368.95	14.321	7.3170	3.1511	.37867	1.5665
#1	.00045	.00154	.00033	.00301	.01147	.01880	1.3180	.05164
#2	.00033	.00114	-.00084	.00239	.01006	.01995	1.3089	.05124
#3	.00029	.00145	.00002	.00235	.01020	.01906	1.3168	.05010

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	.00985	.36837	.00199	.02908	.00577	.00152	.00431	.02635
Stddev	.00027	.00054	.00003	.00020	.00042	.00034	.00033	.00063
%RSD	2.7558	.14624	1.4856	.69178	7.2965	22.673	7.5768	2.3848
#1	.01009	.36889	.00201	.02928	.00549	.00113	.00445	.02621
#2	.00956	.36839	.00196	.02907	.00625	.00165	.00453	.02579
#3	.00989	.36782	.00201	.02888	.00556	.00177	.00393	.02703

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	.02306	.02573	.05245	.00302	.15166	.26002	-.00034	.00233
Stddev	.00022	.00020	.00401	.00073	.00089	.00339	.00007	.00053
%RSD	.94820	.76407	7.6510	24.308	.58776	1.3023	20.265	22.572
#1	.02305	.02595	.04859	.00326	.15224	.26259	-.00027	.00278
#2	.02284	.02557	.05660	.00359	.15211	.25618	-.00040	.00175
#3	.02328	.02568	.05218	.00219	.15063	.26128	-.00035	.00246

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	.00896	.00288	.34281	.00080	.04877	.03768	1.2691
Stddev	.00042	.00015	.00222	.00011	.00039	.00028	.0022
%RSD	4.6824	5.1368	.64706	13.966	.80285	.74282	.17304
#1	.00890	.00275	.34132	.00070	.04832	.03787	1.2704
#2	.00941	.00286	.34174	.00092	.04891	.03736	1.2665
#3	.00858	.00304	.34536	.00077	.04906	.03782	1.2703

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S1 Acquired: 11/08/2024 15:36:25 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	950.58	24372.	2727.8	857.63	1874.8
Stddev	1.10	68.	8.9	2.96	1.3
%RSD	.11575	.27834	.32601	.34562	.07052
#1	951.84	24297.	2718.6	858.10	1873.5
#2	949.85	24390.	2736.3	854.45	1874.7
#3	950.04	24429.	2728.4	860.32	1876.1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S2 Acquired: 11/08/2024 15:41:03 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02634	.08970	.85044	.08487	.22217	4.2049	15.390	1.2477
Stddev	.00022	.00031	.00315	.00006	.00133	.0126	.019	.0068
%RSD	.84904	.34530	.37055	.06741	.59890	.29836	.12658	.54354
#1	.02612	.08990	.84757	.08493	.22135	4.2194	15.412	1.2514
#2	.02633	.08934	.84993	.08482	.22145	4.1967	15.382	1.2399
#3	.02656	.08985	.85381	.08486	.22370	4.1988	15.375	1.2519

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.1702	4.3010	.72038	.36372	.66158	.45916	.95373	.30136
Stddev	.0034	.0161	.00058	.00153	.00474	.00176	.00253	.00173
%RSD	.28816	.37338	.08038	.42025	.71586	.38312	.26550	.57256
#1	1.1670	4.3160	.72088	.36231	.66602	.46118	.95294	.30262
#2	1.1700	4.2840	.71975	.36351	.65660	.45801	.95169	.29939
#3	1.1737	4.3029	.72052	.36535	.66214	.45829	.95656	.30206

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	.35440	.13302	.45030	.04253	8.6687	1.4646	.06104	1.2045
Stddev	.00104	.00019	.00851	.00121	.0321	.0025	.00048	.0065
%RSD	.29239	.14645	1.8900	2.8425	.37016	.17005	.78643	.53824
#1	.35372	.13314	.45702	.04358	8.6317	1.4620	.06113	1.2025
#2	.35389	.13313	.45315	.04121	8.6859	1.4670	.06052	1.1992
#3	.35559	.13280	.44073	.04279	8.6885	1.4649	.06147	1.2117

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.0675	.03285	1.9009	.11788	.59944	2.3626	15.382
Stddev	.0041	.00036	.0100	.00030	.00069	.0171	.038
%RSD	.38224	1.0999	.52500	.25315	.11570	.72508	.24639
#1	1.0635	.03250	1.9060	.11763	.59930	2.3823	15.418
#2	1.0675	.03282	1.8894	.11780	.60019	2.3544	15.342
#3	1.0717	.03322	1.9073	.11821	.59883	2.3511	15.387

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S2 Acquired: 11/08/2024 15:41:03 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	900.97	23843.	2688.7	812.52	1701.3
Stddev	1.78	57.	12.2	1.66	2.4
%RSD	.19714	.23713	.45309	.20461	.14064
#1	901.77	23809.	2675.0	812.76	1703.0
#2	902.20	23811.	2698.3	810.75	1702.4
#3	898.93	23908.	2692.8	814.05	1698.6

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S3 Acquired: 11/08/2024 15:45:24 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.05556	.18177	1.7546	.17878	.46965	8.6582	31.748	2.5105
Stddev	.00049	.00068	.0017	.00090	.00141	.0380	.107	.0200
%RSD	.87972	.37151	.09487	.50434	.29996	.43940	.33788	.79681
#1	.05576	.18158	1.7565	.17775	.46802	8.6223	31.650	2.4897
#2	.05591	.18252	1.7532	.17919	.47044	8.6541	31.731	2.5122
#3	.05500	.18121	1.7542	.17940	.47049	8.6981	31.863	2.5296

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	2.4065	8.7158	1.4515	.75387	1.3431	.92759	1.9286	.62150
Stddev	.0012	.0509	.0033	.00030	.0059	.00502	.0059	.00298
%RSD	.04904	.58427	.22465	.03964	.43566	.54134	.30791	.47879
#1	2.4064	8.6676	1.4490	.75354	1.3368	.92283	1.9236	.61840
#2	2.4054	8.7106	1.4503	.75412	1.3440	.92710	1.9270	.62433
#3	2.4077	8.7691	1.4552	.75395	1.3484	.93284	1.9351	.62177

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	.72232	.25048	.93433	.08609	17.995	2.9793	.13132	2.4174
Stddev	.00024	.00120	.00283	.00080	.050	.0243	.00044	.0235
%RSD	.03253	.47790	.30335	.92439	.27645	.81487	.33693	.97330
#1	.72254	.24911	.93157	.08675	18.040	2.9549	.13087	2.3907
#2	.72207	.25100	.93418	.08632	17.941	2.9793	.13176	2.4263
#3	.72234	.25133	.93724	.08521	18.004	3.0035	.13133	2.4351

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.2086	.06979	3.7870	.24324	1.2196	4.8724	31.526
Stddev	.0034	.00020	.0314	.00083	.0075	.0221	.133
%RSD	.15247	.28414	.83044	.34184	.61284	.45407	.42067
#1	2.2080	.06957	3.7531	.24228	1.2153	4.8527	31.405
#2	2.2056	.06990	3.7924	.24369	1.2153	4.8683	31.505
#3	2.2122	.06991	3.8153	.24374	1.2282	4.8964	31.668

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S3 Acquired: 11/08/2024 15:45:24 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	853.99	23281.	2690.1	762.45	1604.1
Stddev	1.04	52.	14.7	2.20	2.2
%RSD	.12157	.22328	.54630	.28793	.13652
#1	854.84	23341.	2706.1	759.98	1601.6
#2	854.28	23252.	2686.8	763.21	1604.8
#3	852.83	23249.	2677.3	764.16	1605.9

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S4 Acquired: 11/08/2024 15:49:43 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.10860	.33959	3.3379	.35107	.93621	16.806	60.693	4.8217
Stddev	.00050	.00150	.0047	.00104	.00233	.022	.067	.0026
%RSD	.46158	.44036	.14042	.29679	.24881	.13274	.11107	.05463
#1	.10876	.33894	3.3325	.35136	.93416	16.817	60.721	4.8225
#2	.10899	.33854	3.3397	.34992	.93874	16.820	60.743	4.8238
#3	.10803	.34131	3.3414	.35194	.93572	16.780	60.616	4.8187

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	4.5757	16.811	2.7123	1.4445	2.5649	1.7579	3.6194	1.2115
Stddev	.0025	.080	.0031	.0022	.0074	.0072	.0051	.0057
%RSD	.05541	.47456	.11521	.15229	.28781	.40655	.14196	.47096
#1	4.5756	16.867	2.7156	1.4441	2.5696	1.7592	3.6156	1.2154
#2	4.5732	16.847	2.7094	1.4425	2.5688	1.7643	3.6252	1.2141
#3	4.5783	16.720	2.7120	1.4469	2.5564	1.7502	3.6173	1.2049

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.3712	.46439	1.8143	.16362	34.700	5.7616	.25708	4.6237
Stddev	.0018	.00165	.0044	.00089	.069	.0020	.00097	.0094
%RSD	.13183	.35552	.24384	.54221	.19750	.03397	.37874	.20404
#1	1.3695	.46557	1.8187	.16393	34.628	5.7637	.25596	4.6275
#2	1.3710	.46509	1.8144	.16431	34.710	5.7611	.25757	4.6307
#3	1.3731	.46250	1.8099	.16262	34.763	5.7599	.25771	4.6130

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	4.3316	.13730	7.2137	.46663	2.3249	9.6587	60.181
Stddev	.0111	.00045	.0116	.00132	.0041	.0443	.077
%RSD	.25571	.32953	.16085	.28251	.17539	.45842	.12753
#1	4.3193	.13759	7.2269	.46815	2.3265	9.6918	60.200
#2	4.3347	.13678	7.2090	.46590	2.3279	9.6758	60.246
#3	4.3408	.13753	7.2052	.46584	2.3202	9.6084	60.096

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S4 Acquired: 11/08/2024 15:49:43 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	797.88	22803.	2634.5	708.49	1518.8
Stddev	.56	84.	10.6	1.23	2.1
%RSD	.07002	.36836	.40219	.17410	.13781
#1	798.06	22728.	2624.7	708.54	1516.5
#2	798.32	22786.	2633.0	707.24	1520.7
#3	797.25	22894.	2645.7	709.70	1519.1

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S5 Acquired: 11/08/2024 15:53:57 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.22964	.66357	6.7739	.76766	2.0852	34.612	121.14	9.7142
Stddev	.00020	.00033	.0094	.00291	.0037	.132	.46	.0585
%RSD	.08749	.04963	.13889	.37882	.17583	.38254	.37953	.60260
#1	.22986	.66369	6.7835	.76499	2.0818	34.581	120.71	9.7017
#2	.22956	.66382	6.7734	.76722	2.0891	34.498	121.09	9.6630
#3	.22948	.66320	6.7647	.77076	2.0847	34.757	121.62	9.7780

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	9.0775	33.862	5.4067	2.9137	5.2278	3.4809	7.2109	2.5530
Stddev	.0146	.233	.0036	.0029	.0132	.0263	.0050	.0173
%RSD	.16033	.68843	.06705	.09965	.25273	.75687	.07010	.67629
#1	9.0937	33.819	5.4026	2.9158	5.2275	3.4827	7.2135	2.5501
#2	9.0731	33.654	5.4096	2.9150	5.2148	3.4537	7.2142	2.5374
#3	9.0656	34.114	5.4079	2.9104	5.2412	3.5063	7.2051	2.5715

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.7425	.94270	3.7305	.32990	73.273	11.933	.53600	9.0920
Stddev	.0053	.00300	.0250	.00234	.853	.034	.00073	.0706
%RSD	.19313	.31830	.66908	.71022	1.1637	.28101	.13674	.77699
#1	2.7486	.94105	3.7211	.32990	72.353	11.939	.53655	9.0687
#2	2.7404	.94617	3.7116	.32755	74.036	11.897	.53627	9.0360
#3	2.7387	.94090	3.7588	.33224	73.430	11.963	.53516	9.1714

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	9.3832	.28907	14.478	.94632	4.6675	20.233	119.42
Stddev	.0103	.00019	.082	.00105	.0201	.156	1.03
%RSD	.10993	.06721	.56493	.11101	.43075	.77087	.85878
#1	9.3718	.28905	14.466	.94692	4.6685	20.197	118.78
#2	9.3919	.28889	14.403	.94510	4.6469	20.098	118.87
#3	9.3860	.28928	14.565	.94693	4.6871	20.403	120.60

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S5 Acquired: 11/08/2024 15:53:57 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	697.81	21926.	2582.4	599.38	1403.3
Stddev	.65	50.	13.4	7.09	1.8
%RSD	.09335	.22705	.51903	1.1832	.12990
#1	698.05	21934.	2581.5	606.70	1401.3
#2	697.07	21873.	2596.2	592.55	1403.7
#3	698.30	21971.	2569.5	598.88	1404.9

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: S6 Acquired: 11/08/2024 15:58:26 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S06 Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	87.327	52.288	8.8200	4.1568	9.8488
Stddev	.788	.151	.0235	.0136	.0369
%RSD	.90270	.28868	.26677	.32789	.37485
#1	86.817	52.231	8.8086	4.1488	9.8426
#2	88.235	52.459	8.8470	4.1726	9.8885
#3	86.929	52.174	8.8043	4.1491	9.8155

Int. Std.	Y_3710
Units	Cts/S
Avg	2517.3
Stddev	6.4
%RSD	.25405
#1	2515.4
#2	2512.1
#3	2524.5

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: ICV006 Acquired: 11/08/2024 16:09:09 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV006 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9198951	1.054107	.9724010	.9688488	.9260419	2.402319
Stddev	.0078192	.005152	.0031960	.0074179	.0058128	.020257
%RSD	.8500096	.4887171	.3286670	.7656448	.6277060	.8432306
#1	.9182958	1.059412	.9758958	.9750441	.9246743	2.403717
#2	.9283903	1.053783	.9716802	.9708735	.9210348	2.421842
#3	.9129992	1.049125	.9696270	.9606287	.9324166	2.381400

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5124678	.5150470	.4956844	9.997275	.5577756	.4915496
Stddev	.0008026	.0020890	.0020996	.072930	.0019929	.0017666
%RSD	.1566209	.4055931	.4235790	.7295001	.3572954	.3593946
#1	.5133115	.5132630	.4977034	9.954396	.5576282	.4909678
#2	.5123782	.5173450	.4958372	10.08148	.5558605	.4935337
#3	.5117138	.5145329	.4935125	9.95595	.5598382	.4901472

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4899520	10.93768	.5296578	5.592580	.5011169	.2378114
Stddev	.0018865	.04708	.0018284	.020980	.0025888	.0011338
%RSD	.3850330	.4304834	.3451940	.3751342	.5166090	.4767567
#1	.4878916	10.92966	.5275523	5.599631	.5040644	.2374229
#2	.4915944	10.98826	.5305768	5.609127	.5000749	.2390884
#3	.4903702	10.89512	.5308445	5.568984	.4992115	.2369230

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.604985	.5235933	1.002658	8.952445	F .0036129	F .0153808
Stddev	.257449	.0061363	.000679	.102476	.0010650	.0008275
%RSD	2.680370	1.171952	.0677445	1.144665	29.47828	5.380090
#1	9.308672	.5266208	1.002580	8.842005	.0036554	.0162266
#2	9.732430	.5165316	1.002021	8.970873	.0025273	.0145729
#3	9.773854	.5276274	1.003373	9.044456	.0046561	.0153431

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: ICV006 Acquired: 11/08/2024 16:09:09 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV006 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.000663	F .0002909	F .0024026	F .0021813	F -.000716	F .0043982
Stddev	.000254	.0063595	.0005450	.0021222	.001008	.0015081
%RSD	38.25550	2186.294	22.68322	97.29447	140.8381	34.28923
#1	-.000377	-.002170	.0027463	.0024903	.000154	.0028016
#2	-.000751	.007513	.0017742	.0041320	-.001821	.0057986
#3	-.000861	-.004470	.0026872	-.000079	-.000481	.0045943

Elem	Sr4077
Units	ppm
Avg	F .0012327
Stddev	.0000612
%RSD	4.961232
#1	.0012017
#2	.0013032
#3	.0011933

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	948.0420	24379.77	2733.908	855.6124	1865.041
Stddev	2.7296	71.18	12.679	1.0025	7.434
%RSD	.2879200	.2919648	.4637847	.1171682	.3985800
#1	944.9226	24425.19	2739.893	855.4407	1858.061
#2	949.2111	24297.74	2719.344	854.7068	1864.204
#3	949.9924	24416.39	2742.488	856.6896	1872.857

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: ICB006 Acquired: 11/08/2024 18:04:17 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB006 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0039750	.0040371	.0015637	.0024644	.0000299	-.000480	-.000079
Stddev	.0067113	.0013283	.0010935	.0003717	.0034953	.014528	.000632
%RSD	168.8371	32.90243	69.93161	15.08395	11692.66	3025.210	805.4879
#1	.0046979	.0055708	.0027375	.0028700	.0018916	.016292	.000051
#2	.0102956	.0032573	.0005737	.0023830	-.004002	-.009141	.000479
#3	-.003068	.0032832	.0013799	.0021401	.002200	-.008591	-.000766

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000024	.0000495	.0223417	-.000002	-.000021	.0013338	.0070158
Stddev	.000040	.0000404	.0032221	.001560	.000424	.0020762	.0416276
%RSD	166.6197	81.67256	14.42171	64196.72	2057.808	155.6554	593.3361
#1	.000013	.0000916	.0242500	-.001800	-.000353	.0028388	.0119538
#2	-.000019	.0000110	.0186216	.000795	.000456	-.001035	-.036860
#3	-.000067	.0000458	.0241534	.000999	-.000165	.002197	.045954

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003004	.0040368	.0000500	.0000450	-.194742	-.003978	.0009464
Stddev	.0011967	.1104362	.0003366	.0002496	.194580	.003809	.0003318
%RSD	398.3692	2735.726	673.2351	554.0530	99.91691	95.75479	35.06449
#1	-.000387	.0256899	-.000336	-.000135	.003319	-.005227	.0011927
#2	-.000394	-.115622	.000281	-.000060	-.385644	-.007006	.0005690
#3	.001682	.102043	.000205	.000330	-.201900	.000299	.0010773

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.013478	-.001785	.0001433	.0000680	-.006668	-.000482	.0023352
Stddev	.056975	.001680	.0005124	.0000923	.002101	.000225	.0009097
%RSD	422.7350	94.10258	357.6155	135.6582	31.51507	46.73459	38.95751
#1	-.061164	-.001001	.0006509	.0001395	-.005228	-.000372	.0033350
#2	.049616	-.003714	.0001527	-.000036	-.005697	-.000741	.0015562
#3	-.028884	-.000641	-.000374	.000101	-.009079	-.000333	.0021143

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: ICB006 Acquired: 11/08/2024 18:04:17 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB006 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0011221	.0015518	-.000091
Stddev	.0010214	.0007042	.000032
%RSD	91.02630	45.38125	35.02679
#1	.0007753	.0007431	-.000090
#2	.0003192	.0020297	-.000123
#3	.0022717	.0018827	-.000059

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	946.9650	24197.13	2704.023	855.6952	1886.451
Stddev	.9183	98.02	5.615	4.5094	1.237
%RSD	.0969775	.4050847	.2076697	.5269867	.0655532
#1	946.0153	24254.54	2710.446	856.5803	1885.024
#2	947.8484	24252.89	2700.046	859.6964	1887.117
#3	947.0314	24083.95	2701.575	850.8089	1887.212

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: ICSA006 Acquired: 11/08/2024 18:51:27 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA006 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0046738	-.014709	-.008748	.0083926	.0028657	250.2203
Stddev	.0175678	.008874	.003502	.0130140	.0020461	1.3735
%RSD	375.8785	60.33396	40.03376	155.0662	71.39793	.5489248
#1	-.013252	-.006858	-.006653	-.003911	.0043878	251.7566
#2	.021860	-.012931	-.006801	.022016	.0005398	249.7932
#3	.005414	-.024337	-.012792	.007072	.0036695	249.1111

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0057682	-.000257	.0015956	263.3595	.0523166	-.001470
Stddev	.0008467	.000195	.0002173	1.6829	.0008689	.000252
%RSD	14.67835	75.81597	13.61697	.6389953	1.660952	17.15847
#1	.0049692	-.000464	.0013487	265.2730	.0522731	-.001219
#2	.0066556	-.000077	.0017576	262.6957	.0532064	-.001723
#3	.0056796	-.000229	.0016804	262.1098	.0514701	-.001468

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0021939	109.6710	.0110166	259.3126	.0051250	.0042751
Stddev	.0020456	.6653	.0015170	1.9486	.0011728	.0001351
%RSD	93.23869	.6066434	13.77013	.7514461	22.88302	3.158982
#1	.0030496	110.4351	.0106987	261.5557	.0040043	.0044188
#2	-.000141	109.3587	.0096837	258.3448	.0050270	.0041508
#3	.003673	109.2193	.0126674	258.0375	.0063437	.0042557

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2822814	-.006563	.0135719	-.168796	.0055327	F .0918456
Stddev	.3451027	.004735	.0006168	.114452	.0043536	.0005480
%RSD	122.2549	72.15039	4.544622	67.80459	78.68816	.5966297
#1	.1699829	-.001915	.0136753	-.104183	.0008167	.0921281
#2	.0073149	-.006393	.0129100	-.101263	.0093985	.0921946
#3	.6695464	-.011381	.0141305	-.300943	.0063830	.0912140

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: ICSA006 Acquired: 11/08/2024 18:51:27 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA006 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000990	.0055036	.0001751	-.003186	-.001163	.0048581
Stddev	.001408	.0083844	.0006896	.003019	.001273	.0010755
%RSD	142.2027	152.3428	393.8001	94.75020	109.4660	22.13727
#1	-.002596	.0022358	.0008476	-.000544	-.001977	.0058157
#2	.000031	.0150299	.0002082	-.002537	-.001815	.0050640
#3	-.000405	-.000755	-.000530	-.006476	.000304	.0036946

Elem	Sr4077
Units	ppm
Avg	F .1050064
Stddev	.0000980
%RSD	.0933252
#1	.1049999
#2	.1051075
#3	.1049119

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	866.5242	22504.88	2589.617	787.7353	1554.283
Stddev	1.7452	91.48	14.536	3.5308	1.683
%RSD	.2014009	.4064684	.5613186	.4482241	.1082893
#1	864.5119	22409.49	2576.448	786.0639	1552.566
#2	867.6238	22513.29	2587.188	785.3505	1555.930
#3	867.4367	22591.86	2605.214	791.7915	1554.352

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: ICSAB006 Acquired: 11/08/2024 18:55:59 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB006 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1047667	.0931505	.0423013	.0478704	.5529049	246.2471
Stddev	.0226825	.0080919	.0042501	.0034038	.0028510	.6893
%RSD	21.65044	8.686927	10.04717	7.110413	.5156305	.2799174
#1	.0874098	.0948050	.0470480	.0469429	.5509614	245.9783
#2	.1304318	.0843592	.0410075	.0450265	.5561777	247.0303
#3	.0964586	.1002873	.0388485	.0516418	.5515755	245.7328

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5216781	.5348147	1.036170	258.0634	.6036736	.5134563
Stddev	.0031093	.0035184	.001609	1.1307	.0017678	.0015058
%RSD	.5960117	.6578650	.1552585	.4381610	.2928475	.2932719
#1	.5189778	.5371732	1.037069	258.7597	.6052886	.5123995
#2	.5250773	.5365003	1.037128	258.6717	.6039473	.5151805
#3	.5209790	.5307707	1.034313	256.7587	.6017849	.5127889

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4889126	107.4863	.5370595	255.9359	1.032038	.1918771
Stddev	.0050711	.6216	.0033661	1.7013	.002323	.0004443
%RSD	1.037220	.5782656	.6267660	.6647538	.2250446	.2315773
#1	.4912152	107.6841	.5335808	256.8285	1.032549	.1921525
#2	.4924239	107.9850	.5403004	257.0052	1.034063	.1921142
#3	.4830987	106.7900	.5372973	253.9740	1.029503	.1913645

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4883363	.5188170	.9846584	-.312279	.0072705	F .0895347
Stddev	.2279189	.0107828	.0062056	.056624	.0023025	.0023262
%RSD	46.67253	2.078336	.6302289	18.13237	31.66952	2.598049
#1	.2873863	.5298682	.9868873	-.368149	.0081305	.0911312
#2	.4416334	.5083243	.9894418	-.254931	.0090193	.0906070
#3	.7359892	.5182586	.9776462	-.313758	.0046618	.0868658

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: ICSAB006 Acquired: 11/08/2024 18:55:59 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB006 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000847	.0052384	.0000342	-.003926	-.000002	.0046853
Stddev	.000484	.0030543	.0006356	.002946	.001646	.0012445
%RSD	57.16285	58.30602	1860.862	75.02874	66376.71	26.56157
#1	-.000849	.0056989	.0006004	-.006498	.000759	.0035705
#2	-.001331	.0080363	.0001554	-.000712	-.001892	.0044573
#3	-.000362	.0019800	-.000653	-.004568	.001125	.0060280

Elem	Sr4077
Units	ppm
Avg	F .1033424
Stddev	.0004871
%RSD	.4713064
#1	.1033149
#2	.1038426
#3	.1028697

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	874.3844	22789.53	2622.910	792.8716	1571.567
Stddev	1.7793	43.37	16.944	2.3965	2.247
%RSD	.2034923	.1902901	.6459909	.3022502	.1429858
#1	873.0027	22745.31	2611.702	791.7581	1571.046
#2	873.7583	22791.29	2614.626	791.2345	1569.627
#3	876.3921	22831.99	2642.402	795.6223	1574.029

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCV035 Acquired: 11/08/2024 19:00:23 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV035 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.016991	4.736931	24.38476	4.641343	4.776012	406.5352	9.950201
Stddev	.011695	.015171	.05507	.010807	.007719	.9321	.033422
%RSD	.2331034	.3202609	.2258474	.2328368	.1616275	.2292683	.3358934
#1	5.015643	4.751466	24.40048	4.637732	4.777374	406.4362	9.947311
#2	5.029302	4.738132	24.43027	4.653492	4.767702	405.6566	9.918318
#3	5.006029	4.721196	24.32354	4.632803	4.782959	407.5128	9.984975

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5099108	2.453384	407.3059	15.34291	2.466982	14.96530	415.1815
Stddev	.0032322	.003845	.1556	.00955	.007533	.03342	.5788
%RSD	.6338851	.1567146	.0382138	.0622640	.3053490	.2233104	.1394105
#1	.5128693	2.455560	407.4272	15.35345	2.468948	14.98069	415.1175
#2	.5064611	2.455647	407.1304	15.33482	2.473336	14.92696	414.6374
#3	.5104021	2.448945	407.3601	15.34047	2.458661	14.98825	415.7897

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.85849	416.7578	2.457581	1.247766	404.8005	2.481714	14.79014
Stddev	.04163	.3561	.004347	.000303	.5269	.003909	.03502
%RSD	.2801467	.0854506	.1768831	.0243106	.1301729	.1575319	.2367947
#1	14.87385	416.9230	2.457757	1.247421	404.6113	2.481332	14.79026
#2	14.81136	416.3491	2.461838	1.247992	404.3943	2.485801	14.82510
#3	14.89025	417.0013	2.453149	1.247884	405.3960	2.478010	14.75505

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	152.6546	4.898205	5.123499	4.730574	4.947711	5.076185	4.935345
Stddev	.4626	.009156	.029040	.004290	.013904	.024128	.013215
%RSD	.3030345	.1869317	.5667920	.0906810	.2810286	.4753201	.2677648
#1	152.5473	4.894775	5.148694	4.727612	4.962684	5.098268	4.935213
#2	152.2550	4.908582	5.091739	4.728616	4.945241	5.050432	4.948625
#3	153.1614	4.891260	5.130065	4.735493	4.935206	5.079855	4.922196

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCV035 Acquired: 11/08/2024 19:00:23 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV035 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.975500	5.058674	4.970076
Stddev	.007098	.009046	.016600
%RSD	.1426604	.1788199	.3340010
#1	4.973502	5.048231	4.971285
#2	4.969615	5.064071	4.952904
#3	4.983383	5.063720	4.986038

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	765.8094	21897.84	2530.222	680.6099	1424.633
Stddev	.8976	13.50	14.403	2.0260	2.870
%RSD	.1172103	.0616285	.5692459	.2976762	.2014614
#1	764.8798	21885.15	2515.690	679.5813	1422.678
#2	766.6711	21896.35	2544.493	679.3045	1423.293
#3	765.8775	21912.02	2530.484	682.9439	1427.928

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCB035 Acquired: 11/08/2024 19:15:05 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB035 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0070862	.0033160	.0021361	-.002245	.0008398	.0432224	.0015608
Stddev	.0061722	.0006897	.0021349	.004398	.0023092	.0112826	.0007670
%RSD	87.10182	20.79904	99.94456	195.9093	274.9786	26.10364	49.14149
#1	.0086629	.0027308	.0040865	.001096	.0027107	.0554760	.0021009
#2	.0123170	.0031409	-.000145	-.000604	-.001741	.0409276	.0018987
#3	.0002786	.0040764	.002467	-.007227	.001550	.0332636	.0006829

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000124	.0000391	.0248244	.0001332	.0003457	-.000867	.0851711
Stddev	.0000747	.0001067	.0101336	.0004360	.0003480	.002185	.0111893
%RSD	602.4668	272.7445	40.82107	327.3402	100.6550	252.1318	13.13739
#1	.0000631	-.000079	.0240425	.0006104	.0006224	.000928	.0909288
#2	-.000073	.000129	.0151045	.0000336	-.000045	-.003301	.0923091
#3	.000047	.000066	.0353263	-.000244	.000460	-.000227	.0722755

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006098	.0601297	.0005064	.0021187	.1191258	-.000470	.0000190
Stddev	.0013467	.0537330	.0001729	.0004802	.1030473	.006768	.0000961
%RSD	220.8446	89.36182	34.14514	22.66389	86.50292	1439.832	504.7828
#1	.0017529	.0644198	.0004628	.0024094	.0251411	-.004295	.0000829
#2	-.000875	.0043803	.0006969	.0015645	.1029208	.007344	-.000091
#3	.000951	.1115890	.0003594	.0023822	.2293155	-.004459	.000066

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0022138	-.001652	.0023854	.0001232	-.000592	.0011138	.0021854
Stddev	.1756943	.000218	.0015676	.0006291	.000394	.0001537	.0011163
%RSD	7936.458	13.16938	65.71522	510.5048	66.53222	13.79773	51.07983
#1	-.168757	-.001801	.0041645	.0003843	-.000560	.0009364	.0015085
#2	-.006881	-.001752	.0012068	-.000594	-.001002	.0012049	.0015740
#3	.182279	-.001402	.0017850	.000580	-.000216	.0012002	.0034739

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCB035 Acquired: 11/08/2024 19:15:05 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB035 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0017890	.0066114	.0001268
Stddev	.0012641	.0011883	.0000653
%RSD	70.66193	17.97382	51.47932
#1	.0026579	.0058141	.0000514
#2	.0003388	.0060430	.0001645
#3	.0023703	.0079772	.0001644

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	945.6893	23981.90	2630.163	854.5592	1878.741
Stddev	1.9360	71.18	5.827	1.5937	6.002
%RSD	.2047187	.2968126	.2215371	.1864931	.3194791
#1	943.5961	23951.47	2635.654	854.1209	1873.038
#2	946.0562	24063.24	2630.786	856.3261	1878.180
#3	947.4156	23931.00	2624.050	853.2305	1885.004

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4482-14DLX2A Acquired: 11/08/2024 19:25:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4E3A Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1034761	-.023882	.3852330	.0048045	.0014892	82.83543	.7660545
Stddev	.0107509	.000451	.0054141	.0010932	.0030912	.25019	.0034850
%RSD	10.38974	1.889532	1.405420	22.75426	207.5712	.3020275	.4549297
#1	.0972180	-.024401	.3857255	.0037629	-.000329	82.56790	.7620680
#2	.1158900	-.023589	.3903840	.0059430	-.000262	83.06360	.7675720
#3	.0973202	-.023655	.3795894	.0047077	.005058	82.87478	.7685235

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0027534	.0056433	45.02445	.1827143	.0944362	.2576090	198.3348
Stddev	.0000916	.0003614	.21616	.0007378	.0006209	.0054465	.5150
%RSD	3.325082	6.403428	.4800964	.4038137	.6575096	2.114232	.2596572
#1	.0028378	.0054333	44.77850	.1822876	.0951336	.2602999	197.7768
#2	.0026561	.0054360	45.18427	.1835663	.0939435	.2611862	198.4359
#3	.0027665	.0060605	45.11059	.1822891	.0942315	.2513408	198.7918

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.734277	36.13526	.1632249	-.013706	1.067783	.4433965	.4171612
Stddev	.006499	.13183	.0003264	.000349	.071382	.0025197	.0023628
%RSD	.1372816	.3648286	.1999856	2.546792	6.685080	.5682635	.5664028
#1	4.727049	36.00684	.1632367	-.013770	1.107616	.4406699	.4151755
#2	4.736143	36.27026	.1635453	-.013330	1.110359	.4456389	.4165338
#3	4.739640	36.12868	.1628928	-.014019	.985373	.4438807	.4197745

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	21.22247	5.788407	.2013423	-.000110	1.413546	7.635435	.0057194
Stddev	.20579	.011776	.0011545	.000358	.016539	.014546	.0013407
%RSD	.9696683	.2034408	.5733859	324.2698	1.170022	.1905027	23.44038
#1	20.98992	5.775122	.2000252	-.000284	1.419960	7.618660	.0069874
#2	21.29643	5.797563	.2018230	-.000349	1.425917	7.643106	.0058546
#3	21.38105	5.792535	.2021788	.000301	1.394761	7.644540	.0043163

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4482-14DLX2A Acquired: 11/08/2024 19:25:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4E3A Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.086276	.0584876	.1983001
Stddev	.008929	.0011581	.0006124
%RSD	.2893247	1.980053	.3088098
#1	3.076587	.0589356	.1976384
#2	3.088069	.0593548	.1988469
#3	3.094173	.0571725	.1984149

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	996.8077	25732.50	2901.862	907.9112	1749.792
Stddev	1.8502	40.04	4.024	1.0879	1.241
%RSD	.1856133	.1556115	.1386621	.1198193	.0709256
#1	995.2121	25716.80	2906.494	908.8485	1750.047
#2	996.3753	25702.69	2899.234	908.1668	1748.444
#3	998.8359	25778.01	2899.858	906.7183	1750.887

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4483-20DLX2A Acquired: 11/08/2024 19:29:42 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4G9A Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2306711	-.026738	.1382912	-.000585	.0007324	102.2582	1.055743
Stddev	.0205246	.000559	.0032311	.005430	.0049759	.1498	.002625
%RSD	8.897797	2.089652	2.336459	928.8771	679.3848	.1464758	.2485962
#1	.2106214	-.026205	.1392144	-.006035	.0021269	102.1509	1.052753
#2	.2516398	-.026690	.1409603	-.000544	.0048623	102.1945	1.056808
#3	.2297521	-.027320	.1346990	.004826	-.004792	102.4294	1.057667

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0029403	.0076075	41.96186	.2773769	.1166160	.4835060	229.7977
Stddev	.0001869	.0000681	.06084	.0009437	.0002618	.0021004	.2622
%RSD	6.355390	.8952380	.1449844	.3402142	.2244596	.4344156	.1140804
#1	.0028657	.0076276	42.03101	.2765417	.1168548	.4858723	229.5255
#2	.0031529	.0076632	41.93805	.2784006	.1163362	.4827838	229.8191
#3	.0028022	.0075316	41.91654	.2771884	.1166570	.4818620	230.0485

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.129542	51.62151	.2411006	-.016258	1.360341	.4249233	1.345832
Stddev	.009506	.10598	.0005549	.000424	.052208	.0100712	.004307
%RSD	.1853209	.2052924	.2301495	2.610064	3.837833	2.370130	.3200255
#1	5.129920	51.54882	.2406186	-.015901	1.300146	.4265264	1.350288
#2	5.119852	51.74310	.2417072	-.016146	1.393271	.4141467	1.341691
#3	5.138853	51.57261	.2409760	-.016727	1.387606	.4340968	1.345517

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.41954	5.798979	.2232206	-.000863	.8303228	7.712023	.0083401
Stddev	.10981	.013822	.0019406	.000195	.0053541	.026666	.0025327
%RSD	.4688967	.2383536	.8693457	22.59037	.6448154	.3457678	30.36734
#1	23.46249	5.784253	.2216942	-.001057	.8273364	7.736693	.0080779
#2	23.29475	5.811672	.2254045	-.000864	.8271281	7.715643	.0109938
#3	23.50140	5.801013	.2225632	-.000667	.8365040	7.683732	.0059488

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4483-20DLX2A Acquired: 11/08/2024 19:29:42 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4G9A Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.655492	.0784632	.2509346
Stddev	.007347	.0005180	.0002602
%RSD	.2766813	.6601799	.1037097
#1	2.651031	.0779045	.2507394
#2	2.663972	.0785576	.2508343
#3	2.651473	.0789275	.2512300

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	991.8082	25743.39	2908.532	903.8378	1732.675
Stddev	.3848	13.56	12.330	2.5433	1.346
%RSD	.0387943	.0526931	.4239280	.2813935	.0776689
#1	991.6725	25727.89	2902.316	901.8533	1731.325
#2	992.2425	25749.21	2900.547	906.7049	1734.017
#3	991.5097	25753.08	2922.733	902.9553	1732.683

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4484-03DLX2A Acquired: 11/08/2024 19:34:14 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4G9A Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9140172	-.049839	.0955583	-.002439	.0051467	139.3543	1.407358
Stddev	.0066649	.001969	.0011389	.008985	.0054907	.5541	.002690
%RSD	.7291905	3.949766	1.191815	368.3494	106.6836	.3975993	.1911060
#1	.9150217	-.051491	.0963741	.003495	-.001174	139.9515	1.409768
#2	.9069070	-.050364	.0942572	.001964	.007878	139.2545	1.407848
#3	.9201228	-.047661	.0960438	-.012777	.008736	138.8569	1.404457

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030826	.0118999	213.5966	4.504281	.3049213	.5491792	426.1980
Stddev	.0000868	.0001583	1.7924	.003588	.0004227	.0035797	2.3425
%RSD	2.815667	1.330593	.8391488	.0796585	.1386325	.6518350	.5496230
#1	.0031828	.0117722	215.5109	4.508307	.3044332	.5510860	428.8840
#2	.0030333	.0118504	213.3209	4.503115	.3051665	.5514020	425.1310
#3	.0030316	.0120770	211.9581	4.501421	.3051643	.5450497	424.5789

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.00163	106.4061	1.070618	-.027891	1.870345	.9910418	.5547084
Stddev	.04162	.4383	.002179	.000596	.269609	.0135795	.0025126
%RSD	.2972630	.4119299	.2035016	2.137223	14.41492	1.370229	.4529543
#1	14.01983	106.8957	1.069948	-.028488	1.867112	.9880328	.5537530
#2	14.03105	106.2721	1.068853	-.027888	1.602367	1.005873	.5528137
#3	13.95400	106.0504	1.073053	-.027296	2.141555	.979219	.5575585

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.668330	3.966921	.3809524	-.000300	.4240248	7.506991	.0032084
Stddev	.043477	.012468	.0032361	.000330	.0018880	.017155	.0016153
%RSD	.5015601	.3143066	.8494795	109.9454	.4452470	.2285228	50.34553
#1	8.632982	3.954611	.3814291	-.000389	.4222303	7.526623	.0025431
#2	8.716877	3.966609	.3839237	.000065	.4238501	7.494886	.0050500
#3	8.655132	3.979542	.3775043	-.000577	.4259941	7.499463	.0020320

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4484-03DLX2A Acquired: 11/08/2024 19:34:14 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4G9A Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.583553	.1472017	.3061421
Stddev	.019579	.0027884	.0007807
%RSD	.4271533	1.894244	.2550060
#1	4.606136	.1501251	.3068123
#2	4.573181	.1469085	.3063290
#3	4.571343	.1445716	.3052849

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	947.4054	25419.09	2890.173	855.6307	1637.279
Stddev	1.0963	25.61	16.983	3.3384	2.917
%RSD	.1157192	.1007340	.5875949	.3901660	.1781815
#1	948.5802	25390.23	2870.603	853.2674	1637.467
#2	947.2266	25439.10	2901.026	859.4498	1640.098
#3	946.4095	25427.95	2898.893	854.1750	1634.272

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4500-10DLX2A Acquired: 11/08/2024 19:38:45 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4H2A Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0088814	-.014304	.1187924	-.004287	.0050898	173.0188
Stddev	.0201795	.006470	.0053039	.004289	.0027359	.4364
%RSD	227.2114	45.23195	4.464836	100.0503	53.75205	.2522254
#1	.0182932	-.007117	.1245829	-.008589	.0067298	173.3279
#2	-.014285	-.019665	.1141698	-.004262	.0066080	173.2089
#3	.022636	-.016129	.1176245	-.000010	.0019314	172.5196

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.080043	.0038367	.0138839	475.2788	3.546744	.4475849
Stddev	.001761	.0001428	.0001940	1.7166	.002587	.0010195
%RSD	.1630440	3.723085	1.397237	.3611692	.0729463	.2277690
#1	1.082028	.0038921	.0137370	476.8375	3.546236	.4485571
#2	1.078669	.0036745	.0138107	475.5598	3.544449	.4465240
#3	1.079432	.0039436	.0141038	473.4391	3.549548	.4476736

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4165534	410.6894	8.193085	381.4067	F 5.229715	-.018096
Stddev	.0015503	1.8178	.011777	1.7986	.002373	.000572
%RSD	.3721794	.4426200	.1437482	.4715643	.0453818	3.162385
#1	.4164485	412.5261	8.194724	382.9457	5.232181	-.018403
#2	.4150581	410.6511	8.203957	381.8449	5.229515	-.018448
#3	.4181535	408.8911	8.180574	379.4295	5.227447	-.017435

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.633929	1.135832	.5746422	11.39196	5.932075	.4231957
Stddev	.346751	.014877	.0035181	.03521	.003235	.0023717
%RSD	5.226926	1.309782	.6122306	.3090606	.0545256	.5604367
#1	7.008568	1.152976	.5775118	11.42966	5.930841	.4259342
#2	6.568961	1.126315	.5756978	11.38632	5.929639	.4218530
#3	6.324257	1.128206	.5707172	11.35992	5.935745	.4218000

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4500-10DLX2A Acquired: 11/08/2024 19:38:45 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4H2A Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000336	4.599661	9.400785	.0105444	10.74190	.1238427
Stddev	.000443	.015328	.055179	.0034454	.02801	.0029545
%RSD	131.6551	.3332448	.5869577	32.67502	.2607760	2.385691
#1	.000129	4.589312	9.410739	.0088582	10.77271	.1232035
#2	-.000751	4.617270	9.450309	.0145081	10.73500	.1212601
#3	-.000386	4.592400	9.341307	.0082669	10.71798	.1270644

Elem	Sr4077
Units	ppm
Avg	.9949309
Stddev	.0021328
%RSD	.2143684
#1	.9960926
#2	.9962306
#3	.9924694

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	914.8709	24878.27	2858.661	830.6325	1494.641
Stddev	.1481	105.33	9.802	4.0687	2.714
%RSD	.0161918	.4233715	.3428987	.4898319	.1816095
#1	915.0409	24836.30	2852.420	825.9374	1491.560
#2	914.7695	24998.11	2853.604	832.8349	1495.680
#3	914.8023	24800.40	2869.959	833.1253	1496.682

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4496-06 Acquired: 11/08/2024 19:43:12 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHZC7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0479854	-.047045	.1138933	-.005697	.0009990	137.5085
Stddev	.0093793	.002400	.0076102	.009359	.0026512	.5599
%RSD	19.54614	5.101782	6.681875	164.3001	265.3953	.4071732
#1	.0476567	-.044364	.1121212	.005005	-.002060	137.9869
#2	.0575248	-.047774	.1073254	-.012354	.002639	136.8927
#3	.0387748	-.048996	.1222332	-.009741	.002418	137.6458

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8441787	.0031400	.0113724	F 984.9289	1.507500	.2187674
Stddev	.0035625	.0002605	.0003454	4.9836	.001692	.0013193
%RSD	.4220036	8.296369	3.037238	.5059903	.1122712	.6030673
#1	.8482069	.0034133	.0113189	989.8063	1.509073	.2172540
#2	.8428868	.0031121	.0117414	979.8454	1.507719	.2196752
#3	.8414424	.0028946	.0110568	985.1351	1.505709	.2193728

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3321826	321.6264	4.109506	156.2198	1.709918	-.008466
Stddev	.0072213	1.9692	.035809	1.0876	.003562	.000079
%RSD	2.173907	.6122787	.8713750	.6961894	.2082958	.9333430
#1	.3404947	323.3402	4.150434	156.6812	1.710659	-.008396
#2	.3274532	319.4752	4.083946	154.9776	1.706043	-.008552
#3	.3285998	322.0639	4.094138	157.0007	1.713050	-.008449

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.261438	.9531343	.5337397	14.48427	5.800378	.3336621
Stddev	.098685	.0043507	.0015641	.12093	.004080	.0029189
%RSD	4.363805	.4564648	.2930418	.8349123	.0703476	.8748013
#1	2.166527	.9485608	.5351521	14.62378	5.805049	.3357684
#2	2.363507	.9536207	.5320587	14.40920	5.797507	.3303302
#3	2.254279	.9572214	.5340084	14.41984	5.798579	.3348876

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4496-06 Acquired: 11/08/2024 19:43:12 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHZC7 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0038859	43.15681	13.17892	.0127587	4.164825	.1281392
Stddev	.0005224	.05561	.04117	.0026008	.017236	.0014767
%RSD	13.44280	.1288441	.3123650	20.38444	.4138440	1.152388
#1	.0038147	43.09851	13.22585	.0139126	4.184717	.1287328
#2	.0044402	43.16265	13.14891	.0097806	4.155426	.1264581
#3	.0034028	43.20926	13.16199	.0145829	4.154331	.1292267

Elem	Sr4077
Units	ppm
Avg	1.701676
Stddev	.008157
%RSD	.4793694
#1	1.709153
#2	1.692977
#3	1.702899

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	918.7294	24567.35	2821.290	835.5324	1487.740
Stddev	1.0575	38.25	13.471	2.2128	2.249
%RSD	.1151018	.1556743	.4774901	.2648345	.1511734
#1	918.0447	24556.98	2806.095	836.1261	1486.328
#2	919.9473	24609.71	2831.771	837.3878	1490.334
#3	918.1961	24535.36	2826.004	833.0834	1486.559

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: PB164450BL Acquired: 11/08/2024 19:47:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS450 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0077605	.0022116	.0037647	-.006429	-.001122	.0087395	.0009080
Stddev	.0065463	.0019899	.0015437	.008921	.001304	.0038413	.0009318
%RSD	84.35437	89.97185	41.00537	138.7701	116.2459	43.95407	102.6282
#1	.0053148	.0028065	.0049204	-.001744	-.001953	.0049921	.0017986
#2	.0027892	.0038362	.0020115	-.000825	.000381	.0126684	.0009855
#3	.0151776	-.000008	.0043621	-.016716	-.001792	.0085579	-.000060

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000025	-.000005	.0631570	-.000257	.0004484	.0018504	.0613800
Stddev	.000073	.000099	.0076986	.000229	.0004352	.0005640	.0197995
%RSD	286.6321	1939.007	12.18961	89.12615	97.06149	30.48159	32.25720
#1	.000008	-.000108	.0608907	-.000391	.0008681	.0014071	.0841162
#2	.000024	.000089	.0717343	-.000388	-.000001	.0016588	.0520906
#3	-.000109	.000004	.0568459	.000007	.000478	.0024853	.0479333

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000087	.0757114	.0007539	.0009841	-.379490	.0017826	.0007246
Stddev	.002075	.0383719	.0002939	.0002621	.258187	.0070049	.0003876
%RSD	2398.146	50.68176	38.97782	26.63108	68.03529	392.9599	53.49102
#1	.001841	.1131886	.0004186	.0011982	-.658186	-.004164	.0003061
#2	-.002283	.0774422	.0009667	.0010622	-.148451	.000007	.0007965
#3	.000183	.0365035	.0008764	.0006918	-.331834	.009504	.0010711

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0157297	-.001337	.0009947	-.000261	-.005160	.0047773	.0037542
Stddev	.0457567	.000912	.0003201	.000324	.007550	.0003748	.0014771
%RSD	290.8941	68.19059	32.17924	124.0095	146.3114	7.844768	39.34580
#1	-.026103	-.002367	.0009148	-.000425	-.013879	.0051855	.0020744
#2	.064596	-.000634	.0007222	-.000471	-.000801	.0044488	.0048502
#3	.008697	-.001010	.0013472	.000112	-.000802	.0046977	.0043380

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: PB164450BL Acquired: 11/08/2024 19:47:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS450 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0012824	.0014118	.0001034
Stddev	.0008592	.0017020	.0000615
%RSD	66.99932	120.5527	59.46149
#1	.0011009	.0033584	.0000854
#2	.0005284	.0002039	.0000530
#3	.0022177	.0006733	.0001719

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	956.7797	24363.04	2690.762	862.5493	1898.826
Stddev	1.2999	57.08	16.729	4.1952	1.256
%RSD	.1358580	.2343007	.6217245	.4863741	.0661350
#1	957.8099	24367.58	2704.179	864.8056	1897.564
#2	955.3193	24417.72	2672.018	865.1336	1898.839
#3	957.2100	24303.83	2696.089	857.7088	1900.075

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: PB164450BS Acquired: 11/08/2024 19:52:19 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS450 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0292440	.0552585	.0186937	.0632251	.1101744	.3971336
Stddev	.0039783	.0036375	.0016535	.0020621	.0018652	.0047037
%RSD	13.60397	6.582753	8.845356	3.261511	1.692903	1.184418
#1	.0255504	.0559293	.0177017	.0610687	.1123066	.3998180
#2	.0287253	.0513322	.0177768	.0634289	.1088452	.3917023
#3	.0334562	.0585139	.0206025	.0651777	.1093714	.3998804

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4206354	.0109690	.0109229	11.23719	.0225961	.1015494
Stddev	.0013688	.0002345	.0000760	.11400	.0005653	.0005472
%RSD	.3254191	2.137833	.6960684	1.014501	2.501659	.5388728
#1	.4206008	.0108889	.0108745	11.21888	.0226093	.1020869
#2	.4192842	.0107851	.0108837	11.13345	.0231546	.1009929
#3	.4220212	.0112331	.0110105	11.35923	.0220243	.1015683

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0494335	F .2671888	.0349535	10.80801	.0856973	.0226338
Stddev	.0047771	.0322465	.0025027	.15836	.0009146	.0003323
%RSD	9.663647	12.06880	7.159979	1.465177	1.067253	1.467943
#1	.0520787	.2413788	.0321429	10.69635	.0865887	.0223319
#2	.0523029	.3033364	.0369407	10.73845	.0857421	.0225797
#3	.0439189	.2568513	.0357770	10.98924	.0847611	.0229897

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.41584	.1072937	.1213333	9.913112	.0150857	F .0020734
Stddev	.21657	.0044101	.0010770	.125706	.0025797	.0008496
%RSD	2.079191	4.110302	.8876251	1.268079	17.10011	40.97766
#1	10.56828	.1123835	.1223346	9.910112	.0147684	.0028506
#2	10.51131	.1048878	.1214714	9.788933	.0126793	.0022034
#3	10.16795	.1046098	.1201940	10.04029	.0178093	.0011663

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: PB164450BS Acquired: 11/08/2024 19:52:19 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS450 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0194402	.1727156	F .4699170	.0169382	.2104808	.0305565
Stddev	.0004778	.0051072	.0059445	.0012047	.0009579	.0008230
%RSD	2.457659	2.956994	1.265020	7.112407	.4551083	2.693202
#1	.0199144	.1668840	.4716384	.0181418	.2113550	.0302722
#2	.0189589	.1748715	.4633017	.0169403	.2106306	.0314839
#3	.0194474	.1763913	.4748108	.0157324	.2094568	.0299135

Elem	Sr4077
Units	ppm
Avg	.2111679
Stddev	.0004846
%RSD	.2295015
#1	.2107980
#2	.2109893
#3	.2117166

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	947.8439	24295.36	2696.303	863.7133	1847.856
Stddev	3.8847	167.02	24.689	2.8371	4.092
%RSD	.4098426	.6874680	.9156509	.3284800	.2214226
#1	943.3618	24454.65	2693.403	864.5605	1844.182
#2	949.9310	24309.86	2722.313	866.0304	1852.266
#3	950.2390	24121.56	2673.191	860.5491	1847.121

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-01 Acquired: 11/08/2024 19:56:52 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6M7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0411259	.0012947	.0038925	.0025215	-.003253	14.85760
Stddev	.0088184	.0044935	.0033367	.0089598	.002766	.02787
%RSD	21.44230	347.0795	85.72316	355.3362	85.03351	.1875586
#1	.0313219	-.002294	.0018030	-.002097	-.003969	14.83136
#2	.0484099	.006334	.0077407	.012848	-.005591	14.88685
#3	.0436460	-.000156	.0021338	-.003186	-.000199	14.85460

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0948300	.0090928	.0010297	183.2194	.0177132	.0229034
Stddev	.0008219	.0000378	.0002141	.5088	.0004189	.0006868
%RSD	.8667485	.4157037	20.79223	.2777251	2.364975	2.998649
#1	.0951229	.0091315	.0012663	183.4822	.0177493	.0234762
#2	.0954653	.0090910	.0008494	183.5431	.0181129	.0230920
#3	.0939017	.0090559	.0009735	182.6329	.0172774	.0221420

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.010993	23.18394	5.410964	23.08955	.0414306	-.004658
Stddev	.016282	.06940	.002573	.16436	.0012355	.000215
%RSD	.4059462	.2993564	.0475442	.7118170	2.982177	4.616951
#1	3.997560	23.12850	5.408003	23.00848	.0428467	-.004678
#2	4.029102	23.16154	5.412654	22.98147	.0408733	-.004433
#3	4.006318	23.26177	5.412234	23.27869	.0405719	-.004862

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.253474	.1246455	.5071135	4.504042	F 13.80024	.7358367
Stddev	.126343	.0021447	.0028996	.112873	.03056	.0032886
%RSD	1.741824	1.720615	.5717910	2.506048	.2214549	.4469165
#1	7.133687	.1221905	.5103215	4.396366	13.82660	.7332393
#2	7.385484	.1261548	.5063396	4.621479	13.80739	.7395343
#3	7.241249	.1255911	.5046793	4.494280	13.76674	.7347364

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-01 Acquired: 11/08/2024 19:56:52 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6M7 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001004	F 339.5973	7.666787	-.004333	.0050167	.0259879
Stddev	.000287	.8720	.010888	.001136	.0004319	.0003305
%RSD	28.55888	.2567650	.1420169	26.22980	8.609407	1.271656
#1	-.001121	340.4023	7.668010	-.003307	.0052790	.0261891
#2	-.001214	339.7186	7.655339	-.004136	.0052529	.0256065
#3	-.000678	338.6710	7.677012	-.005555	.0045182	.0261681

Elem	Sr4077
Units	ppm
Avg	.5838810
Stddev	.0013425
%RSD	.2299207
#1	.5831269
#2	.5854310
#3	.5830852

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1087.349	28372.68	3164.449	991.7129	1781.173
Stddev	1.262	78.86	3.152	1.6666	2.012
%RSD	.1160933	.2779516	.0996113	.1680513	.1129605
#1	1085.990	28356.53	3160.886	989.8635	1780.099
#2	1087.570	28303.15	3165.588	992.1766	1779.925
#3	1088.486	28458.37	3166.873	993.0985	1783.494

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-02 Acquired: 11/08/2024 20:01:18 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6M8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0501059	-.000785	.0044910	.0010924	-.000623	15.75445
Stddev	.0103213	.001251	.0048623	.0015007	.002822	.04644
%RSD	20.59898	159.3530	108.2672	137.3790	452.7838	.2947732
#1	.0482477	.000448	.0022156	.0009210	.000832	15.76197
#2	.0612300	-.000750	.0100738	.0026714	.001174	15.70471
#3	.0408399	-.002053	.0011836	-.000315	-.003876	15.79667

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0853001	.0108775	.0007751	177.4572	.0176586	.0235808
Stddev	.0007883	.0000252	.0001037	.4397	.0009830	.0001720
%RSD	.9240970	.2317318	13.37134	.2477786	5.566805	.7292863
#1	.0860413	.0108484	.0007785	177.7753	.0186948	.0236082
#2	.0844720	.0108935	.0006699	176.9554	.0175416	.0233968
#3	.0853870	.0108905	.0008771	177.6408	.0167393	.0237374

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.951099	23.21907	4.658024	23.98638	.0443412	-.005166
Stddev	.012682	.06140	.016731	.04432	.0007125	.000338
%RSD	.6499881	.2644589	.3591773	.1847627	1.606887	6.547078
#1	1.940254	23.27975	4.655008	24.03403	.0441474	-.005471
#2	1.948001	23.15697	4.643006	23.94638	.0451306	-.005224
#3	1.965043	23.22050	4.676057	23.97875	.0437456	-.004802

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.129281	.1427647	.5076152	5.045409	F 15.55645	.7677331
Stddev	.097844	.0074191	.0019461	.094846	.04085	.0073599
%RSD	1.203602	5.196711	.3833735	1.879840	.2626065	.9586569
#1	8.241653	.1406507	.5053720	5.095905	15.58908	.7755249
#2	8.062955	.1366320	.5088521	4.935998	15.51063	.7608988
#3	8.083233	.1510113	.5086214	5.104322	15.56964	.7667756

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-02 Acquired: 11/08/2024 20:01:18 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6M8 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001125	F 356.8437	8.499849	-.004885	.0067789	.0336259
Stddev	.000267	.3742	.051075	.000470	.0010180	.0006753
%RSD	23.72182	.1048763	.6008891	9.613545	15.01775	2.008176
#1	-.001322	356.7357	8.537200	-.004715	.0079143	.0342146
#2	-.001232	356.5353	8.441647	-.004524	.0064748	.0337744
#3	-.000821	357.2601	8.520699	-.005416	.0059475	.0328888

Elem	Sr4077
Units	ppm
Avg	.6557111
Stddev	.0014323
%RSD	.2184411
#1	.6552497
#2	.6545664
#3	.6573173

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1093.792	28613.54	3181.651	1003.180	1780.135
Stddev	1.950	68.36	15.088	4.726	1.936
%RSD	.1782641	.2388928	.4742212	.4711321	.1087623
#1	1094.199	28660.19	3177.879	1008.518	1778.948
#2	1095.506	28645.36	3198.268	1001.497	1782.370
#3	1091.671	28535.08	3168.807	999.526	1779.089

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-03 Acquired: 11/08/2024 20:05:43 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6M9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0552357	-.000405	.0069717	-.001502	-.001316	16.20637
Stddev	.0078660	.002191	.0023817	.005583	.003007	.02500
%RSD	14.24086	541.0703	34.16226	371.7151	228.5305	.1542491
#1	.0642171	.002053	.0042879	-.006057	.000212	16.20887
#2	.0519176	-.002153	.0088337	-.003176	.000620	16.23003
#3	.0495723	-.001114	.0077935	.004727	-.004781	16.18022

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0837377	.0096306	.0011883	248.3254	.0196447	.0267232
Stddev	.0007333	.0000111	.0002466	.1576	.0009283	.0005232
%RSD	.8756654	.1151248	20.75542	.0634657	4.725277	1.957787
#1	.0845627	.0096369	.0014680	248.3264	.0205791	.0271523
#2	.0834898	.0096372	.0010954	248.4825	.0196322	.0261404
#3	.0831605	.0096179	.0010017	248.1673	.0187227	.0268768

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.567165	26.23880	6.687258	25.44960	.0480194	-.004782
Stddev	.002221	.17777	.013679	.07176	.0003477	.000331
%RSD	.0622555	.6775091	.2045573	.2819610	.7241496	6.912805
#1	3.565485	26.05403	6.701257	25.51129	.0477506	-.005030
#2	3.569683	26.40862	6.686593	25.46666	.0478954	-.004908
#3	3.566328	26.25376	6.673923	25.37085	.0484121	-.004407

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.021376	.1282424	.5230493	4.880640	F 16.62889	.7903697
Stddev	.170488	.0060168	.0026091	.073671	.03432	.0024323
%RSD	2.125417	4.691728	.4988293	1.509457	.2064089	.3077479
#1	7.856865	.1341429	.5220738	4.964949	16.59360	.7888120
#2	8.009994	.1284687	.5210684	4.828661	16.66216	.7931725
#3	8.197269	.1221157	.5260056	4.848311	16.63090	.7891245

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-03 Acquired: 11/08/2024 20:05:43 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6M9 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001531	F 356.3923	7.921995	-.006743	.0031018	.0289182
Stddev	.000023	.7969	.035302	.000727	.0007106	.0006595
%RSD	1.486992	.2236003	.4456214	10.78623	22.91005	2.280635
#1	-.001555	355.5033	7.906180	-.005906	.0029282	.0290277
#2	-.001528	356.6311	7.962439	-.007103	.0024940	.0295161
#3	-.001510	357.0425	7.897366	-.007220	.0038831	.0282108

Elem	Sr4077
Units	ppm
Avg	.6805474
Stddev	.0006624
%RSD	.0973338
#1	.6812106
#2	.6798858
#3	.6805458

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1095.674	28828.04	3218.075	1004.346	1740.170
Stddev	1.488	49.50	8.642	7.106	2.923
%RSD	.1357704	.1717054	.2685348	.7075622	.1679627
#1	1096.137	28846.60	3219.711	1008.079	1743.342
#2	1096.875	28865.57	3208.732	1008.807	1739.581
#3	1094.010	28771.94	3225.781	996.151	1737.586

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-04 Acquired: 11/08/2024 20:10:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0474022	-.001141	.0089411	.0001937	-.000360	17.25879
Stddev	.0017121	.004791	.0026346	.0039925	.001643	.03982
%RSD	3.611834	419.9940	29.46648	2061.377	456.6186	.2307085
#1	.0472062	.002887	.0059291	-.002828	-.001953	17.30220
#2	.0492039	-.006439	.0100772	.004720	.001329	17.22396
#3	.0457966	.000130	.0108172	-.001311	-.000456	17.25023

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0806953	.0101536	.0011804	195.2175	.0196877	.0275898
Stddev	.0008167	.0001900	.0000544	.8152	.0007176	.0006859
%RSD	1.012114	1.871019	4.608835	.4175928	3.645065	2.486152
#1	.0804213	.0100775	.0011840	195.9717	.0203247	.0268143
#2	.0816138	.0103698	.0012329	194.3526	.0198281	.0281171
#3	.0800508	.0100134	.0011243	195.3282	.0189102	.0278380

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.144033	26.76099	5.337386	26.75429	.0489027	-.006145
Stddev	.009319	.10545	.017079	.22972	.0006727	.000188
%RSD	.2963995	.3940268	.3199857	.8586324	1.375494	3.064339
#1	3.151710	26.87947	5.344405	26.99228	.0485070	-.006252
#2	3.133665	26.67745	5.317916	26.53385	.0485217	-.005927
#3	3.146724	26.72605	5.349837	26.73673	.0496794	-.006255

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.417462	.1356457	.5510120	5.179533	F 17.21318	.7993712
Stddev	.135270	.0072791	.0022276	.015949	.08709	.0007905
%RSD	1.607011	5.366277	.4042708	.3079311	.5059605	.0988910
#1	8.456727	.1307769	.5535435	5.162943	17.11302	.7995098
#2	8.266904	.1440137	.5501407	5.194753	17.25539	.7985206
#3	8.528755	.1321466	.5493516	5.180901	17.27112	.8000833

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-04 Acquired: 11/08/2024 20:10:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N0 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001207	F 387.4709	8.627913	-.004194	.0058561	.0322762
Stddev	.000128	1.7261	.027503	.000996	.0026193	.0008963
%RSD	10.57706	.4454738	.3187704	23.74376	44.72744	2.776933
#1	-.001292	385.4814	8.656411	-.003764	.0048037	.0333100
#2	-.001060	388.3619	8.625800	-.003485	.0039266	.0317159
#3	-.001269	388.5694	8.601527	-.005332	.0088378	.0318029

Elem	Sr4077
Units	ppm
Avg	.6381259
Stddev	.0007366
%RSD	.1154251
#1	.6382696
#2	.6373280
#3	.6387800

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1120.603	29379.69	3290.361	1031.180	1769.119
Stddev	1.448	27.67	9.600	4.605	3.354
%RSD	.1291984	.0941836	.2917730	.4465779	.1896141
#1	1122.012	29359.67	3280.909	1026.207	1772.943
#2	1120.677	29368.13	3290.069	1035.297	1767.741
#3	1119.119	29411.26	3300.104	1032.036	1766.673

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-05 Acquired: 11/08/2024 20:14:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0514320	-.002542	.0066948	-.000197	-.003454	19.01326
Stddev	.0177781	.003491	.0024971	.008919	.001909	.01083
%RSD	34.56631	137.2955	37.29893	4528.544	55.27665	.0569659
#1	.0519937	.001018	.0045288	.009904	-.003325	19.00516
#2	.0689226	-.002687	.0094260	-.006985	-.001613	19.02557
#3	.0333796	-.005958	.0061295	-.003510	-.005425	19.00907

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0727451	.0095421	.0014647	197.1734	.0281043	.0329523
Stddev	.0005096	.0000710	.0001322	.3387	.0005849	.0006593
%RSD	.7005031	.7440335	9.023688	.1717969	2.081234	2.000621
#1	.0722175	.0094669	.0016097	196.9150	.0284251	.0321939
#2	.0732345	.0096079	.0013509	197.5569	.0274291	.0333884
#3	.0727832	.0095515	.0014335	197.0484	.0284585	.0332746

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.081133	31.25441	5.597586	28.72023	.0570968	-.006649
Stddev	.007633	.13868	.009320	.07237	.0014228	.000322
%RSD	.3667812	.4436985	.1664933	.2519834	2.491954	4.842250
#1	2.089568	31.13489	5.608086	28.73174	.0585586	-.006946
#2	2.079127	31.40646	5.594377	28.64279	.0557165	-.006693
#3	2.074703	31.22189	5.590295	28.78616	.0570152	-.006307

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.709248	.1589263	.5013254	4.968647	F 15.37591	.7958810
Stddev	.180763	.0050056	.0014225	.125706	.16887	.0032576
%RSD	2.075532	3.149630	.2837496	2.529990	1.098251	.4093083
#1	8.623853	.1537682	.5019098	4.828255	15.52328	.7922358
#2	8.916888	.1637640	.5023627	5.006912	15.19165	.7985076
#3	8.587003	.1592469	.4997038	5.070775	15.41278	.7968995

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-05 Acquired: 11/08/2024 20:14:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N1 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001734	F 376.1499	9.620346	-.007957	.0067158	.0373297
Stddev	.000263	3.5747	.022358	.001949	.0009453	.0004717
%RSD	15.17244	.9503267	.2324035	24.48988	14.07580	1.263703
#1	-.002006	379.0117	9.597842	-.006099	.0056668	.0378563
#2	-.001714	372.1430	9.642555	-.007787	.0069788	.0371872
#3	-.001481	377.2950	9.620642	-.009985	.0075017	.0369457

Elem	Sr4077
Units	ppm
Avg	.6145972
Stddev	.0010846
%RSD	.1764734
#1	.6157083
#2	.6135412
#3	.6145422

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1104.551	29051.88	3292.544	1017.445	1748.626
Stddev	5.051	46.46	15.834	.478	13.765
%RSD	.4572950	.1599159	.4809047	.0469600	.7872071
#1	1102.856	29102.89	3310.425	1017.056	1744.247
#2	1110.231	29040.73	3280.298	1017.978	1764.048
#3	1100.565	29012.01	3286.910	1017.301	1737.583

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-06 Acquired: 11/08/2024 20:18:51 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6M6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0626041	-.000347	.0056856	-.001252	.0004371	17.64989
Stddev	.0070333	.004026	.0036842	.006070	.0006889	.12388
%RSD	11.23462	1159.599	64.79805	485.0065	157.5900	.7018701
#1	.0561807	-.002955	.0028433	.001130	.0010521	17.50730
#2	.0615120	.004289	.0098480	.003267	.0005665	17.73100
#3	.0701196	-.002376	.0043656	-.008152	-.000307	17.71138

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0743492	.0100075	.0013358	227.7765	.0262329	.0309629
Stddev	.0003264	.0001781	.0001256	1.7400	.0005556	.0004690
%RSD	.4390689	1.779894	9.400699	.7639018	2.118148	1.514612
#1	.0739804	.0098061	.0012949	226.3030	.0268251	.0314073
#2	.0746011	.0100722	.0014767	229.6961	.0257229	.0310088
#3	.0744661	.0101443	.0012358	227.3305	.0261508	.0304727

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.915375	29.00576	6.685534	27.97137	.0553696	-.006204
Stddev	.018098	.34048	.051947	.23235	.0004676	.000099
%RSD	.6207646	1.173830	.7770058	.8306555	.8444829	1.588668
#1	2.897500	28.63246	6.625586	27.70598	.0557029	-.006291
#2	2.933687	29.29923	6.713728	28.13814	.0555707	-.006224
#3	2.914937	29.08559	6.717288	28.06998	.0548351	-.006097

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.853031	.1487970	.5024701	5.015188	F 16.78398	.8162615
Stddev	.237984	.0051823	.0006989	.098177	.03758	.0049975
%RSD	3.030472	3.482765	.1390901	1.957594	.2239112	.6122400
#1	7.583508	.1428169	.5029806	4.912792	16.79588	.8126954
#2	7.941375	.1519709	.5016736	5.108517	16.81417	.8219735
#3	8.034209	.1516034	.5027563	5.024253	16.74189	.8141156

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-06 Acquired: 11/08/2024 20:18:51 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6M6 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001646	F 364.2355	9.003825	-.005326	.0036256	.0349014
Stddev	.000523	.3625	.082298	.001514	.0021684	.0005806
%RSD	31.76516	.0995134	.9140335	28.42718	59.80665	1.663506
#1	-.001557	364.5696	8.946885	-.007054	.0060148	.0349208
#2	-.002207	364.2869	9.098183	-.004694	.0030795	.0343114
#3	-.001173	363.8501	8.966406	-.004230	.0017825	.0354721

Elem	Sr4077
Units	ppm
Avg	.6640896
Stddev	.0051354
%RSD	.7732972
#1	.6581689
#2	.6673359
#3	.6667639

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1109.641	29168.79	3297.024	1018.926	1741.945
Stddev	.691	94.92	26.509	2.573	3.801
%RSD	.0622924	.3254254	.8040304	.2525550	.2182031
#1	1108.846	29156.43	3321.386	1020.338	1737.657
#2	1109.972	29269.28	3268.793	1020.484	1743.278
#3	1110.103	29080.65	3300.892	1015.955	1744.900

