SDG COVER PAGE

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

Lab Code: ACE Case No.: 51974 MA No.: SDG No.: MBHH96

SOW No. : SFAM01.1

EPA Sample No.	Lab Sample Id	Analysis Method ICP-AES	ICP-MS	Mercury	Cyanide
MBHH96	Q1181-01	X			
MBHH97	Q1181-02	X			
MBHH98	Q1181-03	X			
MBHH99	Q1181-04	X			
MBHH99D	Q1181-05	X			
MBHH99S	Q1181-06	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 # MBHH96

USEPA CLP COC (LAB COPY)

DateShipped: 1/23/2025
CarrierName: FedEx
AirbillNo: 771600629736

CHAIN OF CUSTODY RECORD

Case #: 51974
Cooler #: 1

No: 3-012225-082545-0005

Lab: Alliance Technical Group LLS
Lab Contact: Mohammad Ahmed
Lab Phone: 908-789-8900

2

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
SQ-Headwall-1-012125	MBHH96	Soil/ Jon King	Composite	ICP-AES(14), TCLP ICP-AES(14)	1071 (None), 1072 (None) (2)	SQ-Headwall	01/21/2025 13:00	
SQ-Headwall-2-012125	MBHH97	Soil/ Jon King	Composite	ICP-AES(14), TCLP ICP-AES(14)	1078 (None), 1079 (None) (2)	SQ-Headwall	01/21/2025 13:10	
SQ-S-GRUB-E-012125	MBHH98	Soil/ Jon King	Composite	ICP-AES(14), TCLP ICP-AES(14)	1085 (None), 1086 (None) (2)	SQ-S-Grub	01/21/2025 13:30	
SQ-S-GRUB-W-012125	MBHH99	Soil/ Jon King	Composite	ICP-AES(14), TCLP ICP-AES(14)	1092 (None), 1093 (None) (2)	SQ-S-Grub	01/21/2025 13:50	

Special Instructions:

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Analysis Key: ICP-AES=CLP ICP AES 11+ Metals, TCLP ICP-AES=CLP TCLP ICP-AES Metals

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	(Soverign)	1/23/25 12:00		1-24-25 0938	IR Gun #1
					Temp 2.6°C
					Custody Seal intact
					Temp blank present

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page 1 of 1
Received By (Print Name) Cassandra Lee		Log-in Date 1/24/2025
Received By (Signature)		
Case Number 51974	SDG No. MBHH96	MA No. N/A

Remarks:	
1. Custody Seal (s)	Present, Intact
2. Custody Seal Nos.	n/a
3. Traffic Reports/Chain Of Custody Records	Present
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	771600629736 1
6. Shipping Container Temperature Indicator Bottle	Present
7. Shipping Container Temperature	2.6 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	01/24/2025
12.Time Received	09:38

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MBHH96	N/A	1071	Q1181-01	Intact
2	MBHH97	N/A	1078	Q1181-02	Intact
3	MBHH98	N/A	1085	Q1181-03	Intact
4	MBHH99	N/A	1092	Q1181-04	Intact
5	MBHH99D	N/A	1092	Q1181-05	Intact
6	MBHH99S	N/A	1092	Q1181-06	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 1/24/25	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.	**51974**	SDG NO.	**MBHH96**
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	2	✓	
3 . Sample Log-In Sheet (DC-1)	3	3	✓	
4 . CSF Inventory Sheet (DC-2)	4	6	✓	
5 . SDG Narrative	7	9	✓	
6 . Communication Logs	10	12	✓	
7 . Percent Solids Log	13	14	✓	
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	15	18	✓	
9 . Instrument raw data by instrument in analysis order	19	200	✓	
Other Data				
10 . Standard and Reagent Preparation Logs	201	342	✓	
11 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	343	344	✓	
12 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	345	348	✓	
13 . Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	NA	NA	✓	
14 . Extraction Logs for TCLP and SPLP	NA	NA	✓	
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	NA	NA	✓	
27. Instrument raw data by instrument in analysis order	NA	NA	✓	
Other Data				
28. Standard and Reagent Preparation Logs	NA	NA	✓	
29. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	NA	NA	✓	
30. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	NA	NA	✓	
31. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	NA	NA	✓	
32. Extraction Logs for TCLP and SPLP	NA	NA	✓	
33. Raw GPC Data	NA	NA	✓	
34. Raw Florisil Data	NA	NA	✓	
Analysis Forms and Data (Cyanide)				
35. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	NA	NA	✓	
36. Instrument raw data by instrument in analysis order	NA	NA	✓	
Other Data				
37. Standard and Reagent Preparation Logs	NA	NA	✓	
38. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	NA	NA	✓	
39. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	NA	NA	✓	
40. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	NA	NA	✓	
41. Extraction Logs for TCLP and SPLP	NA	NA	✓	
42. Raw GPC Data	NA	NA	✓	
43. Raw Florisil Data	NA	NA	✓	

	PAGE NOs: FROM	TO	CHECK LAB	REGION
Additional				
44. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 1)	349	349	✓	
Sample Tags	NA	NA	✓	
Sample Log-In Sheet (Lab)	350	350	✓	
45. Misc. Shipping/Receiving Records (list all individual records)				
	NA	NA	✓	
46. Internal Lab Sample Transfer Records and Tracking Sheets (describe or list)				
	351	351	✓	
47. Other Records and related Communication Logs (describe or list)				
	NA	NA	✓	

48. Comments:

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

284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # MBHH96
CASE # 51974
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID # Q1181

A. Number of Samples and Date of Receipt

04 Soil samples were delivered to the laboratory intact on 01/24/2025.

B. Parameters

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

C. Cooler Temp

Indicator Bottle**: Presence/**Absence

Cooler: 2.6^{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: Laboratory QC is scheduled for soil ICP-AES and TCLP ICP-AES analyses; however, no sample was designated on the COC for QC analysis. The laboratory would like to use sample MBHH99 for ICP-AES and TCLP ICP-AES Laboratory QC. These samples are not blanks, rinsates or PE samples.

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 SOW SFAM01.1 Exhibit A, Section 5.5.4.1., the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

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 Soil Sample:

Conversion of Results from mg/L or ppm to mg/kg (Dry Weight Basis):

$$\text{Concentration (mg/kg)} = C \times \frac{Vf}{W \times S} \times DF$$

Where,

C = Instrument value in ppm (The average of all replicate exposures)
Vf = Final digestion volume (mL)
W = Initial aliquot amount (g) (Sample amount taken in prep)
S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

Example Calculation For Sample MBHH96 For Antimony:

If C = 0.0279553 ppm
Vf = 100 ml
W = 1.16 g
S = 0.954 (95.4/100)
DF = 1

$$\text{Concentration (mg/kg)} = 0.0279553 \times \frac{100}{1.16 \times 0.954} \times 1$$

$$= 2.52614 \text{ mg/kg}$$

= 2.5 mg/kg (Reported Result with Signification

284 Sheffield Street
Mountainside, NJ 07092

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 Silver. Duplicate sample did meet requirements. Serial Dilution did meet requirements.

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: DeBerry, Eric <Eric.Deberry@gdit.com>
Sent: Friday, January 24, 2025 12:34 PM
To: Deepak Parmar; Sohil Jodhani; Mohammad Ahmed
Cc: Bauer, Heather E; Johnson, Matthew; Burman, Jarmael; 'Moody, Brett'; Gambrah, Derrick; Patel, Bhavita; Vargas.Magda@epa.gov; Britz, Helen
Subject: Task Area SST | Region 03 | Case 51974 | Lab ACE | Issue Insufficient/inappropriate designation of laboratory QC | FINAL

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 afternoon Deepak,

Issue: Laboratory QC is scheduled for soil ICP-AES and TCLP ICP-AES analyses; however, no sample was designated on the COC for QC analysis. The laboratory would like to use sample MBHH99 for ICP-AES and TCLP ICP-AES Laboratory QC. These samples are not blanks, rinsates or PE samples.

Resolution: Per SOW SFAM01.1 Exhibit A, Section 5.5.4.1., the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

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

Thanks,

Eric DeBerry

Associate Environmental Analyst
CLP QSS Coordinator – EPA Regions 1 & 3

Under contract to the EPA

T: (571) 833-5166
Eric.DeBerry@GDIT.com
15036 Conference Center Drive
Chantilly, VA 20151
www.gdit.com

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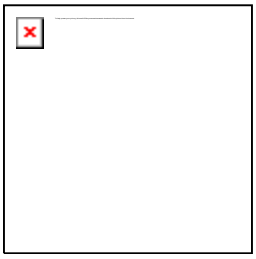
From: Bett, Daisy <Daisy.Bett@gdit.com>
Sent: Friday, January 24, 2025 11:38 AM
To: Deepak Parmar <Deepak.Parmar@AllianceTG.com>; DeBerry, Eric <Eric.Deberry@gdit.com>
Cc: Sohil Jodhani <Sohil.Jodhani@AllianceTG.com>
Subject: FW: Region 03 | Case 51974 | Lab ACE | Issue Discrepancies with tags, jars, and/or COC/QC

Good morning Deepak,

Please note that Case 51974 is a Region 3 Case. I have included Eric DeBerry (Region 3 QSS Coordinator) on this email; he will report the issue to the Region.

Thank you,
Daisy Bett
Research Analyst Associate
GDIT Federal Civilian Division
EPA Region 2 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
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From: Deepak Parmar <Deepak.Parmar@alliancetg.com>
Sent: Friday, January 24, 2025 11:22 AM
To: Bett, Daisy <Daisy.Bett@gdit.com>
Cc: Sohil Jodhani <Sohil.Jodhani@AllianceTG.com>
Subject: Region 02 | Case 51974 | Lab ACE | Issue Discrepancies with tags, jars, and/or COC/QC

This Message Is From an External Sender

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

Good morning,

Issue 1 : Two SDGs MBHH96 and MBHH97 is open without lab QC for soil samples. However, a sample was not designated for Laboratory QC. Lab like to use samples MBHH99 ICP-AES and TCLP ICP-AES. these samples are not blanks, rinsates or PE samples.

Please see attachment for your reference.

Thanks & Regards,

Deepak Parmar
QA/QC
An Alliance Technical Group Company
Main: 908-789-8900
Direct: 908-728-3154
Address: 284 Sheffield St, Ste 1, Mountainside, NJ 07092
www.alliancetg.com

PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 1/27/2025

OVENTEMP IN Celsius(°C): 107
Time IN: 15:25
In Date: 01/24/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103
Time OUT: 08:00
Out Date: 01/25/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC: LB134407

Lab ID	Client SampleID	Dish #	Dish Wt(g) (A)	Sample Wt(g)	Dish + Sample Wt(g) (B)	Dish+Dry Sample Wt(g) (C)	% Solid	Comments
Q1181-01	MBHH96	1	1.15	8.52	9.67	9.28	95.4	
Q1181-02	MBHH97	2	1.15	8.36	9.51	8.72	90.6	
Q1181-03	MBHH98	3	1.16	8.67	9.83	8.34	82.8	
Q1181-04	MBHH99	4	1.17	8.60	9.77	7.53	74.0	
Q1181-05	MBHH99D	5	1.17	8.60	9.77	7.53	74.0	
Q1181-06	MBHH99S	6	1.17	8.60	9.77	7.53	74.0	

$$\% \text{ Solid} = \frac{(C-A) * 100}{(B-A)}$$

WORKLIST(Hardcopy Internal Chain)

B 134407

WorkList Name : %1-q1181 **WorkList ID :** 187144 **Department :** Wet-Chemistry **Date :** 01-24-2025 14:28:34

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1181-01	MBHH96	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	01/21/2025	Chemtech -SO
Q1181-02	MBHH97	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	01/21/2025	Chemtech -SO
Q1181-03	MBHH98	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	01/21/2025	Chemtech -SO
Q1181-04	MBHH99	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	01/21/2025	Chemtech -SO
Q1181-05	MBHH99D	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	01/21/2025	Chemtech -SO
Q1181-06	MBHH99S	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	01/21/2025	Chemtech -SO

14

Date/Time 01/24/25 14:35

Raw Sample Received by: JB (CDC)

Raw Sample Relinquished by: IT (SM)

Date/Time 01/24/25 15:30

Raw Sample Received by: IT (SM)

Raw Sample Relinquished by: JB (CDC)

EPA SAMPLE NO.

MBHH96

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51974 MA No. : SDG No.: MBHH96

Matrix: SOIL Lab Sample ID: Q1181-01

% Solids: 95.4 Date Received: 01/24/2025

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	13000		01/27/2025	2003
7440-36-0	Antimony	2.5	J	01/27/2025	2003
7440-38-2	Arsenic	8.5		01/27/2025	2003
7440-39-3	Barium	90		01/27/2025	2003
7440-41-7	Beryllium	0.73		01/27/2025	2003
7440-43-9	Cadmium	0.66		01/27/2025	2003
7440-70-2	Calcium	10000		01/27/2025	2003
7440-47-3	Chromium	42		01/27/2025	2003
7440-48-4	Cobalt	17		01/27/2025	2003
7440-50-8	Copper	49		01/27/2025	2003
7439-89-6	Iron	32000		01/27/2025	2003
7439-92-1	Lead	19		01/27/2025	2003
7439-95-4	Magnesium	9500		01/27/2025	2003
7439-96-5	Manganese	650		01/27/2025	2003
7440-02-0	Nickel	39		01/27/2025	2003
7440-09-7	Potassium	320	J	01/27/2025	2003
7782-49-2	Selenium	4.2		01/27/2025	2003
7440-22-4	Silver	0.90	U*	01/27/2025	2003
7440-23-5	Sodium	91	J	01/27/2025	2003
7440-28-0	Thallium	2.3	U	01/27/2025	2003
7440-62-2	Vanadium	38		01/27/2025	2003
7440-66-6	Zinc	71		01/27/2025	2003

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

Comments:

EPA SAMPLE NO.

MBHH97

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51974 MA No. : SDG No.: MBHH96

Matrix: SOIL Lab Sample ID: Q1181-02

% Solids: 90.6 Date Received: 01/24/2025

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	12000		01/27/2025	2007
7440-36-0	Antimony	2.2	J	01/27/2025	2007
7440-38-2	Arsenic	9.4		01/27/2025	2007
7440-39-3	Barium	100		01/27/2025	2007
7440-41-7	Beryllium	0.68		01/27/2025	2007
7440-43-9	Cadmium	0.60		01/27/2025	2007
7440-70-2	Calcium	4200		01/27/2025	2007
7440-47-3	Chromium	39		01/27/2025	2007
7440-48-4	Cobalt	15		01/27/2025	2007
7440-50-8	Copper	29		01/27/2025	2007
7439-89-6	Iron	29000		01/27/2025	2007
7439-92-1	Lead	18		01/27/2025	2007
7439-95-4	Magnesium	8800		01/27/2025	2007
7439-96-5	Manganese	540		01/27/2025	2007
7440-02-0	Nickel	37		01/27/2025	2007
7440-09-7	Potassium	250	J	01/27/2025	2007
7782-49-2	Selenium	4.2		01/27/2025	2007
7440-22-4	Silver	0.059	J*	01/27/2025	2007
7440-23-5	Sodium	98	J	01/27/2025	2007
7440-28-0	Thallium	2.2	U	01/27/2025	2007
7440-62-2	Vanadium	37		01/27/2025	2007
7440-66-6	Zinc	68		01/27/2025	2007

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

Comments:

EPA SAMPLE NO.

MBHH98

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51974 MA No. : SDG No.: MBHH96

Matrix: SOIL Lab Sample ID: Q1181-03

% Solids: 82.8 Date Received: 01/24/2025

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	11000		01/27/2025	2011
7440-36-0	Antimony	1.4	J	01/27/2025	2011
7440-38-2	Arsenic	6.4		01/27/2025	2011
7440-39-3	Barium	86		01/27/2025	2011
7440-41-7	Beryllium	0.94		01/27/2025	2011
7440-43-9	Cadmium	0.49	J	01/27/2025	2011
7440-70-2	Calcium	4400		01/27/2025	2011
7440-47-3	Chromium	27		01/27/2025	2011
7440-48-4	Cobalt	18		01/27/2025	2011
7440-50-8	Copper	24		01/27/2025	2011
7439-89-6	Iron	20000		01/27/2025	2011
7439-92-1	Lead	26		01/27/2025	2011
7439-95-4	Magnesium	6500		01/27/2025	2011
7439-96-5	Manganese	730		01/27/2025	2011
7440-02-0	Nickel	34		01/27/2025	2011
7440-09-7	Potassium	910		01/27/2025	2011
7782-49-2	Selenium	2.9	J	01/27/2025	2011
7440-22-4	Silver	1.1	U*	01/27/2025	2011
7440-23-5	Sodium	540	U	01/27/2025	2011
7440-28-0	Thallium	2.7	U	01/27/2025	2011
7440-62-2	Vanadium	26		01/27/2025	2011
7440-66-6	Zinc	90		01/27/2025	2011

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

Comments:

EPA SAMPLE NO.

MBHH99

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51974 MA No. : SDG No.: MBHH96

Matrix: SOIL Lab Sample ID: Q1181-04

% Solids: 74 Date Received: 01/24/2025

Analytical Method: ICP_AES

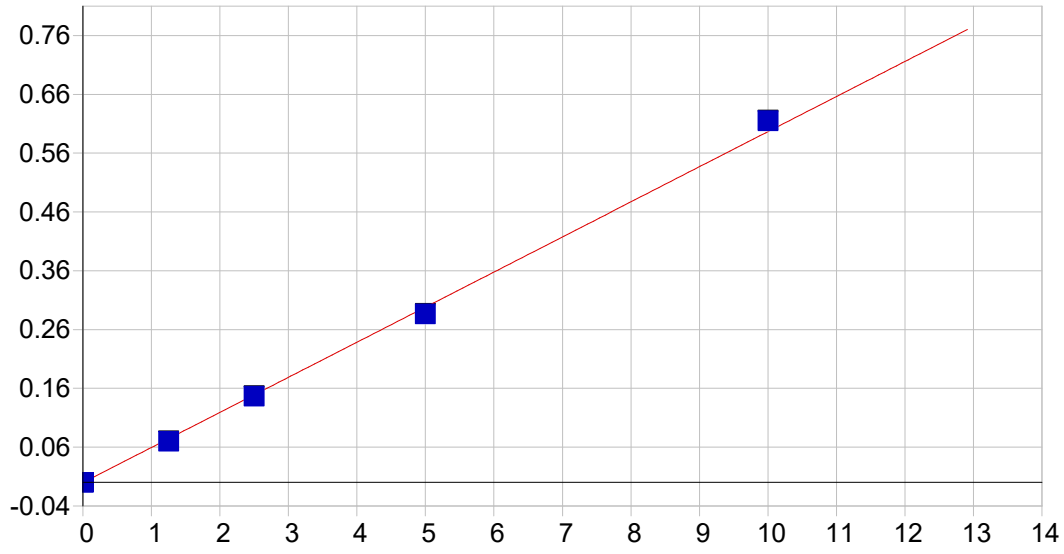
Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	5800		01/27/2025	2015
7440-36-0	Antimony	0.64	J	01/27/2025	2015
7440-38-2	Arsenic	2.1		01/27/2025	2015
7440-39-3	Barium	87		01/27/2025	2015
7440-41-7	Beryllium	0.58		01/27/2025	2015
7440-43-9	Cadmium	0.20	J	01/27/2025	2015
7440-70-2	Calcium	15000		01/27/2025	2015
7440-47-3	Chromium	10		01/27/2025	2015
7440-48-4	Cobalt	7.1		01/27/2025	2015
7440-50-8	Copper	7.1		01/27/2025	2015
7439-89-6	Iron	8600		01/27/2025	2015
7439-92-1	Lead	19		01/27/2025	2015
7439-95-4	Magnesium	3500		01/27/2025	2015
7439-96-5	Manganese	740		01/27/2025	2015
7440-02-0	Nickel	13		01/27/2025	2015
7440-09-7	Potassium	590		01/27/2025	2015
7782-49-2	Selenium	1.4	J	01/27/2025	2015
7440-22-4	Silver	1.0	U*	01/27/2025	2015
7440-23-5	Sodium	520	U	01/27/2025	2015
7440-28-0	Thallium	2.6	U	01/27/2025	2015
7440-62-2	Vanadium	12		01/27/2025	2015
7440-66-6	Zinc	46		01/27/2025	2015

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

Comments:

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



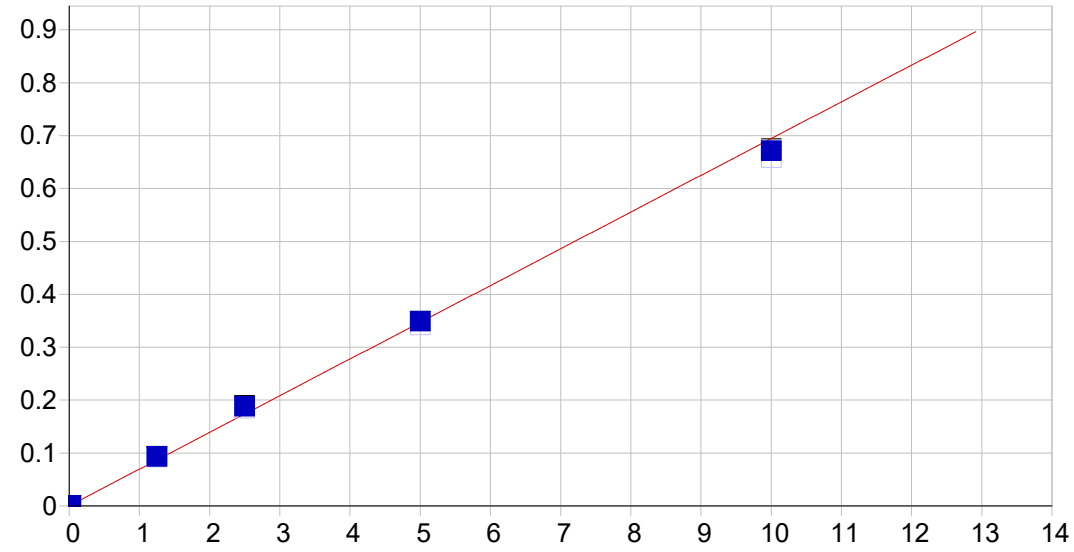
As 189.042 {479}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000095	Re-Slope:	1.000000
A1 (Gain):	0.059662	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999390	Status:	OK.
Std Error of Est:	0.000035		
Predicted MDL:	0.002457		
Predicted MQL:	0.008189		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00009	.000	1
S1	.01000	.01029	.000	2.88	.00052	.000	1
S3	2.5000	2.4575	-.042	-1.70	.14626	.001	1
S4	5.0000	4.8008	-.199	-3.98	.28580	.001	1
S5	10.000	10.314	.314	3.14	.61422	.001	1
S2	1.2500	1.1769	-.073	-5.85	.06999	.000	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



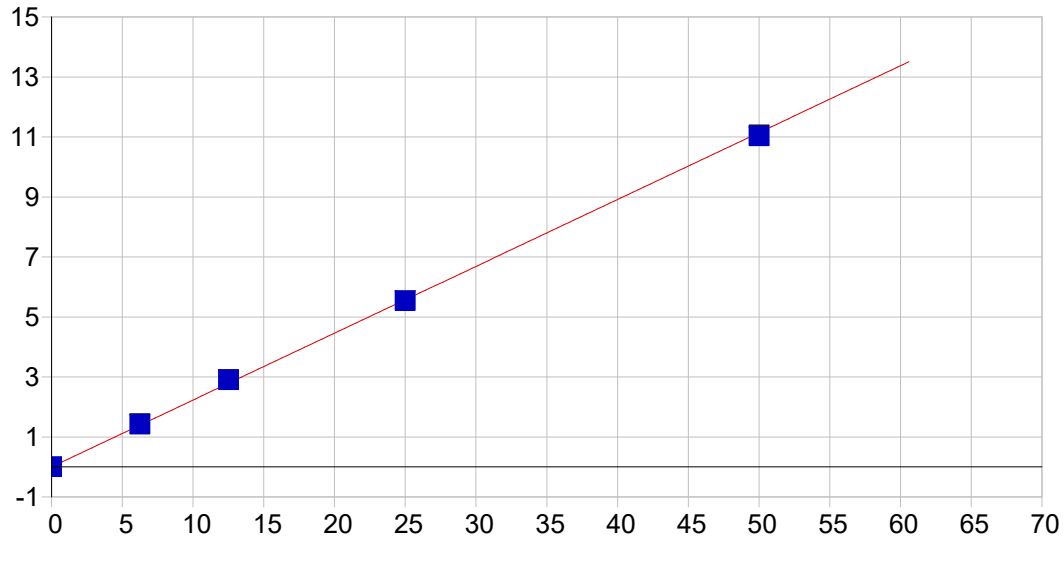
Tl 190.856 {477}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000071	Re-Slope:	1.000000
A1 (Gain):	0.069429	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999038	Status:	OK.
Std Error of Est:	0.000079		
Predicted MDL:	0.001848		
Predicted MQL:	0.006160		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00007	.000	1
S1	.02500	.02747	.002	9.87	.00190	.000	1
S3	2.5000	2.7049	.205	8.19	.18451	.002	1
S4	5.0000	5.0228	.023	.457	.34209	.000	1
S5	10.000	9.6755	-.325	-3.25	.65840	.003	1
S2	1.2500	1.3445	.094	7.56	.09174	.000	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



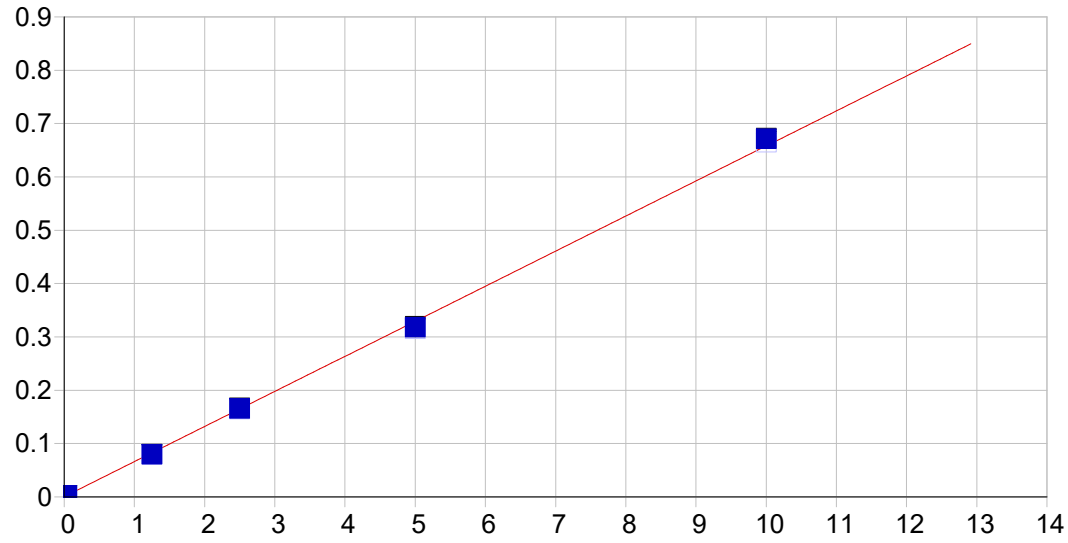
Pb 220.353 {453}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000310	Re-Slope:	1.000000
A1 (Gain):	0.222865	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999836	Status:	OK.
Std Error of Est:	0.000151		
Predicted MDL:	0.001400		
Predicted MQL:	0.004666		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00031	.000	1
S1	.01000	.01088	.001	8.83	.00210	.000	1
S3	12.500	13.016	.516	4.13	2.8982	.013	1
S4	25.000	24.860	-.140	-.561	5.5354	.014	1
S5	50.000	49.483	-.517	-1.03	11.018	.036	1
S2	6.2500	6.3902	.140	2.24	1.4227	.004	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



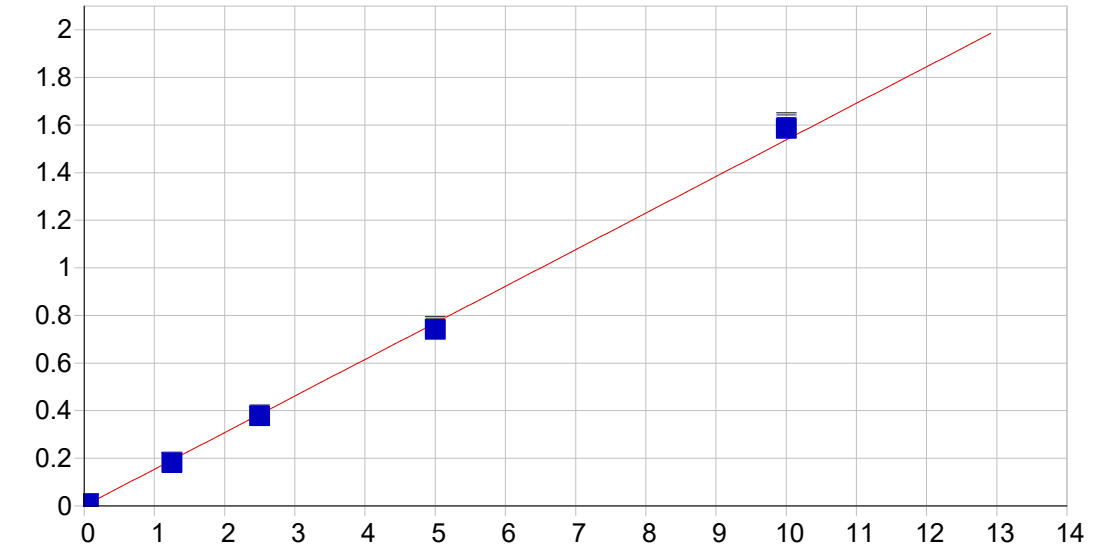
Se 196.090 {472}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000360	Re-Slope:	1.000000
A1 (Gain):	0.065763	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999690	Status:	OK.
Std Error of Est:	0.000051		
Predicted MDL:	0.002760		
Predicted MQL:	0.009200		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00036	.000	1
S1	.03500	.03109	-.004	-11.2	.00240	.000	1
S3	2.5000	2.5131	.013	.524	.16411	.001	1
S4	5.0000	4.8339	-.166	-3.32	.31522	.001	1
S5	10.000	10.200	.200	2.00	.66505	.002	1
S2	1.2500	1.2075	-.043	-3.40	.07901	.000	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

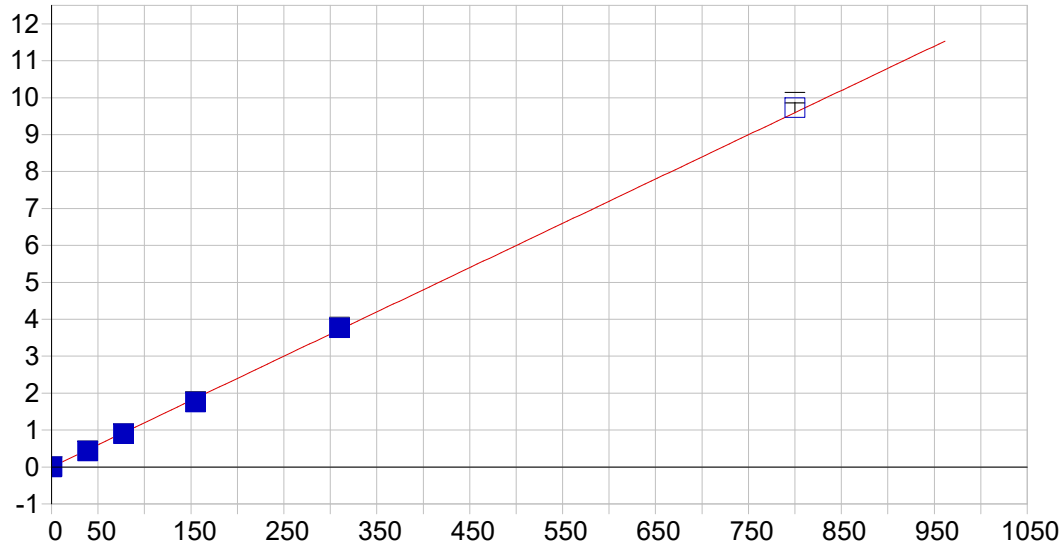


Sb 206.833 {463}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000341	Re-Slope:	1.000000
A1 (Gain):	0.153719	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999434	Status:	OK.
Std Error of Est:	0.000216		
Predicted MDL:	0.001476		
Predicted MQL:	0.004920		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00034	.000	1
S1	.06000	.05582	-.004	-6.96	.00890	.000	1
S3	2.5000	2.4541	-.046	-1.83	.38272	.001	1
S4	5.0000	4.8153	-.185	-3.69	.75080	.002	1
S5	10.000	10.309	.309	3.09	1.6055	.004	1
S2	1.2500	1.1759	-.074	-5.93	.18366	.001	1

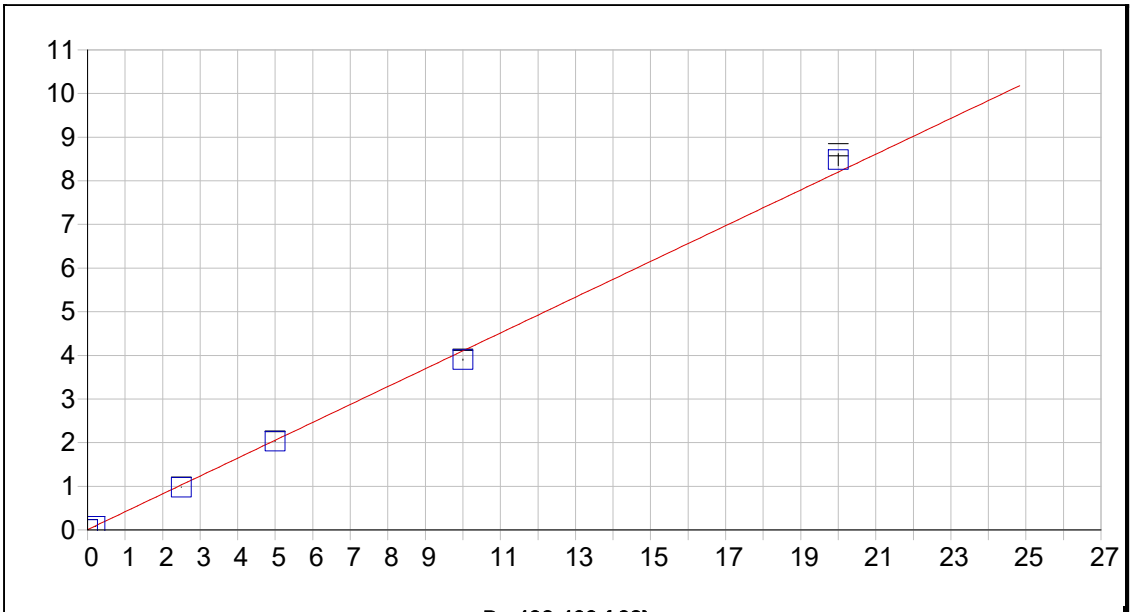


Al 396.152 { 85}

Date of Fit: 1/27/2025 1:59:51 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset):	-0.000040	Re-Slope:	1.000000
A1 (Gain):	0.011994	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999605	Status:	OK.
Std Error of Est:	0.000210		
Predicted MDL:	0.008158		
Predicted MQL:	0.027193		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00005	.000	.000	-.00004	.000	1
S1	.20000	.17715	-.023	-11.4	.00209	.000	1
S3	77.500	74.572	-2.93	-3.78	.89546	.002	1
S4	155.00	146.15	-8.85	-5.71	1.7551	.012	1
S5	310.00	313.76	3.76	1.21	3.7675	.018	1
S2	38.750	35.516	-3.23	-8.35	.42648	.002	1
S6	800.00	811.28	11.3	1.41	9.7303	.144	1



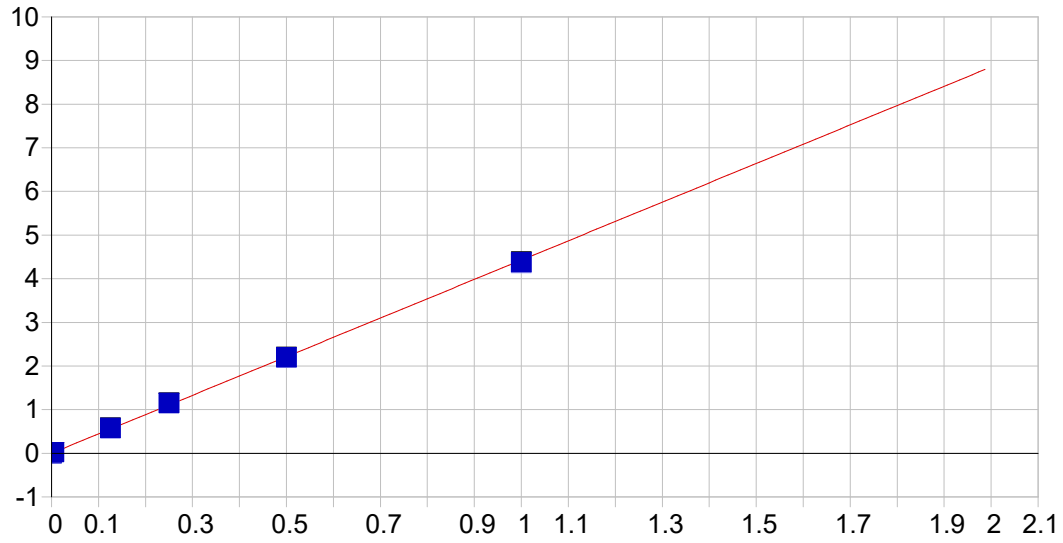
Ba 493.409 { 68}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.006465	Re-Slope:	1.000000
A1 (Gain):	0.409719	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999252	Status:	OK.
Std Error of Est:	0.001685		
Predicted MDL:	0.000826		
Predicted MQL:	0.002752		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	.00648	.000	1
S1	.20000	.18702	-.013	-6.49	.08309	.000	1
S3	5.0000	4.9434	-.057	-1.13	2.0319	.008	1
S4	10.000	9.5043	-.496	-4.96	3.9006	.015	1
S5	20.000	20.692	.692	3.46	8.4844	.137	1
S2	2.5000	2.3732	-.127	-5.07	.97881	.006	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



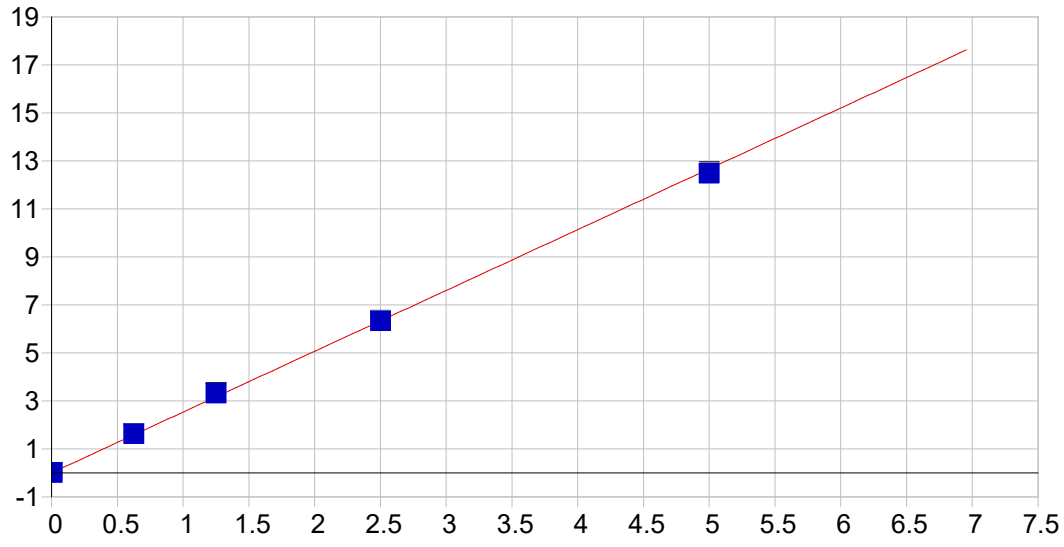
Be 234.861 {144}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000041	Re-Slope:	1.000000
A1 (Gain):	4.426662	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999796	Status:	OK.
Std Error of Est:	0.000334		
Predicted MDL:	0.000074		
Predicted MQL:	0.000247		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00004	.000	1
S1	.00500	.00531	.000	6.13	.02350	.000	1
S3	.25000	.25983	.010	3.93	1.1452	.003	1
S4	.50000	.49669	-.003	-.662	2.1888	.005	1
S5	1.0000	.98825	-.012	-1.18	4.3548	.017	1
S2	.12500	.12993	.005	3.94	.57269	.001	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



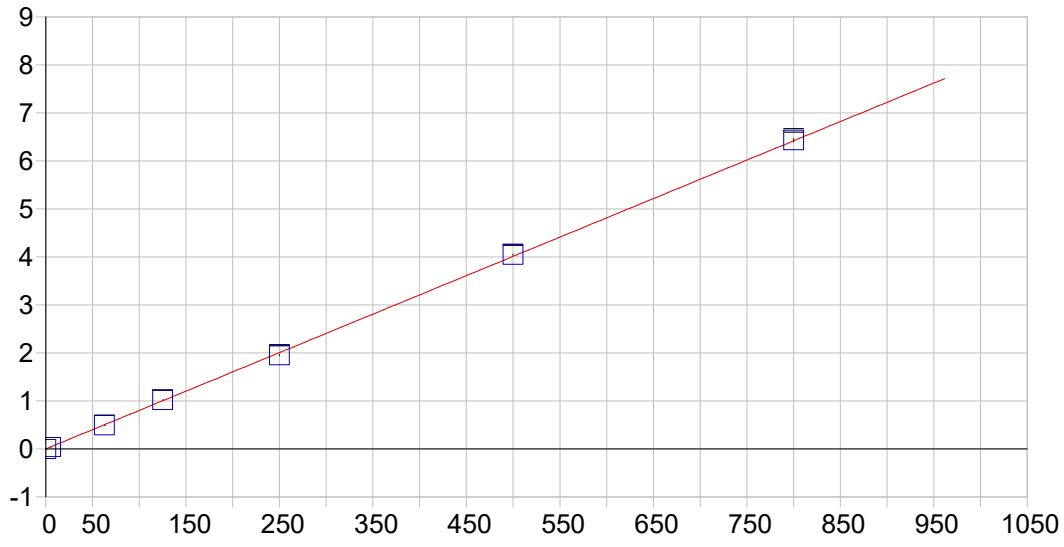
Cd 214.438 {457}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000032	Re-Slope:	1.000000
A1 (Gain):	2.534050	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999759	Status:	OK.
Std Error of Est:	0.000467		
Predicted MDL:	0.000077		
Predicted MQL:	0.000258		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00003	.000	1
S1	.00500	.00511	.000	2.14	.01292	.000	1
S3	1.2500	1.3100	.060	4.80	3.3259	.021	1
S4	2.5000	2.4996	-.000	-.016	6.3466	.016	1
S5	5.0000	4.9232	-.077	-1.54	12.501	.041	1
S2	.62500	.64206	.017	2.73	1.6301	.004	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



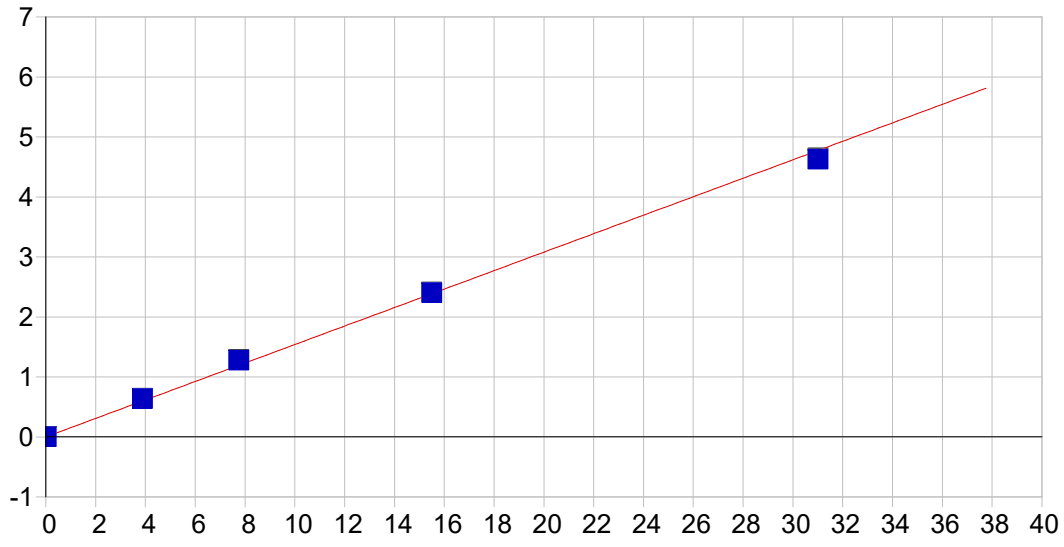
Ca 373.690 { 90}

Date of Fit: 1/27/2025 1:59:51 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset):	0.000014	Re-Slope:	1.000000
A1 (Gain):	0.008023	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999920	Status:	OK.
Std Error of Est:	0.000355		
Predicted MDL:	0.009472		
Predicted MQL:	0.031572		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00014	.000	.000	.00002	.000	1
S2	62.500	61.418	-1.08	-1.73	.49276	.001	1
S3	125.00	127.08	2.08	1.66	1.0196	.002	1
S4	250.00	243.18	-6.82	-2.73	1.9510	.013	1
S5	500.00	504.32	4.32	.864	4.0461	.014	1
S1	5.0000	4.9509	-.049	-.982	.03973	.000	1
S6	800.00	801.55	1.55	.194	6.4307	.037	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



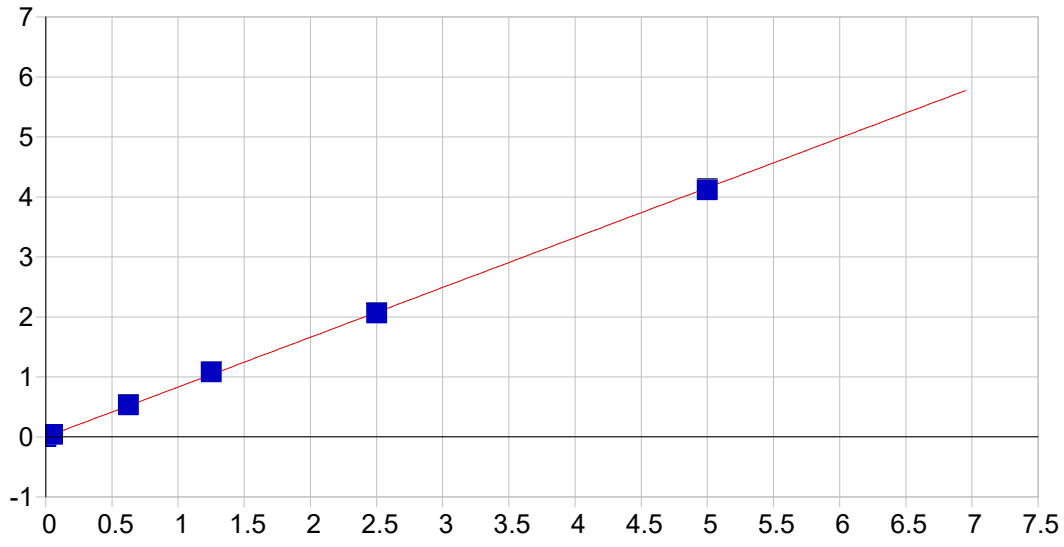
Cr 267.716 {126}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000008	Re-Slope:	1.000000
A1 (Gain):	0.153956	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999231	Status:	OK.
Std Error of Est:	0.000178		
Predicted MDL:	0.000420		
Predicted MQL:	0.001401		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00001	.000	1
S1	.01000	.01133	.001	13.3	.00174	.000	1
S3	7.7500	8.3114	.561	7.24	1.2799	.003	1
S4	15.500	15.589	.089	.575	2.4006	.010	1
S5	31.000	30.068	-.932	-3.01	4.6304	.015	1
S2	3.8750	4.1548	.280	7.22	.63980	.001	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



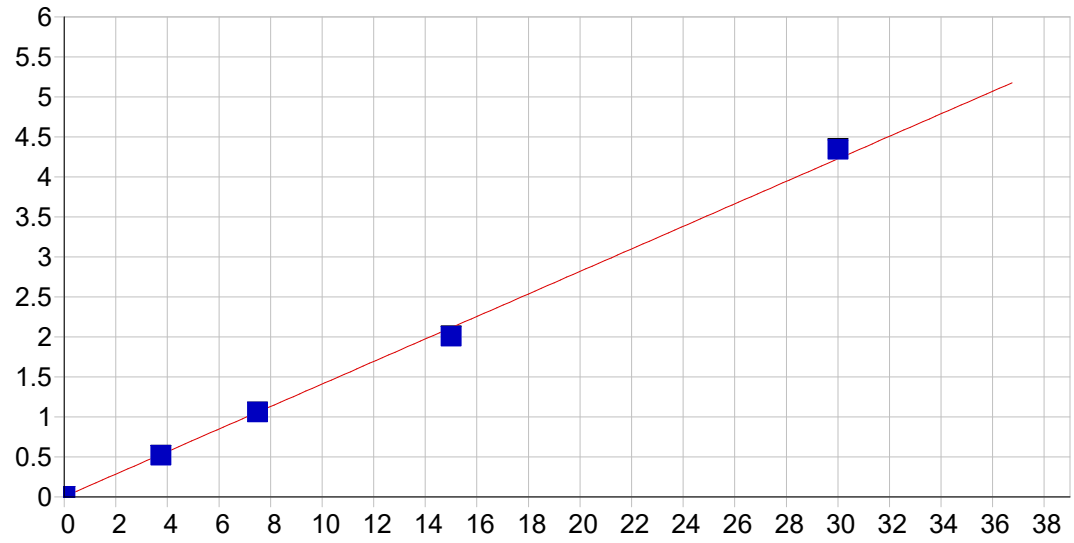
Co 228.616 {448}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000003	Re-Slope:	1.000000
A1 (Gain):	0.830442	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999855	Status:	OK.
Std Error of Est:	0.000377		
Predicted MDL:	0.000260		
Predicted MQL:	0.000866		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00000	.000	1
S1	.05000	.04980	-.000	-.394	.04151	.000	1
S3	1.2500	1.2993	.049	3.95	1.0830	.005	1
S4	2.5000	2.4817	-.018	-.733	2.0688	.005	1
S5	5.0000	4.9559	-.044	-.882	4.1314	.012	1
S2	.62500	.63828	.013	2.12	.53202	.002	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



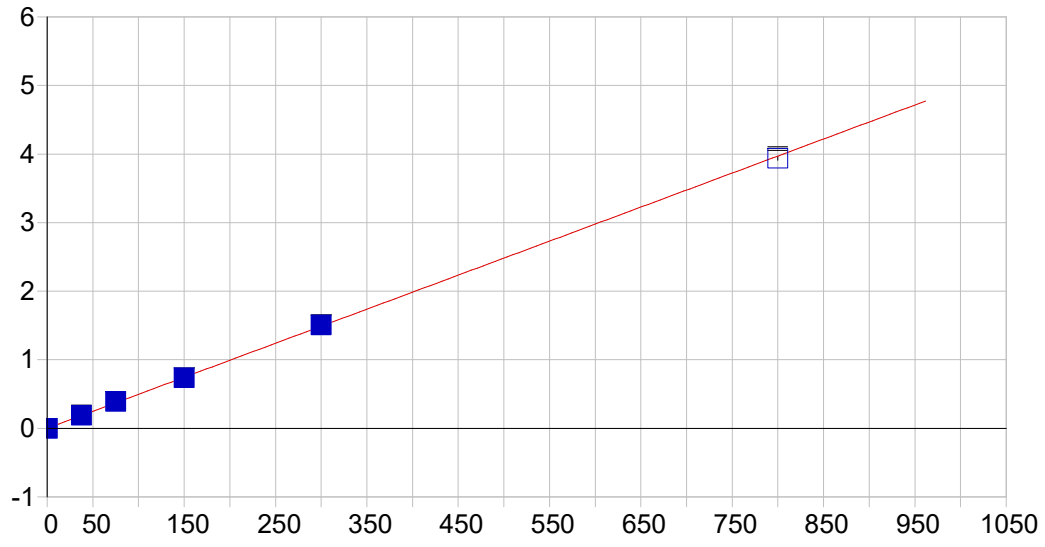
Cu 324.754 {104}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.003692	Re-Slope:	1.000000
A1 (Gain):	0.140741	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999418	Status:	OK.
Std Error of Est:	0.000220		
Predicted MDL:	0.002482		
Predicted MQL:	0.008273		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00369	.000	1
S1	.02500	.02924	.004	17.0	.00781	.000	1
S3	7.5000	7.4981	-.002	-.025	1.0589	.002	1
S4	15.000	14.239	-.761	-5.07	2.0075	.005	1
S5	30.000	30.849	.849	2.83	4.3450	.011	1
S2	3.7500	3.6594	-.091	-2.42	.51866	.003	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