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-07 Acquired: 11/08/2024 20:23:13 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0496542	.0009300	.0078777	-.007566	-.000470	17.31812
Stddev	.0065910	.0025069	.0016110	.002811	.001407	.24379
%RSD	13.27376	269.5483	20.45007	37.15180	299.4995	1.407711
#1	.0540852	.0035267	.0075095	-.004365	.000457	17.05587
#2	.0420800	.0007397	.0096410	-.008701	-.002088	17.53785
#3	.0527974	-.001476	.0064827	-.009633	.000222	17.36063

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0783233	.0096814	.0013229	246.8647	.0226454	.0286381
Stddev	.0009025	.0001463	.0000060	3.6430	.0005257	.0005912
%RSD	1.152327	1.510766	.4501914	1.475702	2.321292	2.064394
#1	.0772911	.0095381	.0013161	243.1661	.0227276	.0292399
#2	.0787155	.0096756	.0013252	250.4494	.0220835	.0286165
#3	.0789635	.0098304	.0013274	246.9787	.0231251	.0280580

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.350234	27.03417	7.736369	26.30471	.0521054	-.005500
Stddev	.041832	.40668	.096145	.36098	.0007714	.000234
%RSD	1.248622	1.504321	1.242762	1.372310	1.480455	4.248568
#1	3.301931	26.61110	7.625456	25.93155	.0513289	-.005419
#2	3.374207	27.42219	7.796017	26.65214	.0528716	-.005318
#3	3.374563	27.06923	7.787634	26.33043	.0521156	-.005763

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.469828	.1324055	.4909719	4.742060	F 15.82305	.8136808
Stddev	.136888	.0061646	.0007540	.167146	.06859	.0099939
%RSD	1.832547	4.655868	.1535782	3.524744	.4334975	1.228238
#1	7.512051	.1344079	.4908587	4.553063	15.86500	.8036561
#2	7.316803	.1373200	.4902808	4.802684	15.74390	.8236437
#3	7.580631	.1254886	.4917761	4.870435	15.86026	.8137424

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-07 Acquired: 11/08/2024 20:23:13 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N2 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001351	F 394.4162	8.717222	-.006004	.0050771	.0343243
Stddev	.000519	1.3676	.111711	.001013	.0014456	.0008948
%RSD	38.43406	.3467299	1.281500	16.86964	28.47260	2.606999
#1	-.001597	394.1934	8.593602	-.006327	.0049415	.0332911
#2	-.000754	393.1737	8.810936	-.004869	.0037041	.0348330
#3	-.001702	395.8814	8.747130	-.006815	.0065857	.0348489

Elem	Sr4077
Units	ppm
Avg	.6274954
Stddev	.0078032
%RSD	1.243544
#1	.6185378
#2	.6328172
#3	.6311312

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1116.921	29257.17	3281.658	1023.408	1743.513
Stddev	1.564	37.77	49.906	1.561	2.313
%RSD	.1400123	.1291069	1.520745	.1524987	.1326385
#1	1116.697	29258.43	3336.685	1024.236	1742.678
#2	1115.481	29218.79	3239.326	1021.608	1746.127
#3	1118.584	29294.30	3268.962	1024.381	1741.734

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-08 Acquired: 11/08/2024 20:27:35 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0491106	.0020069	.0076719	.0013534	-.000457	17.32616
Stddev	.0099064	.0017850	.0043118	.0043503	.002559	.01245
%RSD	20.17154	88.94220	56.20273	321.4397	560.4500	.0718592
#1	.0379304	.0007715	.0050879	.0031570	-.000571	17.31272
#2	.0526054	.0040534	.0052782	.0045118	.002157	17.32847
#3	.0567958	.0011958	.0126495	-.003609	-.002956	17.33729

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0885167	.0095088	.0012808	206.6477	.0246308	.0306652
Stddev	.0004188	.0000939	.0001684	.2031	.0012172	.0011204
%RSD	.4731451	.9879295	13.14543	.0982659	4.941910	3.653609
#1	.0884226	.0096054	.0012531	206.6402	.0232807	.0316083
#2	.0889746	.0094177	.0011280	206.4485	.0249673	.0294267
#3	.0881530	.0095034	.0014613	206.8544	.0256443	.0309605

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.409559	30.44591	6.175770	27.37431	.0542514	-.006617
Stddev	.004288	.14488	.015084	.06227	.0005467	.000978
%RSD	.1779453	.4758456	.2442422	.2274793	1.007775	14.77616
#1	2.410872	30.36633	6.186675	27.36370	.0544136	-.007733
#2	2.413037	30.61313	6.158556	27.31803	.0536419	-.005912
#3	2.404769	30.35827	6.182079	27.44121	.0546986	-.006206

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.097844	.1507615	.5584058	4.833732	F 15.74900	.8076960
Stddev	.025473	.0043645	.0119717	.034386	.01188	.0018028
%RSD	.3145700	2.894972	2.143904	.7113705	.0754429	.2232010
#1	8.071045	.1556297	.5445934	4.800637	15.73601	.8061910
#2	8.121744	.1471985	.5648282	4.869277	15.75167	.8072030
#3	8.100741	.1494563	.5657959	4.831282	15.75931	.8096940

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-08 Acquired: 11/08/2024 20:27:35 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001357	F 385.2246	8.425115	-.007393	.0049705	.0294709
Stddev	.000620	.2424	.009500	.001847	.0016965	.0002294
%RSD	45.70909	.0629189	.1127623	24.98876	34.13047	.7782490
#1	-.002045	384.9829	8.420750	-.008364	.0030567	.0292072
#2	-.001186	385.2233	8.418582	-.008552	.0055657	.0295815
#3	-.000840	385.4676	8.436014	-.005263	.0062893	.0296241

Elem	Sr4077
Units	ppm
Avg	.6241208
Stddev	.0009332
%RSD	.1495159
#1	.6240035
#2	.6232518
#3	.6251070

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1103.294	29195.43	3242.139	1023.680	1754.896
Stddev	1.631	489.13	4.256	16.318	2.568
%RSD	.1477935	1.675357	.1312864	1.594045	.1463146
#1	1104.875	29755.38	3237.640	1042.425	1757.839
#2	1101.618	28851.50	3246.101	1012.650	1753.112
#3	1103.389	28979.41	3242.677	1015.965	1753.737

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-09 Acquired: 11/08/2024 20:31:59 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0470113	.0004056	.0097930	.0001864	-.002429	16.10674
Stddev	.0023795	.0016114	.0060422	.0064779	.000752	.03104
%RSD	5.061660	397.3208	61.69855	3475.935	30.94342	.1927434
#1	.0455032	.0005973	.0099640	.0067134	-.002806	16.08298
#2	.0497544	.0019124	.0036672	.0000870	-.002918	16.09537
#3	.0457762	-.001293	.0157479	-.006241	-.001564	16.14187

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0770465	.0100421	.0009286	188.4221	.0175144	.0242872
Stddev	.0007195	.0000755	.0001581	.3028	.0003807	.0000954
%RSD	.9338477	.7516512	17.02254	.1606767	2.173421	.3928871
#1	.0772858	.0099900	.0008090	188.3777	.0176311	.0242060
#2	.0776158	.0101286	.0008689	188.1440	.0178230	.0242634
#3	.0762378	.0100076	.0011078	188.7446	.0170890	.0243923

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.244885	24.15278	5.060772	24.55108	.0437756	-.006029
Stddev	.003985	.04414	.010570	.09669	.0006103	.000523
%RSD	.1228138	.1827704	.2088684	.3938152	1.394279	8.679350
#1	3.240446	24.10188	5.070203	24.62368	.0434750	-.005670
#2	3.246053	24.17587	5.062766	24.44133	.0433739	-.006629
#3	3.248155	24.18058	5.049347	24.58823	.0444780	-.005787

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.882330	.1185555	.5450085	5.114239	F 16.38164	.8031012
Stddev	.148356	.0047419	.0008237	.055775	.01826	.0031189
%RSD	1.882133	3.999726	.1511418	1.090579	.1114931	.3883530
#1	7.736124	.1240273	.5453575	5.169203	16.37112	.8022468
#2	7.878119	.1156465	.5440677	5.115828	16.37107	.8004985
#3	8.032747	.1159926	.5456003	5.057687	16.40273	.8065581

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-09 Acquired: 11/08/2024 20:31:59 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N4 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000961	F 377.9562	8.381147	-.004959	.0061464	.0300736
Stddev	.000636	.4687	.002161	.000858	.0012423	.0016660
%RSD	66.13939	.1240047	.0257822	17.29443	20.21216	5.539629
#1	-.001684	377.5364	8.383429	-.005253	.0075749	.0305642
#2	-.000490	377.8703	8.380877	-.005631	.0055451	.0282174
#3	-.000709	378.4619	8.379133	-.003993	.0053191	.0314392

Elem	Sr4077
Units	ppm
Avg	.6776070
Stddev	.0014083
%RSD	.2078396
#1	.6761380
#2	.6789456
#3	.6777373

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1098.006	28869.72	3243.865	1013.615	1756.405
Stddev	1.267	47.42	1.786	2.682	3.443
%RSD	.1153938	.1642573	.0550540	.2645672	.1960079
#1	1099.312	28916.03	3245.853	1012.093	1759.228
#2	1097.922	28871.88	3242.396	1016.712	1757.418
#3	1096.782	28821.26	3243.346	1012.041	1752.570

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-10 Acquired: 11/08/2024 20:36:23 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0544035	.0033364	.0065058	-.000104	-.001584	17.06851
Stddev	.0198699	.0013880	.0030989	.000458	.002421	.11097
%RSD	36.52322	41.60140	47.63343	439.8649	152.8575	.6501230
#1	.0595822	.0048757	.0098530	.000188	-.004319	16.99089
#2	.0711713	.0029532	.0059278	-.000632	-.000715	17.19561
#3	.0324570	.0021803	.0037365	.000131	.000283	17.01903

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0766493	.0097848	.0012214	254.2105	.0173886	.0271811
Stddev	.0010930	.0001294	.0000768	2.3675	.0008148	.0002313
%RSD	1.425923	1.322007	6.285389	.9313213	4.685521	.8508318
#1	.0758231	.0096355	.0012605	252.6638	.0175420	.0269416
#2	.0778886	.0098542	.0011329	256.9360	.0165080	.0274032
#3	.0762361	.0098646	.0012707	253.0317	.0181157	.0271984

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.351961	27.47993	6.677530	26.06643	.0480106	-.005453
Stddev	.025890	.28263	.037085	.37992	.0007975	.000393
%RSD	.4837528	1.028505	.5553718	1.457521	1.661072	7.213102
#1	5.326394	27.24588	6.650015	25.89129	.0473026	-.005118
#2	5.378163	27.79392	6.719704	26.50234	.0478546	-.005886
#3	5.351326	27.39997	6.662870	25.80567	.0488745	-.005355

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.029815	.1302465	.5218659	5.004383	F 16.10454	.8458030
Stddev	.314937	.0044347	.0006254	.090165	.02550	.0082868
%RSD	3.922095	3.404827	.1198414	1.801717	.1583371	.9797490
#1	8.372770	.1264676	.5223842	4.924618	16.11996	.8367833
#2	7.753592	.1291432	.5211713	5.102212	16.11855	.8530794
#3	7.963083	.1351287	.5220423	4.986318	16.07510	.8475464

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-10 Acquired: 11/08/2024 20:36:23 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N5 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001395	F 374.9593	8.148272	-.004985	.0033515	.0297677
Stddev	.000306	.2366	.071176	.002686	.0017254	.0017303
%RSD	21.91626	.0630982	.8735128	53.88399	51.48336	5.812707
#1	-.001689	375.1543	8.074321	-.001929	.0026865	.0300763
#2	-.001079	375.0274	8.216304	-.006055	.0053104	.0313230
#3	-.001418	374.6961	8.154189	-.006971	.0020575	.0279039

Elem	Sr4077
Units	ppm
Avg	.6621456
Stddev	.0051650
%RSD	.7800366
#1	.6587659
#2	.6680911
#3	.6595798

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1103.009	29156.58	3274.790	1016.175	1729.692
Stddev	2.988	32.50	26.517	2.996	1.955
%RSD	.2708768	.1114700	.8097177	.2948274	.1130214
#1	1105.650	29119.14	3302.785	1015.166	1730.345
#2	1103.610	29173.10	3250.054	1013.814	1731.236
#3	1099.766	29177.50	3271.531	1019.545	1727.494

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-11 Acquired: 11/08/2024 20:40:45 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0411265	-.001118	.0051271	-.002451	.0004649	13.09617
Stddev	.0080273	.004090	.0036051	.003584	.0026562	.02903
%RSD	19.51863	365.7633	70.31411	146.2305	571.3010	.2216828
#1	.0449777	.003601	.0092089	.000034	-.001193	13.07130
#2	.0465025	-.003322	.0023786	-.000827	-.000941	13.08915
#3	.0318992	-.003634	.0037938	-.006559	.003529	13.12807

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0778569	.0077569	.0015111	234.9496	.0167969	.0195455
Stddev	.0002023	.0001623	.0001508	.2311	.0004486	.0007252
%RSD	.2598863	2.092585	9.977359	.0983647	2.670602	3.710208
#1	.0779358	.0076815	.0015878	234.6844	.0165724	.0189224
#2	.0776270	.0079431	.0016082	235.0565	.0173134	.0193727
#3	.0780080	.0076459	.0013374	235.1078	.0165050	.0203415

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.155704	21.27802	6.637540	19.96774	.0377290	-.003402
Stddev	.008689	.03878	.021960	.14315	.0003483	.000294
%RSD	.4030928	.1822487	.3308432	.7169115	.9231789	8.651446
#1	2.145903	21.29719	6.614569	19.88028	.0375702	-.003687
#2	2.162467	21.30348	6.658325	20.13294	.0374884	-.003099
#3	2.158740	21.23339	6.639724	19.89000	.0381284	-.003419

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.848149	.1028689	.4977743	3.994247	F 12.23178	.6748304
Stddev	.246868	.0068825	.0012894	.084452	.02564	.0036375
%RSD	3.604883	6.690597	.2590266	2.114342	.2095822	.5390171
#1	7.122670	.0957790	.4977058	3.963812	12.21265	.6748363
#2	6.777390	.1095234	.4990966	3.929231	12.26091	.6711900
#3	6.644387	.1033042	.4965206	4.089698	12.22178	.6784649

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-11 Acquired: 11/08/2024 20:40:45 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001262	F 314.6559	6.144173	-.005705	.0019981	.0220943
Stddev	.000398	.4915	.016291	.001327	.0014824	.0008693
%RSD	31.52104	.1561927	.2651416	23.26728	74.18889	3.934278
#1	-.000855	314.1131	6.155224	-.005544	.0021242	.0223487
#2	-.001649	315.0707	6.125465	-.004466	.0004567	.0211263
#3	-.001280	314.7840	6.151831	-.007106	.0034134	.0228081

Elem	Sr4077
Units	ppm
Avg	.5682934
Stddev	.0019509
%RSD	.3432969
#1	.5660430
#2	.5695078
#3	.5693293

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1060.534	27781.37	3133.236	969.6804	1746.099
Stddev	.950	72.87	3.687	4.1736	1.400
%RSD	.0895971	.2623014	.1176820	.4304147	.0801790
#1	1059.845	27795.10	3132.358	968.1074	1747.715
#2	1061.618	27702.61	3137.283	966.5219	1745.347
#3	1060.139	27846.40	3130.066	974.4120	1745.237

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-12 Acquired: 11/08/2024 20:45:10 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0370287	.0001960	.0050054	-.000976	-.001055	13.08193
Stddev	.0052295	.0011481	.0019129	.006114	.004982	.02003
%RSD	14.12281	585.6043	38.21616	626.5127	472.2165	.1530819
#1	.0347423	.0000318	.0067805	-.006898	-.000022	13.07727
#2	.0430120	-.000861	.0052562	.005313	-.006472	13.06465
#3	.0333317	.001417	.0029795	-.001343	.003329	13.10388

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0776932	.0077878	.0014044	233.6114	.0170694	.0196545
Stddev	.0001741	.0001183	.0000505	.7324	.0006621	.0004094
%RSD	.2240428	1.518665	3.593198	.3135301	3.878934	2.082833
#1	.0777787	.0078532	.0013494	233.0740	.0171670	.0194987
#2	.0778080	.0076512	.0014152	233.3146	.0176773	.0193459
#3	.0774930	.0078589	.0014486	234.4457	.0163639	.0201189

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.144522	21.05730	6.630606	19.77657	.0375504	-.003265
Stddev	.016626	.01614	.001022	.05395	.0002447	.000152
%RSD	.7752568	.0766429	.0154082	.2728090	.6515440	4.666246
#1	2.155371	21.07193	6.631035	19.71894	.0376292	-.003264
#2	2.125382	21.05998	6.631343	19.78488	.0372760	-.003418
#3	2.152815	21.03999	6.629439	19.82588	.0377459	-.003114

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.866107	.1045519	.4919099	4.084220	F 12.13594	.6766739
Stddev	.148579	.0163317	.0021760	.033290	.02771	.0046657
%RSD	2.163947	15.62067	.4423497	.8150980	.2283666	.6894972
#1	7.029089	.1153294	.4944040	4.074128	12.10450	.6744341
#2	6.831021	.0857613	.4903992	4.057144	12.14648	.6735504
#3	6.738211	.1125650	.4909265	4.121389	12.15684	.6820371

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-12 Acquired: 11/08/2024 20:45:10 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6D Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001063	F 312.4308	6.155390	-.006844	.0025378	.0219745
Stddev	.000152	.3638	.014378	.000176	.0022088	.0006087
%RSD	14.27022	.1164313	.2335833	2.577565	87.03711	2.769891
#1	-.000917	312.0990	6.143781	-.006660	.0041054	.0222689
#2	-.001051	312.3737	6.150915	-.007012	.0034962	.0223800
#3	-.001220	312.8197	6.171473	-.006860	.0000116	.0212746

Elem	Sr4077
Units	ppm
Avg	.5661102
Stddev	.0005004
%RSD	.0883924
#1	.5656451
#2	.5660458
#3	.5666396

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1061.635	27895.34	3125.867	974.1418	1751.675
Stddev	1.257	15.05	3.858	3.1721	.517
%RSD	.1184097	.0539535	.1234100	.3256326	.0295108
#1	1060.282	27911.29	3128.461	970.7611	1751.099
#2	1062.766	27881.38	3127.706	974.6113	1752.100
#3	1061.857	27893.34	3121.434	977.0530	1751.825

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-13 Acquired: 11/08/2024 20:49:33 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1255512	.0917106	.0408816	.1437832	.1506050	16.17610
Stddev	.0048748	.0005325	.0055077	.0035653	.0012508	.03448
%RSD	3.882687	.5806630	13.47234	2.479666	.8304910	.2131290
#1	.1215040	.0919598	.0371825	.1468314	.1501301	16.17870
#2	.1309628	.0910991	.0382511	.1446555	.1520236	16.14039
#3	.1241868	.0920728	.0472114	.1398626	.1496612	16.20920

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.477205	.0942646	.0970093	232.0090	.3798943	.9738699
Stddev	.002227	.0007416	.0004237	.8647	.0006389	.0017118
%RSD	.0640325	.7866891	.4367628	.3726907	.1681851	.1757747
#1	3.474645	.0944788	.0970677	232.3855	.3801458	.9718943
#2	3.478695	.0934394	.0965595	231.0199	.3791679	.9748019
#3	3.478274	.0948754	.0974008	232.6215	.3803693	.9749134

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.539025	22.79058	7.402918	19.62369	.9981310	.0783657
Stddev	.012525	.07038	.015042	.29171	.0010482	.0003667
%RSD	.4932929	.3088200	.2031913	1.486499	.1050128	.4679853
#1	2.525010	22.77483	7.418738	19.79969	.9970395	.0785281
#2	2.542942	22.72941	7.388799	19.28697	.9982238	.0779458
#3	2.549123	22.86751	7.401217	19.78441	.9991296	.0786232

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.968652	.9894135	1.281337	4.060334	F 12.14858	.6766939
Stddev	.241994	.0094165	.005078	.105585	.02787	.0018977
%RSD	3.472615	.9517270	.3962759	2.600402	.2294415	.2804440
#1	7.245290	.9997544	1.276269	4.039983	12.11701	.6783171
#2	6.796204	.9813327	1.286424	3.966405	12.15892	.6746074
#3	6.864461	.9871533	1.281319	4.174612	12.16981	.6771571

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-13 Acquired: 11/08/2024 20:49:33 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6S Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001416	F 312.8529	6.114120	-.006883	.0015798	.0232842
Stddev	.000382	.2970	.026880	.001115	.0020566	.0011010
%RSD	26.94098	.0949426	.4396399	16.20584	130.1850	4.728680
#1	-.001172	312.5101	6.135563	-.008097	.0033897	.0245549
#2	-.001221	313.0346	6.083964	-.006648	-.000657	.0226845
#3	-.001856	313.0141	6.122832	-.005904	.002006	.0226133

Elem	Sr4077
Units	ppm
Avg	.5606219
Stddev	.0008818
%RSD	.1572944
#1	.5602270
#2	.5600065
#3	.5616321

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1060.130	27968.93	3134.324	972.9412	1748.940
Stddev	2.495	18.91	14.478	3.8304	2.786
%RSD	.2353763	.0676107	.4619037	.3936971	.1592949
#1	1060.764	27981.21	3122.660	976.4908	1751.763
#2	1062.247	27978.43	3150.528	968.8811	1748.865
#3	1057.379	27947.15	3129.785	973.4516	1746.193

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCV036 Acquired: 11/08/2024 20:53:52 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV036 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.165763	4.749292	24.59677	4.704580	4.858409	404.4406
Stddev	.032291	.008250	.04263	.020112	.011477	.5291
%RSD	.6250891	.1737031	.1733198	.4275009	.2362199	.1308143
#1	5.141026	4.749506	24.56743	4.710115	4.871415	404.0110
#2	5.202293	4.740938	24.57720	4.721344	4.854105	405.0316
#3	5.153971	4.757433	24.64567	4.682279	4.849705	404.2792

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.952003	.5029477	2.486824	407.2876	15.21764	2.490241
Stddev	.007817	.0009130	.006206	.9421	.03010	.005235
%RSD	.0785472	.1815347	.2495413	.2313228	.1978235	.2102130
#1	9.944188	.5023938	2.481983	406.4205	15.19280	2.488774
#2	9.959822	.5040015	2.484670	408.2901	15.25112	2.485897
#3	9.952000	.5024478	2.493820	407.1522	15.20901	2.496053

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.86653	412.6633	14.62467	411.5945	2.476250	1.251587
Stddev	.01679	.9905	.04399	1.1561	.005203	.007411
%RSD	.1129392	.2400332	.3008139	.2808870	.2101033	.5921358
#1	14.88499	411.5283	14.60247	410.6564	2.470274	1.243681
#2	14.86245	413.1086	14.67534	412.8861	2.478705	1.258376
#3	14.85216	413.3531	14.59620	411.2409	2.479771	1.252705

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	403.2357	2.461028	14.89974	152.5748	4.930349	5.008917
Stddev	.5500	.018251	.04411	.2552	.007920	.018787
%RSD	.1363896	.7416040	.2960127	.1672798	.1606305	.3750807
#1	402.6838	2.439954	14.86046	152.2896	4.922306	5.012417
#2	403.7837	2.471524	14.89131	152.6530	4.930601	5.025708
#3	403.2395	2.471607	14.94745	152.7817	4.938139	4.988625

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCV036 Acquired: 11/08/2024 20:53:52 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV036 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.760416	F 5.513512	5.028132	4.974988	4.947386	5.037502
Stddev	.004452	.034162	.021087	.017820	.011052	.008791
%RSD	.0935150	.6196111	.4193845	.3582012	.2233942	.1745068
#1	4.764095	5.548440	5.030589	4.966838	4.940266	5.027546
#2	4.755468	5.511924	5.047884	4.962700	4.960119	5.040762
#3	4.761685	5.480171	5.005924	4.995426	4.941775	5.044196

Elem	Sr4077
Units	ppm
Avg	4.960914
Stddev	.005433
%RSD	.1095234
#1	4.956675
#2	4.959027
#3	4.967039

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	769.5835	22121.54	2593.122	682.4097	1432.610
Stddev	.1813	71.50	9.204	1.2825	2.718
%RSD	.0235645	.3232156	.3549295	.1879366	.1897257
#1	769.6911	22203.43	2594.092	683.6281	1434.365
#2	769.6853	22071.46	2583.471	682.5294	1433.985
#3	769.3742	22089.75	2601.802	681.0715	1429.479

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCB036 Acquired: 11/08/2024 20:58:03 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB036 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054433	.0031932	.0041867	-.000397	-.002732	.0126171
Stddev	.0180651	.0026720	.0014684	.000845	.000677	.0089313
%RSD	331.8812	83.67828	35.07375	213.0222	24.77480	70.78734
#1	.0128214	.0003560	.0055418	-.000533	-.002038	.0161486
#2	.0186515	.0056617	.0026265	.000508	-.002767	.0192426
#3	-.015143	.0035619	.0043918	-.001166	-.003391	.0024600

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006249	.0000187	.0001894	.0098072	.0007834	.0005125
Stddev	.0008884	.0000202	.0000347	.0236749	.0008772	.0005694
%RSD	142.1812	108.4660	18.31995	241.4034	111.9743	111.0986
#1	.0000312	.0000118	.0001592	.0170315	.0003207	-.000081
#2	.0016463	.0000414	.0001817	-.016638	.0017950	.001054
#3	.0001971	.0000027	.0002273	.029028	.0002343	.000565

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0032843	.0494225	.0006826	.1100423	.0002134	.0009237
Stddev	.0062933	.0281177	.0007916	.0546159	.0008977	.0006442
%RSD	191.6193	56.89264	115.9706	49.63172	420.6942	69.74621
#1	.0060271	.0788128	-.000172	.0555524	-.000534	.0002908
#2	-.003915	.0227790	.000830	.1097912	-.000035	.0009015
#3	.007741	.0466756	.001390	.1647833	.001209	.0015787

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.292697	-.006587	.0002096	-.100500	-.001244	.0093576
Stddev	.315488	.007753	.0004582	.047714	.001821	.0006894
%RSD	107.7867	117.7071	218.5973	47.47667	146.3842	7.366762
#1	-.174613	-.014513	.0004517	-.068750	-.000021	.0089663
#2	-.053284	.000982	.0004959	-.077381	-.000374	.0101536
#3	-.650193	-.006230	-.000319	-.155370	-.003337	.0089529

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCB036 Acquired: 11/08/2024 20:58:03 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB036 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002422	F .1989309	.0012475	.0022219	.0031416	.0030772
Stddev	.0004874	.0187244	.0004744	.0001789	.0012555	.0012580
%RSD	201.2852	9.412534	38.02351	8.053632	39.96318	40.88338
#1	-.000301	.2192133	.0016665	.0023391	.0035191	.0016598
#2	.000642	.1952762	.0007325	.0020159	.0017407	.0040615
#3	.000385	.1823033	.0013436	.0023107	.0041651	.0035102

Elem	Sr4077
Units	ppm
Avg	.0002439
Stddev	.0000706
%RSD	28.93392
#1	.0001690
#2	.0002534
#3	.0003092

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	957.7707	24528.88	2726.486	874.7163	1896.578
Stddev	1.1765	12.33	15.066	1.0147	2.326
%RSD	.1228331	.0502780	.5525706	.1159992	.1226612
#1	957.9427	24539.88	2735.168	875.3988	1897.889
#2	956.5177	24515.55	2709.089	875.1997	1893.892
#3	958.8517	24531.20	2735.200	873.5503	1897.952

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-11LX5 Acquired: 11/08/2024 21:02:37 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0130453	.0015474	.0002327	.0031857	-.001554	2.922547	.0184201
Stddev	.0104928	.0017646	.0049232	.0031831	.001303	.010225	.0005049
%RSD	80.43357	114.0373	2115.589	99.91891	83.88363	.3498696	2.740923
#1	.0121064	.0035793	-.001110	-.000461	-.000049	2.920813	.0178414
#2	.0239760	.0006622	.005688	.004609	-.002291	2.913300	.0186482
#3	.0030535	.0004005	-.003880	.005409	-.002322	2.933529	.0187707

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017849	.0003414	53.31368	.0036264	.0016351	.4952124	4.954940
Stddev	.0000935	.0001208	.09441	.0014167	.0006433	.0023669	.039963
%RSD	5.240682	35.37960	.1770816	39.06473	39.34365	.4779494	.8065235
#1	.0016975	.0004085	53.40064	.0025567	.0009041	.4975706	4.942822
#2	.0018836	.0004137	53.32712	.0030896	.0018859	.4952297	4.999559
#3	.0017737	.0002020	53.21327	.0052331	.0021151	.4928370	4.922439

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.534686	4.624433	.0075609	.0013294	1.268513	.0287819	.1138938
Stddev	.005161	.063745	.0004790	.0007550	.057778	.0038028	.0005786
%RSD	.3362802	1.378441	6.335403	56.79609	4.554767	13.21229	.5080461
#1	1.532949	4.556923	.0079985	.0009463	1.211534	.0243910	.1139269
#2	1.530617	4.683589	.0070491	.0021992	1.327058	.0309436	.1144552
#3	1.540491	4.632788	.0076351	.0008427	1.266947	.0310110	.1132993

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8661105	2.445512	.1657654	-.000208	62.71988	1.454850	-.001611
Stddev	.0580894	.007374	.0005590	.000289	.04631	.003855	.001751
%RSD	6.706926	.3015232	.3372112	138.8671	.0738433	.2649498	108.7244
#1	.9330761	2.439587	.1652510	-.000322	62.74478	1.451596	-.000494
#2	.8359558	2.453770	.1656851	.000120	62.66644	1.453847	-.003629
#3	.8292995	2.443178	.1663602	-.000423	62.74842	1.459107	-.000709

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-11LX5 Acquired: 11/08/2024 21:02:37 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0017255	.0071882	.1290540
Stddev	.0007256	.0011940	.0004437
%RSD	42.05132	16.61058	.3437928
#1	.0024844	.0060242	.1288985
#2	.0010386	.0071303	.1287089
#3	.0016534	.0084101	.1295544

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	983.8277	25312.88	2779.869	893.6289	1866.374
Stddev	1.4960	182.79	4.124	6.2858	1.497
%RSD	.1520573	.7221288	.1483607	.7034025	.0801895
#1	984.5803	25353.06	2775.927	890.9654	1867.244
#2	984.7979	25113.34	2784.154	889.1133	1867.231
#3	982.1048	25472.24	2779.527	900.8079	1864.646

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-14 Acquired: 11/08/2024 21:07:05 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0590224	.0001156	.0062293	-.005210	-.001706	17.79052
Stddev	.0110926	.0016441	.0018391	.003294	.003837	.07585
%RSD	18.79386	1421.866	29.52389	63.23627	224.8937	.4263513
#1	.0717925	-.000521	.0048546	-.001587	-.005878	17.74575
#2	.0517780	.001983	.0055148	-.006017	.001672	17.74771
#3	.0534967	-.001115	.0083185	-.008025	-.000912	17.87810

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0839008	.0102818	.0013675	267.9169	.0220097	.0296839
Stddev	.0007344	.0001533	.0001589	1.2713	.0003192	.0006656
%RSD	.8753283	1.491243	11.61895	.4744996	1.450211	2.242246
#1	.0839050	.0101803	.0014629	268.0331	.0216482	.0302572
#2	.0831643	.0102069	.0014554	266.5915	.0221283	.0298405
#3	.0846331	.0104582	.0011841	269.1261	.0222526	.0289540

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.924725	29.56700	6.343495	27.56713	.0519438	-.005219
Stddev	.004921	.11137	.010071	.17640	.0002944	.000441
%RSD	.2556485	.3766643	.1587634	.6398822	.5666772	8.457284
#1	1.930375	29.56218	6.335703	27.38013	.0520376	-.005095
#2	1.921382	29.45811	6.339915	27.59072	.0516139	-.005709
#3	1.922418	29.68069	6.354867	27.73055	.0521797	-.004852

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.989501	.1593068	.5204954	5.144398	F 16.61132	.8291724
Stddev	.338223	.0126061	.0027650	.065326	.04727	.0036278
%RSD	4.233344	7.913112	.5312333	1.269839	.2845385	.4375197
#1	7.819154	.1637796	.5173240	5.117279	16.58144	.8291602
#2	7.770321	.1450742	.5217612	5.097000	16.58671	.8255506
#3	8.379028	.1690667	.5224009	5.218915	16.66582	.8328062

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4623-14 Acquired: 11/08/2024 21:07:05 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N7 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001497	F 388.6284	8.487460	-.005000	.0044155	.0308310
Stddev	.000559	1.0515	.043267	.000718	.0002376	.0011197
%RSD	37.30423	.2705740	.5097795	14.35355	5.381890	3.631851
#1	-.002035	388.1271	8.507154	-.005667	.0042466	.0305518
#2	-.001538	387.9214	8.437849	-.004241	.0043127	.0298773
#3	-.000920	389.8368	8.517377	-.005091	.0046872	.0320639

Elem	Sr4077
Units	ppm
Avg	.6936462
Stddev	.0020812
%RSD	.3000389
#1	.6923304
#2	.6925626
#3	.6960456

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1118.631	29317.93	3254.376	1027.086	1748.177
Stddev	2.054	80.30	20.285	6.164	3.215
%RSD	.1836362	.2739036	.6233002	.6001854	.1839313
#1	1117.136	29379.86	3254.086	1033.580	1748.841
#2	1120.973	29346.73	3274.803	1026.363	1751.008
#3	1117.782	29227.20	3234.237	1021.315	1744.681

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: PB164760TB Acquired: 11/08/2024 21:11:29 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LEB760 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044345	.0010984	.0005330	-.000327	-.003618	.0073691
Stddev	.0058028	.0012985	.0015808	.004028	.000743	.0057698
%RSD	130.8560	118.2104	296.5719	1232.344	20.54338	78.29734
#1	.0079979	.0004615	.0022895	-.004436	-.002799	.0092867
#2	.0075670	.0002415	-.000775	.003616	-.003805	.0008847
#3	-.002261	.0025924	.000085	-.000161	-.004250	.0119360

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013515	-.000026	.0000899	.0024536	-.001406	.0002231
Stddev	.0006832	.000036	.0000983	.0134166	.000681	.0000641
%RSD	50.55179	141.2947	109.3389	546.8123	48.48359	28.71646
#1	.0013583	-.000051	.0001487	-.011699	-.000665	.0002670
#2	.0020314	-.000042	-.000024	.004073	-.002006	.0001496
#3	.0006650	.000016	.000144	.014987	-.001546	.0002528

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001974	.0040954	.0007316	.0474503	-.000240	-.002613
Stddev	.0021926	.0315975	.0006023	.0541858	.000443	.000387
%RSD	1110.580	771.5443	82.32651	114.1950	185.0871	14.81955
#1	-.001647	.0239660	.0013711	.0127070	.000091	-.002912
#2	-.000383	.0206605	.0001752	.0197576	-.000743	-.002176
#3	.002622	-.032340	.0006484	.1098861	-.000067	-.002753

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.149542	-.010654	-.001093	-1.43403	.0052506	.0033433
Stddev	.368971	.005971	.000341	.11586	.0011186	.0004216
%RSD	246.7342	56.04096	31.22806	8.079206	21.30509	12.61143
#1	.236854	-.010859	-.001479	-1.32363	.0054483	.0031902
#2	-.498185	-.004584	-.000969	-1.55467	.0040463	.0038200
#3	-.187295	-.016520	-.000831	-1.42379	.0062573	.0030195

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: PB164760TB Acquired: 11/08/2024 21:11:29 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LEB760 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000654	F 7.514392	-.002486	-.000345	.0012903	-.003801
Stddev	.0004208	.019610	.001454	.000339	.0006338	.002101
%RSD	643.6393	.2609600	58.50425	98.24238	49.11934	55.28098
#1	.0004718	7.494567	-.004165	.000027	.0007805	-.004861
#2	.0000928	7.514831	-.001658	-.000636	.0010905	-.005161
#3	-.000368	7.533779	-.001634	-.000425	.0019999	-.001381

Elem	Sr4077
Units	ppm
Avg	.0000439
Stddev	.0000923
%RSD	210.5095
#1	.0001497
#2	-.000020
#3	.000002

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1007.492	25782.72	2832.016	914.0372	2009.419
Stddev	1.272	84.04	8.592	4.6153	4.313
%RSD	.1262388	.3259462	.3034039	.5049363	.2146485
#1	1007.876	25840.21	2835.946	910.5644	2013.121
#2	1008.528	25686.27	2822.161	912.2728	2010.454
#3	1006.073	25821.67	2837.939	919.2745	2004.683

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: PB164760BL Acquired: 11/08/2024 21:16:01 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW760 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000670	.0005886	.0014388	.0002176	.0004338	.0044614
Stddev	.006869	.0018089	.0007210	.0016440	.0017765	.0041012
%RSD	1024.577	307.3261	50.11316	755.5982	409.5637	91.92654
#1	.003700	-.001473	.0009683	.0018483	-.000704	.0088876
#2	-.008588	.001326	.0022690	.0002438	.002481	.0037065
#3	.002877	.001912	.0010792	-.001439	-.000476	.0007901

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000101	-.000075	.0001462	.0027089	-.000338	.0002789
Stddev	.000560	.000034	.0000389	.0110697	.000477	.0000810
%RSD	552.8303	44.68355	26.62066	408.6425	140.9064	29.03336
#1	.000236	-.000090	.0001539	-.004045	.000205	.0002877
#2	.000207	-.000099	.0001040	-.003312	-.000536	.0003551
#3	-.000748	-.000037	.0001807	.015484	-.000684	.0001939

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008710	.0268283	.0009203	.0522723	.0003458	.0000224
Stddev	.0025314	.0330846	.0002922	.1017554	.0003622	.0005632
%RSD	290.6487	123.3198	31.74837	194.6641	104.7499	2513.927
#1	-.002052	.0019198	.0006020	.0723551	.0002776	-.000541
#2	.002337	.0643678	.0009826	.1424890	.0000225	.000023
#3	.002328	.0141974	.0011764	-.058027	.0007373	.000585

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.206938	-.006239	.0001350	-.055393	-.002046	.0023259
Stddev	.022436	.003030	.0002550	.058762	.002484	.0006656
%RSD	10.84186	48.56304	188.8792	106.0819	121.4061	28.61750
#1	-.182677	-.006943	-.000142	-.009122	-.004631	.0027512
#2	-.211201	-.002919	.000187	-.121507	-.001833	.0015589
#3	-.226937	-.008855	.000360	-.035549	.000324	.0026678

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: PB164760BL Acquired: 11/08/2024 21:16:01 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW760 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001043	F .1315658	.0006325	.0021628	.0005078	.0011807
Stddev	.0001834	.0157665	.0010571	.0013648	.0007941	.0003804
%RSD	175.8057	11.98377	167.1195	63.10139	156.3772	32.21579
#1	.0000906	.1454727	-.000583	.0007598	-.000319	.0010071
#2	.0002942	.1347873	.001339	.0022428	.000578	.0009181
#3	-.000072	.1144373	.001142	.0034858	.001264	.0016169

Elem	Sr4077
Units	ppm
Avg	-.000149
Stddev	.000060
%RSD	40.53272
#1	-.000190
#2	-.000176
#3	-.000080

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	957.4541	24544.44	2729.836	867.3626	1896.355
Stddev	2.9665	64.70	16.672	1.1918	4.067
%RSD	.3098292	.2636182	.6107212	.1374067	.2144598
#1	954.0442	24602.84	2720.954	868.7313	1891.669
#2	958.8769	24555.60	2719.486	866.8029	1898.435
#3	959.4411	24474.88	2749.068	866.5537	1898.961

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: PB164760BS Acquired: 11/08/2024 21:20:34 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS760 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0162834	.0545745	.0227135	.0641893	.1099083	.3895812
Stddev	.0066315	.0015311	.0008974	.0030774	.0026187	.0147123
%RSD	40.72541	2.805545	3.950771	4.794176	2.382650	3.776444
#1	.0205288	.0538435	.0236444	.0606795	.1086605	.3976936
#2	.0086417	.0535459	.0226422	.0664249	.1081468	.3725985
#3	.0196796	.0563341	.0218540	.0654636	.1129175	.3984516

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4161476	.0110465	.0107781	11.04510	.0225556	.1003911
Stddev	.0007571	.0001355	.0002589	.03943	.0001786	.0009746
%RSD	.1819216	1.226351	2.401723	.3570131	.7916115	.9707916
#1	.4169727	.0111611	.0108776	11.08112	.0226795	.1009955
#2	.4159852	.0110815	.0104842	11.05121	.0226364	.0992668
#3	.4154849	.0108970	.0109724	11.00297	.0223510	.1009110

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0520303	.2319339	.0322034	10.69293	.0845718	.0228845
Stddev	.0075458	.0064663	.0013208	.04107	.0010922	.0002624
%RSD	14.50275	2.788012	4.101323	.3841240	1.291441	1.146787
#1	.0537482	.2357513	.0319534	10.68565	.0852020	.0231380
#2	.0437736	.2244678	.0310255	10.73716	.0833106	.0229017
#3	.0585690	.2355826	.0336313	10.65598	.0852028	.0226140

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.27314	.1041297	.1196246	9.783064	.0157535	F .0029971
Stddev	.23453	.0082395	.0011407	.214814	.0029183	.0003203
%RSD	2.282954	7.912735	.9535642	2.195775	18.52457	10.68551
#1	10.05713	.0947359	.1208316	9.653822	.0135034	.0026273
#2	10.52260	.1101330	.1194778	9.664336	.0190509	.0031827
#3	10.23970	.1075202	.1185644	10.03104	.0147061	.0031813

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: PB164760BS Acquired: 11/08/2024 21:20:34 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS760 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0191283	F .2612491	F .4648583	.0166597	.2058539	.0307666
Stddev	.0003021	.0060881	.0025526	.0004045	.0030714	.0016496
%RSD	1.579291	2.330372	.5491071	2.427954	1.492033	5.361803
#1	.0190932	.2629957	.4670559	.0171094	.2093268	.0303627
#2	.0194464	.2544786	.4620584	.0163255	.2034948	.0293564
#3	.0188453	.2662730	.4654605	.0165443	.2047401	.0325807

Elem	Sr4077
Units	ppm
Avg	.2088500
Stddev	.0008092
%RSD	.3874746
#1	.2088429
#2	.2080443
#3	.2096627

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	959.5644	24506.14	2705.442	868.7857	1864.364
Stddev	.9762	71.15	10.560	2.7720	3.241
%RSD	.1017288	.2903431	.3903211	.3190645	.1738343
#1	958.5122	24567.74	2696.482	868.5091	1861.071
#2	960.4405	24428.26	2717.085	866.1624	1867.550
#3	959.7406	24522.41	2702.760	871.6856	1864.472

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-01 Acquired: 11/08/2024 21:25:04 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.008688	-.067216	.1760978	-.004487	.0083572	131.8191
Stddev	.010551	.001737	.0060644	.007039	.0037680	.1981
%RSD	121.4443	2.583822	3.443771	156.8657	45.08746	.1502830
#1	-.015588	-.065664	.1694642	.002717	.0053458	132.0010
#2	.003458	-.069092	.1774722	-.011348	.0071431	131.6080
#3	-.013935	-.066893	.1813571	-.004831	.0125825	131.8484

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4281098	.0038061	.0164228	F 833.0888	1.689147	.2846196
Stddev	.0009594	.0000493	.0001375	2.5396	.002000	.0006065
%RSD	.2240957	1.295469	.8372876	.3048412	.1183739	.2130850
#1	.4292117	.0038545	.0162997	835.7551	1.688971	.2851681
#2	.4276571	.0038077	.0165712	830.6985	1.691229	.2847223
#3	.4274604	.0037560	.0163976	832.8129	1.687241	.2839682

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3670939	413.7384	6.286232	226.5001	2.140699	-.018395
Stddev	.0033683	1.9606	.016984	.7952	.001410	.000282
%RSD	.9175513	.4738711	.2701801	.3510920	.0658652	1.531797
#1	.3691266	415.8618	6.301363	227.2533	2.141949	-.018431
#2	.3689491	411.9967	6.267861	225.6686	2.139171	-.018656
#3	.3632059	413.3567	6.289470	226.5782	2.140976	-.018096

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.544713	1.103057	.6277462	9.679065	7.178068	.3918574
Stddev	.115276	.012204	.0017333	.118349	.020542	.0020209
%RSD	2.536489	1.106349	.2761120	1.222733	.2861784	.5157211
#1	4.674212	1.093712	.6260482	9.556050	7.167453	.3936905
#2	4.453296	1.098595	.6276778	9.689026	7.165005	.3896903
#3	4.506631	1.116864	.6295127	9.792118	7.201746	.3921915

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-01 Acquired: 11/08/2024 21:25:04 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY1 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000314	2.301276	4.842586	.0068877	6.233284	.2242694
Stddev	.000123	.013087	.006404	.0027208	.014904	.0014044
%RSD	39.17743	.5687040	.1322336	39.50228	.2391112	.6262233
#1	-.000191	2.305971	4.849477	.0077722	6.248449	.2253729
#2	-.000313	2.286489	4.836819	.0090562	6.218654	.2247468
#3	-.000437	2.311369	4.841461	.0038347	6.232749	.2226885

Elem	Sr4077
Units	ppm
Avg	.9284051
Stddev	.0023256
%RSD	.2504968
#1	.9307692
#2	.9261199
#3	.9283261

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	924.1227	25132.54	2892.416	844.4645	1486.305
Stddev	1.0901	84.66	10.639	1.6614	2.973
%RSD	.1179589	.3368501	.3678322	.1967411	.2000386
#1	923.0765	25057.74	2880.278	842.6591	1485.621
#2	924.0396	25224.44	2900.127	845.9291	1489.561
#3	925.2519	25115.44	2896.843	844.8052	1483.734

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-02 Acquired: 11/08/2024 21:29:27 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0644673	-.057616	.2399458	-.009019	.0009373	150.3662
Stddev	.0176696	.002765	.0037323	.007673	.0028225	.3082
%RSD	27.40863	4.798415	1.555482	85.08063	301.1435	.2049690
#1	.0824763	-.060567	.2400374	-.015279	-.000709	150.2228
#2	.0471579	-.055086	.2361685	-.011319	.004196	150.7200
#3	.0637676	-.057194	.2436314	-.000459	-.000676	150.1559

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5056045	.0028991	.0200931	F 1575.920	1.726720	.1983211
Stddev	.0010725	.0001290	.0002229	10.426	.001979	.0007993
%RSD	.2121139	4.450608	1.109341	.6615860	.1146318	.4030199
#1	.5046202	.0030478	.0198710	1575.302	1.728995	.1981884
#2	.5067475	.0028164	.0200913	1586.641	1.725776	.1975965
#3	.5054457	.0028331	.0203168	1565.816	1.725390	.1991784

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7584745	332.5441	4.829488	207.6153	1.530851	-.001367
Stddev	.0049030	1.6253	.013253	.8801	.004540	.000525
%RSD	.6464299	.4887381	.2744105	.4238884	.2965406	38.39028
#1	.7638257	331.4092	4.814493	207.2479	1.527518	-.001524
#2	.7573997	334.4060	4.839629	208.6195	1.536021	-.001795
#3	.7541980	331.8171	4.834342	206.9784	1.529013	-.000781

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.856463	1.442966	1.520258	15.57787	F 10.40786	.3579836
Stddev	.161686	.024111	.004613	.03718	.03056	.0014357
%RSD	2.760817	1.670943	.3034262	.2386475	.2936171	.4010411
#1	5.791351	1.442112	1.514931	15.53588	10.37327	.3587088
#2	5.737484	1.467493	1.522944	15.60659	10.41913	.3589120
#3	6.040553	1.419294	1.522898	15.59115	10.43119	.3563300

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-02 Acquired: 11/08/2024 21:29:27 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY2 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000261	6.603265	9.533806	.1248754	4.786783	.1632589
Stddev	.000795	.025896	.060368	.0074599	.008802	.0016096
%RSD	304.9995	.3921762	.6332010	5.973864	.1838866	.9859259
#1	.000633	6.573555	9.472268	.1270466	4.792390	.1629210
#2	-.000888	6.615186	9.592932	.1310088	4.791322	.1618451
#3	-.000527	6.621054	9.536217	.1165708	4.776638	.1650107

Elem	Sr4077
Units	ppm
Avg	2.279504
Stddev	.006819
%RSD	.2991552
#1	2.273589
#2	2.286963
#3	2.277961

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	874.8111	23802.47	2819.173	804.7031	1384.090
Stddev	3.0748	29.15	15.027	.5623	4.471
%RSD	.3514762	.1224675	.5330335	.0698774	.3230633
#1	875.2514	23792.69	2827.952	805.3119	1386.168
#2	871.5400	23835.25	2801.821	804.5940	1378.957
#3	877.6420	23779.47	2827.745	804.2033	1387.143

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-03 Acquired: 11/08/2024 21:33:58 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0113401	-.060125	.0674785	-.006266	.0059679	120.3371
Stddev	.0240555	.003055	.0057058	.007558	.0015505	.1587
%RSD	212.1286	5.080637	8.455665	120.6209	25.97996	.1318621
#1	-.007398	-.062609	.0651745	-.014024	.0056754	120.2766
#2	.002952	-.061053	.0739760	.001074	.0045845	120.2175
#3	.038467	-.056714	.0632850	-.005848	.0076438	120.5171

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.105374	.0036337	.0155691	F 912.4773	1.048214	.2500880
Stddev	.006759	.0001167	.0002579	.7992	.001135	.0007837
%RSD	.1646323	3.210815	1.656605	.0875896	.1083056	.3133560
#1	4.109196	.0036486	.0154453	912.4659	1.047266	.2495833
#2	4.097571	.0035103	.0153964	911.6839	1.047903	.2496899
#3	4.109357	.0037422	.0158656	913.2822	1.049472	.2509908

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3082310	323.6106	4.843646	164.8953	1.429854	-.012723
Stddev	.0033338	.1684	.026035	.3858	.003215	.000603
%RSD	1.081585	.0520524	.5374997	.2339810	.2248210	4.741202
#1	.3076917	323.4271	4.859958	165.1751	1.426143	-.012061
#2	.3118016	323.6467	4.813621	165.0557	1.431671	-.012867
#3	.3051998	323.7581	4.857358	164.4552	1.431749	-.013241

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.846250	.9002123	.4334358	7.874344	6.403086	.3184184
Stddev	.187798	.0045607	.0014403	.089130	.014236	.0023332
%RSD	4.882619	.5066221	.3323005	1.131904	.2223251	.7327448
#1	3.868964	.9032306	.4334467	7.926415	6.391216	.3160658
#2	3.648128	.8949659	.4319901	7.925190	6.418869	.3184575
#3	4.021657	.9024403	.4348706	7.771428	6.399172	.3207317

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-03 Acquired: 11/08/2024 21:33:58 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003324	3.375070	8.912162	.0079981	6.995689	.1740044
Stddev	.0008449	.007861	.018945	.0023955	.016939	.0011797
%RSD	254.1905	.2329019	.2125725	29.95145	.2421321	.6779633
#1	.0004971	3.367756	8.910090	.0087349	6.997607	.1728010
#2	-.000583	3.383382	8.932057	.0099387	6.977873	.1751588
#3	.001083	3.374070	8.894338	.0053207	7.011587	.1740534

Elem	Sr4077
Units	ppm
Avg	1.193226
Stddev	.001988
%RSD	.1666024
#1	1.194273
#2	1.190934
#3	1.194472

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	969.0097	26222.26	3037.891	888.8355	1473.910
Stddev	2.0196	37.14	6.594	5.1135	1.404
%RSD	.2084166	.1416358	.2170639	.5752984	.0952394
#1	968.8523	26183.24	3034.473	885.1189	1475.528
#2	971.1034	26257.18	3033.708	894.6671	1473.187
#3	967.0734	26226.37	3045.492	886.7203	1473.015

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-04 Acquired: 11/08/2024 21:38:23 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0120157	-.061575	.0638379	-.015065	.0015817	150.2396
Stddev	.0226698	.000696	.0075765	.003147	.0014634	.4717
%RSD	188.6676	1.130263	11.86841	20.89131	92.52488	.3139753
#1	.0148198	-.061146	.0669160	-.018173	.0031514	150.7803
#2	.0331530	-.062378	.0552067	-.015143	.0013386	149.9121
#3	-.011926	-.061202	.0693909	-.011880	.0002550	150.0264

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3645509	.0028708	.0133675	F 1135.657	1.552050	.1992897
Stddev	.0019778	.0001396	.0003528	2.985	.001409	.0016016
%RSD	.5425381	4.864232	2.639614	.2628086	.0907529	.8036291
#1	.3667107	.0029161	.0129994	1139.023	1.551805	.1975073
#2	.3628282	.0029821	.0137028	1134.614	1.550779	.1997540
#3	.3641138	.0027141	.0134003	1133.333	1.553564	.2006078

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2142025	339.2849	4.711355	328.8785	1.276714	-.005669
Stddev	.0047231	.7118	.019435	.4219	.002508	.000374
%RSD	2.204983	.2098057	.4125042	.1282875	.1964520	6.593827
#1	.2196545	340.1068	4.733785	329.3137	1.276190	-.006022
#2	.2115973	338.8611	4.700775	328.4713	1.274509	-.005277
#3	.2113556	338.8870	4.699507	328.8507	1.279443	-.005706

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.759913	1.081338	.4779640	10.85909	6.764719	.3428561
Stddev	.258385	.009684	.0043084	.08535	.028390	.0029061
%RSD	5.428346	.8955313	.9014072	.7860182	.4196810	.8476071
#1	4.686368	1.087148	.4778848	10.94459	6.785923	.3462078
#2	4.546274	1.070159	.4736958	10.85881	6.732465	.3410397
#3	5.047097	1.086707	.4823115	10.77388	6.775768	.3413209

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-04 Acquired: 11/08/2024 21:38:23 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY4 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014841	96.75031	9.253664	.0040565	8.037851	.2635477
Stddev	.0007974	.07355	.031064	.0012644	.029660	.0006979
%RSD	53.72939	.0760182	.3356964	31.16930	.3690066	.2648139
#1	.0018609	96.81026	9.288875	.0038068	8.071460	.2632116
#2	.0020232	96.77244	9.230135	.0054272	8.015338	.2630814
#3	.0005681	96.66824	9.241980	.0029356	8.026756	.2643500

Elem	Sr4077
Units	ppm
Avg	2.069926
Stddev	.008192
%RSD	.3957774
#1	2.079319
#2	2.064259
#3	2.066199

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	896.2210	24194.41	2867.410	814.7453	1423.747
Stddev	1.7806	43.85	3.511	6.4203	.954
%RSD	.1986802	.1812581	.1224276	.7880122	.0670135
#1	897.2722	24243.20	2863.568	816.4772	1423.811
#2	897.2256	24181.76	2868.214	820.1219	1424.668
#3	894.1651	24158.27	2870.449	807.6367	1422.763

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-05 Acquired: 11/08/2024 21:42:55 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.010510	-.062176	.0827535	-.002283	.0049467	163.5190
Stddev	.027511	.001462	.0137721	.008096	.0025790	.1230
%RSD	261.7702	2.351444	16.64227	354.6781	52.13540	.0752261
#1	.020340	-.060583	.0942788	-.001431	.0065117	163.5693
#2	-.032498	-.062488	.0675016	-.010770	.0019701	163.6088
#3	-.019371	-.063457	.0864800	.005354	.0063584	163.3788

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.818740	.0036539	.0160026	420.0679	4.041201	.5849389
Stddev	.001729	.0001576	.0001921	.5348	.001605	.0020683
%RSD	.0950769	4.312628	1.200105	.1273142	.0397135	.3535902
#1	1.817032	.0034720	.0159414	420.6060	4.042576	.5831073
#2	1.818697	.0037383	.0158486	420.0614	4.039438	.5845274
#3	1.820490	.0037512	.0162178	419.5365	4.041590	.5871820

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4061822	418.9665	10.64596	424.4732	F 7.057086	-.022918
Stddev	.0038394	.3277	.03658	.1728	.003621	.000532
%RSD	.9452302	.0782253	.3435924	.0407143	.0513149	2.323396
#1	.4055936	419.2528	10.61979	424.5778	7.055146	-.023297
#2	.4102819	418.6090	10.63033	424.2737	7.061264	-.022309
#3	.4026712	419.0377	10.68775	424.5681	7.054848	-.023148

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.107219	.8744743	.4843791	12.52658	4.340634	.4261275
Stddev	.128632	.0105040	.0017742	.13874	.007088	.0044421
%RSD	1.809877	1.201174	.3662749	1.107564	.1632854	1.042437
#1	7.213531	.8834899	.4859674	12.62502	4.340980	.4312251
#2	7.143894	.8769931	.4824644	12.36790	4.333380	.4240719
#3	6.964233	.8629400	.4847054	12.58683	4.347542	.4230855

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-05 Acquired: 11/08/2024 21:42:55 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY8 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004947	7.442842	9.119281	.0055725	7.077899	.0992676
Stddev	.0002883	.005914	.033530	.0031444	.005701	.0013459
%RSD	58.27408	.0794619	.3676780	56.42749	.0805452	1.355841
#1	.0008004	7.442955	9.092212	.0025845	7.083273	.0990775
#2	.0004559	7.436872	9.108845	.0088529	7.071919	.1006984
#3	.0002278	7.448699	9.156788	.0052801	7.078503	.0980268

Elem	Sr4077
Units	ppm
Avg	1.492842
Stddev	.001263
%RSD	.0845853
#1	1.492322
#2	1.494282
#3	1.491923

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	937.7796	25576.40	2930.401	850.0511	1507.545
Stddev	.8522	59.69	1.181	1.6334	1.504
%RSD	.0908711	.2333801	.0403033	.1921572	.0997603
#1	936.8617	25576.15	2931.025	848.2464	1506.025
#2	938.5456	25516.84	2929.039	850.4785	1507.580
#3	937.9314	25636.22	2931.140	851.4283	1509.032

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-06 Acquired: 11/08/2024 21:47:17 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.034683	-.070523	.1097278	-.005339	.0055805	168.5999
Stddev	.024457	.005279	.0024268	.012769	.0018630	.4138
%RSD	70.51494	7.485389	2.211630	239.1543	33.38454	.2454495
#1	-.060527	-.074712	.1105977	.007917	.0077304	168.1264
#2	-.011902	-.072264	.1115997	-.017557	.0044399	168.8922
#3	-.031621	-.064594	.1069860	-.006378	.0045713	168.7811

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.287813	.0041738	.0172258	451.0666	3.908349	.5442052
Stddev	.001130	.0001854	.0004205	1.0060	.001727	.0025219
%RSD	.0877217	4.441682	2.441347	.2230318	.0441749	.4634060
#1	1.286629	.0043000	.0172821	450.1794	3.910257	.5440989
#2	1.288879	.0039609	.0167800	452.1596	3.906894	.5417381
#3	1.287932	.0042603	.0176154	450.8609	3.907896	.5467785

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4333334	471.3228	8.431546	375.9665	F 5.689850	-.025242
Stddev	.0024284	1.6203	.012157	1.0454	.015372	.000128
%RSD	.5603968	.3437820	.1441851	.2780571	.2701577	.5073640
#1	.4313646	469.6986	8.423324	375.1427	5.678776	-.025376
#2	.4360469	472.9392	8.425803	377.1426	5.683374	-.025121
#3	.4325886	471.3304	8.445511	375.6144	5.707400	-.025228

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.501407	1.037797	.5832826	17.98317	5.670617	.4776392
Stddev	.160361	.003908	.0048487	.15150	.014439	.0005774
%RSD	2.137739	.3765310	.8312734	.8424493	.2546308	.1208884
#1	7.564837	1.033740	.5869789	17.81640	5.657837	.4770194
#2	7.319034	1.041536	.5850763	18.02080	5.667735	.4777363
#3	7.620351	1.038114	.5777926	18.11230	5.686280	.4781619

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-06 Acquired: 11/08/2024 21:47:17 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCY9 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0055139	14.67414	8.913553	.0074377	8.074496	.1000015
Stddev	.0010615	.02636	.030401	.0024608	.017636	.0012337
%RSD	19.25091	.1796481	.3410593	33.08499	.2184120	1.233702
#1	.0059282	14.64370	8.889858	.0102453	8.056389	.0985807
#2	.0043078	14.68899	8.947830	.0056549	8.075479	.1006208
#3	.0063058	14.68972	8.902969	.0064131	8.091619	.1008028

Elem	Sr4077
Units	ppm
Avg	1.183849
Stddev	.001829
%RSD	.1545054
#1	1.181759
#2	1.184628
#3	1.185160

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	925.1413	25203.89	2867.457	836.6691	1521.476
Stddev	1.3324	112.43	10.506	6.9331	2.145
%RSD	.1440206	.4460951	.3663826	.8286561	.1409718
#1	923.8081	25085.35	2861.797	830.1109	1523.315
#2	926.4729	25217.31	2860.995	835.9718	1521.994
#3	925.1430	25309.01	2879.579	843.9244	1519.120

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-07 Acquired: 11/08/2024 21:51:37 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCZ0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0894032	-.044704	.5551921	-.001650	.0001690	97.10423
Stddev	.0012791	.008193	.0034336	.006758	.0020683	.28358
%RSD	1.430710	18.32799	.6184515	409.4723	1223.808	.2920365
#1	.0898312	-.035587	.5541120	-.009443	-.000796	96.82616
#2	.0904134	-.051452	.5524284	.002599	-.001240	97.09351
#3	.0879649	-.047074	.5590359	.001892	.002543	97.39301

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7923735	.0030833	.0161945	F 1470.248	8.381893	.1938222
Stddev	.0021370	.0001415	.0003916	12.452	.010029	.0014149
%RSD	.2696954	4.588231	2.418271	.8469559	.1196524	.7299913
#1	.7899059	.0029273	.0158821	1466.899	8.377061	.1925046
#2	.7935942	.0032034	.0160676	1459.813	8.393424	.1936445
#3	.7936203	.0031190	.0166339	1484.032	8.375196	.1953176

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7122187	268.8118	4.398640	170.6238	2.270906	.0027849
Stddev	.0019988	.6121	.010693	.4788	.004757	.0002087
%RSD	.2806515	.2277121	.2430985	.2806214	.2094849	7.494733
#1	.7128861	268.6852	4.386447	170.5312	2.266283	.0030232
#2	.7099716	268.2730	4.403049	170.1981	2.270649	.0026343
#3	.7137985	269.4774	4.406423	171.1422	2.275787	.0026973

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.791050	1.653277	4.301280	11.96370	F 13.51731	.2988048
Stddev	.221852	.011277	.007561	.06032	.03147	.0004773
%RSD	4.630541	.6821288	.1757775	.5041963	.2328001	.1597238
#1	4.787358	1.644969	4.309950	11.91484	13.50237	.2990257
#2	5.014724	1.648746	4.296061	12.03112	13.49609	.2991316
#3	4.571067	1.666115	4.297829	11.94515	13.55347	.2982571

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-07 Acquired: 11/08/2024 21:51:37 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCZ0 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0035317	11.59784	10.42200	.0595570	3.058609	.0771194
Stddev	.0005234	.03466	.04328	.0016421	.003683	.0009585
%RSD	14.82026	.2988453	.4152345	2.757144	.1204100	1.242818
#1	.0040157	11.56088	10.38484	.0582509	3.062751	.0761251
#2	.0036032	11.60303	10.41165	.0590198	3.057370	.0771957
#3	.0029762	11.62962	10.46951	.0614004	3.055705	.0780374

Elem	Sr4077
Units	ppm
Avg	1.981772
Stddev	.005579
%RSD	.2815100
#1	1.975392
#2	1.984190
#3	1.985735

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	856.9197	23927.55	2817.982	766.0332	1422.900
Stddev	1.7488	62.05	6.147	2.2651	2.264
%RSD	.2040792	.2593411	.2181221	.2956929	.1591165
#1	855.2331	23864.13	2821.952	763.5203	1421.148
#2	856.8013	23930.37	2821.093	766.6617	1425.457
#3	858.7247	23988.15	2810.902	767.9177	1422.095

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-08 Acquired: 11/08/2024 21:56:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCZ1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0442474	-.047350	.1278294	-.011306	.0026582	128.6897
Stddev	.0153797	.008993	.0017161	.007744	.0032797	.2794
%RSD	34.75840	18.99289	1.342487	68.49626	123.3824	.2171025
#1	.0609808	-.053810	.1261495	-.015156	-.000694	128.3728
#2	.0410317	-.051162	.1295795	-.002391	.002808	128.9005
#3	.0307298	-.037079	.1277590	-.016371	.005860	128.7956

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5382990	.0027316	.0136023	F 1935.629	1.029046	.1797836
Stddev	.0021617	.0000662	.0002439	5.396	.008899	.0008864
%RSD	.4015831	2.423432	1.793383	.2787642	.8648041	.4930533
#1	.5366017	.0027067	.0138840	1930.446	1.021898	.1807875
#2	.5407327	.0026814	.0134571	1941.215	1.039014	.1794548
#3	.5375627	.0028066	.0134660	1935.225	1.026227	.1791086

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2300837	257.7161	4.545295	178.3271	1.044615	.0084776
Stddev	.0019626	.5626	.007144	.8176	.001769	.0005620
%RSD	.8529792	.2183177	.1571638	.4584643	.1693293	6.629466
#1	.2279709	257.0670	4.541706	177.4199	1.042577	.0079934
#2	.2304305	258.0633	4.553521	179.0069	1.045509	.0090939
#3	.2318498	258.0180	4.540656	178.5545	1.045758	.0083453

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.322347	.8737864	.5245072	13.24635	7.473357	.2792660
Stddev	.204455	.0031128	.0052318	.09959	.000823	.0023365
%RSD	3.841452	.3562440	.9974767	.7518483	.0110170	.8366701
#1	5.505108	.8749402	.5234188	13.13679	7.472406	.2765771
#2	5.101541	.8702614	.5301976	13.33139	7.473848	.2808020
#3	5.360391	.8761575	.5199051	13.27086	7.473816	.2804189

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-08 Acquired: 11/08/2024 21:56:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCZ1 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017988	4.777614	10.54805	.0232590	6.111680	.1773384
Stddev	.0013236	.021201	.03833	.0044965	.009084	.0017767
%RSD	73.58195	.4437590	.3634082	19.33232	.1486311	1.001846
#1	.0010112	4.753242	10.51579	.0264917	6.102122	.1757032
#2	.0033268	4.791803	10.59043	.0251614	6.112717	.1770830
#3	.0010582	4.787796	10.53793	.0181240	6.120201	.1792289

Elem	Sr4077
Units	ppm
Avg	3.506114
Stddev	.007394
%RSD	.2108914
#1	3.498141
#2	3.512745
#3	3.507456

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	877.3727	23695.43	2822.300	806.7564	1370.444
Stddev	2.3681	107.86	4.353	4.9931	2.255
%RSD	.2699073	.4552094	.1542423	.6189047	.1645433
#1	876.9721	23780.77	2823.787	807.1742	1371.624
#2	879.9155	23574.20	2817.398	801.5675	1371.863
#3	875.2305	23731.33	2825.715	811.5273	1367.843

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-09 Acquired: 11/08/2024 22:00:39 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCZ2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0321775	-.027381	.2664760	-.004487	.0061838	70.28426
Stddev	.0160319	.006346	.0026712	.006213	.0018926	.03093
%RSD	49.82313	23.17696	1.002421	138.4636	30.60566	.0440135
#1	.0487525	-.024271	.2695188	-.007602	.0083687	70.30304
#2	.0310296	-.023190	.2653919	-.008527	.0051299	70.24856
#3	.0167505	-.034682	.2645173	.002667	.0050528	70.30119

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4544638	.0017707	.0068061	F 1870.565	.7967828	.0835153
Stddev	.0007606	.0000848	.0003922	12.797	.0022877	.0000526
%RSD	.1673613	4.787488	5.762580	.6841043	.2871223	.0630115
#1	.4545644	.0016805	.0063533	1875.416	.7994161	.0835761
#2	.4536579	.0017827	.0070426	1856.052	.7956472	.0834841
#3	.4551691	.0018488	.0070222	1880.227	.7952850	.0834858

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1587843	150.3073	2.935389	122.3982	.6876819	.0174866
Stddev	.0013831	.7690	.012997	.3650	.0008640	.0004665
%RSD	.8710630	.5116146	.4427697	.2982435	.1256430	2.667514
#1	.1583804	150.9478	2.939234	122.7267	.6882766	.0180243
#2	.1603244	149.4544	2.920904	122.0052	.6880783	.0171908
#3	.1576481	150.5196	2.946030	122.4627	.6866908	.0172447

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.978219	.6259867	.5867636	7.476559	5.170967	.1770604
Stddev	.147139	.0104347	.0034133	.030183	.017303	.0011123
%RSD	4.940499	1.666917	.5817115	.4037045	.3346167	.6282143
#1	2.912873	.6291602	.5899608	7.507668	5.189466	.1772946
#2	3.146713	.6344661	.5831690	7.474614	5.155180	.1758496
#3	2.875072	.6143336	.5871608	7.447396	5.168256	.1780369

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-09 Acquired: 11/08/2024 22:00:39 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCZ2 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002071	4.335182	9.487782	.0116748	4.397962	.1149248
Stddev	.001379	.004801	.046678	.0048151	.016684	.0019649
%RSD	66.58821	.1107359	.4919841	41.24371	.3793505	1.709757
#1	-.002954	4.340655	9.539427	.0144986	4.412613	.1137972
#2	-.002778	4.331684	9.448599	.0144107	4.379803	.1171937
#3	-.000482	4.333206	9.475322	.0061150	4.401469	.1137835

Elem	Sr4077
Units	ppm
Avg	2.586788
Stddev	.004936
%RSD	.1908119
#1	2.590107
#2	2.581116
#3	2.589142

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	858.5044	22990.02	2704.587	785.0226	1403.581
Stddev	3.5845	20.04	14.540	4.1323	2.606
%RSD	.4175335	.0871749	.5375934	.5263982	.1856860
#1	854.7113	22994.50	2688.442	782.4037	1400.595
#2	861.8356	23007.45	2716.648	789.7863	1404.746
#3	858.9664	22968.12	2708.672	782.8777	1405.401

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-10 Acquired: 11/08/2024 22:05:12 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCZ3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0783743	-.043008	.1136545	-.011043	.0046673	103.9393
Stddev	.0151514	.002832	.0035737	.009217	.0069331	.3994
%RSD	19.33208	6.585471	3.144362	83.46556	148.5442	.3842542
#1	.0941870	-.043330	.1142529	-.004549	-.000859	103.4905
#2	.0769514	-.040029	.1098193	-.021593	.012447	104.0718
#3	.0639846	-.045666	.1168912	-.006988	.002415	104.2557