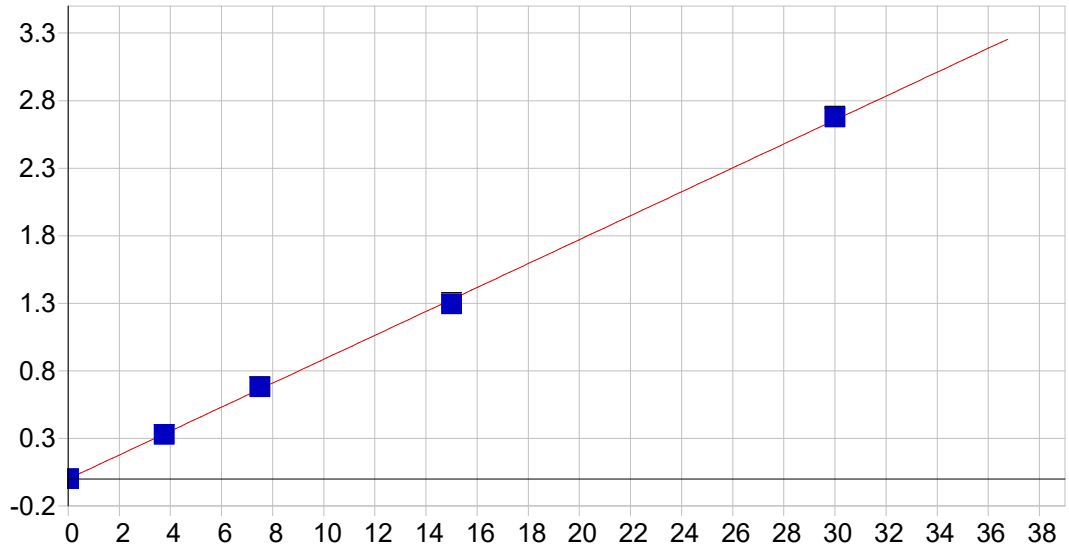
Fe 259.837 {130}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000000	Re-Slope:	1.000000
A1 (Gain):	0.004964	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999886	Status:	OK.
Std Error of Est:	0.000033		
Predicted MDL:	0.006491		
Predicted MQL:	0.021637		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	-.00000	.000	1
S1	.10000	.10574	.006	5.74	.00051	.000	1
S3	75.000	78.612	3.61	4.82	.38984	.001	1
S4	150.00	148.70	-1.30	-.866	.73738	.004	1
S5	300.00	303.79	3.79	1.26	1.5065	.009	1
S2	37.500	38.315	.815	2.17	.19000	.001	1
S6	800.00	793.08	-6.92	-.865	3.9368	.026	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



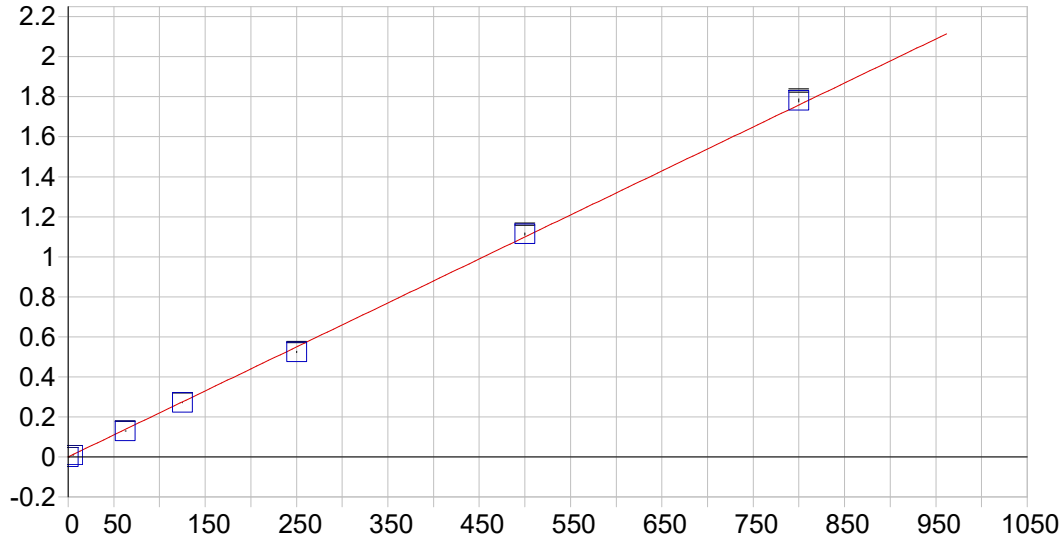
Mn 257.610 {131}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000006	Re-Slope:	1.000000
A1 (Gain):	0.088554	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999851	Status:	OK.
Std Error of Est:	0.000054		
Predicted MDL:	0.000347		
Predicted MQL:	0.001158		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00001	.000	1
S1	.01500	.01530	.000	2.01	.00135	.000	1
S3	7.5000	7.6812	.181	2.42	.67974	.001	1
S4	15.000	14.615	-.385	-2.56	1.2933	.010	1
S5	30.000	30.247	.247	.824	2.6767	.007	1
S2	3.7500	3.7060	-.044	-1.17	.32795	.001	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



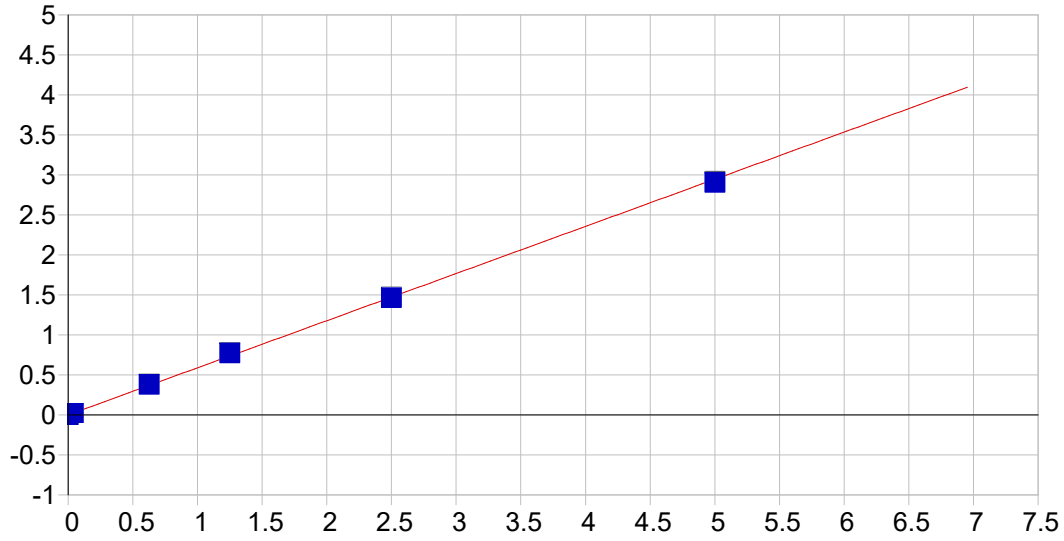
Mg 279.079 {121}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000033	Re-Slope:	1.000000
A1 (Gain):	0.002199	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999715	Status:	OK.
Std Error of Est:	0.000183		
Predicted MDL:	0.017983		
Predicted MQL:	0.059944		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00099	.001	.000	-.00003	.000	1
S2	62.500	59.083	-3.42	-5.47	.12986	.000	1
S3	125.00	123.55	-1.45	-1.16	.27159	.001	1
S4	250.00	238.70	-11.3	-4.52	.52476	.003	1
S5	500.00	506.65	6.65	1.33	1.1139	.005	1
S1	5.0000	4.4331	-.567	-11.3	.00971	.000	1
S6	800.00	810.08	10.1	1.26	1.7809	.008	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



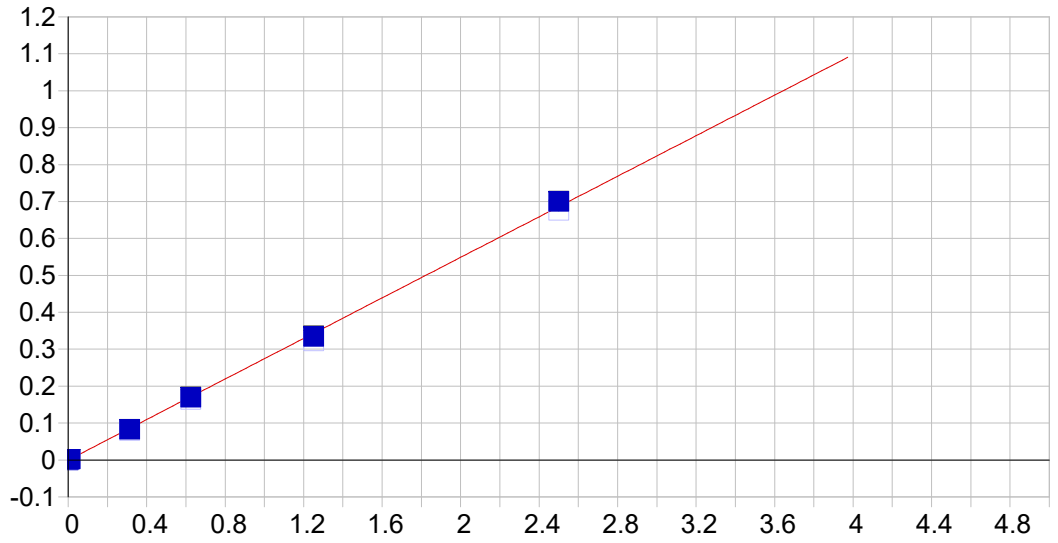
Ni 231.604 {446}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear
Weighting:	1/Conc		

A0 (Offset):	-0.000339	Re-Slope:	1.000000
A1 (Gain):	0.589180	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999743	Status:	OK.
Std Error of Est:	0.000318		
Predicted MDL:	0.000410		
Predicted MQL:	0.001366		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00034	.000	1
S1	.04000	.04087	.001	2.18	.02377	.000	1
S3	1.2500	1.3120	.062	4.96	.77441	.004	1
S4	2.5000	2.4868	-.013	-.526	1.4683	.004	1
S5	5.0000	4.9294	-.071	-1.41	2.9108	.009	1
S2	.62500	.64589	.021	3.34	.38107	.001	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



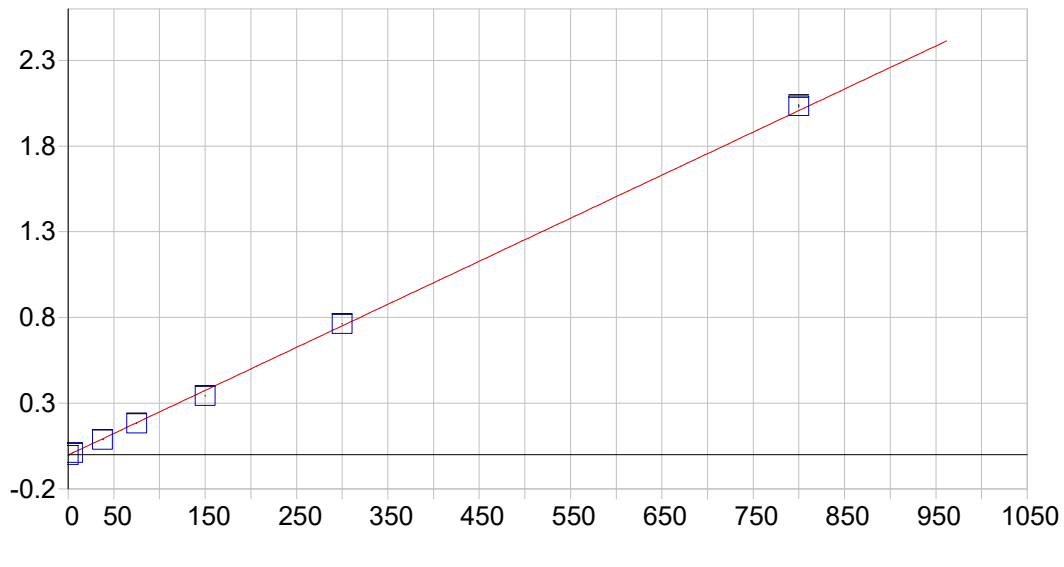
Ag 328.068 {103}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000242	Re-Slope:	1.000000
A1 (Gain):	0.274548	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999741	Status:	OK.
Std Error of Est:	0.000051		
Predicted MDL:	0.000381		
Predicted MQL:	0.001269		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00024	.000	1
S1	.01000	.00961	-.000	-3.85	.00238	.000	1
S3	.62500	.61931	-.006	-.911	.16374	.000	1
S4	1.2500	1.2174	-.033	-2.61	.32190	.002	1
S5	2.5000	2.5495	.049	1.98	.67553	.001	1
S2	.31250	.30169	-.011	-3.46	.07956	.000	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



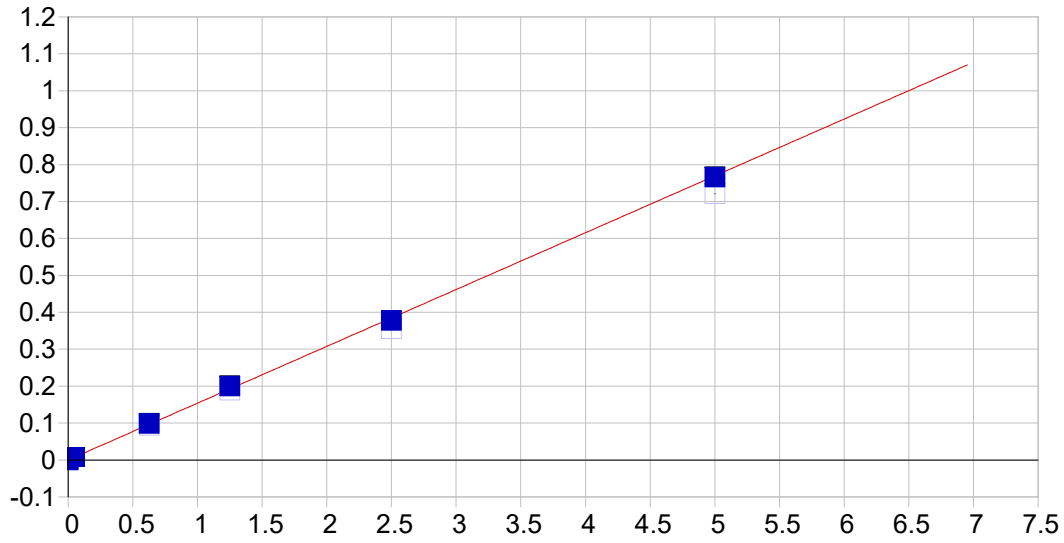
Na 818.326 { 41}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002157	Re-Slope:	1.000000
A1 (Gain):	0.002512	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999515	Status:	OK.
Std Error of Est:	0.000242		
Predicted MDL:	0.411716		
Predicted MQL:	1.372387		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00066	.001	.000	-.00216	.001	1
S2	37.500	35.728	-1.77	-4.73	.08758	.000	1
S3	75.000	73.637	-1.36	-1.82	.18279	.001	1
S4	150.00	137.76	-12.2	-8.16	.34384	.002	1
S5	300.00	304.59	4.59	1.53	.76285	.002	1
S1	5.0000	4.9289	-.071	-1.42	.01022	.001	1
S6	800.00	810.86	10.9	1.36	2.0344	.008	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



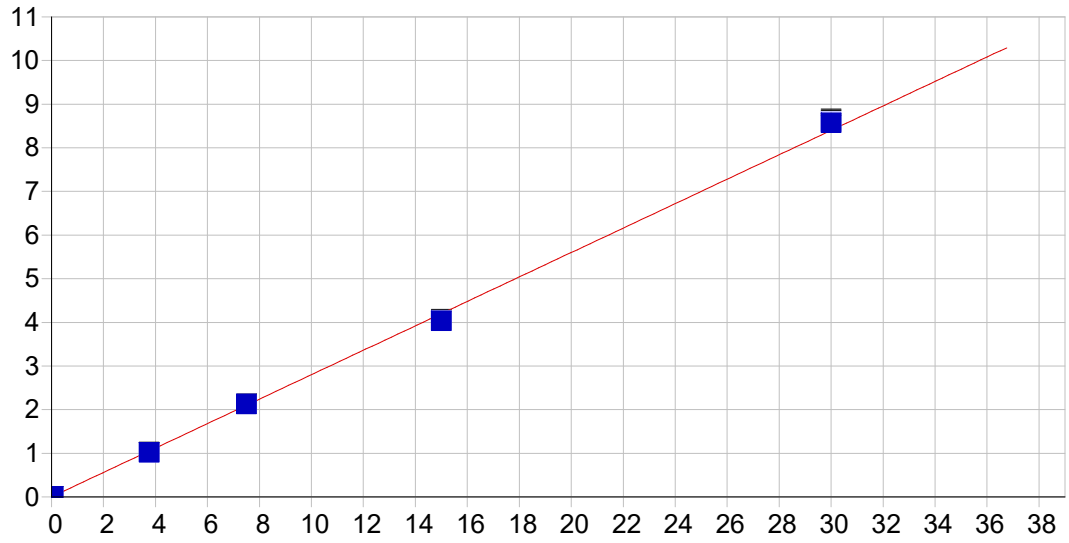
V 292.402 {115}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear
Weighting:	1/Conc		

A0 (Offset):	0.000019	Re-Slope:	1.000000
A1 (Gain):	0.153878	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999774	Status:	OK.
Std Error of Est:	0.000082		
Predicted MDL:	0.001978		
Predicted MQL:	0.006595		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00002	.000	1
S1	.05000	.05375	.004	7.51	.00827	.000	1
S3	1.2500	1.3009	.051	4.07	.18895	.001	1
S4	2.5000	2.4512	-.049	-1.95	.35471	.000	1
S5	5.0000	4.9784	-.022	-.433	.72108	.001	1
S2	.62500	.64053	.016	2.48	.09296	.000	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

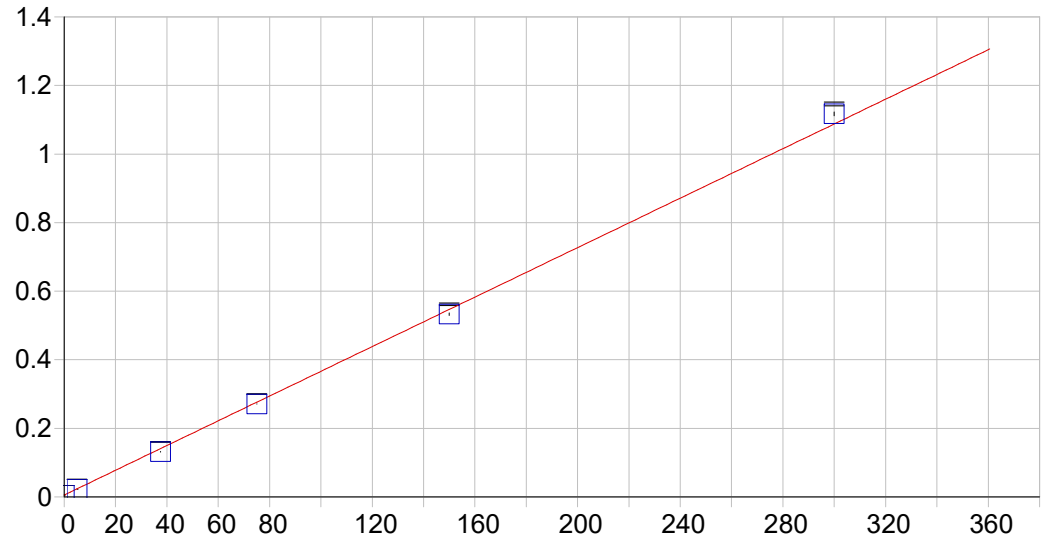


Zn 213.856 {158}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000350	Re-Slope:	1.000000
A1 (Gain):	0.280008	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999642	Status:	OK.
Std Error of Est:	0.000535		
Predicted MDL:	0.001750		
Predicted MQL:	0.005832		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00035	.000	1
S1	.06000	.05876	-.001	-2.06	.01690	.000	1
S3	7.5000	7.5956	.096	1.27	2.1351	.007	1
S4	15.000	14.411	-.589	-3.92	4.0515	.020	1
S5	30.000	30.613	.613	2.04	8.6039	.055	1
S2	3.7500	3.6312	-.119	-3.17	1.0211	.004	1



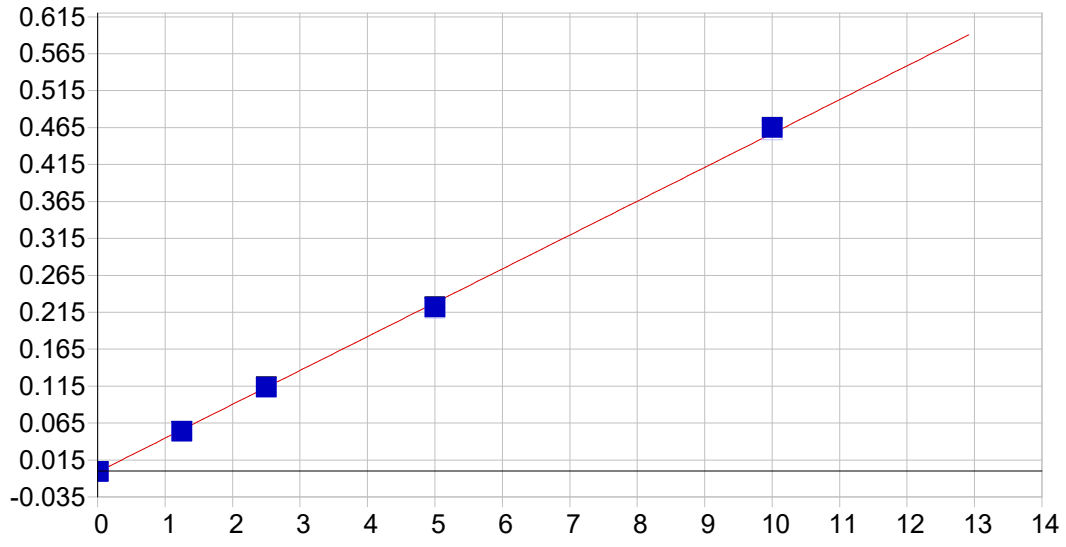
K 769.896 { 44}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.005618	Re-Slope:	1.000000
A1 (Gain):	0.003607	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999515	Status:	OK.
Std Error of Est:	0.000232		
Predicted MDL:	0.050504		
Predicted MQL:	0.168346		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00086	.001	.000	.00562	.000	1
S2	37.500	34.965	-2.54	-6.76	.13174	.001	1
S3	75.000	73.605	-1.39	-1.86	.27112	.001	1
S4	150.00	146.23	-3.77	-2.51	.53308	.004	1
S5	300.00	308.14	8.14	2.71	1.1171	.006	1
S1	5.0000	4.5657	-.434	-8.69	.02209	.000	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



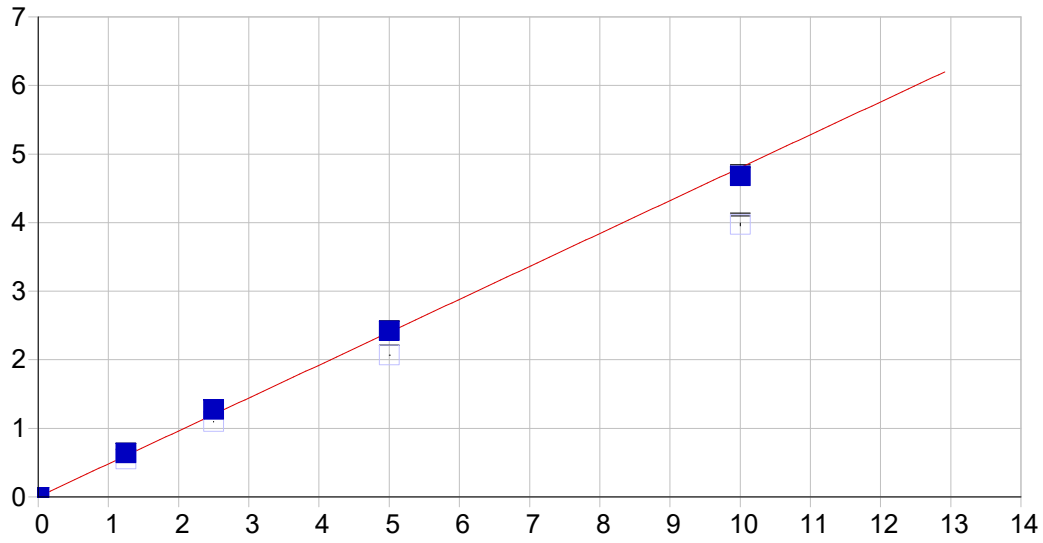
P 177.495 {490}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001331	Re-Slope:	1.000000
A1 (Gain):	0.045827	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999766	Status:	OK.
Std Error of Est:	0.000017		
Predicted MDL:	0.002255		
Predicted MQL:	0.007517		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00133	.000	1
S1	.01000	.00894	-.001	-10.6	-.00092	.000	1
S3	2.5000	2.5075	.007	.299	.11276	.000	1
S4	5.0000	4.8696	-.130	-2.61	.22019	.001	1
S5	10.000	10.175	.175	1.75	.46168	.000	1
S2	1.2500	1.1992	-.051	-4.06	.05322	.000	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



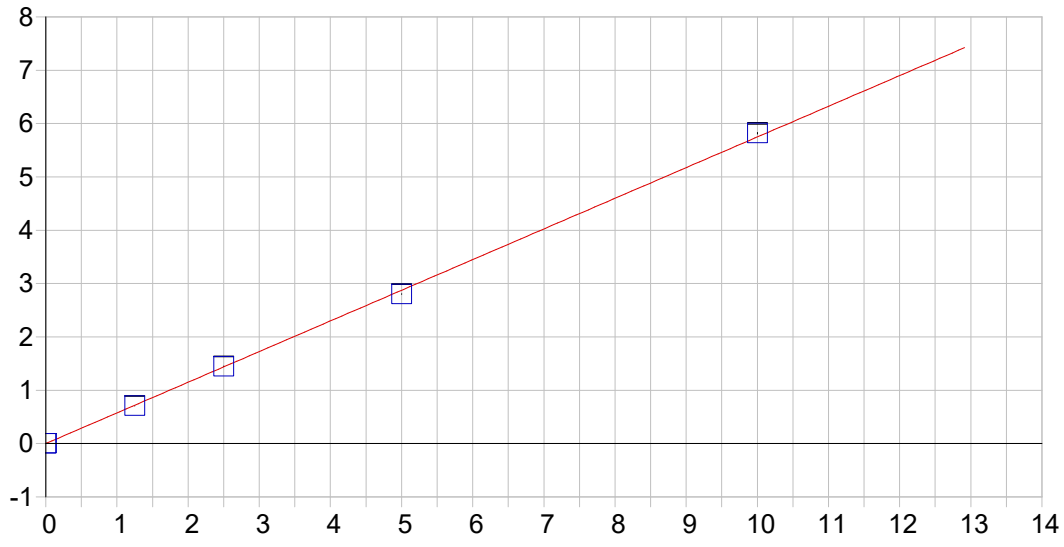
B 249.678 {135}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002008	Re-Slope:	1.000000
A1 (Gain):	0.479883	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998901	Status:	OK.
Std Error of Est:	0.000322		
Predicted MDL:	0.000728		
Predicted MQL:	0.002426		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00201	.000	1
S1	.01000	.00009	-.010	-99.1	.00181	.000	1
S3	2.5000	2.6489	.149	5.96	1.0967	.003	1
S4	5.0000	5.0390	.039	.780	2.0672	.002	1
S5	10.000	9.7469	-.253	-2.53	3.9735	.021	1
S2	1.2500	1.3261	.076	6.09	.55015	.002	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



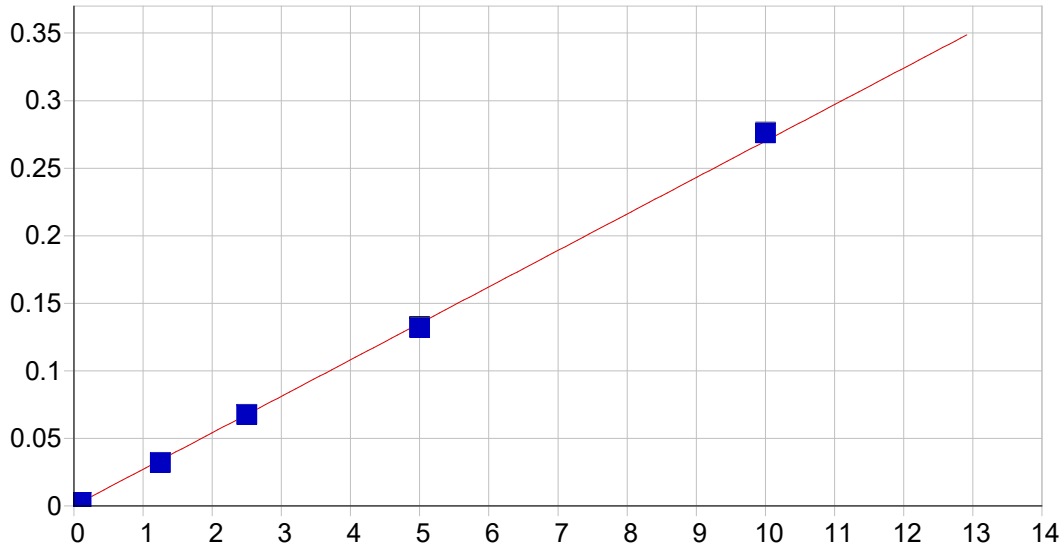
Mo 202.030 {467}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000108	Re-Slope:	1.000000
A1 (Gain):	0.574900	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999867	Status:	OK.
Std Error of Est:	0.000157		
Predicted MDL:	0.000337		
Predicted MQL:	0.001122		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00011	.000	1
S1	.01000	.01039	.000	3.91	.00608	.000	1
S3	2.5000	2.5197	.020	.789	1.4487	.005	1
S4	5.0000	4.8758	-.124	-2.48	2.8032	.007	1
S5	10.000	10.122	.122	1.22	5.8192	.012	1
S2	1.2500	1.2322	-.018	-1.42	.70850	.002	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



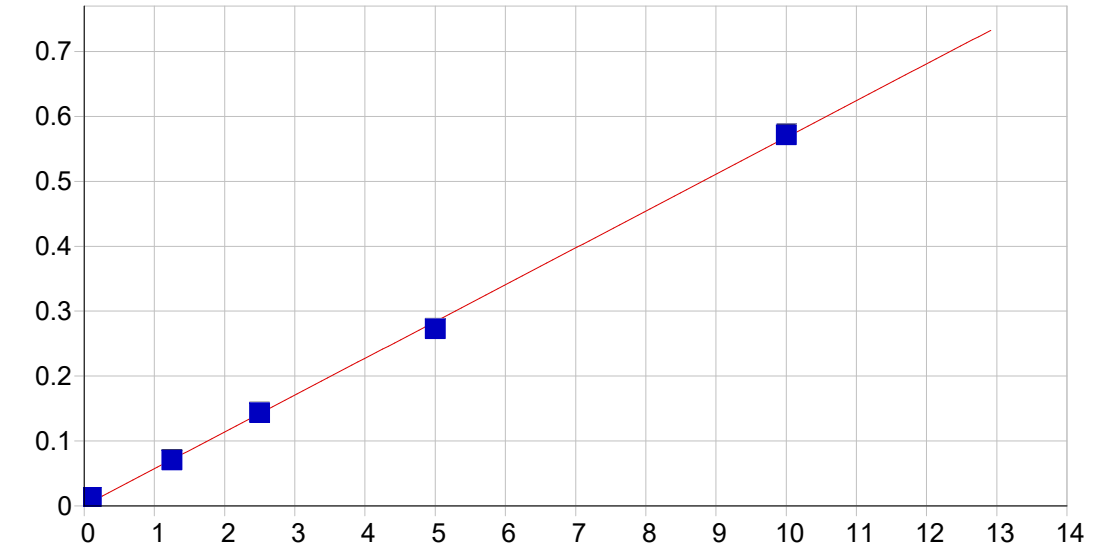
S 182.034 {485}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000163	Re-Slope:	1.000000
A1 (Gain):	0.026990	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999634	Status:	OK.
Std Error of Est:	0.000039		
Predicted MDL:	0.003823		
Predicted MQL:	0.012744		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00002	.000	.000	.00016	.000	1
S1	.10000	.08619	-.014	-13.8	.00249	.000	1
S3	2.5000	2.4922	-.008	-.310	.06751	.000	1
S4	5.0000	4.8784	-.122	-2.43	.13200	.001	1
S5	10.000	10.216	.216	2.16	.27624	.001	1
S2	1.2500	1.1769	-.073	-5.85	.03197	.000	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



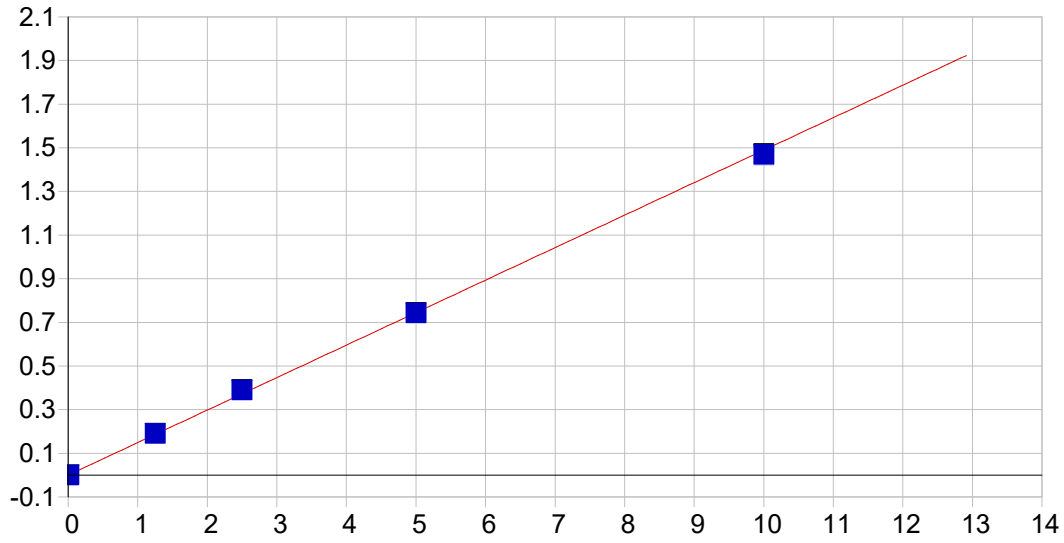
Si 251.611 {134}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000497	Re-Slope:	1.000000
A1 (Gain):	0.056705	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.995170	Status:	OK.
Std Error of Est:	0.000298		
Predicted MDL:	0.003364		
Predicted MQL:	0.011213		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00013	-.000	.000	.00049	.000	1
S1	.10000	.23234	.132	132.	.01367	.000	1
S3	2.5000	2.5216	.022	.865	.14391	.001	1
S4	5.0000	4.7964	-.204	-4.07	.27333	.000	1
S5	10.000	10.068	.068	.679	.57310	.001	1
S2	1.2500	1.2320	-.018	-1.44	.07057	.000	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



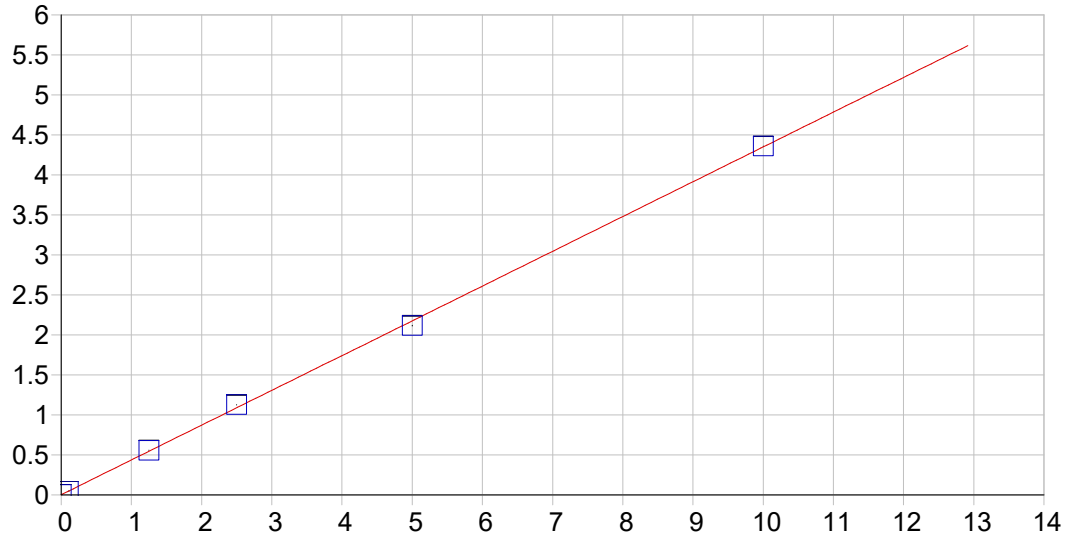
Sn 189.989 {478}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000104	Re-Slope:	1.000000
A1 (Gain):	0.148914	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999776	Status:	OK.
Std Error of Est:	0.000044		
Predicted MDL:	0.000799		
Predicted MQL:	0.002662		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00010	.000	1
S1	.00700	.00739	.000	5.52	.00116	.000	1
S3	2.5000	2.6191	.119	4.76	.38897	.002	1
S4	5.0000	4.9869	-.013	-.262	.74042	.002	1
S5	10.000	9.8631	-.137	-1.37	1.4642	.005	1
S2	1.2500	1.2805	.030	2.44	.19021	.001	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

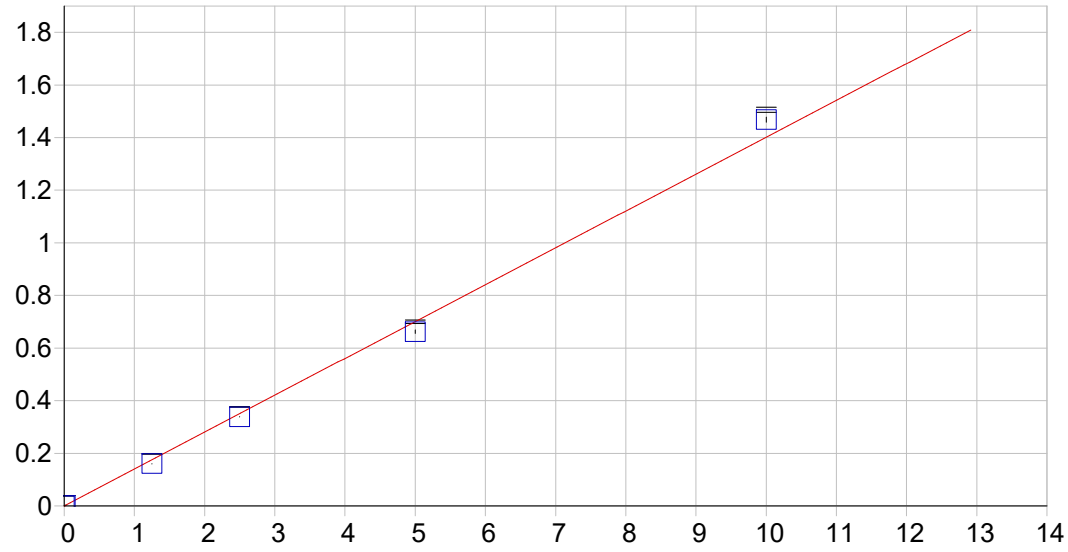


Ti 336.121 {100}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002398	Re-Slope:	1.000000
A1 (Gain):	0.434672	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999794	Status:	OK.
Std Error of Est:	0.000469		
Predicted MDL:	0.000930		
Predicted MQL:	0.003101		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00239	.000	1
S1	.10000	.10479	.005	4.79	.04795	.000	1
S3	2.5000	2.5878	.088	3.51	1.1273	.003	1
S4	5.0000	4.8600	-.140	-2.80	2.1149	.004	1
S5	10.000	10.023	.023	.227	4.3590	.002	1
S2	1.2500	1.2747	.025	1.97	.55645	.002	1



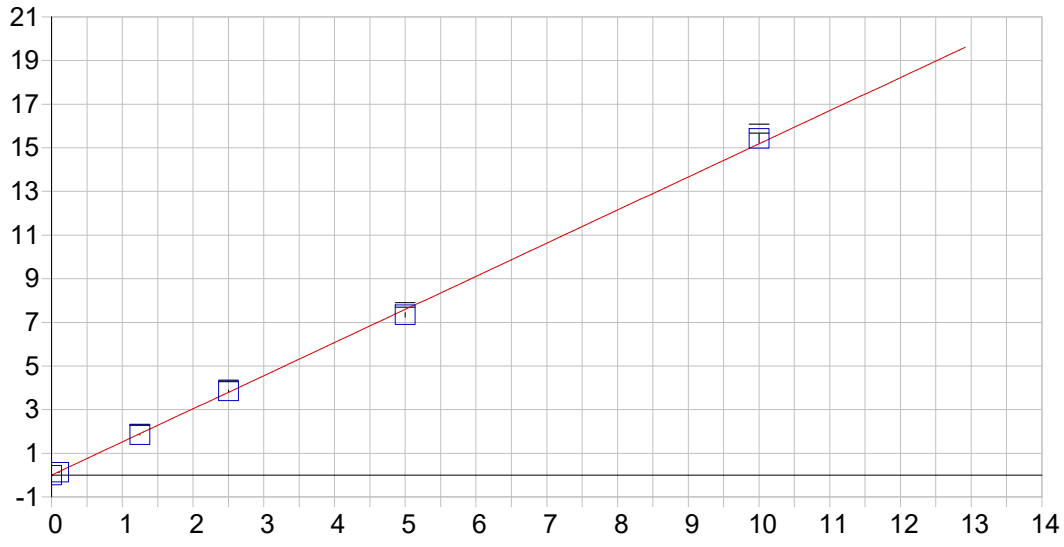
Li 670.784 { 50}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000594	Re-Slope:	1.000000
A1 (Gain):	0.140049	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998631	Status:	OK.
Std Error of Est:	0.000151		
Predicted MDL:	0.001300		
Predicted MQL:	0.004334		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00059	.000	1
S5	10.000	10.478	.478	4.78	1.4681	.009	1
S4	5.0000	4.7224	-.278	-5.55	.66196	.007	1
S3	2.5000	2.4128	-.087	-3.49	.33850	.001	1
S1	.01500	.01364	-.001	-9.09	.00250	.000	1
S2	1.2500	1.1379	-.112	-8.97	.15996	.001	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



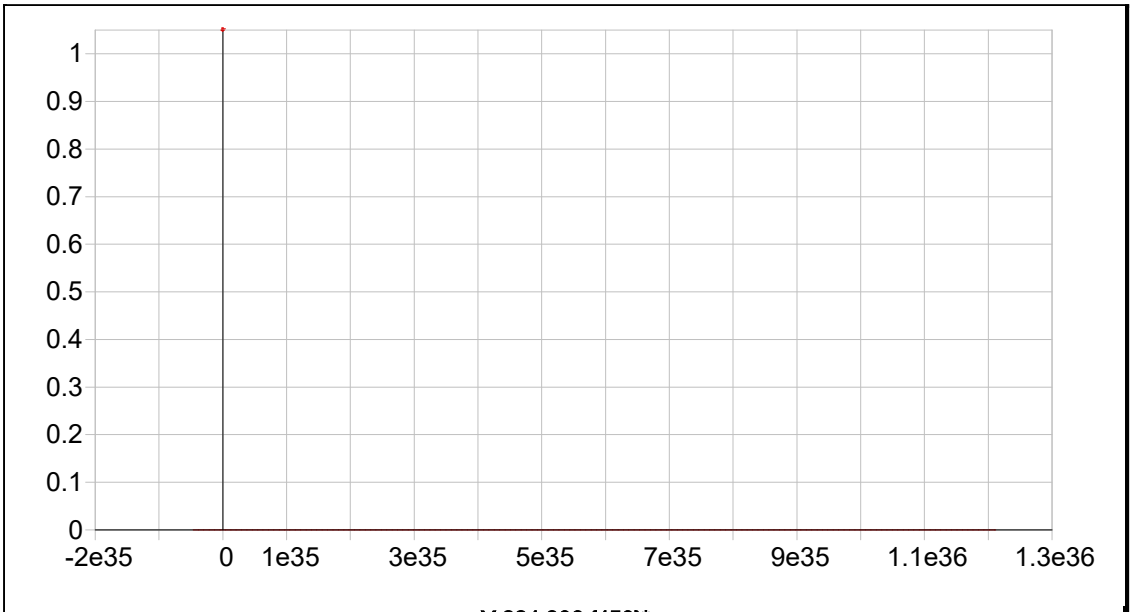
Sr 407.771 { 83}

Date of Fit:	1/27/2025 1:59:51	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000018	Re-Slope:	1.000000
A1 (Gain):	1.518358	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999713	Status:	OK.
Std Error of Est:	0.001934		
Predicted MDL:	0.000064		
Predicted MQL:	0.000213		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00004	.000	1
S1	.10000	.08751	-.012	-12.5	.13288	.001	1
S3	2.5000	2.5407	.041	1.63	3.8577	.039	1
S4	5.0000	4.8403	-.160	-3.19	7.3493	.103	1
S5	10.000	10.164	.164	1.64	15.432	.206	1
S2	1.2500	1.2179	-.032	-2.57	1.8492	.025	1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

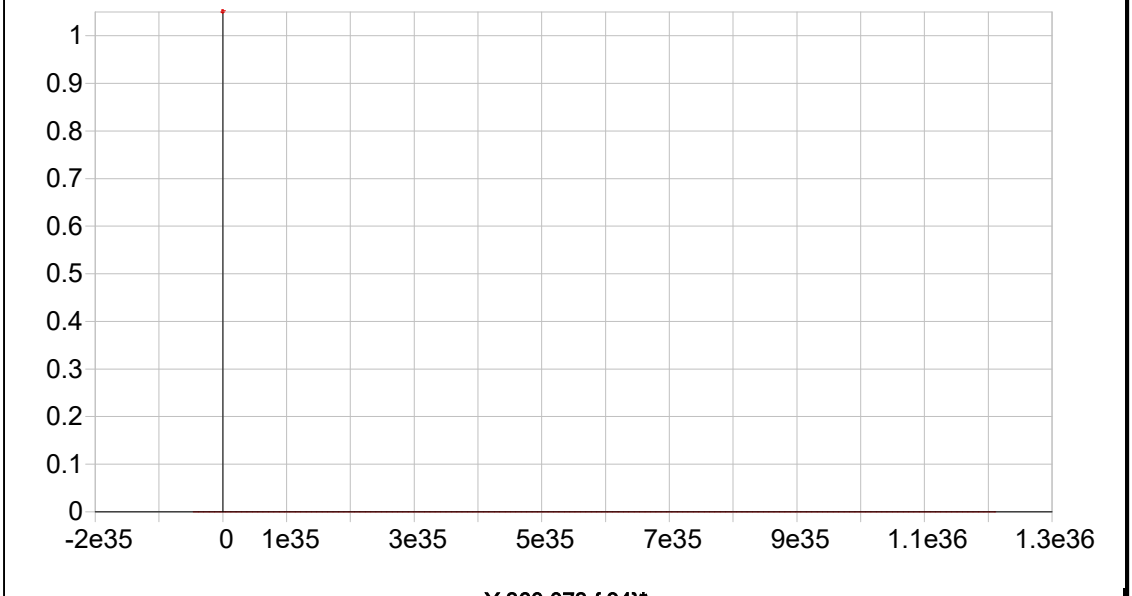


Y 224.306 {450}*

Date of Fit:	1/27/2025 1:59:51	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}*

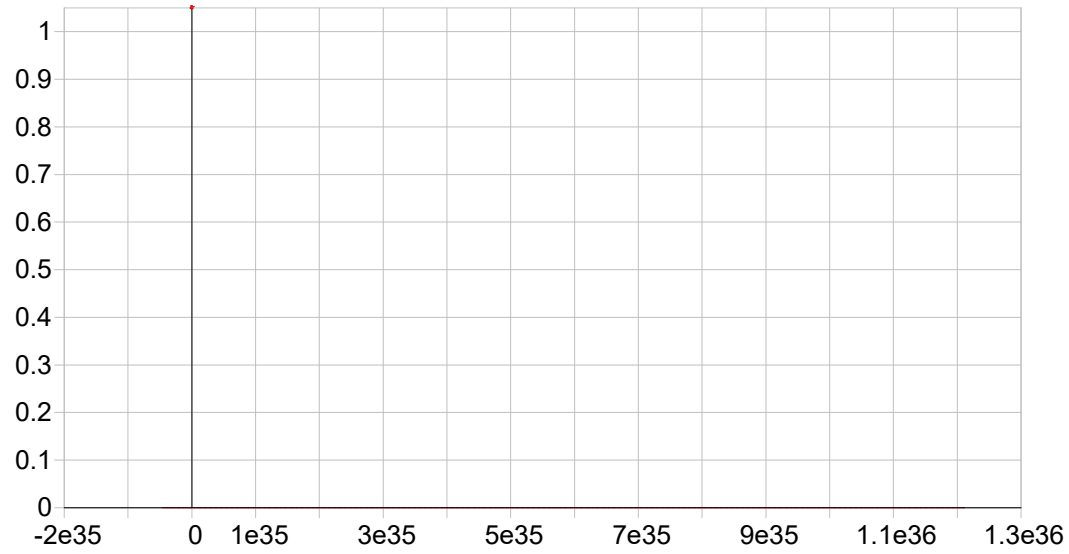
Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

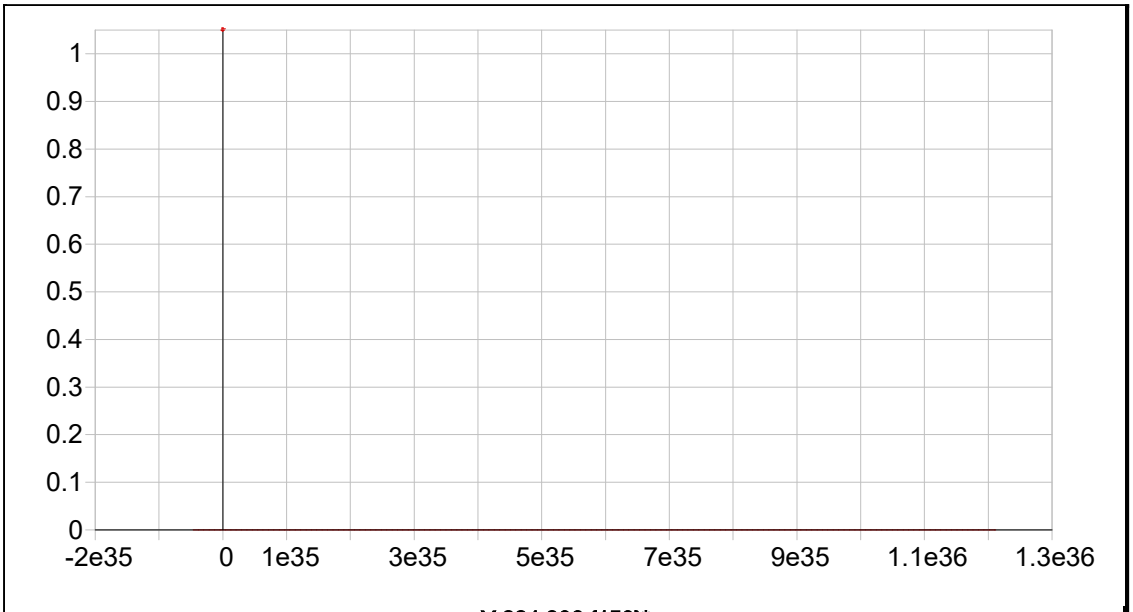


Y 371.030 { 91}*

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

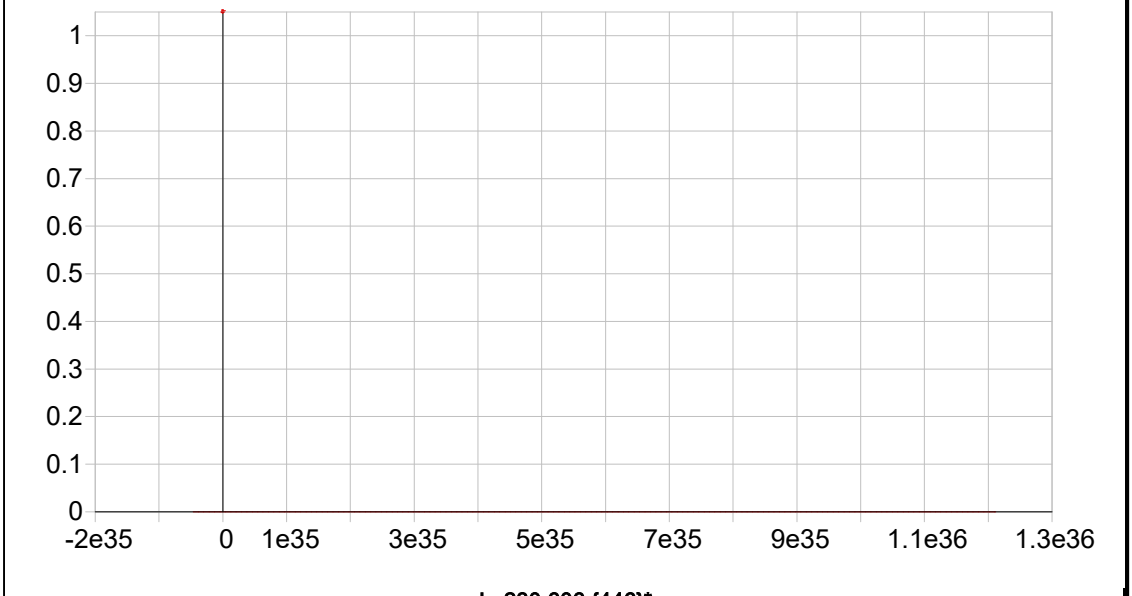
Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4



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:1/28/2025 12:16:01 PM
Inst Id :P4

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:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S0 Acquired: 1/27/2025 14:23:39 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00009**	**.00007**	**-.00031**	**.00036**	**.00034**	**-.00004**	**.00648**	**.00004**
Stddev	.00009	.00001	.00007	.00006	.00014	.00013	.00023	.00016
%RSD	98.992	20.708	23.596	15.946	41.468	325.66	3.5651	427.59
#1	-.00001	.00006	-.00039	.00041	.00046	.00007	.00642	-.00013
#2	-.00020	.00009	-.00028	.00030	.00038	-.00000	.00673	.00020
#3	-.00007	.00006	-.00026	.00037	.00018	-.00018	.00628	.00004

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00003**	**.00002**	**-.00001**	**-.00000**	**.00369**	**-.00000**	**-.00001**	**-.00003**
Stddev	.00012	.00002	.00001	.00007	.00007	.00001	.00004	.00004
%RSD	356.51	152.65	172.95	1514.4	1.9402	2914.3	600.91	114.57
#1	.00007	-.00001	-.00002	.00007	.00377	-.00000	.00004	-.00003
#2	-.00016	.00002	.00001	-.00002	.00363	.00002	-.00002	.00000
#3	-.00001	.00003	-.00001	-.00006	.00368	-.00001	-.00003	-.00007

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00034**	**-.00024**	**-.00216**	**.00002**	**.00035**	**.00562**	**-.00133**	**.00201**
Stddev	.00018	.00002	.00078	.00014	.00029	.00006	.00006	.00021
%RSD	51.843	9.0647	36.208	787.77	82.517	1.1126	4.2043	10.266
#1	-.00014	-.00024	-.00126	-.00014	.00068	.00557	-.00135	.00203
#2	-.00043	-.00022	-.00256	.00009	.00024	.00560	-.00127	.00221
#3	-.00046	-.00026	-.00265	.00011	.00014	.00569	-.00138	.00180

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00011**	**.00016**	**.00049**	**.00010**	**.00239**	**.00059**	**.00004**
Stddev	.00014	.00004	.00006	.00013	.00011	.00014	.00004
%RSD	130.31	21.427	12.633	123.40	4.6816	23.748	100.19
#1	.00014	.00013	.00056	.00012	.00250	.00053	.00007
#2	-.00005	.00020	.00046	-.00003	.00228	.00050	-.00001
#3	.00023	.00016	.00045	.00022	.00240	.00076	.00006

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S0 Acquired: 1/27/2025 14:23:39 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3721.3	77141.	10941.	2574.2	4698.6
Stddev	4.9	412.	38.	15.0	4.0
%RSD	.13119	.53411	.34829	.58186	.08615
#1	3722.6	76665.	10933.	2557.2	4699.0
#2	3725.5	77385.	10907.	2580.1	4702.4
#3	3716.0	77373.	10982.	2585.3	4694.4

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S1 Acquired: 1/27/2025 14:27:55 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00052**	**.00190**	**.00210**	**.00240**	**.00890**	**.00209**	**.08309**	**.02350**
Stddev	.00007	.00009	.00016	.00018	.00008	.00005	.00045	.00019
%RSD	12.945	4.7803	7.6163	7.5152	.89797	2.3760	.54737	.82349
#1	.00053	.00197	.00215	.00259	.00883	.00204	.08342	.02329
#2	.00045	.00194	.00192	.00238	.00889	.00208	.08327	.02366
#3	.00058	.00180	.00223	.00223	.00899	.00214	.08257	.02357

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.01292**	**.03973**	**.00174**	**.04151**	**.00781**	**.00051**	**.00135**	**.00971**
Stddev	.00006	.00008	.00003	.00031	.00008	.00002	.00002	.00004
%RSD	.49572	.21208	1.9312	.74433	.99954	3.0568	1.5932	.44953
#1	.01287	.03983	.00175	.04145	.00772	.00053	.00137	.00968
#2	.01289	.03970	.00176	.04124	.00788	.00050	.00134	.00976
#3	.01299	.03967	.00170	.04185	.00782	.00052	.00133	.00970

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.02377**	**.00238**	**.01022**	**.00827**	**.01690**	**.02209**	**-.00092**	**.00181**
Stddev	.00011	.00004	.00057	.00031	.00029	.00014	.00008	.00017
%RSD	.46023	1.8549	5.5395	3.7022	1.6864	.65111	9.0244	9.2530
#1	.02382	.00243	.00996	.00858	.01668	.02225	-.00098	.00162
#2	.02364	.00234	.00984	.00797	.01680	.02198	-.00096	.00187
#3	.02384	.00237	.01087	.00827	.01723	.02203	-.00083	.00194

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00608**	**.00249**	**.01367**	**.00116**	**.04795**	**.00250**	**.13288**
Stddev	.00012	.00014	.00010	.00010	.00029	.00016	.00116
%RSD	1.9889	5.7832	.75431	9.0330	.60796	6.4551	.87243
#1	.00602	.00252	.01371	.00127	.04819	.00234	.13404
#2	.00601	.00233	.01356	.00106	.04802	.00251	.13289
#3	.00622	.00261	.01375	.00114	.04762	.00266	.13172

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S1 Acquired: 1/27/2025 14:27:55 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S01 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3608.8	74781.	11122.	2485.3	4475.5
Stddev	10.9	95.	43.	6.9	10.5
%RSD	.30306	.12766	.38471	.27731	.23468
#1	3600.2	74890.	11171.	2478.9	4466.1
#2	3621.1	74713.	11107.	2484.4	4486.9
#3	3605.2	74739.	11089.	2492.6	4473.4

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S2 Acquired: 1/27/2025 14:32:08 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.06999**	**.09174**	**1.4227**	**.07901**	**.18366**	**.42648**	**.97881**	**.57269**
Stddev	.00049	.00015	.0043	.00022	.00055	.00168	.00593	.00096
%RSD	.70044	.16698	.30216	.28250	.30047	.39280	.60573	.16766
#1	.06979	.09178	1.4202	.07926	.18340	.42736	.98428	.57309
#2	.06963	.09186	1.4202	.07883	.18329	.42754	.97964	.57160
#3	.07055	.09157	1.4276	.07894	.18430	.42455	.97251	.57338

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.6301**	**.49276**	**.63980**	**.53202**	**.51866**	**.19000**	**.32795**	**.12986**
Stddev	.0040	.00134	.00059	.00154	.00264	.00069	.00086	.00025
%RSD	.24463	.27255	.09190	.29023	.50959	.36342	.26083	.19265
#1	1.6294	.49329	.63992	.53128	.52134	.19000	.32824	.12999
#2	1.6265	.49376	.64033	.53099	.51860	.19069	.32861	.13003
#3	1.6344	.49123	.63917	.53380	.51605	.18931	.32698	.12958

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.38107**	**.07956**	**.08758**	**.09296**	**1.0211**	**.13174**	**.05322**	**.55015**
Stddev	.00100	.00016	.00045	.00045	.0041	.00066	.00007	.00202
%RSD	.26192	.20462	.51297	.47873	.39940	.49969	.12618	.36799
#1	.38075	.07968	.08707	.09274	1.0198	.13202	.05316	.54983
#2	.38027	.07938	.08774	.09266	1.0256	.13222	.05321	.54830
#3	.38219	.07962	.08793	.09347	1.0178	.13099	.05329	.55231

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.70850**	**.03197**	**.07057**	**.19021**	**.55645**	**.15996**	**1.8492**
Stddev	.00157	.00013	.00043	.00083	.00197	.00109	.0249
%RSD	.22139	.41849	.61128	.43489	.35436	.67914	1.3466
#1	.70795	.03194	.07027	.18957	.55677	.16120	1.8315
#2	.70729	.03212	.07106	.18992	.55825	.15950	1.8384
#3	.71027	.03186	.07038	.19114	.55434	.15918	1.8777

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S2 Acquired: 1/27/2025 14:32:08 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S02 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3402.2**	**71247.**	**11035.**	**2344.1**	**4008.7**
Stddev	6.9	252.	19.	9.3	6.0
%RSD	.20303	.35357	.17140	.39675	.14891
#1	3403.3	71187.	11049.	2343.3	4013.6
#2	3408.5	71030.	11014.	2335.2	4010.3
#3	3394.8	71523.	11043.	2353.7	4002.0

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S3 Acquired: 1/27/2025 14:36:11 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.14626	.18451	2.8982	.16411	.38272	.89546	2.0319	1.1452
Stddev	.00084	.00180	.0127	.00093	.00146	.00194	.0080	.0030
%RSD	.57208	.97649	.43951	.56961	.38140	.21675	.39400	.25991
#1	.14572	.18407	2.8957	.16379	.38341	.89401	2.0319	1.1454
#2	.14583	.18297	2.8869	.16338	.38104	.89766	2.0239	1.1422
#3	.14722	.18649	2.9120	.16517	.38370	.89469	2.0399	1.1481

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.3259	1.0196	1.2799	1.0830	1.0589	.38984	.67974	.27159
Stddev	.0208	.0016	.0031	.0052	.0019	.00119	.00102	.00077
%RSD	.62671	.15480	.23829	.47984	.18148	.30541	.15051	.28365
#1	3.3201	1.0178	1.2764	1.0820	1.0605	.38865	.67855	.27070
#2	3.3086	1.0202	1.2809	1.0783	1.0568	.39103	.68030	.27202
#3	3.3491	1.0207	1.2823	1.0886	1.0594	.38985	.68035	.27205

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.77441	.16374	.18279	.18895	2.1351	.27112	.11276	1.0967
Stddev	.00441	.00035	.00120	.00086	.0067	.00066	.00029	.0026
%RSD	.56965	.21179	.65809	.45626	.31244	.24170	.26084	.23818
#1	.77290	.16341	.18199	.18852	2.1414	.27074	.11261	1.0946
#2	.77095	.16410	.18221	.18994	2.1281	.27188	.11257	1.0960
#3	.77938	.16372	.18418	.18839	2.1357	.27075	.11310	1.0996

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4487	.06751	.14391	.38897	1.1273	.33850	3.8577
Stddev	.0053	.00032	.00066	.00174	.0026	.00063	.0389
%RSD	.36788	.47831	.46069	.44845	.22762	.18598	1.0082
#1	1.4478	.06732	.14413	.38810	1.1249	.33901	3.8163
#2	1.4439	.06734	.14317	.38784	1.1270	.33869	3.8636
#3	1.4544	.06789	.14444	.39098	1.1300	.33780	3.8934

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S3 Acquired: 1/27/2025 14:36:11 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S03 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3245.2	69389.	10947.	2265.9	3791.4
Stddev	6.4	181.	33.	3.4	9.6
%RSD	.19820	.26100	.30296	.14817	.25231
#1	3245.3	69598.	10970.	2264.1	3792.3
#2	3251.6	69281.	10962.	2263.9	3800.5
#3	3238.8	69288.	10909.	2269.8	3781.5

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S4 Acquired: 1/27/2025 14:40:20 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.28580**	**.34209**	**5.5354**	**.31522**	**.75080**	**1.7551**	**3.9006**	**2.1888**
Stddev	.00113	.00028	.0143	.00149	.00236	.0117	.0153	.0047
%RSD	.39707	.08166	.25774	.47241	.31425	.66489	.39237	.21323
#1	.28647	.34192	5.5434	.31580	.75250	1.7630	3.9182	2.1857
#2	.28449	.34194	5.5189	.31353	.74811	1.7417	3.8912	2.1941
#3	.28644	.34241	5.5438	.31633	.75181	1.7605	3.8922	2.1865

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6.3466**	**1.9510**	**2.4006**	**2.0688**	**2.0075**	**.73738**	**1.2933**	**.52476**
Stddev	.0159	.0126	.0104	.0045	.0048	.00430	.0104	.00278
%RSD	.25091	.64504	.43457	.21920	.23939	.58319	.80713	.52966
#1	6.3550	1.9594	2.4092	2.0722	2.0126	.73995	1.3004	.52655
#2	6.3283	1.9365	2.3890	2.0636	2.0030	.73242	1.2813	.52156
#3	6.3566	1.9570	2.4037	2.0705	2.0071	.73978	1.2982	.52618

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.4683**	**.32190**	**.34384**	**.35471**	**4.0515**	**.53308**	**.22019**	**2.0672**
Stddev	.0044	.00214	.00193	.00024	.0197	.00383	.00058	.0018
%RSD	.30071	.66483	.56221	.06636	.48658	.71833	.26533	.08849
#1	1.4717	.32308	.34409	.35445	4.0699	.53585	.22042	2.0666
#2	1.4633	.31943	.34563	.35477	4.0307	.52871	.21953	2.0692
#3	1.4699	.32319	.34179	.35491	4.0538	.53469	.22063	2.0657

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2.8032**	**.13200**	**.27333**	**.74042**	**2.1149**	**.66196**	**7.3493**
Stddev	.0069	.00053	.00039	.00242	.0042	.00682	.1034
%RSD	.24512	.40080	.14409	.32633	.19833	1.0298	1.4069
#1	2.8067	.13253	.27377	.74199	2.1196	.66662	7.3167
#2	2.7953	.13147	.27302	.73764	2.1114	.65414	7.2662
#3	2.8076	.13201	.27319	.74163	2.1137	.66512	7.4651

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S4 Acquired: 1/27/2025 14:40:20 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S04 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3053.6	66585.	10684.	2171.8	3563.6
Stddev	6.7	285.	36.	5.4	8.5
%RSD	.21983	.42832	.33826	.24854	.23879
#1	3051.1	66349.	10681.	2165.5	3558.6
#2	3061.2	66902.	10649.	2174.7	3573.5
#3	3048.6	66503.	10721.	2175.1	3558.8

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S5 Acquired: 1/27/2025 14:44:24 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.61422**	**.65840**	**11.018**	**.66505**	**1.6055**	**3.7675**	**8.4844**	**4.3548**
Stddev	.00084	.00328	.036	.00155	.0042	.0182	.1367	.0173
%RSD	.13731	.49778	.32769	.23261	.26125	.48293	1.6108	.39722
#1	.61368	.65536	11.032	.66357	1.6027	3.7710	8.5342	4.3414
#2	.61379	.65797	10.977	.66492	1.6035	3.7478	8.3298	4.3743
#3	.61519	.66187	11.045	.66666	1.6103	3.7837	8.5892	4.3486

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**12.501**	**4.0461**	**4.6304**	**4.1314**	**4.3450**	**1.5065**	**2.6767**	**1.1139**
Stddev	.041	.0144	.0151	.0121	.0107	.0088	.0072	.0053
%RSD	.32608	.35540	.32555	.29160	.24686	.58360	.26733	.47786
#1	12.503	4.0598	4.6364	4.1352	4.3358	1.5151	2.6714	1.1187
#2	12.459	4.0474	4.6416	4.1179	4.3425	1.4975	2.6848	1.1082
#3	12.540	4.0311	4.6133	4.1411	4.3568	1.5068	2.6737	1.1146

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2.9108**	**.67553**	**.76285**	**.72108**	**8.6039**	**1.1171**	**.46168**	**3.9735**
Stddev	.0086	.00069	.00203	.00060	.0555	.0060	.00037	.0206
%RSD	.29409	.10209	.26565	.08386	.64456	.53475	.07972	.51773
#1	2.9144	.67529	.76117	.72133	8.6382	1.1222	.46187	3.9534
#2	2.9011	.67499	.76228	.72040	8.5399	1.1106	.46125	3.9945
#3	2.9170	.67631	.76510	.72153	8.6336	1.1185	.46191	3.9726

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5.8192**	**.27624**	**.57310**	**1.4642**	**4.3590**	**1.4681**	**15.432**
Stddev	.0124	.00053	.00085	.0051	.0016	.0095	.206
%RSD	.21242	.19249	.14789	.35099	.03650	.64487	1.3318
#1	5.8112	.27624	.57223	1.4658	4.3582	1.4716	15.602
#2	5.8129	.27571	.57314	1.4585	4.3580	1.4573	15.490
#3	5.8334	.27678	.57392	1.4684	4.3608	1.4753	15.204

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: S5 Acquired: 1/27/2025 14:44:24 Type: Cal
Method: EPA SFAM01.0(v56) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: S05 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2711.8	63463.	10454.	2066.7	3262.4
Stddev	5.2	203.	40.	12.6	7.9
%RSD	.19081	.31934	.38586	.61172	.24204
#1	2715.1	63229.	10453.	2053.2	3261.3
#2	2714.5	63568.	10414.	2078.2	3270.8
#3	2705.8	63590.	10494.	2068.7	3255.1

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**9.7303**	**6.4307**	**3.9368**	**1.7809**	**2.0344**
Stddev	.1439	.0367	.0258	.0083	.0081
%RSD	1.4785	.57019	.65535	.46546	.39768
#1	9.7072	6.4327	3.9087	1.7726	2.0342
#2	9.5994	6.3931	3.9421	1.7809	2.0264
#3	9.8843	6.4663	3.9595	1.7892	2.0426

Int. Std.	Y_3600	Y_3710
Units	Cts/S	Cts/S
Avg	**59621.**	**10065.**
Stddev	202.	74.
%RSD	.33883	.73435
#1	59774.	9980.5
#2	59698.	10099.
#3	59392.	10116.

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.9268194**	**1.079328**	**1.012936**	**.9539148**	**1.025221**	**2.487107**
Stddev	.0036777	.005877	.000404	.0013201	.003029	.016441
%RSD	.3968092	.5445195	.0398446	.1383903	.2954529	.6610406
#1	.9270146	1.075816	1.012530	.9528703	1.021725	2.473938
#2	.9230480	1.086113	1.013337	.9534757	1.027068	2.505534
#3	.9303957	1.076056	1.012942	.9553986	1.026869	2.481850

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5138612**	**.5108384**	**.5008677**	**9.544351**	**.5664082**	**.5016677**
Stddev	.0016271	.0007536	.0005825	.010181	.0019084	.0002766
%RSD	.3166368	.1475239	.1163065	.1066680	.3369322	.0551449
#1	.5123908	.5099695	.5013425	9.536093	.5642494	.5019179
#2	.5156092	.5112313	.5002176	9.555726	.5678707	.5013707
#3	.5135836	.5113144	.5010429	9.541234	.5671046	.5017147

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4975535**	**10.03601**	**.4897166**	**5.966106**	**.5106198**	**.2346933**
Stddev	.0037554	.02693	.0013586	.041378	.0009282	.0007654
%RSD	.7547670	.2683606	.2774184	.6935528	.1817722	.3261089
#1	.5013085	10.00877	.4881526	5.989458	.5112191	.2342847
#2	.4937978	10.06263	.4903939	5.990528	.5095507	.2355762
#3	.4975542	10.03662	.4906035	5.918330	.5110896	.2342189

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.23930**	**.5033207**	**.9719463**	**9.576793**	F **.0031986**	F **.0417262**
Stddev	.28515	.0028168	.0035653	.094688	.0010260	.0001652
%RSD	2.784859	.5596352	.3668161	.9887256	32.07459	.3959791
#1	10.34695	.5047458	.9696371	9.576546	.0027411	.0416065
#2	9.91600	.5000761	.9701492	9.671604	.0043737	.0419147
#3	10.45495	.5051401	.9760524	9.482228	.0024810	.0416574

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.000526	F .0035762	F -.001806	F .0001571	F -.001084	F .0004090
Stddev	.000043	.0019492	.000691	.0005499	.000397	.0013689
%RSD	8.186578	54.50289	38.27061	350.1518	36.66506	334.6759
#1	-.000478	.0013448	-.001501	-.000399	-.001417	.0017183
#2	-.000563	.0044375	-.002597	.000701	-.001190	.0005215
#3	-.000535	.0049464	-.001320	.000169	-.000644	-.001013

Elem	Sr4077
Units	ppm
Avg	F .0011221
Stddev	.0000143
%RSD	1.278112
#1	.0011357
#2	.0011071
#3	.0011235

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3607.403	74343.97	11244.17	2450.872	4435.499
Stddev	4.825	122.40	8.10	1.994	5.311
%RSD	.1337529	.1646373	.0720624	.0813469	.1197400
#1	3612.593	74454.85	11246.80	2448.614	4431.042
#2	3606.564	74212.63	11250.62	2451.612	4441.375
#3	3603.053	74364.44	11235.07	2452.389	4434.079

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008965**	**.0007413**	**.0001810**	**-.000761**	**.0004518**	**.0095554**	**-.002458**
Stddev	.0008502	.0010532	.0005983	.001852	.0006579	.0027009	.000218
%RSD	94.82789	142.0851	330.6057	243.3800	145.6246	28.26578	8.872469
#1	.0014925	-.000158	.0007818	.000517	.0005030	.0071201	-.002223
#2	-.000077	.001900	-.000415	.000085	-.000230	.0124603	-.002498
#3	.001274	.000482	.000176	-.002885	.001083	.0090857	-.002654

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000009**	**-.000018**	**.0077181**	**.0000843**	**.0000042**	**.0011649**	**.0053115**
Stddev	.000087	.000059	.0038883	.0003430	.0002699	.0016597	.0018910
%RSD	964.1065	321.3854	50.37812	406.9291	6463.498	142.4739	35.60243
#1	.000044	.000045	.0040433	.0004344	-.000097	.0030013	.0071417
#2	-.000109	-.000030	.0117894	.0000695	-.000201	.0007218	.0033651
#3	.000039	-.000070	.0073217	-.000251	.000310	-.000228	.0054277

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000506**	**-.012748**	**.0001415**	**-.000319**	**.0431904**	**-.000499**	**.0002598**
Stddev	.0001894	.009890	.0002080	.000170	.1997997	.002363	.0007708
%RSD	374.7125	77.57912	147.0655	53.28983	462.6020	473.6773	296.6780
#1	.0000816	-.001328	-.000051	-.000125	-.006975	.002217	-.000627
#2	.0002225	-.018468	.000362	-.000390	-.126746	-.002083	.000772
#3	-.000152	-.018448	.000114	-.000442	.263292	-.001631	.000634

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.137754**	**-.000456**	**-.000781**	**.0004223**	**-.001718**	**-.001545**	**.0005172**
Stddev	.011066	.001336	.000390	.0001292	.002902	.001428	.0005590
%RSD	8.032964	292.6814	49.98969	30.58574	168.9466	92.41084	108.0946
#1	-.142207	-.000878	-.001212	.0003105	.000141	-.000071	.0011297
#2	-.125156	-.001531	-.000451	.0005638	-.000232	-.001643	.0003875
#3	-.145900	.001039	-.000680	.0003927	-.005062	-.002922	.0000344

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0007881	-.001043	.0000239
Stddev	.0004265	.000388	.0000374
%RSD	54.11917	37.22026	156.0228
#1	.0011805	-.001402	.0000251
#2	.0008498	-.001096	.0000607
#3	.0003341	-.000631	-.000014

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3587.037	75359.44	10979.58	2471.211	4501.347
Stddev	5.986	76.31	49.29	12.971	5.941
%RSD	.1668753	.1012663	.4489030	.5248984	.1319748
#1	3590.968	75332.65	10995.96	2478.130	4506.565
#2	3580.148	75445.54	10924.19	2456.247	4494.882
#3	3589.996	75300.14	11018.60	2479.256	4502.594

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008332**	**.0019135**	**.0054677**	**.0200191**	**.0069128**	**224.9219**
Stddev	.0021578	.0006698	.0013166	.0006985	.0009632	1.5235
%RSD	258.9784	35.00276	24.08021	3.489249	13.93310	.6773515
#1	.0033197	.0011473	.0061675	.0194753	.0069287	224.2694
#2	-.000549	.0022057	.0062867	.0197751	.0078680	223.8333
#3	-.000271	.0023876	.0039490	.0208069	.0059418	226.6630

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0079114**	**-.000704**	**.0005059**	**240.1774**	**.0598314**	**.0008650**
Stddev	.0010199	.000015	.0000947	1.3583	.0005113	.0002977
%RSD	12.89204	2.159878	18.72470	.5655377	.8545223	34.42024
#1	.0080498	-.000718	.0005626	238.9588	.0603057	.0005864
#2	.0088550	-.000688	.0003966	239.9315	.0592898	.0011787
#3	.0068293	-.000705	.0005587	241.6418	.0598987	.0008299

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.007643**	**98.70624**	**.0099967**	**233.1837**	**.0030492**	**-.001155**
Stddev	.001806	.68818	.0001777	1.3583	.0002908	.000514
%RSD	23.63399	.6972006	1.777336	.5825166	9.535827	44.54493
#1	-.005571	98.22936	.0098980	232.2472	.0027367	-.000938
#2	-.008883	98.39419	.0102018	232.5622	.0030992	-.001742
#3	-.008476	99.49516	.0098902	234.7415	.0033118	-.000785

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.437481**	**-.006219**	**-.009572**	**-.104753**	**.0040572**	F **.4115306**
Stddev	.442460	.001361	.002259	.029624	.0004122	.0037103
%RSD	101.1380	21.88895	23.60059	28.28004	10.16035	.9015936
#1	-.812233	-.005859	-.008897	-.100545	.0035854	.4092660
#2	.050630	-.005074	-.007727	-.077458	.0043476	.4095132
#3	-.550840	-.007724	-.012092	-.136257	.0042386	.4158125

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0976883**	**.1102426**	**.0575089**	**.0643529**	**.5629873**	**233.0849**
Stddev	.0034526	.0014409	.0017930	.0039875	.0013113	.5378
%RSD	3.534314	1.306995	3.117839	6.196297	.2329164	.2307233
#1	.0963757	.1118592	.0557536	.0608170	.5616332	233.5284
#2	.1016048	.1090937	.0574356	.0635669	.5630774	233.2395
#3	.0950846	.1097750	.0593374	.0686749	.5642512	232.4867

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4944284**	**.5163196**	**1.018637**	**246.0646**	**.6147760**	**.5115692**
Stddev	.0018489	.0023077	.002769	.5286	.0020814	.0010141
%RSD	.3739396	.4469513	.2717962	.2148192	.3385709	.1982389
#1	.4962536	.5139367	1.017108	245.9041	.6126866	.5104024
#2	.4944749	.5164783	1.016969	245.6349	.6147921	.5120665
#3	.4925567	.5185439	1.021833	246.6549	.6168494	.5122387

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4874980**	**101.9497**	**.5098181**	**239.3722**	**1.023512**	**.2040284**
Stddev	.0028075	.0995	.0005996	.6962	.002576	.0010920
%RSD	.5758964	.0976343	.1176209	.2908304	.2516465	.5352245
#1	.4849502	102.0267	.5092815	238.9622	1.020581	.2051830
#2	.4870358	101.8373	.5097074	238.9784	1.024542	.2038901
#3	.4905078	101.9850	.5104654	240.1760	1.025414	.2030122

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.538449**	**.4883120**	**.9731382**	**-.333603**	**.0054921**	F **.4263345**
Stddev	.257399	.0017105	.0108594	.041952	.0035009	.0009798
%RSD	47.80380	.3502825	1.115917	12.57555	63.74436	.2298277
#1	-.830204	.4896811	.9851528	-.381587	.0014846	.4274655
#2	-.343441	.4863946	.9640221	-.303853	.0079556	.4257943
#3	-.441703	.4888604	.9702399	-.315368	.0070362	.4257436

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000345	.0182632	-.000782	-.003199	-.003958	.0059729
Stddev	.000105	.0059853	.001983	.001615	.000385	.0003247
%RSD	30.54911	32.77222	253.7488	50.49538	9.722520	5.435427
#1	-.000261	.0189484	.001334	-.002986	-.003595	.0062678
#2	-.000463	.0238763	-.001080	-.001701	-.004361	.0056250
#3	-.000311	.0119648	-.002599	-.004911	-.003917	.0060259

Elem	Sr4077
Units	ppm
Avg	.0916935
Stddev	.0000850
%RSD	.0926876
#1	.0917029
#2	.0916042
#3	.0917734

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3269.239	67487.32	10790.51	2244.903	3725.423
Stddev	4.144	187.94	52.39	7.727	8.559
%RSD	.1267532	.2784772	.4855581	.3442214	.2297373
#1	3273.053	67609.28	10828.93	2236.735	3732.962
#2	3269.835	67581.80	10811.78	2252.098	3727.185
#3	3264.830	67270.89	10730.82	2245.875	3716.120

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.247377**	**5.035009**	**25.83331**	**5.244305**	**5.258986**	**403.6074**
Stddev	.019788	.018661	.06789	.009859	.015989	5.5892
%RSD	.3770933	.3706258	.2628153	.1879939	.3040390	1.384813
#1	5.231176	5.017067	25.80165	5.238012	5.254742	402.0050
#2	5.241525	5.054314	25.78703	5.239236	5.245546	409.8227
#3	5.269430	5.033645	25.91125	5.255667	5.276669	398.9943

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.912933**	**.5337179**	**2.606693**	**402.6336**	**16.23518**	**2.607961**
Stddev	.088502	.0009603	.003626	2.1912	.04532	.005374
%RSD	.8927946	.1799332	.1391004	.5442089	.2791773	.2060663
#1	9.916769	.5331971	2.603991	402.3945	16.24172	2.604958
#2	9.999455	.5348261	2.605274	404.9345	16.27688	2.604759
#3	9.822575	.5331304	2.610814	400.5718	16.18694	2.614165

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**14.72845**	**407.3363**	**14.97760**	**399.6196**	**2.605308**	**1.340373**
Stddev	.05236	.7099	.03974	1.1442	.008465	.002669
%RSD	.3555323	.1742679	.2653196	.2863209	.3248965	.1991125
#1	14.69115	407.5141	14.96391	399.5059	2.602383	1.342502
#2	14.78832	407.9404	15.02238	400.8164	2.598695	1.341238
#3	14.70589	406.5545	14.94652	398.5365	2.614848	1.337379

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**384.5646**	**2.514594**	**15.29756**	**159.3561**	**5.307222**	F **6.273370**
Stddev	2.1134	.010542	.03079	.1424	.013777	.011893
%RSD	.5495603	.4192382	.2012976	.0893765	.2595897	.1895773
#1	382.8799	2.505585	15.33310	159.4506	5.296940	6.262618
#2	386.9359	2.526188	15.27898	159.4253	5.301849	6.286145
#3	383.8779	2.512010	15.28059	159.1923	5.322876	6.271349

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000240**	**.0002790**	**.0017592**	**-.000893**	**.0008431**	**.0039258**	**.0007473**
Stddev	.000879	.0007821	.0006710	.001433	.0009156	.0008733	.0002446
%RSD	365.4732	280.3640	38.14375	160.5431	108.5972	22.24577	32.73223
#1	.000711	.0003364	.0018781	-.002517	.0001107	.0029898	.0006869
#2	-.000409	.0010308	.0010366	-.000356	.0005489	.0047189	.0010164
#3	-.001023	-.000530	.0023628	.000195	.0018695	.0040687	.0005385

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000076**	**.0000199**	**.0097190**	**.0002771**	**.0000192**	**-.000888**	**.0096743**
Stddev	.000025	.0000294	.0059402	.0001956	.0002774	.001065	.0042439
%RSD	32.61273	147.6864	61.11933	70.60548	1446.458	119.8381	43.86771
#1	-.000058	.0000081	.0044118	.0004571	-.000290	-.001318	.0119023
#2	-.000067	.0000534	.0086095	.0003052	.000245	.000324	.0047804
#3	-.000105	-.000002	.0161358	.0000689	.000103	-.001671	.0123402

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001748**	**-.018069**	**-.000023**	**-.000099**	**.0479992**	**.0004691**	**.0003386**
Stddev	.0000801	.009409	.000093	.000078	.0474877	.0009046	.0010801
%RSD	45.80385	52.07001	407.8628	78.54391	98.93426	192.8232	319.0232
#1	.0002426	-.015457	.000025	-.000188	.1024950	.0013194	.0012255
#2	.0000865	-.028507	-.000130	-.000067	.0260184	-.000481	.0006546
#3	.0001955	-.010242	.000036	-.000043	.0154843	.000569	-.000864

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0689899**	**.0007276**	**.0031957**	**.0003724**	**-.000084**	**.0002979**	**.0002368**
Stddev	.0327522	.0005464	.0004544	.0003805	.002627	.0023676	.0007130
%RSD	47.47394	75.09454	14.21803	102.1678	3131.081	794.6583	301.0318
#1	.0341189	.0001134	.0037006	-.000058	-.000440	.0010287	-.000221
#2	.0991029	.0009096	.0030665	.000663	-.002515	.0022141	-.000127
#3	.0737480	.0011597	.0028199	.000512	.002703	-.002349	.001058

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.000204**	**.0002154**	**.0000720**
Stddev	.000300	.0004162	.0000280
%RSD	147.0522	193.2214	38.87164
#1	-.000155	.0002608	.0000419
#2	-.000526	-.000222	.0000767
#3	.000068	.000607	.0000973

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3690.812**	**75557.42**	**11181.15**	**2532.458**	**4640.577**
Stddev	10.126	306.60	101.94	16.100	5.080
%RSD	.2743567	.4057839	.9117476	.6357350	.1094706
#1	3698.779	75362.68	11094.48	2529.985	4640.441
#2	3694.241	75398.73	11155.49	2517.738	4645.724
#3	3679.417	75910.83	11293.47	2549.651	4635.566

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001871**	**-.001071**	**.0030862**	**-.008672**	**.0009223**	**-.137540**
Stddev	.002764	.002676	.0005973	.001402	.0011066	.006925
%RSD	147.6776	249.9592	19.35302	16.17118	119.9753	5.035109
#1	.000036	.000656	.0036614	-.008467	.0006992	-.129787
#2	-.000610	.000286	.0024691	-.010165	-.000056	-.143111
#3	-.005041	-.004154	.0031282	-.007383	.002123	-.139723

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1096313**	**.0000008**	**-.000081**	**522.2007**	**.1250440**	**-.001130**
Stddev	.0009902	.0000348	.000001	2.8420	.0004822	.000115
%RSD	.9032193	4473.689	1.484374	.5442290	.3856149	10.21092
#1	.1099157	.0000310	-.000080	523.5069	.1250837	-.001024
#2	.1085300	.0000086	-.000083	518.9405	.1245432	-.001253
#3	.1104481	-.000037	-.000081	524.1548	.1255051	-.001114

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001462**	**.0074229**	**.0004559**	**.0155994**	**-.000473**	**-.000675**
Stddev	.001145	.0044260	.0000357	.0178105	.000341	.000332
%RSD	78.31914	59.62625	7.835522	114.1742	72.10715	49.22786
#1	-.000969	.0124926	.0004379	.0338911	-.000842	-.000340
#2	-.000646	.0054483	.0004971	.0145943	-.000170	-.000680
#3	-.002770	.0043279	.0004328	-.001687	-.000406	-.001005

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**13.18763**	**-.000263**	**.0177900**	**56.27371**	**-.002708**	**.0259589**
Stddev	.25285	.000769	.0031812	.36109	.001061	.0011546
%RSD	1.917308	292.2133	17.88178	.6416701	39.19262	4.447589
#1	13.01954	-.000674	.0178167	56.33760	-.001608	.0260759
#2	13.47841	-.000740	.0209577	55.88494	-.003726	.0270505
#3	13.06493	.000624	.0145955	56.59859	-.002791	.0247503

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0040213	.0034701	.0127578	.0075141	.0040239	30.02319
Stddev	.0019886	.0010105	.0008136	.0016958	.0005879	.13712
%RSD	49.45223	29.11911	6.377400	22.56850	14.61041	.4567023
#1	.0022106	.0023089	.0126242	.0087038	.0038240	30.11996
#2	.0037037	.0039519	.0120193	.0082661	.0035620	30.08333
#3	.0061496	.0041495	.0136300	.0055723	.0046857	29.86628

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0368667	.0069503	.0047413	76.77702	.2047697	.2994923
Stddev	.0005268	.0001912	.0000834	.15736	.0009317	.0005317
%RSD	1.428827	2.750438	1.759667	.2049538	.4550173	.1775447
#1	.0363245	.0069577	.0047210	76.92572	.2050937	.2996489
#2	.0368990	.0067556	.0046699	76.79309	.2037192	.2988999
#3	.0373765	.0071377	.0048330	76.61224	.2054962	.2999282

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6014398	75.83876	16.48684	24.66050	.1138826	-.000369
Stddev	.0012387	.25188	.05339	.06355	.0005768	.000176
%RSD	.2059629	.3321229	.3238510	.2577084	.5064702	47.76793
#1	.6021431	76.07169	16.51405	24.71928	.1134540	-.000198
#2	.6000094	75.87314	16.52115	24.59306	.1136554	-.000551
#3	.6021667	75.57147	16.42533	24.66917	.1145384	-.000359

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.727452	.2146035	.6237325	4.386278	1.532138	.6440730
Stddev	.421141	.0023784	.0052419	.063672	.004807	.0014898
%RSD	5.449937	1.108281	.8404071	1.451620	.3137597	.2313021
#1	8.192109	.2171566	.6292212	4.446446	1.526801	.6456448
#2	7.619345	.2142035	.6231981	4.392788	1.533486	.6438923
#3	7.370903	.2124505	.6187783	4.319602	1.536128	.6426818

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0022023	F 202.6793	F 13.18894	-.000486	.0006017	.0297822
Stddev	.0003349	.4070	.01345	.000641	.0006920	.0003959
%RSD	15.20495	.2008132	.1019849	132.0815	115.0102	1.329444
#1	.0018557	202.3328	13.17342	-.001224	.0007909	.0293381
#2	.0022273	202.5776	13.19724	-.000169	-.000165	.0299103
#3	.0025240	203.1275	13.19615	-.000064	.001179	.0300982

Elem	Sr4077
Units	ppm
Avg	.5119958
Stddev	.0030156
%RSD	.5889811
#1	.5135558
#2	.5139118
#3	.5085198

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3966.383	84162.42	11975.70	2756.612	4189.398
Stddev	11.636	68.18	58.58	2.439	12.542
%RSD	.2933703	.0810076	.4891890	.0884778	.2993759
#1	3975.612	84110.91	12012.98	2754.291	4195.084
#2	3970.225	84239.73	12005.94	2759.154	4198.090
#3	3953.312	84136.62	11908.17	2756.391	4175.020

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0765547	-.007371	.0101642	.0437739	.0236069	7.258971
Stddev	.0022352	.001444	.0024278	.0011102	.0011332	.028874
%RSD	2.919812	19.59397	23.88580	2.536308	4.800361	.3977706
#1	.0786102	-.005727	.0077369	.0426457	.0230087	7.250235
#2	.0741751	-.007951	.0101631	.0438108	.0249139	7.235474
#3	.0768786	-.008436	.0125925	.0448652	.0228982	7.291205

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0513011	.0039154	.0056602	60.85525	.0492562	.3535934
Stddev	.0005609	.0002408	.0001082	.03489	.0003343	.0006770
%RSD	1.093397	6.150129	1.910976	.0573294	.6785928	.1914510
#1	.0510566	.0041468	.0057806	60.88187	.0490958	.3529025
#2	.0509040	.0039334	.0056287	60.81575	.0496404	.3536223
#3	.0519428	.0036662	.0055712	60.86812	.0490324	.3542555

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.009171	306.5822	18.82885	17.54589	.0940428	.0012567
Stddev	.000936	.1289	.03667	.01330	.0005437	.0008006
%RSD	10.20411	.0420333	.1947456	.0757819	.5781751	63.70693
#1	-.008091	306.4344	18.86191	17.54276	.0943622	.0008951
#2	-.009671	306.6710	18.78941	17.56047	.0934150	.0007007
#3	-.009750	306.6413	18.83523	17.53444	.0943512	.0021742

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.748085	.3968887	.4734223	2.854195	.3303186	1.553936
Stddev	.229886	.0024936	.0070826	.042190	.0010931	.001669
%RSD	6.133417	.6282736	1.496039	1.478181	.3309139	.1073743
#1	3.996679	.3985377	.4770234	2.817343	.3293845	1.554790
#2	3.704399	.3981084	.4652628	2.900216	.3300506	1.555004
#3	3.543177	.3940201	.4779808	2.845026	.3315208	1.552013

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003715	F 191.2106	4.509870	-.000277	-.000797	.0029586
Stddev	.000361	.3568	.008763	.000379	.000787	.0007551
%RSD	9.708998	.1866150	.1942976	137.0270	98.72948	25.52068
#1	-.003734	191.2549	4.505096	-.000433	.000030	.0038287
#2	-.003344	190.8338	4.519983	.000156	-.001537	.0025716
#3	-.004065	191.5433	4.504531	-.000553	-.000885	.0024755

Elem	Sr4077
Units	ppm
Avg	.5081389
Stddev	.0015674
%RSD	.3084605
#1	.5096678
#2	.5065357
#3	.5082131

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3740.447	77854.06	11928.67	2557.659	4218.931
Stddev	13.682	229.78	56.84	3.681	13.870
%RSD	.3657742	.2951412	.4765135	.1439084	.3287631
#1	3754.800	77887.88	11941.90	2554.541	4231.700
#2	3738.988	77609.25	11866.39	2561.719	4220.920
#3	3727.554	78065.06	11977.74	2556.717	4204.174

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033932	.0046568	.0061094	.0007923	-.000234	34.49029
Stddev	.0023400	.0003692	.0015152	.0008397	.001975	.23009
%RSD	68.96097	7.927845	24.80111	105.9906	842.5493	.6671264
#1	.0006942	.0050708	.0066647	.0011199	.001465	34.23203
#2	.0046327	.0043618	.0072686	.0014187	-.002402	34.56540
#3	.0048527	.0045377	.0043949	-.000162	.000233	34.67345

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0429292	.0092938	.0039972	124.1793	.0217645	.3746265
Stddev	.0005916	.0000630	.0000300	.4599	.0001318	.0006695
%RSD	1.378099	.6776033	.7518933	.3703424	.6057791	.1787057
#1	.0431233	.0093080	.0040091	123.6571	.0218493	.3743495
#2	.0422649	.0092250	.0039631	124.5239	.0218315	.3741399
#3	.0433993	.0093485	.0040196	124.3570	.0216126	.3753900

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8261859	36.60855	29.54168	30.52424	.1044800	.0032825
Stddev	.0011335	.12533	.29967	.09323	.0002706	.0001973
%RSD	.1371901	.3423585	1.014407	.3054455	.2589642	6.009848
#1	.8251606	36.46660	29.37197	30.41775	.1042447	.0031775
#2	.8274030	36.70394	29.36538	30.56380	.1047757	.0031599
#3	.8259942	36.65511	29.88769	30.59117	.1044197	.0035100

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.88668	.1492915	1.123658	12.51410	4.962538	.4269650
Stddev	.23901	.0010405	.006799	.11301	.009519	.0006203
%RSD	1.721180	.6969507	.6051118	.9030802	.1918184	.1452859
#1	13.65929	.1491025	1.117482	12.38502	4.965667	.4274693
#2	13.86490	.1483585	1.130944	12.59523	4.951848	.4262723
#3	14.13583	.1504136	1.122548	12.56205	4.970098	.4271532

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000897	F 226.2879	F 16.59609	-.001728	-.002615	.0308780
Stddev	.000281	.0461	.04745	.000538	.000149	.0002590
%RSD	31.37630	.0203604	.2859251	31.10310	5.686860	.8386527
#1	-.001173	226.3068	16.64826	-.001412	-.002756	.0305929
#2	-.000907	226.2354	16.58452	-.001424	-.002630	.0309425
#3	-.000610	226.3216	16.55549	-.002349	-.002459	.0310986

Elem	Sr4077
Units	ppm
Avg	.6979582
Stddev	.0037697
%RSD	.5401034
#1	.6937754
#2	.7010930
#3	.6990063

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3975.070	83843.82	13030.79	2763.387	4005.833
Stddev	1.519	388.15	41.50	6.033	.412
%RSD	.0382028	.4629461	.3184464	.2183273	.0102762
#1	3974.028	84237.58	13003.08	2768.494	4005.792
#2	3974.370	83832.36	13078.50	2756.730	4006.264
#3	3976.813	83461.53	13010.80	2764.937	4005.444

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0221622**	**-.003568**	**.5047582**	**-.002136**	**.0100102**	**14.59530**
Stddev	.0018003	.000697	.0010083	.004792	.0005898	.06943
%RSD	8.123368	19.53768	.1997627	224.3641	5.892011	.4757280
#1	.0204450	-.004093	.5036082	.000207	.0105792	14.67345
#2	.0240354	-.003833	.5051758	-.007648	.0100497	14.57177
#3	.0220061	-.002777	.5054906	.001034	.0094016	14.54070

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**18.98728**	**.0019890**	**.0034838**	F **906.0691**	**.0522391**	**.0243162**
Stddev	.14036	.0000785	.0000421	7.9233	.0002950	.0004460
%RSD	.7392081	3.948276	1.208736	.8744746	.5646355	1.834349
#1	18.98675	.0019551	.0035276	904.0242	.0525783	.0244169
#2	19.12790	.0019331	.0034800	899.3687	.0520970	.0247033
#3	18.84719	.0020787	.0034437	914.8145	.0520422	.0238284

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.202630**	**63.78684**	**7.411170**	**459.5242**	**.0282611**	**-.000391**
Stddev	.006199	.28654	.024115	1.2357	.0006157	.000316
%RSD	.5154605	.4492166	.3253822	.2689141	2.178442	80.78744
#1	1.207922	64.10439	7.438886	460.8338	.0287015	-.000085
#2	1.195810	63.70854	7.394990	459.3601	.0275576	-.000371
#3	1.204159	63.54759	7.399634	458.3788	.0285242	-.000716

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F **-1.21669**	**.0728870**	**.7639608**	**1.597042**	**1.678404**	**.2882971**
Stddev	.05847	.0002159	.0083913	.046310	.002908	.0012750
%RSD	4.805811	.2962653	1.098396	2.899744	.1732619	.4422369
#1	-1.27679	.0730845	.7550303	1.621808	1.676576	.2890939
#2	-1.15999	.0726564	.7651706	1.543614	1.681757	.2889708
#3	-1.21330	.0729200	.7716816	1.625702	1.676878	.2868267

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014713	6.443462	5.708219	-.001184	.3076573	.0276306
Stddev	.0000920	.004112	.016460	.000017	.0021794	.0004775
%RSD	6.255516	.0638127	.2883506	1.410870	.7083937	1.728330
#1	.0015403	6.447573	5.689354	-.001197	.3096275	.0274336
#2	.0015069	6.443465	5.719652	-.001189	.3080282	.0281751
#3	.0013668	6.439349	5.715651	-.001165	.3053162	.0272830

Elem	Sr4077
Units	ppm
Avg	.3989473
Stddev	.0019730
%RSD	.4945455
#1	.4012175
#2	.3979776
#3	.3976469

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3126.716	66020.81	10636.49	2166.701	3414.465
Stddev	2.733	80.85	39.66	11.464	5.444
%RSD	.0874072	.1224682	.3728349	.5291104	.1594378
#1	3123.671	65927.57	10678.15	2171.936	3408.307
#2	3128.955	66071.61	10632.10	2174.614	3418.637
#3	3127.522	66063.24	10599.20	2153.554	3416.452

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0010425**	**.0013899**	**.0006659**	**-.000616**	**-.001122**	**-.002431**	**.0041765**
Stddev	.0010358	.0005279	.0003721	.001087	.000746	.007445	.0008370
%RSD	99.35564	37.97937	55.88445	176.4421	66.50573	306.2388	20.04122
#1	.0003438	.0019965	.0007529	-.001598	-.001856	-.008757	.0050291
#2	.0005512	.0011382	.0002580	.000552	-.001147	.005773	.0041442
#3	.0022326	.0010350	.0009868	-.000802	-.000364	-.004309	.0033560

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000031**	**.0000408**	**.0191408**	**-.000068**	**-.000049**	**-.001684**	**.0097478**
Stddev	.000051	.0000607	.0110816	.000241	.000041	.000600	.0043964
%RSD	164.2834	149.0309	57.89510	357.2788	82.58917	35.61057	45.10099
#1	-.000070	.0000923	.0304511	-.000307	-.000032	-.001177	.0132161
#2	-.000049	-.000026	.0083030	.000175	-.000020	-.002345	.0112241
#3	.000026	.000056	.0186683	-.000071	-.000096	-.001529	.0048033

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0017155**	**.0018228**	**.0001478**	**-.000129**	**-.171517**	**.0003380**	**.0014895**
Stddev	.0001351	.0095514	.0002484	.000422	.391376	.0009110	.0014100
%RSD	7.873417	523.9997	168.0029	328.1876	228.1850	269.5213	94.66141
#1	.0018634	-.004693	.0002941	-.000613	-.612298	.0003915	-.000054
#2	.0016847	.012787	.0002883	.000160	-.037496	.0012211	.002710
#3	.0015986	-.002625	-.000139	.000067	.135242	-.000599	.001812

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-1.43935**	**.0014230**	**-.001665**	**.0000709**	**7.549383**	**-.001865**	**-.000140**
Stddev	.02563	.0007661	.000729	.0002335	.010912	.003302	.000109
%RSD	1.780927	53.83860	43.79692	329.5988	.1445385	177.0168	78.07670
#1	-1.46828	.0022875	-.001223	-.000157	7.561151	.001740	-.000023
#2	-1.43030	.0008280	-.002507	.000310	7.547400	-.002595	-.000239
#3	-1.41947	.0011537	-.001265	.000059	7.539599	-.004741	-.000157

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0010247	-.002276	-.000014
Stddev	.0002770	.001172	.000008
%RSD	27.03123	51.50718	52.48912
#1	.0010203	-.003089	-.000023
#2	.0007499	-.000932	-.000009
#3	.0013039	-.002808	-.000011

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3815.796	79421.72	11486.41	2670.094	4838.271
Stddev	17.913	538.06	69.37	15.303	14.903
%RSD	.4694406	.6774712	.6039401	.5731163	.3080199
#1	3834.858	78822.23	11565.65	2658.646	4854.874
#2	3813.219	79862.77	11456.98	2687.475	4833.885
#3	3799.311	79580.17	11436.61	2664.163	4826.053

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0060448**	**.0050903**	**.0109529**	**.0047741**	**.0002074**	**77.99161**
Stddev	.0020790	.0003040	.0013435	.0016701	.0011297	.47931
%RSD	34.39287	5.971580	12.26631	34.98357	544.7990	.6145650
#1	.0082447	.0052638	.0115859	.0028948	-.000130	78.30807
#2	.0041128	.0047393	.0094098	.0060887	-.000715	77.44015
#3	.0057768	.0052677	.0118630	.0053387	.001467	78.22661

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0943564**	**.0034820**	**.0121082**	**93.30189**	**.0583490**	**1.490300**
Stddev	.0011167	.0001043	.0000284	.33712	.0002815	.002560
%RSD	1.183434	2.996657	.2343524	.3613257	.4825291	.1717450
#1	.0956075	.0033693	.0121393	93.64214	.0586741	1.487351
#2	.0934606	.0035015	.0121013	92.96798	.0581857	1.491943
#3	.0940012	.0035752	.0120839	93.29554	.0581871	1.491607

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.8522279**	**47.26364**	**11.83362**	**46.82327**	**.7991922**	**.0003580**
Stddev	.0005327	.13160	.05604	.12298	.0015810	.0002125
%RSD	.0625119	.2784288	.4735913	.2626433	.1978186	59.36746
#1	.8528102	47.35589	11.88838	46.96441	.7974634	.0005751
#2	.8521086	47.11295	11.77637	46.76626	.7995486	.0003486
#3	.8517650	47.32208	11.83611	46.73914	.8005645	.0001503

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**6.305030**	**.1471073**	**1.035040**	**9.769803**	**4.615478**	**.6530935**
Stddev	.255728	.0020456	.006641	.081928	.008949	.0028691
%RSD	4.055942	1.390566	.6416469	.8385851	.1938835	.4393146
#1	6.079594	.1468367	1.034931	9.782437	4.620512	.6535967
#2	6.582918	.1492748	1.028454	9.682291	4.620776	.6556778
#3	6.252578	.1452104	1.041735	9.844680	4.605146	.6500061

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0146953**	**.0072248**	**.0088653**	**-.003959**	**-.003280**	**32.01960**
Stddev	.0011960	.0009187	.0010527	.000727	.000788	.20203
%RSD	8.138760	12.71578	11.87384	18.35634	24.04128	.6309524
#1	.0154020	.0062729	.0089186	-.003441	-.002811	31.97911
#2	.0133144	.0072954	.0077871	-.004790	-.004190	31.84087
#3	.0153694	.0081062	.0098904	-.003646	-.002838	32.23880

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0394623**	**.0026067**	**.0016662**	**54.41217**	**.0293643**	**.1098856**
Stddev	.0005846	.0000199	.0000761	.32742	.0003179	.0002392
%RSD	1.481376	.7651375	4.565057	.6017358	1.082426	.2176906
#1	.0398189	.0026268	.0017488	54.44298	.0290969	.1101490
#2	.0387877	.0025869	.0016508	54.07043	.0292802	.1096819
#3	.0397804	.0026063	.0015991	54.72309	.0297157	.1098259

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1203837**	**11.50054**	**2.237321**	**23.99326**	**.1030756**	**-.002314**
Stddev	.0003464	.07753	.010144	.18445	.0005389	.000063
%RSD	.2877549	.6741274	.4533944	.7687730	.5228178	2.722136
#1	.1199937	11.50316	2.237865	24.03815	.1036880	-.002386
#2	.1205015	11.42174	2.226915	23.79051	.1028655	-.002284
#3	.1206559	11.57673	2.247181	24.15113	.1026735	-.002272

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.780586**	**.0234275**	**.5252356**	**13.52778**	**.6660636**	**.3095265**
Stddev	.177834	.0004196	.0021782	.12495	.0008540	.0020473
%RSD	6.395551	1.791124	.4147049	.9236865	.1282235	.6614314
#1	2.576558	.0229817	.5270634	13.49922	.6654154	.3106181
#2	2.902709	.0238148	.5228254	13.41958	.6670314	.3107966
#3	2.862489	.0234859	.5258181	13.66454	.6657441	.3071647

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001577	F 320.3987	F 11.05320	-.002038	.0120930	.0234766
Stddev	.0001738	.2985	.05481	.001249	.0000875	.0007521
%RSD	110.1595	.0931642	.4958897	61.27886	.7232231	3.203746
#1	.0000656	320.7324	11.10429	-.002982	.0121489	.0226280
#2	.0003582	320.3065	11.06001	-.002510	.0121378	.0240609
#3	.0000494	320.1571	10.99530	-.000622	.0119922	.0237410

Elem	Sr4077
Units	ppm
Avg	.2763597
Stddev	.0016163
%RSD	.5848446
#1	.2763826
#2	.2747321
#3	.2779644

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7597.578	159977.2	24561.43	5246.753	4129.489
Stddev	19.721	548.3	137.67	34.345	9.273
%RSD	.2595737	.3427189	.5605233	.6545931	.2245650
#1	7620.349	160032.9	24478.10	5237.933	4139.534
#2	7585.984	160495.4	24485.85	5284.648	4127.677
#3	7586.401	159403.1	24720.34	5217.679	4121.255