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6489061	.0024628	.0114958	F 1472.988	2.410922	.2247577
Stddev	.0028593	.0000464	.0001588	9.561	.003281	.0016959
%RSD	.4406304	1.882355	1.381326	.6491029	.1361090	.7545372
#1	.6456462	.0025141	.0113272	1461.954	2.409726	.2266296
#2	.6500828	.0024507	.0116426	1478.829	2.408407	.2233238
#3	.6509893	.0024238	.0115174	1478.180	2.414634	.2243196

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2283992	252.1861	3.592386	201.3721	2.344869	.0042244
Stddev	.0031791	.5922	.010097	1.0072	.009105	.0005577
%RSD	1.391897	.2348192	.2810762	.5001446	.3882818	13.20244
#1	.2276805	251.7578	3.582279	200.2092	2.355004	.0048083
#2	.2318761	251.9387	3.592407	201.9572	2.337381	.0041676
#3	.2256409	252.8619	3.602474	201.9501	2.342223	.0036972

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.928520	.7568446	.4851728	12.36432	5.162744	.2861156
Stddev	.339185	.0085804	.0033144	.05293	.012558	.0019150
%RSD	6.882087	1.133703	.6831324	.4280878	.2432510	.6693204
#1	4.723232	.7572078	.4813765	12.30424	5.174861	.2839697
#2	5.320022	.7480884	.4866514	12.38466	5.149786	.2867264
#3	4.742306	.7652376	.4874905	12.40406	5.163584	.2876508

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-10 Acquired: 11/08/2024 22:05:12 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCZ3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0134716	7.132429	10.51265	.0143264	4.803045	.1211262
Stddev	.0002680	.015561	.05421	.0015866	.013530	.0021916
%RSD	1.989337	.2181761	.5156715	11.07444	.2817011	1.809313
#1	.0135535	7.136013	10.45008	.0139935	4.790244	.1193221
#2	.0131723	7.145886	10.54219	.0160530	4.817202	.1204913
#3	.0136892	7.115389	10.54567	.0129327	4.801688	.1235650

Elem	Sr4077
Units	ppm
Avg	2.141928
Stddev	.007298
%RSD	.3407420
#1	2.133598
#2	2.144987
#3	2.147199

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	878.7782	23782.41	2771.662	801.2479	1425.149
Stddev	3.4917	77.89	7.014	2.4876	2.473
%RSD	.3973350	.3274932	.2530617	.3104693	.1735279
#1	874.8557	23697.74	2779.137	801.8299	1422.295
#2	879.9317	23798.49	2765.225	803.3930	1426.495
#3	881.5472	23851.00	2770.623	798.5209	1426.657

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-11 Acquired: 11/08/2024 22:09:47 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCX4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0130646	-.055394	.0776679	-.006198	.0043532	133.7445	.3954005
Stddev	.0171733	.005173	.0054252	.016500	.0042009	.6363	.0016432
%RSD	131.4485	9.338504	6.985070	266.1973	96.50007	.4757570	.4155717
#1	-.005882	-.054725	.0839146	-.006909	.0064543	134.4677	.3972802
#2	.017470	-.050588	.0741368	-.022332	-.000484	133.4948	.3942371
#3	.027606	-.060869	.0749522	.010645	.007089	133.2708	.3946840

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033762	.0129466	751.5536	1.460214	.2577557	.3441821	345.7892
Stddev	.0002612	.0001279	4.4032	.002869	.0015082	.0031307	2.0568
%RSD	7.738189	.9878206	.5858823	.1964595	.5851208	.9096131	.5948044
#1	.0036522	.0128287	756.6374	1.459576	.2588026	.3467954	348.1472
#2	.0031328	.0129286	749.0801	1.463348	.2560270	.3407122	344.3647
#3	.0033434	.0130825	748.9434	1.457718	.2584376	.3450387	344.8559

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.296934	189.1809	1.980510	-.015435	7.141404	.9590276	.5960289
Stddev	.014923	.8839	.006427	.000487	.027131	.0145122	.0030099
%RSD	.3472929	.4671993	.3245113	3.154439	.3799144	1.513216	.5049963
#1	4.313800	190.1366	1.976189	-.015571	7.168747	.9752753	.5950727
#2	4.291556	188.3930	1.977446	-.014895	7.140975	.9473526	.5936132
#3	4.285445	189.0130	1.987896	-.015840	7.114489	.9544548	.5994007

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.51282	6.547288	.3563272	.0017304	34.32890	10.92795	.0176795
Stddev	.10662	.017431	.0018192	.0006898	.06598	.09820	.0016508
%RSD	.6088032	.2662359	.5105319	39.86471	.1921890	.8985740	9.337471
#1	17.61659	6.528962	.3583716	.0012796	34.28127	11.03886	.0170792
#2	17.51831	6.549240	.3557230	.0025246	34.30122	10.85207	.0164128
#3	17.40357	6.563661	.3548871	.0013872	34.40420	10.89293	.0195464

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-11 Acquired: 11/08/2024 22:09:47 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCX4 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.861134	.1745716	.9889244
Stddev	.019449	.0002677	.0030930
%RSD	.5037075	.1533502	.3127657
#1	3.881523	.1742639	.9924898
#2	3.859090	.1747507	.9869614
#3	3.842787	.1747003	.9873218

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	936.9881	25309.49	2890.641	855.8804	1508.404
Stddev	1.3373	36.04	25.002	2.3287	2.862
%RSD	.1427247	.1424088	.8649144	.2720851	.1897662
#1	937.0079	25345.33	2862.263	858.4750	1507.725
#2	938.3154	25273.25	2909.423	853.9715	1511.545
#3	935.6410	25309.88	2900.236	855.1948	1505.942

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-12 Acquired: 11/08/2024 22:14:08 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCX7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0396888	-.046343	.0761841	-.004960	-.000190	115.9898
Stddev	.0188244	.005424	.0011045	.017994	.004154	.7471
%RSD	47.43008	11.70432	1.449845	362.8049	2189.501	.6440711
#1	.0533977	-.041199	.0766233	-.001861	.004254	115.9991
#2	.0474427	-.045821	.0749275	.011284	-.000847	116.7321
#3	.0182258	-.052010	.0770016	-.024302	-.003975	115.2381

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7248174	.0029432	.0124201	F 1375.620	.9914488	.1829473
Stddev	.0041989	.0001120	.0000404	8.983	.0050421	.0009088
%RSD	.5793117	3.804174	.3254213	.6529845	.5085630	.4967773
#1	.7266481	.0029814	.0123743	1382.536	.9860359	.1829797
#2	.7277903	.0030310	.0124349	1378.856	.9922982	.1820227
#3	.7200140	.0028171	.0124510	1365.468	.9960123	.1838395

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2339431	246.0775	4.962596	194.5587	1.204926	.0030792
Stddev	.0014428	1.9864	.028786	1.4304	.002961	.0002395
%RSD	.6167341	.8072365	.5800656	.7351999	.2457442	7.777879
#1	.2342826	246.0836	4.963773	194.2932	1.207279	.0029912
#2	.2323608	248.0609	4.990775	196.1032	1.201601	.0028961
#3	.2351858	244.0881	4.933238	193.2797	1.205899	.0033502

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.968735	.8273373	1.453599	9.166233	9.366073	.2548750
Stddev	.110277	.0119404	.004109	.073238	.017965	.0022676
%RSD	2.778640	1.443227	.2826481	.7990002	.1918099	.8896797
#1	3.864069	.8278210	1.455127	9.188534	9.374057	.2531999
#2	4.083875	.8390285	1.456724	9.225728	9.345499	.2574554
#3	3.958259	.8151625	1.448945	9.084436	9.378661	.2539698

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-12 Acquired: 11/08/2024 22:14:08 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCX7 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001792	4.599890	8.777681	.0123456	6.475472	.1519306
Stddev	.000648	.013213	.073915	.0017959	.041718	.0017747
%RSD	36.14909	.2872386	.8420801	14.54675	.6442517	1.168119
#1	-.001617	4.604646	8.798723	.0118861	6.480181	.1538683
#2	-.002510	4.610067	8.838794	.0108242	6.514636	.1503840
#3	-.001250	4.584958	8.695527	.0143266	6.431599	.1515396

Elem	Sr4077
Units	ppm
Avg	2.281596
Stddev	.014368
%RSD	.6297183
#1	2.284956
#2	2.293986
#3	2.265846

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	893.8851	24073.21	2829.662	815.1693	1426.049
Stddev	1.3073	20.30	20.437	4.1939	3.913
%RSD	.1462473	.0843144	.7222558	.5144856	.2743595
#1	893.6080	24066.02	2819.401	811.5385	1422.662
#2	895.3087	24057.48	2816.389	814.2094	1430.332
#3	892.7386	24096.12	2853.197	819.7599	1425.153

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-13 Acquired: 11/08/2024 22:18:38 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCX8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0465281	-.038456	.1087950	-.011891	.0039232	94.20722
Stddev	.0394175	.004804	.0015386	.008248	.0033020	.47946
%RSD	84.71761	12.49195	1.414231	69.36804	84.16408	.5089443
#1	.0124423	-.040568	.1094166	-.010910	.0002176	93.65513
#2	.0374491	-.032958	.1070428	-.020586	.0049990	94.51908
#3	.0896930	-.041843	.1099254	-.004176	.0065532	94.44745

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5614054	.0020306	.0130002	F 1656.633	1.080525	.1112362
Stddev	.0020676	.0001196	.0004322	18.295	.001618	.0012566
%RSD	.3682806	5.888585	3.324749	1.104358	.1497863	1.129687
#1	.5595815	.0020336	.0134986	1643.352	1.079338	.1111453
#2	.5609833	.0021487	.0127288	1677.501	1.082368	.1100275
#3	.5636514	.0019096	.0127731	1649.046	1.079868	.1125358

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2918721	217.6866	3.723784	149.9212	.8125920	.0086021
Stddev	.0040881	1.2428	.005959	1.1836	.0048221	.0003396
%RSD	1.400633	.5709132	.1600370	.7894845	.5934184	3.948480
#1	.2872614	216.2812	3.718381	148.8596	.8115421	.0083900
#2	.2933008	218.6407	3.722796	151.1974	.8083813	.0084225
#3	.2950541	218.1378	3.730176	149.7066	.8178525	.0089939

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.459243	.7267107	1.888540	8.489372	7.644810	.2350726
Stddev	.287893	.0078789	.004309	.100950	.057485	.0019032
%RSD	8.322437	1.084181	.2281889	1.189139	.7519485	.8096243
#1	3.719206	.7208527	1.884010	8.376068	7.667252	.2328912
#2	3.508697	.7356679	1.892589	8.522305	7.579489	.2363943
#3	3.149827	.7236116	1.889020	8.569744	7.687688	.2359323

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-13 Acquired: 11/08/2024 22:18:38 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCX8 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000208	48.91215	10.86044	.0185921	4.651324	.1287479
Stddev	.000478	.29288	.04015	.0027303	.017643	.0016835
%RSD	229.8108	.5987951	.3697316	14.68502	.3793124	1.307605
#1	-.000324	48.97550	10.86198	.0182576	4.631009	.1269425
#2	-.000618	48.59278	10.89981	.0160445	4.660149	.1302748
#3	.000318	49.16818	10.81954	.0214742	4.662812	.1290264

Elem	Sr4077
Units	ppm
Avg	2.503635
Stddev	.008120
%RSD	.3243458
#1	2.494367
#2	2.507040
#3	2.509499

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	876.7634	23612.59	2780.502	804.0551	1419.388
Stddev	4.3846	3.77	7.197	.7679	5.160
%RSD	.5000836	.0159660	.2588507	.0955000	.3635638
#1	877.2030	23610.97	2783.333	804.4238	1418.818
#2	880.9116	23609.89	2772.320	804.5690	1424.809
#3	872.1756	23616.89	2785.853	803.1724	1414.536

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-14 Acquired: 11/08/2024 22:23:09 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCX9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0560266	-.029331	.0576543	-.004952	-.001273	67.74805
Stddev	.0023399	.005906	.0028165	.008166	.001456	.31581
%RSD	4.176447	20.13581	4.885181	164.9086	114.4262	.4661525
#1	.0580724	-.029104	.0549403	.002792	-.001567	67.75213
#2	.0565323	-.035347	.0605632	-.004164	-.002559	67.43021
#3	.0534752	-.023542	.0574594	-.013484	.000308	68.06179

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4178685	.0016339	.0083061	F 1980.269	.8631243	.1156864
Stddev	.0007721	.0000907	.0000983	7.329	.0007992	.0005464
%RSD	.1847756	5.548956	1.183844	.3701230	.0925983	.4722988
#1	.4184772	.0015408	.0083544	1984.468	.8629008	.1162690
#2	.4170000	.0016388	.0081929	1971.806	.8640115	.1156045
#3	.4181283	.0017219	.0083709	1984.534	.8624605	.1151855

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1436011	169.3308	3.144056	141.3727	.9021436	.0159011
Stddev	.0016455	.6860	.008495	.4855	.0011541	.0005049
%RSD	1.145907	.4051041	.2701799	.3434496	.1279326	3.175270
#1	.1431324	169.4525	3.138258	141.0547	.9033507	.0161610
#2	.1454301	168.5921	3.140103	141.1319	.9020293	.0162230
#3	.1422408	169.9477	3.153806	141.9316	.9010509	.0153191

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.519425	.3974852	.2544713	13.15808	5.517129	.2670323
Stddev	.275418	.0105700	.0005627	.08129	.012866	.0016081
%RSD	4.224571	2.659221	.2211129	.6177831	.2332017	.6021992
#1	6.819990	.3880969	.2550238	13.23206	5.522695	.2664575
#2	6.279140	.3954252	.2544911	13.07106	5.526276	.2657905
#3	6.459145	.4089336	.2538990	13.17112	5.502417	.2688487

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-14 Acquired: 11/08/2024 22:23:09 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHCX9 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0155018	F 112.5613	9.319957	.0077435	3.478292	.0896892
Stddev	.0005792	.0449	.040931	.0038045	.012727	.0015820
%RSD	3.736477	.0399072	.4391809	49.13202	.3658948	1.763883
#1	.0148330	112.6111	9.293720	.0104605	3.479752	.0904485
#2	.0158282	112.5489	9.299030	.0033954	3.464898	.0878706
#3	.0158442	112.5238	9.367121	.0093746	3.490226	.0907483

Elem	Sr4077
Units	ppm
Avg	4.460640
Stddev	.010383
%RSD	.2327749
#1	4.458369
#2	4.451581
#3	4.471971

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	860.8948	23152.26	2732.445	790.5094	1382.838
Stddev	1.6921	72.30	3.971	1.1409	1.253
%RSD	.1965461	.3122699	.1453345	.1443248	.0906055
#1	859.0980	23100.82	2735.621	791.3417	1381.446
#2	861.1287	23121.03	2733.721	789.2088	1383.190
#3	862.4578	23234.92	2727.993	790.9775	1383.876

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-15 Acquired: 11/08/2024 22:27:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHDO0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0341615	-.036153	.0525764	-.009123	-.001631	137.9631
Stddev	.0150397	.004989	.0073082	.002463	.002200	.4890
%RSD	44.02517	13.79916	13.90025	26.99891	134.8877	.3544455
#1	.0298891	-.034347	.0610021	-.010745	.000302	137.4054
#2	.0217203	-.032319	.0479553	-.006289	-.004025	138.3187
#3	.0508752	-.041794	.0487719	-.010336	-.001169	138.1651

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5621447	.0035395	.0083544	F 937.8509	.9051536	.1854192
Stddev	.0006969	.0001133	.0002630	3.6672	.0079916	.0009892
%RSD	.1239621	3.202114	3.147930	.3910208	.8829046	.5334770
#1	.5615593	.0036301	.0080553	933.7357	.9077714	.1865328
#2	.5629155	.0034124	.0084588	940.7729	.8961813	.1846425
#3	.5619592	.0035760	.0085492	939.0440	.9115080	.1850822

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1505076	227.2311	2.715037	104.8075	1.055193	-.005958
Stddev	.0030821	1.1107	.005462	.6358	.001008	.000936
%RSD	2.047815	.4887976	.2011885	.6066274	.0954932	15.71103
#1	.1470964	226.0027	2.708947	104.0980	1.054636	-.006307
#2	.1513345	228.1646	2.719503	105.3258	1.054586	-.006669
#3	.1530919	227.5260	2.716661	104.9986	1.056356	-.004898

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.474435	.5138559	.2963239	29.59478	1.687068	.2761059
Stddev	.117285	.0082898	.0041832	.13743	.002870	.0008083
%RSD	3.375663	1.613254	1.411686	.4643884	.1701287	.2927348
#1	3.589176	.5049273	.3005920	29.43609	1.683762	.2752196
#2	3.354761	.5153316	.2922312	29.67527	1.688524	.2768024
#3	3.479368	.5213087	.2961486	29.67298	1.688918	.2762957

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: P4502-15 Acquired: 11/08/2024 22:27:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHDO0 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000746	4.111558	11.15077	.0084068	.4823668	.0719887
Stddev	.000443	.018250	.04188	.0017676	.0017178	.0017311
%RSD	59.46066	.4438807	.3755979	21.02574	.3561081	2.404648
#1	-.000599	4.099107	11.10631	.0074360	.4842452	.0732089
#2	-.001244	4.103060	11.18947	.0104470	.4819792	.0727496
#3	-.000394	4.132508	11.15655	.0073374	.4808760	.0700075

Elem	Sr4077
Units	ppm
Avg	1.197568
Stddev	.002867
%RSD	.2393934
#1	1.194507
#2	1.200190
#3	1.198007

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	946.6006	25259.74	2908.367	865.9684	1501.349
Stddev	2.3902	203.56	13.994	11.8070	.663
%RSD	.2524986	.8058647	.4811568	1.363443	.0441789
#1	949.1358	25148.13	2924.482	855.0439	1501.701
#2	946.2776	25494.70	2901.336	878.4944	1500.585
#3	944.3884	25136.40	2899.283	864.3670	1501.763

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCV037 Acquired: 11/08/2024 22:32:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV037 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.131379	4.734037	24.49466	4.614444	4.782210	403.8915	9.900115
Stddev	.035976	.003264	.04581	.032813	.019945	1.8855	.053886
%RSD	.7010931	.0689410	.1870078	.7110836	.4170677	.4668411	.5442972
#1	5.143242	4.737644	24.54216	4.602552	4.762402	403.7716	9.899066
#2	5.090970	4.731288	24.45076	4.589236	4.781939	405.8342	9.954518
#3	5.159925	4.733180	24.49106	4.651545	4.802290	402.0688	9.846761

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5105711	2.477350	407.3925	15.14106	2.470397	14.78908	413.0361
Stddev	.0042598	.001806	1.3311	.00490	.002278	.05300	1.4509
%RSD	.8343125	.0729100	.3267263	.0323577	.0922060	.3583389	.3512661
#1	.5137494	2.479135	407.9461	15.13733	2.471442	14.78428	413.1238
#2	.5122329	2.475523	408.3575	15.14661	2.467784	14.84432	414.4411
#3	.5057308	2.477392	405.8740	15.13925	2.471965	14.73865	411.5434

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.64112	413.1390	2.455844	1.233288	403.7467	2.447815	14.66549
Stddev	.05632	1.7541	.001684	.002919	1.9608	.019224	.00749
%RSD	.3846605	.4245806	.0685826	.2367146	.4856603	.7853365	.0510415
#1	14.64124	413.7993	2.455867	1.236538	403.8985	2.426900	14.67386
#2	14.69738	414.4671	2.457517	1.232436	405.6273	2.451835	14.66315
#3	14.58475	411.1506	2.454148	1.230889	401.7144	2.464711	14.65945

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	152.8389	4.880467	5.062583	4.719733	4.953994	5.110577	4.957520
Stddev	1.0190	.016693	.042160	.018670	.012790	.043328	.003468
%RSD	.6667238	.3420286	.8327793	.3955775	.2581778	.8478172	.0699635
#1	152.5569	4.861363	5.090795	4.703258	4.956163	5.132792	4.960481
#2	153.9693	4.887800	5.082835	4.715930	4.965561	5.138293	4.958375
#3	151.9907	4.892238	5.014118	4.740012	4.940258	5.060647	4.953704

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCV037 Acquired: 11/08/2024 22:32:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV037 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.921278	5.040635	4.937109
Stddev	.018223	.015301	.024336
%RSD	.3702801	.3035533	.4929157
#1	4.924706	5.037588	4.929125
#2	4.937543	5.057231	4.964434
#3	4.901585	5.027087	4.917768

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	786.2109	22571.63	2575.729	702.0155	1454.581
Stddev	3.3334	37.86	17.905	2.1745	1.613
%RSD	.4239791	.1677425	.6951416	.3097516	.1108940
#1	788.8417	22539.82	2564.645	699.8401	1453.549
#2	787.3288	22613.51	2566.157	704.1891	1456.440
#3	782.4623	22561.57	2596.386	702.0172	1453.754

Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCB037 Acquired: 11/08/2024 22:36:18 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB037 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0068786	.0026667	.0004580	.0054397	-.000250	.0164361	.0004584
Stddev	.0035973	.0021939	.0016468	.0073693	.001287	.0051703	.0005419
%RSD	52.29661	82.27102	359.5790	135.4714	515.5078	31.45680	118.2058
#1	.0109271	.0049533	-.000690	-.002823	.000795	.0108187	.0004143
#2	.0040495	.0024674	.002345	.007809	-.001687	.0209956	.0010210
#3	.0056592	.0005792	-.000280	.011333	.000143	.0174939	-.000060

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000056	.0002077	.0556461	.0010829	.0004997	.0014936	.0557452
Stddev	.000051	.0001275	.0062563	.0009678	.0005453	.0023257	.0240332
%RSD	91.23957	61.36659	11.24302	89.37448	109.1239	155.7127	43.11258
#1	-.000112	.0000938	.0508506	.0022004	.0000281	.0013193	.0756814
#2	-.000013	.0001840	.0627229	.0005279	.0003743	-.000740	.0290587
#3	-.000043	.0003453	.0533648	.0005203	.0010968	.003902	.0624954

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0023634	.0640919	.0007449	-.000362	-.120830	-.005041	.0004905
Stddev	.0013220	.0168565	.0008921	.000682	.112498	.008455	.0000785
%RSD	55.93588	26.30059	119.7645	188.2746	93.10438	167.7267	16.00244
#1	.0038845	.0769938	-.000265	-.000154	-.220384	-.003374	.0005362
#2	.0014918	.0702623	.001072	-.001125	.001214	-.014205	.0005355
#3	.0017139	.0450196	.001428	.000191	-.143319	.002457	.0003999

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0410647	-.002219	.0073660	.0005654	.0174977	.0022739	.0020706
Stddev	.0907087	.001588	.0004284	.0002007	.0044472	.0000495	.0018731
%RSD	220.8922	71.57685	5.816257	35.49815	25.41608	2.176381	90.45855
#1	-.045416	-.004047	.0078353	.0007082	.0182307	.0023101	.0004919
#2	.033130	-.001430	.0072670	.0003359	.0215328	.0022940	.0041402
#3	.135480	-.001179	.0069958	.0006521	.0127294	.0022175	.0015797

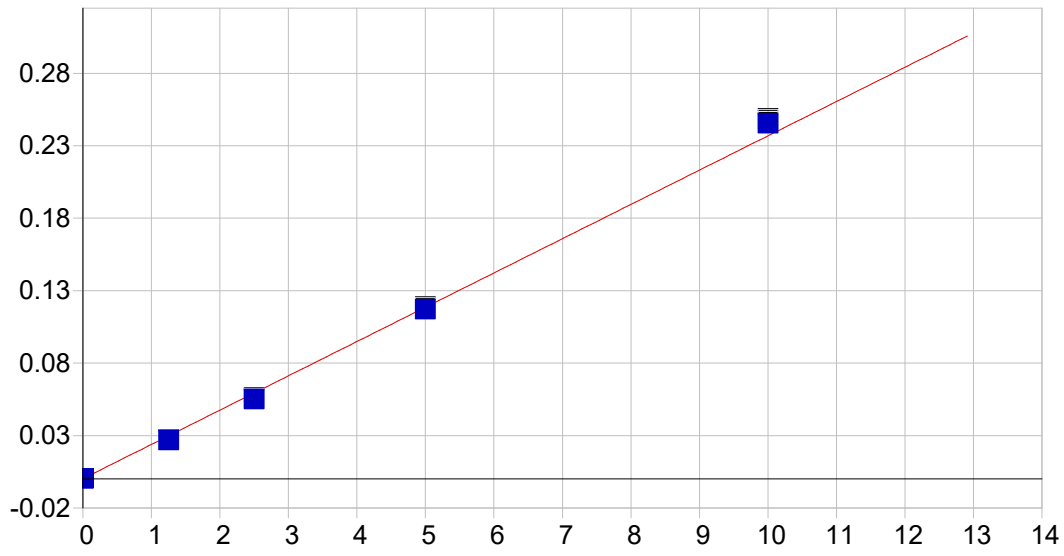
Reviewed By:jaswal
On:11/12/2024 3:09:59 AM
Inst Id :P5

Sample Name: CCB037 Acquired: 11/08/2024 22:36:18 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v712) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB037 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008782	.0046988	.0003561
Stddev	.0005129	.0005610	.0000702
%RSD	58.40433	11.93913	19.71769
#1	.0010253	.0043433	.0003657
#2	.0003078	.0053455	.0002816
#3	.0013015	.0044076	.0004210

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	972.1034	24992.36	2706.965	886.1399	1920.502
Stddev	2.6896	170.26	20.760	9.6176	3.247
%RSD	.2766762	.6812624	.7669222	1.085336	.1690784
#1	970.7025	24894.63	2683.039	880.7443	1917.790
#2	970.4035	25188.96	2717.646	897.2439	1919.617
#3	975.2043	24893.49	2720.211	880.4315	1924.100

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



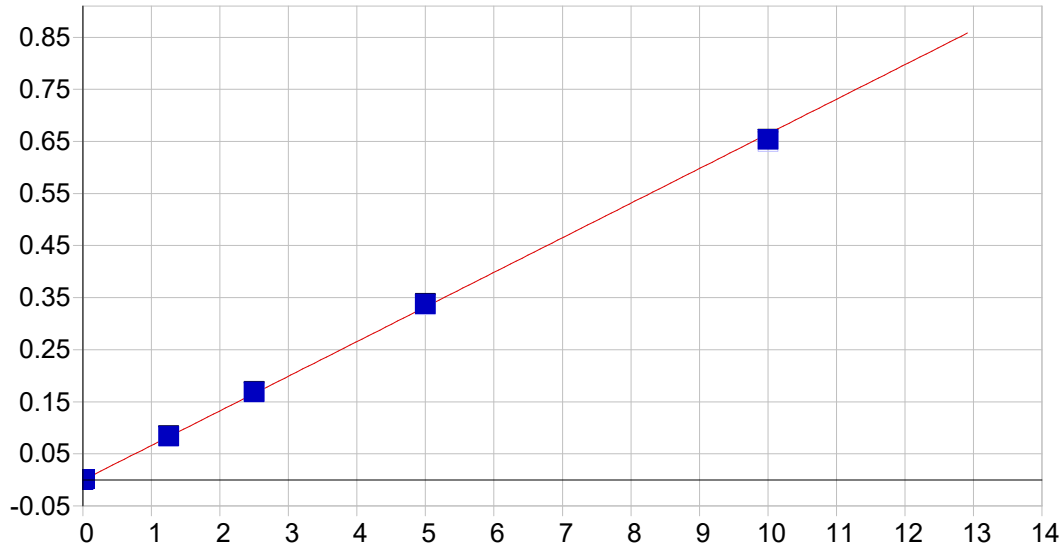
As 189.042 {479}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000211	Re-Slope:	1.000000
A1 (Gain):	0.023667	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998974	Status:	OK.
Std Error of Est:	0.000018		
Predicted MDL:	0.009859		
Predicted MQL:	0.032864		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00021	.000	1
S1	.01000	.01042	.000	4.15	.00046	.000	1
S2	1.2500	1.1219	-.128	-10.2	.02710	.000	1
S3	2.5000	2.3223	-.178	-7.11	.05585	.000	1
S4	5.0000	4.9443	-.056	-1.11	.11858	.000	1
S5	10.000	10.361	.361	3.61	.24812	.001	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



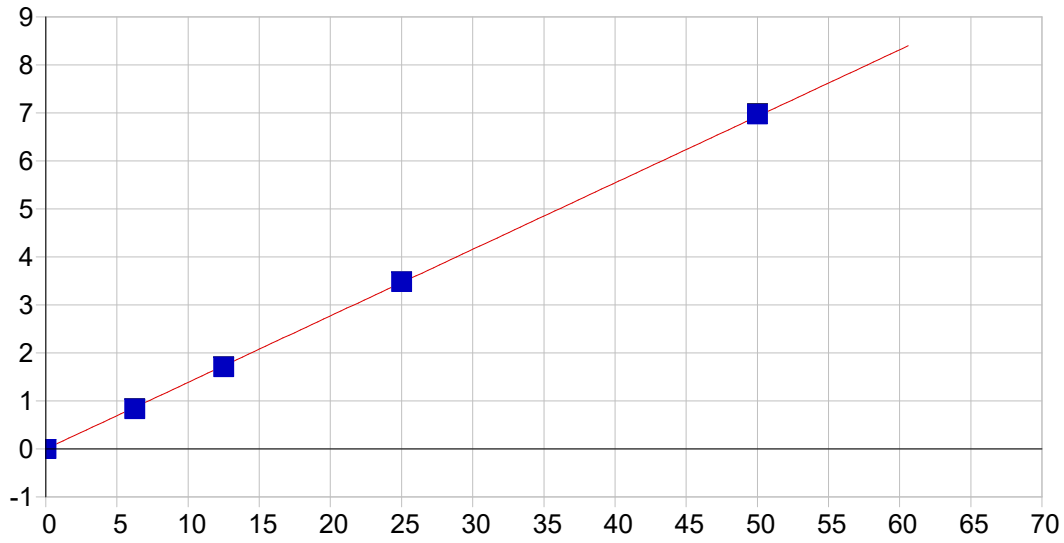
Tl 190.856 {477}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000389	Re-Slope:	1.000000
A1 (Gain):	0.066485	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999842	Status:	OK.
Std Error of Est:	0.000031		
Predicted MDL:	0.003206		
Predicted MQL:	0.010688		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00039	.000	1
S1	.02500	.02867	.004	14.7	.00148	.000	1
S2	1.2500	1.2659	.016	1.27	.08320	.001	1
S3	2.5000	2.5484	.048	1.94	.16790	.001	1
S4	5.0000	5.0906	.091	1.81	.33577	.001	1
S5	10.000	9.8414	-.159	-1.59	.64934	.001	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



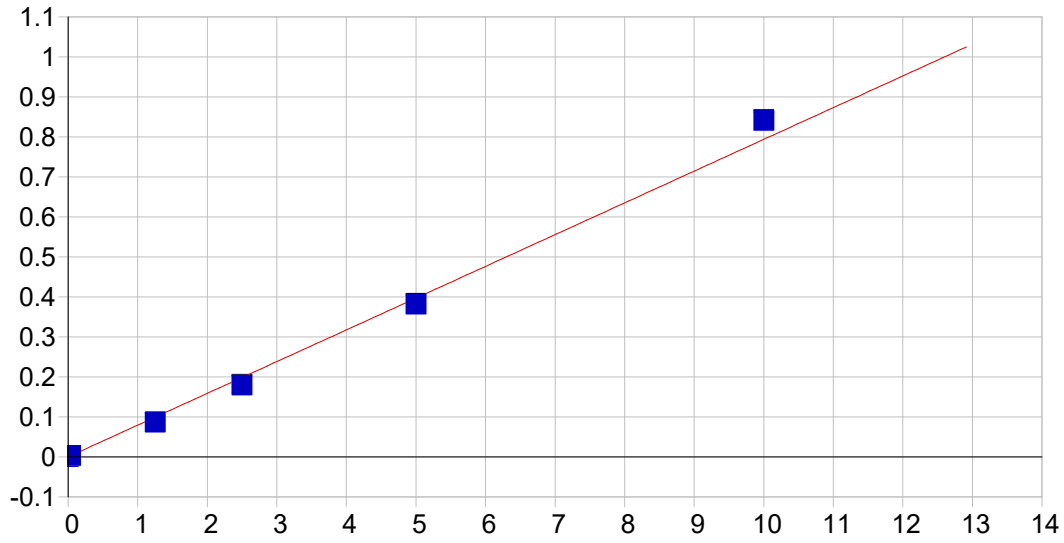
Pb 220.353 {453}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000658	Re-Slope:	1.000000
A1 (Gain):	0.138593	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999913	Status:	OK.
Std Error of Est:	0.000069		
Predicted MDL:	0.003305		
Predicted MQL:	0.011017		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00066	.000	1
S1	.01000	.01003	.000	.260	.00074	.000	1
S2	6.2500	5.9939	-.256	-4.10	.82983	.003	1
S3	12.500	12.303	-.197	-1.58	1.7040	.006	1
S4	25.000	25.131	.131	.523	3.4814	.007	1
S5	50.000	50.322	.322	.645	6.9719	.011	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



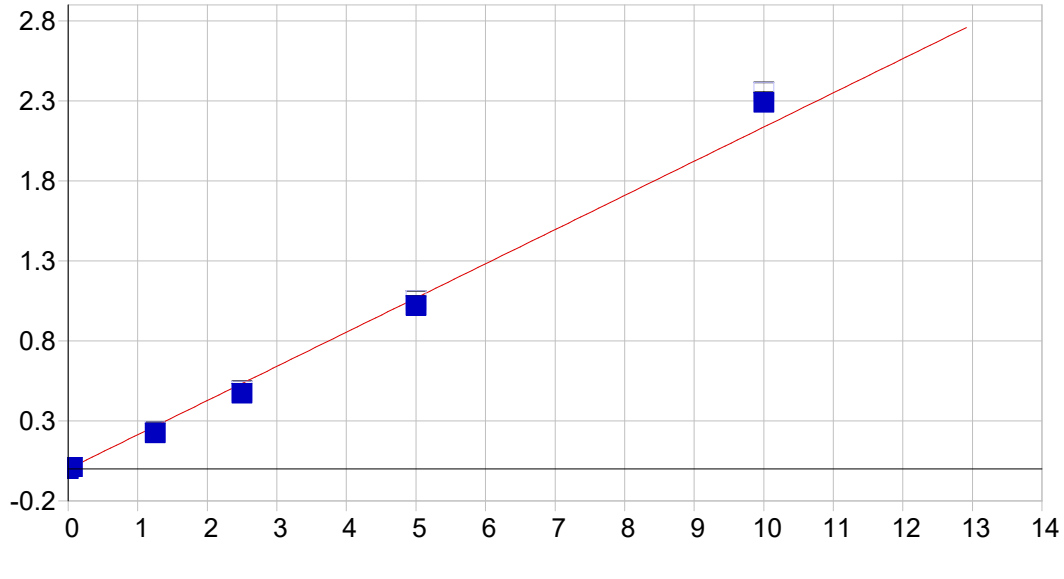
Se 196.090 {472}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000161	Re-Slope:	1.000000
A1 (Gain):	0.079363	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.997722	Status:	OK.
Std Error of Est:	0.000168		
Predicted MDL:	0.005370		
Predicted MQL:	0.017901		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00016	.000	1
S1	.03500	.03672	.002	4.91	.00307	.000	1
S2	1.2500	1.0892	-.161	-12.9	.08642	.001	1
S3	2.5000	2.2609	-.239	-9.56	.17921	.002	1
S4	5.0000	4.8094	-.191	-3.81	.38109	.002	1
S5	10.000	10.589	.589	5.89	.83900	.003	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



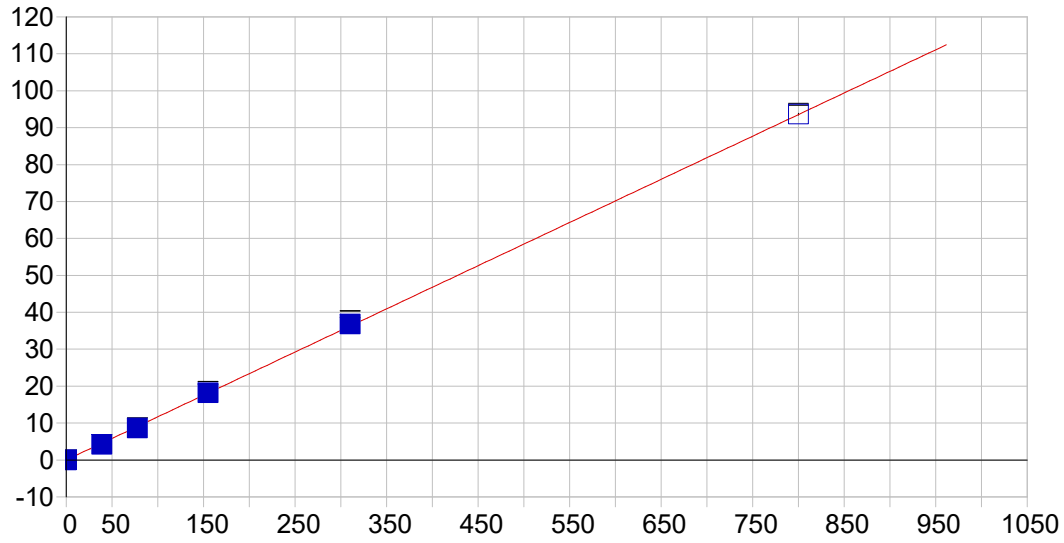
Sb 206.833 {463}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000074	Re-Slope:	1.000000
A1 (Gain):	0.213660	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.996788	Status:	OK.
Std Error of Est:	0.000727		
Predicted MDL:	0.002389		
Predicted MQL:	0.007962		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00002	.000	.000	-.00007	.000	1
S1	.06000	.05732	-.003	-4.47	.01217	.000	1
S2	1.2500	1.0516	-.198	-15.9	.23249	.001	1
S3	2.5000	2.2058	-.294	-11.8	.48698	.001	1
S4	5.0000	4.7733	-.227	-4.53	1.0513	.001	1
S5	10.000	10.722	.722	7.22	2.3538	.002	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



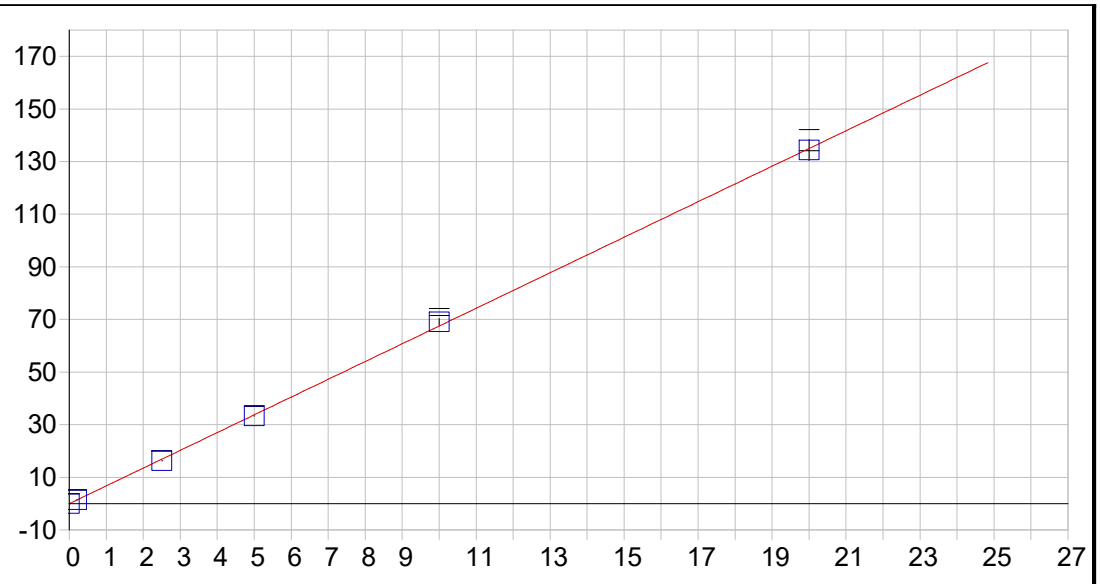
Al 396.152 { 85}

Date of Fit:	11/12/2024 12:57:26	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000063	Re-Slope:	1.000000
A1 (Gain):	0.116942	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999848	Status:	OK.
Std Error of Est:	0.001267		
Predicted MDL:	0.013185		
Predicted MQL:	0.043950		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00006	.002	1
S1	.20000	.20814	.008	4.07	.02432	.002	1
S2	38.750	35.967	-2.78	-7.18	4.2114	.007	1
S3	77.500	74.091	-3.41	-4.40	8.6752	.022	1
S4	155.00	155.57	.565	.365	18.214	.351	1
S5	310.00	314.52	4.52	1.46	36.824	.915	1
S6	800.00	801.10	1.10	.138	93.682	.270	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



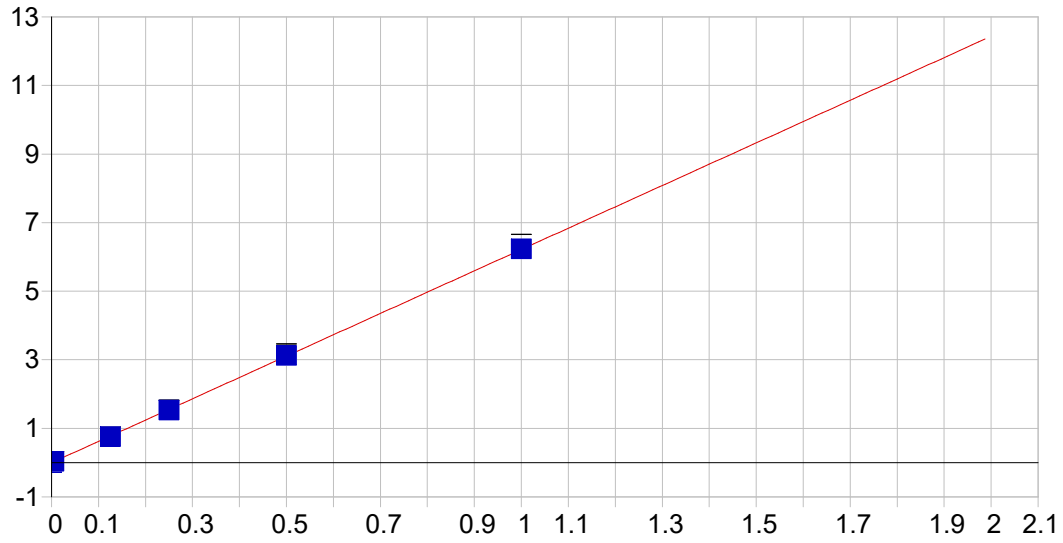
Ba 493.409 { 68}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002198	Re-Slope:	1.000000
A1 (Gain):	6.749498	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999858	Status:	OK.
Std Error of Est:	0.012101		
Predicted MDL:	0.000783		
Predicted MQL:	0.002611		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00214	.005	1
S1	.20000	.21395	.014	6.98	1.4463	.009	1
S2	2.5000	2.4122	-.088	-3.51	16.283	.011	1
S3	5.0000	4.9311	-.069	-1.38	33.285	.102	1
S4	10.000	10.231	.231	2.31	69.055	1.32	1
S5	20.000	19.912	-.088	-.440	134.40	4.06	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



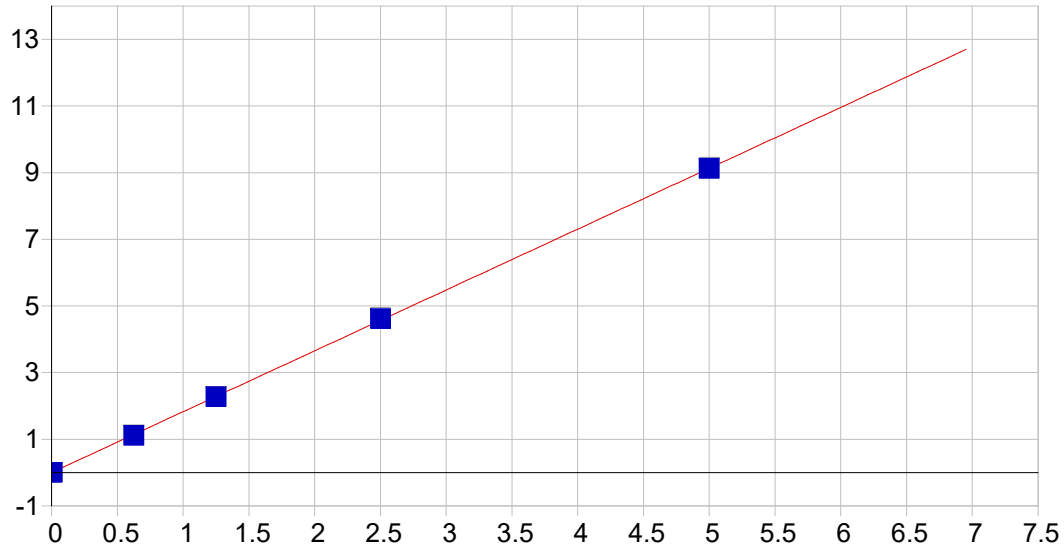
Be 234.861 {144}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002444	Re-Slope:	1.000000
A1 (Gain):	6.218385	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999936	Status:	OK.
Std Error of Est:	0.000263		
Predicted MDL:	0.000149		
Predicted MQL:	0.000497		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00245	.000	1
S1	.00500	.00574	.001	14.7	.03321	.001	1
S2	.12500	.12249	-.003	-2.01	.75801	.005	1
S3	.25000	.24622	-.004	-1.51	1.5261	.007	1
S4	.50000	.50284	.003	.567	3.1194	.051	1
S5	1.0000	1.0027	.003	.272	6.2228	.137	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



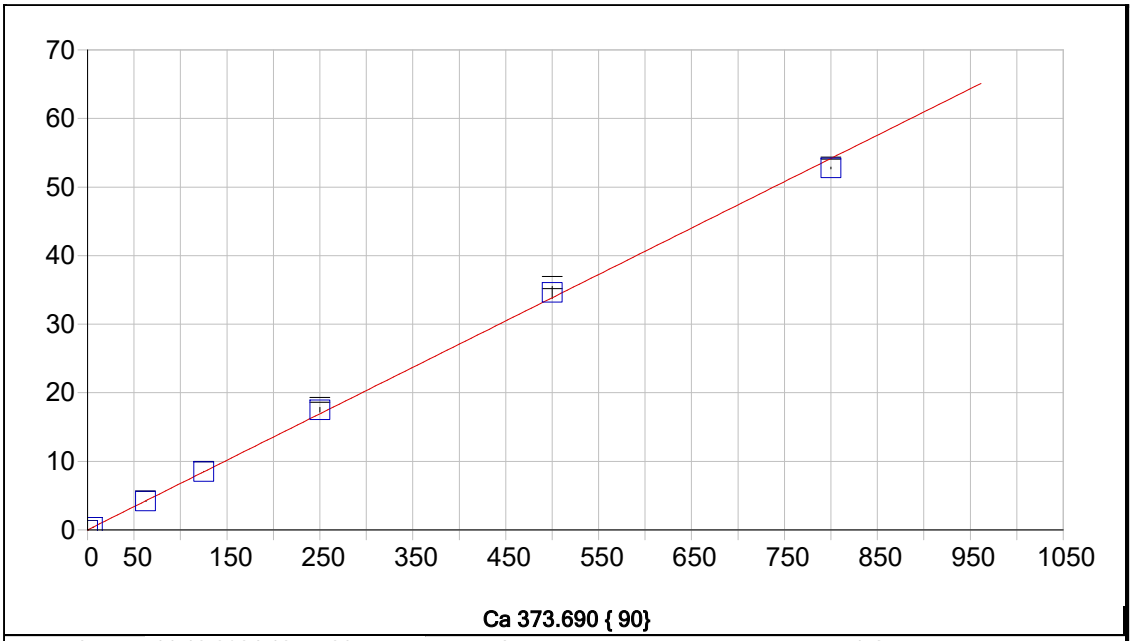
Cd 214.438 {457}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000252	Re-Slope:	1.000000
A1 (Gain):	1.826442	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999956	Status:	OK.
Std Error of Est:	0.000143		
Predicted MDL:	0.000153		
Predicted MQL:	0.000509		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00025	.000	1
S1	.00500	.00538	.000	7.60	.01009	.000	1
S2	.62500	.60816	-.017	-2.70	1.1138	.005	1
S3	1.2500	1.2429	-.007	-.570	2.2758	.007	1
S4	2.5000	2.5272	.027	1.09	4.6269	.012	1
S5	5.0000	4.9964	-.004	-.071	9.1479	.014	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

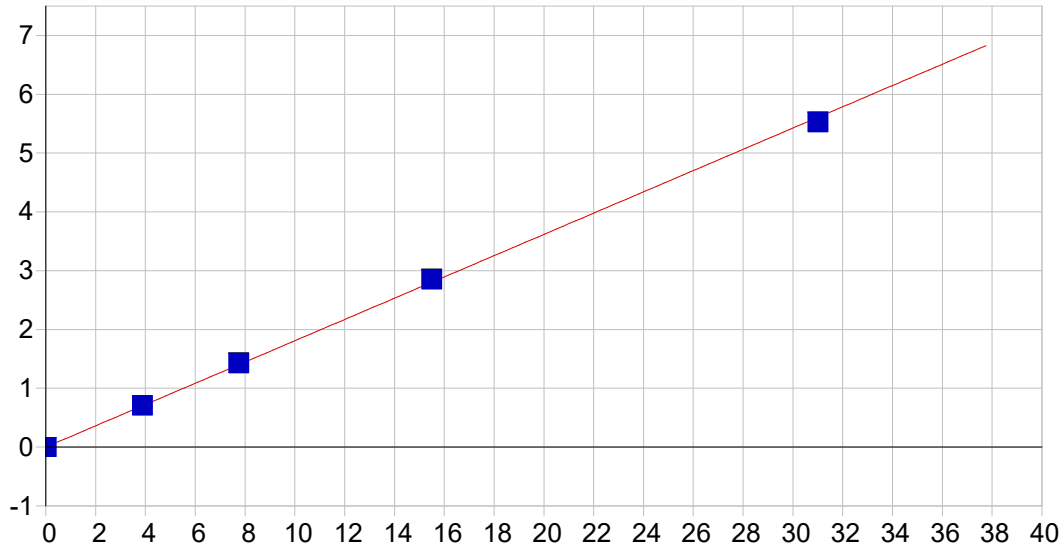


Ca 373.690 { 90}

Date of Fit:	11/12/2024 12:57:26	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.005311	Re-Slope:	1.000000
A1 (Gain):	0.067710	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999659	Status:	OK.
Std Error of Est:	0.006177		
Predicted MDL:	0.017972		
Predicted MQL:	0.059907		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00074	-.001	.000	.00526	.001	1
S1	5.0000	5.6115	.611	12.2	.38526	.001	1
S2	62.500	61.895	-.605	-.969	4.1962	.013	1
S3	125.00	125.49	.491	.393	8.5023	.015	1
S4	250.00	258.67	8.67	3.47	17.520	.333	1
S5	500.00	511.59	11.6	2.32	34.645	.887	1
S6	800.00	779.24	-20.8	-2.59	52.768	.150	1



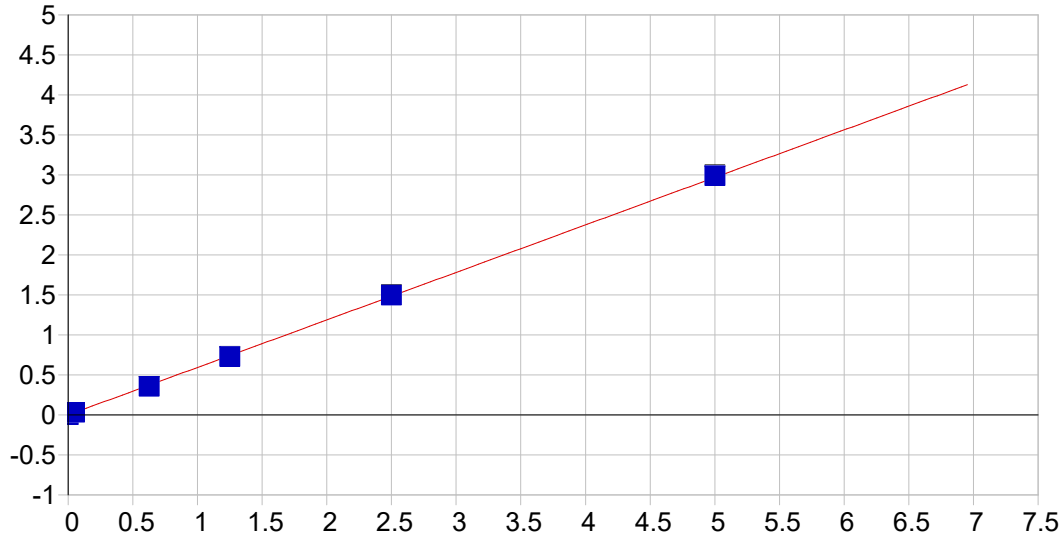
Cr 267.716 {126}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000153	Re-Slope:	1.000000
A1 (Gain):	0.180860	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999879	Status:	OK.
Std Error of Est:	0.000083		
Predicted MDL:	0.000962		
Predicted MQL:	0.003208		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00015	.000	1
S1	.01000	.01145	.001	14.5	.00192	.000	1
S2	3.8750	3.9091	.034	.881	.70764	.002	1
S3	7.7500	7.8935	.144	1.85	1.4290	.001	1
S4	15.500	15.766	.266	1.71	2.8544	.003	1
S5	31.000	30.555	-.445	-1.43	5.5324	.003	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



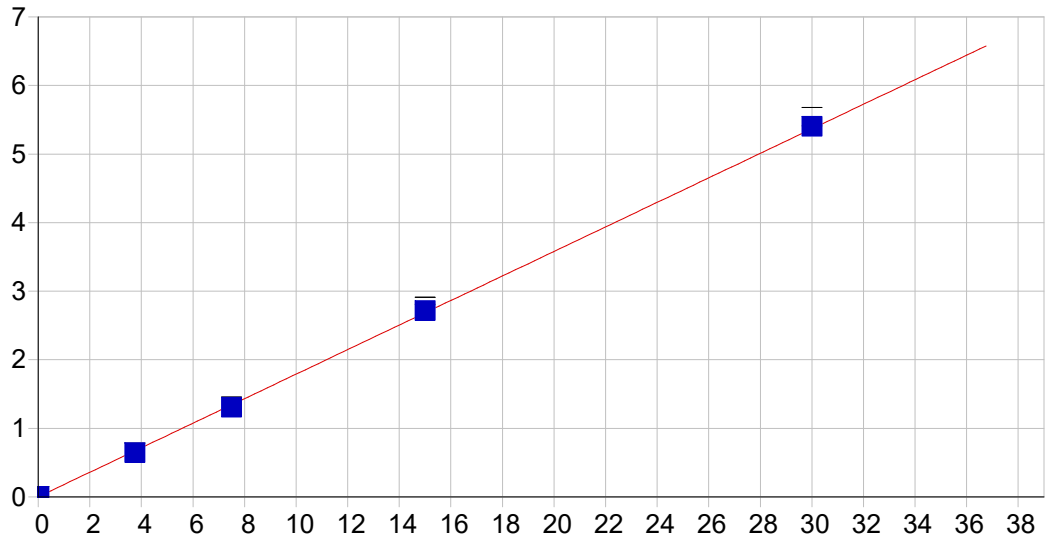
Co 228.616 {448}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000211	Re-Slope:	1.000000
A1 (Gain):	0.593767	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999885	Status:	OK.
Std Error of Est:	0.000240		
Predicted MDL:	0.000536		
Predicted MQL:	0.001788		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00021	.000	1
S1	.05000	.05103	.001	2.06	.03019	.000	1
S2	.62500	.59660	-.028	-4.54	.35448	.001	1
S3	1.2500	1.2249	-.025	-2.00	.72803	.002	1
S4	2.5000	2.5185	.018	.739	1.4970	.004	1
S5	5.0000	5.0340	.034	.679	2.9924	.007	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



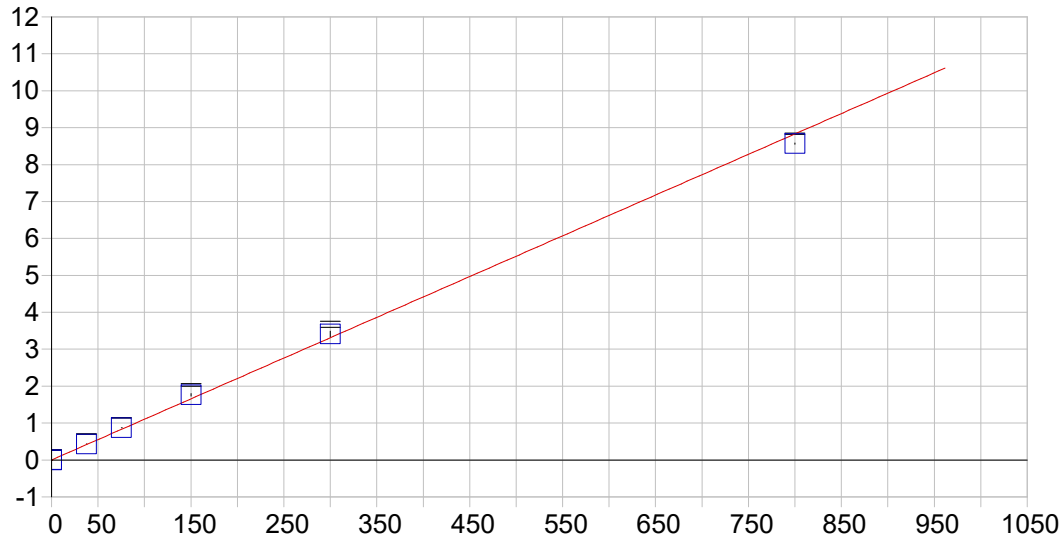
Cu 324.754 {104}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001648	Re-Slope:	1.000000
A1 (Gain):	0.178894	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999856	Status:	OK.
Std Error of Est:	0.000139		
Predicted MDL:	0.004076		
Predicted MQL:	0.013586		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00165	.000	1
S1	.02500	.02175	-.003	-13.0	.00554	.000	1
S2	3.7500	3.5838	-.166	-4.43	.64235	.002	1
S3	7.5000	7.3030	-.197	-2.63	1.3073	.004	1
S4	15.000	15.174	.174	1.16	2.7144	.052	1
S5	30.000	30.193	.193	.642	5.3995	.133	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



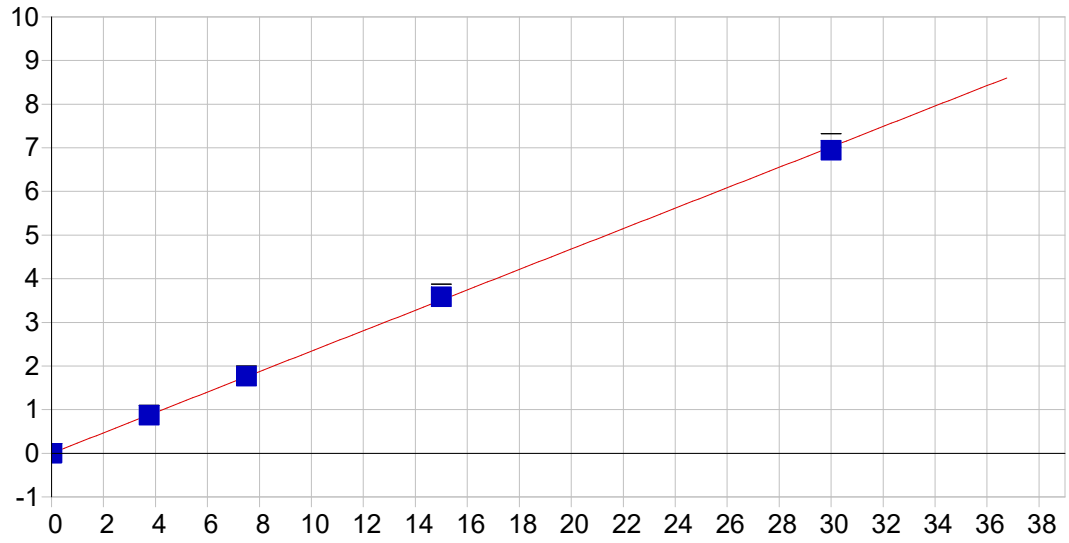
Fe 259.837 {130}

Date of Fit:	11/12/2024 12:57:26	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000373	Re-Slope:	1.000000
A1 (Gain):	0.011037	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999327	Status:	OK.
Std Error of Est:	0.000177		
Predicted MDL:	0.032166		
Predicted MQL:	0.107221		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00004	-.000	.000	.00037	.000	1
S1	.10000	.11961	.020	19.6	.00169	.000	1
S2	37.500	39.229	1.73	4.61	.43336	.001	1
S3	75.000	78.727	3.73	4.97	.86931	.000	1
S4	150.00	159.57	9.57	6.38	1.7616	.035	1
S5	300.00	308.70	8.70	2.90	3.4076	.084	1
S6	800.00	776.26	-23.7	-2.97	8.5682	.018	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



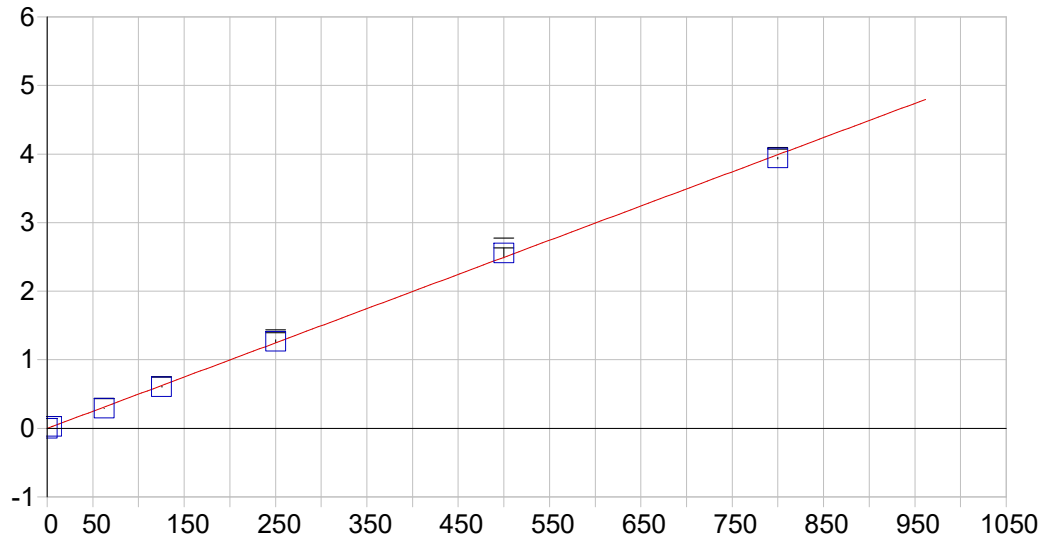
Mn 257.610 {131}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000126	Re-Slope:	1.000000
A1 (Gain):	0.234022	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999900	Status:	OK.
Std Error of Est:	0.000118		
Predicted MDL:	0.001587		
Predicted MQL:	0.005290		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00013	.000	1
S1	.01500	.01673	.002	11.5	.00380	.001	1
S2	3.7500	3.7250	-.025	-.667	.87174	.001	1
S3	7.5000	7.5460	.046	.613	1.7661	.004	1
S4	15.000	15.319	.319	2.12	3.5853	.066	1
S5	30.000	29.659	-.341	-1.14	6.9417	.156	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



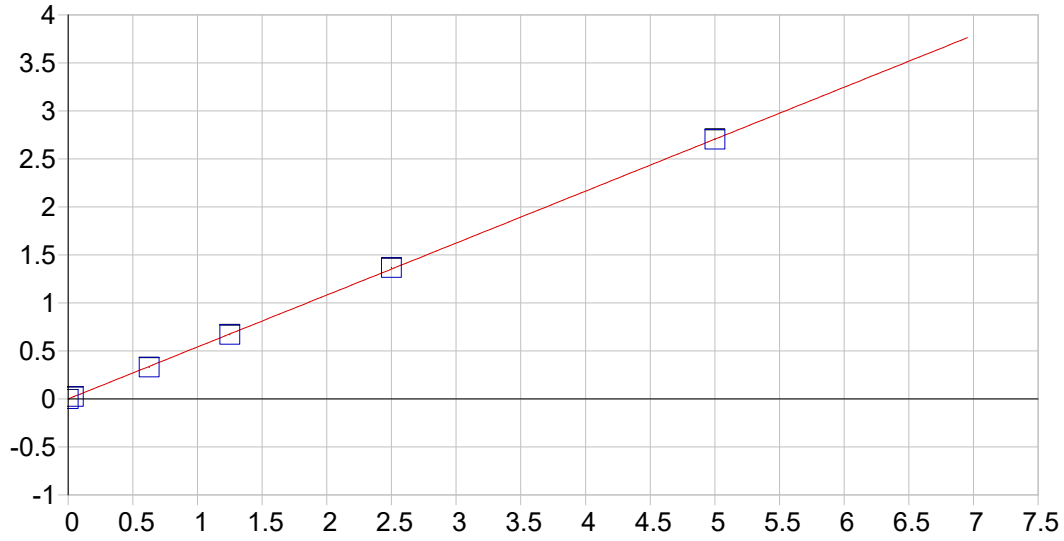
Mg 279.079 {121}

Date of Fit:	11/12/2024 12:57:26	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000480	Re-Slope:	1.000000
A1 (Gain):	0.004989	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999730	Status:	OK.
Std Error of Est:	0.000405		
Predicted MDL:	0.082271		
Predicted MQL:	0.274237		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00004	-.000	.000	-.00048	.000	1
S1	5.0000	5.3535	.353	7.07	.02623	.000	1
S2	62.500	58.379	-4.12	-6.59	.29077	.001	1
S3	125.00	121.34	-3.66	-2.93	.60486	.001	1
S4	250.00	254.67	4.67	1.87	1.2701	.022	1
S5	500.00	512.76	12.8	2.55	2.5577	.071	1
S6	800.00	790.00	-10.00	-1.25	3.9408	.013	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



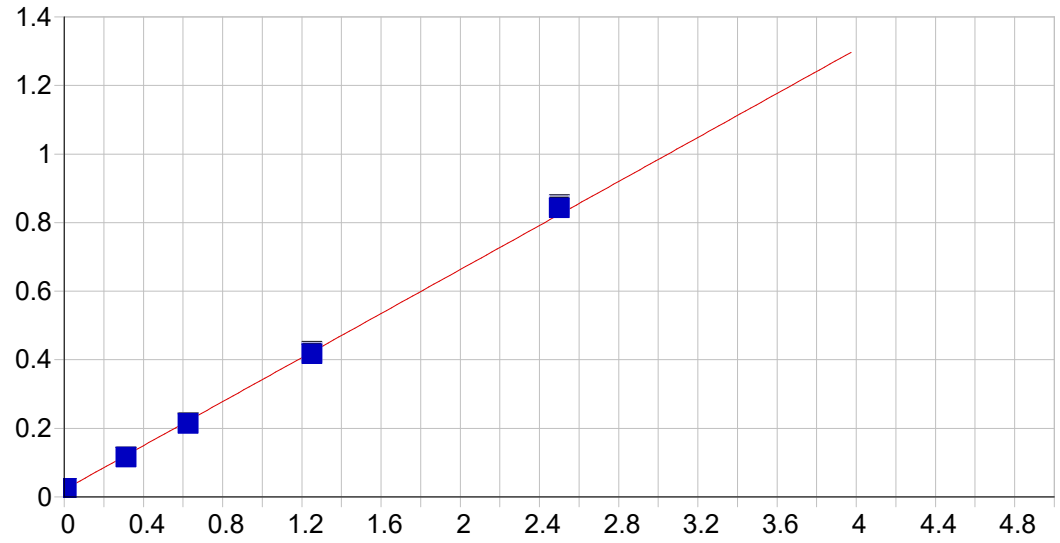
Ni 231.604 {446}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000049	Re-Slope:	1.000000
A1 (Gain):	0.541085	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999938	Status:	OK.
Std Error of Est:	0.000144		
Predicted MDL:	0.000619		
Predicted MQL:	0.002064		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00005	.000	1
S1	.04000	.04305	.003	7.64	.02335	.000	1
S2	.62500	.60682	-.018	-2.91	.32839	.001	1
S3	1.2500	1.2385	-.011	-.919	.67019	.003	1
S4	2.5000	2.5276	.028	1.11	1.3677	.003	1
S5	5.0000	4.9990	-.001	-.021	2.7049	.006	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



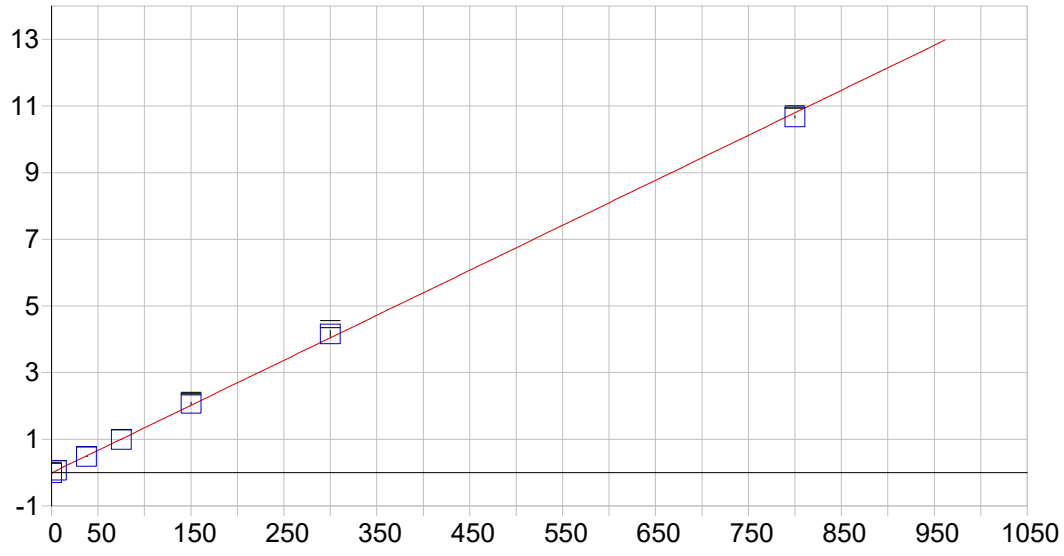
Ag 328.068 {103}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.021266	Re-Slope:	1.000000
A1 (Gain):	0.320988	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999581	Status:	OK.
Std Error of Est:	0.000079		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.02127	.000	1
S1	.01000	.01142	.001	14.2	.02492	.000	1
S2	.31250	.29315	-.019	-6.19	.11645	.000	1
S3	.62500	.59936	-.026	-4.10	.21582	.000	1
S4	1.2500	1.2348	-.015	-1.22	.42194	.002	1
S5	2.5000	2.5588	.059	2.35	.85125	.002	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