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0656971	.0001636	.0698264	.0006272	.0057649	23.05545
Stddev	.0038691	.0007090	.0018252	.0013550	.0019793	.10822
%RSD	5.889318	433.4070	2.613943	216.0247	34.33386	.4694002
#1	.0692397	.0005807	.0698381	-.000367	.0039624	23.16519
#2	.0662833	.0005651	.0716458	.002171	.0054492	22.94881
#3	.0615684	-.000655	.0679954	.000078	.0078831	23.05235

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2357544	.0009555	.0030419	553.2820	.0797812	.0113204
Stddev	.0013556	.0000443	.0000403	2.2756	.0001595	.0002174
%RSD	.5750148	4.639231	1.323916	.4112882	.1998890	1.920023
#1	.2365787	.0009856	.0030026	550.6623	.0799370	.0114542
#2	.2341898	.0009764	.0030399	554.4156	.0796183	.0110696
#3	.2364947	.0009046	.0030831	554.7681	.0797884	.0114374

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0731189	31.92654	1.064574	7.207608	.0301768	-.000609
Stddev	.0021673	.12517	.006641	.039268	.0000614	.000415
%RSD	2.964093	.3920639	.6238461	.5448101	.2035442	68.10831
#1	.0750303	32.06313	1.068409	7.246843	.0302378	-.001015
#2	.0735621	31.81731	1.056906	7.168308	.0301778	-.000626
#3	.0707642	31.89917	1.068408	7.207673	.0301149	-.000186

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3461497	.1261801	.4939139	6.325316	.5918018	.1650954
Stddev	.0677551	.0011234	.0011058	.053945	.0036404	.0005611
%RSD	19.57392	.8902807	.2238856	.8528501	.6151415	.3398498
#1	.3345839	.1249765	.4950878	6.345309	.5879339	.1650628
#2	.2849220	.1272008	.4928919	6.264228	.5951613	.1645514
#3	.4189432	.1263631	.4937621	6.366410	.5923101	.1656721

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0152263**	**.0054877**	**.0074558**	**-.002623**	**-.003462**	**31.74589**
Stddev	.0015723	.0006744	.0018942	.000432	.000841	.08404
%RSD	10.32620	12.28864	25.40574	16.46064	24.30105	.2647124
#1	.0144038	.0057737	.0075108	-.002493	-.004357	31.69793
#2	.0142358	.0047175	.0093220	-.003105	-.003341	31.84292
#3	.0170392	.0059720	.0055348	-.002271	-.002688	31.69682

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0410652**	**.0026765**	**.0016509**	**54.55599**	**.0291932**	**.1091885**
Stddev	.0003593	.0000425	.0000343	.17085	.0001008	.0001778
%RSD	.8749177	1.586545	2.078986	.3131589	.3451618	.1628289
#1	.0414687	.0027198	.0016202	54.65499	.0292951	.1093322
#2	.0409470	.0026350	.0016445	54.65426	.0291907	.1089897
#3	.0407799	.0026746	.0016879	54.35871	.0290936	.1092435

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1222387**	**11.44020**	**2.271326**	**24.11338**	**.1017429**	**-.002560**
Stddev	.0007545	.02061	.007946	.06782	.0004882	.000180
%RSD	.6172579	.1801372	.3498290	.2812648	.4798204	7.028492
#1	.1228597	11.42995	2.278380	24.16140	.1022993	-.002767
#2	.1213990	11.46392	2.272881	24.14295	.1013864	-.002471
#3	.1224574	11.42672	2.262718	24.03580	.1015430	-.002441

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.993151**	**.0245857**	**.5220601**	**13.29924**	**.6864713**	**.3123202**
Stddev	.208066	.0006501	.0042167	.08781	.0032009	.0011700
%RSD	6.951414	2.644084	.8076996	.6602837	.4662847	.3746296
#1	2.768918	.0238979	.5262359	13.22340	.6900884	.3120533
#2	3.030561	.0246693	.5178037	13.39544	.6840043	.3113066
#3	3.179975	.0251899	.5221407	13.27887	.6853213	.3136006

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000714	F 321.7125	F 11.40273	-.001358	.0116570	.0239460
Stddev	.0000408	1.0756	.04116	.000388	.0003529	.0002275
%RSD	57.15944	.3343459	.3609461	28.58299	3.027142	.9500525
#1	.0000998	322.5493	11.45016	-.001803	.0112547	.0238840
#2	.0000898	320.4993	11.37633	-.001187	.0119143	.0241981
#3	.0000246	322.0891	11.38172	-.001085	.0118020	.0237560

Elem	Sr4077
Units	ppm
Avg	.2785562
Stddev	.0010410
%RSD	.3737124
#1	.2784354
#2	.2796523
#3	.2775808

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7633.366	160162.5	24234.49	5379.271	4140.956
Stddev	11.566	74.0	82.18	26.985	9.335
%RSD	.1515190	.0462248	.3390916	.5016507	.2254363
#1	7646.688	160092.5	24156.22	5349.900	4150.403
#2	7627.515	160154.9	24320.08	5402.969	4140.726
#3	7625.894	160240.0	24227.17	5384.944	4131.737

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0052004	.0008728	.0024617	-.002073	-.001698	10.57208
Stddev	.0015544	.0006597	.0017661	.000749	.000419	.05116
%RSD	29.88908	75.58023	71.74420	36.10319	24.66358	.4839095
#1	.0069199	.0010885	.0006126	-.001224	-.001899	10.52067
#2	.0047865	.0001323	.0026414	-.002637	-.001979	10.62298
#3	.0038950	.0013977	.0041310	-.002358	-.001217	10.57260

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0122575	.0009101	.0002418	18.20564	.0099149	.0213033
Stddev	.0008015	.0000562	.0000662	.10482	.0000388	.0001014
%RSD	6.538551	6.173710	27.40004	.5757756	.3914376	.4757493
#1	.0120106	.0009479	.0002822	18.08516	.0098880	.0212579
#2	.0131533	.0008455	.0001653	18.27593	.0099594	.0212326
#3	.0116084	.0009369	.0002779	18.25583	.0098972	.0214195

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0426056	3.900429	.7636094	7.936518	.0201207	-.001125
Stddev	.0009304	.021865	.0049122	.034016	.0004661	.000133
%RSD	2.183748	.5605879	.6432833	.4285966	2.316494	11.80679
#1	.0431653	3.875749	.7580854	7.897264	.0202672	-.001270
#2	.0431199	3.917382	.7674865	7.957324	.0195989	-.001009
#3	.0415316	3.908156	.7652563	7.954967	.0204959	-.001096

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7899448	.0084408	.1734866	4.250642	.1288588	.1120423
Stddev	.1757672	.0012575	.0035375	.044590	.0012643	.0016504
%RSD	22.25057	14.89777	2.039055	1.049007	.9811662	1.473060
#1	.6024390	.0071436	.1697325	4.233932	.1294548	.1138827
#2	.9509680	.0085246	.1767578	4.216822	.1297150	.1106935
#3	.8164274	.0096544	.1739696	4.301173	.1274067	.1115508

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002004	F 61.55930	3.888666	-.000660	.0043662	.0079643
Stddev	.0003422	.10074	.001119	.000373	.0003962	.0009854
%RSD	170.7360	.1636423	.0287828	56.60599	9.074269	12.37271
#1	-.000182	61.47419	3.888250	-.000336	.0048232	.0068283
#2	.000478	61.53319	3.889934	-.001068	.0041546	.0085886
#3	.000305	61.67052	3.887815	-.000574	.0041206	.0084759

Elem	Sr4077
Units	ppm
Avg	.0914938
Stddev	.0005927
%RSD	.6477625
#1	.0908124
#2	.0917796
#3	.0918893

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4529.693	93399.80	13616.40	3112.835	4496.200
Stddev	6.441	175.94	81.74	18.706	1.990
%RSD	.1421853	.1883722	.6003409	.6009370	.0442530
#1	4523.787	93544.90	13532.41	3133.262	4494.653
#2	4528.731	93450.41	13695.69	3108.702	4495.504
#3	4536.560	93204.11	13621.10	3096.541	4498.445

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0313922	.0528880	.0276423	.0423731	.0383515	33.47322
Stddev	.0004567	.0011993	.0014590	.0011370	.0001345	.15224
%RSD	1.454746	2.267611	5.278252	2.683230	.3506104	.4548004
#1	.0308795	.0525535	.0289325	.0432302	.0383080	33.29936
#2	.0317553	.0542190	.0279354	.0410833	.0382441	33.53765
#3	.0315418	.0518914	.0260590	.0428059	.0385023	33.58264

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9068185	.0261158	.0516259	55.55499	.1290278	.5995280
Stddev	.0065448	.0000744	.0000718	.21717	.0002632	.0003301
%RSD	.7217322	.2850422	.1391495	.3909171	.2039629	.0550631
#1	.8993203	.0261994	.0517055	55.31925	.1293292	.5998868
#2	.9113843	.0260918	.0516064	55.74692	.1289107	.5992373
#3	.9097509	.0260564	.0515659	55.59880	.1288435	.5994598

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2370482	12.17516	2.531310	24.51287	.5992398	.0153733
Stddev	.0009556	.04105	.013259	.05268	.0018094	.0000545
%RSD	.4031226	.3371209	.5237831	.2149105	.3019419	.3542126
#1	.2360077	12.13088	2.519590	24.48553	.5977888	.0154345
#2	.2372501	12.18267	2.545700	24.57360	.5986634	.0153549
#3	.2378866	12.21193	2.528638	24.47949	.6012671	.0153304

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.730885	.2512766	.7589184	13.66786	.6565574	.3093127
Stddev	.135791	.0003638	.0059688	.06052	.0045831	.0008817
%RSD	4.972415	.1447684	.7864908	.4427939	.6980496	.2850382
#1	2.575643	.2512550	.7520264	13.59838	.6548193	.3102082
#2	2.789423	.2516507	.7624104	13.70904	.6617553	.3084455
#3	2.827589	.2509241	.7623184	13.69618	.6530976	.3092844

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0051659	.0080284	.0045420	-.002454	-.001698	52.58885
Stddev	.0013046	.0016762	.0018105	.002368	.001464	.18162
%RSD	25.25360	20.87857	39.86051	96.49439	86.18673	.3453650
#1	.0039481	.0068748	.0024622	-.004235	-.000059	52.79854
#2	.0050070	.0072594	.0057654	-.003359	-.002164	52.48734
#3	.0065427	.0099512	.0053984	.000233	-.002873	52.48068

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0537353	.0024195	.0050992	92.31056	.0301248	.3219934
Stddev	.0006727	.0000520	.0001156	.39285	.0003151	.0010091
%RSD	1.251956	2.148719	2.267699	.4255745	1.045861	.3133772
#1	.0544578	.0023846	.0050009	92.76398	.0297802	.3211286
#2	.0536210	.0023946	.0050700	92.09571	.0303981	.3217497
#3	.0531269	.0024792	.0052266	92.07199	.0301960	.3231020

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1971299	17.96318	5.633731	35.89504	.3134176	-.001314
Stddev	.0009113	.07113	.027801	.17203	.0004718	.000052
%RSD	.4622903	.3959935	.4934697	.4792453	.1505436	3.952799
#1	.1978885	18.04468	5.662826	36.04204	.3133635	-.001274
#2	.1961190	17.93129	5.607437	35.93723	.3129751	-.001373
#3	.1973823	17.91357	5.630929	35.70584	.3139141	-.001295

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.769775	.0021921	.7399914	6.727267	.2123960	.3886646
Stddev	.200345	.0007401	.0046028	.067824	.0030088	.0003792
%RSD	5.314518	33.76389	.6220058	1.008200	1.416621	.0975606
#1	4.000039	.0029891	.7394904	6.802008	.2106336	.3890740
#2	3.673939	.0015264	.7356597	6.669637	.2106842	.3885943
#3	3.635348	.0020608	.7448242	6.710155	.2158702	.3883255

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000400	F 328.4756	F 20.15239	-.001986	.0111241	.0523991
Stddev	.000352	.5327	.07429	.000887	.0001244	.0002973
%RSD	88.08178	.1621650	.3686608	44.67055	1.118182	.5673217
#1	-.000786	329.0106	20.23551	-.002482	.0110647	.0524136
#2	-.000319	328.4709	20.09246	-.000962	.0110407	.0520948
#3	-.000095	327.9453	20.12921	-.002514	.0112671	.0526888

Elem	Sr4077
Units	ppm
Avg	.5205397
Stddev	.0029637
%RSD	.5693589
#1	.5236052
#2	.5176895
#3	.5203245

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6111.966	131382.3	20364.95	4240.821	4045.383
Stddev	11.896	153.1	33.86	14.595	7.324
%RSD	.1946405	.1165641	.1662813	.3441558	.1810538
#1	6099.767	131207.2	20372.75	4254.454	4042.335
#2	6123.535	131491.5	20327.87	4242.585	4053.739
#3	6112.597	131448.2	20394.24	4225.425	4040.074

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0649583	.0037192	.5889364	-.001837	.0015253	28.92558
Stddev	.0041580	.0035359	.0008769	.000489	.0013519	.08115
%RSD	6.401062	95.07320	.1489025	26.64546	88.63401	.2805576
#1	.0617158	-.000274	.5895694	-.001682	.0003683	28.83332
#2	.0696461	.004978	.5879355	-.002385	.0011963	28.98594
#3	.0635128	.006453	.5893044	-.001444	.0030114	28.95748

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0733786	.0086223	.0206620	120.2955	.0338231	.3450497
Stddev	.0008762	.0000251	.0001289	.2437	.0003528	.0006772
%RSD	1.194017	.2914176	.6238548	.2025673	1.043035	.1962723
#1	.0724304	.0085951	.0206044	120.1896	.0342282	.3448035
#2	.0735473	.0086272	.0205720	120.1228	.0335837	.3445300
#3	.0741582	.0086446	.0208097	120.5742	.0336574	.3458156

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.320301	33.57976	17.26317	45.75559	.3821590	.0013749
Stddev	.005230	.11140	.03529	.12171	.0002421	.0001981
%RSD	.3961051	.3317569	.2044146	.2660018	.0633465	14.40791
#1	1.325939	33.45508	17.24751	45.64541	.3820190	.0013524
#2	1.315608	33.61466	17.23842	45.73512	.3820194	.0015833
#3	1.319357	33.66953	17.30358	45.88624	.3824385	.0011891

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.304636	.0431899	3.381917	6.733963	.3025923	1.153607
Stddev	.315688	.0007789	.020876	.037241	.0009047	.003698
%RSD	3.392799	1.803476	.6172933	.5530284	.2989687	.3205809
#1	9.013940	.0424227	3.392210	6.695508	.3035740	1.157812
#2	9.640459	.0431670	3.357892	6.769857	.3024105	1.150862
#3	9.259510	.0439800	3.395647	6.736526	.3017923	1.152147

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001662**	F **337.0246**	F **10.12680**	**-.002645**	**.0048544**	**.0177647**
Stddev	.000226	.4403	.01746	.000511	.0007995	.0005693
%RSD	13.60881	.1306328	.1724001	19.32172	16.46933	3.204734
#1	-.001831	336.5190	10.14692	-.003164	.0040605	.0175797
#2	-.001750	337.2317	10.11779	-.002143	.0056593	.0184035
#3	-.001405	337.3232	10.11569	-.002627	.0048434	.0173108

Elem	Sr4077
Units	ppm
Avg	**.8780764**
Stddev	.0050601
%RSD	.5762692
#1	.8836022
#2	.8769576
#3	.8736693

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4059.311**	**90445.88**	**13685.08**	**2868.480**	**4067.723**
Stddev	8.012	204.94	36.07	14.512	7.561
%RSD	.1973798	.2265901	.2635866	.5059092	.1858812
#1	4067.318	90564.17	13647.15	2856.353	4076.009
#2	4059.323	90564.24	13718.96	2884.558	4065.962
#3	4051.293	90209.23	13689.13	2864.528	4061.198

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0237312	.0005166	.0138606	.0130153	.0059713	71.97623
Stddev	.0014283	.0032539	.0010037	.0015973	.0006709	.38087
%RSD	6.018807	629.8127	7.241633	12.27270	11.23594	.5291641
#1	.0227159	.0033416	.0133310	.0137158	.0053303	71.84652
#2	.0231132	.0012495	.0150182	.0111874	.0059149	71.67716
#3	.0253645	-.003041	.0132325	.0141428	.0066686	72.40502

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0846911	.0065217	.0051412	85.73584	.0890874	.2521792
Stddev	.0004743	.0000868	.0000939	.30832	.0002761	.0010670
%RSD	.5600794	1.330728	1.825441	.3596155	.3098866	.4231133
#1	.0841631	.0065020	.0051593	85.58854	.0892749	.2532244
#2	.0850812	.0066166	.0052247	85.52880	.0892169	.2510916
#3	.0848291	.0064464	.0050396	86.09018	.0887704	.2522217

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3590273	110.5699	8.184525	71.45542	.3879786	-.000062
Stddev	.0015901	.4301	.035627	.23757	.0013897	.000204
%RSD	.4428811	.3889669	.4353018	.3324741	.3581946	327.4755
#1	.3586456	110.4290	8.152942	71.42745	.3895735	-.000100
#2	.3576628	110.2279	8.177488	71.23307	.3870271	.000158
#3	.3607734	111.0528	8.223147	71.70574	.3873353	-.000246

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.18044	.0943229	1.985829	2.998007	.2204876	1.686733
Stddev	.14762	.0010972	.010041	.036916	.0033437	.004697
%RSD	.9724260	1.163209	.5056114	1.231342	1.516509	.2784399
#1	15.09212	.0939365	1.974474	3.022204	.2213310	1.690078
#2	15.35086	.0955610	1.993531	2.955517	.2168029	1.688757
#3	15.09834	.0934711	1.989483	3.016299	.2233288	1.681363

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001592	F 613.0205	F 26.69356	-.001363	.0186545	.0596581
Stddev	.000137	1.4544	.03138	.000996	.0007644	.0013183
%RSD	8.579628	.2372549	.1175579	73.01530	4.097599	2.209757
#1	-.001691	613.9802	26.70277	-.000697	.0190570	.0581394
#2	-.001437	611.3471	26.71930	-.002508	.0177730	.0603281
#3	-.001650	613.7341	26.65860	-.000886	.0191336	.0605068

Elem	Sr4077
Units	ppm
Avg	.6343842
Stddev	.0039636
%RSD	.6247918
#1	.6318053
#2	.6323993
#3	.6389481

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4675.119	96939.80	15473.21	3178.663	4130.867
Stddev	9.613	41.16	84.41	13.120	12.544
%RSD	.2056272	.0424578	.5455400	.4127569	.3036681
#1	4666.493	96952.24	15434.40	3185.366	4117.446
#2	4685.483	96973.30	15415.19	3163.545	4142.296
#3	4673.380	96893.85	15570.05	3187.077	4132.858

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0101751	.0028440	.0067236	-.001021	.0002590	36.48779
Stddev	.0014887	.0021977	.0013575	.001316	.0009535	.07613
%RSD	14.63032	77.27734	20.18958	128.9135	368.0623	.2086438
#1	.0086824	.0038045	.0056805	-.002502	.0008233	36.40369
#2	.0116597	.0003295	.0062319	-.000575	.0007956	36.50770
#3	.0101833	.0043979	.0082583	.000015	-.000842	36.55199

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1109657	.0025176	.0005600	143.2165	.0362005	.0253966
Stddev	.0006193	.0001029	.0000884	.1895	.0003035	.0003764
%RSD	.5580869	4.087787	15.79378	.1322936	.8382805	1.482066
#1	.1111282	.0025534	.0006621	143.3746	.0365198	.0250546
#2	.1102814	.0025979	.0005126	143.0065	.0361657	.0253354
#3	.1114876	.0024016	.0005054	143.2685	.0359159	.0257998

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1640946	28.21181	2.597806	109.7811	.2058504	-.000421
Stddev	.0011429	.02164	.003564	.1136	.0004195	.000296
%RSD	.6964962	.0766976	.1372084	.1035203	.2037960	70.34235
#1	.1641050	28.19109	2.601564	109.9003	.2053890	-.000347
#2	.1629465	28.21007	2.594473	109.6739	.2059534	-.000747
#3	.1652322	28.23426	2.597382	109.7690	.2062089	-.000169

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.76384	.0747643	1.588113	1.619744	.0625102	1.319696
Stddev	.03896	.0004597	.005582	.042123	.0004703	.002255
%RSD	.2193235	.6149100	.3514828	2.600603	.7524215	.1708746
#1	17.77759	.0743936	1.582262	1.649378	.0627423	1.318265
#2	17.79406	.0752787	1.588697	1.638329	.0628193	1.322295
#3	17.71987	.0746206	1.593380	1.571525	.0619689	1.318527

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000871	F 348.3328	F 20.59377	-.004148	.0082838	.0549839
Stddev	.000059	.5863	.07179	.000238	.0008198	.0004466
%RSD	6.795040	.1683040	.3486125	5.726807	9.896904	.8122537
#1	-.000893	347.8682	20.66992	-.003886	.0091737	.0548696
#2	-.000915	348.1387	20.58408	-.004350	.0075592	.0546055
#3	-.000804	348.9915	20.52732	-.004208	.0081185	.0554765

Elem	Sr4077
Units	ppm
Avg	.9591637
Stddev	.0020144
%RSD	.2100160
#1	.9601093
#2	.9568504
#3	.9605313

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3540.759	76154.68	11466.55	2500.913	4060.067
Stddev	11.904	46.56	35.52	3.711	14.490
%RSD	.3362060	.0611373	.3097439	.1483697	.3569022
#1	3549.796	76168.29	11453.29	2504.523	4071.968
#2	3545.209	76102.84	11439.57	2501.106	4064.302
#3	3527.270	76192.93	11506.79	2497.110	4043.931

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2679724**	**.0024836**	**.1150756**	**.0032574**	**.0011077**	**9.270709**
Stddev	.0004943	.0004461	.0004512	.0014604	.0008812	.040387
%RSD	.1844641	17.96302	.3921007	44.83127	79.55164	.4356367
#1	.2674639	.0019743	.1147790	.0016133	.0014358	9.238525
#2	.2680020	.0028055	.1155949	.0044040	.0017779	9.257575
#3	.2684512	.0026708	.1148530	.0037550	.0001095	9.316028

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0820676**	**.0009172**	**.0068778**	**56.66956**	**.0354074**	**.0281982**
Stddev	.0009516	.0000043	.0000258	.18427	.0000934	.0001640
%RSD	1.159527	.4723792	.3749884	.3251733	.2637751	.5816993
#1	.0810194	.0009179	.0068500	56.49216	.0353061	.0283758
#2	.0823061	.0009125	.0068824	56.65650	.0354261	.0280524
#3	.0828772	.0009211	.0069009	56.86001	.0354901	.0281663

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.8418186**	**21.56944**	**.3878933**	**7.256366**	**.2139934**	**-.000621**
Stddev	.0031331	.10124	.0010691	.030561	.0010451	.000180
%RSD	.3721804	.4693794	.2756103	.4211607	.4883877	29.04399
#1	.8404958	21.46848	.3870426	7.240414	.2130425	-.000425
#2	.8453961	21.56890	.3875440	7.237081	.2138253	-.000781
#3	.8395639	21.67096	.3890934	7.291602	.2151123	-.000658

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**6.662496**	**.0322170**	**.7986590**	**3.277232**	F **23.30781**	**.6869935**
Stddev	.295624	.0005633	.0026440	.041991	.06591	.0033704
%RSD	4.437137	1.748560	.3310604	1.281301	.2827694	.4906036
#1	6.895980	.0328653	.7957788	3.271273	23.23253	.6908549
#2	6.761409	.0318465	.7992219	3.238539	23.33581	.6854839
#3	6.330098	.0319392	.8009763	3.321885	23.35510	.6846419

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013176	F 345.7872	4.860927	-.002182	.0060003	.0126905
Stddev	.0001393	1.0829	.012771	.000989	.0005115	.0006194
%RSD	10.57383	.3131714	.2627315	45.30860	8.525159	4.881034
#1	.0012651	344.5600	4.870521	-.003230	.0056946	.0131280
#2	.0014755	346.1930	4.865829	-.002053	.0065908	.0129617
#3	.0012121	346.6086	4.846431	-.001265	.0057154	.0119817

Elem	Sr4077
Units	ppm
Avg	.5899891
Stddev	.0024087
%RSD	.4082630
#1	.5872327
#2	.5910457
#3	.5916890

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3936.968	84671.35	12817.56	2811.068	4396.985
Stddev	10.473	113.96	71.15	10.773	11.298
%RSD	.2660212	.1345911	.5550893	.3832403	.2569450
#1	3948.038	84595.25	12738.03	2814.575	4409.520
#2	3935.650	84802.37	12839.46	2819.651	4393.849
#3	3927.216	84616.42	12875.17	2798.979	4387.587

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.036306**	**.0001567**	**.1072746**	**.0026781**	**.0037340**	**24.69129**
Stddev	.005469	.0010509	.0015764	.0018464	.0004640	.03177
%RSD	.5276916	670.7230	1.469504	68.94653	12.42784	.1286741
#1	1.031313	-.000619	.1088880	.0030831	.0032773	24.68658
#2	1.035456	.001353	.1071978	.0006628	.0037196	24.66213
#3	1.042150	-.000264	.1057380	.0042884	.0042050	24.72515

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0635124**	**.0082794**	**.0126491**	**132.2111**	**.0833354**	**.0866976**
Stddev	.0003074	.0001177	.0001298	.3282	.0001827	.0003485
%RSD	.4840189	1.422029	1.025902	.2482589	.2192709	.4019505
#1	.0632270	.0082721	.0127989	132.2909	.0831531	.0869092
#2	.0638379	.0084006	.0125770	132.4921	.0835186	.0862954
#3	.0634723	.0081654	.0125712	131.8504	.0833346	.0868883

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0776568**	**54.51224**	**1.104892**	**21.19798**	**1.460985**	**-.002625**
Stddev	.0022067	.05869	.005648	.02836	.002534	.000172
%RSD	2.841583	.1076691	.5111674	.1337996	.1734315	6.559085
#1	.0790841	54.47650	1.109314	21.17630	1.462010	-.002823
#2	.0751152	54.48025	1.106832	21.23008	1.458099	-.002543
#3	.0787712	54.57998	1.098530	21.18757	1.462846	-.002509

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.938383**	**.0599271**	**1.579983**	**3.572895**	F **63.73352**	**.7046771**
Stddev	.047178	.0010489	.012695	.015517	.01933	.0014343
%RSD	.7944585	1.750279	.8034721	.4342839	.0303254	.2035372
#1	5.912839	.0587242	1.573885	3.581262	63.71717	.7059346
#2	5.909486	.0604065	1.594576	3.554990	63.72853	.7049818
#3	5.992825	.0606507	1.571487	3.582432	63.75485	.7031150

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000255	F 342.9296	F 11.67344	-.002807	.0003494	.0467821
Stddev	.000325	.6410	.08983	.000128	.0003567	.0012359
%RSD	127.6202	.1869329	.7695454	4.567565	102.0949	2.641785
#1	.000011	342.4598	11.73254	-.002953	.0007581	.0454386
#2	-.000618	342.6690	11.71770	-.002709	.0001011	.0478705
#3	-.000159	343.6599	11.57006	-.002761	.0001888	.0470371

Elem	Sr4077
Units	ppm
Avg	.8514446
Stddev	.0117614
%RSD	1.381351
#1	.8546171
#2	.8612944
#3	.8384223

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4896.774	102650.4	15394.56	3337.967	4200.743
Stddev	7.107	297.0	71.72	15.555	5.865
%RSD	.1451361	.2893298	.4658468	.4660085	.1396211
#1	4903.529	102858.6	15395.36	3355.548	4196.619
#2	4897.432	102310.3	15322.45	3325.992	4207.458
#3	4889.361	102782.4	15465.87	3332.361	4198.153

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0114080**	**.0041858**	**.0657403**	**.0118900**	**.0039465**	**44.93761**
Stddev	.0011816	.0013853	.0012297	.0015387	.0003305	.17998
%RSD	10.35769	33.09621	1.870580	12.94122	8.375507	.4005100
#1	.0101156	.0027532	.0661082	.0108530	.0039202	44.73146
#2	.0124329	.0042857	.0643686	.0136580	.0042893	45.01789
#3	.0116756	.0055185	.0667441	.0111591	.0036299	45.06348

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0737391**	**.0059673**	**.0250555**	**77.81420**	**.1606986**	**.0379511**
Stddev	.0005584	.0001140	.0000930	.17215	.0006200	.0003401
%RSD	.7572618	1.911146	.3712243	.2212346	.3858170	.8960872
#1	.0742371	.0060092	.0249600	77.77104	.1603897	.0381167
#2	.0738446	.0060543	.0250607	78.00383	.1614124	.0375600
#3	.0731354	.0058382	.0251458	77.66774	.1602937	.0381767

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0524678**	**84.48269**	**1.085738**	**23.18435**	**.2487825**	**-.001511**
Stddev	.0013903	.23369	.001339	.07782	.0006324	.000348
%RSD	2.649753	.2766187	.1233365	.3356456	.2541869	23.05572
#1	.0519732	84.27322	1.087221	23.18863	.2495031	-.001395
#2	.0513924	84.73475	1.085378	23.25994	.2483202	-.001235
#3	.0540377	84.44010	1.084616	23.10448	.2485241	-.001902

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.153134**	**.1245943**	**2.064897**	**11.07030**	F **30.36292**	**.8363844**
Stddev	.250344	.0002896	.006383	.07064	.04597	.0014060
%RSD	4.858083	.2324383	.3091387	.6381373	.1514152	.1681069
#1	5.037545	.1248920	2.059555	10.99063	30.38810	.8372633
#2	5.440387	.1243135	2.063170	11.12531	30.30986	.8371272
#3	4.981470	.1245775	2.071966	11.09497	30.39081	.8347628

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0012894	F 330.4668	F 19.77319	-.002149	.0096765	.0473262
Stddev	.0003265	.5046	.09423	.001547	.0006276	.0006338
%RSD	25.32209	.1527022	.4765521	72.02242	6.485528	1.339157
#1	.0010486	330.2642	19.88183	-.001770	.0103582	.0480304
#2	.0016610	330.0949	19.72408	-.000825	.0091228	.0468017
#3	.0011585	331.0412	19.71365	-.003850	.0095485	.0471464

Elem	Sr4077
Units	ppm
Avg	.2913034
Stddev	.0011583
%RSD	.3976208
#1	.2905534
#2	.2907195
#3	.2926375

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4246.851	88730.18	13844.74	2895.281	4274.823
Stddev	5.189	320.41	64.80	7.522	3.643
%RSD	.1221848	.3611038	.4680226	.2598175	.0852231
#1	4245.650	88942.67	13804.97	2903.542	4274.952
#2	4252.535	88361.64	13809.73	2893.477	4278.399
#3	4242.367	88886.22	13919.51	2888.825	4271.116

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0069505	.0028762	.0101157	-.000179	-.002359	78.54679
Stddev	.0023363	.0025393	.0028328	.001672	.000777	.33624
%RSD	33.61414	88.28476	28.00373	934.8931	32.93581	.4280706
#1	.0092189	.0036668	.0097674	-.000311	-.003169	78.86909
#2	.0070807	.0049262	.0131066	.001555	-.001620	78.19816
#3	.0045517	.0000357	.0074732	-.001780	-.002289	78.57312

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0854820	.0040633	.0091428	167.7603	.0802023	.8256059
Stddev	.0004683	.0000505	.0001293	.3204	.0003465	.0018114
%RSD	.5478242	1.243643	1.414628	.1909669	.4320066	.2194060
#1	.0859985	.0041170	.0092379	168.1260	.0798703	.8236344
#2	.0853622	.0040560	.0089955	167.5290	.0805616	.8259866
#3	.0850852	.0040168	.0091949	167.6260	.0801748	.8271967

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2695093	14.66318	13.55782	73.13506	.5911144	.0018053
Stddev	.0008104	.00946	.02904	.13296	.0017342	.0002150
%RSD	.3006982	.0645406	.2142098	.1818059	.2933695	11.90760
#1	.2690318	14.66869	13.59081	73.26860	.5899096	.0015681
#2	.2690511	14.65225	13.54653	73.13389	.5903317	.0018605
#3	.2704450	14.66859	13.53612	73.00267	.5931019	.0019873

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.393821	.0098201	1.251488	5.304848	1.501797	.6307729
Stddev	.210270	.0015896	.006359	.014143	.008339	.0019675
%RSD	2.843861	16.18711	.5080783	.2666036	.5552885	.3119173
#1	7.151050	.0105822	1.258610	5.300388	1.497777	.6285011
#2	7.512027	.0108851	1.249472	5.320683	1.496229	.6319229
#3	7.518386	.0079929	1.246381	5.293472	1.511385	.6318948

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000385**	F **363.6503**	F **34.89908**	**-.002668**	**-.001743**	**.1728548**
Stddev	.000111	.7229	.06300	.000657	.000620	.0020598
%RSD	28.73565	.1987857	.1805341	24.61445	35.59520	1.191610
#1	-.000504	363.1550	34.89786	-.003049	-.002458	.1751146
#2	-.000367	363.3160	34.96269	-.001910	-.001428	.1710826
#3	-.000285	364.4798	34.83670	-.003046	-.001343	.1723672

Elem	Sr4077
Units	ppm
Avg	**1.132124**
Stddev	.003733
%RSD	.3296977
#1	1.131723
#2	1.136040
#3	1.128607

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4216.196**	**90443.20**	**14372.87**	**2923.512**	**3992.914**
Stddev	8.777	136.88	81.74	12.048	13.397
%RSD	.2081644	.1513483	.5687063	.4121171	.3355312
#1	4224.629	90563.50	14444.30	2910.211	4004.355
#2	4216.846	90294.26	14283.73	2933.695	3996.211
#3	4207.112	90471.85	14390.58	2926.630	3978.176

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.927239**	**4.585303**	**24.24443**	**4.799041**	**4.838258**	**396.1362**
Stddev	.008675	.058521	.02554	.018675	.005590	6.3614
%RSD	.1760625	1.276272	.1053328	.3891468	.1155438	1.605874
#1	4.937225	4.652877	24.27386	4.810396	4.840449	403.4034
#2	4.922930	4.551443	24.22811	4.809240	4.831904	391.5760
#3	4.921563	4.551588	24.23133	4.777487	4.842420	393.4291

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.10107**	**.4860494**	**2.426584**	**401.8904**	**15.21873**	**2.431059**
Stddev	.04306	.0035858	.006067	2.3190	.12688	.002082
%RSD	.4262987	.7377333	.2500368	.5770334	.8336975	.0856560
#1	10.12369	.4867430	2.433337	403.9036	15.36089	2.432237
#2	10.05141	.4892376	2.424820	399.3547	15.17832	2.432285
#3	10.12810	.4821675	2.421593	402.4128	15.11698	2.428655

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**14.96209**	**402.3464**	**14.98204**	**393.8580**	**2.423222**	**1.267053**
Stddev	.10530	2.4413	.08366	2.4098	.001274	.010274
%RSD	.7037919	.6067661	.5583687	.6118468	.0525757	.8108917
#1	14.88812	405.0737	15.07528	396.6221	2.423673	1.278586
#2	15.08265	401.6003	14.95731	392.7534	2.424209	1.263698
#3	14.91549	400.3652	14.91355	392.1984	2.421784	1.258875

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**394.5294**	**2.436838**	**15.05304**	**154.8304**	**5.032598**	F **5.906798**
Stddev	3.0251	.012407	.08001	.7880	.011595	.032788
%RSD	.7667556	.5091602	.5315004	.5089571	.2303980	.5550872
#1	392.5425	2.431298	15.14514	155.7238	5.044957	5.916028
#2	398.0109	2.451050	15.01330	154.5331	5.021959	5.933981
#3	393.0350	2.428166	15.00069	154.2343	5.030880	5.870384

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.769774**	**4.945264**	F **3.116080**	**4.880760**	**4.946312**	**5.161619**
Stddev	.009066	.013581	.015077	.008337	.038046	.025375
%RSD	.1900710	.2746276	.4838585	.1708170	.7691809	.4916084
#1	4.780178	4.960732	3.116106	4.889115	4.931084	5.184791
#2	4.765574	4.939770	3.131144	4.880724	4.989613	5.165563
#3	4.763569	4.935291	3.100989	4.872440	4.918238	5.134503

Elem	Sr4077
Units	ppm
Avg	**4.824743**
Stddev	.015999
%RSD	.3316128
#1	4.807500
#2	4.827619
#3	4.839109

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2936.858**	**65065.92**	**10709.19**	**2121.625**	**3366.945**
Stddev	3.204	437.03	56.54	14.513	2.762
%RSD	.1090964	.6716681	.5279990	.6840590	.0820212
#1	2935.055	64562.55	10722.89	2104.895	3365.579
#2	2940.558	65286.57	10647.05	2130.834	3370.123
#3	2934.962	65348.63	10757.63	2129.145	3365.132

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005722	.0003532	.0008554	.0008276	.0001706	.0034339	-.002395
Stddev	.0009579	.0003024	.0011805	.0016708	.0017160	.0081677	.000508
%RSD	167.3887	85.60831	138.0004	201.8857	1005.937	237.8572	21.19724
#1	.0016658	.0001190	.0017567	.0022160	-.000444	-.005084	-.002905
#2	.0001688	.0006945	-.000481	-.001027	.002109	.011200	-.002390
#3	-.000118	.0002460	.001290	.001294	-.001153	.004186	-.001889

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000083	.0000509	.0072949	.0004607	-.000058	-.000698	.0054757
Stddev	.000025	.0000079	.0060509	.0002145	.000111	.000493	.0013887
%RSD	30.38888	15.54500	82.94712	46.55501	190.6103	70.56862	25.36041
#1	-.000097	.0000543	.0089015	.0003098	.000066	-.001209	.0045854
#2	-.000097	.0000565	.0006028	.0007062	-.000093	-.000660	.0070758
#3	-.000054	.0000419	.0123805	.0003661	-.000148	-.000226	.0047659

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001599	.0012677	-.000154	-.000681	-.231025	-.001817	.0000305
Stddev	.0001074	.0110158	.000374	.000325	.268275	.000362	.0018059
%RSD	67.17711	868.9694	242.4245	47.71457	116.1240	19.92451	5921.057
#1	.0000516	-.002192	-.000010	-.000347	.078681	-.001960	-.001884
#2	.0002663	.013598	.000126	-.000700	-.380092	-.001405	.001704
#3	.0001616	-.007603	-.000579	-.000996	-.391663	-.002086	.000272

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0300465	.0002984	.0063706	.0004121	.0121522	-.001977	.0006184
Stddev	.0102863	.0011686	.0006315	.0004525	.0023244	.000597	.0005800
%RSD	34.23475	391.6700	9.913266	109.8017	19.12692	30.18437	93.78338
#1	.0198449	-.000976	.0069104	.0002747	.0143160	-.001814	.0000117
#2	.0298790	.001320	.0065252	.0009174	.0124455	-.001479	.0011674
#3	.0404156	.000551	.0056761	.0000443	.0096952	-.002639	.0006763

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0000205	-.000108	.0000588
Stddev	.0007217	.000976	.0000467
%RSD	3516.252	901.2215	79.37170
#1	-.000812	.000252	.0000281
#2	.000407	.000636	.0000358
#3	.000467	-.001213	.0001126

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3720.159	77571.77	11431.70	2565.133	4713.809
Stddev	10.188	155.77	9.00	19.343	9.803
%RSD	.2738598	.2008111	.0787356	.7540863	.2079661
#1	3718.972	77644.47	11427.10	2576.528	4710.141
#2	3730.888	77392.94	11442.07	2542.799	4724.917
#3	3710.616	77677.91	11425.92	2576.072	4706.368

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0218079**	**.0022105**	**.2063470**	**.0044802**	**-.000059**	**15.39725**
Stddev	.0005952	.0012405	.0007203	.0020484	.001014	.08517
%RSD	2.729332	56.11827	.3490903	45.72125	1719.969	.5531269
#1	.0222978	.0007990	.2071537	.0050430	-.000748	15.30741
#2	.0211454	.0031275	.2061193	.0022092	.001105	15.47680
#3	.0219803	.0027050	.2057681	.0061884	-.000534	15.40755

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0822107**	**.0030173**	**.0110307**	**60.31322**	**.0083907**	**.0609977**
Stddev	.0009872	.0000190	.0000480	.24666	.0003166	.0003213
%RSD	1.200846	.6286217	.4354331	.4089598	3.773654	.5267382
#1	.0815090	.0030386	.0110519	60.15610	.0087467	.0607955
#2	.0833395	.0030022	.0109757	60.59751	.0081408	.0613682
#3	.0817835	.0030112	.0110644	60.18605	.0082845	.0608294

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7297264**	**22.35151**	**.2731521**	**15.07962**	**.1241558**	**-.001011**
Stddev	.0048707	.08371	.0006624	.06755	.0003552	.000137
%RSD	.6674743	.3745048	.2425053	.4479790	.2860819	13.54308
#1	.7353114	22.29087	.2731699	15.09299	.1240368	-.001165
#2	.7275080	22.44701	.2738054	15.13950	.1245552	-.000901
#3	.7263598	22.31664	.2724810	15.00639	.1238754	-.000969

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.282435**	**.0102906**	**1.231145**	**4.781665**	F **17.40595**	**.6395184**
Stddev	.145462	.0005004	.008451	.061825	.04357	.0048378
%RSD	2.753701	4.862672	.6864313	1.292965	.2503069	.7564789
#1	5.449891	.0108431	1.226733	4.713955	17.42470	.6438897
#2	5.210027	.0098679	1.240889	4.795928	17.43701	.6343206
#3	5.187387	.0101607	1.225814	4.835112	17.35615	.6403448

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0129883**	**.0040969**	**.0119754**	**-.001047**	**-.000150**	**41.02401**
Stddev	.0014683	.0010991	.0013694	.001623	.001819	.08291
%RSD	11.30500	26.82630	11.43490	155.0267	1210.711	.2021105
#1	.0146772	.0050761	.0116408	.000637	.000360	41.02588
#2	.0122723	.0029082	.0108043	-.002602	.001359	41.10597
#3	.0120153	.0043066	.0134810	-.001176	-.002170	40.94018

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0953616**	**.0053150**	**.0031493**	**118.0642**	**.0528001**	**.2276926**
Stddev	.0003352	.0000925	.0000320	.1888	.0001144	.0002200
%RSD	.3515188	1.740846	1.017189	.1598787	.2166497	.0966193
#1	.0952891	.0054211	.0031618	118.2655	.0526809	.2276805
#2	.0957271	.0052729	.0031732	118.0360	.0528105	.2274788
#3	.0950685	.0052511	.0031129	117.8912	.0529090	.2279183

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2145257**	**32.64713**	**8.349551**	**94.67799**	**.4627882**	**.0006373**
Stddev	.0016995	.06978	.007913	.14591	.0007219	.0002503
%RSD	.7922304	.2137427	.0947714	.1541097	.1559891	39.28200
#1	.2164757	32.70079	8.341340	94.84076	.4620145	.0004194
#2	.2133594	32.67235	8.357128	94.55896	.4629063	.0005817
#3	.2137422	32.56824	8.350185	94.63424	.4634437	.0009107

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.623759**	**.0198153**	**1.191274**	**2.111376**	**.6215360**	**.7123496**
Stddev	.176401	.0013250	.006609	.050814	.0050119	.0049004
%RSD	3.136703	6.686650	.5548067	2.406657	.8063722	.6879235
#1	5.490837	.0211755	1.184830	2.163096	.6273233	.7149117
#2	5.823884	.0197421	1.190956	2.061520	.6186549	.7066992
#3	5.556556	.0185285	1.198037	2.109511	.6186299	.7154378

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0079218	.0034909	.0117135	-.000286	-.000526	79.09333
Stddev	.0014132	.0014719	.0023882	.003189	.001316	.65830
%RSD	17.83883	42.16485	20.38853	1116.349	249.9452	.8323089
#1	.0079339	.0046018	.0141358	.003392	.000207	79.74467
#2	.0093288	.0040494	.0093609	-.002286	-.002046	78.42828
#3	.0065026	.0018214	.0116439	-.001963	.000259	79.10702

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1020343	.0025927	.0066270	130.2663	.0769533	.5152044
Stddev	.0001165	.0000317	.0000967	.7015	.0002350	.0016079
%RSD	.1141989	1.222250	1.459138	.5385281	.3053467	.3120865
#1	.1021675	.0025607	.0065260	130.9807	.0769390	.5141718
#2	.1019510	.0026241	.0066362	129.5784	.0771951	.5143844
#3	.1019844	.0025932	.0067187	130.2397	.0767258	.5170569

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2482853	29.05583	9.671455	65.73241	.4336911	.0023038
Stddev	.0015344	.18134	.061859	.40997	.0011631	.0004320
%RSD	.6179975	.6241221	.6396057	.6236982	.2681981	18.75061
#1	.2470725	29.23514	9.740971	66.15338	.4328285	.0021029
#2	.2500103	28.87252	9.622478	65.33440	.4332308	.0020089
#3	.2477732	29.05983	9.650915	65.70945	.4350139	.0027996

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.884595	.0110342	1.276829	4.536592	1.646714	.6798226
Stddev	.259331	.0002605	.005937	.030680	.008061	.0043858
%RSD	3.766826	2.361216	.4649772	.6762829	.4895303	.6451442
#1	6.994087	.0108104	1.283371	4.544236	1.642873	.6755420
#2	6.588475	.0113202	1.271782	4.502813	1.641291	.6843066
#3	7.071222	.0109721	1.275336	4.562728	1.655977	.6796193

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000519	F 354.8120	F 31.20367	-.002969	.0005461	.1769289
Stddev	.000174	1.4359	.07223	.000404	.0003610	.0012049
%RSD	33.50507	.4046831	.2314682	13.60894	66.10493	.6810236
#1	-.000555	353.3993	31.18351	-.003323	.0004891	.1783069
#2	-.000329	354.7666	31.28384	-.002529	.0002170	.1760734
#3	-.000671	356.2700	31.14368	-.003056	.0009322	.1764065

Elem	Sr4077
Units	ppm
Avg	.9033037
Stddev	.0091838
%RSD	1.016688
#1	.9133485
#2	.8953372
#3	.9012255

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4016.608	85570.96	13513.20	2804.364	4072.735
Stddev	11.807	91.40	108.37	5.863	10.756
%RSD	.2939504	.1068073	.8019902	.2090553	.2640932
#1	4027.475	85476.37	13619.77	2798.077	4082.308
#2	4018.305	85658.78	13403.10	2805.336	4074.802
#3	4004.045	85577.72	13516.73	2809.680	4061.096

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0041927**	**-.004643**	**.0108053**	**.0185473**	**.0159180**	**.1464988**
Stddev	.0018536	.001520	.0011042	.0032384	.0018160	.0087925
%RSD	44.21019	32.72612	10.21879	17.46010	11.40824	6.001782
#1	.0023787	-.004497	.0095365	.0160357	.0166261	.1524931
#2	.0060835	-.003202	.0113309	.0174039	.0172732	.1505982
#3	.0041158	-.006231	.0115484	.0222023	.0138547	.1364052

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0777842**	**.0001191**	**.0050217**	**364.6004**	**-.001003**	**.0599431**
Stddev	.0000226	.0000909	.0000846	2.0725	.000536	.0002133
%RSD	.0290323	76.38610	1.684029	.5684396	53.42821	.3558085
#1	.0778097	.0000175	.0049445	363.8270	-.000398	.0601838
#2	.0777670	.0001467	.0051121	363.0257	-.001417	.0597774
#3	.0777758	.0001930	.0050086	366.9484	-.001195	.0598681

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.013093**	**201.1998**	**10.41929**	**100.3719**	**.0795656**	**-.003793**
Stddev	.001383	.5327	.03792	.1352	.0006326	.000047
%RSD	10.56534	.2647813	.3639795	.1346852	.7950276	1.251917
#1	-.012369	200.9865	10.45281	100.2838	.0795145	-.003769
#2	-.012223	200.8068	10.37813	100.3044	.0789602	-.003847
#3	-.014688	201.8062	10.42694	100.5275	.0802222	-.003762

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**3.927522**	**-.017498**	**.4102036**	**1.532265**	**.0057480**	**1.039566**
Stddev	.204511	.000759	.0042010	.039707	.0033431	.003192
%RSD	5.207132	4.335392	1.024115	2.591395	58.16067	.3070120
#1	3.936241	-.016812	.4147673	1.578081	.0021878	1.038345
#2	4.127534	-.017370	.4064979	1.510865	.0062360	1.037165
#3	3.718790	-.018313	.4093456	1.507848	.0088203	1.043187

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000623**	**.0005352**	**.0008322**	**.0013114**	**.0001719**	**-.000119**	**-.003365**
Stddev	.001272	.0006912	.0001620	.0015875	.0005950	.001599	.000592
%RSD	204.0651	129.1527	19.46529	121.0538	346.0423	1343.159	17.58660
#1	-.002080	-.000241	.0009753	.0003872	-.000402	.000515	-.002713
#2	-.000063	.000764	.0008650	.0031445	.000786	-.001937	-.003515
#3	.000272	.001083	.0006563	.0004026	.000132	.001066	-.003868

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000013**	**.0000011**	**.0075288**	**-.000103**	**.0001393**	**.0008206**	**.0035664**
Stddev	.000009	.0000321	.0017054	.000054	.0000742	.0010620	.0042617
%RSD	70.40643	2974.829	22.65102	52.62722	53.29549	129.4162	119.4958
#1	-.000011	.0000240	.0092286	-.000165	.0002177	-.000207	-.001221
#2	-.000006	.0000149	.0075400	-.000069	.0001299	.001914	.006946
#3	-.000024	-.000036	.0058179	-.000073	.0000701	.000755	.004975

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000071**	**.0013373**	**.0002350**	**-.000146**	**.1657949**	**.0000811**	**.0002356**
Stddev	.000294	.0092197	.0004424	.000099	.2263315	.0013124	.0004649
%RSD	411.7839	689.4341	188.2795	67.95640	136.5129	1617.873	197.3271
#1	.000122	.0103863	.0001843	-.000038	.0119731	.0015521	.0002658
#2	.000073	.0016697	-.000180	-.000168	.0597302	-.000970	-.000244
#3	-.000409	-.008044	.000701	-.000233	.4256815	-.000339	.000685

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.260876**	**.0012495**	**.0026252**	**.0001890**	**.0371799**	**-.002169**	**.0008306**
Stddev	.040015	.0021619	.0003609	.0000640	.0036812	.000693	.0002358
%RSD	15.33873	173.0220	13.74762	33.88274	9.901026	31.94046	28.38491
#1	-.305360	.0024806	.0030088	.0002503	.0413220	-.002140	.0008157
#2	-.249457	.0025147	.0022924	.0001943	.0359354	-.002876	.0010735
#3	-.227812	-.001247	.0025744	.0001225	.0342822	-.001492	.0006027

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008117	-.001002	.0001151
Stddev	.0007696	.000334	.0000434
%RSD	94.82008	33.32943	37.72200
#1	.0012434	-.001290	.0000742
#2	.0012685	-.001081	.0001607
#3	-.000077	-.000636	.0001104

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3580.647	75253.79	10856.19	2459.633	4487.391
Stddev	22.160	93.58	24.71	4.304	38.169
%RSD	.6188722	.1243558	.2275677	.1750000	.8505906
#1	3555.851	75159.28	10836.03	2454.663	4443.524
#2	3587.576	75346.42	10848.79	2462.170	4505.632
#3	3598.514	75255.67	10883.75	2462.067	4513.018

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0185689	.0525976	.0209437	.0646695	.1090086	.3736171	.3784682
Stddev	.0030094	.0016518	.0012724	.0031029	.0009538	.0067394	.0102444
%RSD	16.20672	3.140395	6.075457	4.798146	.8749376	1.803823	2.706797
#1	.0197590	.0507247	.0223470	.0658456	.1079306	.3813329	.3898330
#2	.0208014	.0532213	.0206192	.0611505	.1097428	.3688823	.3699436
#3	.0151465	.0538467	.0198649	.0670125	.1093522	.3706359	.3756280

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0103090	.0101636	9.933772	.0218915	.0989978	.0543569	.2133373
Stddev	.0001088	.0001411	.252902	.0006377	.0009608	.0007707	.0076814
%RSD	1.055178	1.388471	2.545877	2.912899	.9705002	1.417873	3.600590
#1	.0102039	.0100323	10.22523	.0226221	.0982802	.0547063	.2214377
#2	.0103018	.0101457	9.77229	.0214467	.0986239	.0534733	.2061579
#3	.0104211	.0103128	9.80380	.0216057	.1000893	.0548909	.2124165

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0304609	8.900605	.0810664	.0190965	9.475852	.1035723	.1175361
Stddev	.0007721	.162163	.0008108	.0005338	.312641	.0022558	.0028979
%RSD	2.534663	1.821930	1.000139	2.795456	3.299339	2.177987	2.465505
#1	.0312404	9.086095	.0803988	.0197035	9.337120	.1020930	.1197691
#2	.0296964	8.830035	.0808318	.0187003	9.256585	.1024552	.1142614
#3	.0304458	8.785685	.0819686	.0188856	9.833852	.1061686	.1185778

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.237858	.0193891	.0022918	.0203635	.1964343	.4562112	.0144799
Stddev	.236709	.0010240	.0004319	.0004503	.0046984	.0085886	.0006215
%RSD	2.562379	5.281546	18.84557	2.211515	2.391832	1.882601	4.292290
#1	9.511177	.0193672	.0018663	.0198447	.1910269	.4514677	.0151389
#2	9.103111	.0204239	.0027298	.0205925	.1987572	.4510405	.0139042
#3	9.099286	.0183762	.0022792	.0206534	.1995187	.4661255	.0143966