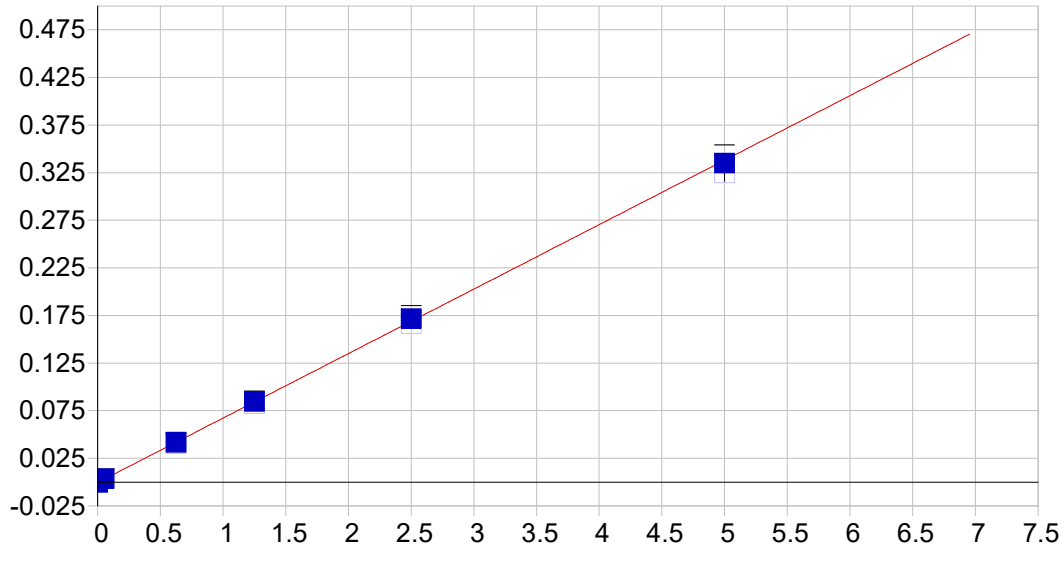
Na 818.326 { 41}

Date of Fit:	11/12/2024 12:57:26	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.006894	Re-Slope:	1.000000
A1 (Gain):	0.013506	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999810	Status:	OK.
Std Error of Est:	0.000814		
Predicted MDL:	0.270737		
Predicted MQL:	0.902458		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00005	-.000	.000	-.00689	.002	1
S1	5.0000	5.1315	.132	2.63	.06241	.002	1
S2	37.500	35.951	-1.55	-4.13	.47865	.001	1
S3	75.000	73.849	-1.15	-1.53	.99048	.005	1
S4	150.00	153.89	3.89	2.60	2.0715	.037	1
S5	300.00	308.15	8.15	2.72	4.1548	.106	1
S6	800.00	790.53	-9.47	-1.18	10.670	.032	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



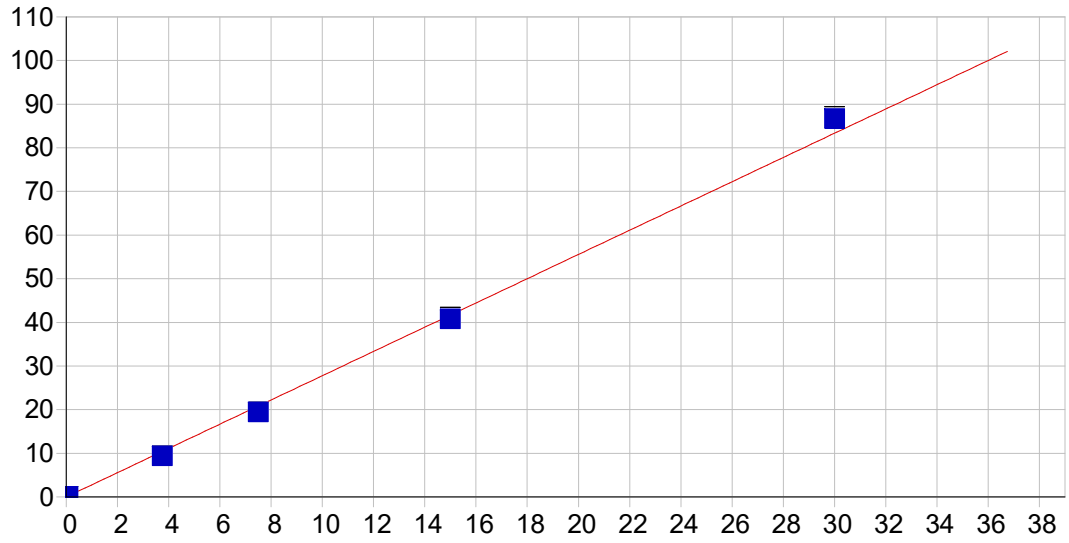
V 292.402 {115}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000458	Re-Slope:	1.000000
A1 (Gain):	0.067729	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999877	Status:	OK.
Std Error of Est:	0.000027		
Predicted MDL:	0.010713		
Predicted MQL:	0.035710		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	-.00046	.001	1
S1	.05000	.05713	.007	14.3	.00340	.001	1
S2	.62500	.61977	-.005	-.836	.04022	.000	1
S3	1.2500	1.2577	.008	.612	.08212	.001	1
S4	2.5000	2.5389	.039	1.55	.16630	.004	1
S5	5.0000	4.9514	-.049	-.973	.32449	.009	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



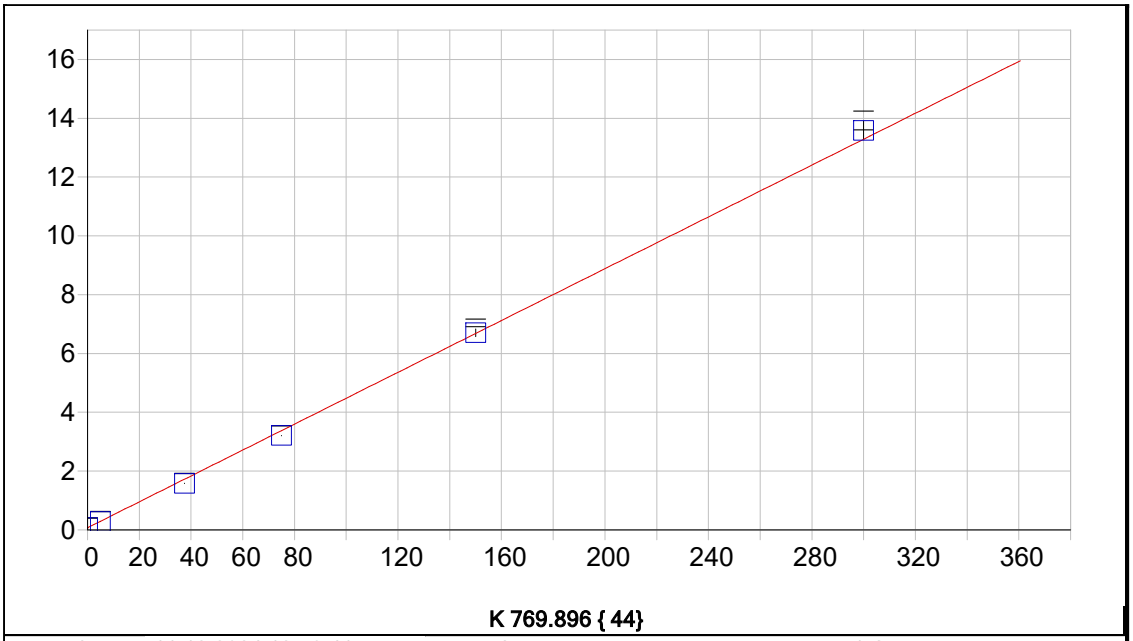
Zn 213.856 {158}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002423	Re-Slope:	1.000000
A1 (Gain):	2.777948	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998881	Status:	OK.
Std Error of Est:	0.009368		
Predicted MDL:	0.000488		
Predicted MQL:	0.001628		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00245	.001	1
S1	.06000	.05804	-.002	-3.27	.16446	.002	1
S2	3.7500	3.3722	-.378	-10.1	9.3830	.038	1
S3	7.5000	6.9994	-.501	-6.67	19.472	.058	1
S4	15.000	14.679	-.321	-2.14	40.831	.384	1
S5	30.000	31.201	1.20	4.00	86.779	.415	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



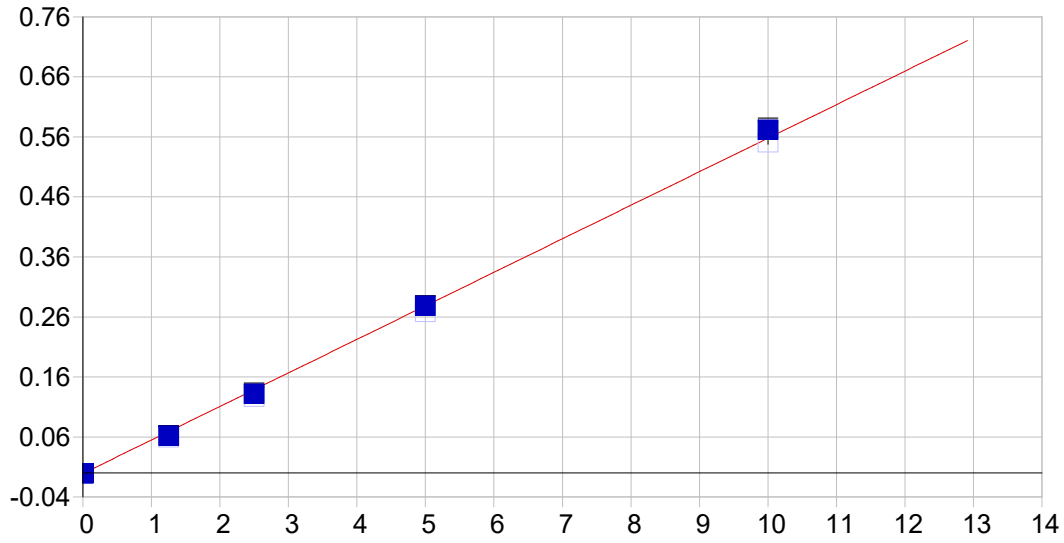
K 769.896 { 44}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.073739	Re-Slope:	1.000000
A1 (Gain):	0.044048	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999428	Status:	OK.
Std Error of Est:	0.003073		
Predicted MDL:	0.108475		
Predicted MQL:	0.361583		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00072	.001	.000	.07377	.003	1
S1	5.0000	4.8498	-.150	-3.00	.28737	.002	1
S2	37.500	34.214	-3.29	-8.76	1.5808	.003	1
S3	75.000	71.110	-3.89	-5.19	3.2060	.004	1
S4	150.00	150.54	.539	.360	6.7047	.128	1
S5	300.00	306.79	6.79	2.26	13.587	.326	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



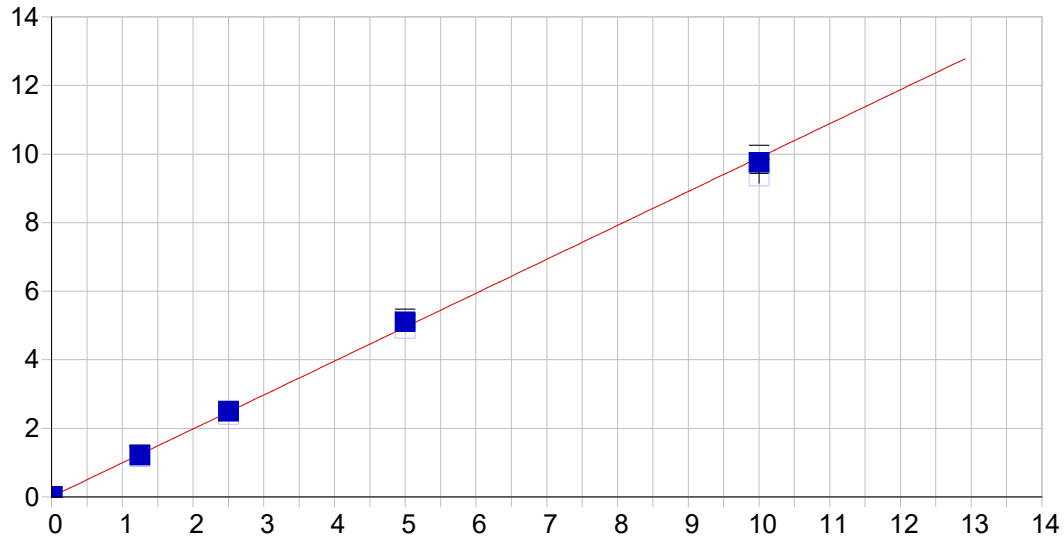
P 177.495 {490}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001021	Re-Slope:	1.000000
A1 (Gain):	0.055889	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999318	Status:	OK.
Std Error of Est:	0.000033		
Predicted MDL:	0.003334		
Predicted MQL:	0.011112		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00102	.000	1
S1	.01000	.00921	-.001	-7.92	-.00052	.000	1
S2	1.2500	1.1282	-.122	-9.75	.05946	.000	1
S3	2.5000	2.3790	-.121	-4.84	.12680	.001	1
S4	5.0000	4.9991	-.001	-.019	.26810	.000	1
S5	10.000	10.245	.245	2.45	.55099	.003	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



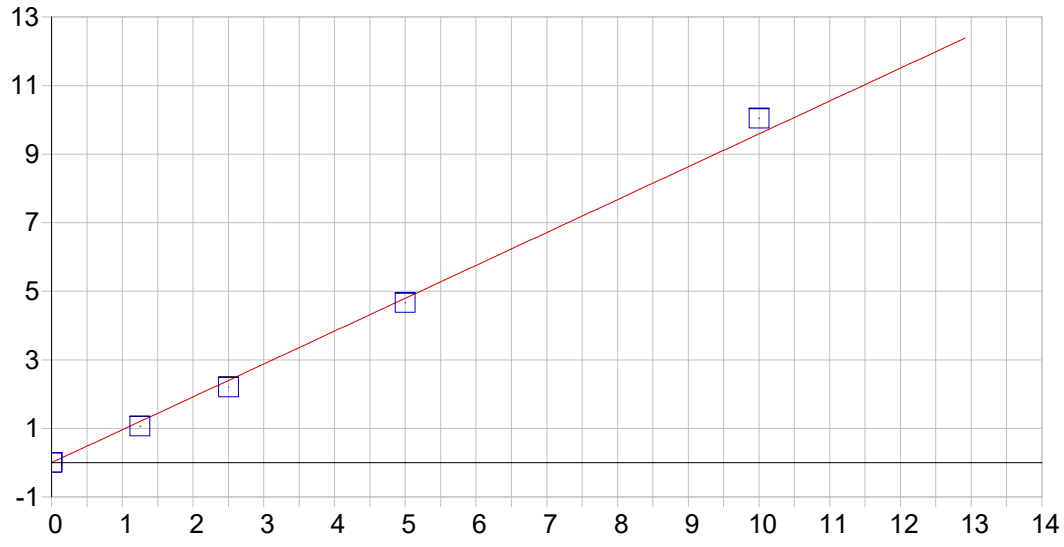
B 249.678 {135}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.004468	Re-Slope:	1.000000
A1 (Gain):	0.989247	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999516	Status:	OK.
Std Error of Est:	0.000495		
Predicted MDL:	0.001072		
Predicted MQL:	0.003574		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00448	.000	1
S1	.01000	.00056	-.009	-94.4	.00493	.001	1
S2	1.2500	1.2253	-.025	-1.98	1.1667	.005	1
S3	2.5000	2.5171	.017	.686	2.3947	.006	1
S4	5.0000	5.1606	.161	3.21	4.9099	.084	1
S5	10.000	9.8568	-.143	-1.43	9.3560	.212	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



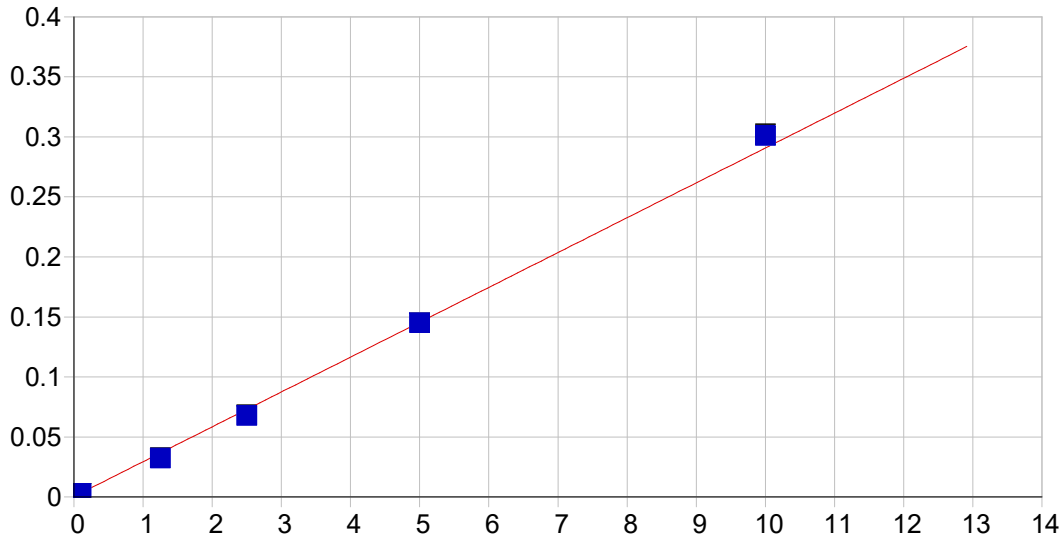
Mo 202.030 {467}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000206	Re-Slope:	1.000000
A1 (Gain):	0.959082	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998454	Status:	OK.
Std Error of Est:	0.000895		
Predicted MDL:	0.000479		
Predicted MQL:	0.001597		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00020	.000	1
S1	.01000	.01021	.000	2.10	.00959	.000	1
S2	1.2500	1.1083	-.142	-11.3	1.0628	.001	1
S3	2.5000	2.3004	-.200	-7.98	2.2061	.005	1
S4	5.0000	4.8662	-.134	-2.68	4.6668	.006	1
S5	10.000	10.475	.475	4.75	10.046	.011	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



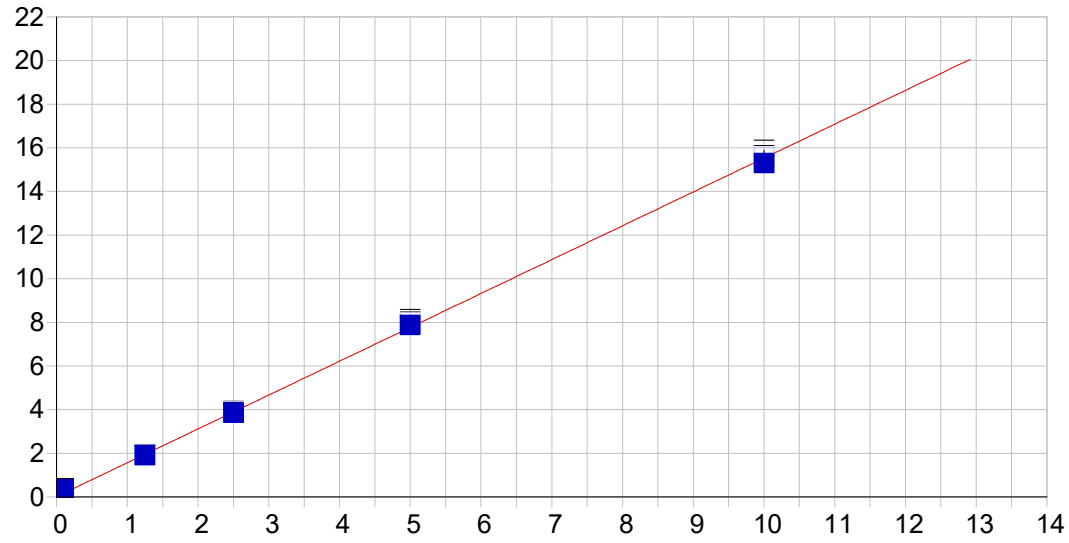
S 182.034 {485}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000319	Re-Slope:	1.000000
A1 (Gain):	0.029042	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998856	Status:	OK.
Std Error of Est:	0.000074		
Predicted MDL:	0.006208		
Predicted MQL:	0.020695		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00002	.000	.000	.00032	.000	1
S1	.10000	.09305	-.007	-6.95	.00302	.000	1
S2	1.2500	1.1015	-.149	-11.9	.03231	.000	1
S3	2.5000	2.3228	-.177	-7.09	.06779	.000	1
S4	5.0000	4.9799	-.020	-.402	.14496	.000	1
S5	10.000	10.353	.353	3.53	.30102	.002	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



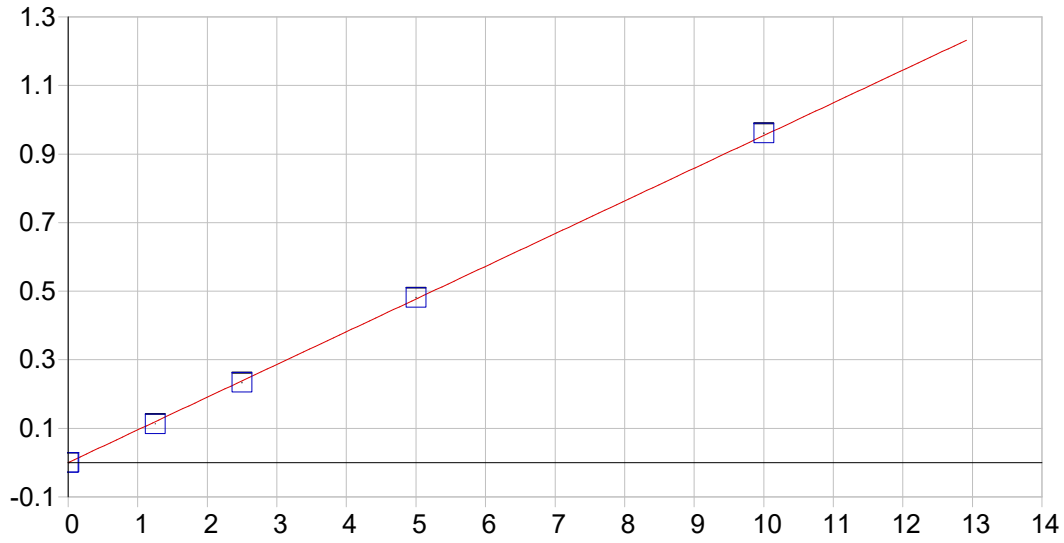
Si 251.611 {134}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.012672	Re-Slope:	1.000000
A1 (Gain):	1.551697	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.995509	Status:	OK.
Std Error of Est:	0.007968		
Predicted MDL:	0.000578		
Predicted MQL:	0.001926		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00013	-.000	.000	.01247	.001	1
S1	.10000	.23108	.131	131.	.37228	.003	1
S2	1.2500	1.2186	-.031	-2.51	1.9350	.011	1
S3	2.5000	2.4797	-.020	-.812	3.9231	.011	1
S4	5.0000	5.0676	.068	1.35	8.0015	.144	1
S5	10.000	9.8542	-.146	-1.46	15.554	.344	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



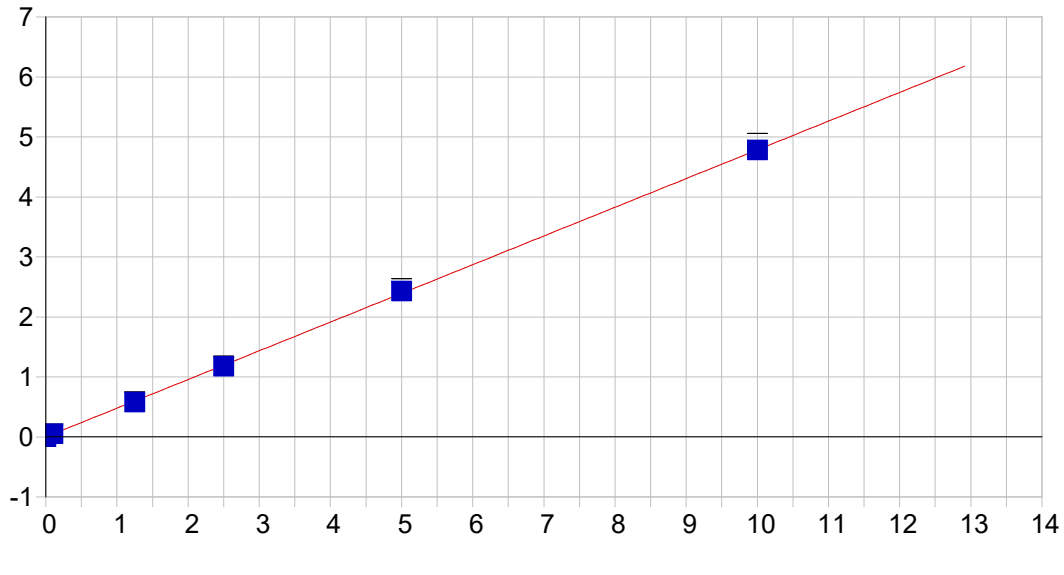
Sn 189.989 {478}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000123	Re-Slope:	1.000000
A1 (Gain):	0.095389	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999845	Status:	OK.
Std Error of Est:	0.000024		
Predicted MDL:	0.001882		
Predicted MQL:	0.006274		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00012	.000	1
S1	.00700	.00474	-.002	-32.3	.00057	.000	1
S2	1.2500	1.1859	-.064	-5.13	.11325	.000	1
S3	2.5000	2.4519	-.048	-1.92	.23401	.001	1
S4	5.0000	5.0426	.043	.852	.48113	.001	1
S5	10.000	10.072	.072	.719	.96087	.002	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



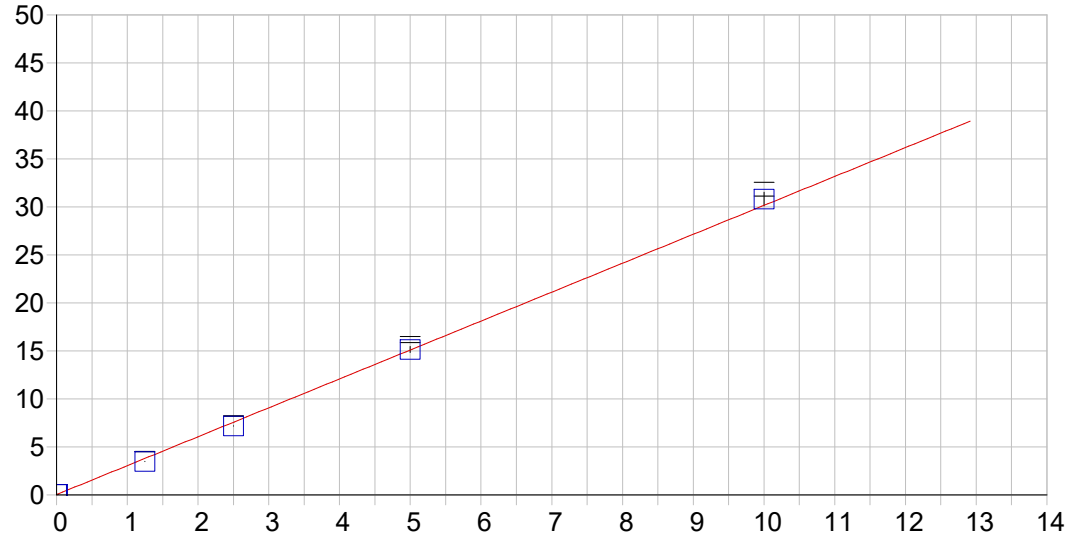
Ti 336.121 {100}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000280	Re-Slope:	1.000000
A1 (Gain):	0.478444	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999913	Status:	OK.
Std Error of Est:	0.000335		
Predicted MDL:	0.001784		
Predicted MQL:	0.005948		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00028	.000	1
S1	.10000	.10682	.007	6.82	.05081	.000	1
S2	1.2500	1.2147	-.035	-2.83	.58056	.002	1
S3	2.5000	2.4614	-.039	-1.54	1.1768	.005	1
S4	5.0000	5.0776	.078	1.55	2.4279	.043	1
S5	10.000	9.9895	-.011	-.105	4.7767	.114	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5



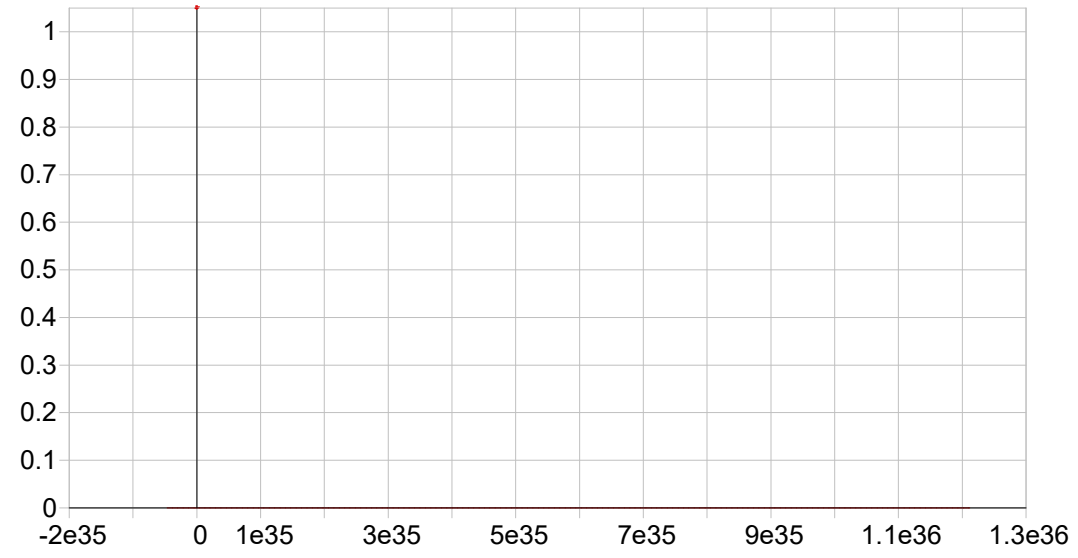
Li 670.784 { 50}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.035656	Re-Slope:	1.000000
A1 (Gain):	3.012130	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999458	Status:	OK.
Std Error of Est:	0.002037		
Predicted MDL:	0.001228		
Predicted MQL:	0.004094		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.03566	.005	1
S5	10.000	10.217	.217	2.17	30.812	.716	1
S4	5.0000	5.0169	.017	.339	15.147	.303	1
S3	2.5000	2.3724	-.128	-5.10	7.1817	.031	1
S2	1.2500	1.1438	-.106	-8.50	3.4808	.007	1
S1	.01500	.01451	-.000	-3.27	.07936	.003	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

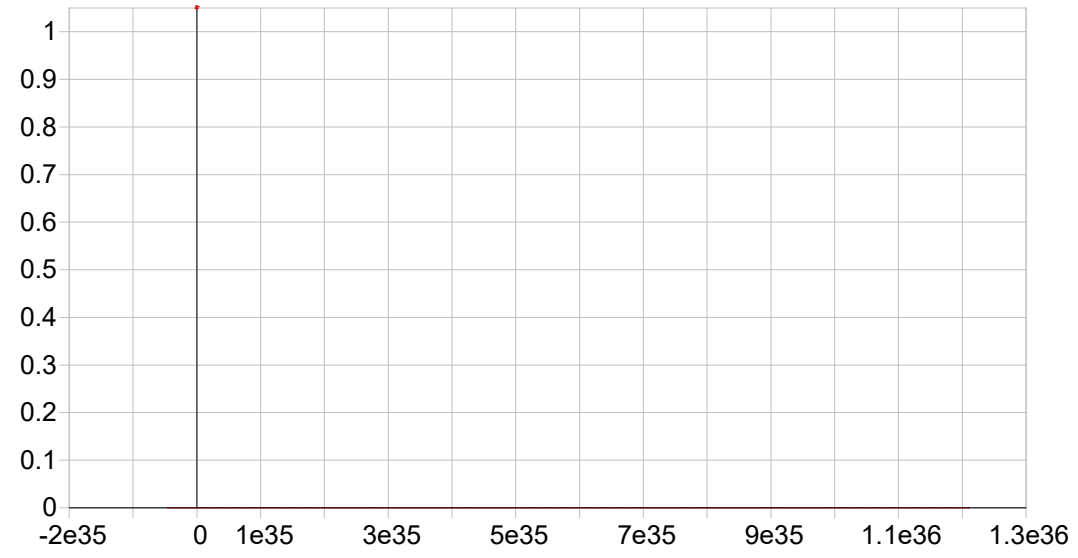


Y 224.306 {450}*

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 360.073 { 94}*

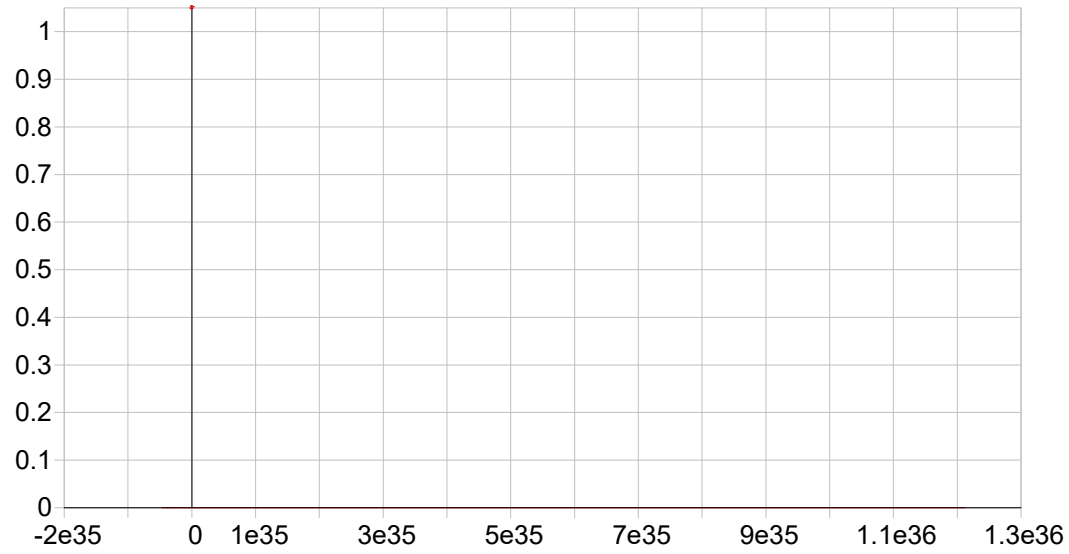
Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc

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

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

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



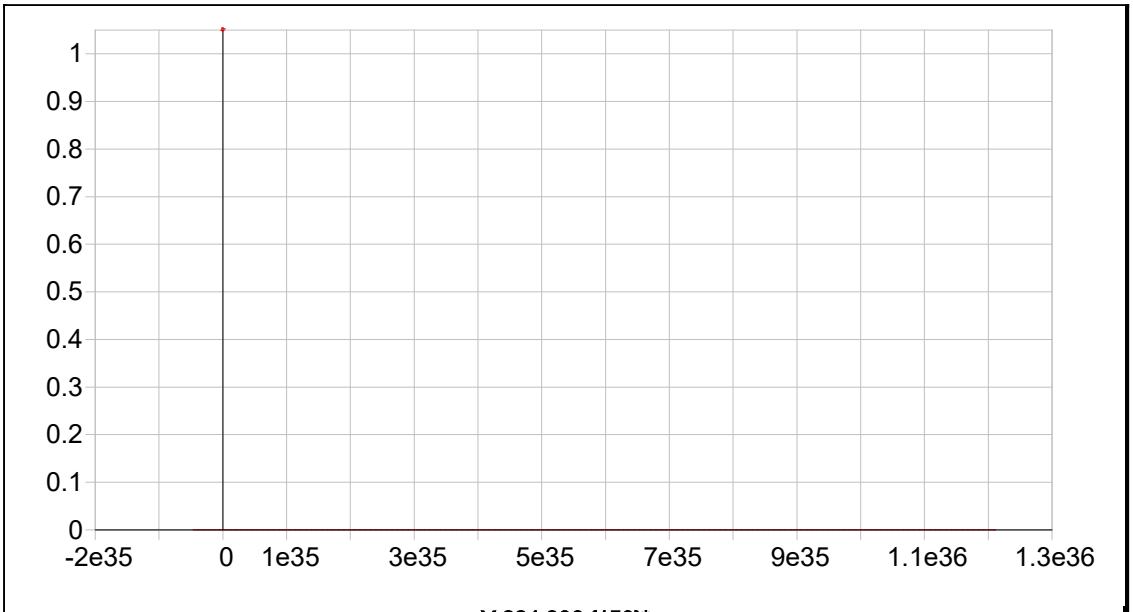
Y 371.030 { 91}*

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

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

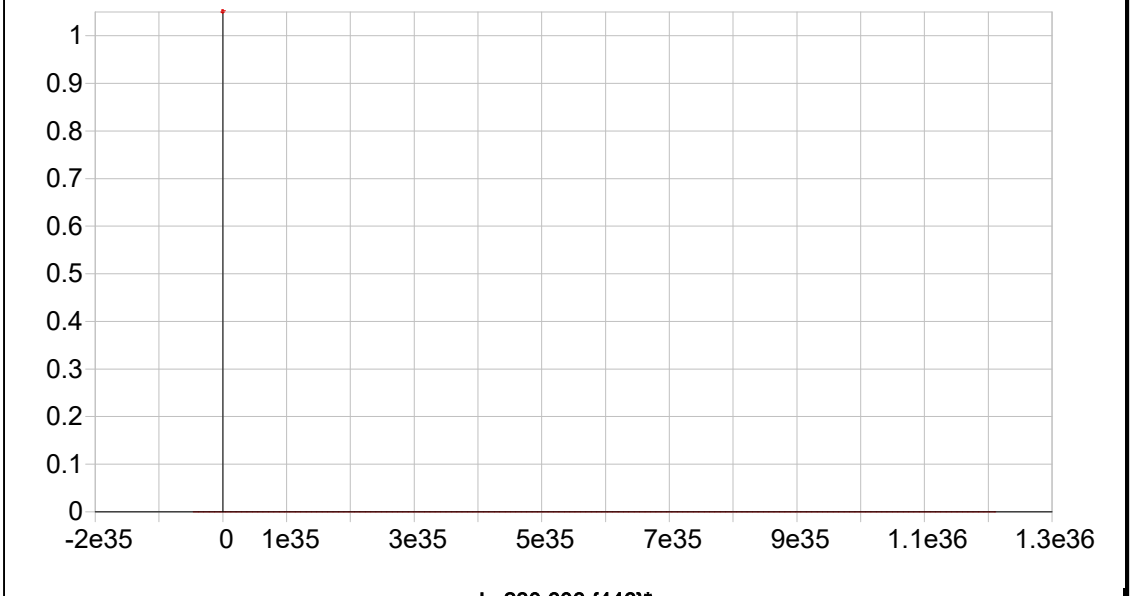


Y 224.306 {150}*

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}*

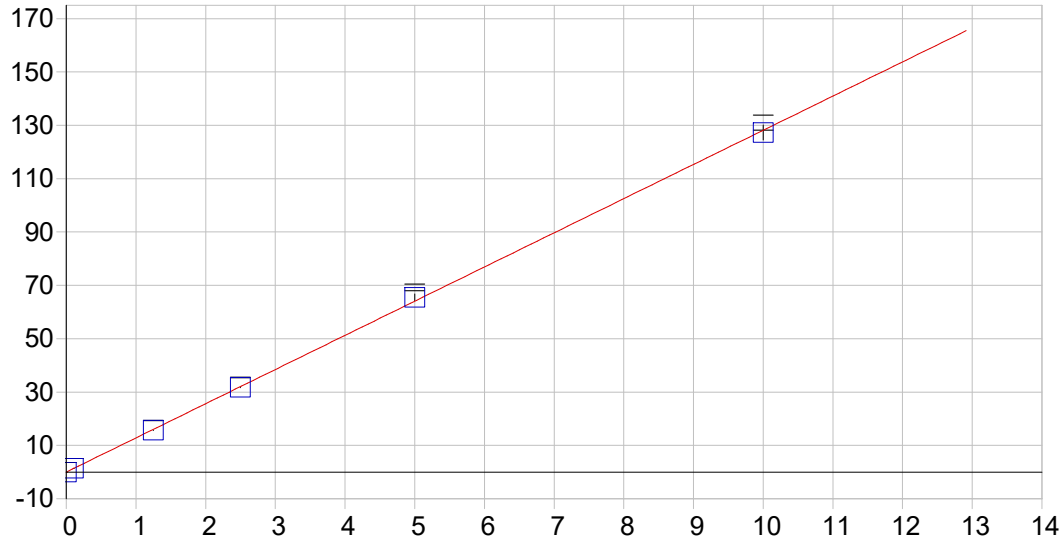
Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc

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

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

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



Sr 407.771 { 83}

Date of Fit:	11/12/2024 12:50:41	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000791	Re-Slope:	1.000000
A1 (Gain):	12.814500	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999886	Status:	OK.
Std Error of Est:	0.010294		
Predicted MDL:	0.000111		
Predicted MQL:	0.000369		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00072	.001	1
S1	.10000	.10761	.008	7.61	1.3797	.001	1
S2	1.2500	1.2203	-.030	-2.38	15.638	.028	1
S3	2.5000	2.4785	-.022	-.861	31.761	.093	1
S4	5.0000	5.1096	.110	2.19	65.478	1.26	1
S5	10.000	9.9340	-.066	-.660	127.30	2.79	1

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S0 Acquired: 11/12/2024 12:24:08 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00021	-.00039	-.00066	.00016	-.00007	-.00006	.00214	-.00245
Stddev	.00021	.00006	.00020	.00025	.00019	.00185	.00456	.00042
%RSD	101.18	15.824	30.990	154.84	275.10	2981.6	212.58	17.012
#1	.00030	-.00042	-.00084	.00034	-.00026	-.00190	-.00272	-.00212
#2	.00036	-.00043	-.00069	.00027	.00012	-.00008	.00632	-.00292
#3	-.00003	-.00032	-.00044	-.00012	-.00007	.00179	.00284	-.00230

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	.00025	.00526	-.00015	-.00021	.00165	.00037	-.00013	-.00048
Stddev	.00035	.00095	.00005	.00016	.00046	.00044	.00038	.00025
%RSD	137.79	18.109	30.439	74.408	27.970	117.98	300.84	52.235
#1	-.00003	.00603	-.00019	-.00015	.00183	.00011	.00021	-.00068
#2	.00064	.00555	-.00010	-.00009	.00112	.00013	-.00054	-.00056
#3	.00014	.00420	-.00017	-.00039	.00199	.00088	-.00005	-.00020

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	.00005	.02127	-.00689	-.00046	.00245	.07377	-.00102	.00448
Stddev	.00016	.00019	.00224	.00094	.00119	.00305	.00011	.00035
%RSD	325.28	.87991	32.528	204.08	48.440	4.1294	10.502	7.9275
#1	.00019	.02145	-.00610	-.00021	.00194	.07029	-.00113	.00481
#2	-.00012	.02108	-.00943	.00033	.00161	.07509	-.00092	.00411
#3	.00007	.02127	-.00515	-.00149	.00381	.07593	-.00101	.00451

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	-.00020	.00032	.01247	.00012	-.00028	.03566	.00072
Stddev	.00007	.00004	.00131	.00018	.00021	.00482	.00123
%RSD	35.601	12.594	10.527	149.17	73.101	13.524	171.86
#1	-.00017	.00036	.01132	.00030	-.00050	.03395	.00077
#2	-.00029	.00031	.01220	-.00007	-.00009	.03193	-.00054
#3	-.00016	.00029	.01390	.00013	-.00025	.04111	.00192

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S0 Acquired: 11/12/2024 12:24:08 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	883.37	23020.	2570.5	757.30	1820.8
Stddev	2.20	42.	7.0	2.47	5.2
%RSD	.24886	.18110	.27301	.32621	.28492
#1	885.90	22978.	2565.5	759.24	1826.7
#2	882.28	23020.	2567.5	758.14	1818.8
#3	881.94	23062.	2578.6	754.52	1817.0

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S1 Acquired: 11/12/2024 12:28:47 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00046	.00148	.00074	.00307	.01217	.02432	1.4463	.03321
Stddev	.00015	.00013	.00015	.00034	.00043	.00153	.0091	.00128
%RSD	32.539	8.9234	20.607	10.970	3.5020	6.2953	.62838	3.8484
#1	.00029	.00157	.00088	.00346	.01254	.02493	1.4364	.03468
#2	.00053	.00133	.00058	.00283	.01228	.02545	1.4543	.03243
#3	.00056	.00154	.00075	.00293	.01170	.02258	1.4481	.03252

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	.01009	.38526	.00192	.03019	.00554	.00169	.00380	.02623
Stddev	.00040	.00099	.00013	.00014	.00018	.00038	.00060	.00023
%RSD	3.9585	.25633	6.9325	.47395	3.2819	22.429	15.745	.86177
#1	.00969	.38420	.00185	.03006	.00561	.00131	.00446	.02646
#2	.01049	.38615	.00207	.03016	.00533	.00171	.00330	.02621
#3	.01007	.38544	.00183	.03034	.00567	.00206	.00363	.02601

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	.02335	.02492	.06241	.00340	.16446	.28737	-.00052	.00493
Stddev	.00021	.00017	.00184	.00055	.00178	.00172	.00005	.00064
%RSD	.91551	.67629	2.9505	16.097	1.0804	.59998	9.5765	12.878
#1	.02326	.02511	.06338	.00287	.16401	.28802	-.00054	.00420
#2	.02359	.02479	.06029	.00339	.16295	.28541	-.00055	.00531
#3	.02318	.02487	.06356	.00396	.16641	.28867	-.00046	.00529

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	.00959	.00302	.37228	.00057	.05081	.07936	1.3797
Stddev	.00037	.00019	.00299	.00013	.00027	.00323	.0006
%RSD	3.8345	6.3922	.80449	23.144	.52824	4.0738	.04272
#1	.00928	.00283	.36932	.00072	.05105	.07653	1.3793
#2	.00999	.00322	.37220	.00053	.05052	.07866	1.3794
#3	.00949	.00301	.37531	.00047	.05086	.08289	1.3804

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S1 Acquired: 11/12/2024 12:28:47 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	881.09	23041.	2564.3	758.58	1796.7
Stddev	1.81	76.	9.0	3.27	3.8
%RSD	.20593	.33081	.34954	.43121	.21241
#1	882.05	22980.	2574.1	757.78	1797.9
#2	882.22	23017.	2562.2	755.79	1799.8
#3	879.00	23126.	2556.6	762.18	1792.5

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S2 Acquired: 11/12/2024 12:33:24 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02710	.08320	.82983	.08642	.23249	4.2114	16.283	.75801
Stddev	.00019	.00087	.00304	.00050	.00085	.0070	.011	.00465
%RSD	.69967	1.0486	.36600	.58389	.36505	.16550	.06762	.61382
#1	.02692	.08334	.82792	.08594	.23338	4.2050	16.275	.76274
#2	.02708	.08227	.82825	.08695	.23241	4.2105	16.279	.75787
#3	.02730	.08400	.83333	.08636	.23169	4.2188	16.295	.75344

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.1138	4.1962	.70764	.35448	.64235	.43336	.87174	.29077
Stddev	.0055	.0132	.00223	.00096	.00171	.00136	.00097	.00108
%RSD	.48899	.31437	.31471	.26956	.26564	.31292	.11142	.36979
#1	1.1128	4.1813	.70531	.35428	.64323	.43248	.87184	.28983
#2	1.1089	4.2008	.70974	.35364	.64038	.43267	.87072	.29194
#3	1.1196	4.2065	.70788	.35552	.64343	.43492	.87265	.29054

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	.32839	.11645	.47865	.04022	9.3830	1.5808	.05946	1.1667
Stddev	.00133	.00049	.00134	.00023	.0378	.0033	.00046	.0048
%RSD	.40364	.42052	.27899	.56881	.40268	.20787	.77363	.41089
#1	.32866	.11620	.48006	.04015	9.3565	1.5784	.05970	1.1615
#2	.32695	.11701	.47740	.04047	9.4262	1.5795	.05893	1.1709
#3	.32956	.11613	.47849	.04003	9.3661	1.5846	.05976	1.1676

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.0628	.03231	1.9350	.11325	.58056	3.4808	15.638
Stddev	.0014	.00036	.0109	.00050	.00175	.0070	.028
%RSD	.12895	1.1003	.56393	.43858	.30215	.20250	.17960
#1	1.0613	.03244	1.9235	.11300	.57862	3.4813	15.642
#2	1.0631	.03191	1.9452	.11292	.58203	3.4736	15.609
#3	1.0639	.03259	1.9361	.11382	.58104	3.4876	15.665

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S2 Acquired: 11/12/2024 12:33:24 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	836.88	22531.	2563.9	712.23	1631.5
Stddev	.50	73.	14.0	4.00	6.8
%RSD	.06020	.32215	.54453	.56098	.41414
#1	836.59	22565.	2576.7	712.88	1632.6
#2	837.46	22448.	2549.1	707.94	1637.7
#3	836.60	22581.	2566.0	715.85	1624.3

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S3 Acquired: 11/12/2024 12:37:45 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.05585	.16790	1.7040	.17921	.48698	8.6752	33.285	1.5261
Stddev	.00043	.00098	.0062	.00163	.00123	.0219	.102	.0067
%RSD	.76483	.58284	.36642	.90856	.25357	.25189	.30672	.43956
#1	.05633	.16723	1.7011	.17900	.48608	8.6594	33.242	1.5184
#2	.05553	.16744	1.6997	.17770	.48646	8.7001	33.401	1.5306
#3	.05569	.16902	1.7112	.18094	.48839	8.6660	33.211	1.5293

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	2.2758	8.5023	1.4290	.72803	1.3073	.86931	1.7661	.60486
Stddev	.0073	.0148	.0009	.00230	.0037	.00040	.0038	.00134
%RSD	.32074	.17368	.06254	.31582	.27928	.04640	.21767	.22173
#1	2.2727	8.4940	1.4280	.72631	1.3070	.86926	1.7651	.60610
#2	2.2705	8.5193	1.4298	.72714	1.3110	.86973	1.7703	.60504
#3	2.2841	8.4935	1.4293	.73064	1.3038	.86893	1.7628	.60344

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	.67019	.21582	.99048	.08212	19.472	3.2060	.12680	2.3947
Stddev	.00251	.00043	.00465	.00055	.058	.0035	.00124	.0063
%RSD	.37444	.19786	.46942	.66769	.29953	.10991	.97713	.26169
#1	.66936	.21553	.98720	.08150	19.410	3.2040	.12550	2.3959
#2	.66820	.21561	.99580	.08254	19.526	3.2101	.12692	2.3880
#3	.67301	.21631	.98843	.08232	19.479	3.2040	.12797	2.4004

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.2061	.06779	3.9231	.23401	1.1768	7.1817	31.761
Stddev	.0053	.00038	.0115	.00128	.0050	.0314	.093
%RSD	.23988	.56541	.29179	.54791	.42776	.43650	.29368
#1	2.2041	.06745	3.9160	.23361	1.1721	7.1563	31.714
#2	2.2021	.06770	3.9171	.23297	1.1821	7.2167	31.869
#3	2.2121	.06820	3.9363	.23544	1.1761	7.1719	31.701

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S3 Acquired: 11/12/2024 12:37:45 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	797.81	22049.	2518.2	670.62	1553.2
Stddev	2.26	37.	.4	2.09	4.2
%RSD	.28366	.16591	.01780	.31226	.27199
#1	798.09	22043.	2518.5	672.14	1553.9
#2	799.93	22016.	2518.5	668.23	1557.1
#3	795.43	22089.	2517.7	671.49	1548.7

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S4 Acquired: 11/12/2024 12:42:01 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.11858	.33577	3.4814	.38109	1.0513	18.214	69.055	3.1194
Stddev	.00031	.00091	.0074	.00213	.0012	.351	1.325	.0515
%RSD	.25921	.27096	.21249	.55939	.10979	1.9248	1.9187	1.6507
#1	.11823	.33541	3.4736	.37920	1.0527	18.615	70.584	3.1710
#2	.11870	.33680	3.4824	.38067	1.0506	17.964	68.346	3.0680
#3	.11880	.33509	3.4883	.38340	1.0507	18.063	68.237	3.1191

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	4.6269	17.520	2.8544	1.4970	2.7144	1.7616	3.5853	1.2701
Stddev	.0119	.333	.0034	.0036	.0520	.0346	.0663	.0225
%RSD	.25801	1.9034	.11804	.23998	1.9173	1.9632	1.8489	1.7715
#1	4.6156	17.891	2.8533	1.4930	2.7745	1.8011	3.6612	1.2945
#2	4.6258	17.247	2.8582	1.4980	2.6843	1.7365	3.5385	1.2501
#3	4.6394	17.421	2.8517	1.4999	2.6845	1.7473	3.5562	1.2656

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.3677	.42194	2.0715	.16630	40.831	6.7047	.26810	4.9099
Stddev	.0032	.00240	.0374	.00353	.384	.1284	.00018	.0838
%RSD	.23731	.56922	1.8060	2.1215	.94108	1.9155	.06670	1.7073
#1	1.3645	.41941	2.1123	.17036	40.949	6.8527	.26821	4.9981
#2	1.3677	.42223	2.0387	.16403	40.402	6.6221	.26819	4.8313
#3	1.3710	.42419	2.0636	.16449	41.142	6.6394	.26789	4.9003

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	4.6668	.14496	8.0015	.48113	2.4279	15.147	65.478
Stddev	.0059	.00036	.1442	.00100	.0435	.303	1.257
%RSD	.12525	.24510	1.8018	.20785	1.7898	1.9991	1.9195
#1	4.6622	.14462	8.1495	.48007	2.4776	15.497	66.929
#2	4.6649	.14533	7.8615	.48125	2.3971	14.981	64.765
#3	4.6734	.14494	7.9937	.48206	2.4090	14.964	64.739

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S4 Acquired: 11/12/2024 12:42:01 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	735.32	21539.	2451.5	601.65	1454.3
Stddev	.60	55.	43.4	5.03	1.7
%RSD	.08092	.25736	1.7684	.83534	.11495
#1	735.40	21589.	2405.2	600.67	1456.1
#2	735.87	21480.	2491.1	607.10	1453.8
#3	734.69	21549.	2458.1	597.19	1452.9

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S5 Acquired: 11/12/2024 12:46:14 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.24812	.64934	6.9719	.83900	2.3538	36.824	134.40	6.2228
Stddev	.00068	.00059	.0110	.00264	.0024	.915	4.06	.1365
%RSD	.27264	.09144	.15819	.31420	.10305	2.4857	3.0189	2.1939
#1	.24856	.64968	6.9709	.83701	2.3529	36.604	135.60	6.2099
#2	.24735	.64865	6.9615	.83801	2.3520	36.039	129.87	6.0933
#3	.24847	.64968	6.9835	.84199	2.3566	37.829	137.72	6.3654

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	9.1479	34.645	5.5324	2.9924	5.3995	3.4076	6.9417	2.5577
Stddev	.0140	.887	.0027	.0067	.1335	.0836	.1556	.0709
%RSD	.15321	2.5597	.04853	.22524	2.4718	2.4534	2.2412	2.7719
#1	9.1413	34.468	5.5317	2.9887	5.3669	3.3900	6.9114	2.5405
#2	9.1383	33.860	5.5353	2.9884	5.2854	3.3341	6.8034	2.4970
#3	9.1639	35.607	5.5301	3.0002	5.5463	3.4986	7.1102	2.6356

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.7049	.85125	4.1548	.32449	86.779	13.587	.55099	9.3560
Stddev	.0056	.00192	.1063	.00871	.415	.326	.00315	.2116
%RSD	.20783	.22497	2.5580	2.6848	.47848	2.3964	.57131	2.2617
#1	2.7013	.85346	4.1298	.32280	86.315	13.509	.54784	9.3171
#2	2.7021	.85007	4.0632	.31675	86.904	13.308	.55098	9.1665
#3	2.7114	.85023	4.2713	.33392	87.117	13.945	.55414	9.5843

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	10.046	.30102	15.554	.96087	4.7767	30.812	127.30
Stddev	.011	.00150	.344	.00167	.1140	.716	2.79
%RSD	.10684	.49918	2.2124	.17410	2.3855	2.3222	2.1917
#1	10.039	.30184	15.485	.95918	4.7474	30.635	126.81
#2	10.041	.29928	15.250	.96089	4.6803	30.201	124.79
#3	10.058	.30193	15.928	.96253	4.9025	31.599	130.30

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S5 Acquired: 11/12/2024 12:46:14 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	636.52	20846.	2446.9	492.73	1340.6
Stddev	.83	43.	49.6	1.47	2.9
%RSD	.13046	.20409	2.0259	.29882	.21945
#1	637.26	20800.	2455.6	494.42	1342.3
#2	636.68	20854.	2491.5	492.06	1342.3
#3	635.62	20884.	2393.5	491.71	1337.2

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: S6 Acquired: 11/12/2024 12:50:41 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S06 Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	93.682	52.768	8.5682	3.9408	10.670
Stddev	.270	.150	.0177	.0128	.032
%RSD	.28829	.28519	.20669	.32477	.30359
#1	93.829	52.842	8.5589	3.9452	10.686
#2	93.847	52.866	8.5886	3.9509	10.691
#3	93.371	52.595	8.5571	3.9264	10.632

Int. Std.	Y_3710
Units	Cts/S
Avg	2395.1
Stddev	9.9
%RSD	.41383
#1	2385.1
#2	2395.3
#3	2404.9

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: ICV009 Acquired: 11/12/2024 14:56:45 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV009 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9260541	1.058493	.9800018	.9645053	.9160032	2.327600
Stddev	.0214025	.012586	.0073359	.0101692	.0073919	.001599
%RSD	2.311149	1.189025	.7485591	1.054349	.8069704	.0687005
#1	.9326015	1.061660	.9807635	.9759788	.9205604	2.326574
#2	.9434181	1.069194	.9869271	.9566047	.9199748	2.329442
#3	.9021426	1.044627	.9723147	.9609325	.9074745	2.326783

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5106577	.5524512	.5059932	10.29108	.5474728	.4963342
Stddev	.0025826	.0035598	.0039023	.05550	.0050286	.0026254
%RSD	.5057437	.6443708	.7712171	.5393073	.9185168	.5289510
#1	.5122821	.5539899	.5078553	10.25855	.5506699	.4977990
#2	.5120115	.5549829	.5086156	10.35516	.5416766	.4979003
#3	.5076797	.5483808	.5015086	10.25952	.5500720	.4933032

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4793118	10.95506	.5313821	5.477043	.5066943	.2446527
Stddev	.0072489	.03907	.0030927	.027978	.0050343	.0031964
%RSD	1.512350	.3566301	.5820113	.5108149	.9935531	1.306486
#1	.4803761	10.98562	.5307154	5.487920	.5103082	.2449232
#2	.4859697	10.96853	.5347538	5.445261	.5088306	.2413297
#3	.4715897	10.91104	.5286771	5.497949	.5009442	.2477053

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.822593	.5235029	.9440411	9.031578	F .0046919	F .0061847
Stddev	.278196	.0137928	.0100017	.085092	.0026312	.0013658
%RSD	2.832204	2.634719	1.059459	.9421574	56.08048	22.08374
#1	10.13939	.5119557	.9510831	9.060360	.0016667	.0074853
#2	9.61812	.5387759	.9325928	9.098545	.0064487	.0047619
#3	9.71028	.5197771	.9484474	8.935827	.0059602	.0063068

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: ICV009 Acquired: 11/12/2024 14:56:45 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV009 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.000263	F -.003980	F .0008202	F .0003760	F .0019831	F -.001881
Stddev	.000108	.000504	.0004529	.0008340	.0006478	.000993
%RSD	40.92316	12.66170	55.22213	221.8170	32.66401	52.78742
#1	-.000293	-.003398	.0012926	.0009254	.0021812	-.002971
#2	-.000353	-.004278	.0007786	.0007862	.0025086	-.001028
#3	-.000144	-.004263	.0003896	-.000584	.0012594	-.001645

Elem	Sr4077
Units	ppm
Avg	F .0010793
Stddev	.0000776
%RSD	7.188605
#1	.0010166
#2	.0011661
#3	.0010553

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	876.3973	23285.36	2560.750	764.1357	1771.736
Stddev	7.1454	252.04	10.732	9.0210	13.716
%RSD	.8153202	1.082401	.4191079	1.180549	.7741290
#1	870.9667	23247.23	2554.835	758.8429	1762.480
#2	873.7330	23554.30	2554.277	774.5518	1765.235
#3	884.4921	23054.56	2573.138	759.0124	1787.494

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: ICB009 Acquired: 11/12/2024 15:01:13 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB009 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017266	.0015004	.0006253	.0048317	-.000346	.0122633	-.000364
Stddev	.0063069	.0029692	.0017666	.0025973	.002355	.0045934	.000301
%RSD	365.2753	197.8937	282.5105	53.75449	681.2791	37.45619	82.88741
#1	-.005500	-.001518	-.000013	.0071965	.002301	.0149126	-.000138
#2	.006122	.001602	-.000733	.0020519	-.001129	.0149179	-.000706
#3	.004558	.004418	.002622	.0052468	-.002209	.0069593	-.000247

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001041	.0000682	-.001761	-.000032	-.000010	-.003759	-.000292
Stddev	.0001374	.0001212	.009969	.000823	.000753	.001778	.038746
%RSD	131.8891	177.7259	566.1316	2566.535	7624.931	47.30493	13266.95
#1	-.000001	-.000004	-.012727	-.000168	-.000563	-.002517	-.043101
#2	.000260	.000208	.000689	-.000779	.000847	-.005796	.009854
#3	.000054	.000001	.006755	.000851	-.000314	-.002965	.032371

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000620	.0116997	.0000065	.0009774	.1224931	-.006841	-.000284
Stddev	.001369	.0755981	.0002945	.0000685	.3485675	.011008	.000112
%RSD	220.9348	646.1528	4564.328	7.006702	284.5609	160.9040	39.49287
#1	.000289	.0972583	-.000268	.0009544	.5249758	-.017732	-.000186
#2	-.002194	-.016084	.000317	.0010544	-.076506	.004280	-.000406
#3	.000046	-.046075	-.000030	.0009234	-.080991	-.007072	-.000260

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0172089	-.001165	-.001864	.0002513	-.003467	-.000062	-.000871
Stddev	.0718665	.001423	.000669	.0005810	.002611	.000113	.002159
%RSD	417.6129	122.0883	35.87981	231.2577	75.33020	181.2370	247.8560
#1	-.034943	.000446	-.002379	-.000096	-.005082	.000068	-.003238
#2	-.012616	-.002248	-.002105	-.000072	-.004864	-.000125	.000991
#3	.099186	-.001695	-.001108	.000922	-.000454	-.000130	-.000367

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: ICB009 Acquired: 11/12/2024 15:01:13 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB009 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0012418	-.000675	-.000015
Stddev	.0016934	.000615	.000118
%RSD	136.3655	91.12694	764.0893
#1	.0012764	-.001061	.000076
#2	.0029176	-.001000	.000026
#3	-.000469	.000034	-.000148

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	886.2317	23189.54	2534.874	768.3164	1813.461
Stddev	.6665	42.88	10.397	2.0657	1.170
%RSD	.0752054	.1849283	.4101716	.2688564	.0644934
#1	886.5966	23152.24	2546.389	769.7303	1812.128
#2	886.6361	23179.97	2526.175	765.9458	1813.942
#3	885.4624	23236.39	2532.057	769.2730	1814.314

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: ICSA009 Acquired: 11/12/2024 15:09:55 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA009 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.006124	-.010818	.0003564	.0024996	.0065352	235.0745
Stddev	.011292	.004531	.0062108	.0085684	.0038759	.3984
%RSD	184.3855	41.88092	1742.581	342.7940	59.30798	.1694897
#1	.002973	-.015950	.0050348	-.005553	.0023187	235.0932
#2	-.002583	-.009131	-.006690	.011504	.0099428	235.4633
#3	-.018762	-.007373	.002724	.001548	.0073441	234.6671

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060306	.0011605	.0023078	247.8429	.0493772	.0020884
Stddev	.0000788	.0001312	.0001903	.2237	.0009329	.0005380
%RSD	1.306270	11.30779	8.245959	.0902491	1.889388	25.76172
#1	.0060164	.0010438	.0022884	248.0976	.0496874	.0016050
#2	.0059599	.0013026	.0025071	247.7532	.0483287	.0026680
#3	.0061155	.0011352	.0021280	247.6781	.0501156	.0019921

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003819	103.7628	.0106081	240.4228	.0015581	.0046838
Stddev	.004870	.2623	.0021857	.3193	.0009687	.0000950
%RSD	127.5179	.2527863	20.60430	.1327992	62.17148	2.028794
#1	-.004509	103.8847	.0123306	240.2830	.0020257	.0046172
#2	.001359	103.9420	.0113444	240.7881	.0022044	.0047926
#3	-.008308	103.4618	.0081493	240.1973	.0004443	.0046416

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2515358	.0098910	.0131252	-.043489	.0028831	F .0774935
Stddev	.0803209	.0092409	.0002731	.016517	.0006166	.0013240
%RSD	31.93221	93.42789	2.080800	37.97944	21.38578	1.708577
#1	.2345088	.0012537	.0131288	-.026935	.0022020	.0789521
#2	.3390050	.0087835	.0133965	-.043562	.0034031	.0771612
#3	.1810934	.0196358	.0128503	-.059968	.0030442	.0763673

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: ICSA009 Acquired: 11/12/2024 15:09:55 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA009 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001715	-.001183	-.000770	-.004199	.0003009	-.001755
Stddev	.001011	.006749	.000352	.001219	.0008831	.000219
%RSD	58.92272	570.4771	45.66323	29.01844	293.5321	12.46663
#1	-.000927	-.000796	-.000402	-.005597	-.000481	-.001848
#2	-.001364	.005364	-.001103	-.003643	.000125	-.001911
#3	-.002855	-.008118	-.000805	-.003358	.001259	-.001505

Elem	Sr4077
Units	ppm
Avg	F .1003003
Stddev	.0002510
%RSD	.2502342
#1	.1001190
#2	.1005868
#3	.1001951

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	813.8980	21778.83	2498.036	711.6007	1508.600
Stddev	.7217	35.27	7.975	1.8399	5.073
%RSD	.0886749	.1619602	.3192580	.2585557	.3362862
#1	813.8220	21759.29	2491.351	713.2851	1507.332
#2	814.6547	21757.66	2495.893	711.8796	1514.188
#3	813.2173	21819.55	2506.863	709.6372	1504.282

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: ICSAB009 Acquired: 11/12/2024 15:16:05 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB009 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1016734	.0863176	.0521807	.0479958	.5568858	242.2099
Stddev	.0193527	.0015071	.0064846	.0066342	.0044381	2.6010
%RSD	19.03421	1.746016	12.42716	13.82242	.7969505	1.073848
#1	.1238606	.0845882	.0583572	.0403502	.5534682	245.1077
#2	.0882725	.0870148	.0454267	.0522320	.5552875	240.0775
#3	.0928870	.0873499	.0527582	.0514052	.5619017	241.4444

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5289827	.5644320	1.062374	255.6616	.5915732	.5215301
Stddev	.0065130	.0021184	.000413	2.3885	.0032799	.0017642
%RSD	1.231222	.3753081	.0389180	.9342317	.5544457	.3382757
#1	.5364771	.5659687	1.061897	258.1550	.5931371	.5195285
#2	.5246929	.5620155	1.062618	253.3940	.5878040	.5228591
#3	.5257782	.5653118	1.062608	255.4358	.5937785	.5222026

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4815077	106.7473	.5382329	247.9885	1.046136	.1963564
Stddev	.0100117	.8401	.0078779	2.0924	.001492	.0012641
%RSD	2.079232	.7869952	1.463668	.8437602	.1425804	.6437690
#1	.4898411	107.4854	.5456041	250.2218	1.046950	.1949502
#2	.4704021	105.8331	.5299309	246.0734	1.044415	.1973984
#3	.4842800	106.9235	.5391638	247.6704	1.047044	.1967206

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1882189	.5400048	.9445124	-.152062	F .0113243	F .0793453
Stddev	.1239018	.0084942	.0055000	.107589	.0082717	.0005644
%RSD	65.82853	1.572977	.5823070	70.75288	73.04384	.7112544
#1	.3272910	.5392629	.9500194	-.091419	.0187548	.0796973
#2	.1477665	.5488456	.9390195	-.088485	.0128063	.0796442
#3	.0895993	.5319059	.9444984	-.276283	.0024118	.0786943

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: ICSAB009 Acquired: 11/12/2024 15:16:05 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB009 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001182	.0031652	-.000411	F -.008231	-.000677	-.004630
Stddev	.000797	.0036883	.000401	.003344	.001506	.000681
%RSD	67.42356	116.5276	97.57182	40.63084	222.5738	14.70337
#1	-.000883	.0064294	-.000866	-.004548	-.002322	-.004044
#2	-.002085	-.000836	-.000110	-.011078	.000635	-.005377
#3	-.000578	.003902	-.000257	-.009067	-.000343	-.004468

Elem	Sr4077
Units	ppm
Avg	F .1030472
Stddev	.0011165
%RSD	1.083512
#1	.1042575
#2	.1020573
#3	.1028269

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	809.9705	21979.97	2517.627	711.7254	1511.081
Stddev	.9403	20.31	16.133	1.4086	.502
%RSD	.1160889	.0924137	.6407903	.1979198	.0332390
#1	810.5300	21991.09	2501.441	710.1739	1511.025
#2	810.4966	21992.29	2533.706	712.9241	1511.609
#3	808.8849	21956.52	2517.733	712.0781	1510.609

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: CCV062 Acquired: 11/12/2024 15:20:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CV062 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.028728	4.717749	24.66761	4.714466	4.815128	393.7957	9.995146
Stddev	.035301	.005129	.04458	.007749	.002459	2.3508	.047578
%RSD	.7019909	.1087086	.1807275	.1643651	.0510713	.5969601	.4760125
#1	5.017156	4.716283	24.63653	4.708254	4.816573	396.4170	10.04676
#2	5.068363	4.723451	24.71869	4.723149	4.812288	391.8744	9.95303
#3	5.000665	4.713513	24.64761	4.711994	4.816522	393.0957	9.98565

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5417341	2.518581	412.4611	15.00906	2.497006	14.76533	409.1824
Stddev	.0013356	.004111	2.3301	.03440	.005295	.06229	2.0537
%RSD	.2465405	.1632162	.5649363	.2292262	.2120429	.4218670	.5019075
#1	.5412513	2.517761	414.9453	15.04814	2.493074	14.83724	411.4099
#2	.5407071	2.523041	410.3239	14.98336	2.503026	14.72844	407.3640
#3	.5432440	2.514943	412.1141	14.99567	2.494917	14.73029	408.7734