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	s 2.900808	kF -1.05253	k 1.986246	s .5507783	sF 28.47547	k 17.91555
Stddev	.091714	.00958	.007872	.0227655	.95201	.07725
%RSD	3.161679	.9099603	.3963126	4.133336	3.343276	.4311708
#1	s 2.848463	k -1.04384	k 1.985788	s .5301500	s 27.99546	k 17.89200
#2	s 2.847253	k -1.05096	k 1.978613	s .5469815	s 27.85901	k 18.00184
#3	s 3.006708	k -1.06280	k 1.994337	s .5752036	s 29.57193	k 17.85283

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3752152	k -.011689	k .0166001	88.01727	F 316.9976	F 114.5901
Stddev	.0016217	.000151	.0001565	.19787	1.2418	.6192
%RSD	.4322073	1.295276	.9430301	.2248055	.3917347	.5404037
#1	.3757795	k -.011833	k .0166808	87.95264	315.6101	114.7910
#2	.3764794	k -.011531	k .0164197	88.23937	318.0047	115.0839
#3	.3733867	k -.011702	k .0166998	87.85979	317.3780	113.8953

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	k 3.125149	k 139.5769	k 2.166465	12.79844	F 96.79248	k -.029902
Stddev	.016956	.3593	.003891	.04258	.23599	.000350
%RSD	.5425790	.2574081	.1795885	.3326846	.2438129	1.170451
#1	k 3.134917	k 139.4204	k 2.164499	12.78361	96.52015	k -.029960
#2	k 3.134959	k 139.9879	k 2.170946	12.84646	96.92038	k -.029526
#3	k 3.105569	k 139.3225	k 2.163949	12.76527	96.93691	k -.030219

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	36.86520	k .1714895	k 4.842877	2.100792	k 3.046386	k .2076306
Stddev	.28075	.0093044	.028360	.019419	.019136	.0001832
%RSD	.7615698	5.425636	.5856021	.9243643	.6281470	.0882157
#1	37.18677	k .1607728	k 4.847734	2.123206	k 3.028632	k .2074415
#2	36.74006	k .1761885	k 4.868494	2.090129	k 3.043871	k .2078072
#3	36.66878	k .1775074	k 4.812401	2.089041	k 3.066655	k .2076431

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	sF 360.9821	kF 168.7950	k 3.375686	.3358744	.3658211	.0208091
Stddev	10.8475	.4162	.005105	.0013353	.0022616	.0007197
%RSD	3.004987	.2465702	.1512394	.3975524	.6182261	3.458616
#1	s 355.2243	k 168.4479	k 3.370437	.3343631	.3682397	.0214690
#2	s 354.2277	k 168.6806	k 3.380635	.3363659	.3637588	.0209168
#3	s 373.4945	k 169.2564	k 3.375986	.3368943	.3654650	.0200417

Elem	Sr4077
Units	ppm
Avg	.7737799
Stddev	.0029965
%RSD	.3872574
#1	.7745113
#2	.7763431
#3	.7704854

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	^ *****	72997.45	11572.09	1980.348	3908.024
Stddev	-----	235.54	22.59	7.986	3.886
%RSD	-----	.3226630	.1952053	.4032500	.0994401
#1	^ -----	73149.45	11580.55	1982.592	3911.668
#2	^ -----	72726.13	11546.49	1971.480	3908.471
#3	^ -----	73116.76	11589.22	1986.971	3903.934

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1107924	-.029082	2.885827	.0308061	.0608309	43.42664
Stddev	.0017403	.001474	.025662	.0032888	.0017955	.37201
%RSD	1.570754	5.069672	.8892402	10.67571	2.951622	.8566388
#1	.1090809	-.030426	2.857671	.0273377	.0598692	43.00126
#2	.1125600	-.027505	2.891907	.0338796	.0597212	43.58758
#3	.1107363	-.029317	2.907902	.0312010	.0629024	43.69108

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2877065	.0042921	.0076725	31.55529	26.31424	F 11.91319
Stddev	.0024256	.0000481	.0001404	.13028	.10626	.11788
%RSD	.8430794	1.120507	1.829248	.4128597	.4038021	.9894947
#1	.2851991	.0042735	.0076672	31.40765	26.20328	11.78292
#2	.2878793	.0042560	.0075349	31.60417	26.41507	11.94412
#3	.2900410	.0043466	.0078154	31.65407	26.32438	12.01251

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.266639	120.1486	.8712623	18.52408	F 11.50748	.0011576
Stddev	.008941	.7345	.0024140	.02487	.11504	.0001034
%RSD	.7058598	.6113147	.2770701	.1342677	.9997098	8.928771
#1	1.276635	119.3151	.8689481	18.49599	11.38010	.0011312
#2	1.259405	120.4295	.8710735	18.54331	11.53853	.0010700
#3	1.263878	120.7011	.8737651	18.53292	11.60381	.0012716

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	31.55221	.2653342	1.947634	9.463292	F 11.93254	.6557734
Stddev	.09093	.0019155	.007655	.116930	.12694	.0027071
%RSD	.2881936	.7219141	.3930438	1.235612	1.063772	.4128043
#1	31.63906	.2634159	1.953521	9.332048	11.78762	.6526932
#2	31.55988	.2672469	1.950400	9.501461	11.98602	.6568525
#3	31.45769	.2653399	1.938980	9.556368	12.02399	.6577744

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0828945	-.004345	1.567960	.0281109	.0213732	37.11711
Stddev	.0043395	.001055	.005914	.0012601	.0010590	.32680
%RSD	5.235001	24.27128	.3771557	4.482618	4.954738	.8804617
#1	.0829448	-.003398	1.574217	.0288413	.0212350	36.75390
#2	.0872086	-.005481	1.562462	.0288356	.0224945	37.21004
#3	.0785300	-.004156	1.567203	.0266559	.0203901	37.38737

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3236039	.0072655	.0152435	16.79408	1.845119	F 8.528199
Stddev	.0037358	.0001004	.0001576	.14261	.004878	.036148
%RSD	1.154428	1.381651	1.033693	.8491620	.2643797	.4238648
#1	.3193097	.0073711	.0154164	16.63639	1.839948	8.566598
#2	.3253956	.0071713	.0151081	16.83186	1.849640	8.494828
#3	.3261063	.0072541	.0152059	16.91400	1.845768	8.523172

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.188620	99.28287	.5477526	9.304021	F 5.133687	.0024866
Stddev	.003884	.75718	.0033695	.057084	.022117	.0002989
%RSD	.3267594	.7626453	.6151461	.6135390	.4308284	12.01900
#1	1.191763	98.52040	.5438663	9.246613	5.157583	.0027981
#2	1.184278	99.29357	.5495344	9.360775	5.113934	.0024595
#3	1.189818	100.0346	.5498571	9.304676	5.129544	.0022022

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	21.31914	.1535716	2.286873	2.813644	2.844984	.5091452
Stddev	.29200	.0016856	.027820	.097168	.015830	.0029872
%RSD	1.369673	1.097565	1.216499	3.453464	.5564237	.5867038
#1	21.55573	.1555132	2.254812	2.734597	2.860855	.5060994
#2	21.40890	.1524833	2.304641	2.784210	2.829195	.5092661
#3	20.99280	.1527184	2.301167	2.922127	2.844902	.5120701

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0513198**	**-.000629**	**.5237729**	**.0194253**	**.0124175**	**35.65171**
Stddev	.0002776	.000603	.0041839	.0054014	.0017374	.10008
%RSD	.5408730	95.80961	.7988036	27.80586	13.99186	.2807132
#1	.0516150	.000023	.5261460	.0147329	.0106559	35.71672
#2	.0510641	-.000744	.5262308	.0253298	.0124669	35.70194
#3	.0512804	-.001166	.5189420	.0182133	.0141298	35.53646

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1136273**	**.0022595**	**.0026221**	**14.58903**	**.2201465**	**1.500838**
Stddev	.0006834	.0000327	.0000880	.03482	.0004002	.004444
%RSD	.6014270	1.448304	3.356305	.2386980	.1817928	.2961277
#1	.1129396	.0022858	.0025690	14.61255	.2197552	1.504223
#2	.1136360	.0022698	.0025736	14.60551	.2205551	1.502485
#3	.1143063	.0022229	.0027237	14.54903	.2201293	1.495805

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1737731**	**109.1590**	**.4931003**	**9.769327**	**.6503931**	**.0008161**
Stddev	.0013167	.2896	.0009593	.040347	.0020698	.0007576
%RSD	.7577109	.2652566	.1945500	.4129951	.3182427	92.82906
#1	.1730721	109.3049	.4931101	9.759104	.6515292	.0008702
#2	.1729553	109.3465	.4940546	9.813801	.6516460	.0015451
#3	.1752920	108.8255	.4921360	9.735074	.6480040	.0000329

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**19.23713**	**.1136370**	**.3775964**	**4.387295**	**1.692565**	**.5406279**
Stddev	.31362	.0010663	.0060613	.051739	.006254	.0009302
%RSD	1.630281	.9383219	1.605240	1.179285	.3694915	.1720684
#1	18.89062	.1124472	.3801262	4.428484	1.696661	.5402514
#2	19.50151	.1139576	.3706800	4.329224	1.695668	.5416874
#3	19.31927	.1145062	.3819831	4.404177	1.685366	.5399449

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0887587**	**-.003815**	**1.256959**	**.0354469**	**.0203947**	**74.63712**
Stddev	.0007121	.002862	.002521	.0023605	.0009010	.11897
%RSD	.8022455	75.02293	.2005629	6.659274	4.417598	.1593932
#1	.0885262	-.001301	1.259207	.0331248	.0206197	74.52924
#2	.0895580	-.006929	1.257438	.0353720	.0211619	74.76471
#3	.0881920	-.003213	1.254233	.0378440	.0194026	74.61743

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2613228**	**.0066585**	**.0106948**	**22.29805**	**4.467221**	F **5.539451**
Stddev	.0009596	.0000694	.0000421	.06419	.006754	.006676
%RSD	.3671993	1.042575	.3934527	.2878868	.1511993	.1205225
#1	.2603182	.0067105	.0106491	22.23430	4.474725	5.542457
#2	.2622299	.0066854	.0107034	22.36267	4.465312	5.544095
#3	.2614202	.0065797	.0107320	22.29717	4.461627	5.531800

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5673546**	**176.8981**	**1.363929**	**30.31978**	**4.299666**	**.0025893**
Stddev	.0030938	.3648	.003202	.14447	.006265	.0000930
%RSD	.5453058	.2062156	.2347744	.4764992	.1457118	3.593048
#1	.5700791	176.5004	1.360610	30.19258	4.301939	.0024865
#2	.5639912	177.2172	1.367000	30.28990	4.304477	.0026677
#3	.5679934	176.9766	1.364175	30.47686	4.292581	.0026136

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**45.33569**	**.2029770**	**2.028322**	**17.08317**	**8.100535**	**.8591426**
Stddev	.29208	.0022968	.012421	.03695	.016852	.0019689
%RSD	.6442507	1.131542	.6123702	.2163046	.2080390	.2291667
#1	45.67292	.2003311	2.013980	17.04053	8.115342	.8569879
#2	45.16379	.2041438	2.035553	17.10311	8.104067	.8608478
#3	45.17034	.2044561	2.035434	17.10587	8.082197	.8595922

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0758936	-.001625	.6278153	.0263370	.0212763	66.94854
Stddev	.0016367	.002706	.0018563	.0036617	.0025127	.35037
%RSD	2.156622	166.4602	.2956676	13.90322	11.80970	.5233429
#1	.0754000	-.000433	.6256744	.0222337	.0241261	66.75774
#2	.0745605	.000279	.6289758	.0275055	.0193796	67.35290
#3	.0777203	-.004723	.6287956	.0292718	.0203234	66.73498

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2335204	.0050290	.0057691	12.08603	10.72783	3.313764
Stddev	.0011446	.0000315	.0000628	.05035	.01388	.004510
%RSD	.4901358	.6269093	1.089241	.4165680	.1293960	.1361042
#1	.2329008	.0050645	.0057082	12.03638	10.71194	3.317409
#2	.2348412	.0050042	.0057654	12.13704	10.73759	3.308720
#3	.2328192	.0050183	.0058337	12.08467	10.73397	3.315163

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4254242	140.8663	1.181699	28.04811	3.049012	.0024285
Stddev	.0023754	.6492	.002807	.07000	.002601	.0003627
%RSD	.5583659	.4608816	.2375662	.2495776	.0852969	14.93592
#1	.4275602	140.4035	1.180106	27.99312	3.046564	.0020204
#2	.4258464	141.6084	1.184940	28.12691	3.048731	.0027141
#3	.4228659	140.5869	1.180051	28.02430	3.051742	.0025510

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	43.36818	.1982497	1.202322	15.04062	3.986184	.6879979
Stddev	.26469	.0028034	.007570	.09411	.006360	.0017970
%RSD	.6103430	1.414073	.6295914	.6257077	.1595498	.2611967
#1	43.62252	.1950230	1.194382	14.96563	3.992684	.6862402
#2	43.38781	.1996390	1.203126	15.14622	3.979975	.6898318
#3	43.09422	.2000872	1.209458	15.01000	3.985893	.6879216

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0160958**	**-.001158**	**.2745051**	**.0097443**	**.0045347**	**28.97688**
Stddev	.0024044	.001497	.0015219	.0021515	.0009838	.14580
%RSD	14.93806	129.2583	.5544122	22.08002	21.69417	.5031488
#1	.0154435	.000526	.2751680	.0118921	.0038285	28.95353
#2	.0140848	-.001663	.2727642	.0075890	.0041172	28.84416
#3	.0187590	-.002338	.2755832	.0097519	.0056583	29.13294

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3099365**	**.0214913**	**.0092636**	**30.42619**	**.0915794**	**.1703208**
Stddev	.0008669	.0001238	.0001147	.14954	.0000973	.0005823
%RSD	.2796935	.5758313	1.237970	.4914734	.1062642	.3418634
#1	.3100586	.0213704	.0093300	30.48986	.0916015	.1705626
#2	.3090151	.0216178	.0091312	30.25535	.0914729	.1696565
#3	.3107359	.0214857	.0093296	30.53334	.0916637	.1707431

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1753573**	**51.50031**	**1.085514**	**14.61912**	**.2456831**	**.0003314**
Stddev	.0004585	.26098	.006890	.06058	.0006307	.0001290
%RSD	.2614548	.5067447	.6347637	.4144023	.2567246	38.92772
#1	.1756491	51.56146	1.090492	14.67468	.2462978	.0002211
#2	.1748289	51.21419	1.077649	14.55453	.2450375	.0002997
#3	.1755940	51.72528	1.088400	14.62815	.2457141	.0004732

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**48.64287**	**.0569178**	**.4519639**	**5.467896**	**6.042413**	**.2529071**
Stddev	.12353	.0004758	.0022605	.029247	.017002	.0012609
%RSD	.2539465	.8359001	.5001450	.5348868	.2813851	.4985556
#1	48.63009	.0564963	.4522977	5.468482	6.061728	.2531911
#2	48.52622	.0568236	.4495550	5.438361	6.035799	.2515284
#3	48.77228	.0574337	.4540389	5.496846	6.029710	.2540018

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0762684**	**.0014393**	**.7580748**	**.0253209**	**.0059362**	**25.63936**
Stddev	.0003441	.0019059	.0011665	.0013653	.0008527	.12040
%RSD	.4511400	132.4246	.1538710	5.391856	14.36538	.4695900
#1	.0762097	.0031943	.7589986	.0238890	.0050179	25.77780
#2	.0759575	-.000588	.7567640	.0254657	.0067031	25.58118
#3	.0766381	.001712	.7584617	.0266080	.0060875	25.55909

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5175466**	**.0176600**	**.0075058**	**16.24432**	**.1707346**	**.2458559**
Stddev	.0043935	.0000587	.0000808	.05212	.0005790	.0003321
%RSD	.8489126	.3322518	1.076404	.3208623	.3391086	.1350824
#1	.5225101	.0175943	.0075757	16.30390	.1712429	.2457112
#2	.5159734	.0176787	.0074173	16.22187	.1708566	.2462358
#3	.5141563	.0177071	.0075244	16.20718	.1701044	.2456207

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2430461**	**51.17148**	**.3841331**	**11.66616**	**.2569313**	**.0002890**
Stddev	.0034915	.25146	.0042861	.05242	.0006564	.0000772
%RSD	1.436556	.4914081	1.115778	.4493729	.2554651	26.70928
#1	.2463117	51.46150	.3889742	11.71533	.2563661	.0003243
#2	.2434610	51.01429	.3808218	11.67216	.2567767	.0003422
#3	.2393658	51.03864	.3826034	11.61100	.2576512	.0002005

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**35.52005**	**.0858408**	**.5413282**	**5.259314**	**4.930691**	**.2647862**
Stddev	.26413	.0013324	.0051231	.055584	.003098	.0013080
%RSD	.7436166	1.552186	.9463965	1.056868	.0628361	.4939699
#1	35.57500	.0870979	.5470885	5.306339	4.927504	.2661400
#2	35.75239	.0844441	.5396141	5.273631	4.933693	.2635294
#3	35.23277	.0859805	.5372818	5.197972	4.930875	.2646891

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0133872	F 41.57838	4.463615	.0190624	.7151061	.0185252
Stddev	.0002723	.04867	.015891	.0009659	.0037486	.0010561
%RSD	2.034186	.1170488	.3560074	5.066846	.5242041	5.700845
#1	.0135658	41.52270	4.474700	.0194581	.7183365	.0196899
#2	.0130738	41.59964	4.470737	.0197675	.7159861	.0182559
#3	.0135220	41.61280	4.445410	.0179615	.7109958	.0176299

Elem	Sr4077
Units	ppm
Avg	.3102727
Stddev	.0023469
%RSD	.7564062
#1	.3129150
#2	.3094729
#3	.3084303

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4299.088	91831.87	14424.83	2956.707	4243.047
Stddev	9.293	198.02	29.94	6.038	3.422
%RSD	.2161527	.2156326	.2075544	.2042146	.0806404
#1	4306.754	91612.45	14457.89	2950.047	4245.702
#2	4301.757	91997.29	14417.05	2958.251	4244.254
#3	4288.753	91885.87	14399.55	2961.823	4239.186

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0769253**	**.0034966**	**.7559648**	**.0260618**	**.0054233**	**25.82483**
Stddev	.0017997	.0013330	.0027344	.0022606	.0008029	.16673
%RSD	2.339519	38.12312	.3617148	8.673925	14.80505	.6456195
#1	.0752774	.0019875	.7577560	.0271328	.0048627	25.66399
#2	.0766527	.0045135	.7528173	.0234647	.0063431	25.99688
#3	.0788457	.0039889	.7573210	.0275878	.0050641	25.81362

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5188818**	**.0175681**	**.0075353**	**16.22423**	**.1699403**	**.2459365**
Stddev	.0030683	.0000584	.0000648	.05521	.0001582	.0003033
%RSD	.5913275	.3321896	.8604947	.3403214	.0931097	.1233061
#1	.5162157	.0175712	.0074900	16.19398	.1700372	.2457608
#2	.5222356	.0175082	.0076096	16.28796	.1697577	.2457621
#3	.5181942	.0176248	.0075064	16.19075	.1700259	.2462867

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2345918**	**51.19346**	**.3845146**	**11.69990**	**.2573014**	**.0004577**
Stddev	.0022899	.25175	.0003344	.05657	.0002623	.0001119
%RSD	.9761364	.4917557	.0869709	.4834659	.1019328	24.45034
#1	.2340509	50.91144	.3849002	11.69141	.2575070	.0004957
#2	.2371038	51.39548	.3843400	11.76023	.2570060	.0005458
#3	.2326208	51.27348	.3843037	11.64806	.2573912	.0003318

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**35.51939**	**.0857176**	**.5396046**	**5.271787**	**4.909200**	**.2650126**
Stddev	.30735	.0006170	.0026315	.024207	.016950	.0014732
%RSD	.8653016	.7198190	.4876634	.4591744	.3452654	.5559102
#1	35.31229	.0854441	.5374666	5.247901	4.901627	.2634214
#2	35.87253	.0852847	.5425434	5.296302	4.897357	.2663293
#3	35.37335	.0864241	.5388037	5.271156	4.928616	.2652871

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0132973	F 41.50570	5.006735	.0194143	.7288295	.0189314
Stddev	.0001172	.12780	.025866	.0001986	.0055872	.0004779
%RSD	.8816883	.3079102	.5166260	1.022833	.7666006	2.524584
#1	.0131745	41.47584	4.978330	.0192383	.7239565	.0183803
#2	.0133095	41.39547	5.028934	.0196296	.7349276	.0192325
#3	.0134080	41.64578	5.012940	.0193751	.7276043	.0191814

Elem	Sr4077
Units	ppm
Avg	.3106060
Stddev	.0021805
%RSD	.7020182
#1	.3087406
#2	.3130032
#3	.3100741

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4297.715	91895.71	14543.53	2975.262	4245.104
Stddev	22.746	121.79	76.07	11.557	17.798
%RSD	.5292672	.1325313	.5230617	.3884292	.4192660
#1	4301.877	91766.15	14484.19	2963.846	4246.356
#2	4318.093	92007.87	14629.29	2974.987	4262.243
#3	4273.175	91913.10	14517.12	2986.954	4226.712

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0183215	.0016233	.1562835	.0066361	.0021017	5.813757	.1135360
Stddev	.0016658	.0012309	.0016812	.0012581	.0007304	.004477	.0010928
%RSD	9.092208	75.82618	1.075719	18.95800	34.75314	.0770033	.9624681
#1	.0173967	.0006640	.1563557	.0074854	.0029397	5.816756	.1122743
#2	.0173234	.0030113	.1545674	.0072321	.0017649	5.815905	.1141563
#3	.0202446	.0011947	.1579274	.0051908	.0016004	5.808611	.1141775

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0043476	.0014586	3.709881	.0404108	.0493884	.0591074	11.75691
Stddev	.0000625	.0000938	.012976	.0002464	.0001076	.0007665	.02499
%RSD	1.436414	6.433259	.3497700	.6097962	.2178565	1.296833	.2125856
#1	.0043659	.0015576	3.711430	.0404217	.0495123	.0582236	11.73073
#2	.0042780	.0013710	3.696200	.0406516	.0493191	.0595919	11.78052
#3	.0043988	.0014471	3.722013	.0401591	.0493338	.0595065	11.75949

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0877011	2.638854	.0516309	-.000127	8.343853	.0202908	.1239131
Stddev	.0001750	.012127	.0001960	.000304	.250434	.0012497	.0018135
%RSD	.1994819	.4595699	.3796430	239.2859	3.001417	6.159139	1.463541
#1	.0875192	2.650525	.0516110	.000087	8.238250	.0214558	.1259047
#2	.0878682	2.639721	.0518362	-.000475	8.629792	.0204457	.1234778
#3	.0877159	2.626317	.0514457	.000007	8.163517	.0189708	.1223569

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.072871	.9993895	.0600495	.0031898	8.473208	1.135413	.0044953
Stddev	.020834	.0050438	.0002485	.0001371	.008380	.000924	.0003773
%RSD	1.941883	.5046902	.4137929	4.298296	.0988996	.0813666	8.393869
#1	1.066986	.9937930	.0600688	.0030322	8.464069	1.134637	.0044307
#2	1.055613	1.000791	.0597919	.0032555	8.475024	1.136435	.0041545
#3	1.096015	1.003584	.0602878	.0032818	8.480531	1.135168	.0049008

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

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

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

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1339277**	**.1026208**	**.7745042**	**.1661957**	**.1455581**	**28.41242**
Stddev	.0005221	.0007588	.0021186	.0003630	.0012662	.01854
%RSD	.3898556	.7393905	.2735373	.2184179	.8698824	.0652699
#1	.1342806	.1034471	.7754324	.1657783	.1441555	28.42170
#2	.1333280	.1024601	.7760002	.1663714	.1466167	28.42450
#3	.1341747	.1019553	.7720799	.1664375	.1459023	28.39107

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**3.637436**	**.0950733**	**.1017736**	**16.25911**	**.5183211**	**1.191218**
Stddev	.013423	.0006535	.0000187	.03734	.0025162	.001130
%RSD	.3690368	.6873190	.0183867	.2296858	.4854481	.0948541
#1	3.632190	.0948465	.1017729	16.23597	.5183533	1.191915
#2	3.652690	.0945634	.1017927	16.23917	.5157890	1.191824
#3	3.627428	.0958099	.1017553	16.30219	.5208210	1.189914

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6428840**	**51.92037**	**1.161244**	**11.59006**	**1.210144**	**.0591598**
Stddev	.0008985	.03235	.002554	.07743	.001199	.0001947
%RSD	.1397567	.0622995	.2199118	.6680842	.0990585	.3290638
#1	.6438478	51.89672	1.158306	11.55135	1.210680	.0593709
#2	.6427345	51.90717	1.162927	11.53962	1.210981	.0589874
#3	.6420696	51.95723	1.162499	11.67921	1.208771	.0591212

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**37.12641**	**.9004768**	**1.288618**	**5.173423**	**4.876510**	**.2687201**
Stddev	.11082	.0024242	.006814	.017620	.015382	.0002880
%RSD	.2984939	.2692109	.5287502	.3405900	.3154389	.1071928
#1	36.99854	.9032042	1.281188	5.165830	4.858784	.2685739
#2	37.19464	.8996586	1.294575	5.193566	4.886359	.2690520
#3	37.18604	.8985676	1.290091	5.160871	4.884385	.2685346

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0126365	F 40.32393	5.901444	.0193608	.7599771	.0191091
Stddev	.0006480	.04079	.043884	.0006275	.0024225	.0007701
%RSD	5.128317	.1011680	.7436075	3.241307	.3187579	4.030094
#1	.0119129	40.28034	5.850959	.0193019	.7614311	.0182484
#2	.0128332	40.36118	5.922914	.0187648	.7571806	.0193456
#3	.0131634	40.33028	5.930459	.0200157	.7613196	.0197332

Elem	Sr4077
Units	ppm
Avg	.3072861
Stddev	.0009980
%RSD	.3247906
#1	.3071294
#2	.3083533
#3	.3063757

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4389.354	92517.36	14270.50	3044.232	4333.650
Stddev	2.706	608.22	100.87	21.438	.575
%RSD	.0616425	.6574097	.7068162	.7042109	.0132676
#1	4392.124	92848.01	14316.63	3065.448	4334.288
#2	4386.718	92888.64	14340.05	3044.670	4333.490
#3	4389.222	91815.44	14154.81	3022.579	4333.172

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1371115**	**-.007159**	**.9798147**	**.0604072**	**.0324829**	**26.87135**
Stddev	.0033768	.001783	.0024698	.0044332	.0023147	.15295
%RSD	2.462828	24.90229	.2520722	7.338834	7.125984	.5691854
#1	.1407689	-.009010	.9806871	.0602477	.0324011	27.03226
#2	.1364533	-.007013	.9770270	.0649180	.0302102	26.85393
#3	.1341122	-.005454	.9817299	.0560559	.0348375	26.72786

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7460745**	**.0041471**	**.0255657**	**37.97886**	**.1383036**	**.0706457**
Stddev	.0054043	.0000761	.0000943	.11119	.0003427	.0001186
%RSD	.7243703	1.834464	.3687755	.2927631	.2477607	.1678524
#1	.7518600	.0041157	.0256054	38.10275	.1385910	.0707770
#2	.7452072	.0042338	.0254580	37.94606	.1379244	.0705463
#3	.7411562	.0040917	.0256336	37.88775	.1383954	.0706140

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4005731**	**359.4077**	**1.228077**	**23.65972**	**.2272666**	**-.000793**
Stddev	.0027952	1.4378	.002976	.13693	.0006168	.000662
%RSD	.6978016	.4000588	.2423409	.5787484	.2713881	83.42702
#1	.3999063	360.9631	1.230855	23.80759	.2279713	-.000136
#2	.4036415	359.1329	1.228440	23.63427	.2268248	-.001459
#3	.3981716	358.1271	1.224936	23.53731	.2270037	-.000784

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**38.41468**	**.1215893**	**4.436435**	**6.627691**	F **19.34846**	**1.578505**
Stddev	.27939	.0012165	.015546	.072078	.03699	.008465
%RSD	.7273124	1.000511	.3504130	1.087531	.1911824	.5362975
#1	38.73615	.1213478	4.454057	6.702382	19.37959	1.587826
#2	38.27751	.1205117	4.430583	6.622146	19.35822	1.576397
#3	38.23039	.1229085	4.424664	6.558545	19.30757	1.571293

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0136625	F 74.48428	4.926083	3.228632	.7755144	.0360083
Stddev	.0002207	.10799	.003575	.002861	.0043932	.0010525
%RSD	1.615343	.1449831	.0725773	.0886161	.5664944	2.922964
#1	.0139128	74.60180	4.926127	3.227735	.7759490	.0372227
#2	.0134958	74.46164	4.922486	3.226327	.7796742	.0353599
#3	.0135788	74.38941	4.929636	3.231834	.7709200	.0354423

Elem	Sr4077
Units	ppm
Avg	.3096480
Stddev	.0019452
%RSD	.6282128
#1	.3117635
#2	.3092441
#3	.3079364

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3706.723	80214.10	12354.02	2611.569	4112.473
Stddev	7.030	94.78	29.21	4.703	4.347
%RSD	.1896587	.1181621	.2364489	.1800807	.1057007
#1	3714.629	80108.69	12386.46	2606.182	4107.681
#2	3701.173	80241.28	12345.81	2613.673	4113.576
#3	3704.368	80292.32	12329.80	2614.853	4116.163

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.008648**	**4.621067**	**24.30442**	**4.836545**	**4.887723**	**403.1535**
Stddev	.015598	.031475	.06413	.019075	.021906	3.2345
%RSD	.3114301	.6811128	.2638621	.3943887	.4481851	.8023036
#1	4.993762	4.592299	24.25520	4.817788	4.870404	400.7363
#2	5.007309	4.616218	24.28111	4.835926	4.880416	406.8278
#3	5.024872	4.654685	24.37694	4.855923	4.912348	401.8962

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.925218**	**.4788448**	**2.420897**	**405.8619**	**15.34153**	**2.418212**
Stddev	.163891	.0015954	.007264	1.3479	.05483	.006523
%RSD	1.651258	.3331801	.3000573	.3321087	.3574173	.2697247
#1	9.736040	.4771928	2.414577	404.8210	15.29878	2.413479
#2	10.01544	.4803769	2.419280	407.3845	15.40335	2.415505
#3	10.02417	.4789647	2.428833	405.3803	15.32247	2.425652

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**14.45309**	**407.7298**	**14.80126**	**398.7629**	**2.415123**	**1.254635**
Stddev	.02856	.7187	.03126	.4072	.006429	.001621
%RSD	.1975909	.1762768	.2112248	.1021050	.2661829	.1292059
#1	14.48529	408.2175	14.83732	399.1403	2.410601	1.256356
#2	14.43081	408.0674	14.78478	398.8169	2.412286	1.254413
#3	14.44317	406.9044	14.78169	398.3314	2.422482	1.253137

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**377.2276**	**2.390490**	**15.06274**	**154.6102**	**4.943449**	F **5.837398**
Stddev	1.2773	.005794	.05540	.3519	.015648	.001737
%RSD	.3385919	.2423909	.3677641	.2275777	.3165407	.0297514
#1	378.5058	2.396589	15.08724	154.9100	4.925919	5.838011
#2	375.9513	2.385057	15.10167	154.6978	4.956008	5.835439
#3	377.2258	2.389825	14.99932	154.2228	4.948419	5.838746

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.792162**	**4.890443**	F **2.518286**	**4.891494**	**4.833492**	**5.075464**
Stddev	.021531	.003443	.003883	.007883	.006526	.019360
%RSD	.4492898	.0704117	.1541949	.1611537	.1350224	.3814455
#1	4.769884	4.886916	2.522477	4.885724	4.839958	5.097580
#2	4.793742	4.890619	2.514811	4.888282	4.826907	5.067227
#3	4.812859	4.893796	2.517571	4.900476	4.833610	5.061584

Elem	Sr4077
Units	ppm
Avg	**4.695748**
Stddev	.039090
%RSD	.8324467
#1	4.705760
#2	4.652626
#3	4.728858

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2893.928**	**63732.11**	**10662.11**	**2048.358**	**3336.536**
Stddev	9.374	192.38	28.73	12.921	7.934
%RSD	.3239248	.3018511	.2694833	.6308126	.2378009
#1	2901.086	63840.10	10691.36	2047.267	3338.315
#2	2897.382	63510.00	10633.92	2036.017	3343.430
#3	2883.317	63846.22	10661.04	2061.790	3327.863

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001181**	**.0006702**	**.0022601**	**-.000047**	**-.000924**	**.0108340**	**-.000231**
Stddev	.001676	.0009652	.0006161	.000581	.001336	.0059688	.000665
%RSD	141.8848	144.0126	27.26032	1244.158	144.4599	55.09291	288.1232
#1	-.001970	-.000311	.0015743	.000374	-.001860	.0113365	-.000280
#2	-.002317	.000703	.0027670	.000196	-.001518	.0165357	-.000870
#3	.000744	.001619	.0024388	-.000710	.000605	.0046299	.000458

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000446**	**.0000444**	**.0064767**	**.0004219**	**-.000251**	**-.000828**	**.0165488**
Stddev	.0000260	.0001009	.0085163	.0002064	.000140	.001304	.0058505
%RSD	58.29272	227.0753	131.4909	48.92167	55.80852	157.4397	35.35283
#1	.0000700	.0000689	.0007217	.0003322	-.000141	-.000743	.0135583
#2	.0000456	-.000066	.0024486	.0002755	-.000408	.000431	.0127981
#3	.0000181	.000131	.0162598	.0006580	-.000203	-.002172	.0232901

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001883**	**-.001827**	**-.000154**	**-.000262**	**.2779442**	**-.000544**	**.0008709**
Stddev	.0000940	.010191	.000307	.000271	.4246571	.001064	.0014574
%RSD	49.91652	557.7130	199.5250	103.5411	152.7850	195.6227	167.3473
#1	.0002043	-.005142	-.000475	-.000474	-.107335	.000683	.0024685
#2	.0002733	-.009948	.000135	.000043	.207899	-.001107	.0005297
#3	.0000873	.009608	-.000121	-.000354	.733269	-.001207	-.000386

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0812839**	**.0006881**	**.0053732**	**.0006957**	**.0073695**	**-.001187**	**.0007498**
Stddev	.0595517	.0013600	.0005885	.0003965	.0030854	.000712	.0005698
%RSD	73.26387	197.6434	10.95346	56.99160	41.86748	59.97173	75.99646
#1	.0507496	.0001777	.0059371	.0003669	.0103224	-.001505	.0013722
#2	.1499097	.0022295	.0047627	.0005843	.0041667	-.001685	.0006235
#3	.0431923	-.000343	.0054198	.0011361	.0076195	-.000372	.0002538

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

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

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0011127	.0001217	.0001065
Stddev	.0006691	.0004483	.0000619
%RSD	60.13703	368.2657	58.06954
#1	.0015244	-.000381	.0001025
#2	.0003406	.000481	.0000468
#3	.0014731	.000266	.0001703

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3714.578	76897.24	11513.22	2536.835	4685.209
Stddev	2.806	225.48	49.09	17.471	1.730
%RSD	.0755477	.2932185	.4263627	.6886962	.0369331
#1	3714.691	76981.56	11536.67	2524.439	4687.183
#2	3717.326	76641.76	11546.19	2529.249	4683.955
#3	3711.717	77068.40	11456.81	2556.817	4684.490

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1151-12 Acquired: 1/27/2025 19:30:26 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0B01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0481784**	**.0001711**	**.4414277**	**.0162768**	**.0095664**	**47.48957**
Stddev	.0015515	.0028367	.0052274	.0016489	.0007393	.28046
%RSD	3.220302	1658.153	1.184200	10.13054	7.727591	.5905789
#1	.0487045	.0029154	.4353916	.0180842	.0091402	47.80597
#2	.0493985	.0003476	.4444499	.0158914	.0091390	47.39115
#3	.0464323	-.002750	.4444415	.0148546	.0104200	47.27157

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2283234**	**.0026150**	**.0046276**	**7.044954**	**.2454005**	**.0733015**
Stddev	.0018475	.0000143	.0001358	.035080	.0012304	.0011477
%RSD	.8091725	.5483212	2.934788	.4979445	.5013624	1.565776
#1	.2302813	.0026244	.0044915	7.067083	.2466800	.0719829
#2	.2280782	.0026220	.0046283	7.063272	.2452955	.0740765
#3	.2266108	.0025985	.0047631	7.004507	.2442260	.0738450

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3810478**	**92.77312**	**.4424163**	**13.60289**	**.1201436**	**.0021654**
Stddev	.0021223	.31404	.0029401	.06869	.0010853	.0002874
%RSD	.5569621	.3385039	.6645615	.5049917	.9033661	13.27329
#1	.3822765	93.12485	.4457496	13.66109	.1188918	.0024660
#2	.3822697	92.67365	.4413076	13.62045	.1207177	.0021368
#3	.3785972	92.52086	.4401917	13.52712	.1208214	.0018933

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**44.38362**	**.1537935**	**.8084750**	**7.374062**	**2.563812**	**.4561118**
Stddev	.15450	.0014903	.0049510	.053506	.031765	.0012017
%RSD	.3480921	.9690104	.6123918	.7255997	1.238977	.2634767
#1	44.32550	.1520926	.8122138	7.426948	2.527207	.4573712
#2	44.55875	.1544183	.8103510	7.375280	2.580087	.4559870
#3	44.26662	.1548697	.8028601	7.319957	2.584141	.4549774

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1151-12 Acquired: 1/27/2025 19:30:26 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MC0B01 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0187871	F 62.05840	5.243198	.0261074	.8123913	.0660628
Stddev	.0002450	.80515	.017791	.0016757	.0007545	.0016896
%RSD	1.304301	1.297401	.3393165	6.418428	.0928746	2.557632
#1	.0185912	61.13642	5.246664	.0247638	.8117282	.0677864
#2	.0187083	62.41579	5.259000	.0255734	.8132122	.0659927
#3	.0190619	62.62298	5.223929	.0279850	.8122334	.0644093

Elem	Sr4077
Units	ppm
Avg	.1300828
Stddev	.0012795
%RSD	.9836061
#1	.1313735
#2	.1300601
#3	.1288148

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3730.302	79256.60	12367.48	2600.274	4198.203
Stddev	43.358	146.27	38.70	6.294	49.581
%RSD	1.162327	.1845480	.3129358	.2420669	1.181015
#1	3779.364	79088.28	12410.87	2605.489	4253.171
#2	3714.405	79328.70	12355.06	2602.052	4184.583
#3	3697.135	79352.81	12336.51	2593.282	4156.855

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1163-01 Acquired: 1/27/2025 19:34:22 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ME2946 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1042699	-.128049	5.508688	.1690843	.1851631	68.79401
Stddev	.0037504	.003811	.012274	.0110686	.0048023	.39139
%RSD	3.596822	2.976031	.2228044	6.546204	2.593569	.5689372
#1	.1077011	-.124239	5.502457	.1677601	.1815522	69.24580
#2	.1048423	-.131861	5.500780	.1807555	.1833239	68.57832
#3	.1002661	-.128047	5.522827	.1587374	.1906132	68.55790

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7791559	.0047180	.0911256	677.2669	4.848385	.1388398
Stddev	.0039225	.0003337	.0004646	2.6763	.005011	.0007624
%RSD	.5034248	7.072574	.5098592	.3951614	.1033565	.5491052
#1	.7836829	.0043458	.0911756	675.3081	4.853986	.1385539
#2	.7767695	.0048177	.0906381	676.1763	4.846844	.1397038
#3	.7770152	.0049905	.0915632	680.3163	4.844326	.1382617

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5131712	F 1998.852	F 75.56418	169.1272	2.189279	^ *****
Stddev	.0073478	13.100	.42186	.4345	.001411	-----
%RSD	1.431831	.6553534	.5582758	.2568861	.0644404	-----
#1	.5083219	1986.084	75.42738	169.4845	2.187811	^ -----
#2	.5095667	2012.260	76.03746	169.2536	2.189402	^ -----
#3	.5216252	1998.211	75.22770	168.6436	2.190625	^ -----

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.800338	.5094739	15.70207	7.118252	7.612564	8.337842
Stddev	.412073	.0027775	.06932	.042111	.017976	.056806
%RSD	22.88867	.5451719	.4414425	.5915941	.2361363	.6813015
#1	1.559147	.5086149	15.73225	7.146568	7.596877	8.285168
#2	2.276144	.5072273	15.75119	7.069859	7.608637	8.398031
#3	1.565723	.5125794	15.62278	7.138328	7.632180	8.330325

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1163-01 Acquired: 1/27/2025 19:34:22 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ME2946 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0971056	F 11.99948	9.507232	.1100535	4.178698	.1402231
Stddev	.0005909	.00962	.021608	.0011026	.005831	.0004385
%RSD	.6085168	.0801575	.2272805	1.001898	.1395367	.3127227
#1	.0964664	11.98865	9.487661	.1109137	4.173356	.1405902
#2	.0976320	12.00276	9.530421	.1104363	4.184918	.1397375
#3	.0972185	12.00703	9.503614	.1088105	4.177819	.1403417

Elem	Sr4077
Units	ppm
Avg	.6783806
Stddev	.0042597
%RSD	.6279196
#1	.6830886
#2	.6772598
#3	.6747933

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2993.173	67276.99	10844.95	2063.405	3458.375
Stddev	10.005	100.90	49.84	8.586	6.319
%RSD	.3342743	.1499830	.4595752	.4161109	.1827040
#1	2992.119	67223.59	10900.13	2059.234	3453.367
#2	3003.664	67214.00	10803.20	2057.702	3465.474
#3	2983.736	67393.37	10831.53	2073.280	3456.284

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1163-02 Acquired: 1/27/2025 19:38:38 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ME2947 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0746377**	**-.019411**	**.9659339**	**.0552717**	**.0462035**	**80.69071**
Stddev	.0041640	.006090	.0011769	.0065508	.0017436	.75654
%RSD	5.578904	31.37407	.1218442	11.85203	3.773694	.9375797
#1	.0698296	-.025314	.9645757	.0605889	.0481813	81.15866
#2	.0770268	-.013149	.9666525	.0479538	.0448884	79.81789
#3	.0770566	-.019771	.9665736	.0572723	.0455409	81.09557

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6574066**	**.0038659**	**.0193801**	F **888.8159**	**5.372557**	**.1395831**
Stddev	.0060449	.0000342	.0000468	3.5987	.027685	.0010423
%RSD	.9195073	.8852256	.2416483	.4048904	.5152961	.7467113
#1	.6621622	.0038567	.0194067	886.2616	5.380052	.1385633
#2	.6506040	.0038373	.0193261	887.2545	5.341897	.1395395
#3	.6594537	.0039038	.0194077	892.9316	5.395723	.1406465

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2664803**	**489.5933**	**22.44953**	**216.7917**	**2.819015**	**-.002660**
Stddev	.0035586	2.0576	.17177	1.4597	.001983	.000680
%RSD	1.335408	.4202713	.7651325	.6733084	.0703374	25.56424
#1	.2682367	489.4280	22.55911	217.8371	2.818422	-.002778
#2	.2688192	487.6232	22.25157	215.1240	2.817397	-.001928
#3	.2623850	491.7285	22.53792	217.4139	2.821227	-.003273

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.9485598**	**.2742583**	**2.660203**	**11.70779**	**5.400723**	**2.165908**
Stddev	.2480010	.0005586	.016272	.17444	.022970	.010482
%RSD	26.14500	.2036815	.6116943	1.489935	.4253216	.4839405
#1	.6855989	.2748497	2.672985	11.79339	5.412910	2.165555
#2	.9818407	.2741857	2.641885	11.50709	5.374228	2.155607
#3	1.178240	.2737395	2.665739	11.82289	5.415033	2.176562

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1163-02 Acquired: 1/27/2025 19:38:38 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ME2947 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0980913	7.120568	6.392913	.0297586	1.776980	.1670473
Stddev	.0004708	.028442	.028664	.0009162	.006395	.0015550
%RSD	.4799404	.3994309	.4483762	3.078830	.3598827	.9308491
#1	.0981142	7.122833	6.371534	.0301299	1.783682	.1677550
#2	.0976094	7.091062	6.425485	.0304308	1.776311	.1652644
#3	.0985501	7.147810	6.381719	.0287150	1.770945	.1681225

Elem	Sr4077
Units	ppm
Avg	1.185499
Stddev	.002826
%RSD	.2384020
#1	1.182490
#2	1.185910
#3	1.188098

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3259.482	72510.08	11757.33	2319.022	3405.213
Stddev	5.643	421.63	45.08	10.935	3.857
%RSD	.1731313	.5814722	.3833982	.4715508	.1132543
#1	3260.247	72314.96	11770.36	2324.782	3401.526
#2	3264.703	72993.92	11707.18	2325.873	3409.220
#3	3253.495	72221.35	11794.47	2306.410	3404.893

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1163-03 Acquired: 1/27/2025 19:42:55 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ME2947D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0769327**	**-.020059**	**.9686592**	**.0548029**	**.0462518**	**81.68234**
Stddev	.0037242	.000774	.0043947	.0021400	.0022148	.33272
%RSD	4.840912	3.859237	.4536935	3.904941	4.788570	.4073360
#1	.0797049	-.020923	.9680526	.0524610	.0487239	82.05507
#2	.0783937	-.019428	.9645993	.0552910	.0455832	81.41531
#3	.0726994	-.019827	.9733257	.0566567	.0444484	81.57664

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6740935**	**.0038298**	**.0196740**	F **895.8859**	**5.360172**	**.1397466**
Stddev	.0030297	.0001559	.0000898	5.5837	.012592	.0003760
%RSD	.4494519	4.071562	.4562306	.6232631	.2349268	.2690542
#1	.6774047	.0038619	.0195715	901.8276	5.368412	.1393154
#2	.6714601	.0039671	.0197385	895.0829	5.366427	.1400062
#3	.6734157	.0036603	.0197122	890.7471	5.345676	.1399181

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2740179**	**493.7014**	**22.82466**	**220.0438**	**2.826918**	**.0001274**
Stddev	.0030252	1.3701	.07257	.1923	.003396	.0012297
%RSD	1.104028	.2775258	.3179380	.0873783	.1201211	965.3388
#1	.2715808	495.0599	22.90843	220.2656	2.823022	.0000110
#2	.2730692	492.3199	22.78088	219.9408	2.828485	-.001040
#3	.2774038	493.7244	22.78467	219.9250	2.829247	.001411

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7356500**	**.2810744**	**2.728869**	**11.76513**	**5.410554**	**2.180721**
Stddev	.1182567	.0022924	.005954	.03565	.015637	.007281
%RSD	16.07513	.8155796	.2181680	.3030165	.2890101	.3338597
#1	.7012322	.2835127	2.733166	11.80505	5.394652	2.188019
#2	.8672975	.2789631	2.722073	11.75385	5.411097	2.173458
#3	.6384202	.2807472	2.731367	11.73648	5.425912	2.180685

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1163-03 Acquired: 1/27/2025 19:42:55 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ME2947D Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0982520**	**7.122397**	**6.560362**	**.0304705**	**1.828748**	**.1719432**
Stddev	.0001389	.009543	.038056	.0004873	.015411	.0022100
%RSD	.1414065	.1339820	.5800959	1.599290	.8427212	1.285325
#1	.0980945	7.116597	6.588005	.0304214	1.836887	.1743799
#2	.0983040	7.117184	6.516957	.0300095	1.810974	.1700682
#3	.0983574	7.133411	6.576124	.0309805	1.838384	.1713815

Elem	Sr4077
Units	ppm
Avg	**1.205794**
Stddev	.012726
%RSD	1.055429
#1	1.201805
#2	1.220037
#3	1.195540

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3262.477**	**73848.84**	**11850.54**	**2320.521**	**3404.496**
Stddev	2.685	297.41	24.27	8.136	3.603
%RSD	.0823037	.4027260	.2048190	.3506166	.1058365
#1	3261.046	73691.28	11844.31	2323.369	3408.129
#2	3260.810	73663.35	11877.32	2311.343	3404.435
#3	3265.574	74191.87	11830.00	2326.850	3400.923

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1163-02LX5 Acquired: 1/27/2025 19:47:14 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ME2947L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0174166	-.001518	.2072335	.0188841	.0081968	16.87573	.1422591
Stddev	.0010509	.001315	.0009951	.0018594	.0020189	.10704	.0007300
%RSD	6.033841	86.65222	.4801851	9.846405	24.63000	.6342771	.5131326
#1	.0167299	-.002903	.2080553	.0170868	.0089697	16.85027	.1429242
#2	.0168935	-.000286	.2075180	.0208000	.0097150	16.99321	.1423750
#3	.0186263	-.001364	.2061271	.0187656	.0059057	16.78373	.1414781

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008057	.0032437	199.8521	1.242110	.0283770	.0557774	112.4404
Stddev	.0000691	.0001113	1.1903	.002266	.0005792	.0019775	.4690
%RSD	8.576109	3.430485	.5956012	.1824640	2.041061	3.545368	.4171390
#1	.0008854	.0033434	199.4207	1.242514	.0280221	.0577580	112.3135
#2	.0007684	.0031237	201.1980	1.244147	.0280636	.0538030	112.9598
#3	.0007632	.0032640	198.9376	1.239668	.0290454	.0557712	112.0478

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.084091	47.13093	.5981617	.0007790	-.220285	.0635057	.5701035
Stddev	.039066	.36333	.0046819	.0003898	.101023	.0009757	.0052029
%RSD	.7683942	.7708941	.7827130	50.03782	45.86042	1.536386	.9126302
#1	5.080053	46.90692	.5959785	.0003298	-.143893	.0638579	.5743101
#2	5.125020	47.55014	.5949701	.0009789	-.334828	.0624028	.5717149
#3	5.047202	46.93574	.6035364	.0010282	-.182133	.0642564	.5642856

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.407741	1.062993	.5002345	.0213576	1.388442	1.433677	.0033651
Stddev	.068251	.009125	.0018122	.0005682	.007950	.007528	.0008082
%RSD	2.834634	.8584655	.3622787	2.660483	.5725837	.5251018	24.01716
#1	2.441931	1.058908	.5000832	.0207893	1.384429	1.427108	.0030470
#2	2.452140	1.056624	.5021177	.0219258	1.383299	1.441892	.0027644
#3	2.329153	1.073448	.4985027	.0213578	1.397599	1.432031	.0042840

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1163-02LX5 Acquired: 1/27/2025 19:47:14 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ME2947L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4093648	.0341158	.2580134
Stddev	.0015905	.0012977	.0019378
%RSD	.3885238	3.803710	.7510441
#1	.4075413	.0326478	.2580711
#2	.4100869	.0345898	.2599217
#3	.4104661	.0351098	.2560474

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3440.546	73469.75	11460.23	2395.716	3970.580
Stddev	19.747	126.18	48.40	15.112	24.098
%RSD	.5739413	.1717498	.4223660	.6307951	.6069146
#1	3448.550	73535.07	11477.14	2380.823	3984.004
#2	3455.034	73324.29	11497.90	2395.286	3984.977
#3	3418.054	73549.88	11405.63	2411.038	3942.760

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1163-04 Acquired: 1/27/2025 19:51:15 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ME2947S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1495834**	**.0765470**	**1.007403**	**.2318924**	**.2235862**	**87.24203**
Stddev	.0025554	.0031341	.002446	.0043844	.0027983	.18425
%RSD	1.708379	4.094324	.2428012	1.890716	1.251547	.2111884
#1	.1481458	.0731718	1.008030	.2351829	.2219368	87.03916
#2	.1525339	.0771037	1.009475	.2335792	.2220046	87.28801
#3	.1480705	.0793654	1.004705	.2269151	.2268171	87.39894

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.459812**	**.0927290**	**.1162155**	F **922.6688**	**5.781490**	**1.117685**
Stddev	.007087	.0003921	.0001622	9.6686	.019853	.001224
%RSD	.1589042	.4228047	.1395929	1.047897	.3433958	.1095318
#1	4.453563	.0923730	.1160284	915.6053	5.763372	1.116426
#2	4.467512	.0926647	.1163166	918.7130	5.802713	1.117757
#3	4.458362	.0931492	.1163016	933.6880	5.778386	1.118871

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7332237**	**507.6303**	**24.39963**	**225.9886**	**3.787356**	**.0749165**
Stddev	.0040919	2.9329	.10799	1.1721	.003084	.0002904
%RSD	.5580644	.5777711	.4426037	.5186532	.0814378	.3876967
#1	.7373134	504.2613	24.27940	224.6352	3.784638	.0747093
#2	.7291296	509.0152	24.48841	226.6637	3.790708	.0747916
#3	.7332282	509.6143	24.43107	226.6669	3.786722	.0752485

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.045496**	**1.172618**	**3.684265**	**12.14729**	**5.440300**	**2.254478**
Stddev	.136178	.004738	.014293	.03203	.021248	.013061
%RSD	13.02518	.4040369	.3879567	.2636940	.3905602	.5793507
#1	.992382	1.167573	3.669200	12.17721	5.419769	2.239535
#2	.943880	1.173307	3.685958	12.11350	5.438931	2.260177
#3	1.200227	1.176973	3.697636	12.15117	5.462198	2.263721

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1163-04 Acquired: 1/27/2025 19:51:15 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ME2947S Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0973091	7.099963	6.745373	.0317424	1.835852	.1768968
Stddev	.0005985	.021262	.029127	.0004488	.007990	.0012034
%RSD	.6151021	.2994639	.4318095	1.414048	.4352344	.6802875
#1	.0979862	7.091087	6.711748	.0313373	1.826738	.1755421
#2	.0970907	7.084577	6.762817	.0322250	1.841654	.1778421
#3	.0968505	7.124225	6.761553	.0316650	1.839163	.1773062

Elem	Sr4077
Units	ppm
Avg	1.244777
Stddev	.020664
%RSD	1.660043
#1	1.241539
#2	1.266869
#3	1.225923

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3241.192	71511.28	11793.21	2296.346	3382.917
Stddev	10.866	246.24	56.89	9.334	6.554
%RSD	.3352535	.3443403	.4824065	.4064618	.1937410
#1	3228.651	71793.80	11858.88	2306.666	3375.424
#2	3247.810	71397.77	11758.86	2293.875	3385.739
#3	3247.115	71342.27	11761.88	2288.496	3387.587

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: PB166229BL Acquired: 1/27/2025 19:55:31 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS229 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001881**	**.0003755**	**.0001183**	**-.000523**	**-.000747**	**-.000492**	**-.000430**
Stddev	.0025802	.0006974	.0005484	.002403	.000627	.006221	.000080
%RSD	1371.744	185.7212	463.4718	459.4435	83.82581	1264.986	18.65943
#1	.0031673	-.000213	.0007027	-.000698	-.000050	-.000755	-.000401
#2	-.001272	.001146	-.000385	.001963	-.001262	-.006577	-.000369
#3	-.001331	.000194	.000037	-.002834	-.000931	.005857	-.000521

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000027**	**.0000000**	**.0233346**	**.0002740**	**.0000098**	**-.000569**	**.0126157**
Stddev	.000046	.0000626	.0043313	.0001810	.0000245	.001179	.0044588
%RSD	168.5023	129641.6	18.56155	66.04262	249.4866	207.1788	35.34331
#1	.000001	-.000022	.0267812	.0002897	-.000015	.000279	.0173531
#2	-.000002	-.000049	.0247498	.0000857	.000010	-.000071	.0119930
#3	-.000080	.000071	.0184728	.0004466	.000034	-.001915	.0085010

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001508**	**-.001698**	**-.000160**	**-.000264**	**-.038518**	**-.001491**	**-.000396**
Stddev	.0004460	.001444	.000265	.000033	.228331	.000804	.001373
%RSD	295.7732	85.06451	165.3280	12.33654	592.7983	53.91140	346.3883
#1	.0003034	-.000032	-.000450	-.000281	.188129	-.000936	.001187
#2	-.000351	-.002465	.000069	-.000227	-.035185	-.001124	-.001122
#3	.000500	-.002596	-.000100	-.000285	-.268497	-.002413	-.001254

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0273456**	**.0007643**	**-.000510**	**.0001229**	**.0054703**	**-.001300**	**.0008880**
Stddev	.0105567	.0007988	.000733	.0002392	.0033868	.002614	.0005240
%RSD	38.60468	104.5186	143.8371	194.5714	61.91249	201.1134	59.01413
#1	.0155092	.0007941	.000301	.0003587	.0015784	.001647	.0004755
#2	.0357874	-.000049	-.000705	-.000120	.0077478	-.002205	.0007108
#3	.0307402	.001548	-.001125	.000130	.0070848	-.003342	.0014776

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: PB166229BL Acquired: 1/27/2025 19:55:31 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS229 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0002879	.0004256	.0000350
Stddev	.0006652	.0009986	.0000094
%RSD	231.0377	234.6316	26.87478
#1	.0005116	-.000235	.0000408
#2	-.000460	-.000063	.0000401
#3	.000812	.001574	.0000242

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3709.536	77676.81	11394.35	2608.484	4625.422
Stddev	8.727	183.39	45.94	13.031	14.900
%RSD	.2352672	.2360927	.4031970	.4995730	.3221316
#1	3717.673	77471.30	11343.00	2594.008	4641.382
#2	3710.617	77823.79	11408.49	2619.279	4623.005
#3	3700.319	77735.33	11431.55	2612.165	4611.878

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: PB166229BS Acquired: 1/27/2025 19:59:40 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS229 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0179848**	**.0518663**	**.0200718**	**.0618388**	**.1088943**	**.3571723**	**.3633301**
Stddev	.0021039	.0021825	.0014761	.0022516	.0007154	.0013084	.0023086
%RSD	11.69842	4.207925	7.354272	3.640997	.6569492	.3663194	.6353971
#1	.0204008	.0519109	.0211681	.0638191	.1096534	.3566327	.3608737
#2	.0165557	.0496619	.0183934	.0593897	.1082327	.3562200	.3636614
#3	.0169980	.0540262	.0206541	.0623075	.1087967	.3586642	.3654551

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0104307**	**.0100545**	**9.646732**	**.0215484**	**.0986767**	**.0527097**	**.2031249**
Stddev	.0000957	.0001288	.031182	.0002924	.0002610	.0017378	.0082256
%RSD	.9174859	1.280547	.3232433	1.357077	.2645461	3.296851	4.049545
#1	.0105165	.0099221	9.610779	.0218621	.0988221	.0525354	.1936356
#2	.0104482	.0100621	9.663016	.0212833	.0983754	.0545281	.2082254
#3	.0103275	.0101793	9.666402	.0214997	.0988327	.0510657	.2075136

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0295266**	**8.612928**	**.0807217**	**.0189191**	**9.645124**	**.1048541**	**.1134494**
Stddev	.0000507	.055468	.0002700	.0001694	.508876	.0002580	.0027823
%RSD	.1718125	.6440090	.3344506	.8952537	5.275994	.2460686	2.452457
#1	.0294939	8.572230	.0809877	.0189659	10.22504	.1050592	.1106268
#2	.0295009	8.590446	.0804479	.0187312	9.27313	.1045644	.1135318
#3	.0295851	8.676108	.0807294	.0190601	9.43721	.1049388	.1161896

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**8.981851**	**.0199527**	**.0004314**	**.0203661**	**.1739621**	**.4510150**	**.0149630**
Stddev	.031527	.0003722	.0001064	.0002495	.0042588	.0040506	.0001191
%RSD	.3510033	1.865204	24.65961	1.224872	2.448090	.8981149	.7959055
#1	8.949354	.0199384	.0003306	.0201568	.1719420	.4550244	.0149974
#2	9.012308	.0195879	.0004209	.0202994	.1710894	.4510964	.0148305
#3	8.983892	.0203318	.0005426	.0206421	.1788550	.4469243	.0150611

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: PB166229BS Acquired: 1/27/2025 19:59:40 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS229 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2043864	.0270219	.1722661
Stddev	.0005837	.0016253	.0009699
%RSD	.2856128	6.014619	.5630270
#1	.2037369	.0260070	.1711537
#2	.2048674	.0288965	.1727098
#3	.2045548	.0261624	.1729348

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3602.603	74551.84	11133.97	2469.331	4434.404
Stddev	8.442	89.22	44.38	5.477	3.207
%RSD	.2343434	.1196803	.3985814	.2217855	.0723227
#1	3601.412	74636.54	11085.45	2475.046	4434.890
#2	3611.578	74458.69	11143.95	2468.818	4437.341
#3	3594.820	74560.28	11172.51	2464.129	4430.982

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-01 Acquired: 1/27/2025 20:03:45 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH96 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0939114**	**-.007087**	**.2126002**	**.0469527**	**.0279553**	**139.5381**	**.9934291**
Stddev	.0014514	.003064	.0028809	.0016710	.0026824	.3238	.0043867
%RSD	1.545514	43.23326	1.355069	3.558963	9.595261	.2320161	.4415674
#1	.0952122	-.005392	.2133905	.0475999	.0298439	139.9026	.9975043
#2	.0941764	-.005244	.2150035	.0482033	.0291372	139.4277	.9939967
#3	.0923458	-.010623	.2094067	.0450548	.0248850	139.2840	.9887863

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0081183**	**.0072572**	**112.9316**	**.4666094**	**.1889078**	**.5420835**	**350.8989**
Stddev	.0002099	.0002697	.1235	.0004189	.0001327	.0030814	.4366
%RSD	2.586027	3.716879	.1093546	.0897684	.0702209	.5684280	.1244261
#1	.0078956	.0071532	113.0255	.4669460	.1888018	.5399950	351.4021
#2	.0083126	.0070549	112.9776	.4667420	.1888651	.5406331	350.6744
#3	.0081467	.0075634	112.7917	.4661403	.1890566	.5456225	350.6203

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.192808**	**104.9848**	**.4330188**	**-.002102**	**1.010145**	**.4233502**	**.7894297**
Stddev	.021191	.0562	.0004601	.000143	.162153	.0019855	.0045063
%RSD	.2946118	.0535205	.1062588	6.803843	16.05243	.4690007	.5708339
#1	7.209684	104.9439	.4325348	-.001937	.920119	.4240729	.7912348
#2	7.199716	104.9616	.4330712	-.002175	.912979	.4211046	.7843007
#3	7.169026	105.0489	.4334505	-.002194	1.197338	.4248731	.7927537

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**3.586414**	**5.013382**	**1.481858**	**.0001876**	**.3080043**	**2.319673**	**.0035308**
Stddev	.029772	.017915	.001899	.0002925	.0010130	.025119	.0006613
%RSD	.8301413	.3573468	.1281533	155.9071	.3288899	1.082874	18.72847
#1	3.562934	5.005431	1.484031	.0002316	.3087802	2.343918	.0041188
#2	3.619901	5.000818	1.481023	-.000124	.3068583	2.321339	.0036586
#3	3.576409	5.033896	1.480519	.000456	.3083745	2.293762	.0028150

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-01 Acquired: 1/27/2025 20:03:45 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH96 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3805651	.4488544	.5384410
Stddev	.0097996	.0033543	.0023246
%RSD	2.575010	.7472996	.4317268
#1	.3759565	.4503167	.5408706
#2	.3918194	.4512293	.5382143
#3	.3739194	.4450172	.5362380

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3899.445	82135.02	13002.26	2647.602	3988.436
Stddev	8.460	61.18	31.14	5.317	12.051
%RSD	.2169435	.0744872	.2395071	.2008390	.3021465
#1	3905.893	82150.98	13037.25	2645.455	3998.114
#2	3902.577	82067.44	12991.94	2653.658	3992.257
#3	3889.867	82186.63	12977.59	2643.695	3974.938

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-02 Acquired: 1/27/2025 20:07:39 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH97 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1063080	-.004502	.2035325	.0474489	.0248018	132.0917	1.149320
Stddev	.0039802	.001587	.0008110	.0014847	.0013912	.8056	.005969
%RSD	3.743976	35.26044	.3984748	3.129122	5.609285	.6098499	.5193246
#1	.1043687	-.002762	.2030343	.0481833	.0240318	132.3906	1.152937
#2	.1108861	-.005871	.2030948	.0457401	.0264078	131.1794	1.142431
#3	.1036692	-.004872	.2044683	.0484234	.0239659	132.7050	1.152593

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0076825	.0067364	47.09101	.4356010	.1655132	.3240630	332.0648
Stddev	.0001915	.0001359	.08271	.0007000	.0005179	.0009690	1.3548
%RSD	2.492319	2.017321	.1756357	.1606990	.3128837	.2990185	.4079939
#1	.0075565	.0065819	47.16604	.4348397	.1655801	.3234222	332.6232
#2	.0079029	.0067903	47.00232	.4357464	.1649651	.3251777	330.5200
#3	.0075882	.0068372	47.10466	.4362168	.1659943	.3235889	333.0511

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.143999	99.41224	.4206847	.0006737	1.113874	.4168549	.7656497
Stddev	.011640	.30369	.0001176	.0008745	.071990	.0043577	.0044412
%RSD	.1894581	.3054851	.0279521	129.8000	6.463061	1.045367	.5800627
#1	6.149830	99.45664	.4206050	.0010892	1.184680	.4142865	.7706167
#2	6.130596	99.08880	.4208197	-.000331	1.040755	.4218863	.7642714
#3	6.151571	99.69129	.4206293	.001263	1.116186	.4143919	.7620610

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.863813	4.388760	1.402132	.0064825	.1484923	1.941055	.0033111
Stddev	.058601	.006686	.008512	.0000674	.0025865	.008080	.0014359
%RSD	2.046271	.1523476	.6070697	1.039959	1.741806	.4162708	43.36512
#1	2.896129	4.381061	1.406111	.0064179	.1514772	1.950253	.0018675
#2	2.796168	4.393109	1.392359	.0065524	.1470870	1.935101	.0047390
#3	2.899141	4.392110	1.407925	.0064772	.1469127	1.937811	.0033267

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-02 Acquired: 1/27/2025 20:07:39 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH97 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3444037	.4506745	.2290210
Stddev	.0064798	.0021335	.0013465
%RSD	1.881439	.4734108	.5879265
#1	.3387263	.4513593	.2300296
#2	.3514629	.4482827	.2274920
#3	.3430219	.4523816	.2295414

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3877.615	82816.60	13127.37	2672.575	3968.838
Stddev	6.988	165.00	79.59	11.635	6.798
%RSD	.1802166	.1992379	.6062797	.4353594	.1712963
#1	3878.777	82849.93	13171.49	2659.151	3972.397
#2	3883.950	82962.39	13035.50	2679.771	3973.118
#3	3870.119	82637.48	13175.13	2678.802	3960.999

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-03 Acquired: 1/27/2025 20:11:34 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH98 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0594570	-.003708	.2380946	.0267865	.0133480	101.5299	.7967120
Stddev	.0008368	.003560	.0025419	.0003679	.0008646	.2765	.0036240
%RSD	1.407342	96.01095	1.067600	1.373383	6.477365	.2723283	.4548685
#1	.0596380	-.006248	.2406733	.0263849	.0140699	101.8399	.7990136
#2	.0585446	.000361	.2380194	.0271072	.0135842	101.3088	.7925346
#3	.0601886	-.005238	.2355912	.0268673	.0123898	101.4409	.7985878

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0087271	.0045086	40.98472	.2463832	.1656370	.2234585	186.8172
Stddev	.0000630	.0001001	.09173	.0005894	.0003974	.0007466	.3254
%RSD	.7214360	2.221162	.2238266	.2392125	.2399149	.3341210	.1741958
#1	.0087248	.0046198	41.08918	.2470500	.1656759	.2236669	187.1904
#2	.0086653	.0044255	40.91729	.2461679	.1652216	.2226298	186.6681
#3	.0087912	.0044806	40.94768	.2459317	.1660135	.2240787	186.5930

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.747136	60.11387	.3164648	.0005056	.5653445	.2387217	.8302923
Stddev	.018757	.08855	.0006663	.0003579	.1348592	.0010299	.0060355
%RSD	.2779949	.1473006	.2105451	70.77386	23.85434	.4314140	.7269153
#1	6.767416	60.15727	.3169144	.0001759	.4913474	.2378992	.8310624
#2	6.730411	60.17234	.3167806	.0004549	.7210036	.2398768	.8239087
#3	6.743581	60.01199	.3156993	.0008862	.4836826	.2383891	.8359058

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.395146	3.832188	.8020200	.0088022	1.905789	2.229716	.0063336
Stddev	.060974	.005102	.0020178	.0002398	.001080	.003593	.0002727
%RSD	.7263059	.1331368	.2515898	2.724616	.0566700	.1611384	4.305059
#1	8.457646	3.833584	.8043474	.0089002	1.905034	2.232406	.0066199
#2	8.391969	3.836446	.8009505	.0089775	1.905307	2.231107	.0060770
#3	8.335822	3.826533	.8007621	.0085289	1.907026	2.225636	.0063037

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-03 Acquired: 1/27/2025 20:11:34 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH98 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.380112	.2271257	.3842739
Stddev	.007726	.0011715	.0020802
%RSD	.5597799	.5157868	.5413397
#1	1.380029	.2284568	.3861546
#2	1.372429	.2262517	.3820395
#3	1.387879	.2266685	.3846276

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3941.084	83682.83	13338.77	2718.058	4006.944
Stddev	2.508	257.83	39.85	10.604	3.775
%RSD	.0636464	.3080995	.2987283	.3901373	.0942109
#1	3941.218	83568.01	13377.85	2730.276	4006.885
#2	3943.522	83502.35	13298.20	2711.261	4010.748
#3	3938.510	83978.12	13340.26	2712.636	4003.199

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-04 Acquired: 1/27/2025 20:15:32 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH99 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0200799	-.003410	.1864659	.0131714	.0061540	55.91947	.8393970
Stddev	.0013885	.001402	.0016753	.0025770	.0007546	.14242	.0038415
%RSD	6.914796	41.10621	.8984516	19.56491	12.26139	.2546824	.4576516
#1	.0214045	-.002659	.1883493	.0161451	.0066640	56.07792	.8429282
#2	.0201998	-.002545	.1851418	.0117772	.0065108	55.87833	.8399563
#3	.0186353	-.005028	.1859066	.0115919	.0052872	55.80215	.8353065

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0055423	.0018921	147.2953	.0965768	.0684555	.0679303	83.02641
Stddev	.0000290	.0000410	.5264	.0009186	.0002392	.0009924	.26297
%RSD	.5232477	2.165026	.3574036	.9511137	.3493600	1.460897	.3167308
#1	.0055252	.0019369	147.8789	.0975640	.0681990	.0670540	83.32795
#2	.0055758	.0018827	147.1510	.0964193	.0686723	.0677290	82.90668
#3	.0055260	.0018566	146.8561	.0957472	.0684953	.0690079	82.84462

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.150481	34.03924	.1207095	.0004693	.2941158	.1190171	.4421685
Stddev	.033512	.19853	.0007431	.0003329	.3674811	.0010665	.0017260
%RSD	.4686670	.5832291	.6156285	70.92752	124.9443	.8960971	.3903577
#1	7.184339	34.25436	.1200378	.0000850	.0686388	.1178810	.4441616
#2	7.149779	34.00028	.1215078	.0006668	.7181620	.1199967	.4411722
#3	7.117326	33.86309	.1205828	.0006561	.0955468	.1191735	.4411718

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.639639	4.302573	.3649393	.0026066	1.781936	3.422079	.0005869
Stddev	.072916	.020418	.0010369	.0001379	.002415	.034215	.0009045
%RSD	1.292911	.4745447	.2841159	5.289489	.1355153	.9998402	154.1159
#1	5.626843	4.325378	.3660846	.0024618	1.782906	3.405678	-.000450
#2	5.718106	4.296348	.3640645	.0026218	1.783715	3.461408	.001216
#3	5.573969	4.285992	.3646687	.0027363	1.779187	3.399153	.000995

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-04 Acquired: 1/27/2025 20:15:32 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH99 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.7930383	.1068352	.5293027
Stddev	.0068633	.0003017	.0024677
%RSD	.8654462	.2824318	.4662264
#1	.7923718	.1066732	.5316953
#2	.7865326	.1071833	.5294467
#3	.8002106	.1066490	.5267661

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3799.680	79659.95	12783.23	2590.756	4119.045
Stddev	13.967	311.57	32.88	12.701	9.555
%RSD	.3675837	.3911297	.2572097	.4902273	.2319799
#1	3814.400	79307.51	12753.99	2585.475	4129.502
#2	3786.613	79898.77	12818.82	2605.246	4110.769
#3	3798.027	79773.57	12776.88	2581.548	4116.865

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-05 Acquired: 1/27/2025 20:19:31 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH99D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0214750**	**-.001906**	**.1871264**	**.0136115**	**.0058315**	**54.41837**	**.8204843**
Stddev	.0013443	.003811	.0021391	.0023561	.0009519	.22932	.0052871
%RSD	6.259838	199.9709	1.143122	17.30929	16.32268	.4213998	.6443892
#1	.0201114	.002473	.1875073	.0162750	.0049182	54.18834	.8151576
#2	.0227992	-.003714	.1848224	.0127592	.0068177	54.41982	.8205643
#3	.0215145	-.004477	.1890494	.0118001	.0057586	54.64697	.8257310

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0055745**	**.0019698**	**144.3511**	**.0950647**	**.0686529**	**.0645843**	**81.09108**
Stddev	.0000567	.0000682	.5375	.0004614	.0002757	.0011098	.31476
%RSD	1.017911	3.461587	.3723478	.4853638	.4016051	1.718444	.3881619
#1	.0056225	.0020484	143.7456	.0948492	.0686754	.0641282	80.74509
#2	.0055890	.0019335	144.5363	.0955944	.0683666	.0637751	81.16764
#3	.0055119	.0019274	144.7716	.0947505	.0689166	.0658495	81.36050

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.003062**	**33.43994**	**.1215487**	**.0000087**	**.0301603**	**.1176644**	**.4220595**
Stddev	.033428	.02896	.0008217	.0000191	.2169931	.0002649	.0012409
%RSD	.4773370	.0866145	.6760314	219.2796	719.4656	.2251466	.2940169
#1	6.964692	33.41242	.1210293	.0000118	.2393445	.1175273	.4206331
#2	7.018611	33.47016	.1211207	.0000260	-.193878	.1174961	.4226555
#3	7.025884	33.43723	.1224960	-.000012	.045015	.1179698	.4228900

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.478146**	**4.371864**	**.3555199**	**.0026078**	**1.767936**	**3.104365**	**.0016692**
Stddev	.053286	.004786	.0017434	.0003444	.008051	.008290	.0002879
%RSD	.9727088	.1094760	.4903948	13.20702	.4553733	.2670353	17.24900
#1	5.416943	4.370814	.3540012	.0026134	1.773669	3.103049	.0019921
#2	5.514231	4.367690	.3551348	.0029494	1.758732	3.096812	.0014393
#3	5.503265	4.377088	.3574237	.0022606	1.771407	3.113234	.0015760

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-05 Acquired: 1/27/2025 20:19:31 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH99D Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.7664225	.1028728	.5198540
Stddev	.0071368	.0006150	.0027635
%RSD	.9311861	.5978408	.5315884
#1	.7654608	.1021909	.5170288
#2	.7739914	.1030420	.5199816
#3	.7598153	.1033855	.5225514

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3788.391	80151.47	12757.78	2622.871	4091.609
Stddev	3.784	185.08	46.83	19.229	4.811
%RSD	.0998820	.2309081	.3670826	.7331442	.1175740
#1	3790.426	80318.53	12721.18	2643.515	4089.452
#2	3790.722	79952.52	12741.60	2605.468	4097.121
#3	3784.025	80183.37	12810.55	2619.630	4088.255

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-04LX5 Acquired: 1/27/2025 20:23:30 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH99L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044017	.0004999	.0404138	.0032396	.0023464	11.55055	.1702938
Stddev	.0024275	.0019843	.0003094	.0033350	.0006806	.05646	.0005079
%RSD	55.14859	396.9492	.7655965	102.9443	29.00492	.4888450	.2982367
#1	.0071436	-.001790	.0401903	.0021157	.0028591	11.48640	.1701165
#2	.0035349	.001587	.0407669	.0069914	.0015742	11.57252	.1698984
#3	.0025266	.001703	.0402841	.0006118	.0026057	11.59272	.1708666

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013148	.0003715	30.81668	.0212997	.0141050	.0155549	17.72045
Stddev	.0000259	.0000495	.10594	.0002378	.0001962	.0022654	.04974
%RSD	1.969356	13.33845	.3437617	1.116221	1.391300	14.56380	.2807074
#1	.0013139	.0003293	30.70077	.0214561	.0138931	.0174242	17.66855
#2	.0013412	.0004260	30.84077	.0214170	.0142804	.0130356	17.76770
#3	.0012894	.0003590	30.90849	.0210262	.0141416	.0162050	17.72511

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.507300	7.164983	.0246753	-.000340	.0297654	.0266201	.0907285
Stddev	.007126	.041250	.0003037	.000103	.3339627	.0016384	.0013110
%RSD	.4727887	.5757126	1.230750	30.37185	1121.984	6.154639	1.445010
#1	1.499351	7.146169	.0243690	-.000221	-.241317	.0285089	.0896204
#2	1.509430	7.212285	.0249763	-.000398	-.072216	.0255825	.0903893
#3	1.513118	7.136494	.0246805	-.000401	.402829	.0257690	.0921758

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9951917	.8946960	.0761962	.0006104	.3569637	.8780260	-.000905
Stddev	.0577366	.0051510	.0003671	.0001553	.0067324	.0067852	.000478
%RSD	5.801557	.5757290	.4817851	25.44573	1.886009	.7727730	52.75014
#1	.9652647	.8888097	.0765739	.0007894	.3509958	.8788042	-.000790
#2	1.061748	.8983783	.0758407	.0005106	.3642619	.8843884	-.000496
#3	.958562	.8969000	.0761740	.0005313	.3556335	.8708852	-.001430

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-04LX5 Acquired: 1/27/2025 20:23:30 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH99L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1829571	.0213310	.1081228
Stddev	.0101935	.0009267	.0004856
%RSD	5.571548	4.344147	.4491532
#1	.1805421	.0202933	.1076314
#2	.1741879	.0220758	.1081347
#3	.1941413	.0216238	.1086024

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3705.624	77572.86	11822.02	2572.496	4406.004
Stddev	20.879	202.72	37.69	7.414	26.443
%RSD	.5634383	.2613234	.3188240	.2881981	.6001540
#1	3716.212	77632.53	11805.97	2580.159	4425.623
#2	3681.573	77739.04	11865.08	2571.970	4375.933
#3	3719.089	77347.00	11795.00	2565.359	4416.457

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-06 Acquired: 1/27/2025 20:27:34 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH99S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0899921**	**.1029019**	**.2222142**	**.1716790**	**.1670819**	**55.33943**	**4.111116**
Stddev	.0024293	.0014119	.0010663	.0014594	.0013427	.25019	.033286
%RSD	2.699512	1.372102	.4798541	.8500790	.8036401	.4521026	.8096564
#1	.0872776	.1013194	.2233104	.1719182	.1660412	55.53385	4.138407
#2	.0907365	.1040325	.2221517	.1701147	.1666069	55.42728	4.120908
#3	.0919620	.1033539	.2211806	.1730040	.1685975	55.05717	4.074032

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0952755**	**.0976600**	**138.2772**	**.4843646**	**1.026207**	**.4815202**	**79.20228**
Stddev	.0003951	.0002924	.4628	.0021418	.005296	.0007477	.29854
%RSD	.4146723	.2994509	.3347220	.4421810	.5161045	.1552746	.3769321
#1	.0948883	.0974263	138.7837	.4866192	1.024630	.4814990	79.47936
#2	.0952601	.0975658	138.1716	.4823572	1.021879	.4822783	79.24136
#3	.0956780	.0979880	137.8762	.4841174	1.032113	.4807834	78.88613

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.546714**	**31.88036**	**1.085608**	**.0669837**	**.4819015**	**.9945234**	**1.220042**
Stddev	.037353	.12206	.003683	.0004617	.1494627	.0029840	.014274
%RSD	.4949620	.3828700	.3392728	.6893148	31.01521	.3000394	1.169985
#1	7.589203	32.02037	1.082815	.0674045	.3101657	.9935298	1.234337
#2	7.531899	31.82434	1.084227	.0670569	.5825758	.9921631	1.205788
#3	7.519042	31.79636	1.089782	.0664898	.5529629	.9978775	1.220000

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.246308**	**4.342501**	**.3471174**	**.0018698**	**1.769392**	**3.235231**	**.0010390**
Stddev	.040934	.015612	.0009476	.0002762	.005132	.042184	.0000813
%RSD	.7802477	.3595129	.2729896	14.77157	.2900497	1.303898	7.823071
#1	5.286098	4.336581	.3467948	.0019006	1.766614	3.191939	.0011157
#2	5.204318	4.330715	.3463732	.0021293	1.766248	3.237543	.0009538
#3	5.248507	4.360207	.3481842	.0015795	1.775314	3.276212	.0010475

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: Q1181-06 Acquired: 1/27/2025 20:27:34 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHH99S Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.7706772	.0977038	.4950986
Stddev	.0127470	.0011335	.0029403
%RSD	1.653998	1.160169	.5938713
#1	.7842561	.0988136	.4977517
#2	.7688066	.0965480	.4956066
#3	.7589688	.0977498	.4919374

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3788.788	80377.49	12365.87	2639.589	4099.287
Stddev	11.996	351.91	39.15	24.219	14.279
%RSD	.3166259	.4378235	.3165804	.9175349	.3483313
#1	3801.748	79983.95	12354.14	2612.843	4110.681
#2	3786.543	80661.92	12409.54	2660.037	4103.911
#3	3778.073	80486.61	12333.93	2645.886	4083.269

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: PB166278BL Acquired: 1/27/2025 20:31:30 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS278 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0012988**	**.0002190**	**.0005759**	**.0000414**	**.0003639**	**.0044383**	**-.001360**
Stddev	.0025974	.0022736	.0008252	.0024378	.0000829	.0073238	.000445
%RSD	199.9804	1038.440	143.2915	5889.716	22.78144	165.0150	32.69385
#1	.0032622	-.002081	-.000230	.0004526	.0003744	-.003334	-.001853
#2	.0022806	.000273	.000538	.0022474	.0004410	.011210	-.000991
#3	-.001646	.002465	.001419	-.002576	.0002762	.005439	-.001234

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000036**	**.0000516**	**.0235692**	**-.000023**	**-.000100**	**.0009972**	**.0039454**
Stddev	.000037	.0000690	.0061138	.000224	.000213	.0003674	.0032069
%RSD	104.9527	133.8850	25.93963	985.2124	213.7480	36.84031	81.28111
#1	-.000078	.0001313	.0165309	.000236	.000146	.0014147	.0029875
#2	-.000008	.0000117	.0266145	-.000168	-.000239	.0008540	.0013267
#3	-.000021	.0000117	.0275622	-.000136	-.000206	.0007230	.0075222

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000801**	**-.013044**	**.0001658**	**-.000601**	**-.068652**	**-.000856**	**.0005117**
Stddev	.0000381	.012329	.0003246	.000132	.360422	.001407	.0020379
%RSD	47.55842	94.52364	195.7685	21.92832	524.9982	164.2799	398.2226
#1	.0001184	-.001032	.0000541	-.000539	.181572	-.000839	.0028512
#2	.0000422	-.025667	-.000088	-.000512	-.481765	-.002272	-.000439
#3	.0000797	-.012432	.000531	-.000753	.094237	.000542	-.000877

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.102158**	**.0011182**	**-.002287**	**.0001755**	**.0016498**	**-.001315**	**.0005183**
Stddev	.038492	.0008618	.000488	.0002576	.0014916	.001897	.0006660
%RSD	37.67880	77.06558	21.32549	146.7731	90.40923	144.2330	128.4996
#1	-.131684	.0009092	-.002834	-.000102	.0032170	-.002318	.0005271
#2	-.116167	.0020653	-.002127	.000407	.0002475	-.002501	-.000152
#3	-.058624	.0003802	-.001899	.000221	.0014849	.000873	.001180

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: PB166278BL Acquired: 1/27/2025 20:31:30 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS278 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008854	-.001743	.0000130
Stddev	.0003735	.000862	.0000559
%RSD	42.17847	49.42000	430.0408
#1	.0004814	-.000854	.0000147
#2	.0009570	-.002574	-.000044
#3	.0012180	-.001802	.000068

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3631.268	76657.22	11363.13	2553.599	4523.716
Stddev	11.035	149.68	30.53	15.020	12.231
%RSD	.3038793	.1952636	.2686873	.5881793	.2703785
#1	3618.623	76733.80	11367.03	2568.055	4511.404
#2	3636.229	76753.12	11391.52	2538.073	4523.881
#3	3638.952	76484.74	11330.83	2554.668	4535.864

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: PB166278BS Acquired: 1/27/2025 20:35:40 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS278 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0167677	.0492326	.0195535	.0612261	.1037857	.3528574	.3596474
Stddev	.0008345	.0019809	.0005598	.0022080	.0025335	.0059500	.0009985
%RSD	4.976590	4.023601	2.862694	3.606301	2.441070	1.686241	.2776436
#1	.0160635	.0471271	.0198503	.0588367	.1010820	.3463056	.3588110
#2	.0176894	.0510594	.0189079	.0631912	.1061050	.3579245	.3607529
#3	.0165503	.0495114	.0199024	.0616504	.1041701	.3543422	.3593784

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0100736	.0097591	9.465035	.0209935	.0950681	.0508109	.1992053
Stddev	.0000659	.0000565	.022543	.0002234	.0003669	.0021315	.0021106
%RSD	.6545693	.5785026	.2381713	1.063966	.3859473	4.195049	1.059525
#1	.0100960	.0097890	9.440112	.0210550	.0954433	.0517012	.1968088
#2	.0099993	.0096940	9.484003	.0207458	.0947101	.0483785	.2007874
#3	.0101253	.0097943	9.470989	.0211797	.0950509	.0523530	.2000197

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0287277	8.394785	.0778532	.0180817	9.449476	.1013330	.1135556
Stddev	.0003086	.012120	.0004035	.0002458	.136997	.0022575	.0018569
%RSD	1.074158	.1443715	.5182528	1.359358	1.449788	2.227760	1.635250
#1	.0286709	8.407221	.0782768	.0180705	9.352919	.0999447	.1154356
#2	.0284515	8.394127	.0774735	.0178417	9.389239	.1039378	.1135083
#3	.0290607	8.383008	.0778091	.0183329	9.606271	.1001165	.1117227

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.685582	.0187011	-.000747	.0195775	.1671118	.4435634	.0144614
Stddev	.053948	.0007526	.000027	.0000533	.0017234	.0016769	.0004121
%RSD	.6211220	4.024458	3.643148	.2723364	1.031296	.3780538	2.849808
#1	8.635573	.0194616	-.000723	.0195161	.1661664	.4419970	.0147589
#2	8.742753	.0179567	-.000776	.0196115	.1691010	.4453324	.0139910
#3	8.678421	.0186849	-.000741	.0196050	.1660679	.4433608	.0146344

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: PB166278BS Acquired: 1/27/2025 20:35:40 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS278 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1994975	.0257060	.1697550
Stddev	.0008590	.0006529	.0004187
%RSD	.4305805	2.539795	.2466218
#1	.2004688	.0256599	.1692907
#2	.1991863	.0250774	.1698702
#3	.1988376	.0263808	.1701039

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3709.215	76167.45	11466.33	2548.483	4547.343
Stddev	2.107	85.74	42.48	11.827	4.262
%RSD	.0568024	.1125712	.3704865	.4640809	.0937176
#1	3711.578	76079.75	11417.54	2535.395	4552.250
#2	3708.536	76251.09	11495.08	2558.403	4544.566
#3	3707.531	76171.50	11486.39	2551.652	4545.214

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: CCV024 Acquired: 1/27/2025 20:44:03 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV024 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.076451**	**4.685918**	**24.76731**	**4.914249**	**4.936508**	**400.1258**
Stddev	.030768	.031603	.13527	.029925	.035886	1.7042
%RSD	.6060935	.6744262	.5461584	.6089411	.7269583	.4259152
#1	5.054146	4.710115	24.66438	4.896726	4.918710	402.0537
#2	5.063654	4.650163	24.71703	4.897218	4.912999	398.8201
#3	5.111552	4.697476	24.92051	4.948802	4.977814	399.5038

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.984770**	**.4855554**	**2.468897**	**405.9339**	**15.33360**	**2.460881**
Stddev	.122482	.0034054	.011609	3.5691	.12956	.013213
%RSD	1.226687	.7013306	.4702232	.8792412	.8449713	.5369305
#1	9.881803	.4873351	2.459914	409.5868	15.41144	2.450790
#2	10.12022	.4877022	2.464771	405.7599	15.40532	2.456017
#3	9.95229	.4816290	2.482006	402.4548	15.18403	2.475837

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**14.84520**	**406.1306**	**14.96897**	**397.1613**	**2.462122**	**1.263065**
Stddev	.02304	.8537	.01599	1.0297	.013639	.008887
%RSD	.1552215	.2102142	.1068465	.2592541	.5539557	.7036178
#1	14.85074	406.4945	14.98197	397.5772	2.451999	1.266562
#2	14.81989	406.7421	14.97382	397.9181	2.456736	1.269671
#3	14.86496	405.1552	14.95111	395.9888	2.477632	1.252961

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**388.8349**	**2.438639**	**15.16706**	**154.4543**	**5.125846**	F **5.916366**
Stddev	.7748	.009256	.14159	.0703	.023479	.026864
%RSD	.1992496	.3795432	.9335607	.0455445	.4580494	.4540608
#1	388.8777	2.434409	15.28408	154.4845	5.117491	5.934209
#2	388.0396	2.449254	15.20744	154.5045	5.107687	5.929420
#3	389.5874	2.432254	15.00966	154.3739	5.152360	5.885470

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: CCV024 Acquired: 1/27/2025 20:44:03 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV024 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.834668**	**5.074521**	F **2.578418**	**4.993157**	**4.941555**	**5.099075**
Stddev	.031099	.020785	.010400	.014581	.000627	.002098
%RSD	.6432498	.4095902	.4033530	.2920147	.0126851	.0411525
#1	4.819729	5.066613	2.573714	4.985304	4.940867	5.097736
#2	4.813856	5.058850	2.571201	4.984186	4.942093	5.097997
#3	4.870417	5.098099	2.590339	5.009981	4.941705	5.101494

Elem	Sr4077
Units	ppm
Avg	**4.687316**
Stddev	.021346
%RSD	.4554086
#1	4.708483
#2	4.687672
#3	4.665794

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2861.665**	**63981.97**	**10565.10**	**2072.351**	**3275.021**
Stddev	20.354	347.22	44.80	26.999	18.815
%RSD	.7112683	.5426873	.4240677	1.302841	.5745114
#1	2870.650	63743.49	10530.30	2051.867	3285.968
#2	2875.981	63822.08	10549.35	2062.238	3285.800
#3	2838.365	64380.33	10615.65	2102.947	3253.295

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: CCB024 Acquired: 1/27/2025 20:48:21 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB024 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005800	.0005237	.0004773	-.000555	-.001292	.0114248	-.000369
Stddev	.0008395	.0024446	.0015971	.001252	.000290	.0055928	.001253
%RSD	144.7409	466.8335	334.6316	225.5996	22.48211	48.95302	339.1541
#1	.0002489	.0030402	.0013170	-.000579	-.000963	.0061966	-.000961
#2	.0015346	-.001842	.0014792	.000709	-.001514	.0107559	-.001217
#3	-.000043	.000373	-.001364	-.001795	-.001399	.0173220	.001070

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000030	.0000245	.0158822	.0003444	.0000086	.0008209	.0113484
Stddev	.000043	.0000369	.0029244	.0002122	.0000669	.0015629	.0028616
%RSD	144.7245	150.6772	18.41286	61.61799	777.9529	190.3746	25.21584
#1	-.000011	-.000000	.0150048	.0003634	-.000018	.0021171	.0142357
#2	-.000079	.000067	.0134970	.0001233	-.000041	-.000915	.0085132
#3	.000001	.000007	.0191448	.0005465	.000085	.001260	.0112965

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004439	.0052577	.0003115	-.000222	.0959274	-.000223	.0001042
Stddev	.0003422	.0042966	.0004405	.000191	.0827206	.001188	.0015063
%RSD	77.08602	81.71879	141.4052	86.04998	86.23248	531.7375	1445.734
#1	.0002765	.0023399	.0000521	-.000266	.0657090	.000377	.0016370
#2	.0008377	.0032418	.0008201	-.000387	.0325647	-.001592	.0000496
#3	.0002177	.0101916	.0000623	-.000013	.1895084	.000545	-.001374

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0938435	.0009977	.0049214	.0004466	.0014058	-.000571	.0002274
Stddev	.0588181	.0013153	.0004843	.0001312	.0022905	.002964	.0008831
%RSD	62.67680	131.8294	9.840509	29.36983	162.9337	519.3730	388.4396
#1	.0358391	.0023999	.0047939	.0003520	.0026681	-.000725	-.000114
#2	.0922487	.0008017	.0045137	.0003915	.0027875	-.003454	.001230
#3	.1534429	-.000209	.0054567	.0005963	-.001238	.002468	-.000434

Reviewed By:kareem
On:1/28/2025 12:16:01 PM
Inst Id :P4

Sample Name: CCB024 Acquired: 1/27/2025 20:48:21 Type: Unk
Method: EPA SFAM01.0(v56) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB024 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0007615	-.000557	.0001559
Stddev	.0002630	.000543	.0000360
%RSD	34.54342	97.45740	23.06478
#1	.0006288	.000068	.0001973
#2	.0005912	-.000907	.0001330
#3	.0010645	-.000834	.0001373

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3652.915	76761.84	11342.60	2549.070	4557.907
Stddev	4.694	165.34	37.99	8.929	10.809
%RSD	.1285024	.2153883	.3349265	.3502730	.2371466
#1	3648.222	76578.93	11353.30	2542.153	4545.460
#2	3657.610	76900.66	11374.10	2559.149	4564.930
#3	3652.912	76805.93	11300.41	2545.908	4563.330

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Prep Standard - Chemical Standard Summary

Order ID : Q1181

Test : Metals CLP Full

Prepbatch ID : PB166278,

Sequence ID/Qc Batch ID: LB134438,

Standard ID :
MP83500,MP84041,MP84063,MP84070,MP84204,MP84206,MP84207,MP84208,MP84209,MP84210,MP84211,MP84212,MP84213,MP84214,MP84215,MP84216,MP84218,MP84219,

Chemical ID :
M5130,M5218,M5223,M5289,M5295,M5298,M5393,M5429,M5466,M5472,M5476,M5496,M5497,M5513,M5519,M5565,M5658,M5697,M5798,M5799,M5800,M5801,M5802,M5806,M5815,M5817,M5819,M5875,M5942,M5959,M5961,M5962,M5976,M5977,M5978,M5985,M5990,M6021,M6023,M6025,M6028,M6030,M6032,M6077,M6121,M6125,M6126,M6127,M6128,M6144,W3112,

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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)	MP83500	12/06/2024	01/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 12/09/2024

FROM 125.00000ml of M6121 + 2350.00000ml of W3112 + 25.00000ml of M6126 = Final Quantity: 2500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
169	1:1HNO3	MP84041	01/14/2025	07/14/2025	Eman Mughal	None	None	Sarabjit Jaswal 01/16/2025

FROM 1250.00000ml of M6126 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml

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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.)	MP84063	01/14/2025	02/14/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/16/2025

FROM 0.02000ml of M5815 + 0.03000ml of M5429 + 0.10000ml of M5798 + 0.10000ml of M6028 + 0.14000ml of M5799 + 0.20000ml of M5298 + 0.20000ml of M5476 + 0.20000ml of M5658 + 0.20000ml of M5801 + 0.20000ml of M5817 + 0.20000ml of M5976 + 0.20000ml of M6025 + 0.20000ml of M6030 + 0.30000ml of M6128 + 0.40000ml of M5496 + 0.50000ml of M5697 + 0.50000ml of M6023 + 0.70000ml of M5962 + 0.80000ml of M5961 + 1.00000ml of M5800 + 1.00000ml of M6021 + 1.20000ml of M5802 + 1.20000ml of M5819 + 10.00000ml of M5497 + 10.00000ml of M5519 + 10.00000ml of M5806 + 10.00000ml of M6127 + 2.00000ml of M5942 + 4.00000ml of M6032 + 34.24000ml of MP83500 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
921	ICPAES SPIKE SOL#6	MP84070	01/14/2025	02/14/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/16/2025

FROM 2.50000ml of M5962 + 50.00000ml of M5565 + 50.00000ml of M5990 + 147.50000ml of MP83500 = Final Quantity: 250.000 ml

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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)	MP84204	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 125.00000ml of M6121 + 2350.00000ml of W3112 + 25.00000ml of M6126 = Final Quantity: 2500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2480	ICP AES STD 6 ISM01.3	MP84206	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 4.00000ml of M5289 + 4.00000ml of M5298 + 4.00000ml of M5497 + 4.00000ml of M6127 + 4.00000ml of M6144 + 30.00000ml of MP84204 = Final Quantity: 50.000 ml

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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)	MP84207	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 0.25000ml of M5798 + 0.50000ml of M5429 + 0.50000ml of M5476 + 0.50000ml of M5815 + 0.50000ml of M5817 + 12.50000ml of M5519 + 12.50000ml of M5819 + 12.50000ml of M6128 + 12.50000ml of M6144 + 13.75000ml of M5697 + 14.50000ml of M5298 + 14.50000ml of M5496 + 14.50000ml of M5658 + 2.00000ml of M5513 + 22.50000ml of M5497 + 22.50000ml of M6127 + 5.00000ml of M5393 + 5.00000ml of M5802 + 5.00000ml of M5875 + 5.00000ml of M6077 + 303.50000ml of MP84204 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1005	ICPAES ISM01.2(S4)	MP84208	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 250.00000ml of MP84204 + 250.00000ml of MP84207 = 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)	MP84209	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 25.00000ml of MP84207 + 75.00000ml of MP84204 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1008	ICPAES ISM01.2(S2)	MP84210	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 12.50000ml of MP84207 + 87.50000ml of MP84204 = Final Quantity: 100.000 ml

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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.)	MP84211	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 0.02000ml of M5815 + 0.03000ml of M5429 + 0.10000ml of M5798 + 0.10000ml of M6028 + 0.14000ml of M5799 + 0.20000ml of M5298 + 0.20000ml of M5476 + 0.20000ml of M5658 + 0.20000ml of M5801 + 0.20000ml of M5817 + 0.20000ml of M5977 + 0.20000ml of M6025 + 0.20000ml of M6030 + 0.30000ml of M6128 + 0.40000ml of M5496 + 0.50000ml of M5697 + 0.50000ml of M6023 + 0.70000ml of M5962 + 0.80000ml of M5961 + 1.00000ml of M5800 + 1.00000ml of M6021 + 1.20000ml of M5802 + 1.20000ml of M5819 + 10.00000ml of M5497 + 10.00000ml of M5519 + 10.00000ml of M6127 + 10.00000ml of M6144 + 2.00000ml of M5978 + 4.00000ml of M6032 + 34.24000ml of MP84204 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1003	ICPAES ISM01.2 S1	MP84212	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 0.50000ml of MP84211 + 99.50000ml of MP84204 = 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
912	ICP AES ICV SOLN	MP84213	01/24/2025	02/05/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 0.02500ml of M5429 + 0.02500ml of M5815 + 0.02500ml of M5817 + 0.10000ml of M5466 + 0.25000ml of M5218 + 0.25000ml of M5472 + 10.00000ml of M5295 + 89.77500ml of MP84204 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
904	ICP AES ICSA SOLN	MP84214	01/24/2025	01/31/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 25.00000ml of M5130 + 225.00000ml of MP84204 = 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	MP84215	01/24/2025	01/31/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 25.00000ml of M5130 + 25.00000ml of M5223 + 200.00000ml of MP84204 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1119	ICPAES ISM01.2(CCV)	MP84216	01/24/2025	02/04/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 0.75000ml of M5497 + 0.75000ml of M6127 + 1.22500ml of M5496 + 1.25000ml of M5298 + 1.25000ml of M6144 + 19.77500ml of MP84204 + 25.00000ml of MP84207 = Final Quantity: 50.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
919	ICP AES INTERNAL STD	MP84218	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 1.00000ml of M5959 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6126 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
903	ICP AES RINSE SOLN	MP84219	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 200.00000ml of M6126 + 9800.00000ml of W3112 = Final Quantity: 10000.000 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 #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	01/31/2025	05/20/2024 / jaswal	04/20/2021 / bin	M5130

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	S2-MEB711674	11/02/2026	07/01/2022 / bin	09/10/2021 / bin	M5218

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	01/31/2025	05/20/2024 / jaswal	04/20/2021 / bin	M5223

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Aluminum (Al) 10,000PPM	070622	07/06/2025	09/02/2022 / jaswal	07/12/2022 / jaswal	M5289

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV-1014	02/05/2025	08/07/2024 / jaswal	04/20/2021 / bin	M5295

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58126 / Fe, 10000 PPM, 500 ml	020422	02/04/2025	05/02/2023 / jaswal	06/15/2022 / jaswal	M5298

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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	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	T2-MEB714159	01/13/2027	10/12/2022 / bin	09/19/2022 / bin	M5393

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57103 / Li, 10000 PPM, 125 ml	070622	07/06/2025	01/30/2023 / bin	01/26/2023 / bin	M5429

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57058 / Cerium, 1000PPM, 100ML	061322	06/13/2025	03/06/2023 / bin	03/01/2023 / bin	M5466

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	082922	08/29/2025	01/14/2025 / Jaswal	03/16/2023 / jaswal	M5472

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57138 / Sr, 10000 PPM, 125 ml	082922	08/29/2025	07/29/2024 / jaswal	03/16/2023 / jaswal	M5476

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Al, 10000 PPM, 500 ml	011623	01/16/2026	08/15/2023 / jaswal	03/17/2023 / bin	M5496

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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.	58120 / Ca, 10000 PPM, 500 ml	031523	03/15/2026	03/18/2023 / bin	03/17/2023 / bin	M5497

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57182 / Pb, 10000 PPM, 125 ml	061522	06/15/2025	03/19/2023 / bin	03/17/2023 / bin	M5513

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57119 / Potassium (K) 10,000PPM	120822	12/08/2025	01/08/2024 / bin	03/17/2023 / bin	M5519

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-1 / SOIL/WATER SPIKE SOLN 1, 125mL	T2-MEB721963	07/27/2027	05/30/2023 / jaswal	05/26/2023 / jaswal	M5565

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58029 / Cu, 1000 PPM, 500 ml	102523	10/25/2026	04/03/2024 / jaswal	10/27/2023 / jaswal	M5697

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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.	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

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

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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.	57115 / P, 10000 PPM, 125 ml	041723	04/17/2026	05/21/2024 / Jaswal	02/09/2024 / jaswal	M5815

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57116 / S, 10000 PPM, 125 ml	071123	07/11/2026	03/01/2024 / jaswal	02/09/2024 / jaswal	M5817

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	111623	11/16/2026	03/20/2024 / jaswal	02/09/2024 / jaswal	M5819

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	T2-MEB714417	01/27/2027	04/19/2024 / jaswal	02/22/2024 / jaswal	M5875

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	06/18/2024 / Jaswal	02/22/2024 / Jaswal	M5942

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	V2-Y740548	02/20/2029	07/01/2024 / Jaswal	06/14/2024 / Jaswal	M5959

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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.	57028 / Ni, 1000 PPM, 125 ml	041124	04/11/2027	07/02/2024 / Jaswal	06/11/2024 / Jaswal	M5961

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57034 / Se, 1000 PPM, 125 ml	060624	06/06/2027	07/02/2024 / Jaswal	06/14/2024 / Jaswal	M5962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMO1-1 / MOLYBDENUM 125mL 1000ug/mL	T2-MO720876	07/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5976

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMO1-1 / MOLYBDENUM 125mL 1000ug/mL	T2-MO720876	07/17/2027	01/16/2025 / JANVI	02/22/2024 / Jaswal	M5977

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5978

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

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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	CLPP-SPK-5 / CLP Spike Standard 5	V2-MEB742037	03/12/2029	10/04/2024 / Jaswal	02/22/2024 / Jaswal	M5990

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57081 / 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	11/09/2026	08/05/2024 / Jaswal	08/05/2024 / Jaswal	M6025

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

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.	57056 / Ba, 1000 PPM, 125 ml	010924	01/09/2027	01/14/2025 / Jaswal	08/05/2024 / Jaswal	M6032

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000275677	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6121

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	1403 / Hydrogen Peroxide, 30% 1 gal	820803	05/25/2025	11/26/2024 / Eman	11/22/2024 / Eman	M6125

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	06/03/2025	12/03/2024 / Janvi	11/12/2024 / Janvi	M6126

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

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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.	58025 / Mn, 1000 PPM, 500 ml	101124	10/11/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6128

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

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

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Christiansburg, VA 24073 USA
inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CLPP-SPK-5
Lot Number:	V2-MEB742037
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	100 µg/mL ea: Antimony,
	50 µg/mL ea: Selenium, Cadmium, Thallium,
	40 µg/mL ea: Arsenic,
	20 µg/mL ea: Lead

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.7 µg/mL	Arsenic, As	40.00 ± 0.26 µg/mL
Cadmium, Cd	49.99 ± 0.22 µg/mL	Lead, Pb	19.99 ± 0.09 µg/mL
Selenium, Se	50.00 ± 0.23 µg/mL	Thallium, Tl	50.00 ± 0.22 µg/mL

Density: 1.025 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Cd	Calculated		See Sec. 4.2
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Pb	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Tl	ICP Assay	3158	151215
Tl	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 12, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- March 12, 2029

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6032

R: 8/5/24

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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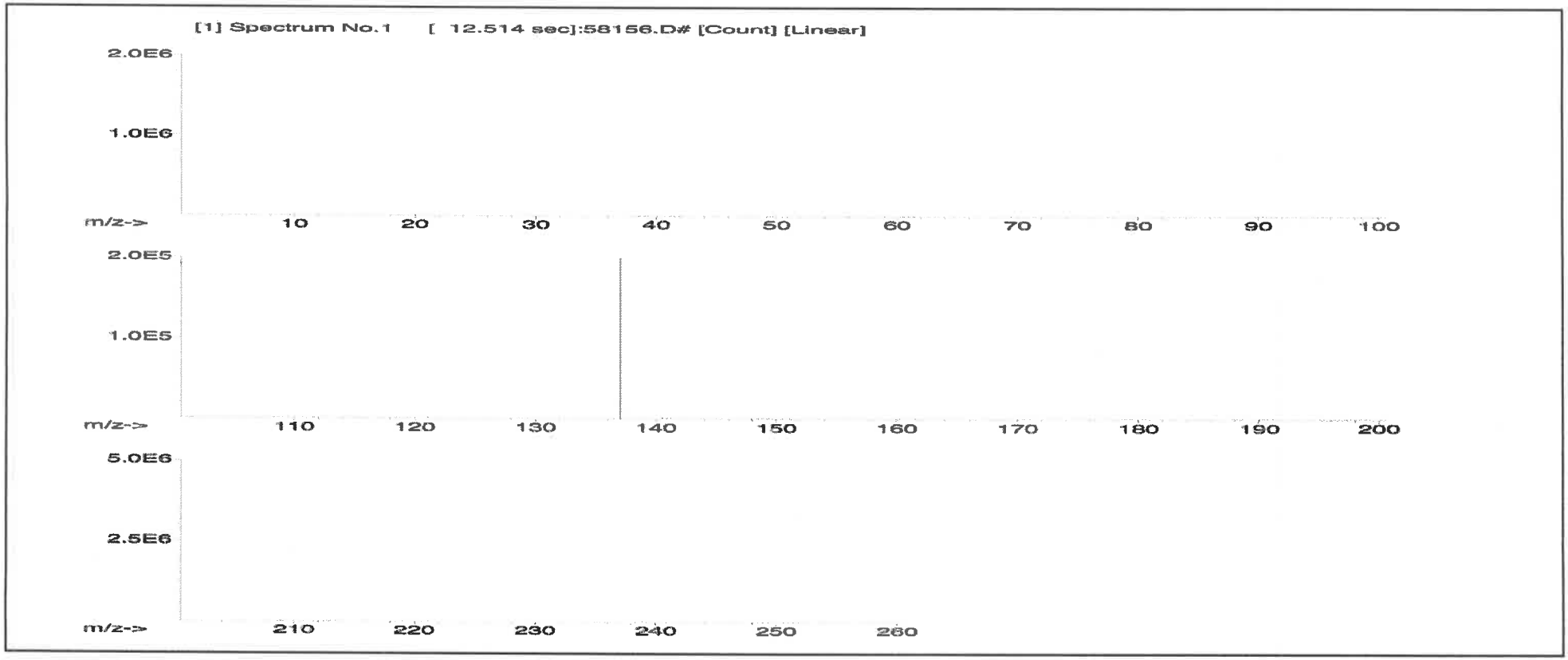
CERTIFIED WEIGHT REPORT:

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

Giovanni Esposito

Formulated By:	Giovanni Esposito	010924
Reviewed By:	Pedro L. Rentas	010924

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



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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

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

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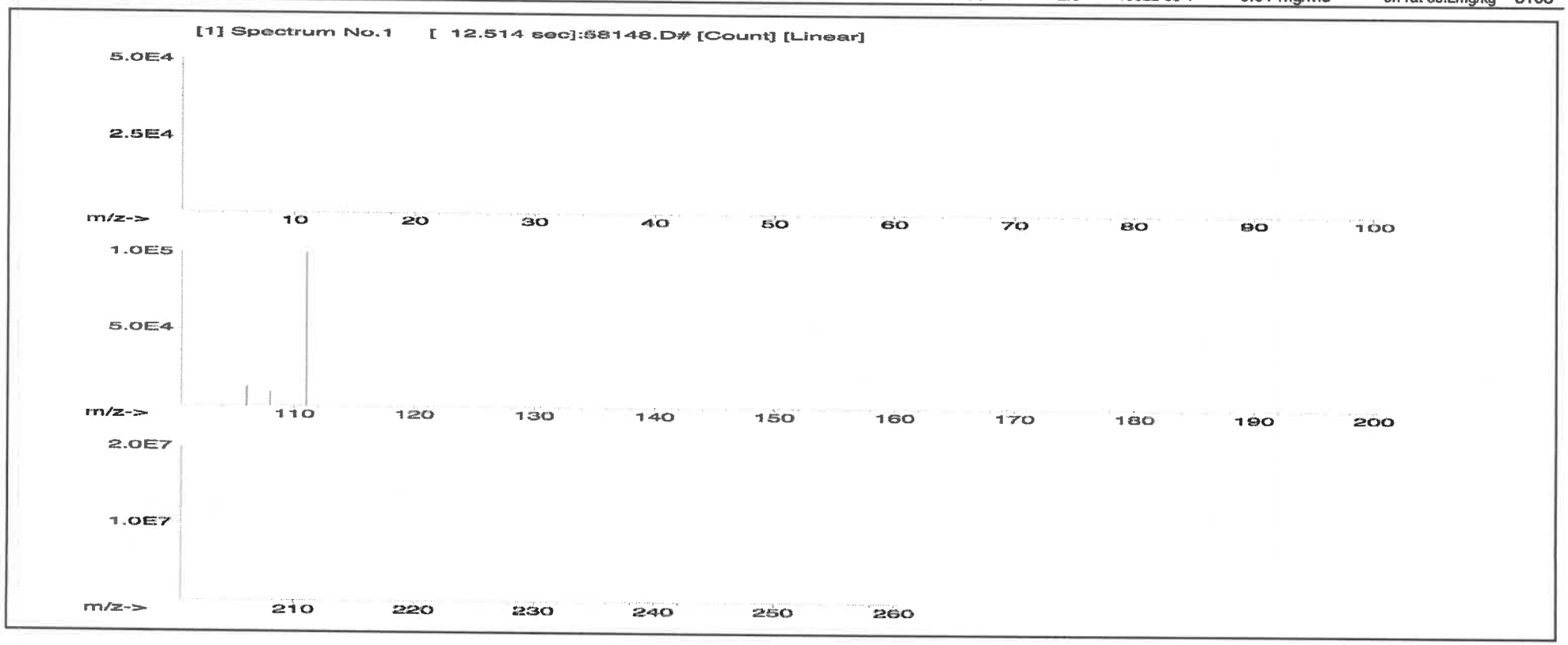
CERTIFIED WEIGHT REPORT:

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
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:

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).