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.70967	410.9095	2.464697	1.284038	406.0101	2.474988	14.38052
Stddev	.06412	1.7092	.004969	.002951	2.4994	.023767	.07053
%RSD	.4358796	.4159479	.2016038	.2298013	.6155901	.9602783	.4904283
#1	14.78048	412.8587	2.460687	1.284777	408.6893	2.491356	14.43259
#2	14.65556	409.6669	2.470256	1.280788	403.7414	2.485880	14.40871
#3	14.69296	410.2030	2.463149	1.286549	405.5997	2.447727	14.30026

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	152.2204	4.990412	5.052695	4.731696	4.985756	5.006151	4.952408
Stddev	1.0536	.020121	.030086	.003018	.014957	.013416	.004261
%RSD	.6921256	.4031948	.5954526	.0637806	.2999980	.2679822	.0860373
#1	153.3651	4.977172	5.086159	4.728746	4.972739	5.020755	4.954305
#2	151.2913	4.980497	5.044045	4.731564	4.982433	5.003324	4.955392
#3	152.0050	5.013566	5.027882	4.734778	5.002095	4.994374	4.947529

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: CCV062 Acquired: 11/12/2024 15:20:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CV062 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.943860	4.983357	5.004209
Stddev	.040199	.025677	.027525
%RSD	.8130998	.5152616	.5500464
#1	4.990264	5.011240	5.034432
#2	4.919719	4.960685	4.980579
#3	4.921596	4.978146	4.997614

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	707.4608	21259.46	2433.061	596.2298	1368.682
Stddev	.4174	64.03	9.478	2.5145	2.041
%RSD	.0589961	.3011762	.3895647	.4217294	.1491397
#1	707.1705	21204.75	2422.273	593.8871	1368.760
#2	707.2728	21329.88	2440.056	595.9157	1366.603
#3	707.9391	21243.75	2436.852	598.8866	1370.683

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: CCB062 Acquired: 11/12/2024 15:24:43 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB062 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007926	.0040671	.0011796	-.003207	-.000383	.0236066	.0011562
Stddev	.0096349	.0000885	.0009263	.003354	.000254	.0117185	.0005731
%RSD	1215.682	2.175827	78.52924	104.5743	66.18736	49.64074	49.56539
#1	.0047186	.0041214	.0005339	.000575	-.000504	.0178811	.0004945
#2	-.010185	.0039650	.0022409	-.005818	-.000092	.0370872	.0014881
#3	.007845	.0041149	.0007639	-.004378	-.000554	.0158516	.0014861

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000635	.0001051	.0393785	.0005171	.0000176	-.004567	.0442057
Stddev	.0001331	.0001212	.0140722	.0007460	.0005562	.001635	.0171091
%RSD	209.6319	115.3764	35.73581	144.2668	3153.353	35.79213	38.70336
#1	.0002069	.0000109	.0534734	.0010544	.0004858	-.003683	.0412409
#2	-.000056	.0000625	.0393330	-.000335	-.000597	-.003565	.0287728
#3	.000040	.0002418	.0253291	.000832	.000164	-.006454	.0626034

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019777	.0706351	.0001736	.0005355	-.162468	.0032461	.0000910
Stddev	.0005264	.0692359	.0001624	.0006089	.190955	.0084311	.0000704
%RSD	26.61697	98.01921	93.52057	113.7042	117.5340	259.7321	77.37024
#1	.0024085	.1197780	.0001921	.0003466	-.201397	-.006436	.0001234
#2	.0021337	.1006744	.0000028	.0012165	.044952	.007203	.0001394
#3	.0013910	-.008547	.0003260	.0000434	-.330959	.008971	.0000102

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1943695	-.001217	.0047415	.0003525	-.003414	-.000327	.0007947
Stddev	.1460812	.000743	.0005710	.0005807	.003279	.000814	.0016260
%RSD	75.15644	61.03676	12.04192	164.7509	96.04514	249.1379	204.6247
#1	.3625363	-.002033	.0048809	.0003165	.000301	-.000994	-.000381
#2	.0988991	-.000581	.0052299	-.000209	-.004640	.000580	.000114
#3	.1216731	-.001036	.0041137	.000950	-.005903	-.000566	.002650

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: CCB062 Acquired: 11/12/2024 15:24:43 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB062 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0021663	.0004320	.0004191
Stddev	.0007149	.0014453	.0000541
%RSD	33.00276	334.5324	12.90970
#1	.0017826	-.000350	.0004729
#2	.0017251	.002100	.0003647
#3	.0029911	-.000454	.0004196

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	886.1944	23241.65	2529.733	769.3704	1816.734
Stddev	.2787	92.19	11.702	3.1890	3.121
%RSD	.0314525	.3966476	.4625647	.4144916	.1718145
#1	885.9219	23292.77	2543.236	770.3639	1813.130
#2	886.1823	23135.23	2522.543	765.8029	1818.500
#3	886.4789	23296.96	2523.421	771.9443	1818.571

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: P4623-11 Acquired: 11/12/2024 15:29:17 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0344103	-.001278	.0040054	-.004267	.0010415	13.20849
Stddev	.0060698	.004043	.0019797	.002887	.0019336	.03447
%RSD	17.63946	316.4700	49.42721	67.65526	185.6524	.2610016
#1	.0414162	-.005926	.0062848	-.002478	.0017715	13.17931
#2	.0307325	.000673	.0027164	-.007597	-.001151	13.19963
#3	.0310823	.001420	.0030149	-.002725	.002504	13.24653

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0791999	.0081118	.0015936	237.6541	.0189904	.0218582
Stddev	.0003963	.0001234	.0000759	1.4758	.0012251	.0003314
%RSD	.5003594	1.520926	4.763905	.6209719	6.451310	1.516172
#1	.0796052	.0079997	.0016748	236.3748	.0203223	.0216324
#2	.0791811	.0082440	.0015816	237.3190	.0187373	.0217035
#3	.0788133	.0080917	.0015244	239.2686	.0179116	.0222386

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.150761	21.54993	6.698891	19.86185	.0378289	-.003605
Stddev	.003217	.10537	.000959	.23194	.0004622	.001177
%RSD	.1495920	.4889530	.0143183	1.167779	1.221924	32.65889
#1	2.152713	21.45483	6.698714	19.59416	.0373198	-.002247
#2	2.147047	21.53176	6.699926	20.00302	.0379443	-.004216
#3	2.152522	21.66320	6.698032	19.98838	.0382224	-.004350

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.389113	.1151701	.4802523	4.150828	F 12.56772	.6829234
Stddev	.128475	.0062603	.0069896	.053160	.08358	.0043740
%RSD	1.738705	5.435730	1.455405	1.280717	.6650359	.6404797
#1	7.387709	.1088132	.4857839	4.132579	12.51294	.6787420
#2	7.261346	.1153680	.4723967	4.210710	12.52629	.6825608
#3	7.518285	.1213292	.4825762	4.109196	12.66392	.6874674

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: P4623-11 Acquired: 11/12/2024 15:29:17 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000711	F 323.1318	6.136452	-.005279	.0018444	.0177280
Stddev	.000350	2.0892	.048796	.001003	.0020099	.0006844
%RSD	49.18402	.6465521	.7951767	19.00784	108.9716	3.860470
#1	-.000379	321.4950	6.123525	-.005423	.0035195	.0180952
#2	-.000679	322.4154	6.095422	-.006203	-.000384	.0169384
#3	-.001076	325.4850	6.190410	-.004212	.002398	.0181505

Elem	Sr4077
Units	ppm
Avg	.5795452
Stddev	.0008828
%RSD	.1523226
#1	.5785262
#2	.5800762
#3	.5800333

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	976.9048	26427.04	2964.180	857.2199	1652.237
Stddev	2.9105	364.67	18.101	9.2682	8.063
%RSD	.2979341	1.379917	.6106594	1.081195	.4880069
#1	977.7448	26019.57	2979.370	847.3302	1655.291
#2	979.3030	26538.77	2969.019	865.7066	1658.326
#3	973.6667	26722.77	2944.151	858.6229	1643.093

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: P4623-12 Acquired: 11/12/2024 15:33:43 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0420925	-.001957	.0057599	-.000300	.0009187	13.24093
Stddev	.0083288	.003757	.0014862	.000542	.0026691	.02778
%RSD	19.78684	191.9705	25.80199	180.7895	290.5199	.2098062
#1	.0346159	-.006282	.0040629	-.000910	-.001880	13.22870
#2	.0510695	.000497	.0068297	-.000114	.003436	13.22136
#3	.0405922	-.000086	.0063870	.000125	.001199	13.27272

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0789569	.0083683	.0015423	238.4691	.0181843	.0220983
Stddev	.0005986	.0001577	.0001850	.7014	.0003011	.0004872
%RSD	.7581522	1.883939	11.99394	.2941386	1.656014	2.204622
#1	.0795649	.0081913	.0013648	238.3285	.0183358	.0219853
#2	.0783682	.0084937	.0015281	237.8487	.0183797	.0216776
#3	.0789377	.0084200	.0017340	239.2303	.0178375	.0226321

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.141654	21.59677	6.638917	19.94876	.0386901	-.003912
Stddev	.015242	.08060	.030478	.11911	.0010207	.000412
%RSD	.7117136	.3732268	.4590870	.5970893	2.638123	10.54373
#1	2.129109	21.52534	6.641393	20.03501	.0397686	-.004375
#2	2.137235	21.58080	6.607276	19.81286	.0377393	-.003585
#3	2.158618	21.68416	6.668082	19.99842	.0385624	-.003775

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.367659	.1156547	.4809595	4.175296	F 12.67025	.6841430
Stddev	.124146	.0020800	.0075900	.073701	.03651	.0008677
%RSD	1.685012	1.798429	1.578099	1.765176	.2881668	.1268302
#1	7.458862	.1147318	.4804608	4.256359	12.63260	.6833328
#2	7.417837	.1180365	.4887865	4.157202	12.67264	.6840376
#3	7.226278	.1141959	.4736311	4.112326	12.70551	.6850586

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: P4623-12 Acquired: 11/12/2024 15:33:43 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6D Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001338	F 326.1855	6.135299	-.008031	.0044654	.0187117
Stddev	.000648	.6209	.009502	.000628	.0013049	.0010723
%RSD	48.41950	.1903383	.1548746	7.817732	29.22207	5.730728
#1	-.001994	325.7678	6.137347	-.007717	.0029597	.0194922
#2	-.000699	325.8898	6.124940	-.007622	.0051696	.0174890
#3	-.001321	326.8989	6.143611	-.008754	.0052669	.0191540

Elem	Sr4077
Units	ppm
Avg	.5780072
Stddev	.0017970
%RSD	.3108980
#1	.5767243
#2	.5772362
#3	.5800611

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	979.8222	26462.64	2992.723	860.2834	1656.880
Stddev	3.9279	362.93	9.879	13.5325	4.149
%RSD	.4008827	1.371493	.3301043	1.573023	.2503862
#1	982.3471	26656.33	2989.765	862.4476	1661.408
#2	981.8228	26043.95	3003.743	845.7993	1655.968
#3	975.2968	26687.64	2984.660	872.6034	1653.262

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: P4623-11LX5 Acquired: 11/12/2024 15:38:07 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0069421	.0018448	.0010429	-.006691	-.000608	2.896059	.0171829
Stddev	.0049911	.0023297	.0026388	.003593	.000431	.011048	.0002366
%RSD	71.89598	126.2807	253.0404	53.69798	70.84921	.3814767	1.376796
#1	.0067618	.0028271	.0035548	-.006041	-.000131	2.899942	.0173469
#2	.0120209	.0035225	-.001707	-.003467	-.000970	2.883594	.0169117
#3	.0020436	-.000815	.001281	-.010565	-.000723	2.904641	.0172901

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019784	.0001688	52.50931	.0039119	.0031376	.4806529	4.868052
Stddev	.0000851	.0000738	.06196	.0011413	.0005565	.0045570	.047900
%RSD	4.302673	43.68861	.1180016	29.17548	17.73664	.9480926	.9839733
#1	.0020093	.0001053	52.48268	.0026142	.0026101	.4754004	4.850345
#2	.0018822	.0001515	52.58014	.0047596	.0030836	.4835536	4.922285
#3	.0020438	.0002497	52.46512	.0043621	.0037192	.4830046	4.831526

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.497186	4.429395	.0074670	.0003982	1.508898	.0335583	.1120014
Stddev	.003739	.040849	.0007728	.0002277	.253658	.0032555	.0002883
%RSD	.2497523	.9222314	10.34968	57.18532	16.81083	9.700916	.2574013
#1	1.499394	4.432178	.0083038	.0001395	1.596882	.0372977	.1121598
#2	1.492868	4.387226	.0073169	.0005684	1.222963	.0313560	.1116686
#3	1.499295	4.468782	.0067802	.0004866	1.706850	.0320212	.1121757

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8170294	2.426511	.1590585	.0001291	62.63419	1.397533	-.000755
Stddev	.0269797	.045957	.0019479	.0002764	1.13483	.001881	.002457
%RSD	3.302168	1.893958	1.224673	214.0987	1.811843	.1345882	325.3995
#1	.8221593	2.454765	.1586431	-.000117	63.13196	1.398452	-.001772
#2	.7878531	2.451285	.1611806	.000428	63.43508	1.398778	-.002541
#3	.8410759	2.373482	.1573518	.000076	61.33554	1.395369	.002047

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: P4623-11LX5 Acquired: 11/12/2024 15:38:07 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0010133	.0016018	.1297460
Stddev	.0019147	.0003226	.0003687
%RSD	188.9482	20.13777	.2842095
#1	.0001629	.0013733	.1298252
#2	-.000329	.0014614	.1300688
#3	.003206	.0019708	.1293441

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	904.6633	24010.60	2655.021	789.2574	1770.838
Stddev	12.8501	71.42	4.466	3.3747	27.327
%RSD	1.420432	.2974375	.1682059	.4275753	1.543179
#1	897.9484	23932.05	2650.658	785.4716	1758.257
#2	896.5619	24071.61	2654.822	791.9498	1752.067
#3	919.4798	24028.13	2659.583	790.3508	1802.189

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: P4623-13 Acquired: 11/12/2024 15:47:33 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0651441	.0462233	.0244938	.0757016	.0778836	14.68314
Stddev	.0087491	.0032709	.0016446	.0025835	.0003515	.44682
%RSD	13.43045	7.076332	6.714344	3.412695	.4513625	3.043075
#1	.0643774	.0467388	.0226188	.0781277	.0782872	15.16711
#2	.0568035	.0492058	.0256923	.0729853	.0777195	14.28631
#3	.0742513	.0427252	.0251701	.0759919	.0776442	14.59601

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.838666	.0552005	.0524543	233.1083	.2108675	.5250577
Stddev	.056322	.0008683	.0001199	6.9530	.0046143	.0015546
%RSD	3.063195	1.572978	.2286274	2.982743	2.188263	.2960860
#1	1.898936	.0561726	.0525553	240.8194	.2064758	.5237457
#2	1.787369	.0545018	.0523218	227.3167	.2156762	.5246526
#3	1.829692	.0549272	.0524859	231.1886	.2104505	.5267747

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.324851	22.06176	7.062315	19.51345	.5503055	.0385195
Stddev	.064045	.75152	.204049	.64537	.0006648	.0020003
%RSD	2.754811	3.406426	2.889263	3.307327	.1208044	5.192931
#1	2.393906	22.89351	7.273314	20.25469	.5498873	.0364379
#2	2.267403	21.43157	6.866011	19.07630	.5499571	.0404271
#3	2.313245	21.86021	7.047619	19.20935	.5510721	.0386933

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.001787	.5754709	.8754771	4.001637	F 12.49050	.6857157
Stddev	.175896	.0106991	.0220346	.141605	.04274	.0157779
%RSD	2.512154	1.859199	2.516873	3.538670	.3421933	2.300943
#1	7.076292	.5877330	.8532570	4.163675	12.51232	.7039182
#2	6.800900	.5680353	.8973215	3.901650	12.44125	.6759477
#3	7.128167	.5706443	.8758528	3.939587	12.51792	.6772811

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: P4623-13 Acquired: 11/12/2024 15:47:33 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6S Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000704	F 321.5850	6.096390	-.009241	.0035300	.0189405
Stddev	.000497	.5214	.125808	.001283	.0014526	.0005991
%RSD	70.54449	.1621288	2.063655	13.88250	41.15009	3.163137
#1	-.000523	322.0123	6.240552	-.008867	.0051848	.0196246
#2	-.001267	321.0041	6.008795	-.008187	.0029404	.0185095
#3	-.000324	321.7387	6.039822	-.010669	.0024649	.0186874

Elem	Sr4077
Units	ppm
Avg	.5692914
Stddev	.0162264
%RSD	2.850283
#1	.5863869
#2	.5541025
#3	.5673847

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	984.5132	26455.20	2967.364	861.9281	1660.137
Stddev	1.5436	416.21	69.923	15.7210	4.113
%RSD	.1567893	1.573273	2.356406	1.823932	.2477745
#1	984.9710	26863.90	2889.578	878.0975	1656.630
#2	985.7761	26031.86	3024.999	846.6976	1664.665
#3	982.7925	26469.83	2987.517	860.9892	1659.116

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: P4623-11A Acquired: 11/12/2024 15:57:02 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6A Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0614891	.0470145	.0239995	.0783202	.0793642	14.86556
Stddev	.0095137	.0027169	.0009452	.0038596	.0008063	.43575
%RSD	15.47223	5.778883	3.938306	4.928006	1.015988	2.931244
#1	.0623355	.0501016	.0229851	.0738942	.0800401	14.44377
#2	.0705514	.0459549	.0241580	.0800813	.0784717	15.31403
#3	.0515805	.0449871	.0248554	.0809852	.0795808	14.83888

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.858194	.0561705	.0534775	237.4861	.2080799	.5311792
Stddev	.053795	.0018516	.0002289	7.1727	.0003292	.0010912
%RSD	2.895021	3.296431	.4280852	3.020255	.1582118	.2054222
#1	1.804182	.0542316	.0534388	230.8069	.2082826	.5311007
#2	1.911769	.0579203	.0532704	245.0670	.2077001	.5301294
#3	1.858632	.0563596	.0537233	236.5844	.2082571	.5323075

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.338982	22.45358	7.085320	19.74436	.5543762	.0374642
Stddev	.069253	.73539	.221310	.57637	.0017251	.0000506
%RSD	2.960834	3.275139	3.123495	2.919168	.3111724	.1350108
#1	2.271915	21.76486	6.870745	19.30377	.5540232	.0374163
#2	2.410232	23.22810	7.312800	20.39665	.5528550	.0374593
#3	2.334798	22.36777	7.072415	19.53267	.5562505	.0375171

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.094013	.5870762	.8724612	4.094783	F 12.62681	.6815339
Stddev	.340267	.0215838	.0092862	.235165	.04119	.0170245
%RSD	4.796531	3.676495	1.064374	5.743031	.3262116	2.497974
#1	6.703345	.5630616	.8824328	3.856622	12.57960	.6645140
#2	7.253084	.6048572	.8708899	4.326833	12.64538	.6985631
#3	7.325610	.5933098	.8640608	4.100892	12.65544	.6815246

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: P4623-11A Acquired: 11/12/2024 15:57:02 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBH6N6A Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000731	F 326.3490	6.112646	-.007102	.0018081	.0191110
Stddev	.000567	.6652	.157085	.001718	.0004568	.0013967
%RSD	77.51033	.2038456	2.569832	24.18440	25.26324	7.308133
#1	-.001319	325.9721	5.961844	-.007287	.0021703	.0175416
#2	-.000189	325.9578	6.275338	-.005300	.0012950	.0202173
#3	-.000685	327.1171	6.100755	-.008720	.0019592	.0195741

Elem	Sr4077
Units	ppm
Avg	.5762582
Stddev	.0179455
%RSD	3.114145
#1	.5584588
#2	.5943464
#3	.5759693

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	978.8335	26671.11	2986.754	865.9779	1648.863
Stddev	1.5127	41.72	74.937	7.0883	2.966
%RSD	.1545423	.1564089	2.508978	.8185348	.1798855
#1	979.3618	26622.94	3059.472	857.8887	1650.839
#2	977.1274	26694.65	2909.779	868.9420	1650.297
#3	980.0111	26695.73	2991.012	871.1031	1645.452

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: CCV063 Acquired: 11/12/2024 16:09:12 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV063 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.919589	4.699311	24.17254	4.631169	4.692332	386.6488	9.824723
Stddev	.018109	.010079	.07033	.003194	.008911	1.1719	.030072
%RSD	.3681006	.2144694	.2909579	.0689646	.1899089	.3030923	.3060863
#1	4.930332	4.703094	24.11431	4.632045	4.698579	386.4947	9.822825
#2	4.898681	4.687888	24.15264	4.633834	4.682128	387.8901	9.855699
#3	4.929753	4.706950	24.25068	4.627629	4.696289	385.5615	9.795645

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5231264	2.459903	403.1655	14.95961	2.449137	14.58086	399.7668
Stddev	.0015571	.005737	1.2956	.01553	.007591	.07658	1.3333
%RSD	.2976572	.2332032	.3213650	.1038411	.3099577	.5251812	.3335316
#1	.5233042	2.457361	403.5631	14.95234	2.444133	14.62296	400.1870
#2	.5245870	2.455877	404.2157	14.97745	2.445406	14.62715	400.8395
#3	.5214880	2.466472	401.7176	14.94905	2.457872	14.49247	398.2740

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.52520	402.7672	2.434032	1.255570	399.8665	2.424667	14.18671
Stddev	.02132	1.7351	.008381	.003966	.8553	.009893	.10076
%RSD	.1467738	.4307964	.3443443	.3158524	.2139007	.4080044	.7102456
#1	14.52308	402.8259	2.433877	1.253948	399.5689	2.430173	14.08017
#2	14.54750	404.4722	2.425730	1.260089	400.8309	2.430582	14.28047
#3	14.50503	401.0035	2.442490	1.252672	399.1998	2.413246	14.19949

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	149.6196	4.904688	5.001635	4.662117	4.991139	4.928743	4.886639
Stddev	.5575	.014973	.012275	.009001	.026127	.009160	.004221
%RSD	.3725933	.3052892	.2454257	.1930563	.5234714	.1858568	.0863841
#1	149.5374	4.892710	5.015785	4.651862	4.966379	4.928184	4.889677
#2	150.2136	4.899879	4.993849	4.665782	5.018446	4.938170	4.881819
#3	149.1078	4.921475	4.995270	4.668706	4.988593	4.919875	4.888422

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: CCV063 Acquired: 11/12/2024 16:09:12 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV063 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.857325	4.959519	4.924111
Stddev	.016027	.012556	.020559
%RSD	.3299547	.2531632	.4175175
#1	4.854615	4.958126	4.922913
#2	4.874534	4.972713	4.945243
#3	4.842826	4.947718	4.904177

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	707.3056	20929.32	2407.004	593.6262	1368.153
Stddev	.5408	24.02	2.781	3.8595	1.802
%RSD	.0764651	.1147488	.1155194	.6501486	.1317048
#1	707.8153	20912.23	2405.917	597.6017	1368.449
#2	707.3632	20918.96	2404.932	589.8944	1369.788
#3	706.7382	20956.78	2410.164	593.3825	1366.221

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: CCB063 Acquired: 11/12/2024 16:13:24 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB063 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003368	.0004349	.0021959	.0013888	.0012141	.0157442	.0001225
Stddev	.007871	.0006959	.0020455	.0020427	.0012565	.0060719	.0005545
%RSD	233.7144	160.0058	93.15178	147.0844	103.4873	38.56611	452.7957
#1	-.011044	.0011040	-.000119	.0036472	-.000105	.0113494	.0006785
#2	-.003744	-.000285	.003760	.0008489	.001350	.0132106	-.000431
#3	.004685	.000486	.002947	-.000330	.002397	.0226726	.000119

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000062	.0000709	.0238133	.0009473	.0002960	-.004723	.0362096
Stddev	.0000738	.0001157	.0239263	.0003655	.0003841	.002172	.0149491
%RSD	1198.188	163.1257	100.4745	38.58565	129.7602	45.98699	41.28476
#1	-.000056	.0000020	.0489761	.0011272	-.000101	-.005892	.0296101
#2	-.000014	.0000063	.0211111	.0005267	.000666	-.002217	.0256960
#3	.000088	.0002045	.0013529	.0011880	.000324	-.006060	.0533227

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000527	.0832623	-.000428	.0008785	.0521336	-.003417	.0004377
Stddev	.000737	.0511681	.000447	.0003173	.0359065	.004400	.0001507
%RSD	139.8963	61.45409	104.3802	36.11915	68.87401	128.7778	34.43742
#1	-.001191	.1143156	-.000778	.0005135	.0111526	-.006115	.0005031
#2	-.000654	.0242047	-.000583	.0010333	.0671747	.001661	.0002653
#3	.000266	.1112665	.000076	.0010887	.0780736	-.005797	.0005447

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2126704	.0007410	.0068187	.0005675	.0479593	-.000121	.0013829
Stddev	.0417157	.0004048	.0015802	.0001496	.0061054	.000577	.0013706
%RSD	19.61520	54.63055	23.17402	26.35431	12.73032	477.2670	99.10868
#1	.1688149	.0008764	.0075212	.0007134	.0511011	-.000709	.0020930
#2	.2518528	.0002859	.0079258	.0004146	.0409229	-.000097	.0022528
#3	.2173434	.0010608	.0050091	.0005745	.0518540	.000444	-.000197

Reviewed By:kareem
On:11/12/2024 5:19:32 PM
Inst Id :P5

Sample Name: CCB063 Acquired: 11/12/2024 16:13:24 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v716) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB063 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0015913	.0023810	.0003480
Stddev	.0005914	.0002127	.0000770
%RSD	37.16129	8.932583	22.13259
#1	.0021482	.0022211	.0002835
#2	.0016552	.0026224	.0004333
#3	.0009706	.0022995	.0003271

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	884.2020	23278.76	2534.092	773.2815	1811.367
Stddev	.8371	34.76	18.145	4.6190	4.057
%RSD	.0946686	.1493342	.7160415	.5973297	.2239708
#1	884.2102	23289.47	2519.850	770.4138	1813.277
#2	885.0349	23239.90	2527.904	770.8208	1814.117
#3	883.3608	23306.90	2554.521	778.6100	1806.708

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Prep Standard - Chemical Standard Summary

Order ID : P4623

Test : SPLP MetalGroup3

Prepbatch ID : PB164760,

Sequence ID/Qc Batch ID: LB133378,LB133409,

Standard ID :
MP83105,MP83122,MP83134,MP83136,MP83137,MP83138,MP83139,MP83140,MP83141,MP83142,MP83143,MP831
44,MP83145,MP83146,MP83147,MP83148,MP83149,WP108585,WP110482,

Chemical ID :
M5037,M5130,M5218,M5223,M5289,M5295,M5296,M5390,M5395,M5429,M5476,M5498,M5513,M5515,M5519,M5658
,M5698,M5751,M5768,M5798,M5799,M5800,M5801,M5802,M5806,M5815,M5816,M5817,M5818,M5819,M5820,M587
5,M5936,M5960,M5962,M5970,M5976,M5978,M5982,M5984,M5985,M5990,M5999,M6021,M6023,M6025,M6028,M60
30,M6033,M6103,M6111,M6116,M6117,W2606,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	MP83105	11/07/2024	12/07/2024	Janvi Patel	None	None	Sarabjit Jaswal 11/07/2024

FROM 1000.00000ml of M6111 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
169	1:1HNO3	MP83122	11/07/2024	12/07/2024	Janvi Patel	None	None	Sarabjit Jaswal 11/07/2024

FROM 1000.00000ml of M6116 + 1000.00000ml 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
902	ICP AES CAL BLK (SO/ICB/CCB)	MP83134	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 125.00000ml of M6111 + 2350.00000ml of W3112 + 25.00000ml of M6117 = Final Quantity: 2500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2480	ICP AES STD 6 ISM01.3	MP83136	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 4.00000ml of M5289 + 4.00000ml of M5498 + 4.00000ml of M5515 + 4.00000ml of M5768 + 4.00000ml of M5806 + 30.00000ml of MP83134 = 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
1004	ICPAES ISM01.2 (S5)	MP83137	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 0.25000ml of M5798 + 0.50000ml of M5429 + 0.50000ml of M5476 + 0.50000ml of M5815 + 0.50000ml of M5817 + 12.50000ml of M5519 + 12.50000ml of M5698 + 12.50000ml of M5806 + 12.50000ml of M5819 + 13.75000ml of M5751 + 14.50000ml of M5515 + 14.50000ml of M5658 + 14.50000ml of M6033 + 2.00000ml of M5513 + 22.50000ml of M5498 + 22.50000ml of M5768 + 5.00000ml of M5296 + 5.00000ml of M5395 + 5.00000ml of M5802 + 5.00000ml of M5818 + 5.00000ml of M5875 + 303.50000ml of MP83134 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1005	ICPAES ISM01.2(S4)	MP83138	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 250.00000ml of MP83134 + 250.00000ml of MP83137 = 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
1007	ICPAES ISM01.2(S3)	MP83139	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 25.00000ml of MP83137 + 75.00000ml of MP83134 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1008	ICPAES ISM01.2(S2)	MP83140	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 12.50000ml of MP83137 + 87.50000ml of MP83134 = 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.)	MP83141	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 0.02000ml of M5815 + 0.03000ml of M5429 + 0.10000ml of M5798 + 0.10000ml of M6028 + 0.14000ml of M5799 + 0.20000ml of M5476 + 0.20000ml of M5515 + 0.20000ml of M5658 + 0.20000ml of M5801 + 0.20000ml of M5817 + 0.20000ml of M5976 + 0.20000ml of M6025 + 0.20000ml of M6030 + 0.30000ml of M5698 + 0.40000ml of M6033 + 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 M5802 + 1.20000ml of M5819 + 10.00000ml of M5498 + 10.00000ml of M5519 + 10.00000ml of M5768 + 10.00000ml of M5806 + 10.00000ml of M5818 + 2.00000ml of M5978 + 4.00000ml of M5390 + 34.24000ml of MP83134 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1003	ICPAES ISM01.2 S1	MP83142	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 0.50000ml of MP83141 + 99.50000ml of MP83134 = 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
2054	ICV-ICPAES	MP83143	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 0.50000ml of M5218 + 0.50000ml of M5816 + 0.50000ml of M5820 + 0.50000ml of M5970 + 0.50000ml of M5982 + 10.00000ml of M5295 + 87.50000ml of MP83134 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
904	ICP AES ICSA SOLN	MP83144	10/30/2024	11/19/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 25.00000ml of M5130 + 225.00000ml of MP83134 = 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
905	ICP AES ICSAB SOLN	MP83145	10/30/2024	11/19/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 25.00000ml of M5130 + 25.00000ml of M5223 + 200.00000ml of MP83134 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1119	ICPAES ISM01.2(CCV)	MP83146	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 0.75000ml of M5498 + 0.75000ml of M5768 + 1.22500ml of M6033 + 1.25000ml of M5515 + 1.25000ml of M5806 + 19.77500ml of MP83134 + 25.00000ml of MP83137 = 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
921	ICPAES SPIKE SOL#6	MP83147	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 2.50000ml of M5962 + 50.00000ml of M5990 + 50.00000ml of M5999 + 147.50000ml of MP83134 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
919	ICP AES INTERNAL STD	MP83148	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 1.00000ml of M5984 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6117 = 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
903	ICP AES RINSE SOLN	MP83149	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 200.00000ml of M6117 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1788	HNO3 for TCLP, 1N	WP108585	07/02/2024	10/24/2024	Jignesh Parikh	None	None	Iwona Zarych 07/02/2024

FROM 64.00000ml of M5936 + 936.00000ml of W2606 = Final Quantity: 1000.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
291	SPLP FLUID#1	WP110482	10/30/2024	12/15/2024	Jignesh Parikh	WETCHEM_SCALE_4 (WCSC-4)	None	Iwona Zarych 10/30/2024

FROM 0.80000gram of M6103 + 1.20000gram of M5037 + 20.00000L of W3112 = Final Quantity: 20.000 L

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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-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	0000250349	12/15/2024	01/06/2022 / mohan	09/18/2021 / mohan	M5037

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	11/19/2024	05/20/2024 / jaswal	04/20/2021 / bin	M5130

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	S2-MEB711674	11/02/2026	07/01/2022 / bin	09/10/2021 / bin	M5218

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	11/19/2024	05/20/2024 / jaswal	04/20/2021 / bin	M5223

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Aluminum (Al) 10,000PPM	070622	07/06/2025	09/02/2022 / jaswal	07/12/2022 / jaswal	M5289

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV-1014	02/05/2025	08/07/2024 / jaswal	02/20/2020 / bin	M5295

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	S2-MEB711673	11/02/2026	09/19/2022 / jaswal	08/20/2022 / jaswal	M5296

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	072122	07/21/2025	08/07/2024 / jaswal	09/18/2022 / bin	M5390

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	T2-MEB714159	01/13/2027	01/30/2024 / bin	09/19/2022 / bin	M5395

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57103 / Li, 10000 PPM, 125 ml	070622	07/06/2025	01/30/2023 / bin	01/26/2023 / bin	M5429

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57138 / Sr, 10000 PPM, 125 ml	082922	08/09/2025	07/29/2024 / jaswal	03/16/2023 / jaswal	M5476

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58120 / Ca, 10000 PPM, 500 ml	031523	03/15/2026	08/15/2023 / jaswal	03/17/2023 / bin	M5498

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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.	57182 / Pb, 10000 PPM, 125 ml	061522	06/15/2025	03/19/2023 / bin	03/17/2023 / bin	M5513

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58126 / Fe, 10000 PPM, 500 ml	092122	09/21/2025	08/01/2024 / Jaswal	03/17/2023 / bin	M5515

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57119 / Potassium (K) 10,000PPM	120822	12/08/2025	01/08/2024 / bin	03/17/2023 / bin	M5519

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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.	58025 / Mn, 1000 PPM, 500 ml	102623	10/26/2026	04/18/2024 / jaswal	10/27/2023 / jaswal	M5698

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

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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	091823	09/18/2026	01/08/2024 / bin	01/03/2024 / bin	M5768

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57051 / Sb, 1000 PPM, 125 ml	120523	12/05/2026	08/07/2024 / jaswal	01/03/2024 / jaswal	M5802

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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	122223	12/22/2026	08/01/2024 / Jaswal	01/03/2024 / jaswal	M5806

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57115 / P, 10000 PPM, 125 ml	041723	04/17/2026	05/21/2024 / Jaswal	02/09/2024 / jaswal	M5815

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57016 / S, 1000 PPM, 125 ml	122923	12/29/2026	05/20/2024 / Jaswal	02/09/2024 / jaswal	M5816

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57116 / S, 10000 PPM, 125 ml	071123	07/11/2026	03/01/2024 / jaswal	02/09/2024 / jaswal	M5817

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57014 / Si, 1000 PPM, 125 ml	122023	12/20/2026	03/06/2024 / jaswal	02/09/2024 / jaswal	M5818

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	111623	11/16/2026	03/20/2024 / jaswal	02/09/2024 / jaswal	M5819

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57015 / P, 1000 PPM, 125 ml	091123	09/11/2026	05/01/2024 / jaswal	02/09/2024 / jaswal	M5820

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	T2-MEB714417	01/27/2027	04/19/2024 / jaswal	02/22/2024 / jaswal	M5875

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	12/20/2024	06/24/2024 / Al-Terek	06/18/2024 / Al-Terek	M5936

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Li, 1000 PPM, 125 ml	061224	06/21/2027	07/01/2024 / Jaswal	07/01/2024 / Jaswal	M5970

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMO1-1 / MOLYBDENUM 125mL 1000ug/mL	T2-MO720876	07/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5976

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5978

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	031524	03/15/2027	07/01/2024 / Jaswal	06/11/2024 / Jaswal	M5982

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	V2-Y740548	02/20/2029	08/05/2024 / kareem	06/14/2024 / Jaswal	M5984

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

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

CHEMICAL RECEIPT LOG BOOK

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

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	06/12/2027	08/05/2024 / Jaswal	08/05/2024 / Jaswal	M6025

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57048 / Cd, 1000 PPM, 125 ml	070124	07/01/2027	08/05/2024 / kareem	01/25/2019 / 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

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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.	58113 / Al, 10000 PPM, 500 ml	011623	01/16/2026	08/07/2024 / Jaswal	01/03/2024 / Jaswal	M6033

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	03/25/2029	10/29/2024 / Janvi	09/29/2024 / Janvi	M6103

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)	22F0762009	05/09/2027	11/04/2024 / Eman	09/29/2024 / Janvi	M6111

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)	24B1362001	05/03/2025	11/04/2024 / Janvi	09/29/2024 / Eman	M6116

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)	24B1362001	05/06/2025	11/06/2024 / Janvi	09/29/2024 / Eman	M6117

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	10/24/2024	10/24/2019 / apatel	10/24/2019 / apatel	W2606

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Fax : 908 789 8922

CHEMICAL RECEIPT LOG BOOK

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

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inorganicventures.com

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1.0 ACCREDITATION / REGISTRATION

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

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

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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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6028

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

R 8/15/24

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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		

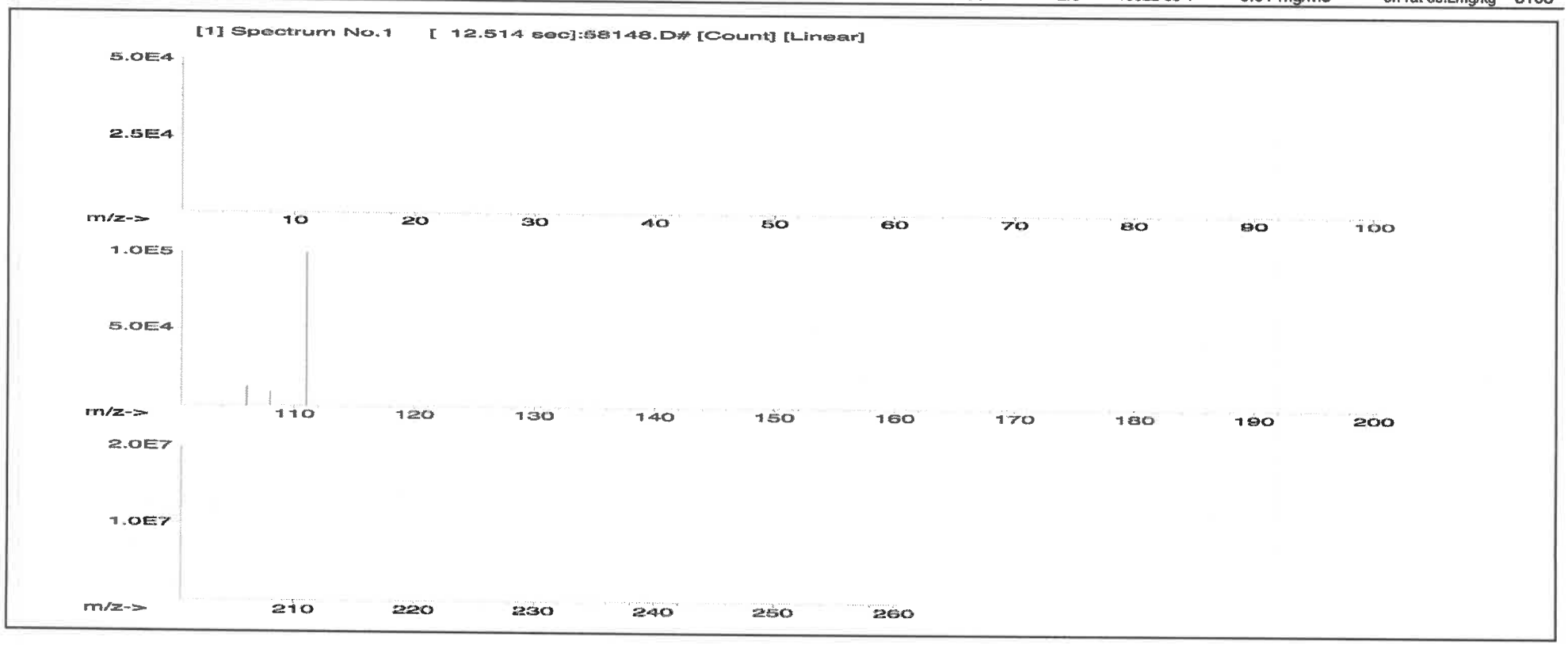
Aleah O'Brady

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).

M5296 OP: 09/19/2022 BH

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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:	S2-MEB711673
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 ± 6 µg/mL**	**Molybdenum, Mo**	**1 000 ± 6 µg/mL**
Silicon, Si	**1 000 ± 7 µg/mL**	**Tin, Sn**	**1 000 ± 6 µg/mL**
Titanium, Ti	**1 000 ± 7 µg/mL**		

Density: 1.030 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, 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

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 02, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 02, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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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-CAL-1
Lot Number:	T2-MEB714417
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	**50.00 ± 0.26 µg/mL**	**Calcium, Ca**	**5 000 ± 22 µg/mL**
Chromium, Cr	**200.0 ± 1.0 µg/mL**	**Cobalt, Co**	**500.0 ± 2.4 µg/mL**
Copper, Cu	**250.0 ± 1.0 µg/mL**	**Iron, Fe**	**1 000 ± 4 µg/mL**
Magnesium, Mg	**5 000 ± 20 µg/mL**	**Manganese, Mn**	**500.0 ± 2.0 µg/mL**
Nickel, Ni	**500.0 ± 2.2 µg/mL**	**Potassium, K**	**5 000 ± 19 µg/mL**
Silver, Ag	**250.0 ± 1.1 µg/mL**	**Sodium, Na**	**5 000 ± 18 µg/mL**
Vanadium, V	**499.7 ± 2.2 µg/mL**	**Zinc, Zn**	**500.0 ± 2.2 µg/mL**

Density: 1.118 g/mL (measured at 20 ± 4 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
Cr	Calculated		See Sec. 4.2
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, 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:

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information.

https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 27, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 27, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

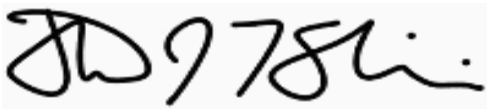
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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

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-MEB714159
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Arsenic, Lead, Selenium, Thallium, 500 µg/mL ea: Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	**1 000 ± 8 µg/mL**	**Cadmium, Cd**	**500.0 ± 2.1 µg/mL**
Lead, Pb	**1 000 ± 5 µg/mL**	**Selenium, Se**	**1 000 ± 8 µg/mL**
Thallium, Tl	**1 000 ± 7 µg/mL**		

Density: 1.043 g/mL (measured at 20 ± 4 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

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

- 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.

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

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 13, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 13, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

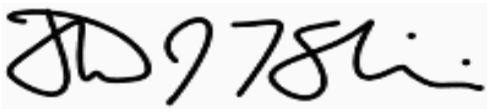
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

R: 8/5/24

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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

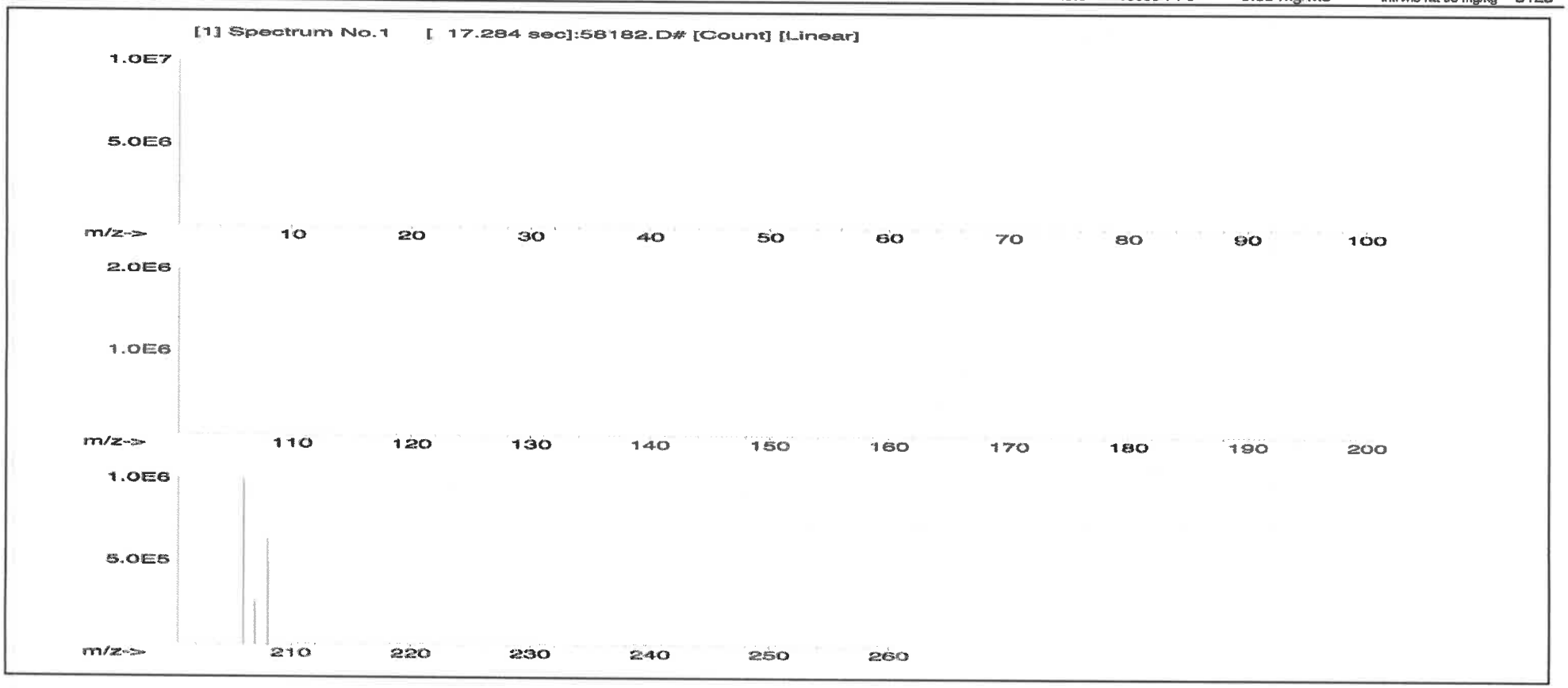
Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

		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.
* 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).

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

M3033-38-33-40
no

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 0000250349
Manufactured Date: 2019/12/17
Retest Date: 2024/12/15
Revision No: 1

Certificate of Analysis

Test	Specification	Result
ACS - Assay (H_2SO_4)	95.0 - 98.0 %	96.5
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Substances Reducing Permanganate (as SO_2)	<= 2 ppm	< 2
Ammonium (NH_4)	<= 1 ppm	< 1
Chloride (Cl)	<= 0.1 ppm	< 0.1
Nitrate (NO_3)	<= 0.2 ppm	< 0.1
Phosphate (PO_4)	<= 0.5 ppm	< 0.1
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	0.2
Arsenic and Antimony (as As)	<= 4 ppb	< 2
Trace Impurities - Barium (Ba)	<= 10.0 ppb	< 1.0
Trace Impurities - Beryllium (Be)	<= 10.0 ppb	< 1.0
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 10.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 2.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	2.9
Trace Impurities - Chromium (Cr)	<= 6.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 0.5 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 10.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 10.0 ppb	< 10.0
Trace Impurities - Gold (Au)	<= 10.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 500 ppb	< 100

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

Material No.: 9673-33
Batch No.: 0000250349

Test	Specification	Result
Trace Impurities - Iron (Fe)	<= 50.0 ppb	4.1
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 10.0 ppb	< 1.0
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	0.4
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	< 0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 2.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 10.0 ppb	< 1.0
Trace Impurities - Potassium (K)	<= 500.0 ppb	< 2.0
Trace Impurities - Selenium (Se)	<= 50.0 ppb	22.9
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 500.0 ppb	2.7
Trace Impurities - Strontium (Sr)	<= 5.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 10.0 ppb	< 5.0
Trace Impurities - Thallium (Tl)	<= 20.0 ppb	< 5.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 10.0 ppb	< 1.0
Trace Impurities - Vanadium (V)	<= 10.0 ppb	< 1.0
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	0.3
Trace Impurities - Zirconium (Zr)	<= 10.0 ppb	< 1.0

For Laboratory, Research or Manufacturing Use

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

James T Ethier
Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) *ANALYSIS OF SAMPLES*

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,

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

ICSA M5126 M5127 M5128 M5129 M5130

ICSB M5219 M5220 M5221 M5222 M5223

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.

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

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-QC-4
Lot Number:	S2-MEB711674
Matrix:	3% (v/v) HNO3 3% (v/v) HF
Value / Analyte(s):	1 000 µg/mL ea: Boron, Molybdenum, Silicon, Tin, Titanium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	**1 000 ± 7 µg/mL**	**Molybdenum, Mo**	**1 000 ± 5 µg/mL**
Silicon, Si	**1 000 ± 7 µg/mL**	**Tin, Sn**	**1 000 ± 5 µg/mL**
Titanium, Ti	**1 001 ± 6 µg/mL**		

Density: 1.032 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, 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

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 02, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 02, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

QATS LABORATORY INORGANIC REFERENCE MATERIAL INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) *ANALYSIS OF SAMPLES*

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,

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

ICSA M5126 M5127 M5128 M5129 M5130

ICSB M5219 M5220 M5221 M5222 M5223

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.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

M5289 R: 07/12/22 (BH)

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

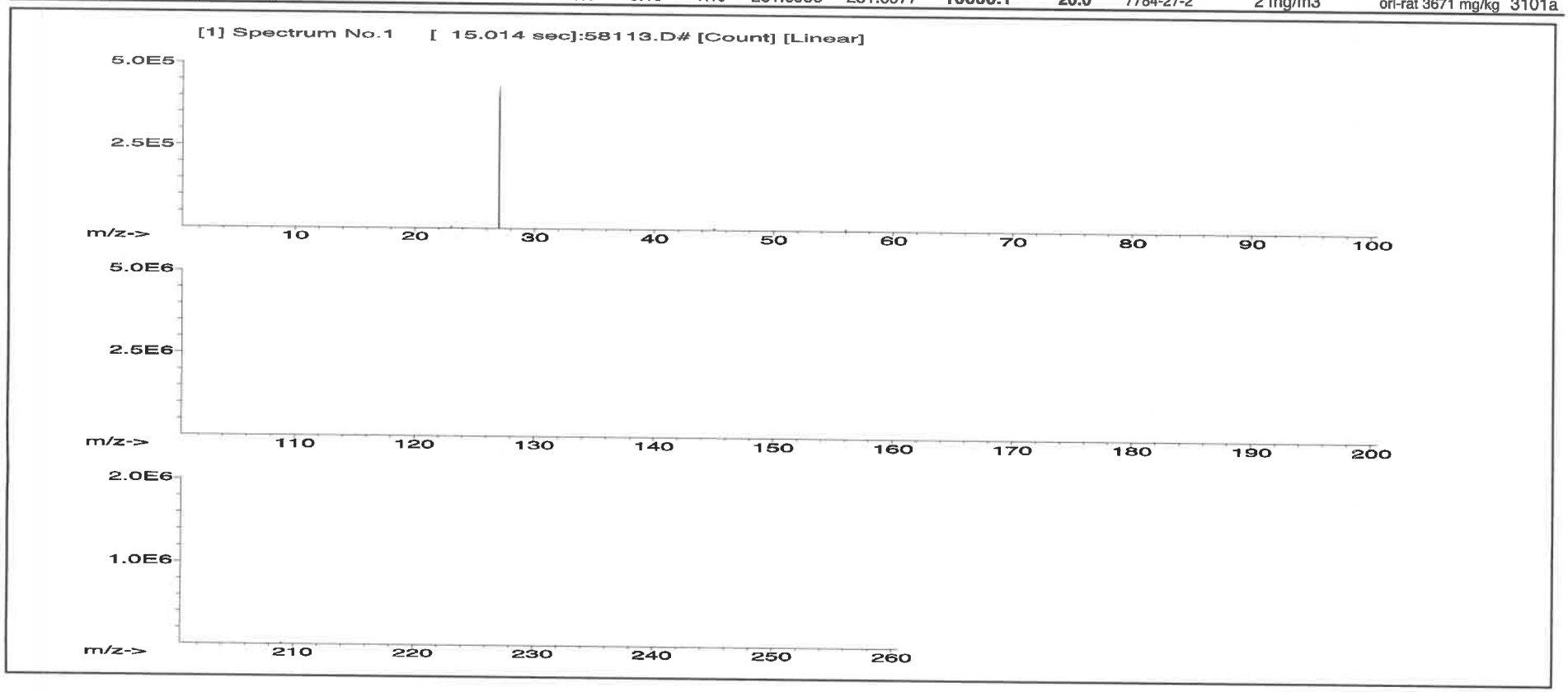
300

CERTIFIED WEIGHT REPORT:

Part Number:	**58113**			**Lot #**	
Lot Number:	**070622**		**Solvent:**	20370011	Nitric Acid
Description:	**Aluminum (Al)**		2%	40.0 (mL)	Nitric Acid
Expiration Date:	070625				
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	070622
Reviewed By:	Pedro L. Rentas	070622

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. Aluminum nitrate nonahydrate (Al)	IN022	ALD012021A1	10000	99.999	0.10	7.10	281.6956	281.6977	**10000.1**	**20.0**	7784-27-2	2 mg/m3	orl-rat 3671 mg/kg	3101a



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

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	T	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	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:

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).

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INITIAL CALIBRATION VERIFICATION SOLUTIONS
(ICV1, ICV5, AND ICV6)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Metals in Dilute Acidic or
Cyanide in Basic Aqueous Solutions
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

IM5291
IM5292
IM5293
IM5294
IM5295

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) *ANALYSIS OF SAMPLES*

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.

ICV1-1014 For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0415 For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

ICV1-1014		
Element	**Concentration (µg/L) (after 10-fold dilution)**	**Concentration (µg/L) (after 50-fold dilution)**
Al	2500	500
Sb	1000	200
As	1000	200
Ba	520	100
Be	510	100
Cd	510	100
Ca	10000	2000
Cr	520	100
Co	520	100
Cu	510	100
Fe	10000	2000
Pb	1000	200
Mg	6000	1200
Mn	520	100
Ni	530	110
K	9900	2000
Se	1000	200
Ag	250	50
Na	10000	2000
Tl	1000	210
V	500	100
Zn	1000	200

ICV5-0415		ICV6-0400	
Element	**Concentration (µg/L) (after 100-fold dilution)**	**Analyte**	**Concentration (µg/L) (after 100-fold dilution)**
Hg	4.0	**CN^-**	99

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

R: 09/08/22 (BH)

Certified Reference Material CRM

M5387 · M5389 · M5390 · M5391 · M5392

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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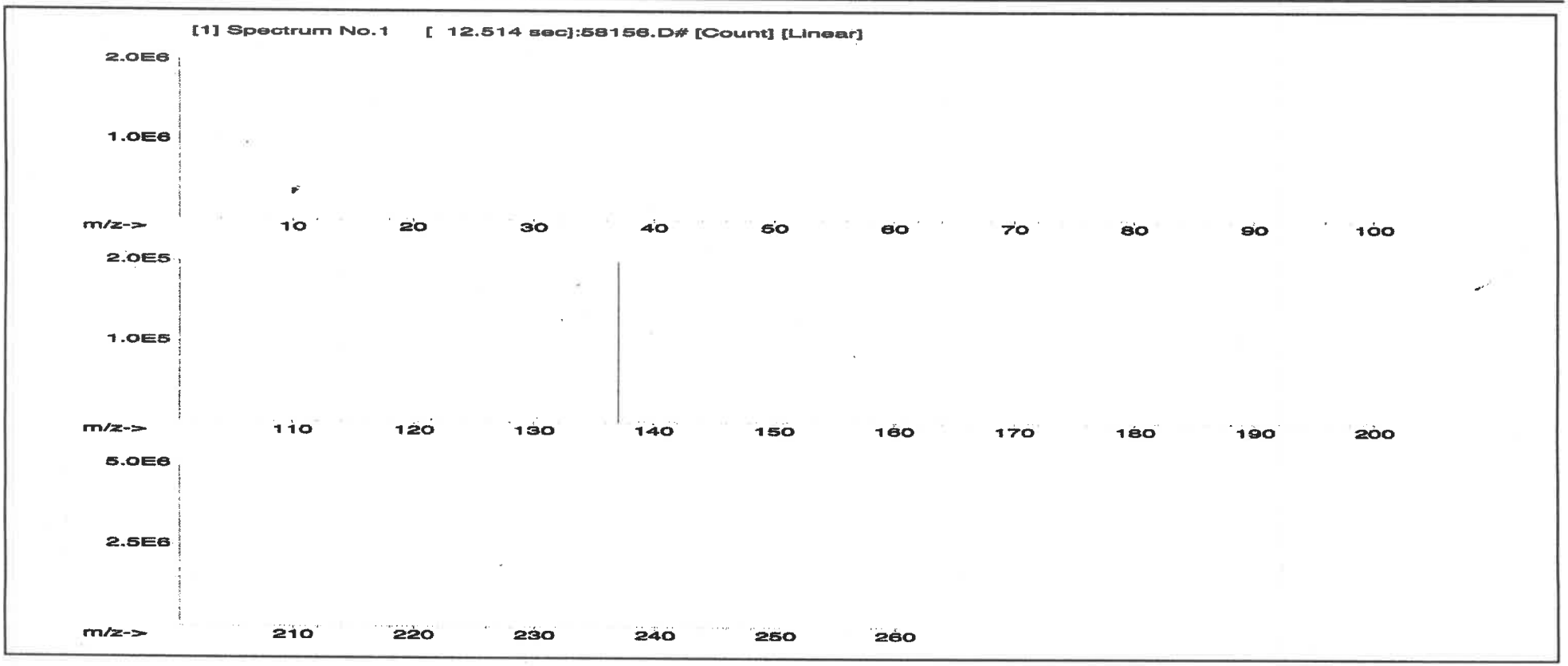
CERTIFIED WEIGHT REPORT:

		Lot #		
Part Number:	**57056**	**Solvent:**	20510011	Nitric Acid
Lot Number:	**072122**			
Description:	**Barium (Ba)**	2%	40.0 (mL)	Nitric Acid
Expiration Date:	072125			
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	072122
Reviewed By:	Pedro L. Rentas	072122

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	3.82426	**1000.0**	2.0	10022-31-8	0.5 mg/m3	orl-rat 355 mg/kg	3104a



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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are 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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M5429 R1 01/26/23 BH

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CERTIFIED WEIGHT REPORT:

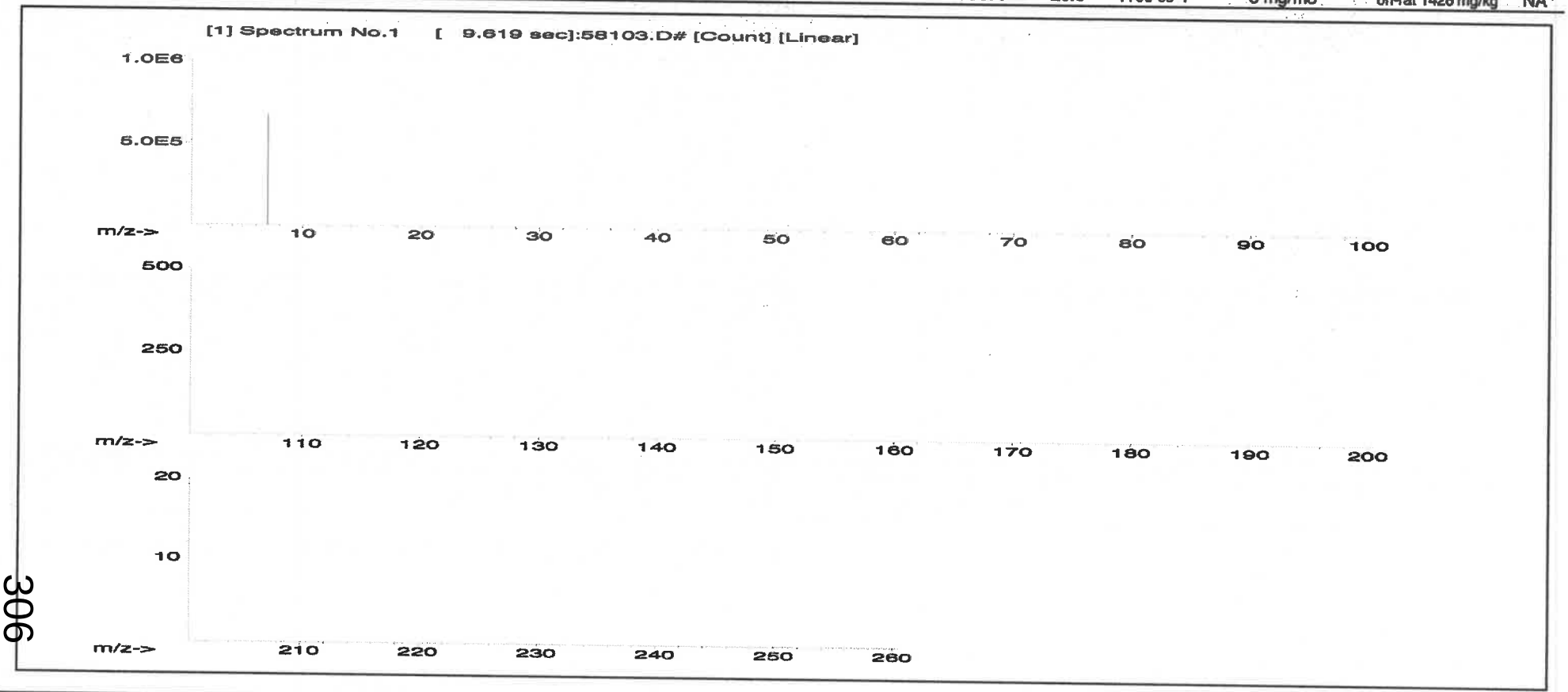
Part Number: 57103
Lot Number: 070622
Description: Lithium (Li)

Expiration Date: 070625
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1000.12

	Lot #			
Solvent:	20510011	Nitric Acid		
2%	20.0 (mL)	Nitric Acid		
	5E-05	Balance Uncertainty		
	0.058	Flask Uncertainty		

Formulated By:	Lawrence Barry	070622
Reviewed By:	Pedro L. Rentas	070622

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. Lithium nitrate (Li)	IN019	LIZ042018A1	10000	99.999	0.10	10.0	100.0134	100.0173	**10000.4**	**20.0**	7790-69-4	5 mg/m3	orl-rat 1426 mg/kg	NA



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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	T	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:

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.
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* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

307

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M5497 - M5498 R: 03/17/23 BH

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CERTIFIED WEIGHT REPORT:

Part Number: 58120
Lot Number: 031523
Description: Calcium (Ca)

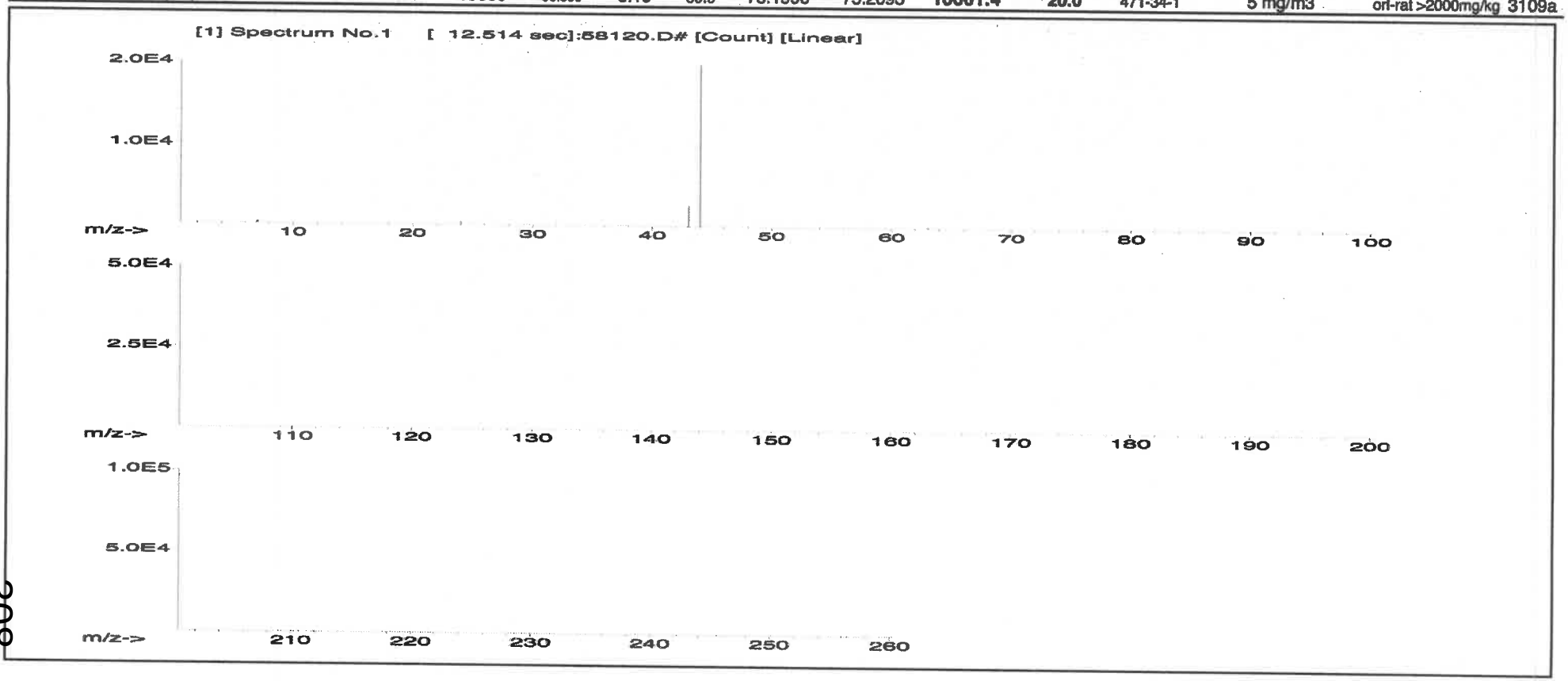
Expiration Date: 031526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41

	Lot #		
Solvent:	21110221	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

Giovanni Esposito

Formulated By:	Giovanni Esposito	031523
Reviewed By:	Pedro L. Rentas	031523

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	CAD072022A1	10000	99.999	0.10	39.9	75.1990	75.2093	**10001.4**	**20.0**	471-34-1	5 mg/m3	orl-rat >2000mg/kg	3109a



308

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	<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.
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* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

3009

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MS513 R:03/17/23

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CERTIFIED WEIGHT REPORT:

Part Number: 57182
Lot Number: 061522
Description: Lead (Pb)

Expiration Date: 061525
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02

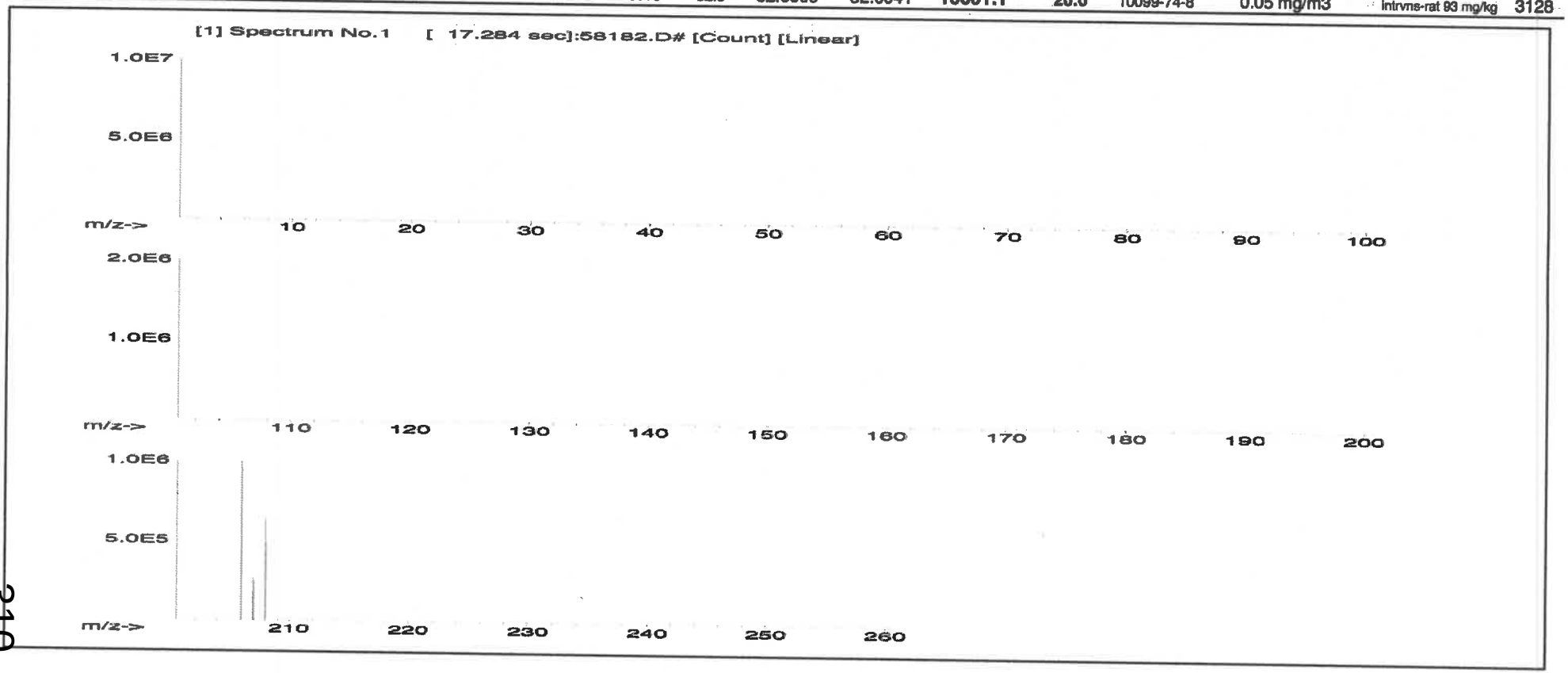
	Lot #		
Solvent:	20510011	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	061522
Reviewed By:	Pedro L. Rentas	061522

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	32.0041	**10001.1**	**20.0**	10099-74-8	0.05 mg/m3	Intrvns-rat 93 mg/kg	3128



310

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.
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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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MS514 - MS515 R: 03/17/22

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CERTIFIED WEIGHT REPORT:

Part Number: 58126
Lot Number: 092122
Description: Iron (Fe)

Expiration Date: 092125
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 5000.1 ± 0.12 Flask Uncertainty