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-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

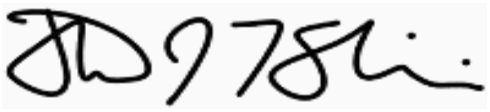
- Sealed TCT Bag Open Date: _____

- 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



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Christiansburg, VA 24073 USA
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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-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:

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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**

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 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

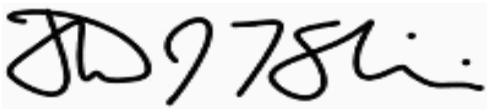
- Sealed TCT Bag Open Date: _____

- 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

R: 8/5/24 M6025

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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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

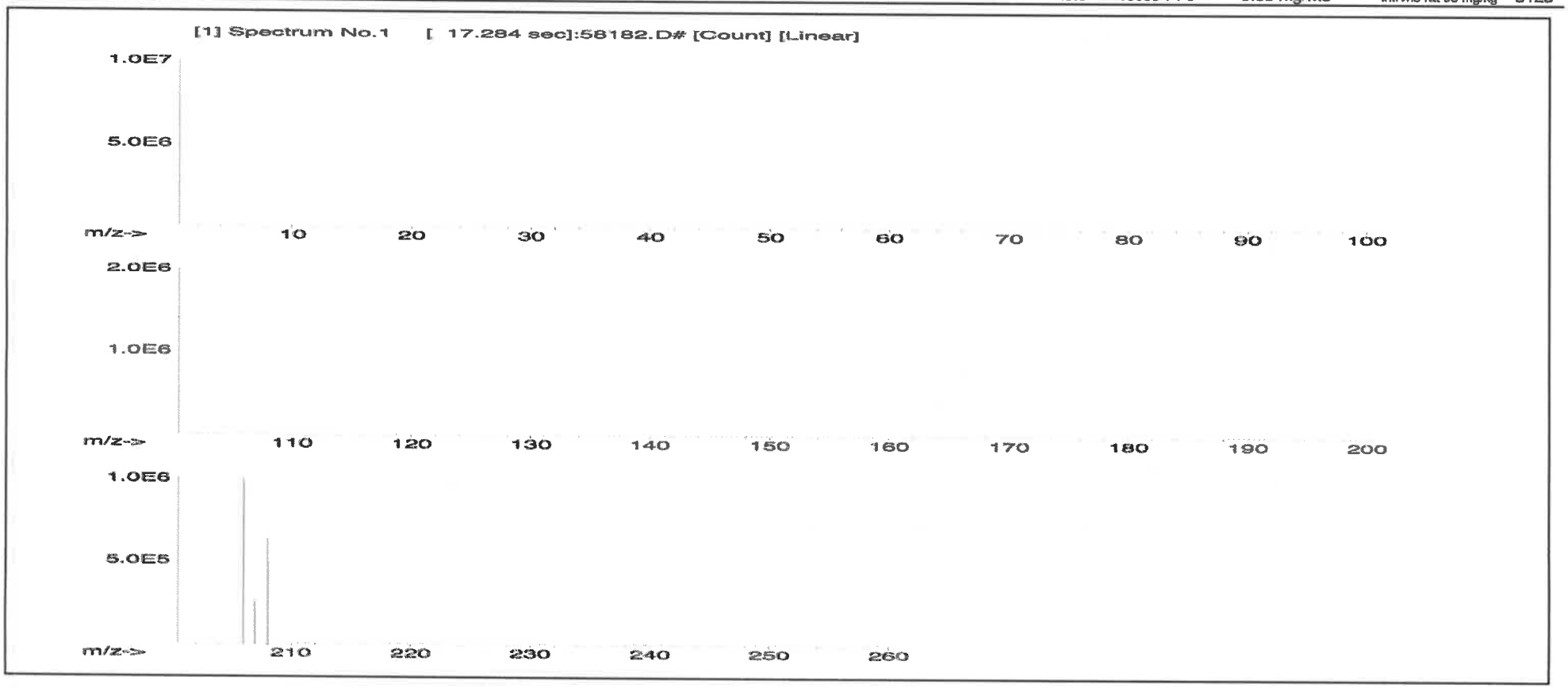
Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

	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).



QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

Instructions for QATS Reference Material: *ICP-AES ICS*

QATS LABORATORY INORGANIC REFERENCE MATERIAL INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) *ANALYSIS OF SAMPLES*

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,



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:

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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**

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

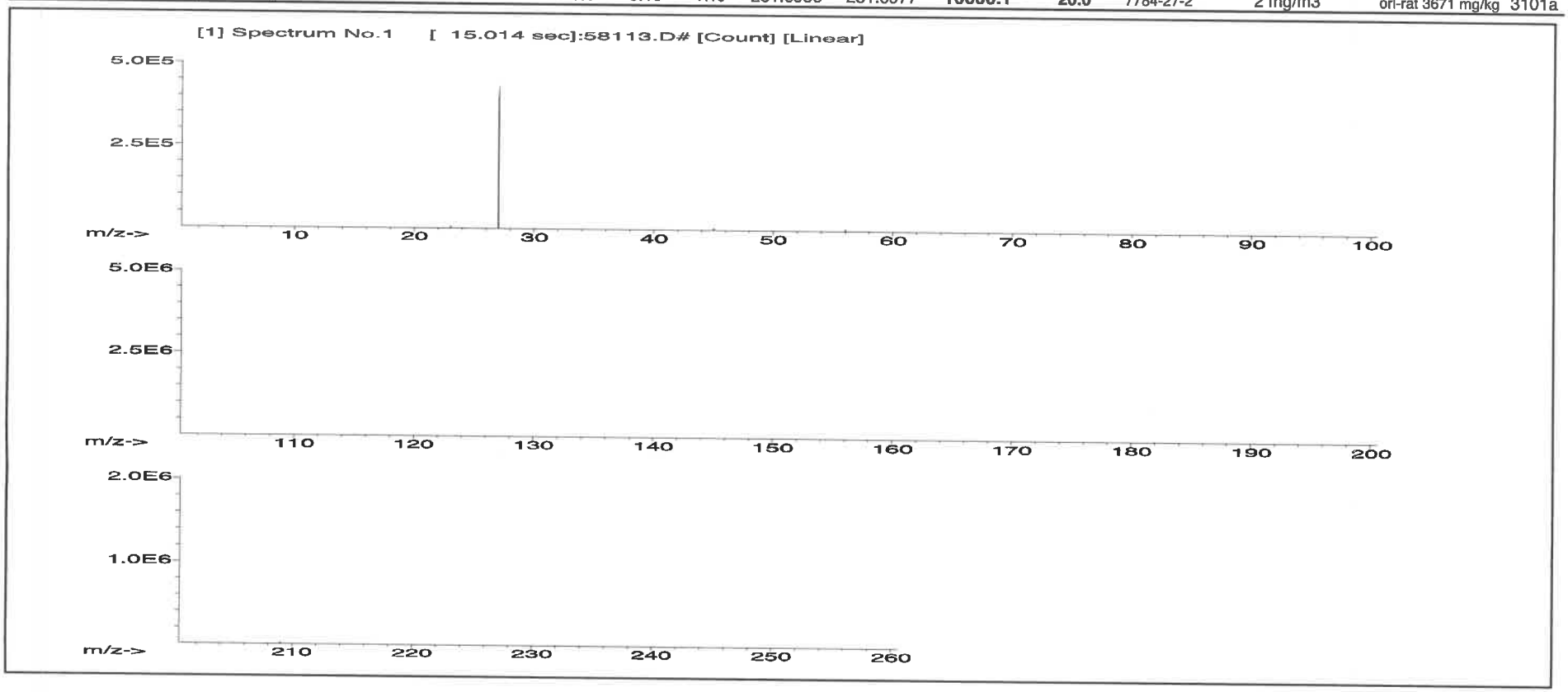
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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

M5291
M5292
M5293
M5294
M5295

(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

SJ 6/15/22

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 58126
Lot Number: 020422
Description: Iron (Fe)

M5298

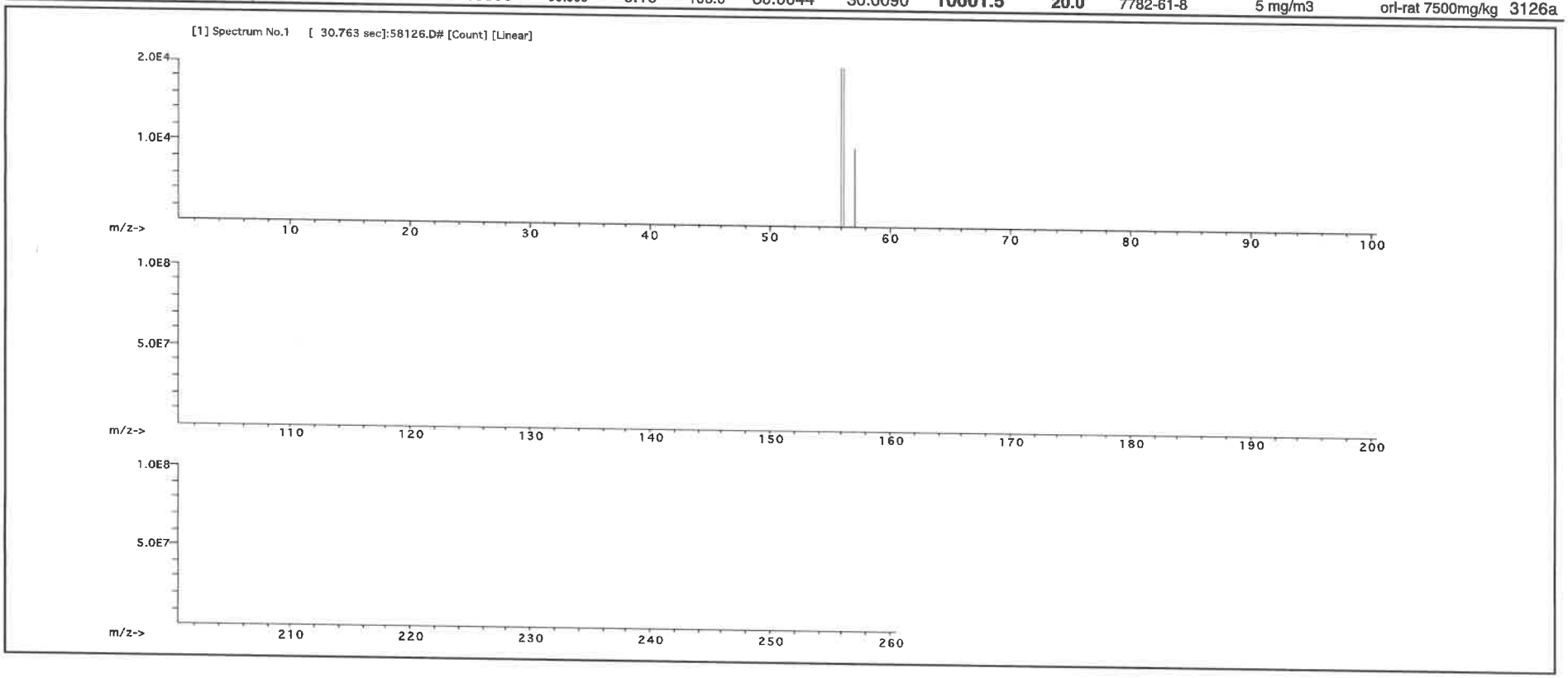
Expiration Date: 020425
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41

	Lot #		
Solvent:	20370011	Nitric Acid	
5.0%	150.0 (mL)	Nitric Acid	
5E-05	Balance Uncertainty		
0.058	Flask Uncertainty		

Giovanni Esposito
Formulated By: Giovanni Esposito 020422

Pedro Rentas
Reviewed By: Pedro L. Rentas 020422

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Iron(III) nitrate nonahydrate (Fe)	IN346	221035107	10000	99.999	0.10	100.0	30.0044	30.0090	**10001.5**	**20.0**	7782-61-8	5 mg/m3	orl-rat 7500mg/kg	3126a



248

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	<0.5	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	<0.02
B	<0.02	Cu	<0.10	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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:

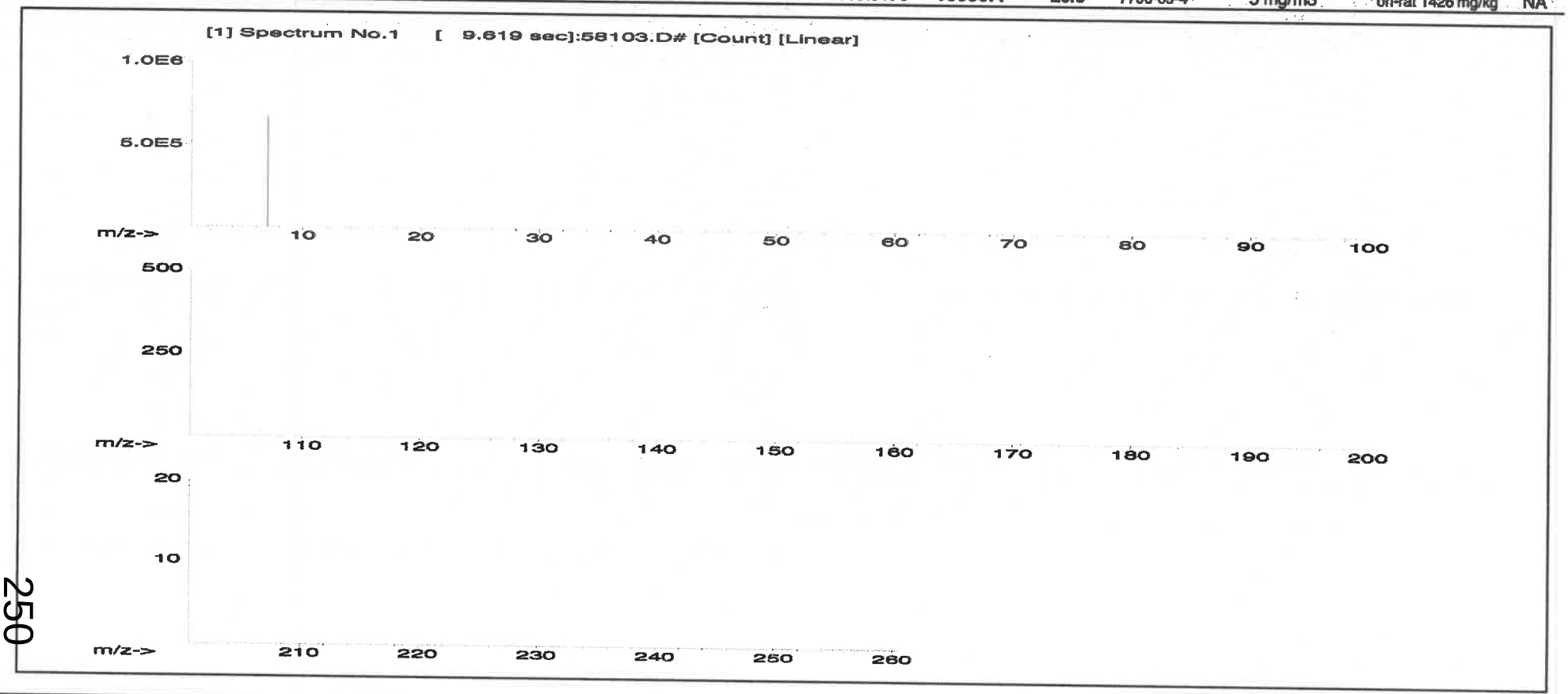
Part Number: 57103
Lot Number: 070622
Description: Lithium (Li)

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 ± 0.058 Flask Uncertainty

	Lot #		
Solvent:	20510011	Nitric Acid	
2%	20.0 (mL)	Nitric Acid	± 5E-05 Balance 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



250

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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* 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 WEIGHT REPORT:

Part Number: 57058
Lot Number: 061322
Description: Cerium (Ce)

Expiration Date: 061325
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

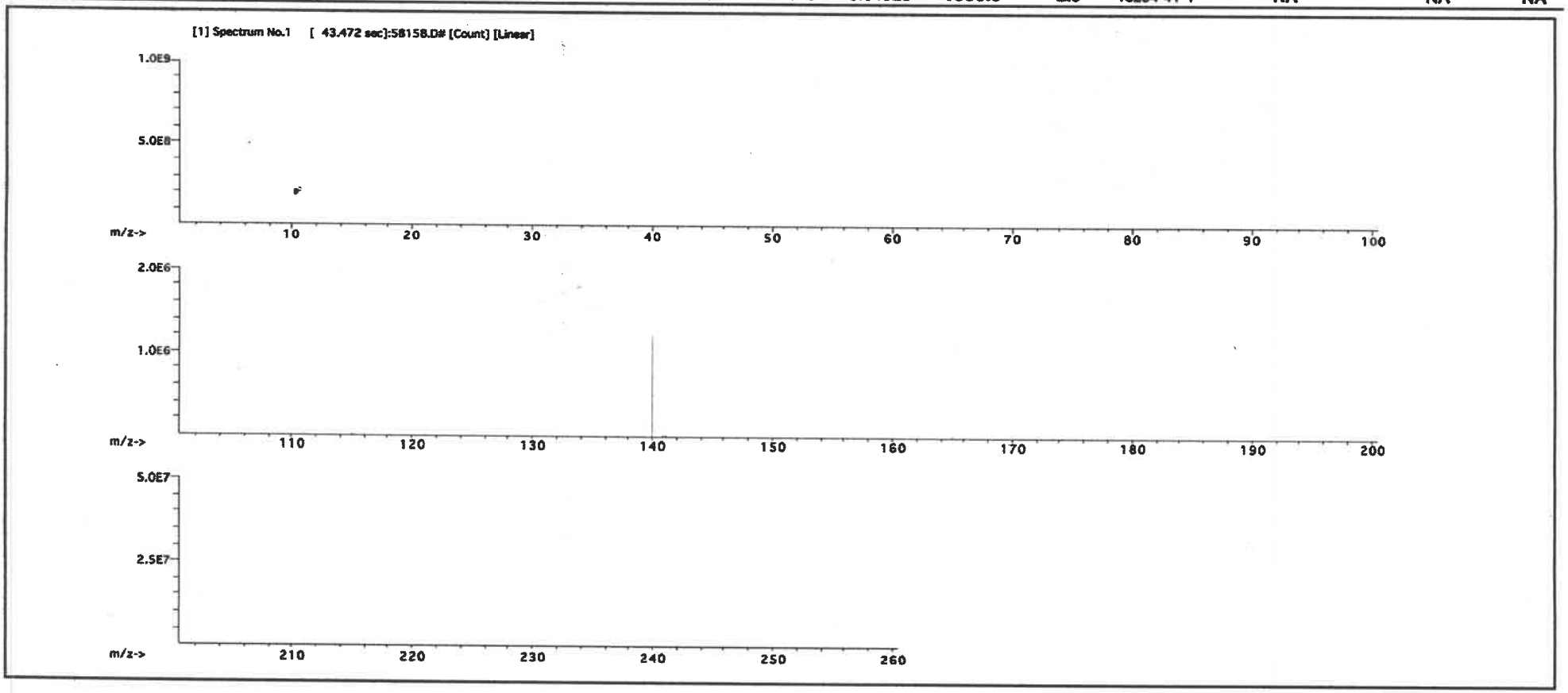
Weight shown below was diluted to (mL): 1000.12 | 0.058 Flask Uncertainty | 5E-05 Balance Uncertainty

	Lot #	
Solvent:	20510011	Nitric Acid
2%	20.0 (mL)	Nitric Acid

Formulated By: Lawrence Barry 061322

Reviewed By: Pedro L. Rentas 061322

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. Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.8	3.04919	3.04923	1000.0	2.0	10294-41-4	NA	NA	NA



253

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	T	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	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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* 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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254

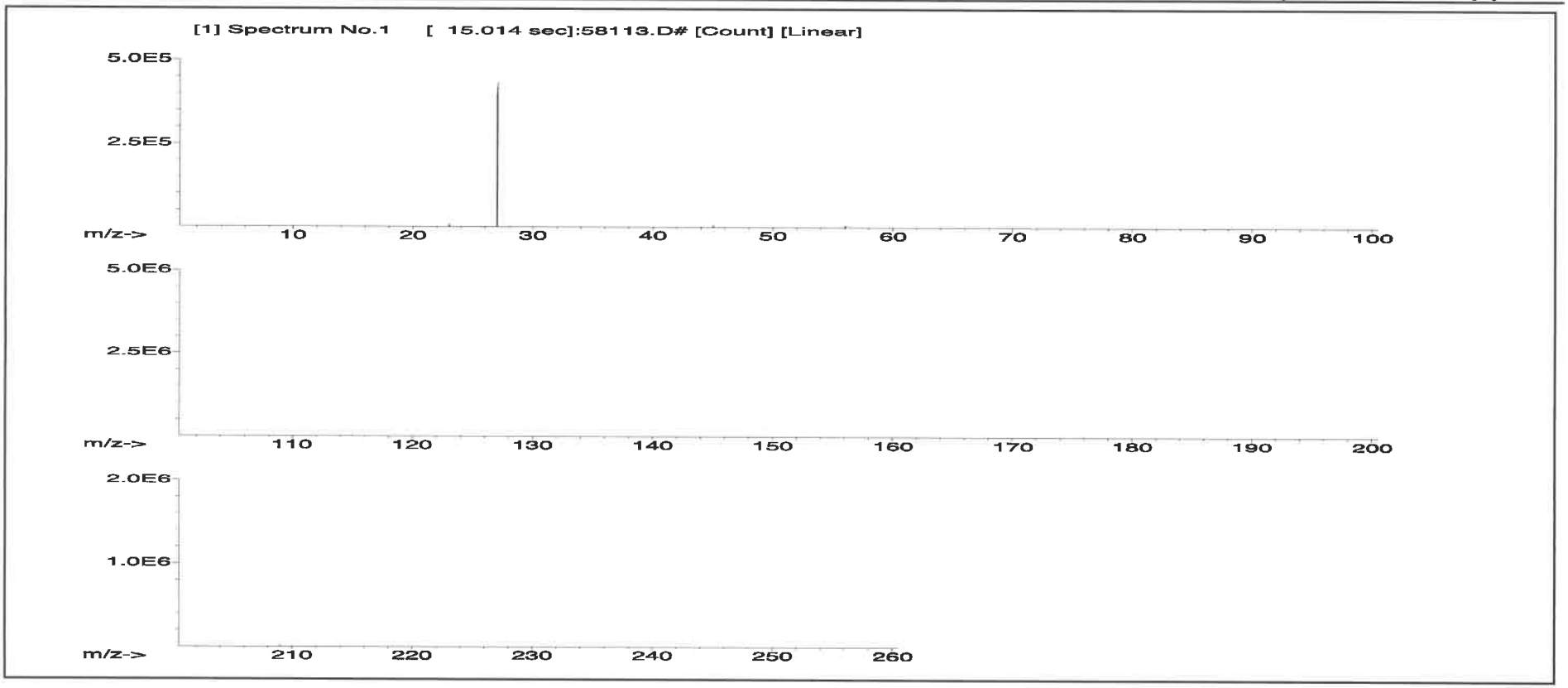
CERTIFIED WEIGHT REPORT:

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
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



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IN5497 - IN5498 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 ± 0.058 Flask Uncertainty

	Lot #		
Solvent:	21110221	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

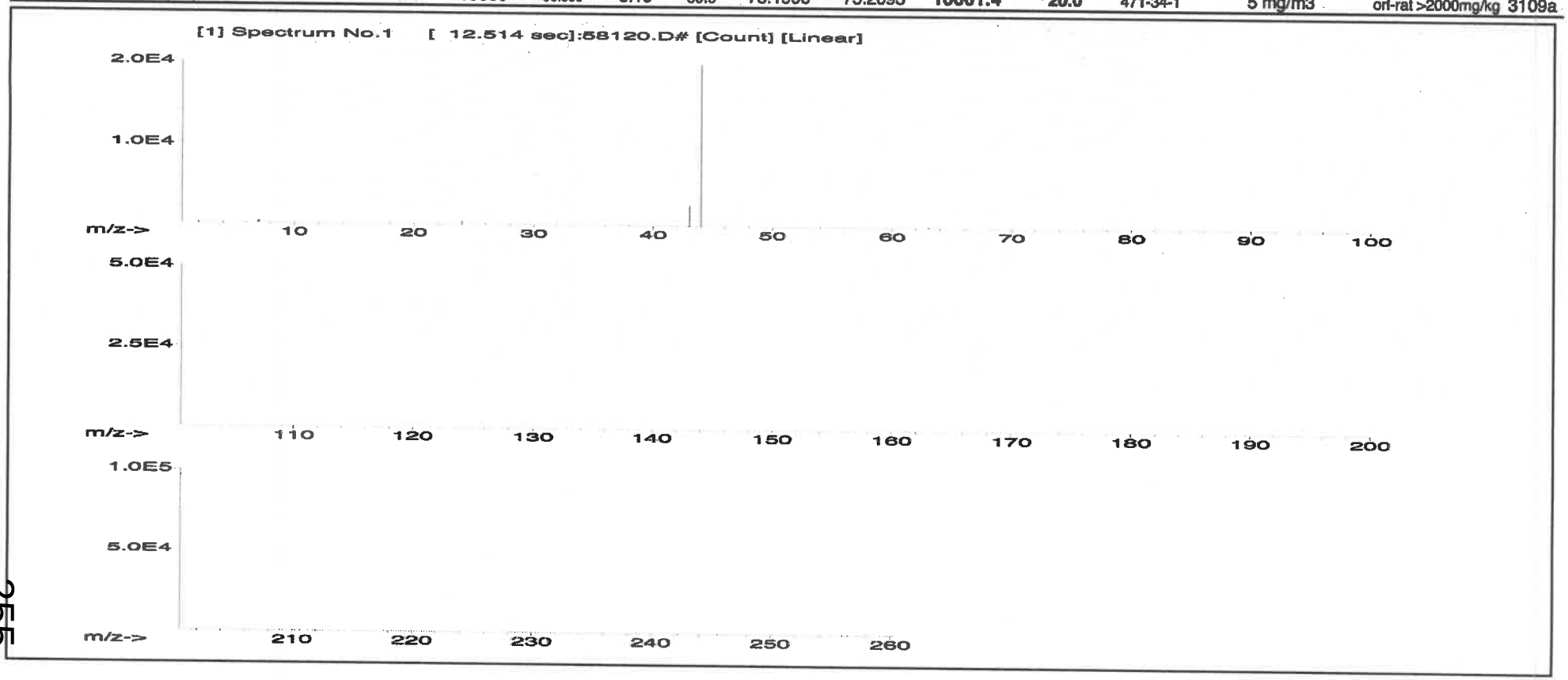
Giovanni Esposito

Formulated By: Giovanni Esposito 031523

Pedro Rentas

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



255

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.

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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).

9525

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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

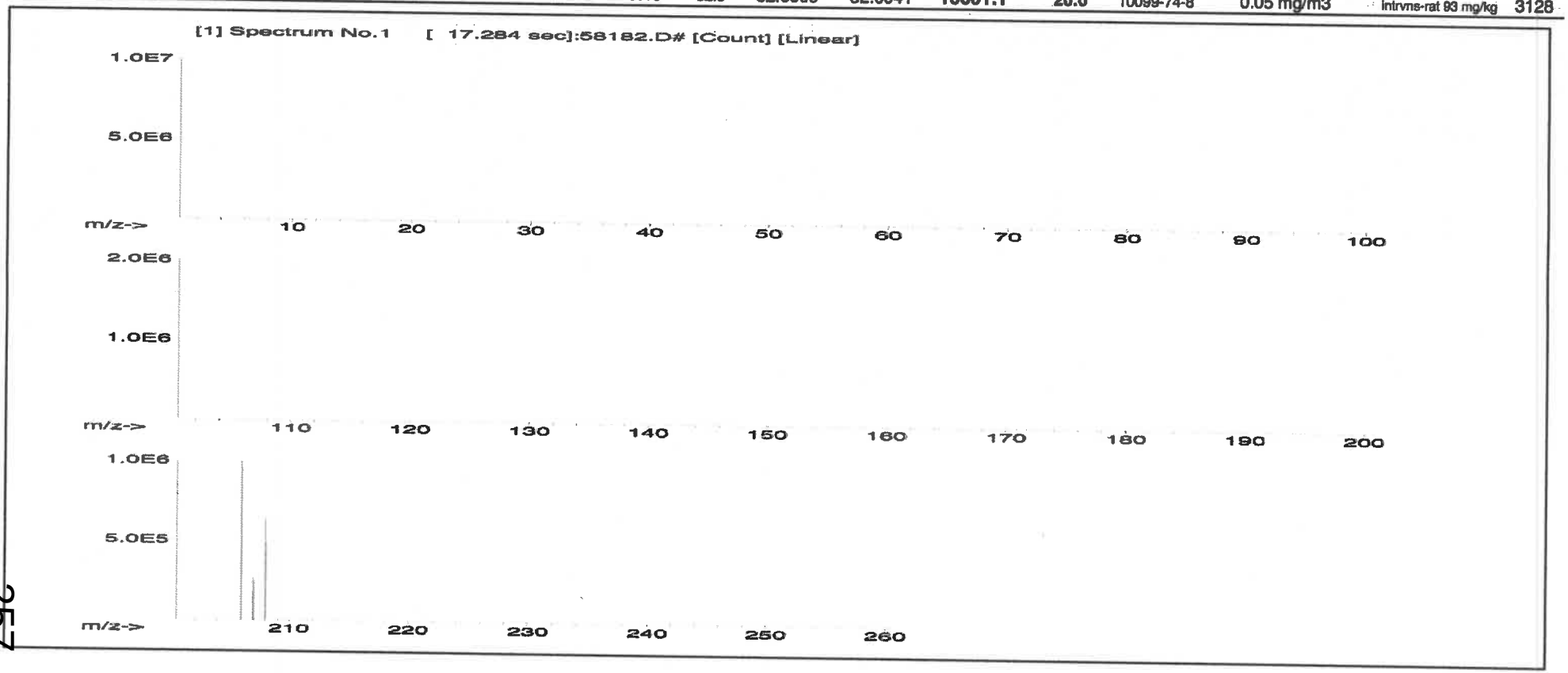
	Lot #		
Solvent:	20510011	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

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



257

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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

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2508-2C

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259

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

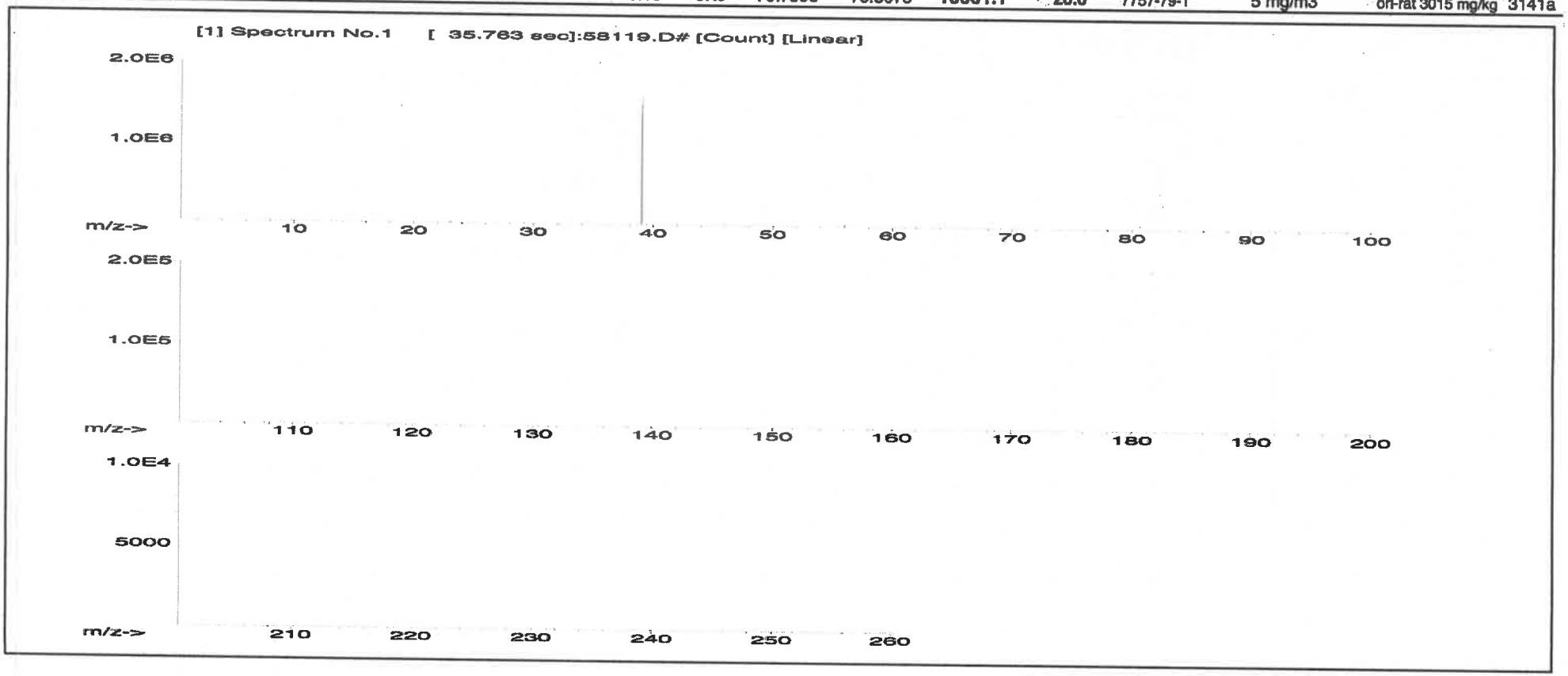
	Lot #		
Solvent:	20510011	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

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



260

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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

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

1.0 ACCREDITATION / REGISTRATION

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

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CLPP-SPK-1
Lot Number:	T2-MEB721963
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	2 000 µg/mL ea: Aluminum, Barium,
	1 000 µg/mL ea: Iron,
	500 µg/mL ea: Manganese, Nickel, Vanadium, Zinc, Cobalt,
	250 µg/mL ea: Copper,
	200 µg/mL ea: Chromium,
	50 µg/mL ea: Beryllium, Silver

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.00 ± 0.26 µg/mL	Chromium, Cr	200.0 ± 1.1 µg/mL
Cobalt, Co	500.0 ± 2.4 µg/mL	Copper, Cu	250.0 ± 1.0 µg/mL
Iron, Fe	1 000 ± 4 µg/mL	Manganese, Mn	500.0 ± 2.0 µg/mL
Nickel, Ni	500.0 ± 2.2 µg/mL	Silver, Ag	50.00 ± 0.22 µg/mL
Vanadium, V	500.0 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.070 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Ag	Calculated		See Sec. 4.2
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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



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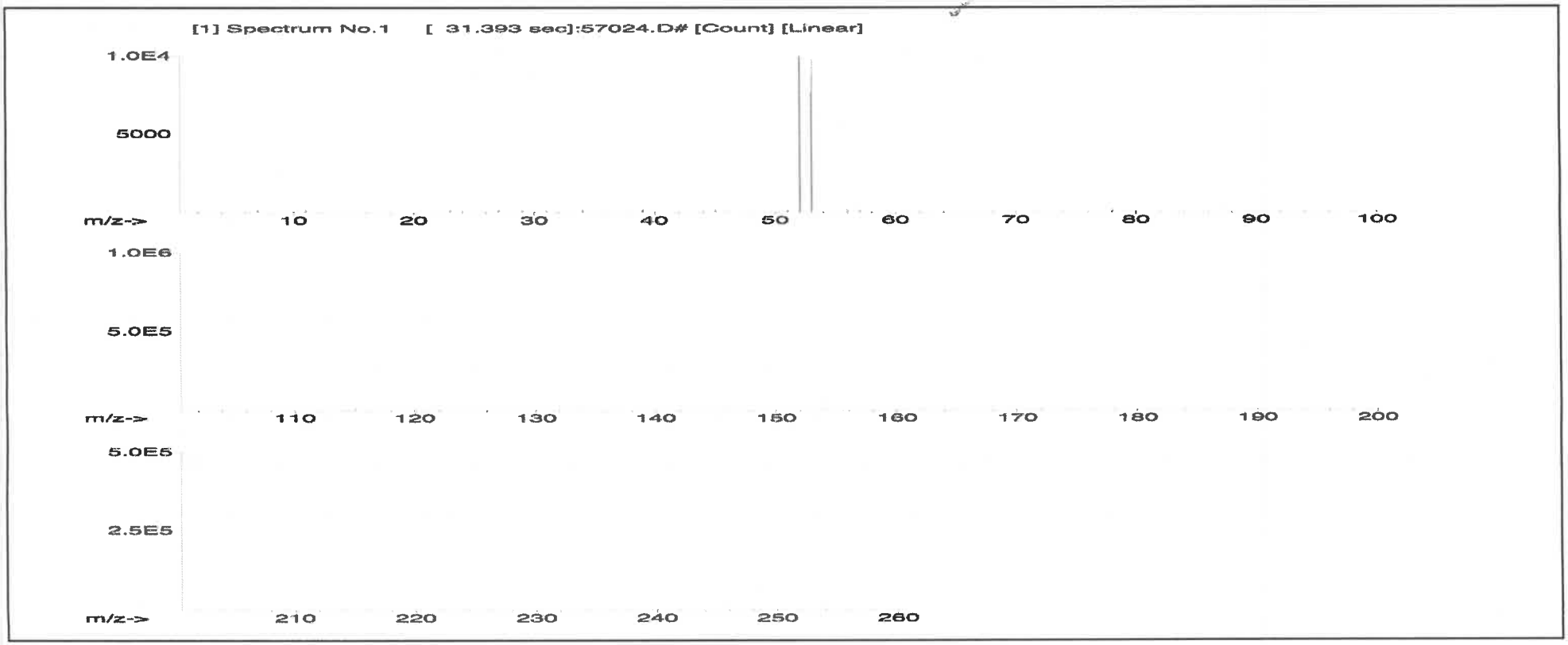
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CERTIFIED WEIGHT REPORT:

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

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

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



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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

* 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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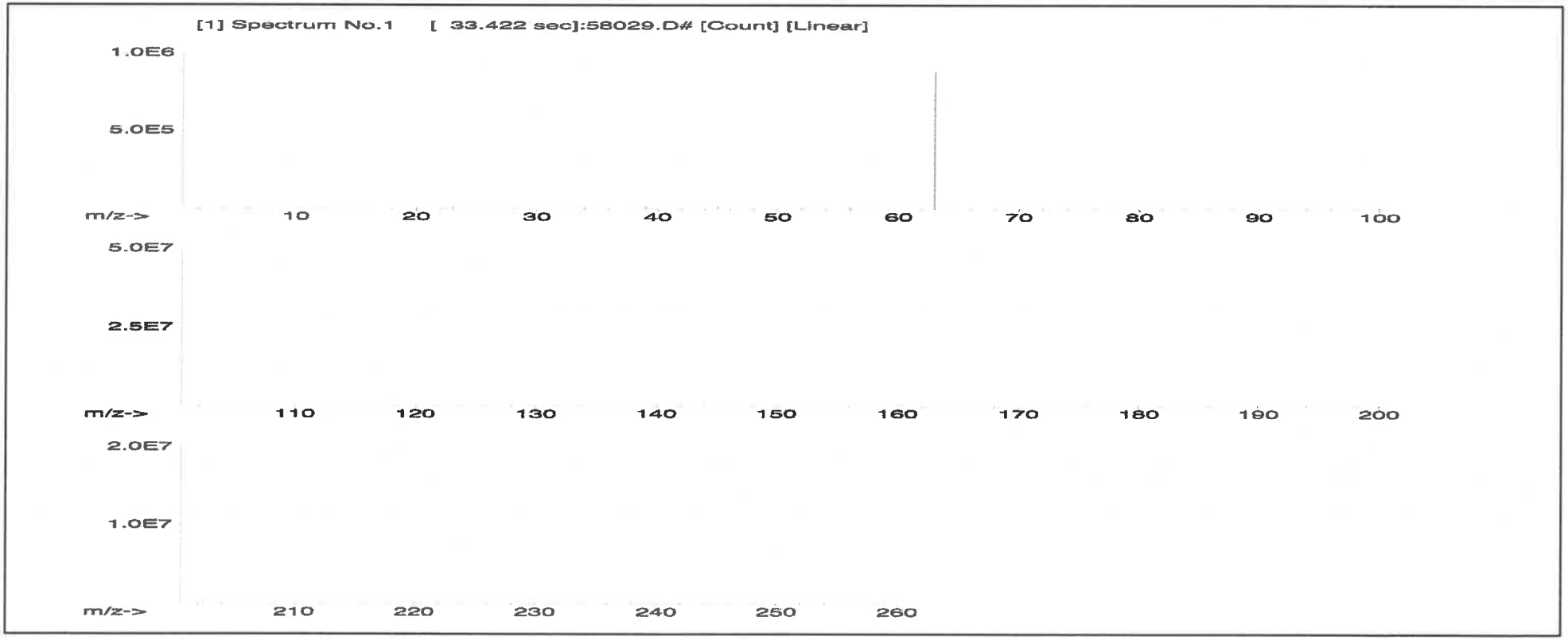
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**58029**	24002546	Nitric Acid		
Lot Number:	**102523**				
Description:	**Copper (Cu)**				
		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. Copper(II) nitrate trihydrate (Cu)	58129	100223	0.1000	200.0	0.084	1000	10000.1	**1000.0**	**2.2**	10031-43-3	1 mg/m3	orl-rat 794 mg/kg	3114



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:

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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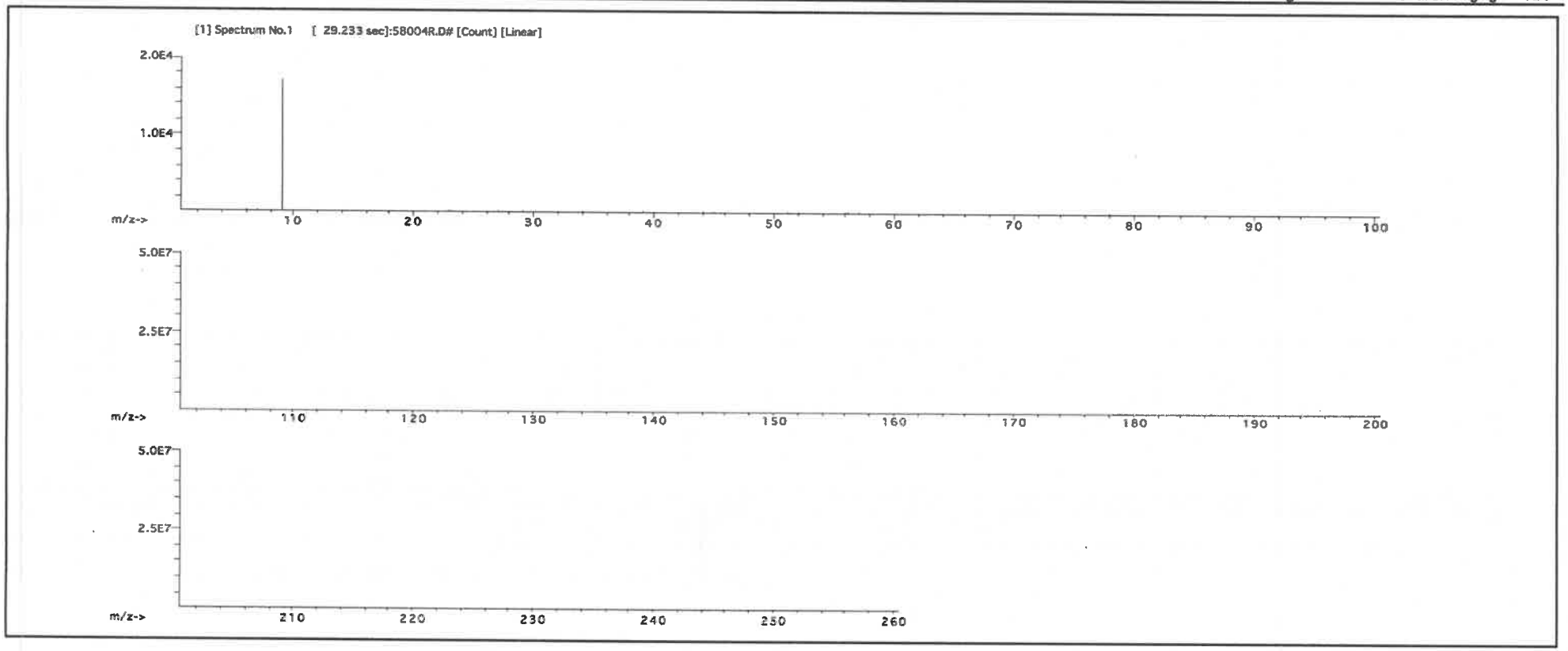
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CERTIFIED WEIGHT REPORT:

		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.

* 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 WEIGHT REPORT:

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

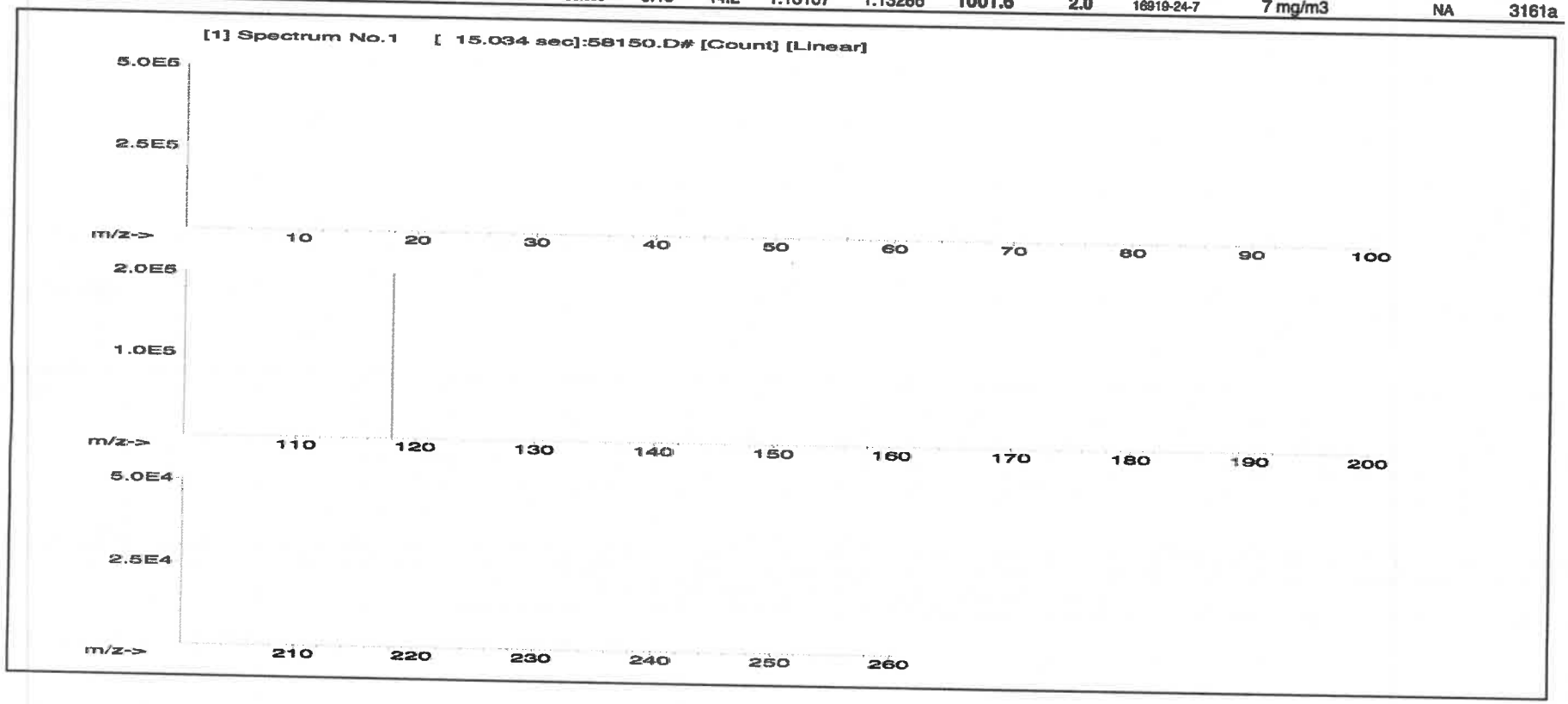
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

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

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

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



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

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	T	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
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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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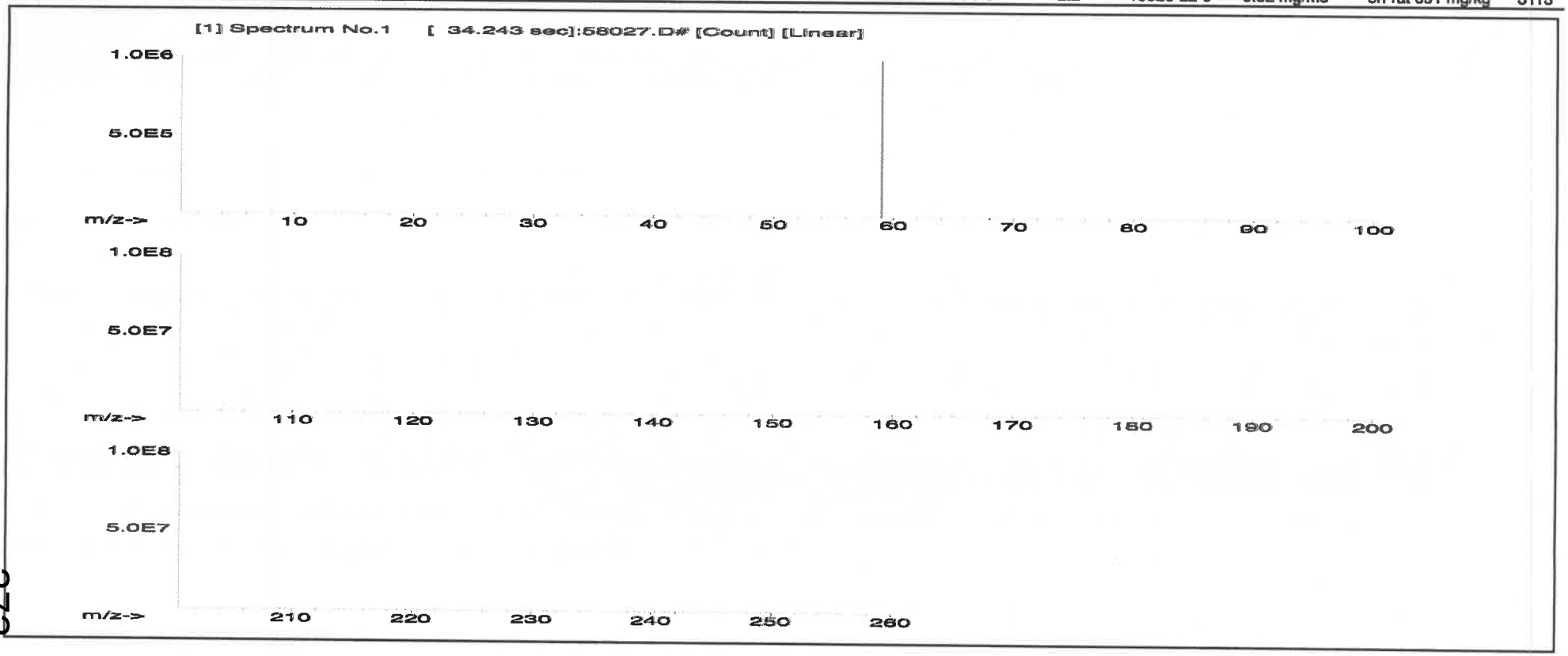
CERTIFIED WEIGHT REPORT:

		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



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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

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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).

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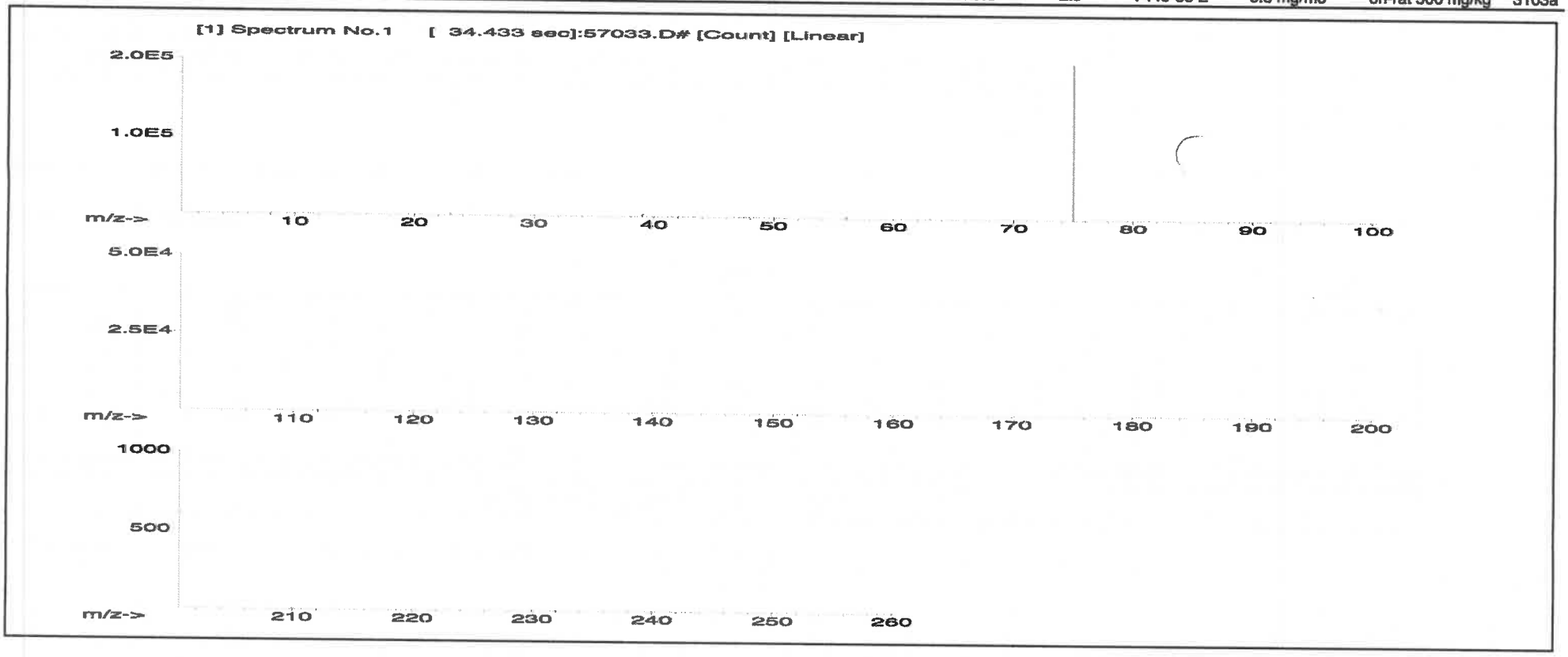
275

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



276

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:

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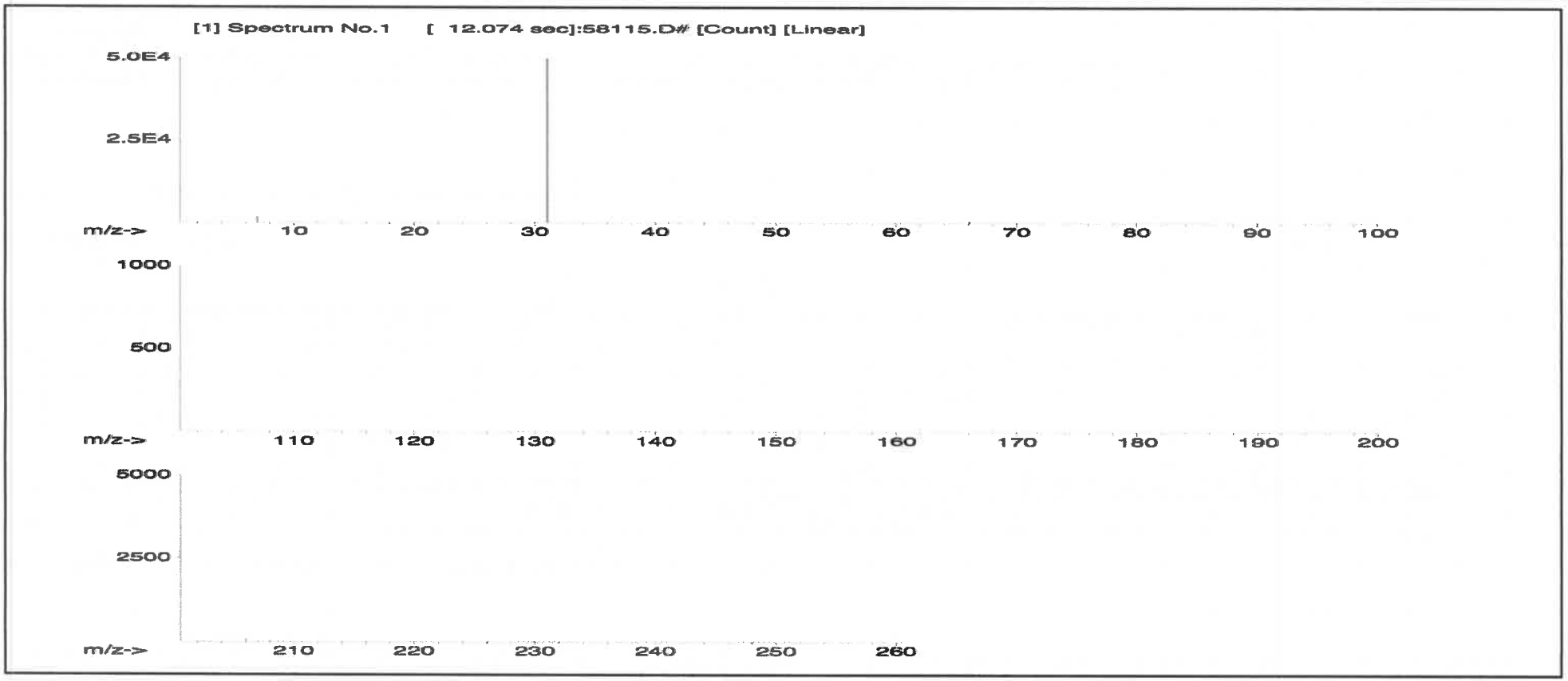
277

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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279

CERTIFIED WEIGHT REPORT:

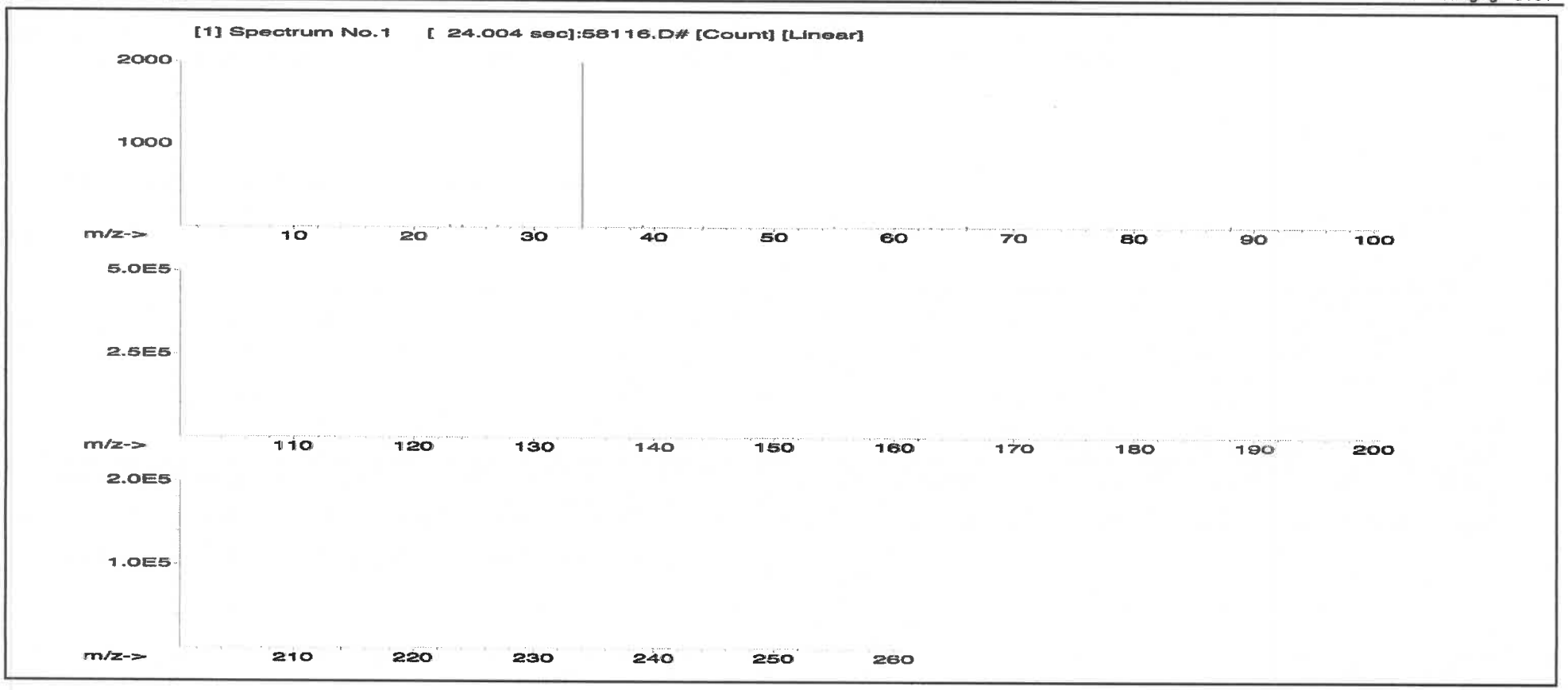
Part Number: 57116
Lot Number: 071123
Description: Sulfur (S)

Lot #
Solvent: 071123 ASTM Type 1 Water

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB 5E-05 Balance Uncertainty
Weight shown below was diluted to (mL): 1999.48 0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	071123
Reviewed By:	Pedro L. Rentas	071123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium sulfate (S)	IN117	SLBR7225V	10000	99.9	0.10	24.3	82.4675	82.4682	**10000.1**	**20.0**	7783-20-2	NA	orl-rat 4250mg/kg	3181



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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T)= Target analyte

Physical Characterization:

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

Certified by:

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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

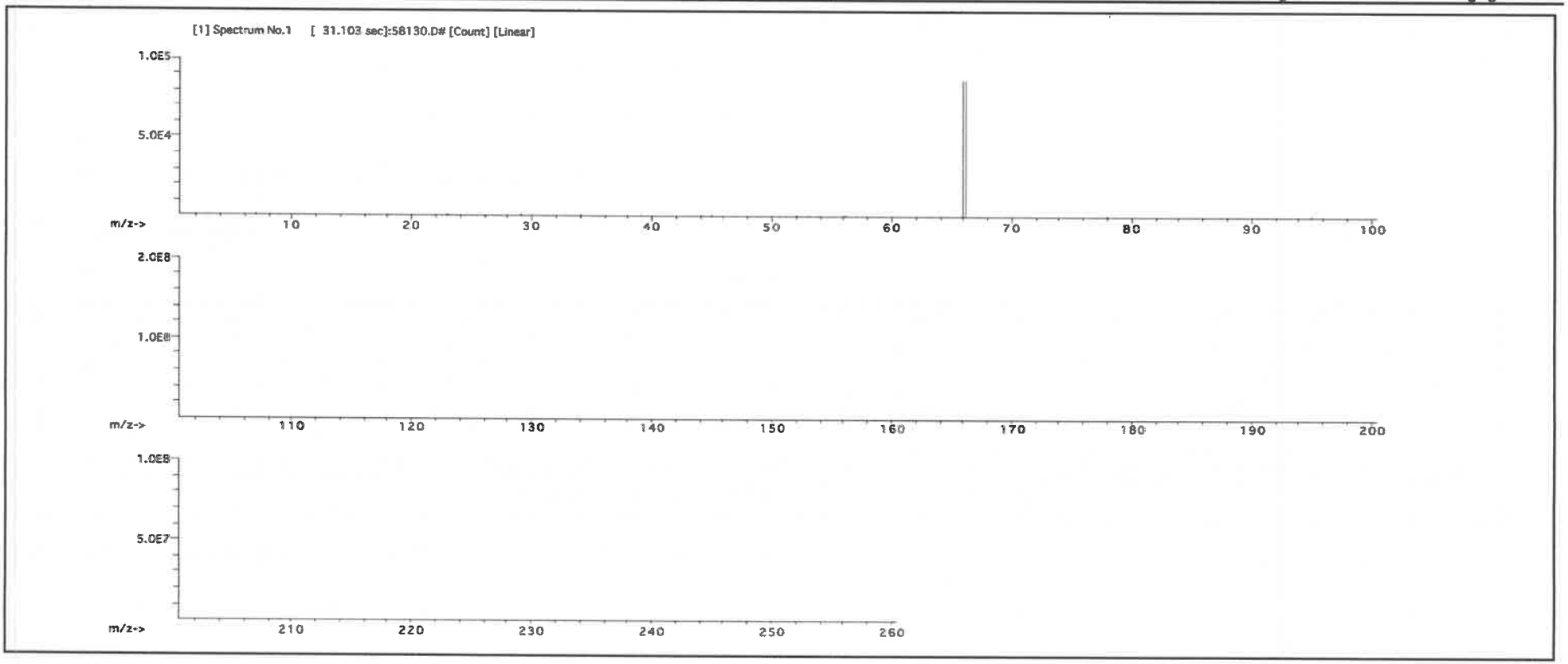
Weight shown below was diluted to (mL): 3000.4 0.06 Flask Uncertainty

	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



282

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:

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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) HNO_3 tr. HF
Value / Analyte(s):	1 000 µg/mL ea: Titanium
Starting Material:	Ti Metal
Starting Material Lot#:	2094
Starting Material Purity:	99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **1002 ± 4 µg/mL**
ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000536	M	Eu	<	0.000268	O	Na	<	0.032670	M	Se		0.001204	O	Zn	<	0.003267
O	Al		0.000872	O	Fe		0.003225	O	Nb	<	0.043560	O	Si		0.004735	O	Zr	<	0.043560
M	As	<	0.008586	M	Ga	<	0.000268	M	Nd	<	0.000268	M	Sm	<	0.000268				
M	Au	<	0.004577	M	Gd	<	0.000268	O	Ni	<	0.010890	M	Sn		0.000096				
O	B	<	0.008929	M	Ge	<	0.002146	M	Os	<	0.000269	O	Sr		0.000096				
M	Ba	<	0.002683	M	Hf		0.002161	O	P	<	0.054450	M	Ta		0.010560				
M	Be	<	0.005366	M	Hg	<	0.003231	M	Pb	<	0.001073	M	Tb	<	0.000268				
M	Bi	<	0.001609	M	Ho	<	0.000268	M	Pd	<	0.000268	M	Te	<	0.001341				
O	Ca		0.000676	M	In	<	0.002683	M	Pr	<	0.000268	M	Th	<	0.053663				
M	Cd	<	0.000268	M	Ir	<	0.000269	M	Pt	<	0.000536	s	Ti	<					
M	Ce	<	0.000268	M	K		0.001172	M	Rb	<	0.000268	M	Tl	<	0.000268				
M	Co	<	0.004293	M	La	<	0.000268	M	Re	<	0.000268	M	Tm	<	0.000268				
M	Cr		0.000752	O	Li	<	0.027225	M	Rh	<	0.000268	M	U	<	0.000268				
M	Cs	<	0.000268	M	Lu	<	0.000268	M	Ru	<	0.000269	M	V	<	0.019855				
O	Cu	<	0.010890	O	Mg	<	0.005445	i	S	<		M	W		0.000473				
M	Dy	<	0.000268	O	Mn	<	0.003267	M	Sb	<	0.006976	M	Y	<	0.002146				
M	Er	<	0.000268	M	Mo		0.000774	O	Sc	<	0.004900	M	Yb	<	0.000536				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 +4 6 Ti(F)6-2

Chemical Compatibility - Soluble in concentrated HCl, HF, H3PO4 H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)6-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)6-2 chemically stable for years in 2-5% HNO3 / trace HF in an LDPE container.

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution -powder reacts violently); Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); Oxide - high temperature history (~800EC) brookite (fuse in Pt0 with K2S2O7); Ores (fuse in Pt0 with KF + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystalline form).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	Ce, Ar, Ni
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	W, Mo, Co

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **June 17, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



INORGANIC VENTURES
Refine your results. Redefine your industry.

Certificate of Analysis

M5959 R: 6/14/24.

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Christiansburg, VA 24073 USA
inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 863.01
ACCREDITED Reference Material Producer Certificate 863.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGY10
Lot Number:	V2-Y740548
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Yttrium
Starting Material:	Yttrium Oxide
Starting Material Lot#:	2661 and 06230520YL
Starting Material Purity:	99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL

Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	**10011 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	**9997 ± 50 µg/mL** ICP Assay NIST SRM 3167a Lot Number: 190730
Assay Method #3	**9984 ± 31 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.004600	M	Eu		0.009037	M	Na		0.086360	M	Se	<	0.005200	M	Zn		0.030125
M	Al		0.014862	O	Fe		0.002410	M	Nb	<	0.000570	O	Si		0.024100	O	Zr	<	0.002600
M	As	<	0.003500	M	Ga	<	0.000570	M	Nd		0.000923	M	Sm		0.000461				
M	Au	<	0.001700	M	Gd	<	0.003500	M	Ni	<	0.005700	M	Sn	<	0.002300				
O	B		0.002209	M	Ge	<	0.005200	M	Os	<	0.001200	M	Sr	<	0.004600				
O	Ba	<	0.002500	M	Hf	<	0.000570	n	P	<		M	Ta	<	0.000570				
O	Be	<	0.001400	M	Hg	<	0.000570	M	Pb		0.005020	M	Tb		0.001044				
M	Bi	<	0.003500	M	Ho		0.009037	M	Pd	<	0.005100	M	Te	<	0.002300				
O	Ca		0.009841	M	In	<	0.002300	M	Pr	<	0.002300	M	Th	<	0.000570				
M	Cd	<	0.000570	M	Ir	<	0.000570	M	Pt	<	0.000570	M	Ti	<	0.003500				
M	Ce	<	0.002300	O	K		0.018677	M	Rb	<	0.000570	M	Tl	<	0.000570				
M	Co	<	0.000570	M	La		0.000461	M	Re	<	0.000570	M	Tm	<	0.003500				
M	Cr	<	0.004000	O	Li	<	0.009300	M	Rh	<	0.008000	M	U	<	0.000570				
M	Cs	<	0.000570	M	Lu		0.000582	M	Ru	<	0.000570	M	V		0.001265				
M	Cu		0.002610	O	Mg		0.001486	n	S	<		M	W	<	0.002300				
M	Dy		0.003815	M	Mn		0.000582	M	Sb		0.005422	s	Y	<					
M	Er		0.003615	M	Mo	<	0.005700	M	Sc	<	0.001200	M	Yb		0.001827				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 88.91 +3 6 Y(OH)(H2O)x+2

Chemical Compatibility -Soluble in HCl, H2SO4 and HNO3. Avoid HF, H3PO4 and neutral to basic media. Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride. Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H2O/ HNO3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H2O / HCl or HNO3).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 89 amu	0.8 ppt	N/A	73Ge16O, 178Hf+2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- February 20, 2029

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5961 R: 6/11/24

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

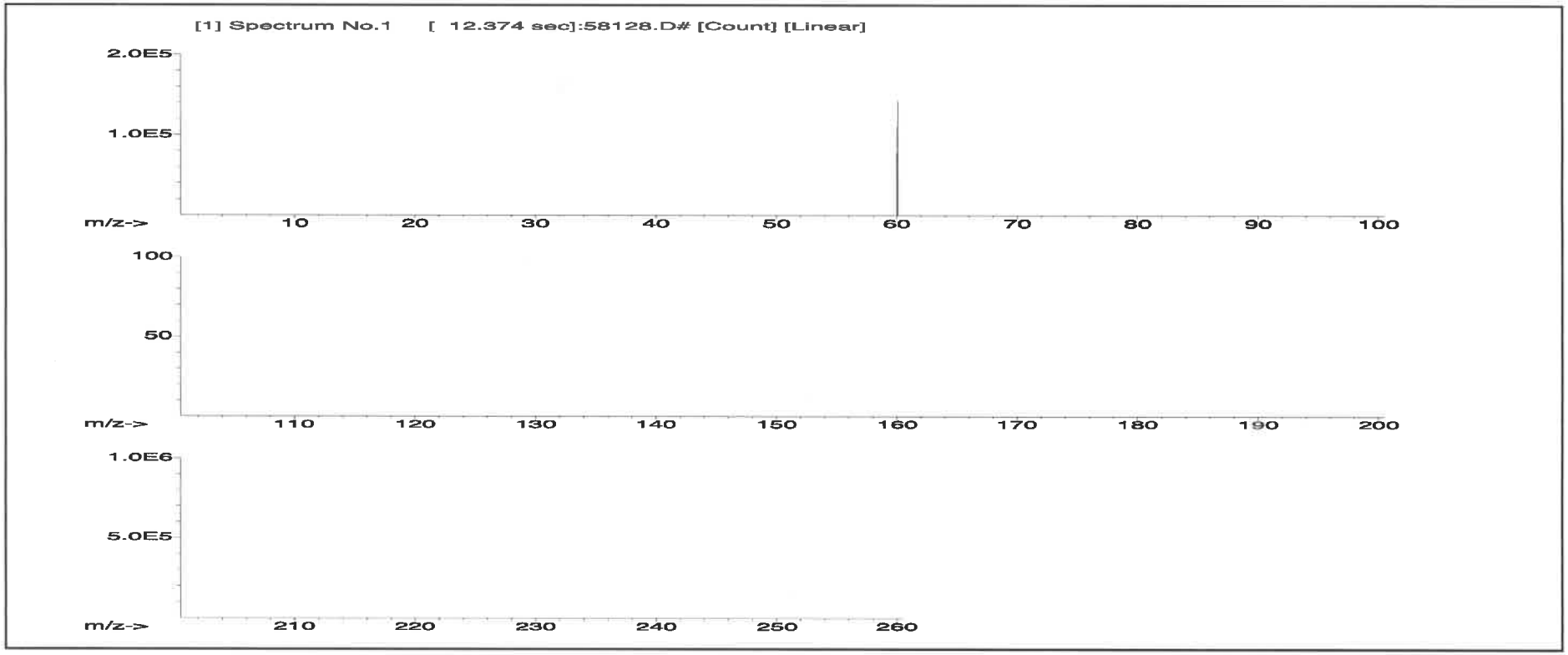
291

CERTIFIED WEIGHT REPORT:

			Lot #	
Part Number:	**57028**	**Solvent:**	24002546	Nitric Acid
Lot Number:	**041124**			
Description:	**Nickel (Ni)**			
		2%	5.0 (mL)	Nitric Acid
Expiration Date:	041127			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	249.85	0.002	Flask Uncertainty	

Formulated By:	Brian Geddes	041124
Reviewed By:	Pedro L. Rentas	041124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Nickel(II) nitrate hexahydrate (Ni)	IN033	NIM052023A1	1000	99.999	0.10	20.2	1.2369	1.2369	**1000.0**	**2.0**	13478-00-7	1 mg/m3	orl-rat 1620 mg/kg	3136



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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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

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Certified Reference Material CRM

M5962 R! 06/14/24

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

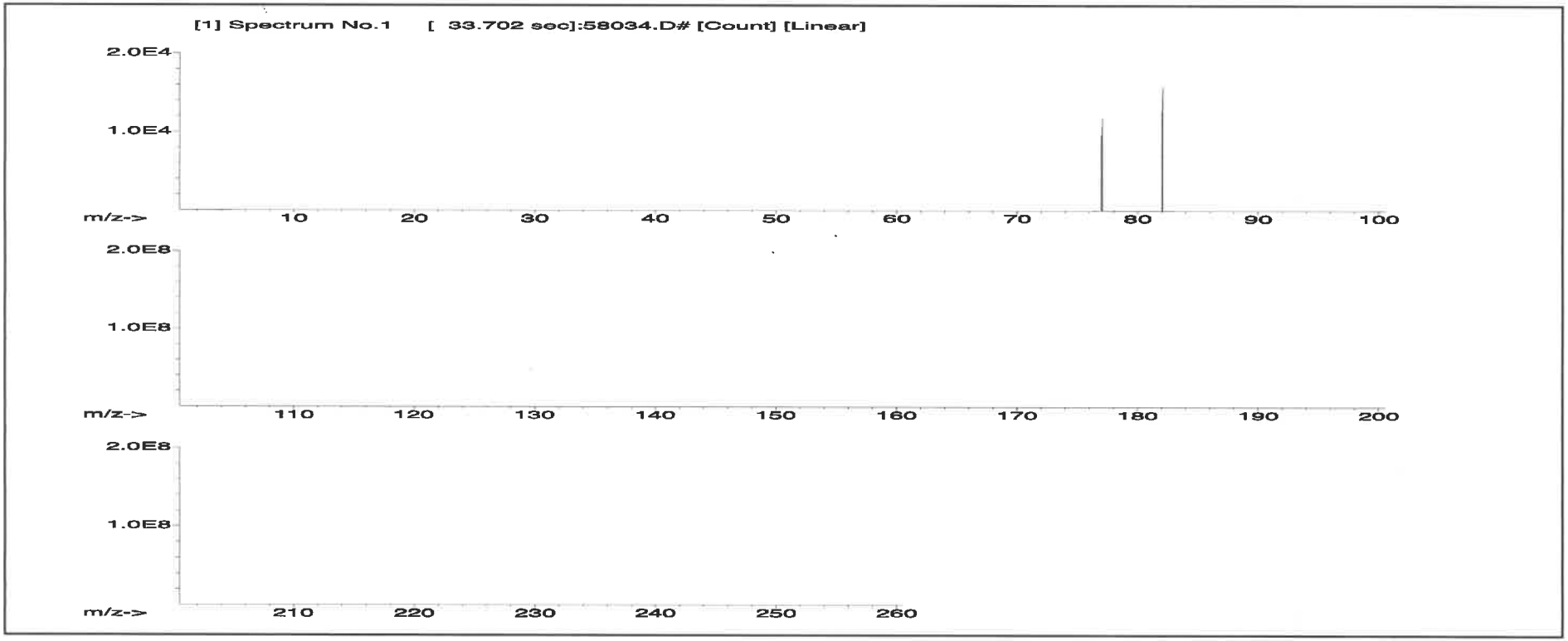
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CERTIFIED WEIGHT REPORT:

		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



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

(T) = Target analyte

Physical Characterization:

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

Certified by:



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

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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

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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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



303

M5978, M5979

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Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

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

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) HNO_3 tr. HF
Value / Analyte(s):	1 000 µg/mL ea: Titanium
Starting Material:	Ti Metal
Starting Material Lot#:	2094
Starting Material Purity:	99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **1002 ± 4 µg/mL**
ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$
w_i = the weighting factors for each method calculated using the inverse square of the variance

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = (\Sigma(w_i)^2\ (u_{char\ i})^2)^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with
$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization
u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000536	M	Eu	<	0.000268	O	Na	<	0.032670	M	Se		0.001204	O	Zn	<	0.003267
O	Al		0.000872	O	Fe		0.003225	O	Nb	<	0.043560	O	Si		0.004735	O	Zr	<	0.043560
M	As	<	0.008586	M	Ga	<	0.000268	M	Nd	<	0.000268	M	Sm	<	0.000268				
M	Au	<	0.004577	M	Gd	<	0.000268	O	Ni	<	0.010890	M	Sn		0.000096				
O	B	<	0.008929	M	Ge	<	0.002146	M	Os	<	0.000269	O	Sr		0.000096				
M	Ba	<	0.002683	M	Hf		0.002161	O	P	<	0.054450	M	Ta		0.010560				
M	Be	<	0.005366	M	Hg	<	0.003231	M	Pb	<	0.001073	M	Tb	<	0.000268				
M	Bi	<	0.001609	M	Ho	<	0.000268	M	Pd	<	0.000268	M	Te	<	0.001341				
O	Ca		0.000676	M	In	<	0.002683	M	Pr	<	0.000268	M	Th	<	0.053663				
M	Cd	<	0.000268	M	Ir	<	0.000269	M	Pt	<	0.000536	s	Ti	<					
M	Ce	<	0.000268	M	K		0.001172	M	Rb	<	0.000268	M	Tl	<	0.000268				
M	Co	<	0.004293	M	La	<	0.000268	M	Re	<	0.000268	M	Tm	<	0.000268				
M	Cr		0.000752	O	Li	<	0.027225	M	Rh	<	0.000268	M	U	<	0.000268				
M	Cs	<	0.000268	M	Lu	<	0.000268	M	Ru	<	0.000269	M	V	<	0.019855				
O	Cu	<	0.010890	O	Mg	<	0.005445	i	S	<		M	W		0.000473				
M	Dy	<	0.000268	O	Mn	<	0.003267	M	Sb	<	0.006976	M	Y	<	0.002146				
M	Er	<	0.000268	M	Mo		0.000774	O	Sc	<	0.004900	M	Yb	<	0.000536				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 +4 6 Ti(F)6-2

Chemical Compatibility - Soluble in concentrated HCl, HF, H3PO4 H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)6-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)6-2 chemically stable for years in 2-5% HNO3 / trace HF in an LDPE container.

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution -powder reacts violently); Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); Oxide - high temperature history (~800EC) brookite (fuse in Pt0 with K2S2O7); Ores (fuse in Pt0 with KF + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystalline form).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	Ce, Ar, Ni
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	W, Mo, Co

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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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

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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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EXP.: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CHEM-CLP-4
Lot Number:	V2-MEB746762
Matrix:	3% (v/v) HNO3 3% (v/v) HF
Value / Analyte(s):	1 000 µg/mL ea: Boron, Molybdenum, Silicon, Tin, Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 5 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 000 ± 6 µg/mL		

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- September 06, 2029

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

R → 10/13/24
Met dig

M 6121

Material No.: 9530-33
Batch No.: 0000275677
Manufactured Date: 2020/12/16
Retest Date: 2025/12/15
Revision No: 1

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.3
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	29.7
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

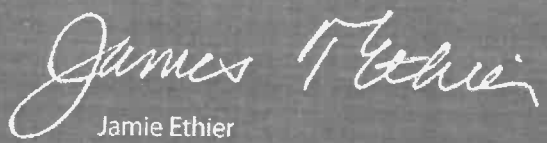
315

Material No.: 9530-33
Batch No.: 0000275677

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	<1
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	0.4
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	< 0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	0.2
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

M6125 Receive -> 11/22/24

CORCO CHEMICAL CORPORATION

Manufacturers of ACS Reagents and Semiconductor Grade Chemicals

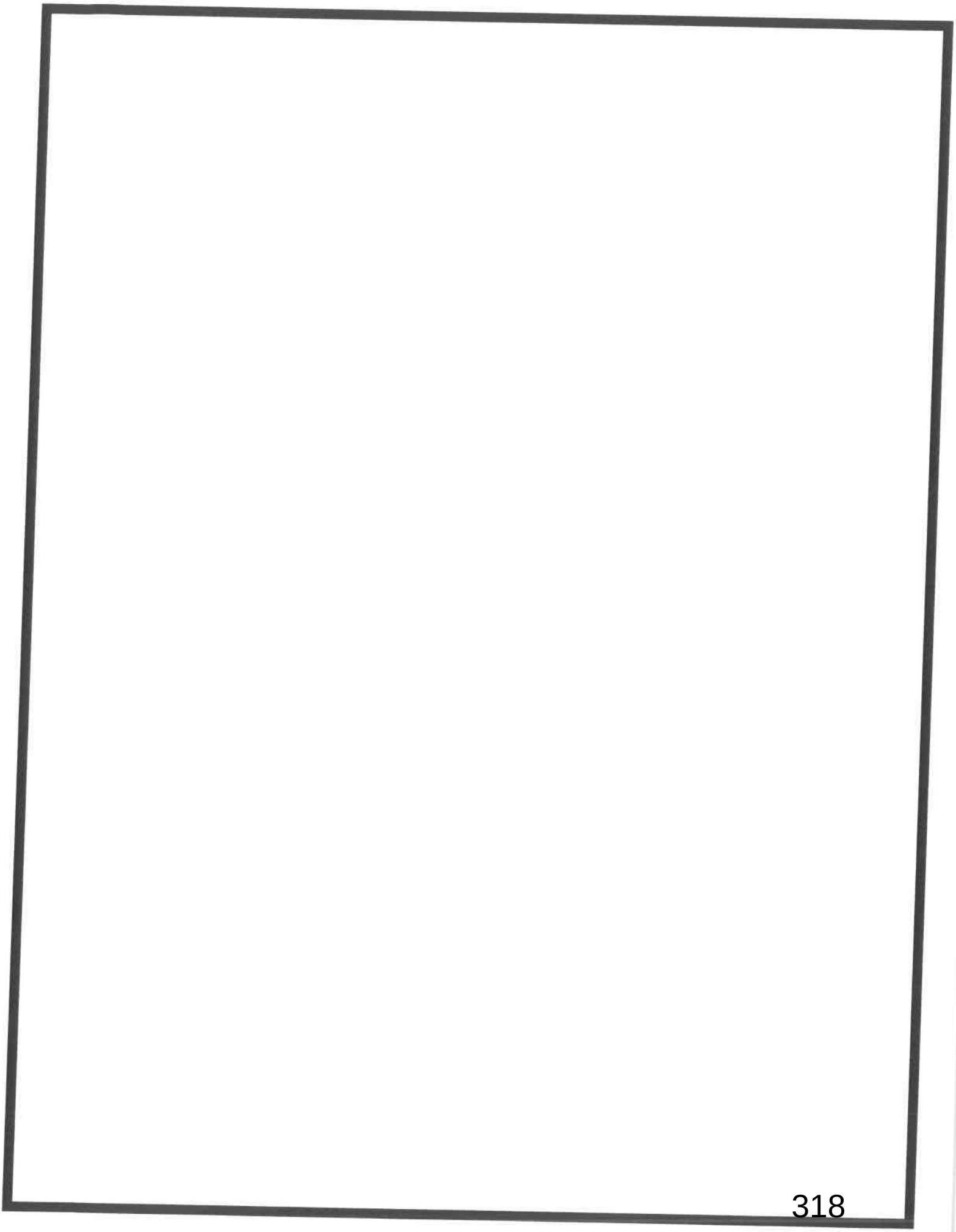
Office and Plant
299 Cedar Lane
Fairless Hills, PA 19030

Phone: 215-295-5006
Fax: 215-295-0781

Hydrogen Peroxide 30%, ACS

Reagent Grade

SPECIFICATION	MAXIMUM LIMITS
Appearance	Colorless and free from suspended matter or sediment
Assay	29-32%
Color (APHA)	10
Residue after Evaporation	0.002%
Titratable Acid	0.0006 meq/g
Chloride (Cl)	3 ppm
Nitrate (NO_3)	2 ppm
Phosphate	2 ppm
Sulfate (SO_4)	5 ppm
Ammonium (NH_4)	5 ppm
Heavy Metals (as Pb)	1 ppm
Iron (Fe)	0.5 ppm



Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

R -> 11/12/24

Material No.: 9606-03
Batch No.: 24D1062002
Manufactured Date: 2024-03-26
Retest Date: 2029-03-25
Revision No.: 0

M6126

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | 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

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CERTIFIED WEIGHT REPORT:

R→ 1/13/25

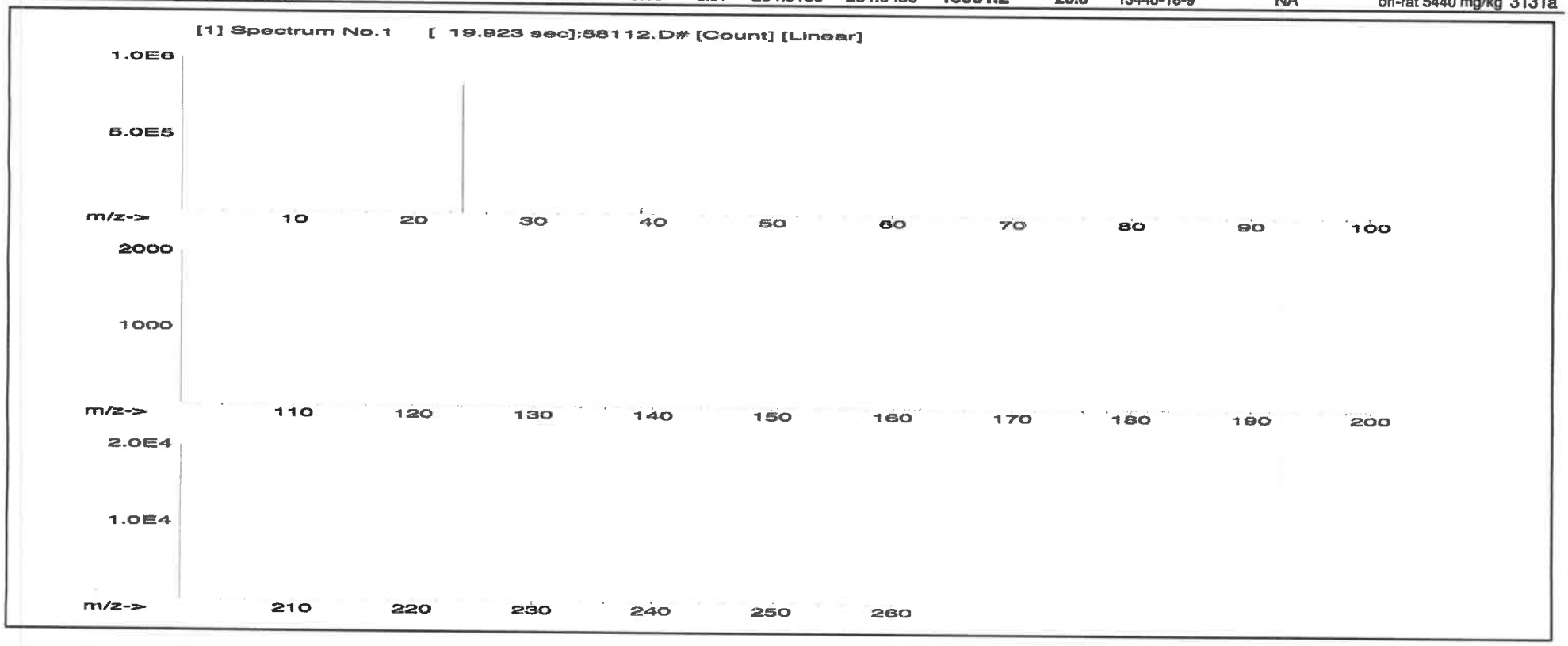
M 6127

Part Number:	**58112**		**Solvent:**	**Lot #** 24012496	Nitric Acid
Lot Number:	**112124**				
Description:	**Magnesium (Mg)**		2%	40.0 (mL)	Nitric Acid
Expiration Date:	112127				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

Giovanni Esposito

Formulated By:	Giovanni Esposito	112124
Reviewed By:	Pedro L. Rentas	112124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Magnesium nitrate hexahydrate (Mg)	IN030	MGD052023A1	10000	99.999	0.10	8.51	234.9183	234.9459	**10001.2**	**20.0**	13446-18-9	NA	orl-rat 5440 mg/kg	3131a



322

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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

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CERTIFIED WEIGHT REPORT:

R->1/13/28

M6128

Part Number:	**58025**	**Solvent:**	**Lot #** 24002546	Nitric Acid
Lot Number:	**101124**			
Description:	**Manganese (Mn)**	2%	80.0 (mL)	Nitric Acid
Expiration Date:	101127			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	4000.2	0.10	Flask Uncertainty	

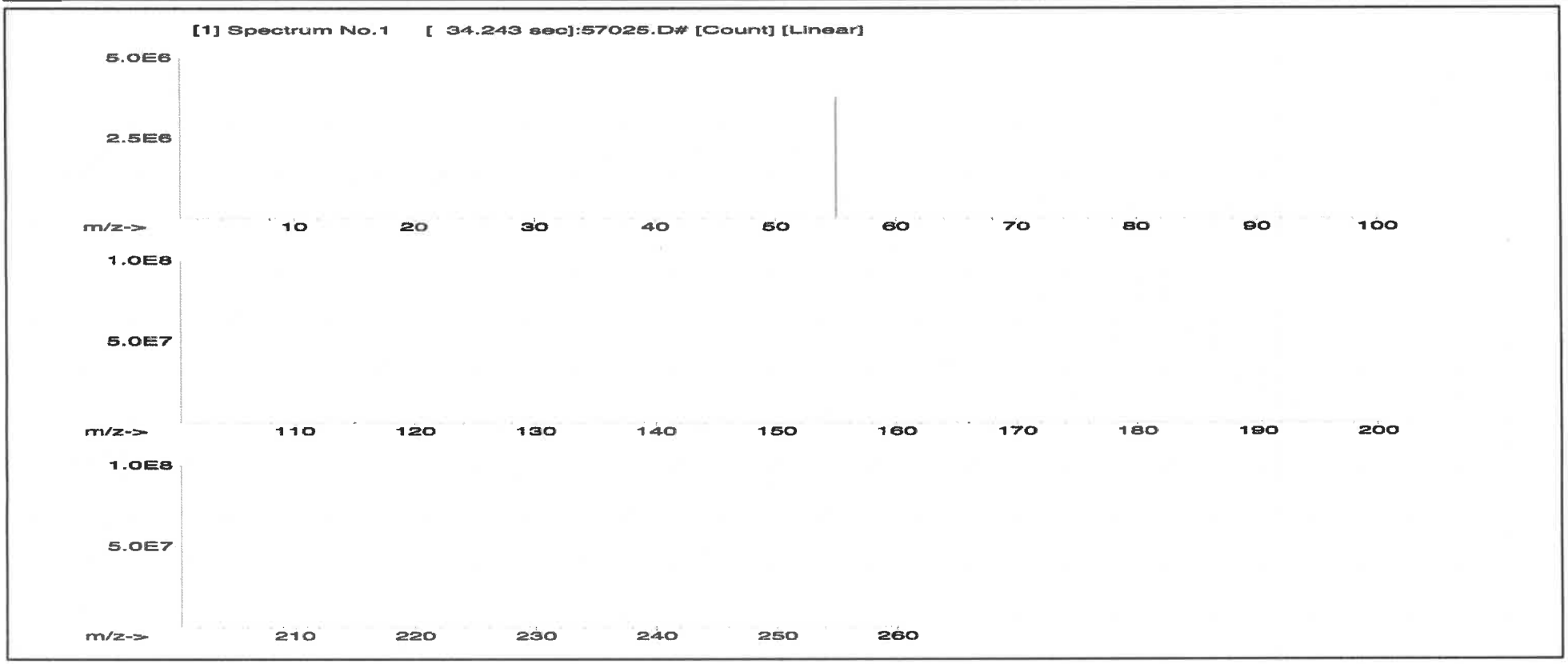
Giovanni Esposito

Formulated By:	Giovanni Esposito	101124

Pedro Rentas

Reviewed By:	Pedro L. Rentas	101124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	**Actual Conc. (µg/mL)**	Expanded Uncertainty +/- (µg/mL)	**SDS Information** (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Manganese(II) nitrate hydrate (Mn)	IN031	MNM092020A1	1000	99.999	0.10	20.8	19.2322	19.2344	**1000.1**	**2.0**	15710-66-4	5 mg/m3	orl-rat >300mg/kg	3132



324

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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

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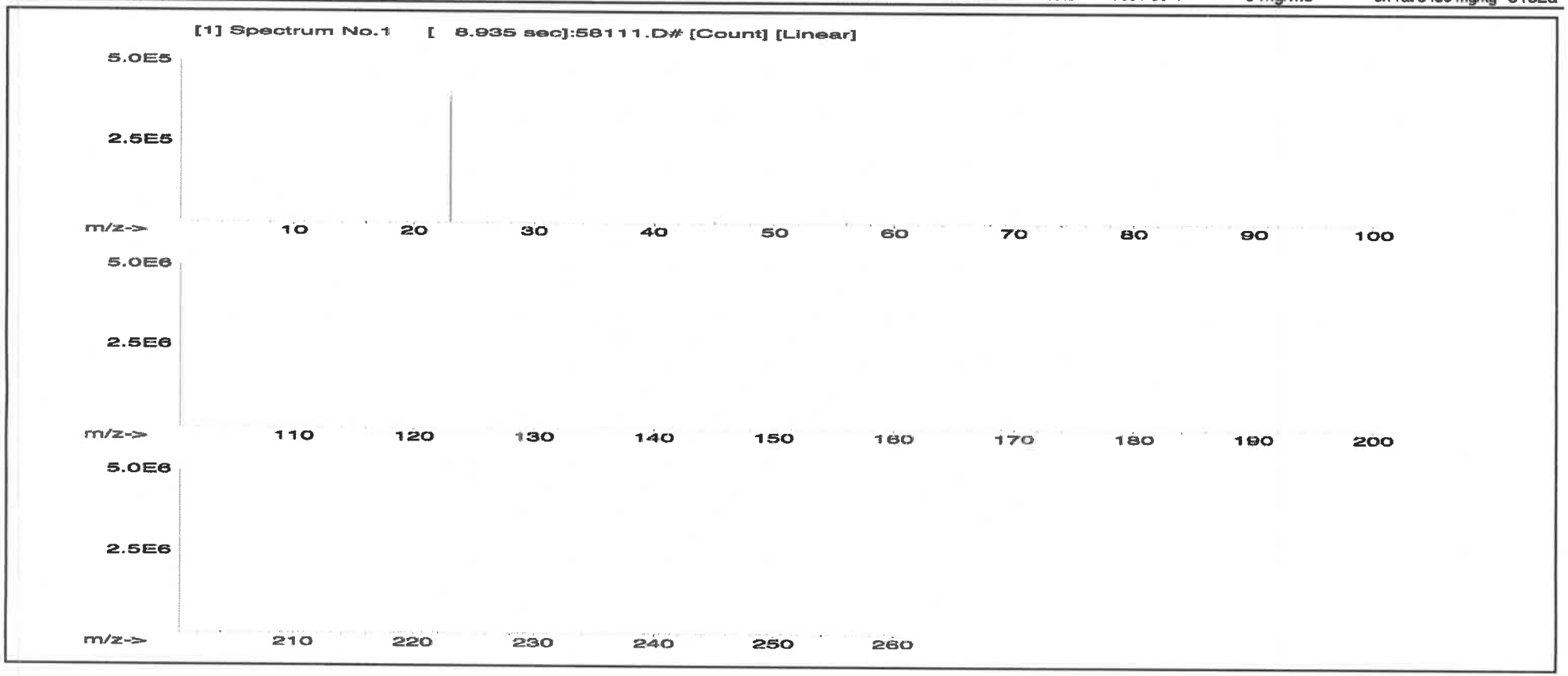
CERTIFIED WEIGHT REPORT:

R->1/13/25

Part Number:	**58111**		**Lot #**		
Lot Number:	**072424**	**Solvent:**	24002546	Nitric Acid	
Description:	**Sodium (Na)**				
		MG144 2%	80.0 (mL)	Nitric Acid	
Expiration Date:	072427				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	4000.2	0.10	Flask Uncertainty		

Formulated By:	Benson Chan	072424
Reviewed By:	Pedro L. Rentas	072424

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Sodium nitrate (Na)	IN036	NAV012015I1	10000	99.999	0.10	26.9	148.7096	######	**10000.0**	**20.0**	7631-99-4	5 mg/m3	orl-rat 3430 mg/kg	3152a



326

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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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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R: 01/03/24 M5806, M5807

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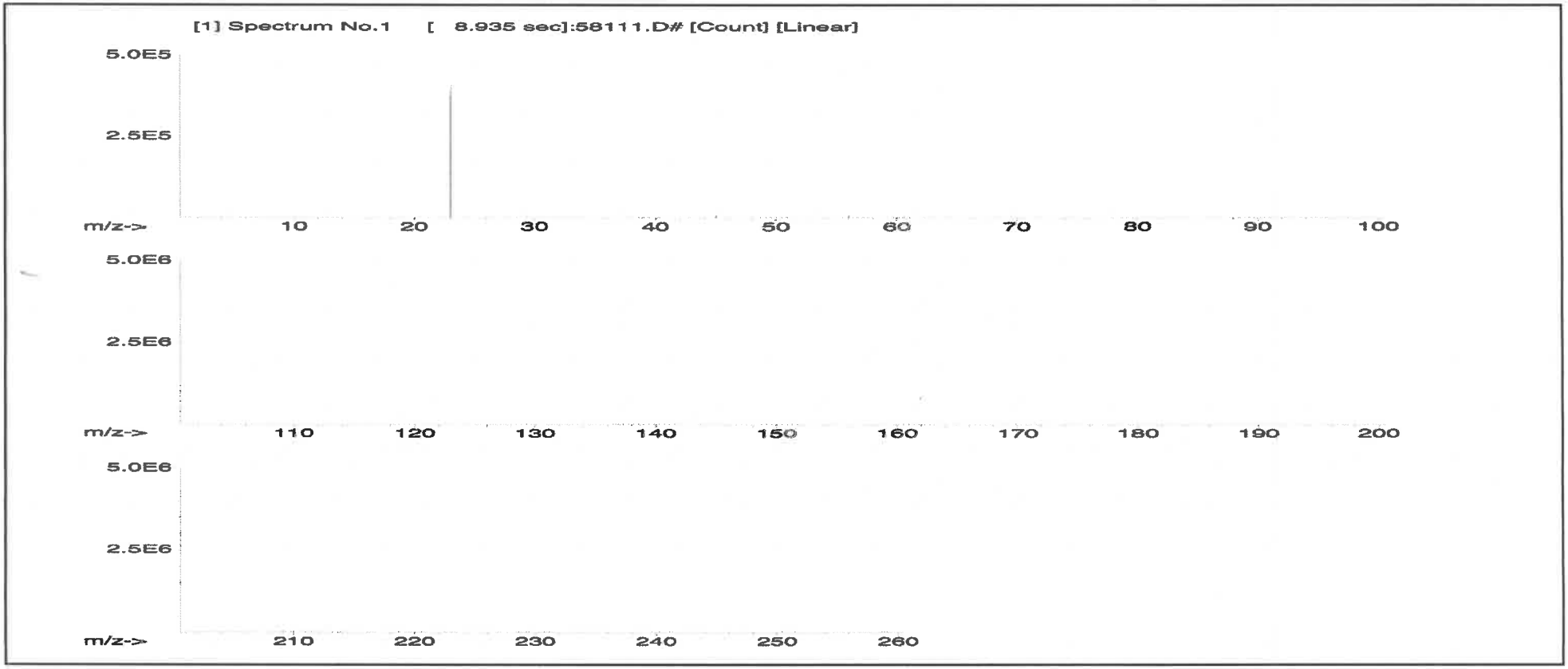
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CERTIFIED WEIGHT REPORT:

			Lot #	
Part Number:	**58111**	**Solvent:**	24002546	Nitric Acid
Lot Number:	**122223**			
Description:	**Sodium (Na)**	2%	60.0 (mL)	Nitric Acid
Expiration Date:	122226			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**10000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	3000.4	0.06	Flask Uncertainty	

Aleah O'Brady		
Formulated By:	Aleah O'Brady	122223
Pedro Rentas		
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



328

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).

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R: 01/03/24 M5802, M5803