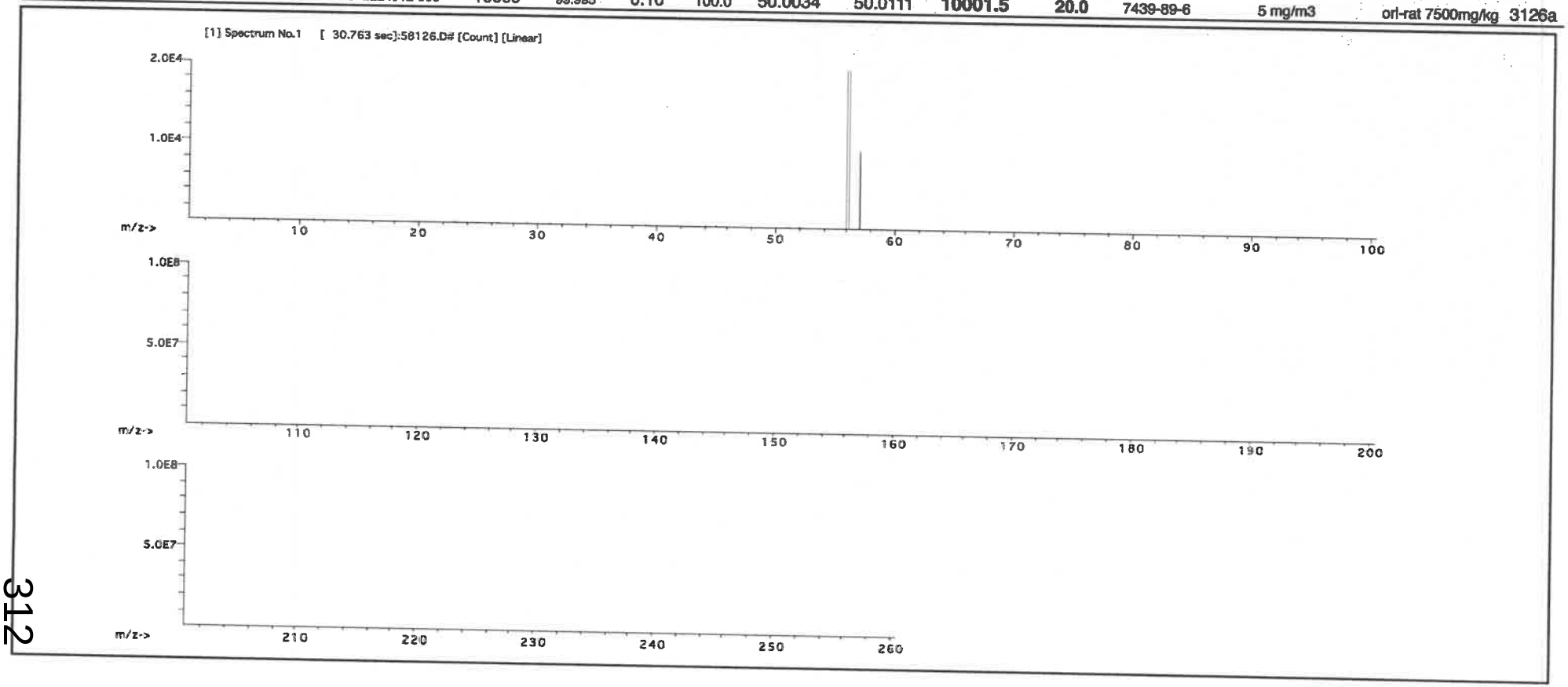
	Lot #		
Solvent:	20510011	Nitric Acid	
7.0%	350.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	092122
Reviewed By:	Pedro L. Rentas	092122

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	2224912-500	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



312

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	<0.05
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:

Certified by:

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

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M5519. M5520 BH R:03/17/23

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314

CERTIFIED WEIGHT REPORT:

Part Number: 58119
Lot Number: 120822
Description: Potassium (K)

Expiration Date: 120825
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.4

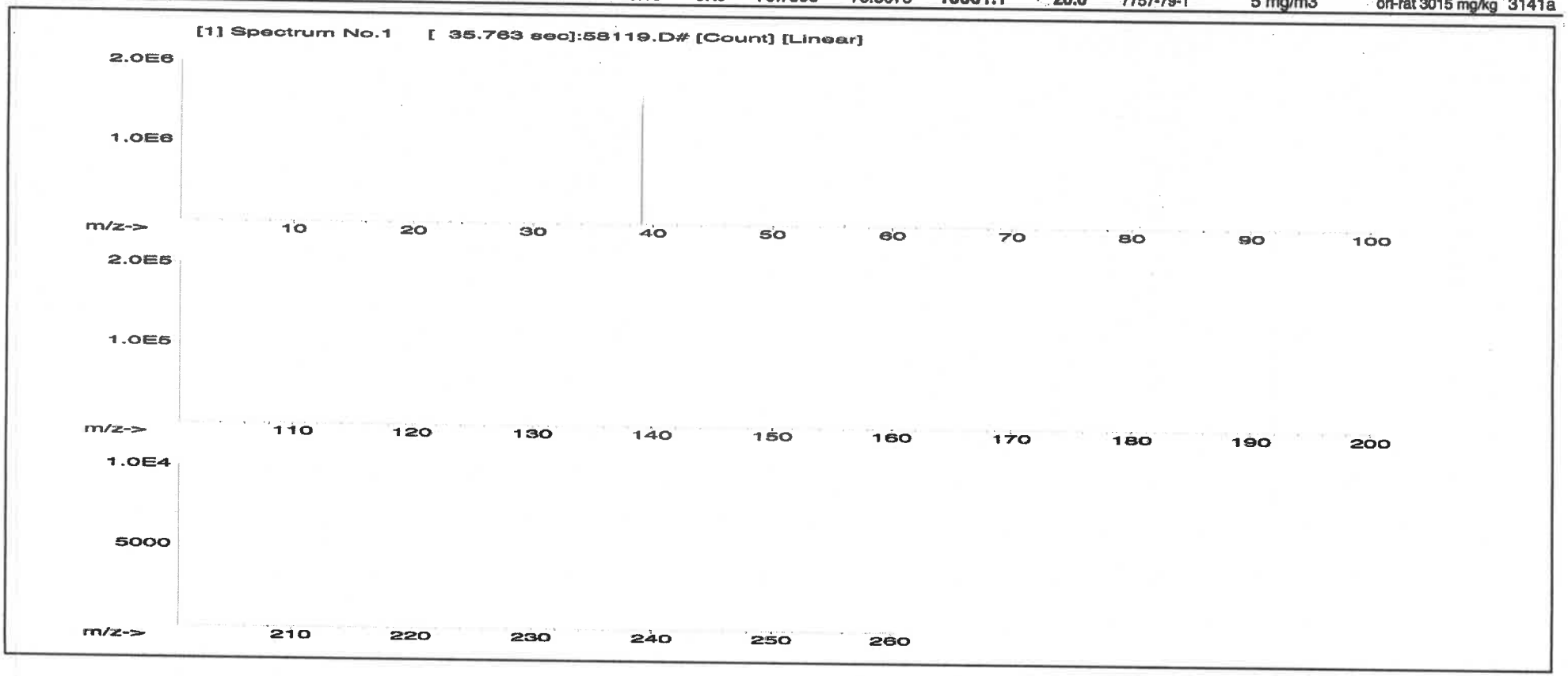
	Lot #		
Solvent:	20510011	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	120822
Reviewed By:	Pedro L. Rentas	120822

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. Potassium nitrate (K)	IN034	KD022021A1	10000	99.999	0.10	37.6	79.7990	79.8075	**10001.1**	**20.0**	7757-79-1	5 mg/m3	orl-rat 3015 mg/kg	3141a



315

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	<0.02	Nd	<0.02	K	T	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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* 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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M5658 R ! 8/25/23

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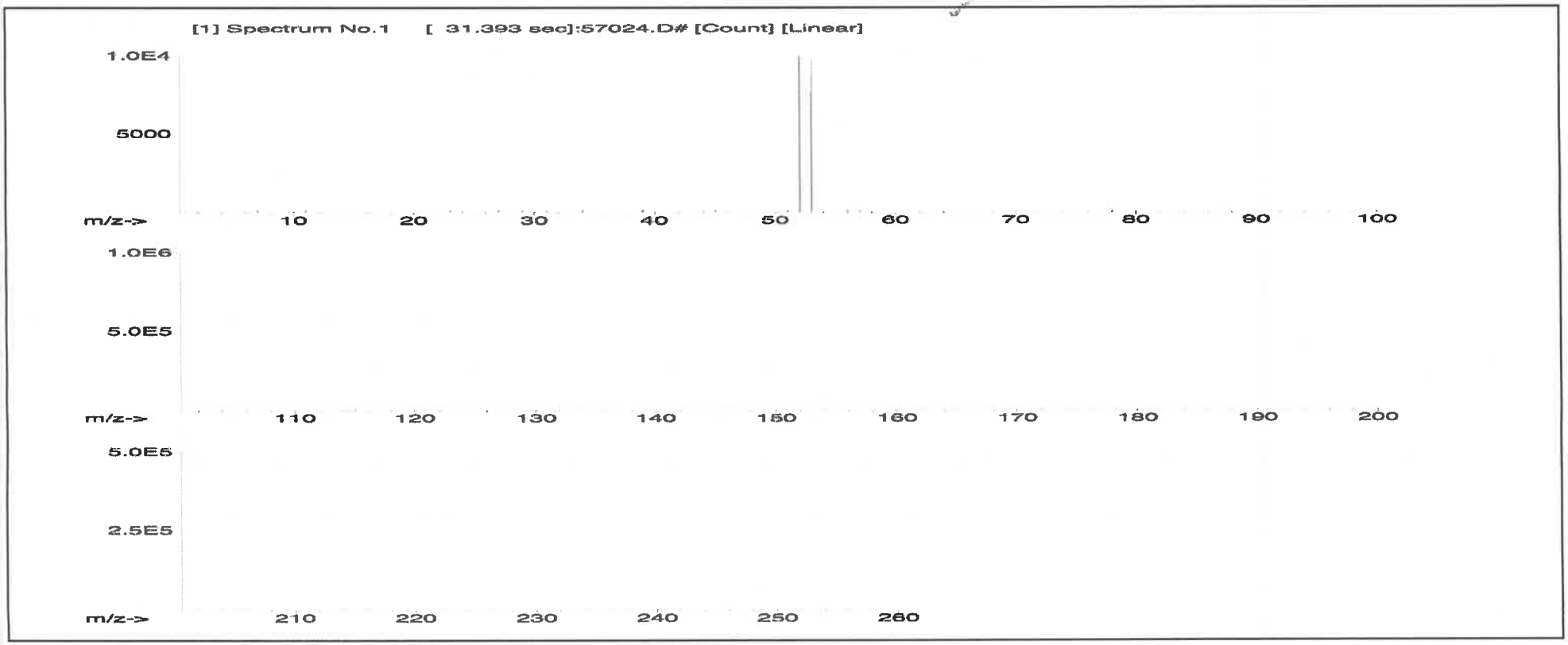
316

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



317

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.

* 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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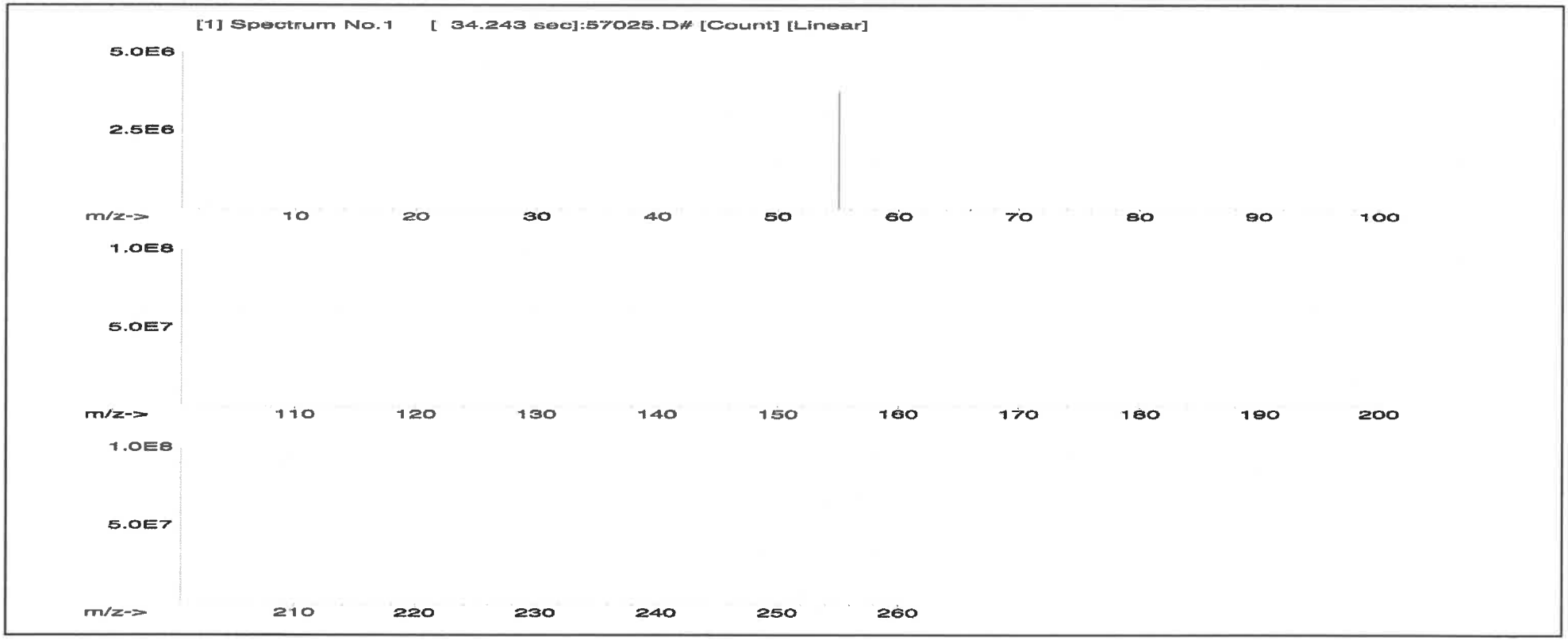
318

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58025**	24002546	Nitric Acid	
Lot Number:	**102623**			
Description:	**Manganese (Mn)**			
		2.0%	60.0 (mL)	Nitric Acid
Expiration Date:	102626			
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):	3000.41	0.058	Flask Uncertainty	

Formulated By:	Benson Chan	102623
Reviewed By:	Pedro L. Rentas	102623

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. Manganese(II) nitrate tetrahydrate (Mn)	58125	071123	0.1000	300.0	0.084	1000	10000.1	**1000.0**	**2.1**	20694-39-7	5 mg/m3	orl-rat >300mg/kg	3132



319

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:

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 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.
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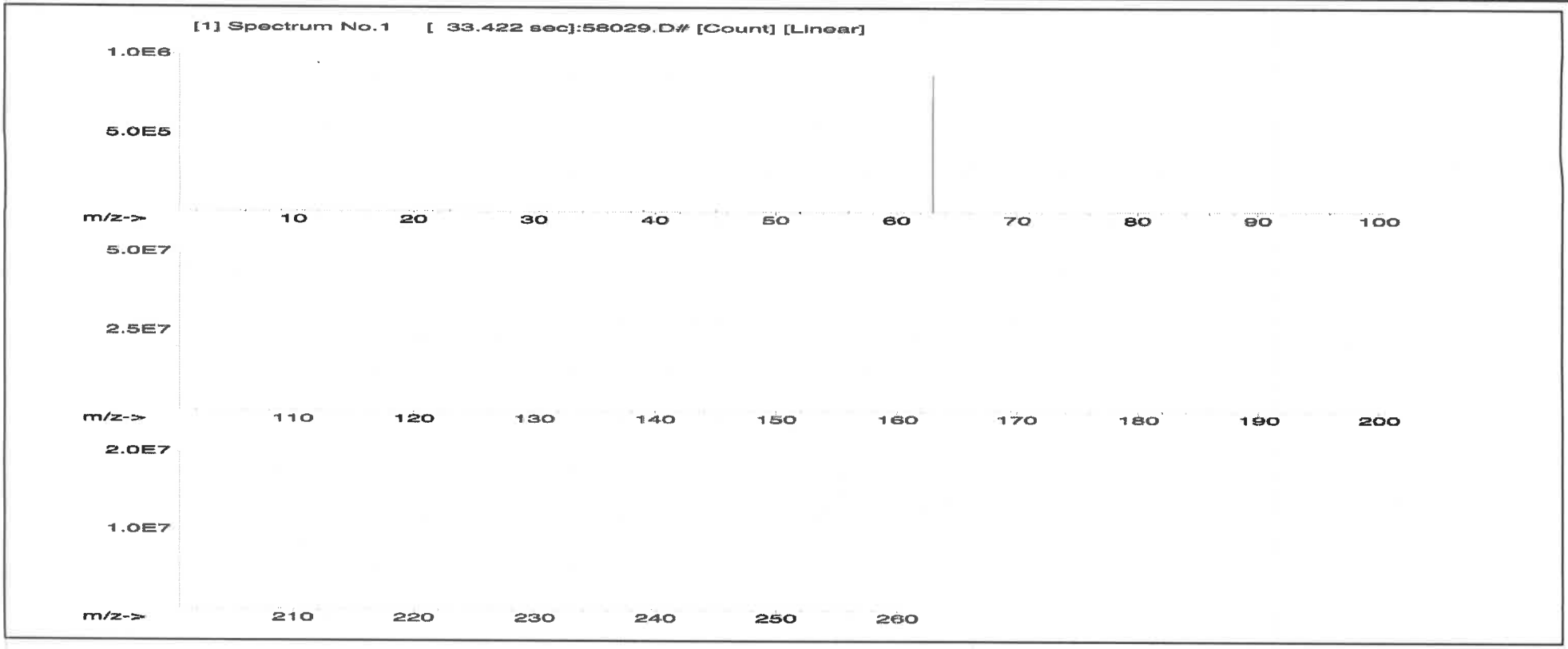
320

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



321

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.

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
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M5768 M5769 (BP) R:1/3/24

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322

CERTIFIED WEIGHT REPORT:

Part Number: 58112
Lot Number: 091823
Description: Magnesium (Mg)

Expiration Date: 091826
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

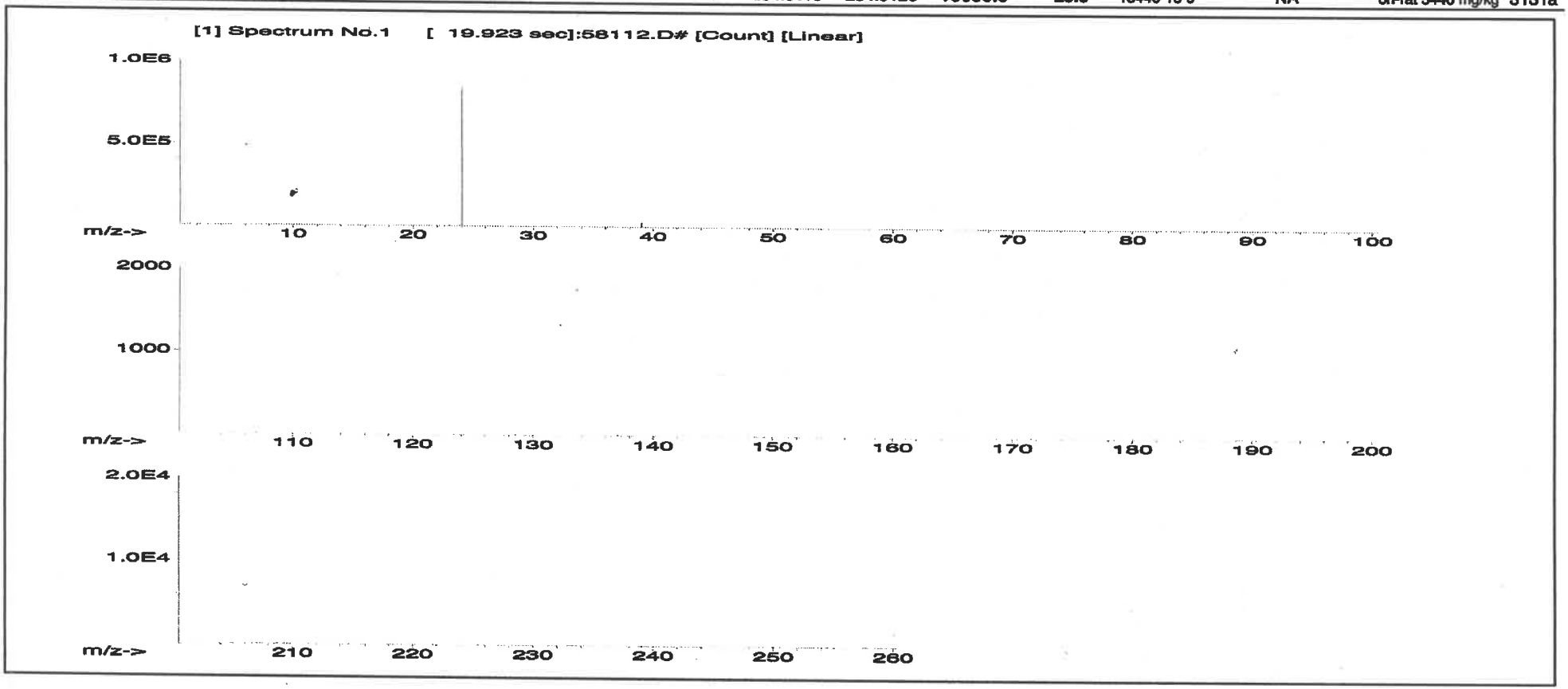
5E-05 Balance Uncertainty

M5768, M5769 (BP) R: 1/3/24

Formulated By: Lawrence Barry 091823

Reviewed By: Pedro L. Rentas 091823

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	234.9118	234.9126	**10000.0**	**20.0**	13446-18-9	NA	ori-rat 5440 mg/kg	3131a



323

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.

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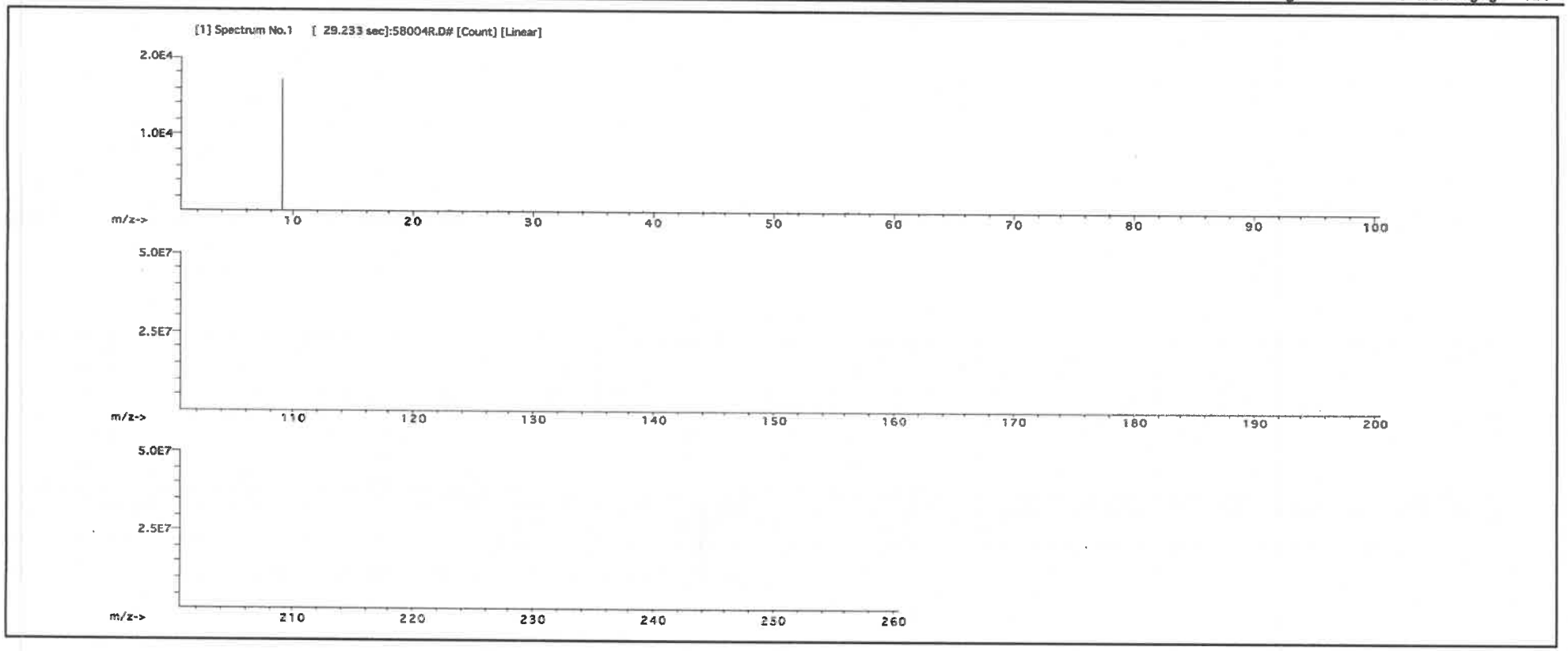
CERTIFIED WEIGHT REPORT:

		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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* 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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326

CERTIFIED WEIGHT REPORT:

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

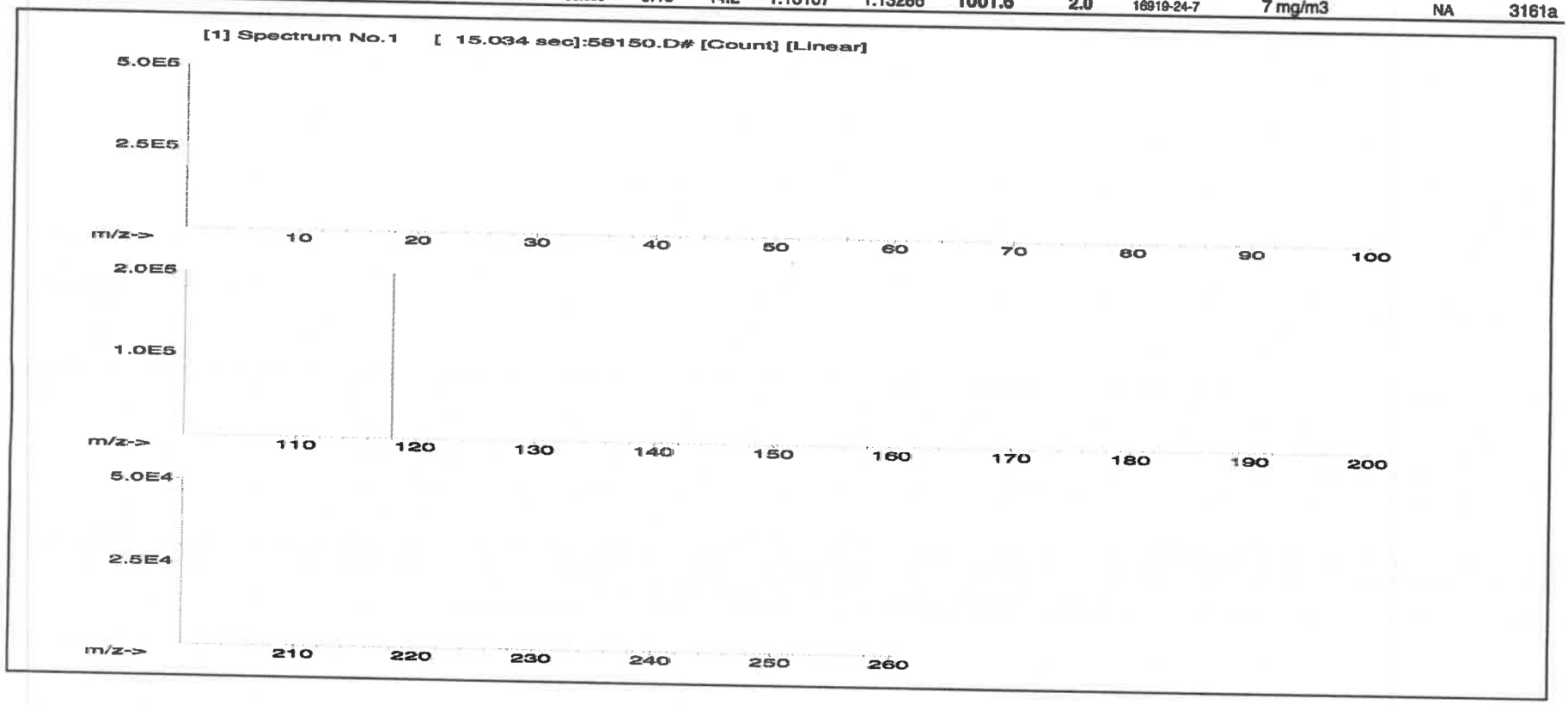
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

	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



327

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:

* 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.
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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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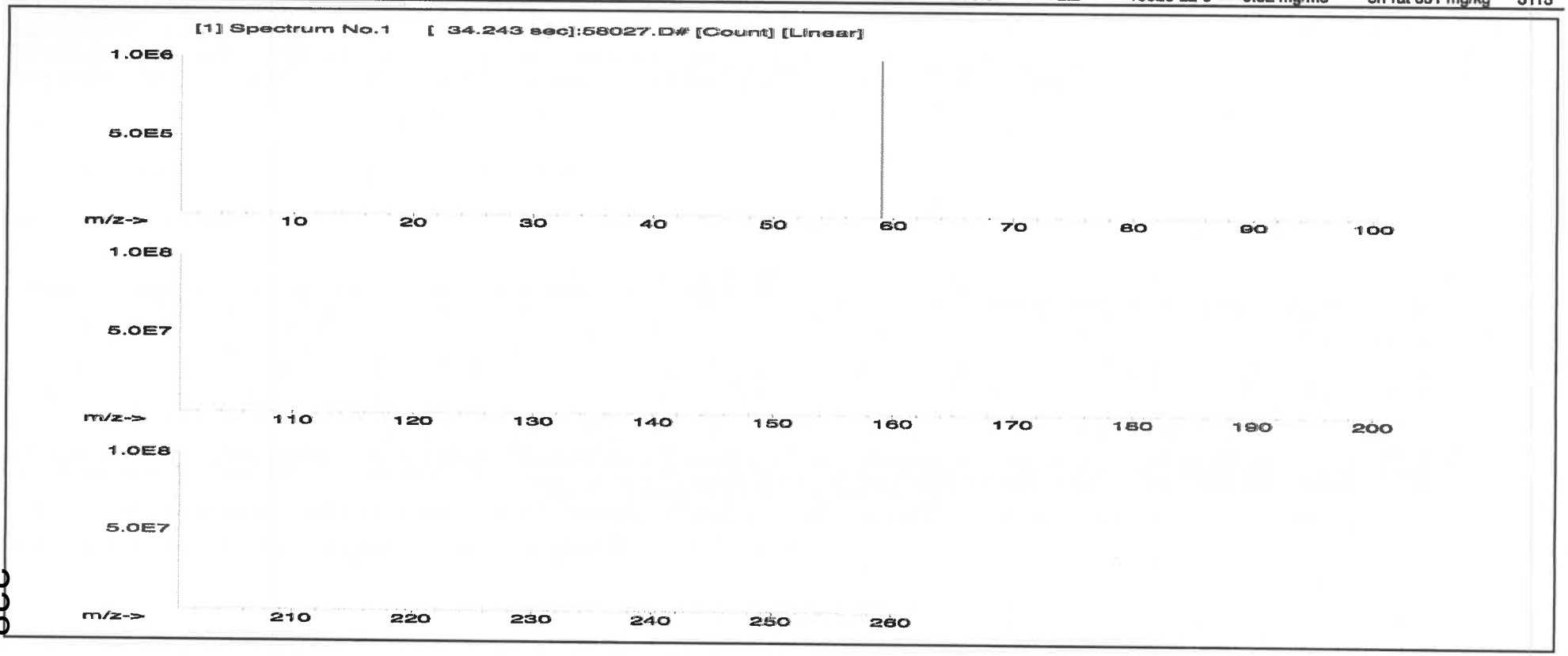
CERTIFIED WEIGHT REPORT:

		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



328

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.

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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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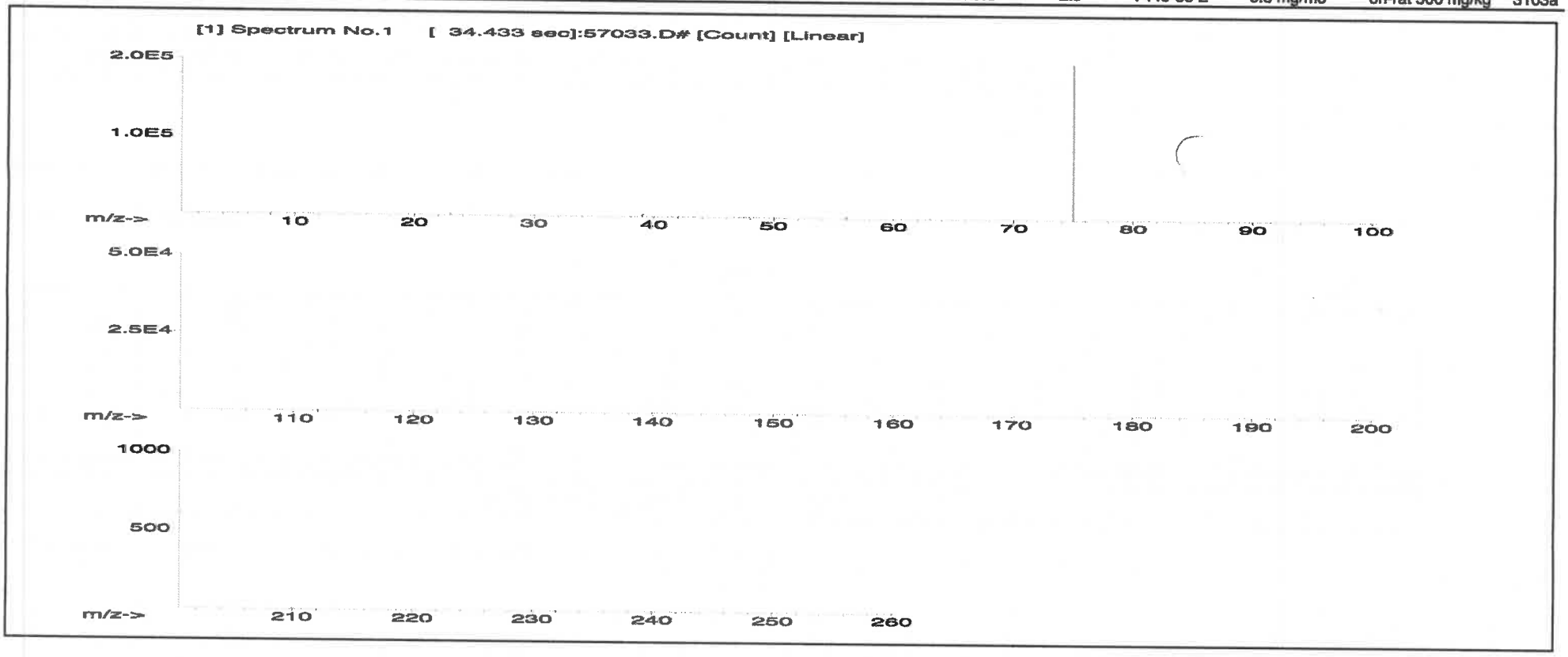
330

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



331

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:

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.
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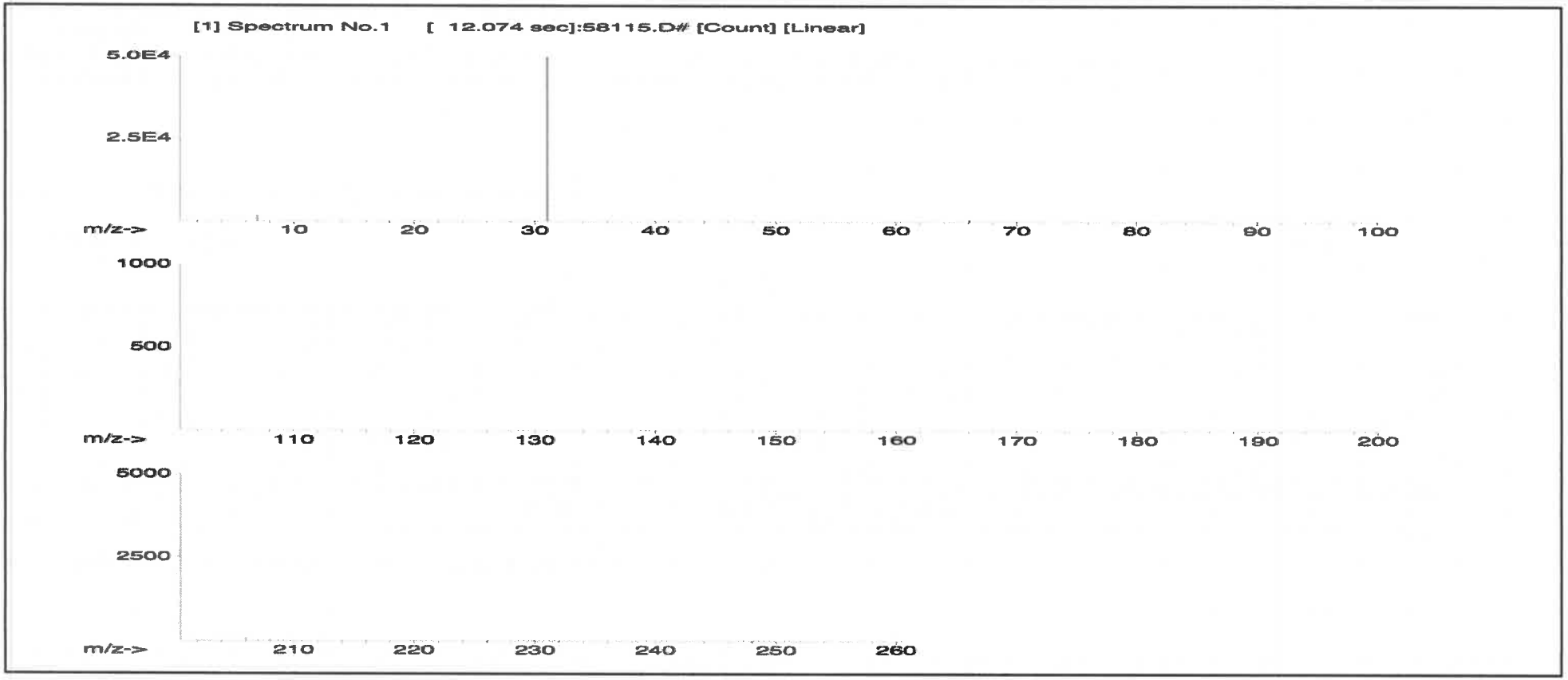
CERTIFIED WEIGHT REPORT:

			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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334

CERTIFIED WEIGHT REPORT:

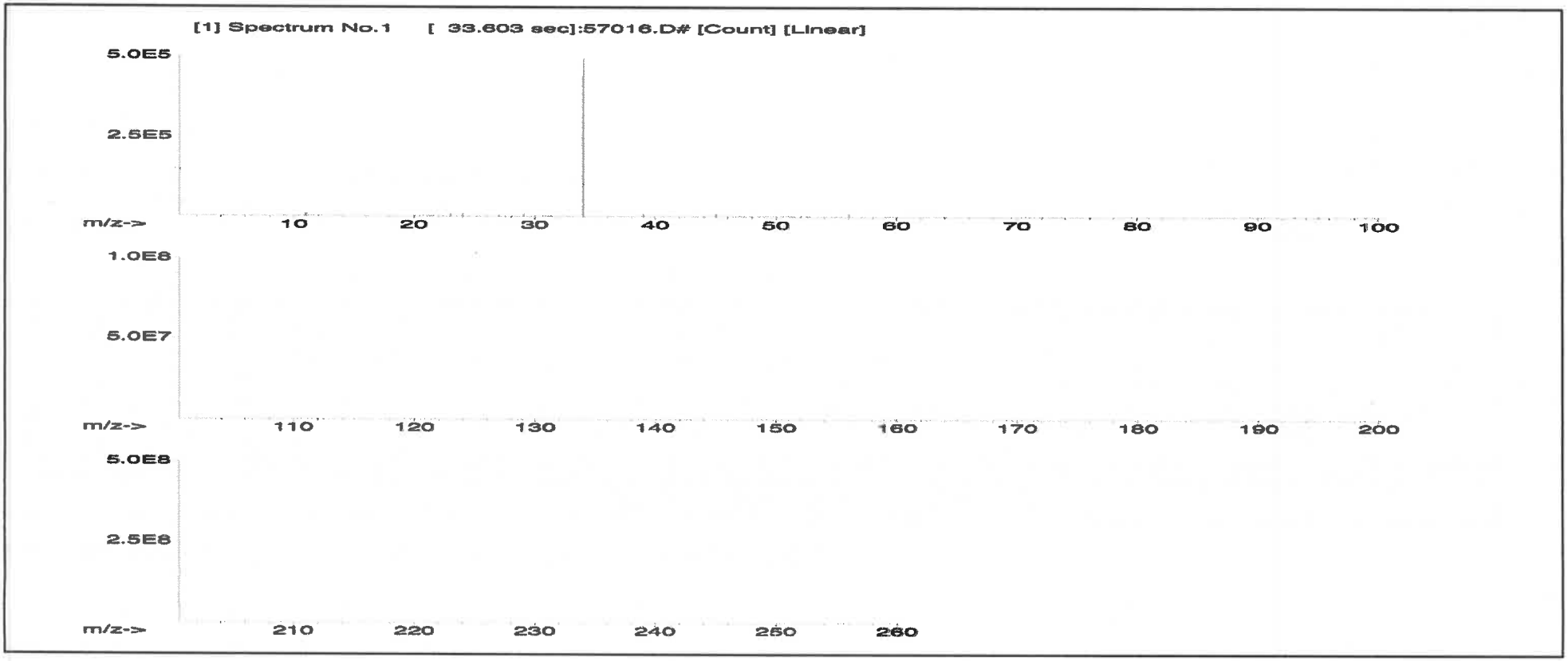
Part Number: 57016
Lot Number: 122923
Description: Sulfur (S)

Solvent: Lot # 122923 ASTM Type 1 Water

Expiration Date: 122926
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): 4000.0 0.06 Flask Uncertainty

Formulated By:	Benson Chan	122923
Reviewed By:	Pedro L. Rentas	122923

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	1000	99.9	0.10	24.3	16.4979	16.4980	**1000.0**	**2.0**	7783-20-2	NA	orl-rat 4250mg/kg	3181



335

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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CERTIFIED WEIGHT REPORT:

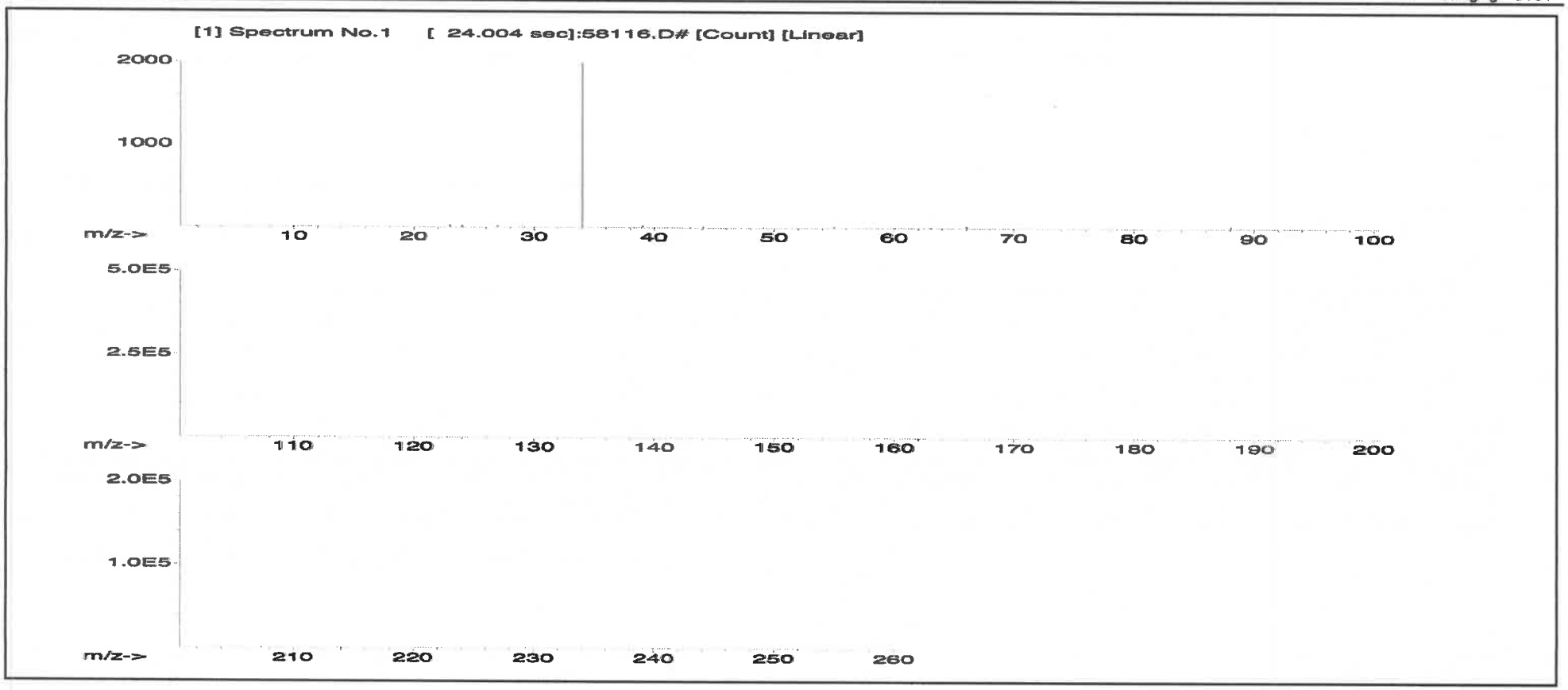
Part Number: 57116
Lot Number: 071123
Description: Sulfur (S)

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

Lot #
Solvent: 071123 ASTM Type 1 Water

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



337

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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338

CERTIFIED WEIGHT REPORT:

Part Number: 57014
Lot Number: 122023
Description: Silicon (Si)

Expiration Date: 122026
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 1999.48 ± 0.058 Flask Uncertainty

Solvent: 24002546 Nitric Acid

2% 40.0 (mL) Nitric Acid

5E-05 Balance Uncertainty

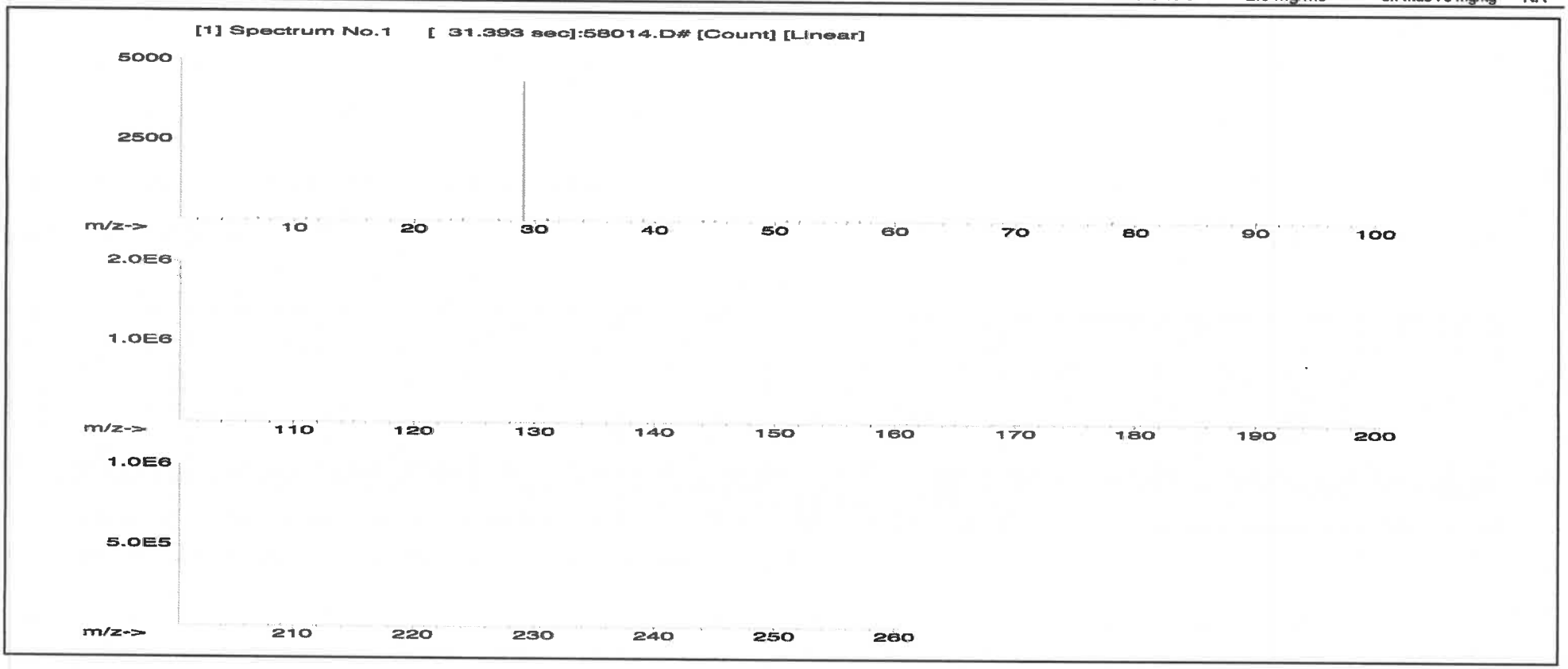
Aleah O'Brady

Formulated By: Aleah O'Brady 122023

Pedro Rentas

Reviewed By: Pedro L. Rentas 122023

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 hexafluorosilicate (Si)	IN009	SID082022A1	1000	99.999	0.10	14.4	13.8854	13.8855	**1000.0**	**2.0**	16919-19-0	2.5 mg/m3	orl-mus 70 mg/kg	NA



339

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
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* Standards are 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 WEIGHT REPORT:

Part Number: 58030
Lot Number: 111623
Description: Zinc (Zn)

Expiration Date: 111626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

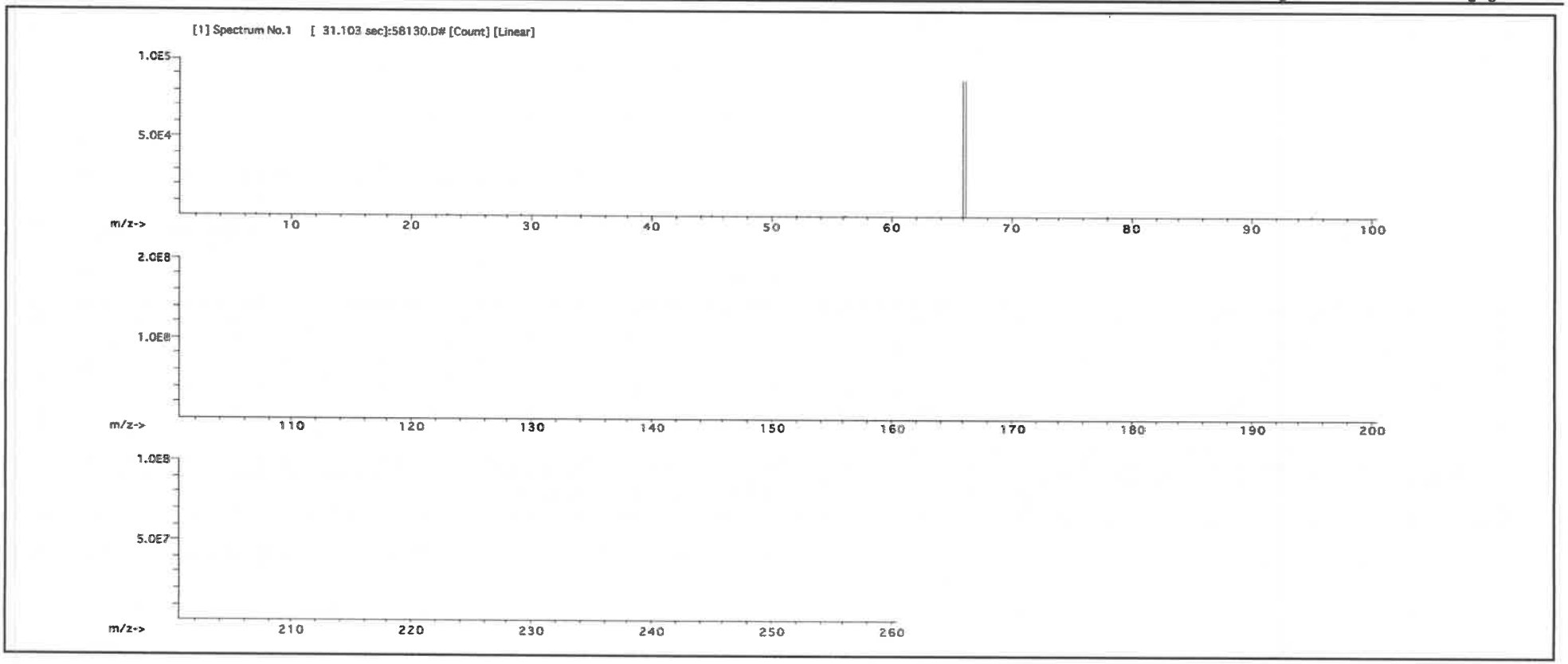
Weight shown below was diluted to (mL): 3000.4 0.06 Flask Uncertainty

		Lot #		
Solvent:	24002546	Nitric Acid		
	2%	60.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Formulated By:	Benson Chan	111623
Reviewed By:	Pedro L. Rentas	111623

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	12.3475	12.3502	**1000.2**	**2.0**	10196-18-6	1 mg/m3	orl-rat 1190mg/kg	3168



341

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:

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.
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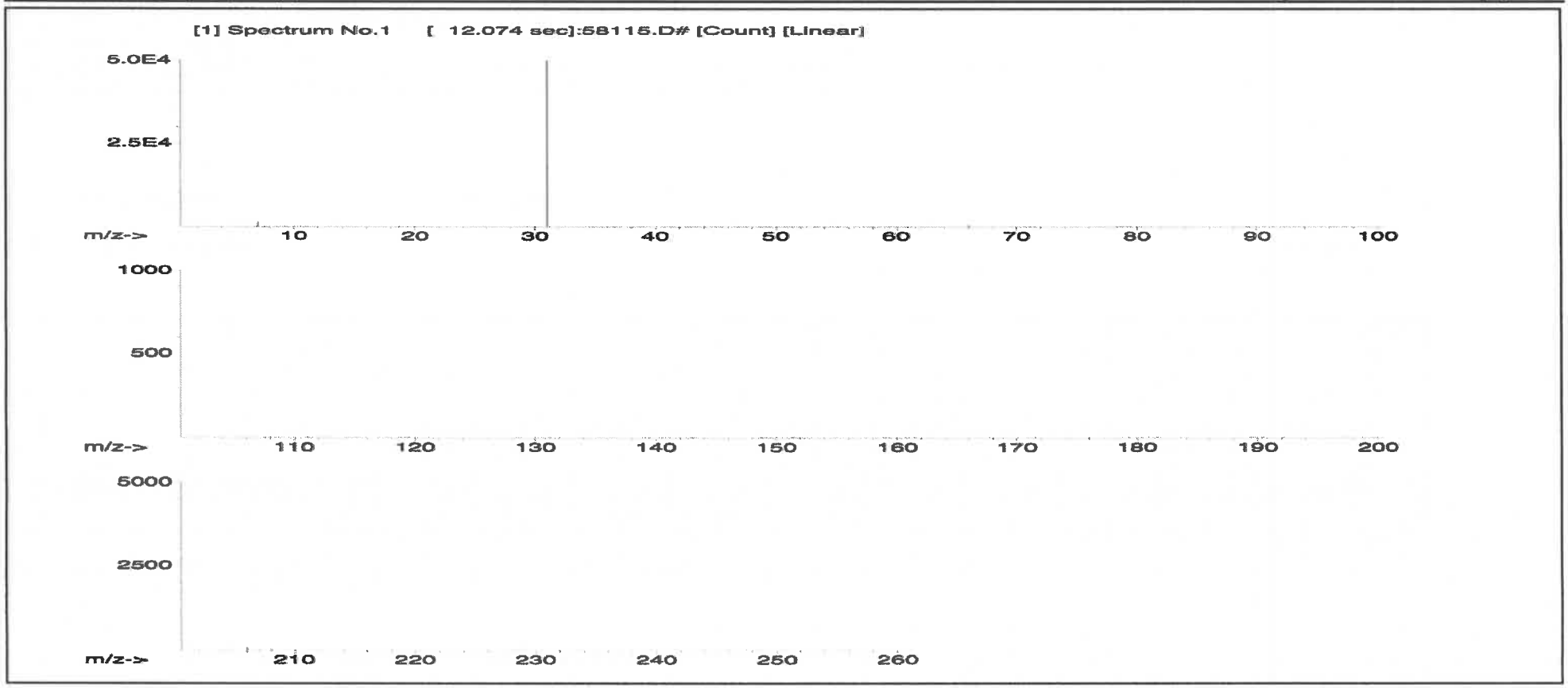
CERTIFIED WEIGHT REPORT:

Part Number:	**57015**		**Solvent:**	24002546	Nitric Acid
Lot Number:	**091123**				
Description:	**Phosphorous (P)**		2%	40.0 (mL)	Nitric Acid
Expiration Date:	091126				
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		

Lot #

Formulated By:	Lawrence Barry	091123
Reviewed By:	Pedro L. Rentas	091123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium dihydrogen phosphate (P)	IN008	PV082019A1	1000	99.999	0.10	27.5	7.2729	7.2730	**1000.0**	**2.0**	7722-76-1	5 mg/m3	orl-rat >2000mg/k	3186



343

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	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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* 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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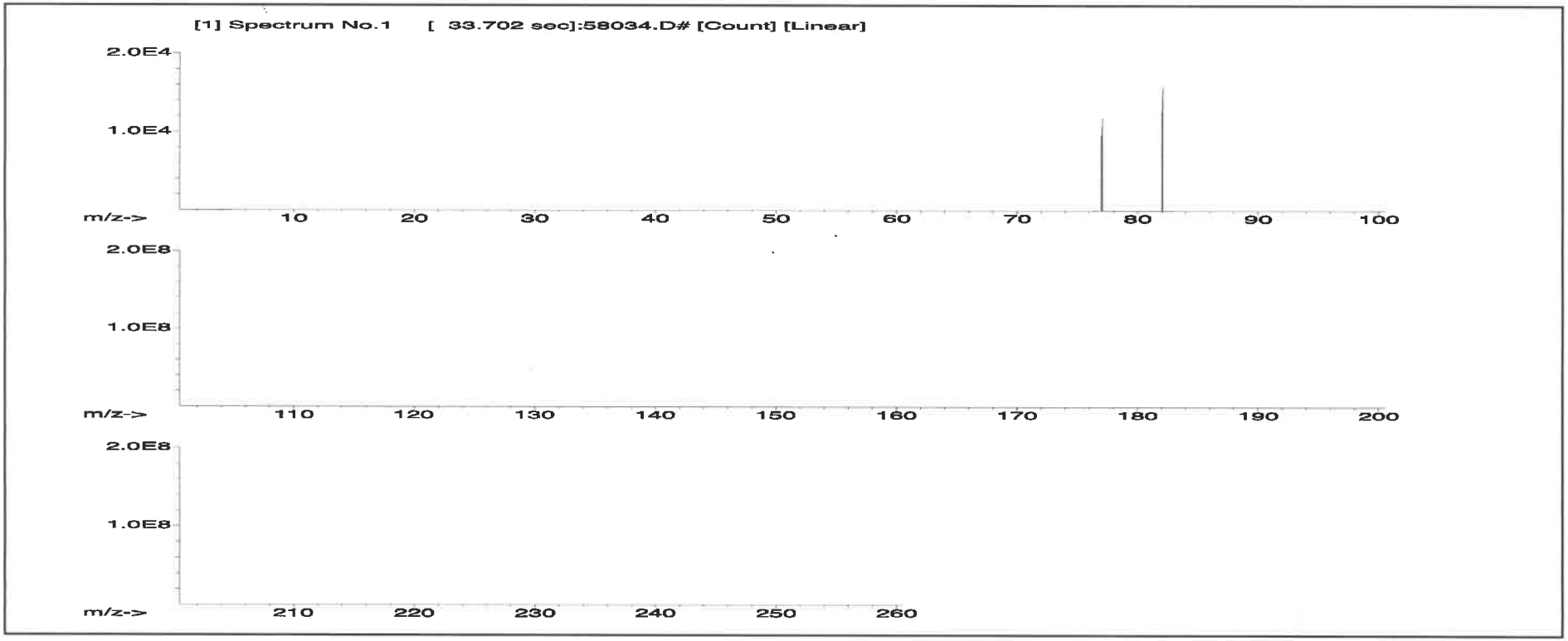
CERTIFIED WEIGHT REPORT:

		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



348

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:

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CERTIFIED WEIGHT REPORT:

Part Number: 57003
Lot Number: 062124
Description: Lithium (Li)
Expiration Date: 062127
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 250.11

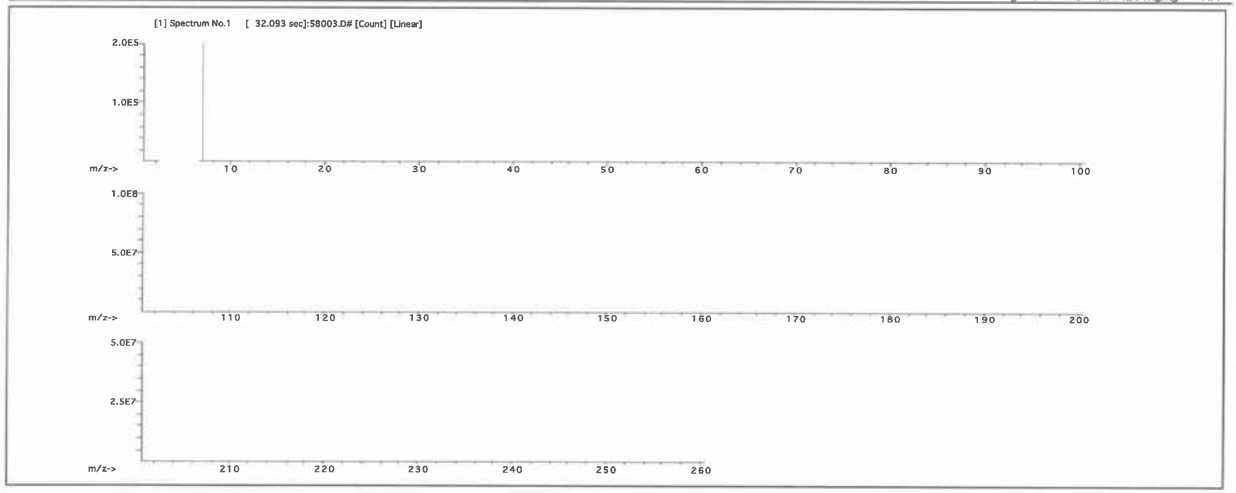
Lot #	Solvent:		
24002546	Nitric Acid		
2.0%	5.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.016 Flask Uncertainty

Giovanni Esposito
Formulated By: Giovanni Esposito 062124

Pedro Rentas
Reviewed By: Pedro L. Rentas 062124

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. Lithium nitrate (Li)	58103	070622	0.1000	25.0	0.004	1000	10000.4	**1000.0**	**2.0**	7790-69-4	5 mg/m3	orl-rat 1426 mg/kg	NA



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

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	T	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	<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:

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Certified by:

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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:	CGMO1
Lot Number:	T2-MO720876
Matrix:	H2O tr. NH4OH
Value / Analyte(s):	1 000 µg/mL ea: Molybdenum
Starting Material:	Ammonium Molybdate
Starting Material Lot#:	2361
Starting Material Purity:	99.9893%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 998 ± 7 µg/mL

Density: 1.000 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **998 ± 4 µg/mL**
ICP Assay NIST SRM 3134 Lot Number: 130418

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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	<	0.000590	M	Eu	<	0.000300	M	Na		0.000879	M	Se	<	0.008000	M	Zn		0.000598
M	Al		0.000563	M	Fe	<	0.006500	M	Nb	<	0.029000	i	Si	<		M	Zr	<	0.001800
M	As	<	0.002100	M	Ga	<	0.000300	i	Nd	<		M	Sm	<	0.000300				
M	Au	<	0.000300	M	Gd	<	0.000300	M	Ni	<	0.008000	M	Sn	<	0.008900				
M	B	<	0.003300	M	Ge	<	0.000300	M	Os	<	0.000590	M	Sr		0.000175				
M	Ba		0.001689	M	Hf	<	0.001800	i	P	<		M	Ta	<	0.004200				
M	Be	<	0.000890	M	Hg	<	0.003300	M	Pb	<	0.000300	M	Tb	<	0.000300				
M	Bi	<	0.000890	M	Ho	<	0.000300	M	Pd	<	0.001800	M	Te	<	0.021000				
O	Ca		0.006334	M	In	<	0.032000	M	Pr	<	0.013000	M	Th	<	0.000300				
O	Cd	<	0.026000	M	Ir	<	0.000300	M	Pt	<	0.000300	O	Tl	<	0.032000				
M	Ce	<	0.008300	M	K		0.130213	M	Rb		0.004575	M	Tl		0.001266				
M	Co		0.000598	M	La	<	0.000300	M	Re	<	0.000300	M	Tm	<	0.000300				
M	Cr		0.000527	O	Li		0.000059	M	Rh	<	0.000300	M	U	<	0.005300				
M	Cs		0.000527	M	Lu	<	0.000300	M	Ru	<	0.079000	M	V	<	0.000890				
M	Cu		0.002252	M	Mg		0.000563	i	S	<		M	W		0.087982				
M	Dy	<	0.000300	M	Mn	<	0.005900	M	Sb		0.001513	M	Y	<	0.000300				
M	Er	<	0.000300	s	Mo	<		M	Sc	<	0.001200	M	Yb	<	0.000300				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 95.94 +6 6,7,8,9 [MoO4]-2(chemical form as received)

Chemical Compatibility -Mo is received in a NH4OH matrix giving the operator the option of using HCl or HF to stabilize acidic solutions. The [MoO4]-2 is soluble in concentrated HCl [MoOCl5]-2, dilute HF / HNO3 [MoOF5]-2 and basic media [MoO4]-2. Stable at ppm levels with some metals provided it is fluorinated. Do not mix with Alkaline or Rare Earths when HF is present. Stable with most inorganic anions provided it is in the [MoO4]-2 chemical form.

Stability - 2-100 ppb levels stable (alone or mixed with all other metals that are at comparable levels) as the [MoOF5]-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the [MoO4]-2 chemically stable for years in 1% NH4OH in a LDPE container.

Mo Containing Samples (Preparation and Solution) -Metal (Soluble in HF / HNO3 or hot dilute HCl); Oxide (soluble in HF or NH4OH) ; Organic Matrices (Dry ash at 450EC in Pt0 and dissolve oxide with HF or HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 95 amu	3 ppt	n/a	40Ar39K16O,79Br1 6O,190Os2+,190Pt 2+
ICP-OES 202.030 nm	0.008 / 0.0002 µg/mL	1	Os, Hf
ICP-OES 203.844 nm	0.012 / 0.002 µg/mL	1	
ICP-OES 204.598 nm	0.012 / 0.001 µg/mL	1	Ir, Ta

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 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 17, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- July 17, 2027

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation

Certificate Approved By:

Michael Booth
Director, Technical

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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M5978, M5979

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

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	<	0.000536	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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- June 17, 2027

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas 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

45982 R: 6/11/24

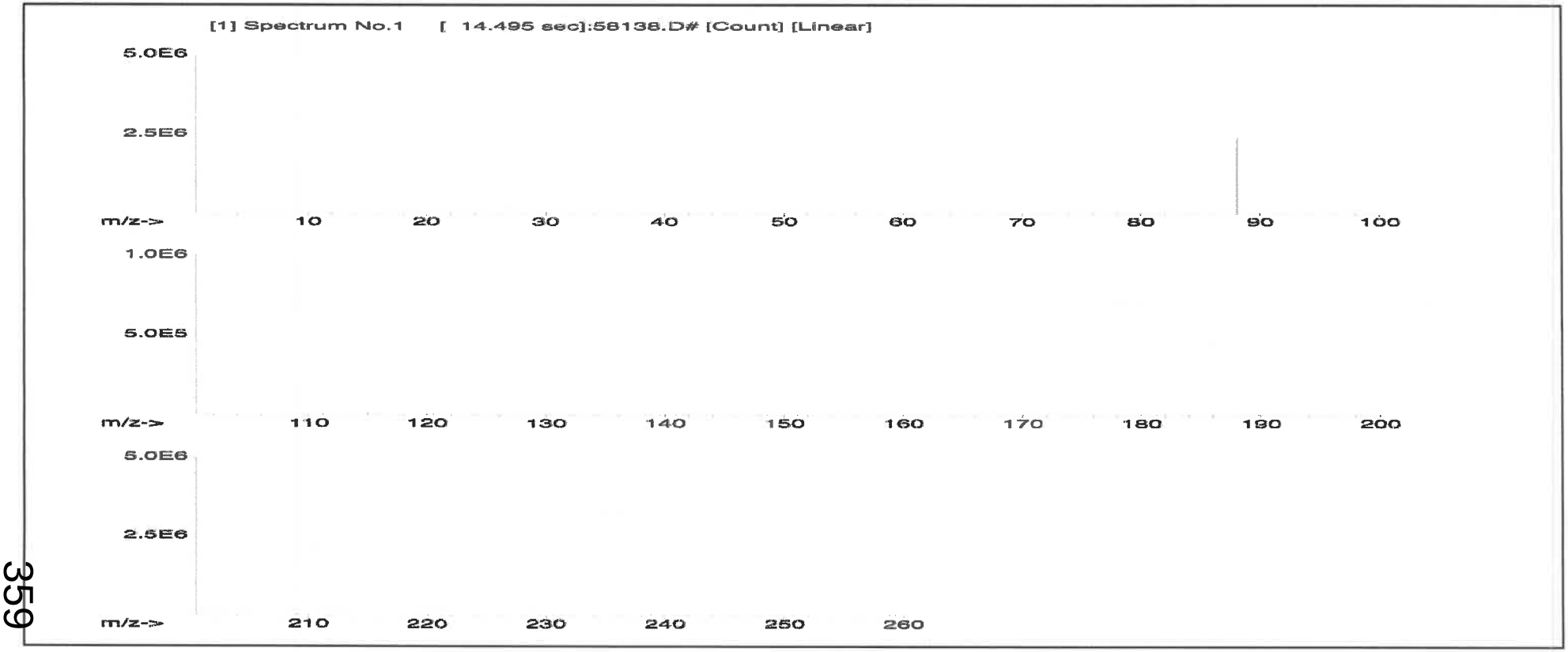
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

Part Number:	**57038**		**Lot #**		
Lot Number:	**031524**	**Solvent:**	24002546	Nitric Acid	
Description:	**Strontium (Sr)**				
		2%	40.0 (mL)	Nitric Acid	
Expiration Date:	031527				
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		

Formulated By:	Benson Chan	031524
Reviewed By:	Pedro L. Rentas	031524

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. Strontium nitrate (Sr)	IN017	SRZ022018A1	1000	99.997	0.10	41.2	4.85470	4.85502	**1000.1**	**2.0**	10042-76-9	NA	orl-rat >2000mg/kg	3153a



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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	T	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

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

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are 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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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 (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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	<	0.004600	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

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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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 21, 2023

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- February 21, 2028

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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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 (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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

- 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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

R: 01/03/24 M6033

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

373

CERTIFIED WEIGHT REPORT:

Part Number:	**58113**			**Lot #**	
Lot Number:	**011623**		**Solvent:**	20510011	Nitric Acid
Description:	**Aluminum (Al)**				
			2%	40.0 (mL)	Nitric Acid
Expiration Date:	011626				
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		

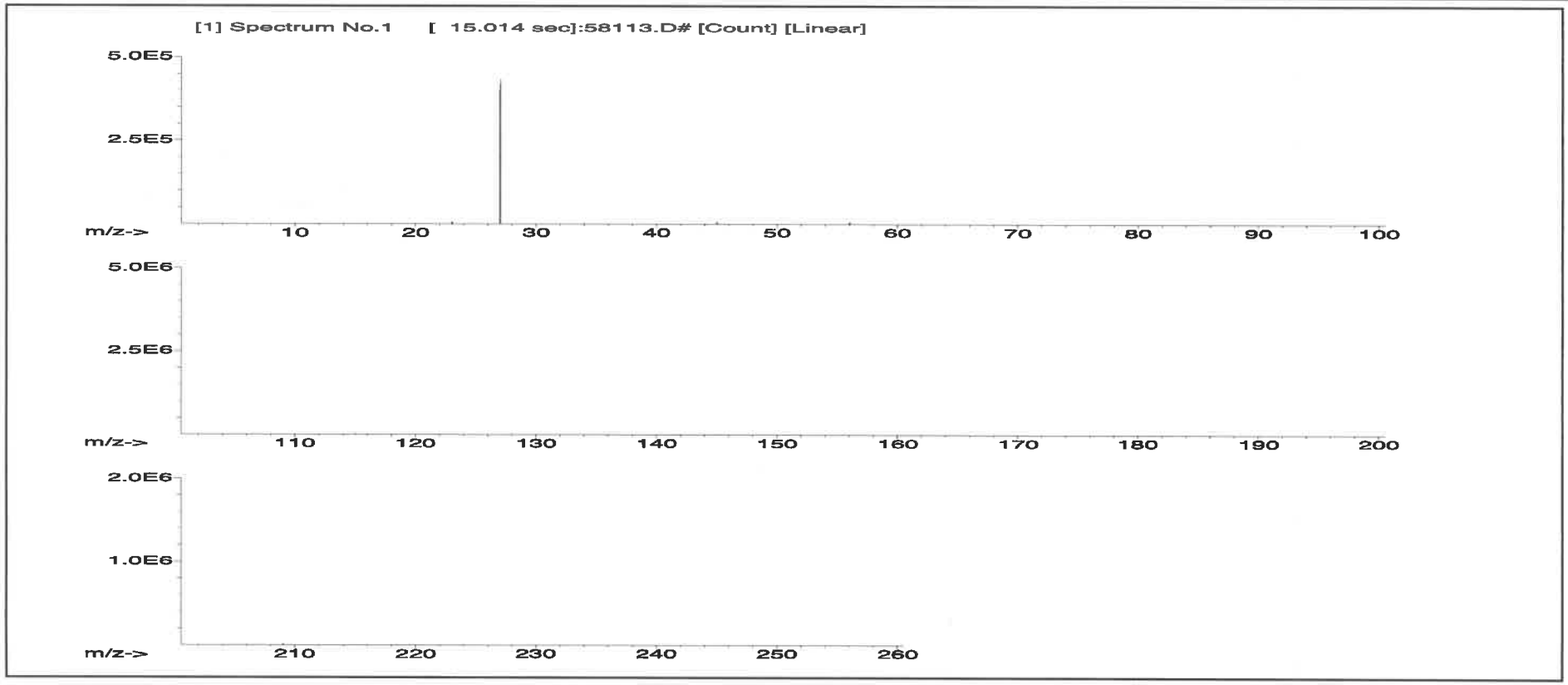
Giovanni Esposito

Formulated By:	Giovanni Esposito	011623

Pedro Rentas

Reviewed By:	Pedro L. Rentas	011623

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. Aluminum nitrate nonahydrate (Al)	IN022	ALM112021A1	10000	99.999	0.10	7.30	273.9779	274.0078	**10001.1**	**20.0**	7784-27-2	2 mg/m3	orl-rat 3671 mg/kg	3101a



Nitric Acid 69%
CMOS

M6103
M6104
M6105

Receive date:
9/29/24
Met dig.

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24D1062002
Manufactured Date: 2024-03-26
Retest Date: 2029-03-25
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

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Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	16 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	10 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	3 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result

For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

M6109
M6110
M6111

Received date 9/29/24 Met dig.

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 22F0762009
Manufactured Date: 2022-05-10
Retest Date: 2027-05-09
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	1.190
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	0.8 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	14.9 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	< 0.4 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	0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 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.: 22F0762009

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	0.8 ppb
Trace Impurities - Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities - Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities - 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	< 0.2 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	1.0 ppb
Trace Impurities - Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities - Sodium (Na)	≤ 100.0 ppb	0.7 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	< 0.8 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	0.8 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.: 22F0762009

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

Nitric Acid 69%
CMOS

M6112
M6113
M6114
M6115
M6116
M6117

Receive:
9/29/24
Met dig

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24B1362001
Manufactured Date: 2024-01-25
Retest Date: 2029-01-23
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.6 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	< 0.2 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	3 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	1 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result

For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Ken Koehnlein
Sr. Manager, Quality Assurance

Nitric Acid 69%
CMOS

M6112
M6113
M6114
M6115
M6116
M6117

Receive:
9/29/24
Met dig

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24B1362001
Manufactured Date: 2024-01-25
Retest Date: 2029-01-23
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.6 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	< 0.2 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	3 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	1 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result

For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Ken Koehnlein
Sr. Manager, Quality Assurance

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

R: 01/03/24 M5806, M5807

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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CERTIFIED WEIGHT REPORT:

Part Number: 58111
Lot Number: 122223
Description: Sodium (Na)

Expiration Date: 122226
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 3000.4 0.06 Flask Uncertainty

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

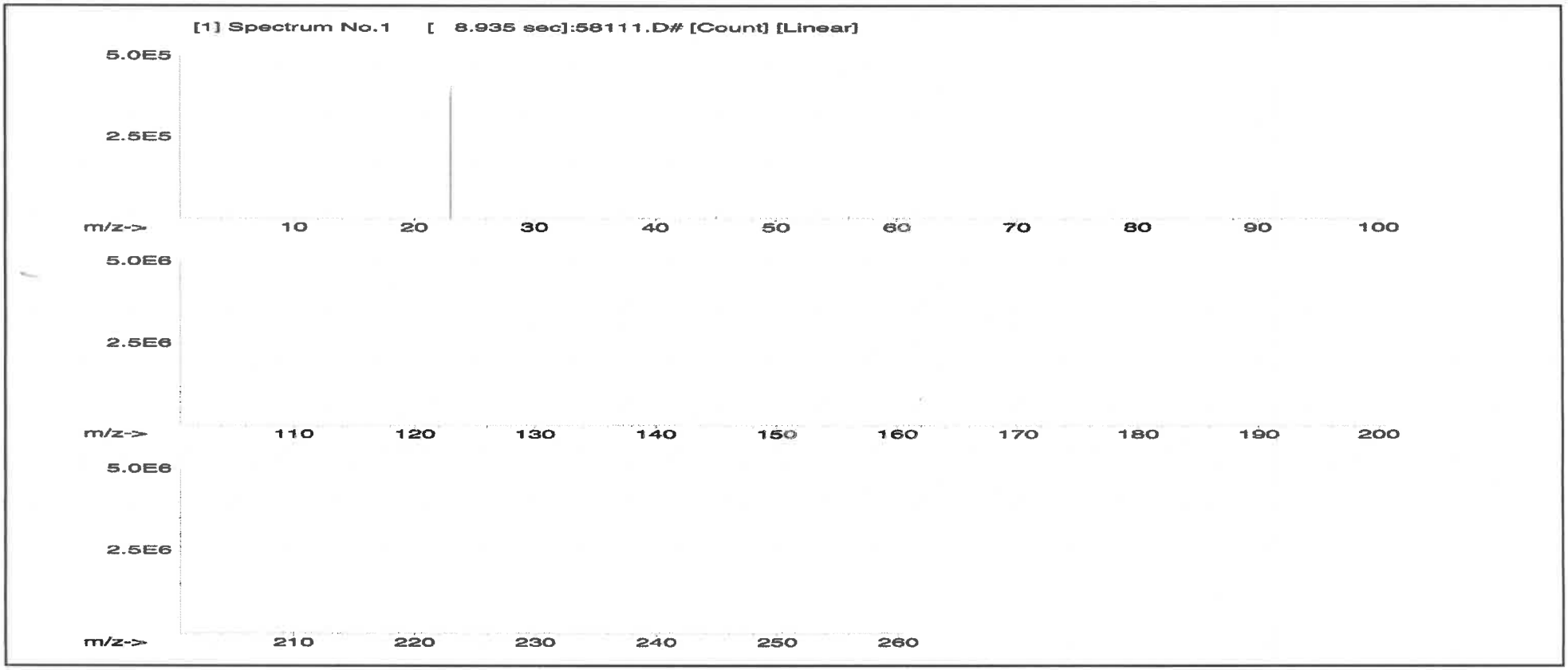
5E-05 Balance Uncertainty

Aleah O'Brady

Formulated By: Aleah O'Brady 122223

Reviewed By: Pedro L. Rentas 122223

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	111.5406	111.5479	**10000.7**	**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	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	T	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are 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
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Certified Reference Material CRM

R: 01/03/24 M5802, M5803

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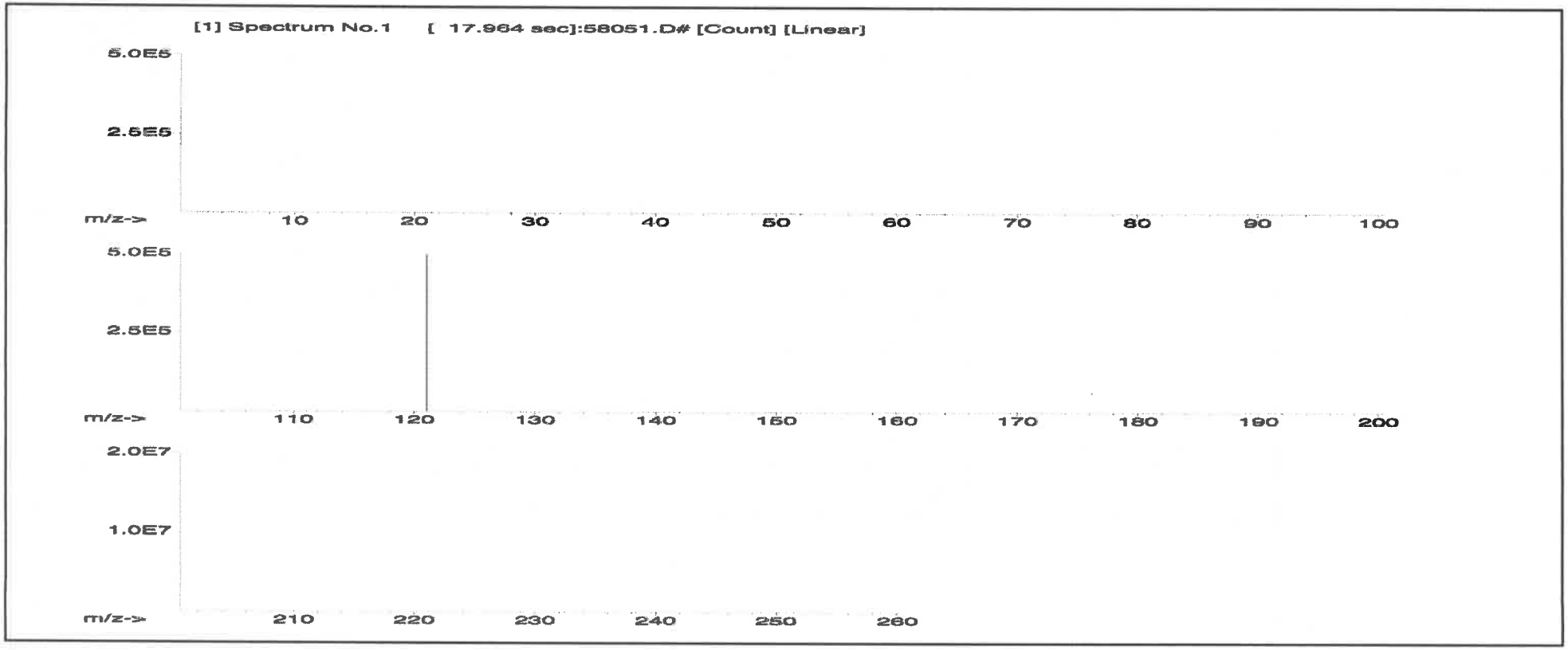
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57051**	24002546	Nitric Acid	
Lot Number:	**120523**			
Description:	**Antimony (Sb)**			
		2.0%	60.0 (mL)	Nitric Acid
Expiration Date:	120526			
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):	3000.41	0.058	Flask Uncertainty	

Formulated By:	Lawrence Barry	120523
Reviewed By:	Pedro L. Rentas	120523

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	100923	0.1000	300.0	0.084	1000	10001.4	**1000.0**	2.1	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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Certified Reference Material CRM

M6030

R: 8/5/24

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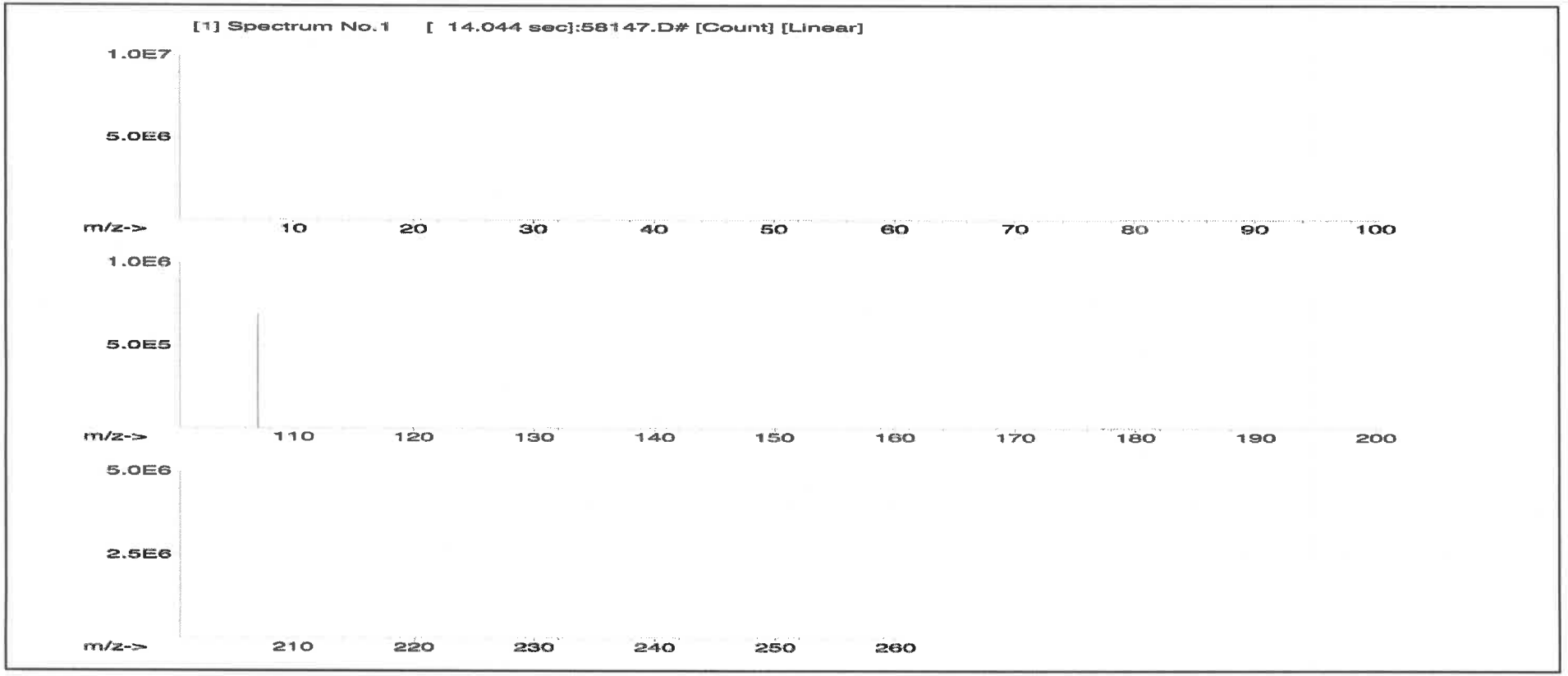
CERTIFIED WEIGHT REPORT:

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.
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R: 03/16/23 M5473, M5474, M5475, M5476

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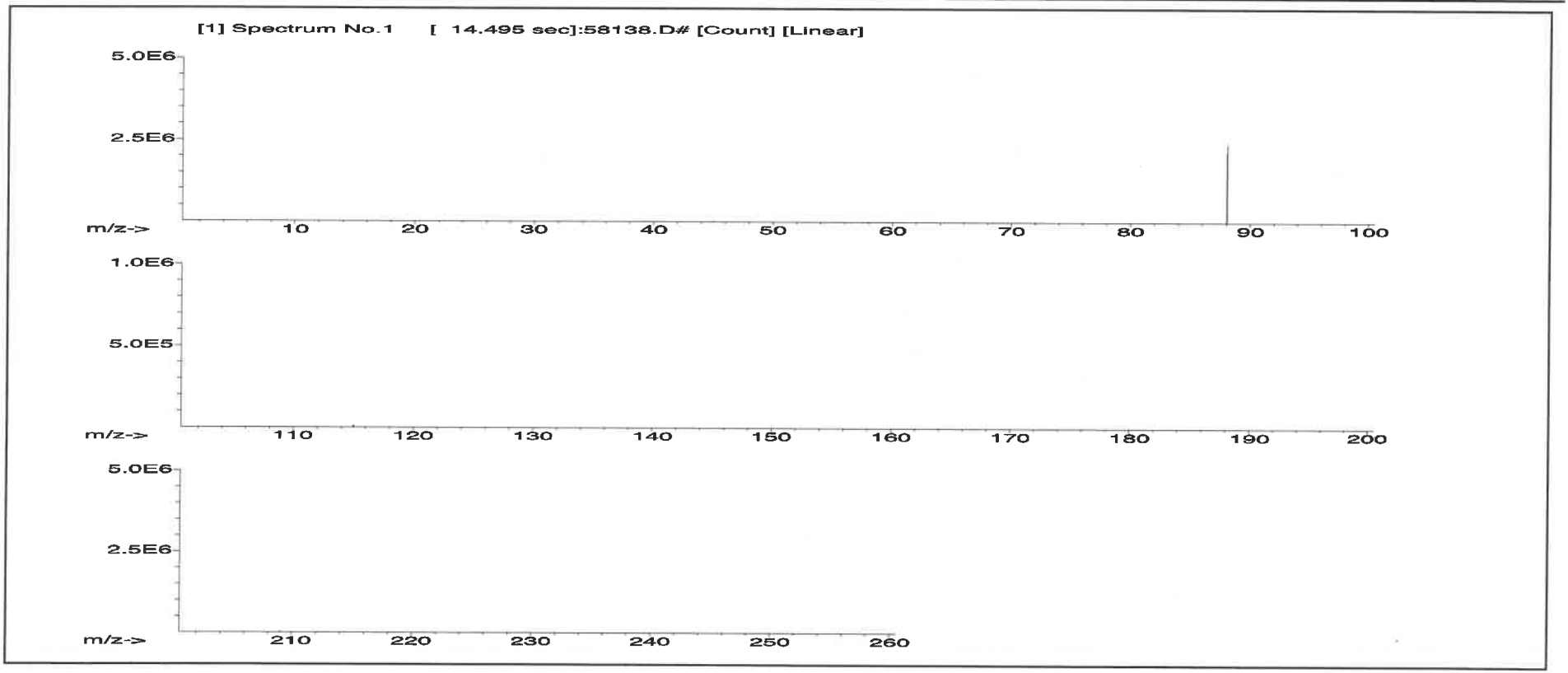
CERTIFIED WEIGHT REPORT:

Part Number:	**56138**		**Lot #**		
Lot Number:	**082922**	**Solvent:**	20510011	Nitric Acid	
Description:	**Strontium (Sr)**	2%	20.0 (mL)	Nitric Acid	
Expiration Date:	082925				
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):	1000.12	0.058	Flask Uncertainty		

Formulated By:	Lawrence Barry	082922
Reviewed By:	Pedro L. Rentas	082922

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. Strontium nitrate (Sr)	IN017	SRZ022018A1	10000	99.997	0.10	41.2	24.2756	24.2758	**10000.1**	**20.0**	10042-76-9	NA	orl-rat >2000mg/kg	3153a



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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

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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		

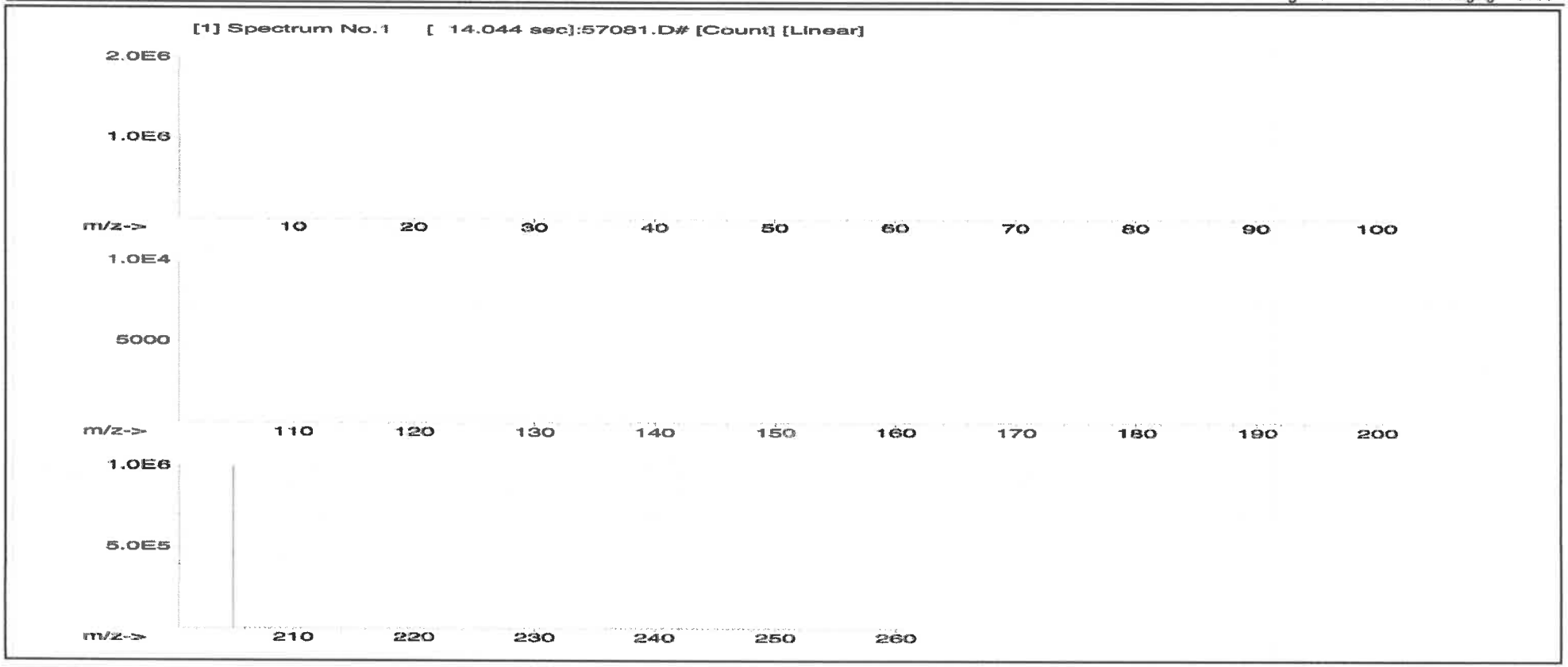
Aleah O'Brady

Formulated By:	Aleah O'Brady	062724

Pedro Rentas

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:

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Rc. 8/5/24

396

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57023**			
Lot Number:	**062424**			
Description:	**Vanadium (V)**	24002546	Nitric Acid	
		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	

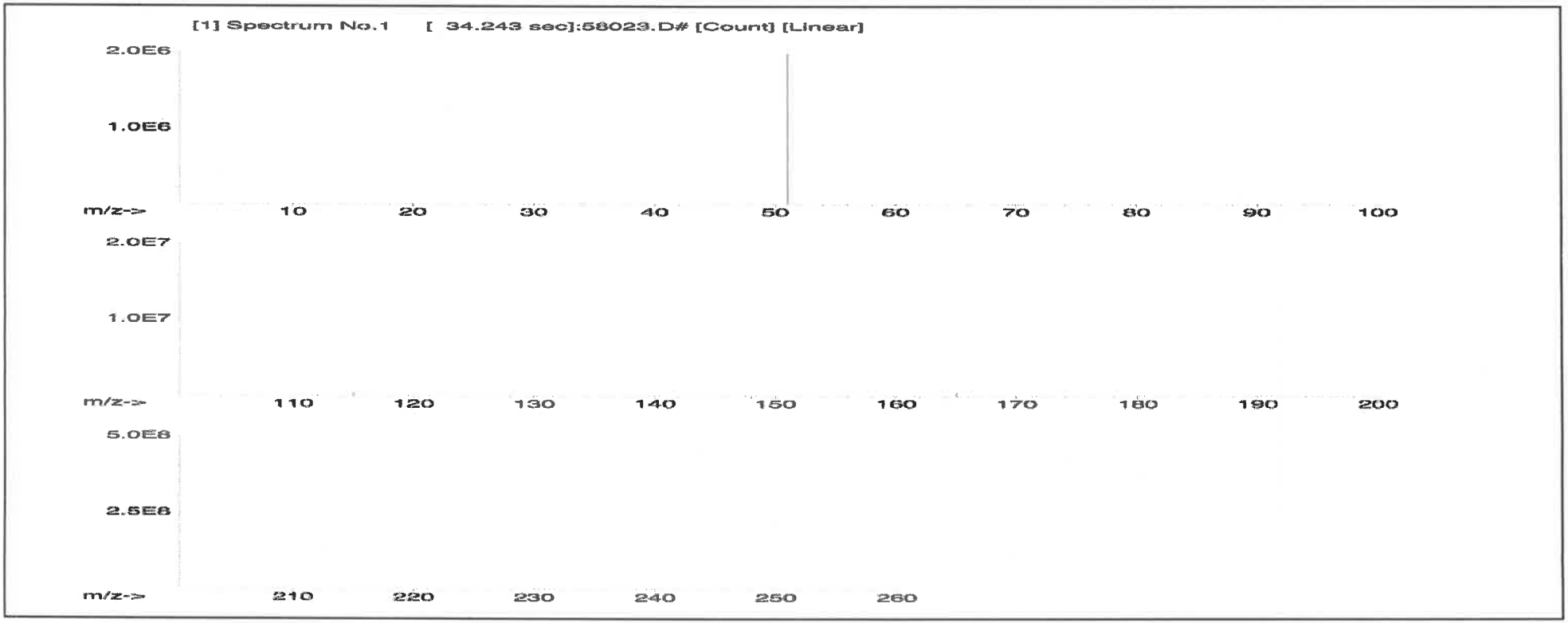
Aleah O'Brady

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



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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	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:

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Certified by:

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Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB164760

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

SDG No : MBH6M7

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: 11/07/2024 **Time :** 12:30 **Temp :** 95 °C

End Digest Date: 11/07/2024 **Time :** 14:45 **Temp :** 95 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: JSP

Supervisor Signature:

Temp : 1. 95°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LCSS	0.50	MP83141
Spike Sol 6	0.25	MP83147
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	MP83122
1:1 HCL	0.50	MP83105
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 : 95 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11/7/24 15:00	JSP | Met Dig	
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB164760

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
P4623-01	MBH6M7	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	1
P4623-02	MBH6M8	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	2
P4623-03	MBH6M9	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	3
P4623-04	MBH6N0	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	4
P4623-05	MBH6N1	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	5
P4623-06	MBH8M6	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	6
P4623-07	MBH6N2	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	7
P4623-08	MBH6N3	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	8
P4623-09	MBH6N4	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	9
P4623-10	MBH6N5	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	10
P4623-11	MBH6N6	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	11
P4623-12	MBH6N6D	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	12
P4623-13	MBH6N6S	<2	50	50	Colorless	Colorless	Clear	Clear	MP83147	13
P4623-14	MBH6N7	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	14
PB164760BL	PBW760	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	15
PB164760BS	LCS760	<2	50	50	Colorless	Colorless	Clear	Clear	MP83141	16
PB164760TB	LEB760	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	17

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133378

Review By	Mohan Bera	Review On	11/12/2024 1:59:23 AM
Supervise By	Sarabjit Jaswal	Supervise On	11/12/2024 3:09:59 AM

STD. NAME	STD REF.#
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	WP110482,WP108585
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	11/08/24 15:31		Kareem	OK
2	S1	S01	CAL2	11/08/24 15:36		Kareem	OK
3	S2	S02	CAL3	11/08/24 15:41		Kareem	OK
4	S3	S03	CAL4	11/08/24 15:45		Kareem	OK
5	S4	S04	CAL5	11/08/24 15:49		Kareem	OK
6	S5	S05	CAL6	11/08/24 15:53		Kareem	OK
7	S6	S06	CAL7	11/08/24 15:58		Kareem	OK
8	ICV006	ICV006	ICV	11/08/24 16:09	Inst. pause for calibration review	Kareem	OK
9	ICB006	ICB006	ICB	11/08/24 18:04	Inst. pause for review	Kareem	OK
10	ICSA006	ICSA006	ICSA	11/08/24 18:51	Inst. pause for review	Kareem	OK
11	ICSAB006	ICSAB006	ICSAB	11/08/24 18:55		Kareem	OK
12	CCV035	CCV035	CCV	11/08/24 19:00		Kareem	OK
13	CCB035	CCB035	CCB	11/08/24 19:15	Inst. pause for review	Kareem	OK
14	P4482-14ADL	MYE4E3A	PS	11/08/24 19:25	PS for PB 0.026ml m6025, Mn 0.078 ml m5698-10 ml sample	Kareem	OK
15	P4483-20ADL	MYE4G9A	PS	11/08/24 19:29	PS for Zn 0.0093ml m5819	Kareem	OK
16	P4484-03ADL	MYE4H2A	PS	11/08/24 19:34	PS for Cr 0.031ml m5658	Kareem	OK
17	P4500-10ADL	MBHCP0A	PS	11/08/24 19:38	Not used	Kareem	Not Ok

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Instrument ID: P5

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ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
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CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	WP110482,WP108585
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

18	P4496-06	MBHZC7	SAM	11/08/24 19:43	Not used	Kareem	Not Ok
19	PB164450BL	PBS450	MB	11/08/24 19:47	Not used	Kareem	Not Ok
20	PB164450BS	LCS450	LCS	11/08/24 19:52	Not used	Kareem	Not Ok
21	P4623-01	MBH6M7	SAM	11/08/24 19:56		Kareem	OK
22	P4623-02	MBH6M8	SAM	11/08/24 20:01		Kareem	OK
23	P4623-03	MBH6M9	SAM	11/08/24 20:05		Kareem	OK
24	P4623-04	MBH6N0	SAM	11/08/24 20:10		Kareem	OK
25	P4623-05	MBH6N1	SAM	11/08/24 20:14		Kareem	OK
26	P4623-06	MBH8M6	SAM	11/08/24 20:18		Kareem	OK
27	P4623-07	MBH6N2	SAM	11/08/24 20:23		Kareem	OK
28	P4623-08	MBH6N3	SAM	11/08/24 20:27		Kareem	OK
29	P4623-09	MBH6N4	SAM	11/08/24 20:31		Kareem	OK
30	P4623-10	MBH6N5	SAM	11/08/24 20:36		Kareem	OK
31	P4623-11	MBH6N6	SAM	11/08/24 20:40	MS fail for Many parameter	Kareem	Not Ok
32	P4623-12	MBH6N6D	DUP	11/08/24 20:45	MS fail for Many parameter	Kareem	Not Ok
33	P4623-13	MBH6N6S	MS	11/08/24 20:49	MS fail for Many parameter	Kareem	Not Ok
34	CCV036	CCV036	CCV	11/08/24 20:53		Kareem	OK
35	CCB036	CCB036	CCB	11/08/24 20:58		Kareem	OK
36	P4623-11L	MBH6N6L	SD	11/08/24 21:02	MS fail for Many parameter	Kareem	Not Ok
37	P4623-14	MBH6N7	SAM	11/08/24 21:07		Kareem	OK

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133378

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Supervise By	Sarabjit Jaswal	Supervise On	11/12/2024 3:09:59 AM

STD. NAME	STD REF.#
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	WP110482,WP108585
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

38	PB164760TB	LEB760	MB	11/08/24 21:11		Kareem	OK
39	PB164760BL	PBW760	MB	11/08/24 21:16		Kareem	OK
40	PB164760BS	LCS760	LCS	11/08/24 21:20		Kareem	OK
41	P4502-01	MBHCY1	SAM	11/08/24 21:25	Not used	Kareem	Not Ok
42	P4502-02	MBHCY2	SAM	11/08/24 21:29	Not used	Kareem	Not Ok
43	P4502-03	MBHCY3	SAM	11/08/24 21:33	Not used	Kareem	Not Ok
44	P4502-04	MBHCY4	SAM	11/08/24 21:38	Not used	Kareem	Not Ok
45	P4502-05	MBHCY8	SAM	11/08/24 21:42	Not used	Kareem	Not Ok
46	P4502-06	MBHCY9	SAM	11/08/24 21:47	Not used	Kareem	Not Ok
47	P4502-07	MBHCZ0	SAM	11/08/24 21:51	Not used	Kareem	Not Ok
48	P4502-08	MBHCZ1	SAM	11/08/24 21:56	Not used	Kareem	Not Ok
49	P4502-09	MBHCZ2	SAM	11/08/24 22:00	Not used	Kareem	Not Ok
50	P4502-10	MBHCZ3	SAM	11/08/24 22:05	Not used	Kareem	Not Ok
51	P4502-11	MBHCX4	SAM	11/08/24 22:09	Not used	Kareem	Not Ok
52	P4502-12	MBHCX7	SAM	11/08/24 22:14	Not used	Kareem	Not Ok
53	P4502-13	MBHCX8	SAM	11/08/24 22:18	Not used	Kareem	Not Ok
54	P4502-14	MBHCX9	SAM	11/08/24 22:23	Not used	Kareem	Not Ok
55	P4502-15	MBHDO0	SAM	11/08/24 22:27	Not used	Kareem	Not Ok
56	CCV037	CCV037	CCV	11/08/24 22:32		Kareem	OK
57	CCB037	CCB037	CCB	11/08/24 22:36		Kareem	OK

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133378

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Supervise By	Sarabjit Jaswal	Supervise On	11/12/2024 3:09:59 AM

STD. NAME	STD REF.#
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	WP110482,WP108585
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

58	P4502-16	MBHDO1	SAM	11/08/24 22:40	Not used	Kareem	Not Ok
59	P4502-17	MBHDO2	SAM	11/08/24 22:45	Not used	Kareem	Not Ok
60	P4502-18	MBHDO3	SAM	11/08/24 22:49	Not used	Kareem	Not Ok
61	P4502-19	MBHDO4	SAM	11/08/24 22:54	Not used	Kareem	Not Ok
62	P4502-20	MBHZC9	SAM	11/08/24 22:59	Not used	Kareem	Not Ok
63	P4502-21	MBHZC9D	DUP	11/08/24 23:03	Not used	Kareem	Not Ok
64	P4502-22	MBHZC9S	MS	11/08/24 23:08	Not used	Kareem	Not Ok
65	P4502-20L	MBHZC9L	SD	11/08/24 23:12	Not used	Kareem	Not Ok
66	PB164545BL	PBS545	MB	11/08/24 23:17	Not used	Kareem	Not Ok
67	PB164545BS	LCS545	LCS	11/08/24 23:21	Not used	Kareem	Not Ok
68	P4520-01DL	MYE4L4	SAM	11/08/24 23:26	Not used	Kareem	Not Ok
69	P4520-02DL	MYE4L5	SAM	11/08/24 23:30	Not used	Kareem	Not Ok
70	P4520-03DL	MYE4L6	SAM	11/08/24 23:34	Not used	Kareem	Not Ok
71	P4520-04DL	MYE4L7	SAM	11/08/24 23:39	Not used	Kareem	Not Ok
72	P4520-05DL	MYE4L8	SAM	11/08/24 23:43	Not used	Kareem	Not Ok
73	P4520-06DL	MYE4L9	SAM	11/08/24 23:48	Not used	Kareem	Not Ok
74	P4520-07DL	MYE4M0	SAM	11/08/24 23:52	Not used	Kareem	Not Ok
75	P4520-08DL	MYE4M1	SAM	11/08/24 23:57	Not used	Kareem	Not Ok
76	P4520-09DL	MYE4M1D	DUP	11/09/24 00:01	Not used	Kareem	Not Ok
77	P4520-10DL	MYE4M1S	MS	11/09/24 00:06	Not used	Kareem	Not Ok

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133378

Review By	Mohan Bera	Review On	11/12/2024 1:59:23 AM
Supervise By	Sarabjit Jaswal	Supervise On	11/12/2024 3:09:59 AM

STD. NAME	STD REF.#
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	WP110482,WP108585
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

78	CCV038	CCV038	CCV	11/09/24 00:10		Kareem	OK
79	CCB038	CCB038	CCB	11/09/24 00:14		Kareem	OK
80	P4520-08LDL	MYE4M1L	SD	11/09/24 00:19	Not used	Kareem	Not Ok
81	P4520-11DL	MYE4M2	SAM	11/09/24 00:23	Not used	Kareem	Not Ok
82	P4520-12DL	MYE4M4	SAM	11/09/24 00:28	Not used	Kareem	Not Ok
83	P4520-13DL	MYE4M5	SAM	11/09/24 00:32	Not used	Kareem	Not Ok
84	P4520-14DL	MYE4M6	SAM	11/09/24 00:36	Not used	Kareem	Not Ok
85	P4520-15DL	MYE4M7	SAM	11/09/24 00:41	Not used	Kareem	Not Ok
86	P4520-16DL	MYE4M8	SAM	11/09/24 00:45	Not used	Kareem	Not Ok
87	P4520-17DL	MYE4M9	SAM	11/09/24 00:50	Not used	Kareem	Not Ok
88	P4520-18DL	MYE4N0	SAM	11/09/24 00:54	Not used	Kareem	Not Ok
89	P4520-19DL	MYE4N1	SAM	11/09/24 00:59	Not used	Kareem	Not Ok
90	P4520-20DL	MYE4N2	SAM	11/09/24 01:03	Not used	Kareem	Not Ok
91	P4520-21DL	MYE4N3	SAM	11/09/24 01:08	Not used	Kareem	Not Ok
92	P4520-22DL	MYE4N4	SAM	11/09/24 01:12	Not used	Kareem	Not Ok
93	PB164570BL	PBS570	MB	11/09/24 01:37	Not used	Kareem	Not Ok
94	PB164570BS	LCS570	LCS	11/09/24 01:42	Not used	Kareem	Not Ok
95	PB164570BSD	LCSD570	LCSD	11/09/24 01:46	Not used	Kareem	Not Ok
96	P4521-01DL	MYE4N5	SAM	11/09/24 01:51	Not used	Kareem	Not Ok
97	CCV039	CCV039	CCV	11/09/24 01:55		Kareem	OK

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133378

Review By	Mohan Bera	Review On	11/12/2024 1:59:23 AM
Supervise By	Sarabjit Jaswal	Supervise On	11/12/2024 3:09:59 AM

STD. NAME	STD REF.#
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	WP110482,WP108585
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

98	CCB039	CCB039	CCB	11/09/24 02:07	Inst. pause for review	Kareem	OK
99	P4521-02DL	MYE4N6	SAM	11/09/24 02:12	Not used	Kareem	Not Ok
100	P4521-03DL	MYE4N7	SAM	11/09/24 02:16	Not used	Kareem	Not Ok
101	P4521-04DL	MYE4N8	SAM	11/09/24 02:21	Not used	Kareem	Not Ok
102	P4521-05DL	MYE4N9	SAM	11/09/24 02:25	Not used	Kareem	Not Ok
103	P4521-06DL	MYE4P0	SAM	11/09/24 02:30	Not used	Kareem	Not Ok
104	P4521-07DL	MYE4P1	SAM	11/09/24 02:34	Not used	Kareem	Not Ok
105	P4521-08DL	MYE4P2	SAM	11/09/24 02:38	Not used	Kareem	Not Ok
106	P4521-09DL	MYE4P2D	DUP	11/09/24 02:43	Not used	Kareem	Not Ok
107	P4521-10DL	MYE4P2S	MS	11/09/24 02:47	Not used	Kareem	Not Ok
108	P4521-08LDL	MYE4P2L	SD	11/09/24 02:52	Not used	Kareem	Not Ok
109	P4521-11DL	MYE4P3	SAM	11/09/24 02:56	Not used	Kareem	Not Ok
110	P4521-12DL	MYE4P4	SAM	11/09/24 03:01	Not used	Kareem	Not Ok
111	P4521-13DL	MYE4P5	SAM	11/09/24 03:05	Not used	Kareem	Not Ok
112	P4521-14DL	MYE4Q2	SAM	11/09/24 03:09	Not used	Kareem	Not Ok
113	P4521-15DL	MYE4Q3	SAM	11/09/24 03:14	Not used	Kareem	Not Ok
114	P4521-16DL	MYE4Q4	SAM	11/09/24 03:18	Not used	Kareem	Not Ok
115	P4521-17DL	MYE4Q5	SAM	11/09/24 03:23	Not used	Kareem	Not Ok
116	P4521-18DL	MYE4Q6	SAM	11/09/24 03:27	Not used	Kareem	Not Ok
117	P4521-19DL	MYE4Q7	SAM	11/09/24 03:32	Not used	Kareem	Not Ok

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133378

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Supervise By	Sarabjit Jaswal	Supervise On	11/12/2024 3:09:59 AM

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ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	WP110482,WP108585
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

118	P4521-20DL	MYE4Q8	SAM	11/09/24 03:36	Not used	Kareem	Not Ok
119	CCV040	CCV040	CCV	11/09/24 03:40		Kareem	OK
120	CCB040	CCB040	CCB	11/09/24 03:45		Kareem	OK
121	P4521-21DL	MYE4Q9	SAM	11/09/24 03:49	Not used	Kareem	Not Ok
122	P4521-22DL	MYE4R0	SAM	11/09/24 03:54	Not used	Kareem	Not Ok
123	PB164584BL	PBS584	MB	11/09/24 03:58	Not used	Kareem	Not Ok
124	PB164584BS	LCS584	LCS	11/09/24 04:03	Not used	Kareem	Not Ok
125	PB164584BSD	LCSD584	LCSD	11/09/24 04:07	Not used	Kareem	Not Ok
126	P4522-01DL	MYE4R1	SAM	11/09/24 04:12	Not used	Kareem	Not Ok
127	P4522-02DL	MYE4R1D	DUP	11/09/24 04:16	Not used	Kareem	Not Ok
128	P4522-03DL	MYE4R1S	MS	11/09/24 04:20	Not used	Kareem	Not Ok
129	P4522-01LDL	MYE4R1L	SD	11/09/24 04:25	Not used	Kareem	Not Ok
130	P4522-04DL	MYE4R2	SAM	11/09/24 04:29	Not used	Kareem	Not Ok
131	P4522-05DL	MYE4R3	SAM	11/09/24 04:34	Not used	Kareem	Not Ok
132	P4522-06DL	MYE4R4	SAM	11/09/24 04:38	Not used	Kareem	Not Ok
133	P4522-07DL	MYE4R5	SAM	11/09/24 04:43	Not used	Kareem	Not Ok
134	P4522-08DL	MYE4R6	SAM	11/09/24 04:47	Not used	Kareem	Not Ok
135	P4522-09DL	MYE4R7	SAM	11/09/24 04:51	Not used	Kareem	Not Ok
136	P4522-10DL	MYE4R8	SAM	11/09/24 04:56	Not used	Kareem	Not Ok
137	P4522-11DL	MYE4S0	SAM	11/09/24 05:00	Not used	Kareem	Not Ok

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133378

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Supervise By	Sarabjit Jaswal	Supervise On	11/12/2024 3:09:59 AM

STD. NAME	STD REF.#
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ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	WP110482,WP108585
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

138	P4522-12DL	MYE4S1	SAM	11/09/24 05:05	Not used	Kareem	Not Ok
139	P4522-13DL	MYE4S2	SAM	11/09/24 05:09	Not used	Kareem	Not Ok
140	P4522-14DL	MYE4S3	SAM	11/09/24 05:14	Not used	Kareem	Not Ok
141	CCV041	CCV041	CCV	11/09/24 05:18		Kareem	OK
142	CCB041	CCB041	CCB	11/09/24 05:22		Kareem	OK
143	P4522-15DL	MYE4S4	SAM	11/09/24 05:27	Not used	Kareem	Not Ok
144	P4522-16DL	MYE4S5	SAM	11/09/24 05:31	Not used	Kareem	Not Ok
145	P4522-17DL	MYE4S6	SAM	11/09/24 05:36	Not used	Kareem	Not Ok
146	P4522-18DL	MYE4S7	SAM	11/09/24 05:40	Not used	Kareem	Not Ok
147	P4522-19DL	MYE4S8	SAM	11/09/24 05:44	Not used	Kareem	Not Ok
148	P4522-20DL	MYE4S9	SAM	11/09/24 05:49	Not used	Kareem	Not Ok
149	P4522-21DL	MYE4T0	SAM	11/09/24 05:53	Not used	Kareem	Not Ok
150	P4522-22DL	MYE4T1	SAM	11/09/24 05:58	Not used	Kareem	Not Ok
151	PB164586BL	PBS586	MB	11/09/24 06:02	Not used	Kareem	Not Ok
152	PB164586BS	LCS586	LCS	11/09/24 06:06	Not used	Kareem	Not Ok
153	PB164586BSD	LCSD586	LCSD	11/09/24 06:11	Not used	Kareem	Not Ok
154	P4730-01	MC0B82	SAM	11/09/24 06:15	Not used	Kareem	Not Ok
155	P4730-04	MC0B86	SAM	11/09/24 06:20	Not used	Kareem	Not Ok
156	P4730-05	MC0B86D	DUP	11/09/24 06:25	Not used	Kareem	Not Ok
157	P4730-06	MC0B86S	MS	11/09/24 06:29	Not used	Kareem	Not Ok

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133378

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Supervise By	Sarabjit Jaswal	Supervise On	11/12/2024 3:09:59 AM

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ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	WP110482,WP108585
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

158	P4730-04L	MC0B86L	SD	11/09/24 06:33	Not used	Kareem	Not Ok
159	P4730-07	MC0B88	SAM	11/09/24 06:38	Not used	Kareem	Not Ok
160	PB164767BL	PBW767	MB	11/09/24 06:42	Not used	Kareem	Not Ok
161	PB164767BS	LCS767	LCS	11/09/24 06:47	Not used	Kareem	Not Ok
162	P4523-01DL	MYE4T2	SAM	11/09/24 06:51	Not used	Kareem	Not Ok
163	CCV042	CCV042	CCV	11/09/24 06:56		Kareem	OK
164	CCB042	CCB042	CCB	11/09/24 07:00		Kareem	OK
165	P4523-02DL	MYE4T3	SAM	11/09/24 07:05	Not used	Kareem	Not Ok
166	P4523-03DL	MYE4T4	SAM	11/09/24 07:09	Not used	Kareem	Not Ok
167	P4523-04DL	MYE4T5	SAM	11/09/24 07:13	Not used	Kareem	Not Ok
168	P4523-05DL	MYE4T6	SAM	11/09/24 07:18	Not used	Kareem	Not Ok
169	P4523-06DL	MYE4T7	SAM	11/09/24 07:22	Not used	Kareem	Not Ok
170	P4523-07DL	MYE4T8	SAM	11/09/24 07:27	Not used	Kareem	Not Ok
171	P4523-08DL	MYE4T8D	DUP	11/09/24 07:31	Not used	Kareem	Not Ok
172	P4523-09DL	MYE4T8S	MS	11/09/24 07:36	Not used	Kareem	Not Ok
173	P4523-07LDL	MYE4T8L	SD	11/09/24 07:40	Not used	Kareem	Not Ok
174	P4523-10DL	MYE4T9	SAM	11/09/24 07:44	Not used	Kareem	Not Ok
175	P4523-11DL	MYE4W8	SAM	11/09/24 07:49	Not used	Kareem	Not Ok
176	P4523-12DL	MYE4W9	SAM	11/09/24 07:53	Not used	Kareem	Not Ok
177	P4523-13DL	MYE4X0	SAM	11/09/24 07:58	Not used	Kareem	Not Ok

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

Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133378

Review By	Mohan Bera	Review On	11/12/2024 1:59:23 AM
Supervise By	Sarabjit Jaswal	Supervise On	11/12/2024 3:09:59 AM

STD. NAME	STD REF.#
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	WP110482,WP108585
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

178	P4523-14DL	MYE4X1	SAM	11/09/24 08:02	Not used	Kareem	Not Ok
179	P4523-15DL	MYE4X2	SAM	11/09/24 08:06	Not used	Kareem	Not Ok
180	P4523-16DL	MYE4X3	SAM	11/09/24 08:11	Not used	Kareem	Not Ok
181	P4523-17DL	MYE4X4	SAM	11/09/24 08:15	Not used	Kareem	Not Ok
182	P4523-18DL	MYE4X5	SAM	11/09/24 08:20	Not used	Kareem	Not Ok
183	P4523-19DL	MYE4X6	SAM	11/09/24 08:24	Not used	Kareem	Not Ok
184	P4523-20DL	MYE4X7	SAM	11/09/24 08:29	Not used	Kareem	Not Ok
185	CCV043	CCV043	CCV	11/09/24 08:33		Kareem	OK
186	CCB043	CCB043	CCB	11/09/24 08:37		Kareem	OK
187	P4523-21DL	MYE4X8	SAM	11/09/24 08:42	Not used	Kareem	Not Ok
188	P4523-22DL	MYE4X9	SAM	11/09/24 08:46	Not used	Kareem	Not Ok
189	PB164595BL	PBS595	MB	11/09/24 08:51	Not used	Kareem	Not Ok
190	PB164595BS	LCS595	LCS	11/09/24 08:55	Not used	Kareem	Not Ok
191	PB164595BSD	LCSD595	LCSD	11/09/24 09:00	Not used	Kareem	Not Ok
192	P4497-20ADL	MBHDD0A	PS	11/09/24 09:04	Not used	Kareem	Not Ok
193	P4501-13ADL	MBHCW0A	PS	11/09/24 09:08	Not used	Kareem	Not Ok
194	P4499-20A	MBHCN0A	PS	11/09/24 09:13	PS for Co 0.0069ml m5800, Cu 0.01ml mp83158, Tl 0.05ml mp83153-10 ml sample	Kareem	OK
195	CCV044	CCV044	CCV	11/09/24 09:17		Kareem	OK

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

Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133378

Review By	Mohan Bera	Review On	11/12/2024 1:59:23 AM
Supervise By	Sarabjit Jaswal	Supervise On	11/12/2024 3:09:59 AM

STD. NAME	STD REF.#
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	WP110482,WP108585
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

196	CCB044	CCB044	CCB	11/09/24 09:22		Kareem	OK

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

Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133409

Review By	Sarabjit Jaswal	Review On	11/12/2024 5:11:51 PM
Supervise By	Kareem Khairalla	Supervise On	11/12/2024 5:19:32 PM

STD. NAME	STD REF.#
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	
LCS Standard	
Chk Standard	MP83148,MP83149

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	11/12/24 12:24		Kareem	OK
2	S1	S01	CAL2	11/12/24 12:28		Kareem	OK
3	S2	S02	CAL3	11/12/24 12:33		Kareem	OK
4	S3	S03	CAL4	11/12/24 12:37		Kareem	OK
5	S4	S04	CAL5	11/12/24 12:42		Kareem	OK
6	S5	S05	CAL6	11/12/24 12:46		Kareem	OK
7	S6	S06	CAL7	11/12/24 12:50		Kareem	OK
8	ICV009	ICV009	ICV	11/12/24 14:56	Instrument paused for calibration review	Kareem	OK
9	ICB009	ICB009	ICB	11/12/24 15:01		Kareem	OK
10	ICSA009	ICSA009	ICSA	11/12/24 15:09	Instrument paused for review	Kareem	OK
11	ICSAB009	ICSAB009	ICSAB	11/12/24 15:16	Instrument paused for review	Kareem	OK
12	CCV062	CCV062	CCV	11/12/24 15:20		Kareem	OK
13	CCB062	CCB062	CCB	11/12/24 15:24		Kareem	OK
14	P4623-11	MBH6N6	SAM	11/12/24 15:29		Kareem	OK
15	P4623-12	MBH6N6D	DUP	11/12/24 15:33		Kareem	OK
16	P4623-11L	MBH6N6L	SD	11/12/24 15:38		Kareem	OK
17	P4623-13	MBH6N6S	MS	11/12/24 15:47		Kareem	OK
18	P4623-11A	MBH6N6A	PS	11/12/24 15:57	Not use	Kareem	Not Ok

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

Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133409

Review By	Sarabjit Jaswal	Review On	11/12/2024 5:11:51 PM
Supervise By	Kareem Khairalla	Supervise On	11/12/2024 5:19:32 PM

STD. NAME	STD REF.#
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	
LCS Standard	
Chk Standard	MP83148,MP83149

19	CCV063	CCV063	CCV	11/12/24 16:09		Kareem	OK
20	CCB063	CCB063	CCB	11/12/24 16:13		Kareem	OK

Alliance TECHNICAL GROUP

SPLP EXTRACTION LOGPAGE

PB164688

SOP ID : M1312-SPLP-10

SDG No : MBH6H7

Weigh By : JP

Balance ID : WC SC-4

pH Meter ID : WC PH METER-1

Extraction By : JP

Filter By : JP

Pippete ID : WC

Tumbler ID : T-2 /ZHE-2

TCLP Filter ID : 114771

Start Prep Date : 11/05/2024 **Time :** 14:00

End Prep Date : 11/06/2024 **Time :** 07:10

Combination Ratio : 20

ZHE Cleaning Batch : N/A

Initial Room Temperature: 24 °C

Final Room Temperature: 22 °C

TCLP Technician Signature : JP

Supervisor By : IR

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

Chemical Used	ML/SAMPLE U	Lot Number
SPLP FLUID	N/A	WP110482
N/A	N/A	N/A
HNO3-TCLP,1N	N/A	WP108585
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
120ml Plastic bottle	N/A	21029
1:1 HNO3	MP81119	N/A

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after fiftration and before preservation. TUMBLER T-2 / ZHE-2 checked,30 rpm.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11/06/24 08:30	JP / ECLP Room	JP. / ORG-DIG
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

SPLP EXTRACTION LOGPAGE

PB164688

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
P4623-01	MBH6M7	11	100.02	2000	N/A	N/A	N/A	7.22	1.05	T-2
P4623-02	MBH6M8	12	100.03	2000	N/A	N/A	N/A	7.05	1.14	T-2
P4623-03	MBH6M9	13	100.04	2000	N/A	N/A	N/A	7.06	1.17	T-2
P4623-04	MBH6N0	14	100.02	2000	N/A	N/A	N/A	7.11	1.21	T-2
P4623-05	MBH6N1	15	100.03	2000	N/A	N/A	N/A	7.08	1.24	T-2
P4623-06	MBH8M6	16	100.02	2000	N/A	N/A	N/A	7.21	1.30	T-2
P4623-07	MBH6N2	17	100.03	2000	N/A	N/A	N/A	7.25	1.27	T-2
P4623-08	MBH6N3	18	100.04	2000	N/A	N/A	N/A	7.29	1.30	T-2
P4623-09	MBH6N4	19	100.02	2000	N/A	N/A	N/A	7.33	1.35	T-2
P4623-10	MBH6N5	20	100.03	2000	N/A	N/A	N/A	7.03	1.31	T-2
P4623-11	MBH6N6	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-12	MBH6N6D	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-13	MBH6N6S	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-14	MBH6N7	22	100.02	2000	N/A	N/A	N/A	7.32	1.42	ZHE-2
PB164688TB	LEB688	23	N/A	2000	N/A	N/A	N/A	4.23	1.04	ZHE-2

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
P4623-01	MBH6M7	N/A	N/A	N/A	N/A	100	N/A
P4623-02	MBH6M8	N/A	N/A	N/A	N/A	100	N/A
P4623-03	MBH6M9	N/A	N/A	N/A	N/A	100	N/A
P4623-04	MBH6N0	N/A	N/A	N/A	N/A	100	N/A
P4623-05	MBH6N1	N/A	N/A	N/A	N/A	100	N/A
P4623-06	MBH8M6	N/A	N/A	N/A	N/A	100	N/A
P4623-07	MBH6N2	N/A	N/A	N/A	N/A	100	N/A
P4623-08	MBH6N3	N/A	N/A	N/A	N/A	100	N/A
P4623-09	MBH6N4	N/A	N/A	N/A	N/A	100	N/A
P4623-10	MBH6N5	N/A	N/A	N/A	N/A	100	N/A
P4623-11	MBH6N6	N/A	N/A	N/A	N/A	100	N/A
P4623-12	MBH6N6D	N/A	N/A	N/A	N/A	100	N/A
P4623-13	MBH6N6S	N/A	N/A	N/A	N/A	100	N/A
P4623-14	MBH6N7	N/A	N/A	N/A	N/A	100	N/A
PB164688TB	LEB688	N/A	N/A	N/A	N/A	N/A	N/A

Alliance TECHNICAL GROUP

SPLP Fluid Determination

PB164688

Hot Block ID : WC S-1 /WC S-2

Thermometer ID : FLASHPOINT

SampleID	ClientID	Sample Weight (g)	Volume DI Water (mL)	PH after 5 min stir	PH after 10 min stir	Extraction Fluid 1 or 2	pH Extraction Fluid
P4623-01	MBH6M7	N/A	N/A	N/A	N/A	#1	4.23
P4623-02	MBH6M8	N/A	N/A	N/A	N/A	#1	4.23
P4623-03	MBH6M9	N/A	N/A	N/A	N/A	#1	4.23
P4623-04	MBH6N0	N/A	N/A	N/A	N/A	#1	4.23
P4623-05	MBH6N1	N/A	N/A	N/A	N/A	#1	4.23
P4623-06	MBH8M6	N/A	N/A	N/A	N/A	#1	4.23
P4623-07	MBH6N2	N/A	N/A	N/A	N/A	#1	4.23
P4623-08	MBH6N3	N/A	N/A	N/A	N/A	#1	4.23
P4623-09	MBH6N4	N/A	N/A	N/A	N/A	#1	4.23
P4623-10	MBH6N5	N/A	N/A	N/A	N/A	#1	4.23
P4623-11	MBH6N6	N/A	N/A	N/A	N/A	#1	4.23
P4623-12	MBH6N6D	N/A	N/A	N/A	N/A	#1	4.23
P4623-13	MBH6N6S	N/A	N/A	N/A	N/A	#1	4.23
P4623-14	MBH6N7	N/A	N/A	N/A	N/A	#1	4.23
PB164688TB	LEB688	N/A	N/A	N/A	N/A	#1	4.23

EPA SAMPLE NO.

MBH6M7

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-01

% Solids: Date Received: 10/29/2024

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	0.097	J*	11/08/2024	1703

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

Comments:

EPA SAMPLE NO.

MBH6M8

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-02

% Solids: Date Received: 10/29/2024

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	0.16	J*	11/08/2024	1633

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

Comments:

EPA SAMPLE NO.

MBH6M9

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-03

% Solids: Date Received: 10/29/2024

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	0.10	J*	11/08/2024	1636

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

Comments:

EPA SAMPLE NO.

MBH6N0

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-04

% Solids: Date Received: 10/29/2024

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	0.10	J*	11/08/2024	1638

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

Comments:

EPA SAMPLE NO.

MBH6N1

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-05

% Solids: Date Received: 10/29/2024

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	0.13	J*	11/08/2024	1640

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

Comments:

EPA SAMPLE NO.

MBH6N2

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-07

% Solids: Date Received: 10/29/2024

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	0.11	J*	11/08/2024	1645

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

Comments:

EPA SAMPLE NO.

MBH6N3

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-08

% Solids: Date Received: 10/29/2024

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	0.11	J*	11/08/2024	1647

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

Comments:

EPA SAMPLE NO.

MBH6N4

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-09

% Solids: Date Received: 10/29/2024

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	0.12	J*	11/08/2024	1649

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

Comments:

EPA SAMPLE NO.

MBH6N5

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-10

% Solids: Date Received: 10/29/2024

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	0.11	J*	11/08/2024	1652

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

Comments:

EPA SAMPLE NO.

MBH6N6

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-11

% Solids: Date Received: 10/29/2024

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	0.11	J*	11/08/2024	1654

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

Comments:

EPA SAMPLE NO.

MBH6N7

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-14

% Solids: Date Received: 10/29/2024

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	0.11	J*	11/08/2024	1701

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

Comments:

EPA SAMPLE NO.

MBH8M6

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-06

% Solids: Date Received: 10/29/2024

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	0.10	J*	11/08/2024	1642

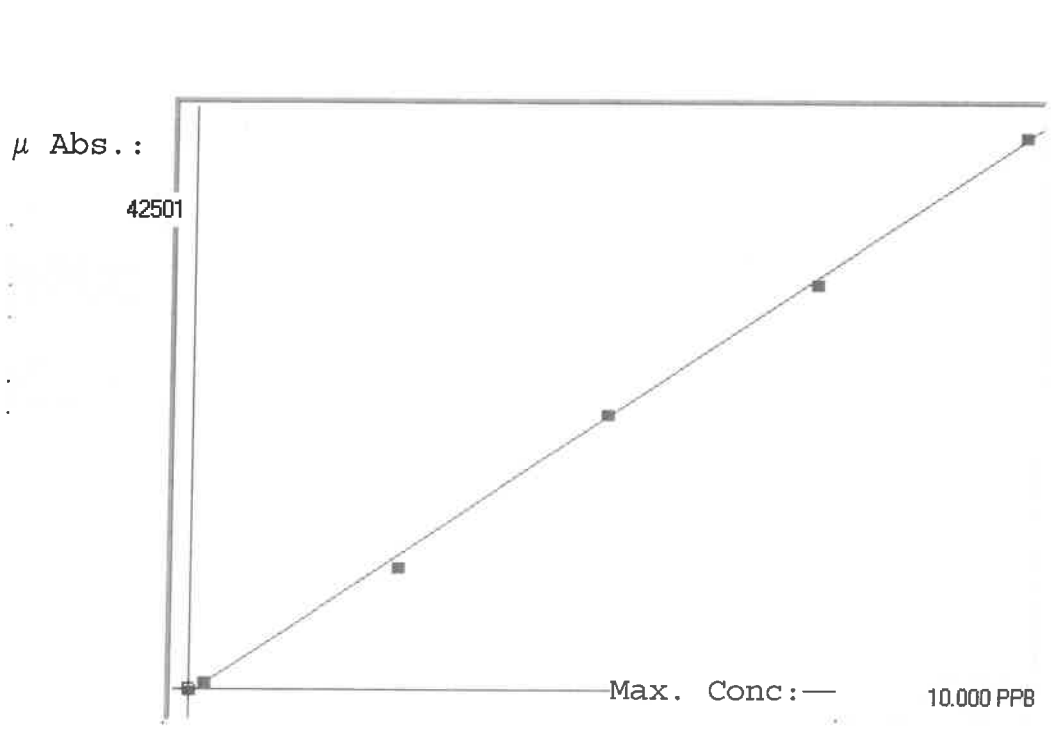
NOTE: Hardness (total) is reported in mg/L

Comments:

Reviewed By:mohan
On:11/11/2024 9:19:50 AM
Inst Id :CV1

LB133364

SFAM01.1 INSTRUMENT ID: CV1



A= 0.0000e+000

B= 2.3484e-004 slope

C= 8.8856e-002 y-intercept

Rho= 0.9996024

Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%(D)
0.00	0.000	0.090	0.090	3	0.000	3					=
0.05	0.050					442	0				24
0.20	0.200	0.248	0.048	678	0.0 %	678					−8
2.50	2.500	2.307	-0.193	9447	0.0 %	9447					+1
5.00	5.000	5.072	0.072	21219	0.0 %	21219					−1
7.50	7.500	7.413	-0.087	31190	0.0 %	31190					1
10.0	10.000	10.070	0.070	42501	0.0 %	42501					

Reviewed By:mohan
On:11/11/2024 9:19:50 AM
Inst Id :CV1

LB133364

INSTRUMENT ID: CV1

Sample ID	Extended Il	µ Abs.	Conc.		Stnd Conc	Method	Units	Date	Type
0	S0	3	-		0	SFAM01.1	PPB	11/8/2024 15:55	Std
0.2	S01	678	-		0.2	SFAM01.1	PPB	11/8/2024 15:57	Std
2.5	S02	9447	-		2.5	SFAM01.1	PPB	11/8/2024 15:59	Std
5	S03	21219	-		5	SFAM01.1	PPB	11/8/2024 16:02	Std
7.5	S04	31190	-		7.5	SFAM01.1	PPB	11/8/2024 16:04	Std
10	S05	42501	-		10	SFAM01.1	PPB	11/8/2024 16:12	Std
ICV077	ICV077	15752	3.788	-		SFAM01.1	PPB	11/8/2024 16:15	SMPL
ICB077	ICB077	-212	0.0391	-		SFAM01.1	PPB	11/8/2024 16:17	SMPL
CCV057	CCV057	22147	5.2898	-		SFAM01.1	PPB	11/8/2024 16:19	SMPL
CCB057	CCB057	-156	0.0522	-		SFAM01.1	PPB	11/8/2024 16:21	SMPL
PB164805TB	LEB805	-23	0.0835	-		SFAM01.1	PPB	11/8/2024 16:29	SMPL
P4623-02	MBH6M8	284	0.1555	-		SFAM01.1	PPB	11/8/2024 16:33	SMPL
P4623-03	MBH6M9	48	0.1001	-		SFAM01.1	PPB	11/8/2024 16:36	SMPL
P4623-04	MBH6N0	48	0.1001	-		SFAM01.1	PPB	11/8/2024 16:38	SMPL
P4623-05	MBH6N1	161	0.1267	-		SFAM01.1	PPB	11/8/2024 16:40	SMPL
P4623-06	MBH8M6	46	0.0997	-		SFAM01.1	PPB	11/8/2024 16:42	SMPL
P4623-07	MBH6N2	71	0.1055	-		SFAM01.1	PPB	11/8/2024 16:45	SMPL
P4623-08	MBH6N3	100	0.1123	-		SFAM01.1	PPB	11/8/2024 16:47	SMPL
P4623-09	MBH6N4	139	0.1215	-		SFAM01.1	PPB	11/8/2024 16:49	SMPL
P4623-10	MBH6N5	76	0.1067	-		SFAM01.1	PPB	11/8/2024 16:52	SMPL
P4623-11	MBH6N6	100	0.1123	-		SFAM01.1	PPB	11/8/2024 16:54	SMPL
P4623-12	MBH6N6D	17	0.0928	-		SFAM01.1	PPB	11/8/2024 16:56	SMPL
P4623-13	MBH6N6S	10482	2.5504	-		SFAM01.1	PPB	11/8/2024 16:58	SMPL
P4623-14	MBH6N7	72	0.1058	-		SFAM01.1	PPB	11/8/2024 17:01	SMPL
P4623-01	MBH6M7	36	0.0973	-		SFAM01.1	PPB	11/8/2024 17:03	SMPL
PB164805BL	PBW805	10	0.0912	-		SFAM01.1	PPB	11/8/2024 17:05	SMPL
CCV058	CCV058	21695	5.1837	-		SFAM01.1	PPB	11/8/2024 17:07	SMPL
CCB058	CCB058	-76	0.071	-		SFAM01.1	PPB	11/8/2024 17:10	SMPL

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Prep Standard - Chemical Standard Summary

Order ID : P4623

Test : SPLP Mercury

Prepbatch ID : PB164805,

Sequence ID/Qc Batch ID: LB133364,

Standard ID :
MP82651,MP82652,MP82653,MP82654,MP83159,MP83161,MP83162,MP83163,MP83164,MP83165,MP83166,MP831
67,MP83168,MP83169,MP83170,MP83171,

Chemical ID :
M4371,M4465,M4916,M5062,M5501,M5673,M5882,M5953,M6080,M6111,M6116,W3112,

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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
3965	2:1 H2SO4 : HNO3	MP82651	09/30/2024	03/25/2025	Mohan Bera	None	None	Sarabjit Jaswal 10/04/2024

FROM 1600.00000ml of M5673 + 800.00000ml of M6080 = Final Quantity: 3200.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP82652	09/30/2024	04/03/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 10/04/2024

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 %	MP82653	09/30/2024	04/03/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 10/04/2024

FROM 100.00000ml of M4465 + 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	MP82654	09/30/2024	04/03/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 10/04/2024

FROM 2000.00000ml of W3112 + 240.00000gram of M4371 + 240.00000gram of M5501 = 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
68	STANNOUS CHLORIDE SOLUTION	MP83159	11/08/2024	11/09/2024	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 11/08/2024

FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6111 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP83161	11/08/2024	11/09/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 11/08/2024

FROM 1.00000ml of M6116 + 2.50000ml of M5062 + 96.50000ml of W3112 = 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
1340	Hg 0.00 PPB STD	MP83162	11/08/2024	11/09/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 11/08/2024

FROM 2.50000ml of M6116 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1341	Hg 0.2 PPB STD	MP83163	11/08/2024	11/09/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 11/08/2024

FROM 2.50000ml of M6116 + 247.30000ml of W3112 + 0.20000ml of MP83161 = 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
1342	Hg 2.5 PPB STD	MP83164	11/08/2024	11/09/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 11/08/2024

FROM 2.50000ml of M6116 + 245.00000ml of W3112 + 2.50000ml of MP83161 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1343	Hg 5.0 PPB STD	MP83165	11/08/2024	11/09/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 11/08/2024

FROM 2.50000ml of M6116 + 242.50000ml of W3112 + 5.00000ml of MP83161 = 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
1344	Hg 7.5 PPB STD	MP83166	11/08/2024	11/09/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 11/08/2024

FROM 2.50000ml of M6116 + 240.00000ml of W3112 + 7.50000ml of MP83161 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1345	Hg 10.0 PPB STD	MP83167	11/08/2024	11/09/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 11/08/2024

FROM 2.50000ml of M6116 + 237.50000ml of W3112 + 10.00000ml of MP83161 = 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
1346	Hg ICV SOLUTION	MP83168	11/08/2024	11/09/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 11/08/2024

FROM 2.50000ml of M5953 + 2.50000ml of M6116 + 245.00000ml of W3112 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1351	ICB (Hg 0.00 PPB SOLUTION)	MP83169	11/08/2024	11/09/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 11/08/2024

FROM 2.50000ml of M6116 + 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
1358	CCV (Hg 5.0 PPB SOLUTION)	MP83170	11/08/2024	11/09/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 11/08/2024

FROM 485.00000ml of W3112 + 5.00000ml of M6116 + 10.00000ml of MP83161 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1352	CCB (Hg 0.00 PPB SOLUTION)	MP83171	11/08/2024	11/09/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 11/08/2024

FROM 495.00000ml of W3112 + 5.00000ml of M6116 = 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-2196-01 / Hydroxylamine Hydrochloride, Crystal (cs/4x500g)	0000215387	06/25/2025	07/01/2019 / RICHARD	06/07/2019 / RICHARD	M4371

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	0000234156	08/06/2025	07/23/2019 / mohan	07/25/2019 / manojkumar	M4465

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3227-05 / Potassium Permanganate (2.5kg)	210800	03/31/2026	11/30/2022 / mohan	07/28/2021 / mohan	M4916

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	MSHG-10PPM / MERCURY HCl 125mL 10ug/mL	S2-HG709270	09/22/2026	05/28/2022 / mohan	01/27/2022 / mohan	M5062

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	09/21/2023 / mohan	09/05/2023 / mohan	M5673

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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-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 #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV5-0415	01/01/2025	07/01/2024 / mohan	03/30/2023 / mohan	M5953

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	03/25/2025	10/02/2024 / Janvi	09/02/2024 / Janvi	M6080

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)	22F0762009	05/09/2027	11/04/2024 / Eman	09/29/2024 / Janvi	M6111

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)	24B1362001	05/03/2025	11/04/2024 / Janvi	09/29/2024 / Eman	M6116

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

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Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

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Catalog Number	T142	Quality Test / Release Date	08/17/2023
Lot Number	232820		
Description	STANNOUS CHLORIDE, DIHYDRATE CERTIFIED ACS (Suitable for Mercury Determination)		
Country of Origin	United States	Suggested Retest Date	Aug/2028
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear crystals
ASSAY	%	Inclusive Between 98 - 103	100.65
CALCIUM	%	<= 0.005	0.0017
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	%	<= 0.003	0.0011
LEAD (Pb)	%	<= 0.01	0.0006
MERCURY (Hg)	ppm	<= 0.05	<0.05
POTASSIUM (K)	%	<= 0.005	0.0001
SODIUM (Na)	%	<= 0.01	<0.01
SOLUBILITY IN HCL	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	PASS/FAIL	= P.T. (ABOUT 0.003%)	P.T. (ABOUT 0.003%)

Harout Sahagian - Quality Control Supervisor - Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

M4371

Hydroxylamine Hydrochloride, Crystal
BAKER ANALYZED® A.C.S. Reagent
Suitable for Mercury Determination
(hydroxylammonium chloride)

Rec – 06.07.19

J.T.Baker® | avantor™

Material No.: 2196-01
Batch No.: 0000215387
Manufactured Date: 2018/06/27
Retest Date: 2025/06/25
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay ($NH_2OH \cdot HCl$) (by $KMnO_4$ titrn)	>= 96.0 %	99.1
Clarity of Alcohol Solution	Passes Test	PT
Residue after Ignition	<= 0.050 %	0.017
Titrable Free Acid (meq/g)	<= 0.25	0.19
Ammonium (NH_4)	Passes Test	PT
Sulfur Compounds (as SO_4)	<= 0.005 %	< 0.003
Trace Impurities - ACS - Heavy Metals (as Pb)	<= 5 ppm	4
Trace Impurities - Iron (Fe)	<= 5 ppm	< 3
Trace Impurities - Mercury (Hg)	<= 0.050 ppm	< 0.005

For Laboratory, Research or Manufacturing Use

Country of Origin: CN
Packaging Site: Paris Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2015, FSSC22000
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Gliwice, Poland 9001:2015, 13485:2012
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2015, 17025:2005
Panoli, India 9001:2015

James Ethier
Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

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M4913-16

MB

Certificate of Analysis

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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.
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Certificate of Analysis

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inorganicventures.com

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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.

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

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

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

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

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 HNO_3. 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% HNO_3 / LDPE container, stable in 10% HNO_3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO_3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO_3 / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO_3); Oxide (Soluble in HNO_3); 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

M5493 - M5708
Rad on 4/14/23
JMG

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

James T Ethier
Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

9673- 33

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H_2SO_4)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as 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 and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 23D2462010

Test	Specification	Result
Trace Impurities - Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities - Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory,Research,or Manufacturing Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

James T Ethier

Jamie Ethier
Vice President Global Quality

QATS LABORATORY INORGANIC REFERENCE MATERIAL INITIAL CALIBRATION VERIFICATION SOLUTIONS (ICV1, ICV5, AND ICV6)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

MSS28 - 37
MSS53
3/30/23

Contains Metals in Dilute Acidic or Cyanide in Basic Aqueous Solutions
HAZARDOUS MATERIAL

Safety Data Sheets Available Upon Request

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) *ANALYSIS OF SAMPLES*

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

ICV1-1014 For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0415 For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

ICV1-1014		
Element	**Concentration (µg/L) (after 10-fold dilution)**	**Concentration (µg/L) (after 50-fold dilution)**
Al	2500	500
Sb	1000	200
As	1000	200
Ba	520	100
Be	510	100
Cd	510	100
Ca	10000	2000
Cr	520	100
Co	520	100
Cu	510	100
Fe	10000	2000
Pb	1000	200
Mg	6000	1200
Mn	520	100
Ni	530	110
K	9900	2000
Se	1000	200
Ag	250	50
Na	10000	2000
Tl	1000	210
V	500	100
Zn	1000	200

ICV5-0415		ICV6-0400	
Element	**Concentration (µg/L) (after 100-fold dilution)**	**Analyte**	**Concentration (µg/L) (after 100-fold dilution)**
Hg	4.0	**CN^-**	99

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24D1062002
Manufactured Date: 2024-03-26
Retest Date: 2029-03-25
Revision No.: 0

R: 9/2/24.

Certificate of Analysis

M6080, M6081, M6082, M6083, M6084

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	16 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	10 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	3 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result

For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

M6109
M6110
M6111

Received date 9/29/24 Met dig.

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 22F0762009
Manufactured Date: 2022-05-10
Retest Date: 2027-05-09
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	1.190
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	0.8 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	14.9 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	< 0.4 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	0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 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.: 22F0762009

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	0.8 ppb
Trace Impurities - Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities - Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities - 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	< 0.2 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	1.0 ppb
Trace Impurities - Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities - Sodium (Na)	≤ 100.0 ppb	0.7 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	< 0.8 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	0.8 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.: 22F0762009

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

Nitric Acid 69%
CMOS

M6112
M6113
M6114
M6115
M6116
M6117

Receive:
9/29/24
Met dig

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24B1362001
Manufactured Date: 2024-01-25
Retest Date: 2029-01-23
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.6 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	< 0.2 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	3 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	1 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result

For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Ken Koehnlein
Sr. Manager, Quality Assurance

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB164805

SOP ID : M7470A-Mercury-19, MSFAM01.1-Mercury in Water-2

SDG No : MBH6M7

Matrix : WATER

Pippete ID: HG A

Balance ID : N/A

Filter paper ID : NA

pH Strip ID : M4909

Hood ID : #1

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

Start Digest Date: 11/08/2024 **Time :** 11:25 **Temp :** 94 °C

End Digest Date: 11/08/2024 **Time :** 13:25 **Temp :** 95 °C

Digestion tube ID: M6054

Block thermometer ID: HG-DIG#1

Dig Technician Signature: MB

Supervisor Signature:

Temp : 1. 94°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
ICV	100mL	MP83168
CCV	100mL	MP83170
Matrix Spike	0.40mL	MP83161
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	5.0mL	MP82651
KMnO4 (5%)	15.0mL	MP82652
K2S2O8 (5%)	8.0mL	MP82653
Hydroxylamine HCL (12%)	6.0mL	MP82654
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	MP83162
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	100mL	MP83163
2.5 ppb	S2.5	100mL	MP83164
5.0 ppb	S5.0	100mL	MP83165
7.5 ppb	S7.5	100mL	MP83166
10.0 ppb	S10.0	100mL	MP83167
ICV	ICV	100mL	MP83168
ICB	ICB	100mL	MP83169
CCV	CCV	100mL	MP83170
CCB	CCB	100mL	MP83171
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
11/08/24 @ 13:50	MB—HG. LAB	MB—MERCURY LAB
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB164805

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
P4623-01	MBH6M7	100	100	<2	N/A	1-1
P4623-02	MBH6M8	100	100	<2	N/A	2
P4623-03	MBH6M9	100	100	<2	N/A	3
P4623-04	MBH6N0	100	100	<2	N/A	4
P4623-05	MBH6N1	100	100	<2	N/A	5
P4623-06	MBH8M6	100	100	<2	N/A	6
P4623-07	MBH6N2	100	100	<2	N/A	7
P4623-08	MBH6N3	100	100	<2	N/A	8
P4623-09	MBH6N4	100	100	<2	N/A	9
P4623-10	MBH6N5	100	100	<2	N/A	10
P4623-11	MBH6N6	100	100	<2	N/A	11
P4623-12	MBH6N6D	100	100	<2	N/A	12
P4623-13	MBH6N6S	100	100	<2	MP93161	13
P4623-14	MBH6N7	100	100	<2	N/A	14
PB164805BL	PBW805	100	100	<2	N/A	15
~~PB164805LB~~	LEB805 ~~LEB805~~ LFB805	100	100	<2	N/A	16

~~PB164805LB~~
PB164805LCS AB 11/10/24

AB
11/12/24

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 # LB133364

Review By	Sarabjit Jaswal	Review On	11/11/2024 9:09:50 AM
Supervise By	Mohan Bera	Supervise On	11/11/2024 9:19:50 AM

STD. NAME	STD REF.#
ICAL Standard	MP83162,MP83163,MP83164,MP83165,MP83166,MP83167
ICV Standard	MP83168
CCV Standard	MP83170
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	MP83169,MP83171,MP83159

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	11/08/24 15:55		Mohan	OK
2	S0.2	S01	CAL2	11/08/24 15:57		Mohan	OK
3	S2.5	S02	CAL3	11/08/24 15:59		Mohan	OK
4	S5	S03	CAL4	11/08/24 16:02		Mohan	OK
5	S7.5	S04	CAL5	11/08/24 16:04		Mohan	OK
6	S10	S05	CAL6	11/08/24 16:12		Mohan	OK
7	ICV077	ICV077	ICV	11/08/24 16:15		Mohan	OK
8	ICB077	ICB077	ICB	11/08/24 16:17		Mohan	OK
9	CCV057	CCV057	CCV	11/08/24 16:19		Mohan	OK
10	CCB057	CCB057	CCB	11/08/24 16:21		Mohan	OK
11	PB164805TB	LEB805	MB	11/08/24 16:29		Mohan	OK
12	P4623-02	MBH6M8	SAM	11/08/24 16:33		Mohan	OK
13	P4623-03	MBH6M9	SAM	11/08/24 16:36		Mohan	OK
14	P4623-04	MBH6N0	SAM	11/08/24 16:38		Mohan	OK
15	P4623-05	MBH6N1	SAM	11/08/24 16:40		Mohan	OK
16	P4623-06	MBH8M6	SAM	11/08/24 16:42		Mohan	OK
17	P4623-07	MBH6N2	SAM	11/08/24 16:45		Mohan	OK
18	P4623-08	MBH6N3	SAM	11/08/24 16:47		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 # LB133364

Review By	Sarabjit Jaswal	Review On	11/11/2024 9:09:50 AM
Supervise By	Mohan Bera	Supervise On	11/11/2024 9:19:50 AM

STD. NAME	STD REF.#
ICAL Standard	MP83162,MP83163,MP83164,MP83165,MP83166,MP83167
ICV Standard	MP83168
CCV Standard	MP83170
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	MP83169,MP83171,MP83159

19	P4623-09	MBH6N4	SAM	11/08/24 16:49		Mohan	OK
20	P4623-10	MBH6N5	SAM	11/08/24 16:52		Mohan	OK
21	P4623-11	MBH6N6	SAM	11/08/24 16:54		Mohan	OK
22	P4623-12	MBH6N6D	DUP	11/08/24 16:56		Mohan	OK
23	P4623-13	MBH6N6S	MS	11/08/24 16:58	MS Recovery fail	Mohan	OK
24	P4623-14	MBH6N7	SAM	11/08/24 17:01		Mohan	OK
25	P4623-01	MBH6M7	SAM	11/08/24 17:03		Mohan	OK
26	PB164805BL	PBW805	MB	11/08/24 17:05		Mohan	OK
27	CCV058	CCV058	CCV	11/08/24 17:07		Mohan	OK
28	CCB058	CCB058	CCB	11/08/24 17:10		Mohan	OK

Alliance TECHNICAL GROUP

SPLP EXTRACTION LOGPAGE

PB164688

SOP ID : M1312-SPLP-10

SDG No : MBH6H7

Weigh By : JP

Balance ID : WC SC-4

pH Meter ID : WC PH METER-1

Extraction By : JP

Filter By : JP

Pippete ID : WC

Tumbler ID : T-2 /ZHE-2

TCLP Filter ID : 114771

Start Prep Date : 11/05/2024 **Time :** 14:00

End Prep Date : 11/06/2024 **Time :** 07:10

Combination Ratio : 20

ZHE Cleaning Batch : N/A

Initial Room Temperature: 24 °C

Final Room Temperature: 22 °C

TCLP Technician Signature : JP

Supervisor By : IR

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

Chemical Used	ML/SAMPLE U	Lot Number
SPLP FLUID	N/A	WP110482
N/A	N/A	N/A
HNO3-TCLP,1N	N/A	WP108585
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
120ml Plastic bottle	N/A	21029
1:1 HNO3	MP81119	N/A

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after fiftration and before preservation. TUMBLER T-2 / ZHE-2 checked,30 rpm.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11/06/24 08:30	JP / ECLP Room	JP. / ORG-DIG
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

SPLP EXTRACTION LOGPAGE

PB164688

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
P4623-01	MBH6M7	11	100.02	2000	N/A	N/A	N/A	7.22	1.05	T-2
P4623-02	MBH6M8	12	100.03	2000	N/A	N/A	N/A	7.05	1.14	T-2
P4623-03	MBH6M9	13	100.04	2000	N/A	N/A	N/A	7.06	1.17	T-2
P4623-04	MBH6N0	14	100.02	2000	N/A	N/A	N/A	7.11	1.21	T-2
P4623-05	MBH6N1	15	100.03	2000	N/A	N/A	N/A	7.08	1.24	T-2
P4623-06	MBH8M6	16	100.02	2000	N/A	N/A	N/A	7.21	1.30	T-2
P4623-07	MBH6N2	17	100.03	2000	N/A	N/A	N/A	7.25	1.27	T-2
P4623-08	MBH6N3	18	100.04	2000	N/A	N/A	N/A	7.29	1.30	T-2
P4623-09	MBH6N4	19	100.02	2000	N/A	N/A	N/A	7.33	1.35	T-2
P4623-10	MBH6N5	20	100.03	2000	N/A	N/A	N/A	7.03	1.31	T-2
P4623-11	MBH6N6	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-12	MBH6N6D	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-13	MBH6N6S	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-14	MBH6N7	22	100.02	2000	N/A	N/A	N/A	7.32	1.42	ZHE-2
PB164688TB	LEB688	23	N/A	2000	N/A	N/A	N/A	4.23	1.04	ZHE-2

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
P4623-01	MBH6M7	N/A	N/A	N/A	N/A	100	N/A
P4623-02	MBH6M8	N/A	N/A	N/A	N/A	100	N/A
P4623-03	MBH6M9	N/A	N/A	N/A	N/A	100	N/A
P4623-04	MBH6N0	N/A	N/A	N/A	N/A	100	N/A
P4623-05	MBH6N1	N/A	N/A	N/A	N/A	100	N/A
P4623-06	MBH8M6	N/A	N/A	N/A	N/A	100	N/A
P4623-07	MBH6N2	N/A	N/A	N/A	N/A	100	N/A
P4623-08	MBH6N3	N/A	N/A	N/A	N/A	100	N/A
P4623-09	MBH6N4	N/A	N/A	N/A	N/A	100	N/A
P4623-10	MBH6N5	N/A	N/A	N/A	N/A	100	N/A
P4623-11	MBH6N6	N/A	N/A	N/A	N/A	100	N/A
P4623-12	MBH6N6D	N/A	N/A	N/A	N/A	100	N/A
P4623-13	MBH6N6S	N/A	N/A	N/A	N/A	100	N/A
P4623-14	MBH6N7	N/A	N/A	N/A	N/A	100	N/A
PB164688TB	LEB688	N/A	N/A	N/A	N/A	N/A	N/A

Alliance TECHNICAL GROUP

SPLP Fluid Determination

PB164688

Hot Block ID : WC S-1 /WC S-2

Thermometer ID : FLASHPOINT

SampleID	ClientID	Sample Weight (g)	Volume DI Water (mL)	PH after 5 min stir	PH after 10 min stir	Extraction Fluid 1 or 2	pH Extraction Fluid
P4623-01	MBH6M7	N/A	N/A	N/A	N/A	#1	4.23
P4623-02	MBH6M8	N/A	N/A	N/A	N/A	#1	4.23
P4623-03	MBH6M9	N/A	N/A	N/A	N/A	#1	4.23
P4623-04	MBH6N0	N/A	N/A	N/A	N/A	#1	4.23
P4623-05	MBH6N1	N/A	N/A	N/A	N/A	#1	4.23
P4623-06	MBH8M6	N/A	N/A	N/A	N/A	#1	4.23
P4623-07	MBH6N2	N/A	N/A	N/A	N/A	#1	4.23
P4623-08	MBH6N3	N/A	N/A	N/A	N/A	#1	4.23
P4623-09	MBH6N4	N/A	N/A	N/A	N/A	#1	4.23
P4623-10	MBH6N5	N/A	N/A	N/A	N/A	#1	4.23
P4623-11	MBH6N6	N/A	N/A	N/A	N/A	#1	4.23
P4623-12	MBH6N6D	N/A	N/A	N/A	N/A	#1	4.23
P4623-13	MBH6N6S	N/A	N/A	N/A	N/A	#1	4.23
P4623-14	MBH6N7	N/A	N/A	N/A	N/A	#1	4.23
PB164688TB	LEB688	N/A	N/A	N/A	N/A	#1	4.23

EPA SAMPLE NO.

MBH6M7

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-01

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1046

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

Comments:

EPA SAMPLE NO.

MBH6M8

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-02

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1046

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

Comments:

EPA SAMPLE NO.

MBH6M9

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-03

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1046

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

Comments:

EPA SAMPLE NO.

MBH6N0

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-04

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1046

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

Comments:

EPA SAMPLE NO.

MBH6N1

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-05

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1046

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

Comments:

EPA SAMPLE NO.

MBH6N2

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-07

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1046

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

Comments:

EPA SAMPLE NO.

MBH6N3

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-08

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1046

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

Comments:

EPA SAMPLE NO.

MBH6N4

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-09

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1046

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

Comments:

EPA SAMPLE NO.

MBH6N5

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-10

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1046

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

Comments:

EPA SAMPLE NO.

MBH6N6

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-11

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1052

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

Comments:

EPA SAMPLE NO.

MBH6N7

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-14

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1113

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

Comments:

EPA SAMPLE NO.

MBH8M6

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51835 MA No. : SDG No.: MBH6M7

Matrix: Water Lab Sample ID: P4623-06

% Solids: Date Received: 10/29/2024

Analytical Method: CN

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
57-12-5	Cyanide	10	U	11/11/2024	1046

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

Comments:

Reviewed By:Iwona
On:11/11/2024 2:45:05 PM
Inst Id :KONELAB

LB

Test results | Aquakem 7.2AQ1 | Page:

CHEMTECH CONSULTING GROUP INC
284 Sheffield Street, Mountainside, NJ 07092

Reviewed by : NF | Instrument ID : Konelab

11/11/2024 11:16

Test: CNEPA-NEW

	Sample Id		Result	Dil. 1 +	Response	Errors
	ICV001	ICV001	92.374	0.0	0.085	
	ICB001	ICB001	0.361	0.0	0.001	
	CCV001	CCV001	241.604	0.0	0.221	
	CCB001	CCB001	0.515	0.0	0.001	
P	B164689BL	PBW689	-0.336	0.0	0.000	
P	B164689TB	LEB689	0.238	0.0	0.001	
	P4623-01	MBH6M7	-0.209	0.0	0.001	
	P4623-02	MBH6M8	0.364	0.0	0.001	
	P4623-03	MBH6M9	0.453	0.0	0.001	
	P4623-04	MBH6N0	0.210	0.0	0.001	
	P4623-05	MBH6N1	0.462	0.0	0.001	
	P4623-06	MBH6M6	0.456	0.0	0.001	
	P4623-07	MBH6N2	-0.553	0.0	0.000	
	P4623-08	MBH6N3	0.316	0.0	0.001	
	P4623-09	MBH6N4	-0.754	0.0	0.000	
	P4623-10	MBH6N5	-1.976	0.0	-0.001	
	P4623-11	MBH6N6	-0.466	0.0	0.000	
	P4623-12	MBH6N6D	-0.626	0.0	0.000	
	P4623-13	MBH6N6S	94.802	0.0	0.087	
	P4623-14	MBH6N7	-0.114	0.0	0.001	
	CCV002	CCV002	253.680	0.0	0.232	
	CCB002	CCB002	-0.090	0.0	0.001	

NF 11.11.2024

N	22
Mean	30.941
SD	75.3377
CV%	243.48

Reviewed By:Iwona
On:11/11/2024 2:45:05 PM
Inst Id :KONELAB

Aquakem v. 7.2AQ1
Results from time period:
Mon Nov 11 09:50:10 2024
Mon Nov 11 11:14:00 2024

Sample Id	Sam/Ct	Test short nam	Test type	Result	Result unit	Result date and time
S0.0	A	CNEPA-NEW	P	0.0262	µg/l	11/11/2024 10:08:43
S5.0	A	CNEPA-NEW	P	4.256	µg/l	11/11/2024 10:08:44
S10.0	A	CNEPA-NEW	P	10.4544	µg/l	11/11/2024 10:08:45
S100.0	A	CNEPA-NEW	P	97.6177	µg/l	11/11/2024 10:08:46
S250.0	A	CNEPA-NEW	P	254.3418	µg/l	11/11/2024 10:08:47
S500.0	A	CNEPA-NEW	P	498.304	µg/l	11/11/2024 10:08:48
ICV001 ICV001	S	CNEPA-NEW	P	92.3738	µg/l	11/11/2024 10:39:05
ICB001 ICB001	S	CNEPA-NEW	P	0.3612	µg/l	11/11/2024 10:39:06
CCV001 CCV001	S	CNEPA-NEW	P	241.6038	µg/l	11/11/2024 10:39:08
CCB001 CCB001	S	CNEPA-NEW	P	0.5154	µg/l	11/11/2024 10:39:10
PB164689BL PBW689	S	CNEPA-NEW	P	-0.3362	µg/l	11/11/2024 10:39:12
PB164689TB LEB689	S	CNEPA-NEW	P	0.2383	µg/l	11/11/2024 10:39:14
P4623-01 MBH6M7	S	CNEPA-NEW	P	-0.2092	µg/l	11/11/2024 10:46:40
P4623-02 MBH6M8	S	CNEPA-NEW	P	0.3638	µg/l	11/11/2024 10:46:41
P4623-03 MBH6M9	S	CNEPA-NEW	P	0.4528	µg/l	11/11/2024 10:46:42
P4623-04 MBH6N0	S	CNEPA-NEW	P	0.2104	µg/l	11/11/2024 10:46:43
P4623-05 MBH6N1	S	CNEPA-NEW	P	0.4617	µg/l	11/11/2024 10:46:44
P4623-06 MBH6M6	S	CNEPA-NEW	P	0.4559	µg/l	11/11/2024 10:46:45
P4623-07 MBH6N2	S	CNEPA-NEW	P	-0.5525	µg/l	11/11/2024 10:46:46
P4623-08 MBH6N3	S	CNEPA-NEW	P	0.3164	µg/l	11/11/2024 10:46:47
P4623-09 MBH6N4	S	CNEPA-NEW	P	-0.7541	µg/l	11/11/2024 10:46:48
P4623-10 MBH6N5	S	CNEPA-NEW	P	-1.9761	µg/l	11/11/2024 10:46:49
P4623-11 MBH6N6	S	CNEPA-NEW	P	-0.4662	µg/l	11/11/2024 10:52:50
P4623-12 MBH6N6D	S	CNEPA-NEW	P	-0.6259	µg/l	11/11/2024 10:52:51
P4623-13 MBH6N6S	S	CNEPA-NEW	P	94.8024	µg/l	11/11/2024 11:13:57
P4623-14 MBH6N7	S	CNEPA-NEW	P	-0.1141	µg/l	11/11/2024 11:13:58
CCV002 CCV002	S	CNEPA-NEW	P	253.6804	µg/l	11/11/2024 11:13:59
CCB002 CCB002	S	CNEPA-NEW	P	-0.0896	µg/l	11/11/2024 11:14:00

Reviewed By:Iwona
On:11/11/2024 2:45:05 PM
Inst Id :KONELAB

Calibration results Aquakem 7.2AQ1 Page: 1

CHEMTECH CONSULTING GROUP INC
284 Sheffield Street, Mountainside, NJ 07092

Reviewed by : NF Instrument ID : Konelab

11/11/2024 10:09

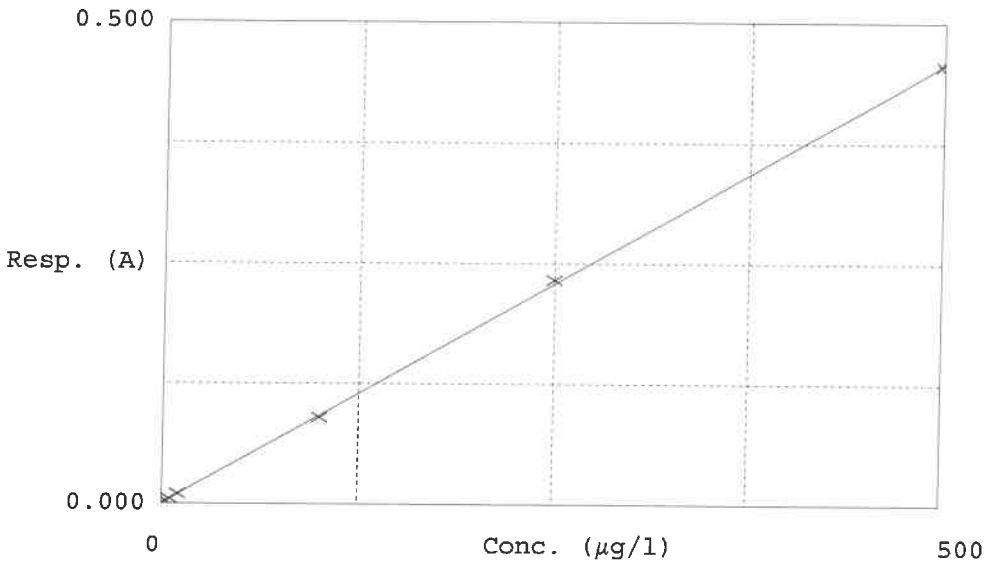
Test CNEPA-NEW

Accepted 11/11/2024 10:09

~~Factor~~ Slope ~~1096~~ 0.000913 NF 11.4.2024
~~Bias~~ Intercept 0.001

Coeff. of det. 0.999858

Errors



Calibrator	Response	Calc. con.	Conc.	Errors (Re)	
1 ~~50.0~~ 0.0PPBCN	0.001	0.0262	0.0000		
2 ~~55.0~~ 5.0PPBCN	0.005	4.2560	5.0000	-14.9	
3 ~~510.0~~ 10PPBCN	0.010	10.4544	10.0000	4.5	
4 ~~5100.0~~ 100PPBCN	0.090	97.6177	100.0000	-2.4	NF
5 ~~5200.0~~ 250PPBCN	0.233	254.3418	250.0000	1.7	
6 ~~5500.0~~ 500PPBCN	0.456	498.3040	500.0000	-0.3	11.11.2024

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

Prep Standard - Chemical Standard Summary

Order ID : P4623

Test : SPLP Cyanide

Prepbatch ID : PB164689,

Sequence ID/Qc Batch ID: LB133307,

Standard ID :
WP108640,WP108688,WP109089,WP110035,WP110103,WP110390,WP110391,WP110634,WP110635,WP110636,WP110637,WP110638,WP110639,WP110640,WP110641,WP110642,WP110645,

Chemical ID :
E3657,M5673,M5951,W2668,W2882,W3001,W3011,W3019,W3101,W3104,W3112,W3113,W3139,W3142,

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Fax : 908 789 8922

Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
11	Sodium hydroxide absorbing solution 0.25 N	WP108640	07/05/2024	01/05/2025	Rubina Mughal	WETCHEM_SCALE_4 (WCSC-4)	None	Iwona Zarych 07/08/2024

FROM 21.00000L of W3112 + 210.00000gram of E3657 = Final Quantity: 21.000 L

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1581	Sodium hydroxide solution, 1.25N	WP108688	07/11/2024	01/11/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 07/11/2024

FROM 50.00000gram of W3113 + 950.00000ml of W3112 = Final Quantity: 1000.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2816	CN-EPA Pyridine-Burbituric Acid solution	WP109089	08/07/2024	12/27/2024	Rubina Mughal	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 08/07/2024

FROM 15.00000gram of W2882 + 15.00000ml of M5951 + 75.00000ml of W3019 + 895.00000ml of W3112 = Final Quantity: 1000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3850	Cyanide MS-MSD spiking solution, 5PPM	WP110035	10/03/2024	11/30/2024	Rubina Mughal	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 10/04/2024

FROM 1.00000ml of W3142 + 199.00000ml of WP108640 = Final Quantity: 200.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
539	CN BUFFER	WP110103	10/08/2024	04/08/2025	Rubina Mughal	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 10/08/2024

FROM 138.00000gram of W2668 + 862.00000ml of W3112 = Final Quantity: 1000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3214	Magnesium Chloride For Cyanide 2.5M(51%W/V)	WP110390	10/24/2024	04/24/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 10/24/2024

FROM 500.00000ml of W3112 + 510.00000gram of W3001 = Final Quantity: 1000.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1714	Sulfuric Acid, 50% (v/v)	WP110391	10/24/2024	04/24/2025	Niha Farheen Shaik	None	None	Iwona Zarych 10/24/2024

FROM 1000.00000ml of M5673 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1585	Cyanide Intermediate standard solution, 10PPM	WP110634	11/10/2024	11/11/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/11/2024

FROM 1.00000ml of W3142 + 79.00000ml of W3112 + 20.00000ml of WP108688 = Final Quantity: 100.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1586	Cyanide Cal Std, 500 PPB	WP110635	11/10/2024	11/11/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/11/2024

FROM 5.00000ml of WP110634 + 95.00000ml of WP108640 = Final Quantity: 0.100 L

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1587	Cyanide Cal Std, 250 PPB	WP110636	11/10/2024	11/11/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/11/2024

FROM 2.50000ml of WP110634 + 97.50000ml of WP108640 = Final Quantity: 0.100 L

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1588	Cyanide Cal Std, 100 PPB	WP110637	11/10/2024	11/11/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/11/2024

FROM 1.00000ml of WP110634 + 99.00000ml of WP108640 = Final Quantity: 0.100 L

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1589	Cyanide Cal Std, 10 PPB	WP110638	11/10/2024	11/11/2024	Niha Farheen Shaik	None	None	Mohan Bera 11/12/2024

FROM 4.00000ml of WP110636 + 96.00000ml of WP108640 = Final Quantity: 0.100 L

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1590	Cyanide Cal Std, 5 PPB	WP110639	11/10/2024	11/11/2024	Niha Farheen Shaik	None	None	Mohan Bera 11/12/2024

FROM 2.00000ml of WP110636 + 98.00000ml of WP108640 = Final Quantity: 0.100 L

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1591	Cyanide blank std, 0 PPB	WP110640	11/10/2024	11/11/2024	Niha Farheen Shaik	None	None	Mohan Bera 11/12/2024

FROM 100.00000ml of WP108640 = Final Quantity: 0.100 L

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1763	Cyanide ICV Std	WP110641	11/10/2024	11/11/2024	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Mohan Bera 11/12/2024

FROM 0.50000ml of W3011 + 49.50000ml of WP108640 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1592	Cyanide CCV Std, 250 PPB	WP110642	11/10/2024	11/11/2024	Niha Farheen Shaik	None	None	Mohan Bera 11/12/2024

FROM 2.50000ml of WP110634 + 97.50000ml of WP108640 = Final Quantity: 0.100 L

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Fax : 908 789 8922

Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1582	Chloramine T solution, 0.014M	WP110645	11/11/2024	11/12/2024	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCSC-5)	None	Mohan Bera 11/12/2024

FROM 0.08000gram of W3139 + 20.00000ml of W3112 = Final Quantity: 20.000 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 #
PCI Scientific Supply, Inc.	PC19510-5 / Sodium Hydroxide Pellets 2.5 Kg, Pk of 4	23B1556310	12/31/2025	12/04/2023 / Rajesh	12/01/2023 / Rajesh	E3657

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	09/21/2023 / mohan	09/05/2023 / mohan	M5673

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	12/27/2024	07/04/2024 / Jaswal	06/23/2024 / Al-Terek	M5951

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	J3818-5 / SODIUM PHOSPHATE, MONOBAS/HYD, CRYS, ACS, 2.5 KG	0000225799	12/03/2025	04/05/2021 / Alexander	02/10/2020 / apatel	W2668

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	EM-BX0035-3 / Barbituric Acid, 100 gms	1.00132.0100	04/30/2025	12/07/2021 / Iwona	11/30/2021 / apatel	W2882

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	01237-10KG / Megnasium Chloride Hexahydrate ACS 10KG	002251-03319	06/06/2027	01/23/2023 / Iwona	06/06/2022 / Iwona	W3001

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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	/ ICV-CN	ICV6-400	12/31/2024	01/03/2024 / Iwona	02/20/2020 / Iwona	W3011

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
SIGMA ALDRICH	270970-1L / Pyridine 1L	SHBQ2113	04/03/2028	04/03/2023 / Iwona	04/03/2023 / Iwona	W3019

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	470112-662 / TEST STRIPES, NITRATE/NITRITE, PK50	402403	04/30/2026	05/02/2024 / Iwona	04/10/2024 / Iwona	W3101

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	RC2543-4 / CYANIDE STD 1000PPM 4OZ	1404G63	09/30/2024	04/22/2024 / Iwona	04/22/2024 / Iwona	W3104

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19510-7 / Sodium Hydroxide Pellets 12 Kg	23B1556310	12/31/2025	07/08/2024 / Iwona	07/08/2024 / Iwona	W3113

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	JTE494-6 / CHLORAMINE-T BAKER 250GM	10239484	09/09/2029	09/09/2024 / Iwona	09/09/2024 / Iwona	W3139

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	RC2543-4 / CYANIDE STD 1000PPM 4OZ	1405J81	11/30/2024	09/25/2024 / Iwona	09/25/2024 / Iwona	W3142

~~W2918~~ W3001 Rec. 06/06/22 Exp. 06/06/27

Chem-Impex International, Inc.

Tel: (630) 766-2112
E-mail: sales@chemimpex.com
Shipping and Correspondence:
935 Dillon Drive
Wood Dale, IL 60191

Fax: (630) 766-2218
Web site: www.chemimpex.com
Manufacturing site:
825 Dillon Drive
Wood Dale, IL 60191

Certificate of Analysis

Catalogue Number	01237
Product	**Magnesium chloride hexahydrate**
Lot Number	002251-03319
	Magnesium chloride•$6H_2O$
CAS Number	7791-18-6
Molecular Formula	$MgCl_2$•$6H_2O$
Molecular Weight	203.3

Appearance	Colorless crystals, very deliquescent
Heavy Metals	< 5 ppm
Anion	Nitrate : < 0.001% Phosphate : < 5 ppm Sulfate : < 0.002%
Cation	Ammonium : < 0.002% Barium : < 0.005% Calcium : 0.0006% Iron : < 5 ppm Manganese : 1.8 ppm Potassium : 0.0006% Sodium : 0.0008% Strontium : 0.0015%
Insoluble material	0.0025%
Assay by titration	100.29%
Grade	ACS reagent
Storage	Store at RT
Country of Origin	India

Certificate of Analysis

Catalog Number: 01237 **Lot Number: 002251-03319**

Remarks	See material safety data sheet for additional information
	For laboratory use only

The foregoing is a copy of the Certificate of Analysis as provided by our supplier

Bala Kumar
Quality Control Manager

Sigma-Aldrich.

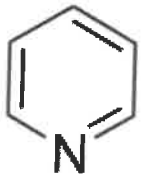
W3019
Rec 4/3/23

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:
Pyridine - anhydrous, 99.8%

Product Number:	**270970**
Batch Number:	**SHBQ2113**
Brand:	SIAL
CAS Number:	110-86-1
MDL Number:	MFCD00011732
Formula:	C5H5N
Formula Weight:	79.10 g/mol
Quality Release Date:	15 DEC 2022



Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
Infrared Spectrum	Conforms to Structure	Conforms
Purity (GC)	≥ 99.75 %	99.99 %
Water (by Karl Fischer)	≤ 0.003 %	0.002 %
Residue on Evaporation	≤ 0.0005 %	< 0.0001 %

Larry Coers, Director
Quality Control
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

VWR®

Certificate of Analysis

Sodium Hydroxide (Pellets)

Material: 0583
Grade: ACS GRADE
Batch Number: 23B1556310

Chemical Formula: NaOH
Molecular Weight: 40
CAS #: 1310-73-2
Appearance:

Pellets

Manufacture Date: 12/14/2022
Expiration Date: 12/31/2025

Storage: Room Temperature

TEST	SPECIFICATION	ANALYSIS	DISPOSITION
Calcium	<= 0.005 %	<0.005 %	PASS
Chloride	<= 0.005 %	0.002 %	PASS
Heavy Metals	<= 0.002 %	<0.002 %	PASS
Iron	<= 0.001 %	<0.001 %	PASS
Magnesium	<= 0.002 %	<0.002 %	PASS
Mercury	<= 0.1 ppm	<0.1 ppm	PASS
Nickel	<= 0.001 %	<0.001 %	PASS
Nitrogen Compounds	<= 0.001 %	<0.001 %	PASS
Phosphate	<= 0.001 %	<0.001 %	PASS
Potassium	<= 0.02 %	<0.02 %	PASS
Purity	>= 97.0 %	99.2 %	PASS
Sodium Carbonate	<= 1.0 %	0.5 %	PASS
Sulfate	<= 0.003 %	<0.003 %	PASS

Internal ID #: 710

Signature

We certify that this batch conforms to the specifications listed.

This document has been electronically produced and is valid without a signature.

Leona Edwardson, Quality Control Sr. Manager - Solon
VWR Chemicals, LLC.
28600 Fountain Parkway, Solon OH 44139 USA

Additional Information

Analysis may have been rounded to significant digits in specification limits.

Product meets analytical specifications of the grades listed.

E 3657	E 3659
E 3654	E 3660

W3011
W3012
W3013
W3014
W3015

For ICP-MS use: dilute the ICV1 concentrate 50-fold with 1% (v/v) nitric acid; pipet 2 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0415 For the cold vapor analysis of mercury by AA: dilute the ICV5 concentrate 100-fold with 2% (v/v) nitric acid; pipet 1 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide: dilute the ICV6 concentrate 100-fold with Type II water; pipet 1 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

ICV1-1014		
Element	**Concentration (µg/L) (after 10-fold dilution)**	**Concentration (µg/L) (after 50-fold dilution)**
Al	2520	504
Sb	1010	202
As	997	199
Ba	518	104
Be	514	103
Cd	514	103
Ca	10000	2000
Cr	517	103
Co	521	104
Cu	505	101
Fe	10100	2020
Pb	1030	206
Mg	5990	1198
Mn	524	105
Ni	525	105
K	9940	1988
Se	1030	206
Ag	252	50
Na	10100	2020
Tl	1040	208
V	504	101
Zn	1010	202

ICV5-0415		ICV6-0400	
Element	**Concentration (µg/L) (after 100-fold dilution)**	**Analyte**	**Concentration (µg/L) (after 100-fold dilution)**
Hg	4.0	**CN^-**	99

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

9673- 33

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H_2SO_4)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as 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 and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 23D2462010

Test	Specification	Result
Trace Impurities - Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities - Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory,Research,or Manufacturing Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

James T Ethier

Jamie Ethier
Vice President Global Quality

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

MS947 MS948 MS949
MS950 MS951 MS952

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 >>>

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.: 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

Certificate of Analysis

1.00132.0000 Barbituric acid for analysis EMSURE®
Batch N020065932

	Spec. Values		Batch Values	
Assay (acidimetric)	≥ 99	%	99.6	%
Identity (IR-spectrum)	passes test		passes test	
Chloride (Cl)	≤ 40	ppm	≤ 40	ppm
Heavy metals (as Pb)	≤ 50	ppm	≤ 50	ppm
Fe (Iron)	≤ 10	ppm	≤ 10	ppm
Sulfated ash	≤ 0.1	%	≤ 0.1	%
Loss on Drying (105 °C)	≤ 0.1	%	≤ 0.1	%
Suitability as reagent (for cyanide determination)	passes test		passes test	

Date of release (DD.MM.YYYY) 17.04.2020
Minimum shelf life (DD.MM.YYYY) 30.04.2025

Ioannis Chartomatsidis
Responsible laboratory manager quality control

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W2668 Received on 02/10/2020 by AP

Sodium Phosphate, Monobasic, Monohydrate,
Crystal
BAKER ANALYZED® A.C.S. Reagent

(sodium dihydrogen phosphate, monohydrate)

Material No.: 3818-05
Batch No.: 0000225799
Manufactured Date: 2018/12/05
Retest Date: 2025/12/03
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay ($NaH_2PO_4 \cdot H_2O$)	98.0 - 102.0 %	99.5
pH of 5% Solution at 25°C	4.1 - 4.5	4.3
Insoluble Matter	<= 0.01 %	< 0.01
Chloride (Cl)	<= 5 ppm	< 5
ACS - Sulfate (SO_4)	<= 0.003 %	< 0.003
Calcium (Ca)	<= 0.005 %	<0.005
Potassium (K)	<= 0.01 %	< 0.01
Heavy Metals (as Pb)	<= 0.001 %	< 0.001
Trace Impurities - Iron (Fe)	<= 0.001 %	< 0.001

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: IN
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

510

RICCA CHEMICAL COMPANY®

448 West Fork Dr
Arlington, TX 76012
http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

W3104 Received on 4/22/24 by IZ

Certificate of Analysis

Cyanide Standard, 1000 ppm CN^-

Lot Number: 1404G63 **Product Number:** 2543

Manufacture Date: APR 12, 2024
Expiration Date: SEP 2024

This standard is prepared using accurate volumetric techniques from material that has been assayed against Silver Nitrate solution certified traceable to NIST Standard Reference Material 999. The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is the combined uncertainty based on the stability of the assayed Potassium Cyanide, and the uncertainty in the mass and volume measurements.
Use 0.16% (w/v) (0.04 N) Sodium Hydroxide or 0.225 % (w/v) (0.04 N) Potassium Hydroxide to make dilutions of this standard. Restandardize weekly if extreme accuracy is required.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Cyanide	151-50-8	ACS
Sodium Hydroxide	1310-73-2	Reagent

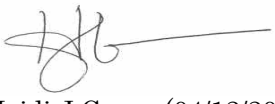
Test	Specification	Result
Appearance	Colorless liquid	Passed
Cyanide (CN^-)	995-1005 ppm	1000 ppm

Specification	Reference
Stock Standard Cyanide Solution	APHA (4500-CN- F)
Stock Cyanide Solution	APHA (4500-CN- E)
Stock Cyanide Solution	APHA (4500-CN- K)
Stock Cyanide Solution	APHA (4500-CN- H)
Cyanide Reference Solution (1000 mg/L)	EPA (SW-846) (7.3.3.2)
Cyanide Calibration Stock Solution (1,000 mg/L CN-)	EPA (SW-846) (9213)
Stock Cyanide Solution	EPA (335.3)
Stock Cyanide Solution	EPA (335.2)
Cyanide Solution Stock	ASTM (D 4282)
Simple Cyanide Solution, Stock (1.0 g/L CN)	ASTM (D 4374)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
2543-4	120 mL amber poly	6 months

Recommended Storage: 2°C - 8°C (36°F - 46°F)



Heidi J Green (04/12/2024)

Operations Manager

This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This test report shall not be reproduced, except in full, without the written approval of Ricca Chemical Company.

Certificate of Analysis

Sodium Hydroxide (Pellets)

Material: 0583

Grade: ACS GRADE

Batch Number: 23B1556310

Chemical Formula: NaOH
Molecular Weight: 40
CAS #: 1310-73-2
Appearance:

Pellets

Manufacture Date: 12/14/2022
Expiration Date: 12/31/2025

Storage: Room Temperature

TEST	SPECIFICATION	ANALYSIS	DISPOSITION
Calcium	<= 0.005 %	<0.005 %	PASS
Chloride	<= 0.005 %	0.002 %	PASS
Heavy Metals	<= 0.002 %	<0.002 %	PASS
Iron	<= 0.001 %	<0.001 %	PASS
Magnesium	<= 0.002 %	<0.002 %	PASS
Mercury	<= 0.1 ppm	<0.1 ppm	PASS
Nickel	<= 0.001 %	<0.001 %	PASS
Nitrogen Compounds	<= 0.001 %	<0.001 %	PASS
Phosphate	<= 0.001 %	<0.001 %	PASS
Potassium	<= 0.02 %	<0.02 %	PASS
Purity	>= 97.0 %	99.2 %	PASS
Sodium Carbonate	<= 1.0 %	0.5 %	PASS
Sulfate	<= 0.003 %	<0.003 %	PASS

Internal ID #: 710

Signature

We certify that this batch conforms to the specifications listed.

This document has been electronically produced and is valid without a signature.

Leona Edwardson, Quality Control Sr. Manager - Solon
VWR Chemicals, LLC.
28600 Fountain Parkway, Solon OH 44139 USA

Additional Information

Analysis may have been rounded to significant digits in specification limits.

Product meets analytical specifications of the grades listed.

Certificate of Analysis

Sodium Hydroxide (Pellets)

Material: **0583**

Grade: **ACS GRADE**

Batch Number: **23B1556310**

Chemical Formula:	NaOH	Manufacture Date:	12/14/2022
Molecular Weight:	40	Expiration Date:	12/31/2025
CAS #:	1310-73-2		
Appearance:		Storage:	Room Temperature

Pellets

Spec Set: 0583ACS

Internal ID #: 710

Signature

We certify that this batch conforms to the specifications listed.

This document has been electronically produced and is valid without a signature.

Leona Edwardson, Quality Control Sr. Manager - Solon
VWR Chemicals, LLC.
28600 Fountain Parkway, Solon OH 44139 USA

Additional Information

Analysis may have been rounded to significant digits in specification limits.

Product meets analytical specifications of the grades listed.

ThermoFisher SCIENTIFIC

Certificate of Analysis

W3139 Received on 9/9/24 by IZ

Product No.:	A12044
Product:	Chloramine-T trihydrate, 98%
Lot No.:	10239484

Appearance:	White powder
Melting Point:	166°C(dec)
Assay (Iodometric titration):	100.5%
Identification (FTIR):	Conforms

Order our products online **thermofisher.com/chemicals**

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Products are processed under ISO 9001:2015 quality management systems and samples are tested for conformance to the noted specifications. Certain data may have been supplied by third parties. We disclaim the implied warranties of merchantability and fitness for a particular purpose, and the accuracy of third party data or information associated with the product. Products are for research and development use only. Products are not for direct administration to humans or animals. It is the responsibility of the final formulator or end user to determine suitability, and to qualify and/or validate each product for its intended use.

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1-888-GO-RICCA
customerservice@riccachemical.com

Certificate of Analysis

Cyanide Standard, 1000 ppm CN^-

Lot Number: 1405J81 **Product Number:** 2543

Manufacture Date: MAY 20, 2024
Expiration Date: NOV 2024

This standard is prepared using accurate volumetric techniques from material that has been assayed against Silver Nitrate solution certified traceable to NIST Standard Reference Material 999. The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is the combined uncertainty based on the stability of the assayed Potassium Cyanide, and the uncertainty in the mass and volume measurements.
Use 0.16% (w/v) (0.04 N) Sodium Hydroxide or 0.225 % (w/v) (0.04 N) Potassium Hydroxide to make dilutions of this standard. Restandardize weekly if extreme accuracy is required.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Cyanide	151-50-8	ACS
Sodium Hydroxide	1310-73-2	Reagent

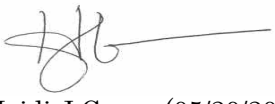
Test	Specification	Result
Appearance	Colorless liquid	Passed
Cyanide (CN^-)	995-1005 ppm	1000 ppm

Specification	Reference
Stock Standard Cyanide Solution	APHA (4500-CN- F)
Stock Cyanide Solution	APHA (4500-CN- E)
Stock Cyanide Solution	APHA (4500-CN- K)
Stock Cyanide Solution	APHA (4500-CN- H)
Cyanide Reference Solution (1000 mg/L)	EPA (SW-846) (7.3.3.2)
Cyanide Calibration Stock Solution (1,000 mg/L CN-)	EPA (SW-846) (9213)
Stock Cyanide Solution	EPA (335.3)
Stock Cyanide Solution	EPA (335.2)
Cyanide Solution Stock	ASTM (D 4282)
Simple Cyanide Solution, Stock (1.0 g/L CN)	ASTM (D 4374)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
2543-16	500 mL amber poly	6 months
2543-4	120 mL amber poly	6 months

Recommended Storage: 2°C - 8°C (36°F - 46°F)



Heidi J Green (05/20/2024)
Operations Manager

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Alliance TECHNICAL GROUP

Water SPLP Cyanide Preparation Sheet

PB164689

SOP ID : MSFAM01.1-Cyanide-2

SDG No : MBH6H7

Matrix : WATER

Pippete ID : WC

Balance ID : WC SC-4

Hood ID : HOOD#1

Block ID : MC-1, MC-2

Weigh By : N/A

Start Digest Date: 11/10/2024 **Time :** 08:00 **Temp :** 123 °C

End Digest Date: 11/10/2024 **Time :** 09:30 **Temp :** 127 °C

II batch 11/10/2024 10:00 123 & 18
11/10/2024 11:30 126 & 18

Digestion tube ID : M5595

Filter paper ID : N/A

pH Meter ID : N/A

Block Thermometer ID : WC CYANIDE

Prep Technician Signature: [signature]

Supervisor Signature: [signature]

Standared Name	MLS USED	STD REF. # FROM LOG
PBW	50.0ML	W3112
MATRIX SPIKE SOLUTION	1.0ML	WP110035
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
0.25N NaOH	50.0ML	WP108640
50% v/v H2SO4	5.0ML	WP110391
51% w/v MgCL2	2.0ML	WP110390
pH Paper 0-14	N/A	W3104
Nitrate/Nitrite Strip	N/A	W3101
Lead Acetate strip	N/A	W3134
KI-starch paper	N/A	W2965
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
S0	S0	50ML	WP110640 I batch
S5.0	S5.0	50ML	WP110639 "
S10.0	S10.0	50ML	WP110638 "
S100.0	S100.0	50ML	WP110637 "
S250.0	S250.0	50ML	WP110636 "
S500.0	S500.0	50ML	WP110635 "
ICV	ICV	50ML	WP110641 "
ICB	ICB	50ML	WP108640 "
CCV	CCV	50ML	WP110642 "
CCB	CCB	50ML	WP108640 "
Midrange	Midrange	N/A	N/A
HIGHSTD	HIGHSTD	N/A	N/A
LOWSTD	LOWSTD	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

MIDI-DISTILATION_SOIL; I-ST BATCH MC-2 START TEMP:123 C; MC-2 END TEMP: 126 C; Block Therm.ID: WC-CYANIDE-2

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11.10.2024, 11:45	[signature] (WC)	NF(WC)
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water SPLP Cyanide Preparation Sheet

PB164689

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Sulfide	Oxidizing	Nitrate/ Nitrite	Comment	Prep Pos
P4623-01	MBH6M7	50	50	>10	Negative	Negative	Negative	N/A I batch	N/A
P4623-02	MBH6M8	50	50	>10	Negative	Negative	Negative	N/A "	N/A
P4623-03	MBH6M9	50	50	>10	Negative	Negative	Negative	N/A "	N/A
P4623-04	MBH6N0	50	50	>10	Negative	Negative	Negative	N/A "	N/A
P4623-05	MBH6N1	50	50	>10	Negative	Negative	Negative	N/A "	N/A
P4623-06	MBH8M6	50	50	>10	Negative	Negative	Negative	N/A "	N/A
P4623-07	MBH6N2	50	50	>10	Negative	Negative	Negative	N/A II batch	N/A
P4623-08	MBH6N3	50	50	>10	Negative	Negative	Negative	N/A "	N/A
P4623-09	MBH6N4	50	50	>10	Negative	Negative	Negative	N/A "	N/A
P4623-10	MBH6N5	50	50	>10	Negative	Negative	Negative	N/A "	N/A
P4623-11	MBH6N6	50	50	>10	Negative	Negative	Negative	N/A "	N/A
P4623-12	MBH6N6D	50	50	>10	Negative	Negative	Negative	N/A "	N/A
P4623-13	MBH6N6S	50	50	>10	Negative	Negative	Negative	N/A "	N/A
P4623-14	MBH6N7	50	50	>10	Negative	Negative	Negative	N/A "	N/A
PB164689BL	PBW689	50	50	>10	Negative	Negative	Negative	N/A I batch	N/A
PB164689TB	LEB689	50	50	>10	Negative	Negative	Negative	N/A "	N/A

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

Instrument ID: KONELAB

Daily Analysis Runlog For Sequence/QCBatch ID # LB133307

Review By	Niha Farheen Shaik	Review On	11/7/2024 8:41:22 AM
Supervise By	Iwona Zarych	Supervise On	11/11/2024 2:45:05 PM

STD. NAME	STD REF.#
ICAL Standard	WP110640,WP110639,WP110638,WP110637,WP110636,WP110635
ICV Standard	WP110641
CCV Standard	WP110642
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	WP110103,WP109089,WP110645

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0.0	S0	CAL1	11/11/24 10:08		Niha	OK
2	S5.0	S01	CAL2	11/11/24 10:08		Niha	OK
3	S10.0	S02	CAL3	11/11/24 10:08		Niha	OK
4	S100.0	S03	CAL4	11/11/24 10:08		Niha	OK
5	S250.0	S04	CAL5	11/11/24 10:08		Niha	OK
6	S500.0	S05	CAL6	11/11/24 10:08		Niha	OK
7	ICV001	ICV001	ICV	11/11/24 10:39		Niha	OK
8	ICB001	ICB001	ICB	11/11/24 10:39		Niha	OK
9	CCV001	CCV001	CCV	11/11/24 10:39		Niha	OK
10	CCB001	CCB001	CCB	11/11/24 10:39		Niha	OK
11	PB164689BL	PBW689	MB	11/11/24 10:39		Niha	OK
12	PB164689TB	LEB689	MB	11/11/24 10:39		Niha	OK
13	P4623-01	MBH6M7	SAM	11/11/24 10:46		Niha	OK
14	P4623-02	MBH6M8	SAM	11/11/24 10:46		Niha	OK
15	P4623-03	MBH6M9	SAM	11/11/24 10:46		Niha	OK
16	P4623-04	MBH6N0	SAM	11/11/24 10:46		Niha	OK
17	P4623-05	MBH6N1	SAM	11/11/24 10:46		Niha	OK
18	P4623-06	MBH8M6	SAM	11/11/24 10:46		Niha	OK

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

Instrument ID: KONELAB

Daily Analysis Runlog For Sequence/QCBatch ID # LB133307

Review By	Niha Farheen Shaik	Review On	11/7/2024 8:41:22 AM
Supervise By	Iwona Zarych	Supervise On	11/11/2024 2:45:05 PM

STD. NAME	STD REF.#
ICAL Standard	WP110640,WP110639,WP110638,WP110637,WP110636,WP110635
ICV Standard	WP110641
CCV Standard	WP110642
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	WP110103,WP109089,WP110645

19	P4623-07	MBH6N2	SAM	11/11/24 10:46		Niha	OK
20	P4623-08	MBH6N3	SAM	11/11/24 10:46		Niha	OK
21	P4623-09	MBH6N4	SAM	11/11/24 10:46		Niha	OK
22	P4623-10	MBH6N5	SAM	11/11/24 10:46		Niha	OK
23	P4623-11	MBH6N6	SAM	11/11/24 10:52		Niha	OK
24	P4623-12	MBH6N6D	DUP	11/11/24 10:52		Niha	OK
25	P4623-13	MBH6N6S	MS	11/11/24 11:13		Niha	OK
26	P4623-14	MBH6N7	SAM	11/11/24 11:13		Niha	OK
27	CCV002	CCV002	CCV	11/11/24 11:13		Niha	OK
28	CCB002	CCB002	CCB	11/11/24 11:14		Niha	OK

Alliance TECHNICAL GROUP

SPLP EXTRACTION LOGPAGE

PB164688

SOP ID : M1312-SPLP-10

SDG No : MBH6H7

Weigh By : JP

Balance ID : WC SC-4

pH Meter ID : WC PH METER-1

Extraction By : JP

Filter By : JP

Pippete ID : WC

Tumbler ID : T-2 /ZHE-2

TCLP Filter ID : 114771

Start Prep Date : 11/05/2024 **Time :** 14:00

End Prep Date : 11/06/2024 **Time :** 07:10

Combination Ratio : 20

ZHE Cleaning Batch : N/A

Initial Room Temperature: 24 °C

Final Room Temperature: 22 °C

TCLP Technician Signature : JB

Supervisor By : IR

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

Chemical Used	ML/SAMPLE U	Lot Number
SPLP FLUID	N/A	WP110482
N/A	N/A	N/A
HNO3-TCLP,1N	N/A	WP108585
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
120ml Plastic bottle	N/A	21029
1:1 HNO3	MP81119	N/A

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after fiftration and before preservation. TUMBLER T-2 / ZHE-2 checked,30 rpm.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11/06/24 08:30	JB / ECLP Room	JBP. / ORG-DIG
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

SPLP EXTRACTION LOGPAGE

PB164688

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
P4623-01	MBH6M7	11	100.02	2000	N/A	N/A	N/A	7.22	1.05	T-2
P4623-02	MBH6M8	12	100.03	2000	N/A	N/A	N/A	7.05	1.14	T-2
P4623-03	MBH6M9	13	100.04	2000	N/A	N/A	N/A	7.06	1.17	T-2
P4623-04	MBH6N0	14	100.02	2000	N/A	N/A	N/A	7.11	1.21	T-2
P4623-05	MBH6N1	15	100.03	2000	N/A	N/A	N/A	7.08	1.24	T-2
P4623-06	MBH8M6	16	100.02	2000	N/A	N/A	N/A	7.21	1.30	T-2
P4623-07	MBH6N2	17	100.03	2000	N/A	N/A	N/A	7.25	1.27	T-2
P4623-08	MBH6N3	18	100.04	2000	N/A	N/A	N/A	7.29	1.30	T-2
P4623-09	MBH6N4	19	100.02	2000	N/A	N/A	N/A	7.33	1.35	T-2
P4623-10	MBH6N5	20	100.03	2000	N/A	N/A	N/A	7.03	1.31	T-2
P4623-11	MBH6N6	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-12	MBH6N6D	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-13	MBH6N6S	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-14	MBH6N7	22	100.02	2000	N/A	N/A	N/A	7.32	1.42	ZHE-2
PB164688TB	LEB688	23	N/A	2000	N/A	N/A	N/A	4.23	1.04	ZHE-2

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
P4623-01	MBH6M7	N/A	N/A	N/A	N/A	100	N/A
P4623-02	MBH6M8	N/A	N/A	N/A	N/A	100	N/A
P4623-03	MBH6M9	N/A	N/A	N/A	N/A	100	N/A
P4623-04	MBH6N0	N/A	N/A	N/A	N/A	100	N/A
P4623-05	MBH6N1	N/A	N/A	N/A	N/A	100	N/A
P4623-06	MBH8M6	N/A	N/A	N/A	N/A	100	N/A
P4623-07	MBH6N2	N/A	N/A	N/A	N/A	100	N/A
P4623-08	MBH6N3	N/A	N/A	N/A	N/A	100	N/A
P4623-09	MBH6N4	N/A	N/A	N/A	N/A	100	N/A
P4623-10	MBH6N5	N/A	N/A	N/A	N/A	100	N/A
P4623-11	MBH6N6	N/A	N/A	N/A	N/A	100	N/A
P4623-12	MBH6N6D	N/A	N/A	N/A	N/A	100	N/A
P4623-13	MBH6N6S	N/A	N/A	N/A	N/A	100	N/A
P4623-14	MBH6N7	N/A	N/A	N/A	N/A	100	N/A
PB164688TB	LEB688	N/A	N/A	N/A	N/A	N/A	N/A

Alliance TECHNICAL GROUP

SPLP Fluid Determination

PB164688

Hot Block ID : WC S-1 /WC S-2

Thermometer ID : FLASHPOINT

SampleID	ClientID	Sample Weight (g)	Volume DI Water (mL)	PH after 5 min stir	PH after 10 min stir	Extraction Fluid 1 or 2	pH Extraction Fluid
P4623-01	MBH6M7	N/A	N/A	N/A	N/A	#1	4.23
P4623-02	MBH6M8	N/A	N/A	N/A	N/A	#1	4.23
P4623-03	MBH6M9	N/A	N/A	N/A	N/A	#1	4.23
P4623-04	MBH6N0	N/A	N/A	N/A	N/A	#1	4.23
P4623-05	MBH6N1	N/A	N/A	N/A	N/A	#1	4.23
P4623-06	MBH8M6	N/A	N/A	N/A	N/A	#1	4.23
P4623-07	MBH6N2	N/A	N/A	N/A	N/A	#1	4.23
P4623-08	MBH6N3	N/A	N/A	N/A	N/A	#1	4.23
P4623-09	MBH6N4	N/A	N/A	N/A	N/A	#1	4.23
P4623-10	MBH6N5	N/A	N/A	N/A	N/A	#1	4.23
P4623-11	MBH6N6	N/A	N/A	N/A	N/A	#1	4.23
P4623-12	MBH6N6D	N/A	N/A	N/A	N/A	#1	4.23
P4623-13	MBH6N6S	N/A	N/A	N/A	N/A	#1	4.23
P4623-14	MBH6N7	N/A	N/A	N/A	N/A	#1	4.23
PB164688TB	LEB688	N/A	N/A	N/A	N/A	#1	4.23

Alliance TECHNICAL GROUP 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Login Summary Report

Order ID :	P4623	Order Date :	10/29/2024 3:00:00 PM	Project Mgr :	Deepak
Client :	USEPA CLP SMO	Project :	51835	Report Type :	USEPA CLP
Contact :	Anita Kapadia	Receive Date :	10/29/2024 3:00:00 PM	EDD Type :	EPA CLP
Date Sign Off :	11/1/2024 9:05:36 AM				

Sample ID	Client ID	Matrix	Sampling Date	Test	Test Group	Method	TAT Days	Fax Due Date	HC Due Date
P4623-01	MBH6M7	Solid	10/29/2024						
				SPLP Cyanide		SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury		SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3		SFAM_AES	10	11/12/2024	11/12/2024
P4623-02	MBH6M8	Solid	10/29/2024						
				SPLP Cyanide		SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury		SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3		SFAM_AES	10	11/12/2024	11/12/2024
P4623-03	MBH6M9	Solid	10/29/2024						
				SPLP Cyanide		SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury		SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3		SFAM_AES	10	11/12/2024	11/12/2024
P4623-04	MBH6N0	Solid	10/29/2024						
				SPLP Cyanide		SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury		SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3		SFAM_AES	10	11/12/2024	11/12/2024
P4623-05	MBH6N1	Solid	10/29/2024						
				SPLP Cyanide		SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury		SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3		SFAM_AES	10	11/12/2024	11/12/2024
P4623-06	MBH8M6	Solid	10/29/2024						
				SPLP Cyanide		SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury		SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3		SFAM_AES	10	11/12/2024	11/12/2024
P4623-07	MBH6N2	Solid	10/29/2024						
				SPLP Cyanide		SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury		SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3		SFAM_AES	10	11/12/2024	11/12/2024
P4623-08	MBH6N3	Solid	10/29/2024						
				SPLP Cyanide		SFAM_CN	10	11/12/2024	11/12/2024

				SPLP Mercury	SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3	SFAM_AES	10	11/12/2024	11/12/2024
P4623-09	MBH6N4	Solid	10/29/2024					
				SPLP Cyanide	SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury	SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3	SFAM_AES	10	11/12/2024	11/12/2024
P4623-10	MBH6N5	Solid	10/29/2024					
				SPLP Cyanide	SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury	SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3	SFAM_AES	10	11/12/2024	11/12/2024
P4623-11	MBH6N6	Solid	10/29/2024					
				SPLP Cyanide	SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury	SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3	SFAM_AES	10	11/12/2024	11/12/2024
P4623-12	MBH6N6D	Solid	10/29/2024					
				SPLP Cyanide	SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury	SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3	SFAM_AES	10	11/12/2024	11/12/2024
P4623-13	MBH6N6S	Solid	10/29/2024					
				SPLP Cyanide	SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury	SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3	SFAM_AES	10	11/12/2024	11/12/2024
P4623-14	MBH6N7	Solid	10/29/2024					
				SPLP Cyanide	SFAM_CN	10	11/12/2024	11/12/2024
				SPLP Mercury	SFAM_HG	10	11/12/2024	11/12/2024
				SPLP MetalGroup3	SFAM_AES	10	11/12/2024	11/12/2024

Alliance TECHNICAL GROUP

SPLP EXTRACTION LOGPAGE

PB164688

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
P4623-01	MBH6M7	11	100.02	2000	N/A	N/A	N/A	7.22	1.05	T-2
P4623-02	MBH6M8	12	100.03	2000	N/A	N/A	N/A	7.05	1.14	T-2
P4623-03	MBH6M9	13	100.04	2000	N/A	N/A	N/A	7.06	1.17	T-2
P4623-04	MBH6N0	14	100.02	2000	N/A	N/A	N/A	7.11	1.21	T-2
P4623-05	MBH6N1	15	100.03	2000	N/A	N/A	N/A	7.08	1.24	T-2
P4623-06	MBH8M6	16	100.02	2000	N/A	N/A	N/A	7.21	1.30	T-2
P4623-07	MBH6N2	17	100.03	2000	N/A	N/A	N/A	7.25	1.27	T-2
P4623-08	MBH6N3	18	100.04	2000	N/A	N/A	N/A	7.29	1.30	T-2
P4623-09	MBH6N4	19	100.02	2000	N/A	N/A	N/A	7.33	1.35	T-2
P4623-10	MBH6N5	20	100.03	2000	N/A	N/A	N/A	7.03	1.31	T-2
P4623-11	MBH6N6	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-12	MBH6N6D	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-13	MBH6N6S	21	100.04	2000	N/A	N/A	N/A	7.07	1.39	ZHE-2
P4623-14	MBH6N7	22	100.02	2000	N/A	N/A	N/A	7.32	1.42	ZHE-2
PB164688TB	LEB688	23	N/A	2000	N/A	N/A	N/A	4.23	1.04	ZHE-2

Alliance TECHNICAL GROUP

SPLP EXTRACTION LOGPAGE

PB164688

SOP ID : M1312-SPLP-10

SDG No : MBH6H7

Weigh By : JP

Balance ID : WC SC-4

pH Meter ID : WC PH METER-1

Extraction By : JP

Filter By : JP

Pippete ID : WC

Tumbler ID : T-2 /ZHE-2

TCLP Filter ID : 114771

Start Prep Date : 11/05/2024 **Time :** 14:00

End Prep Date : 11/06/2024 **Time :** 07:10

Combination Ratio : 20

ZHE Cleaning Batch : N/A

Initial Room Temperature: 24 °C

Final Room Temperature: 22 °C

TCLP Technician Signature : SB

Supervisor By : JP

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

Chemical Used	ML/SAMPLE U	Lot Number
SPLP FLUID	N/A	WP110482
N/A	N/A	N/A
HNO3-TCLP,1N	N/A	WP108585
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
120ml Plastic bottle	N/A	21029
1:1 HNO3	MP81119	N/A

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after fiftration and before preservation. TUMBLER T-2 / ZHE-2 checked,30 rpm.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11/06/24 08:30	SB / Cold Room	JP. / Det Dry
	Preparation Group	Analysis Group

WORKLIST(Hardcopy Internal Chain)

WorkList Name : SPLP CN-11052024 **WorkList ID :** 185145 **Department :** Distillation **Date :** 11-05-2024 16:11:54

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4623-01	MBH6M7	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-02	MBH6M8	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-03	MBH6M9	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-04	MBH6N0	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-05	MBH6N1	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-06	MBH8M6	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-13	MBH6N6S	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-14	MBH6N7	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-07	MBH6N2	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-08	MBH6N3	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-09	MBH6N4	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-10	MBH6N5	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-11	MBH6N6	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN
P4623-12	MBH6N6D	Solid	SPLP Cyanide	Cool 4 deg C	USEP01	Q11	10/29/2024	SFAM_CN

530

Date/Time 11.10.2024, 07:40

Raw Sample Received by:

Raw Sample Relinquished by:

Date/Time 11.10.2024, 10:00

Raw Sample Received by:

Raw Sample Relinquished by: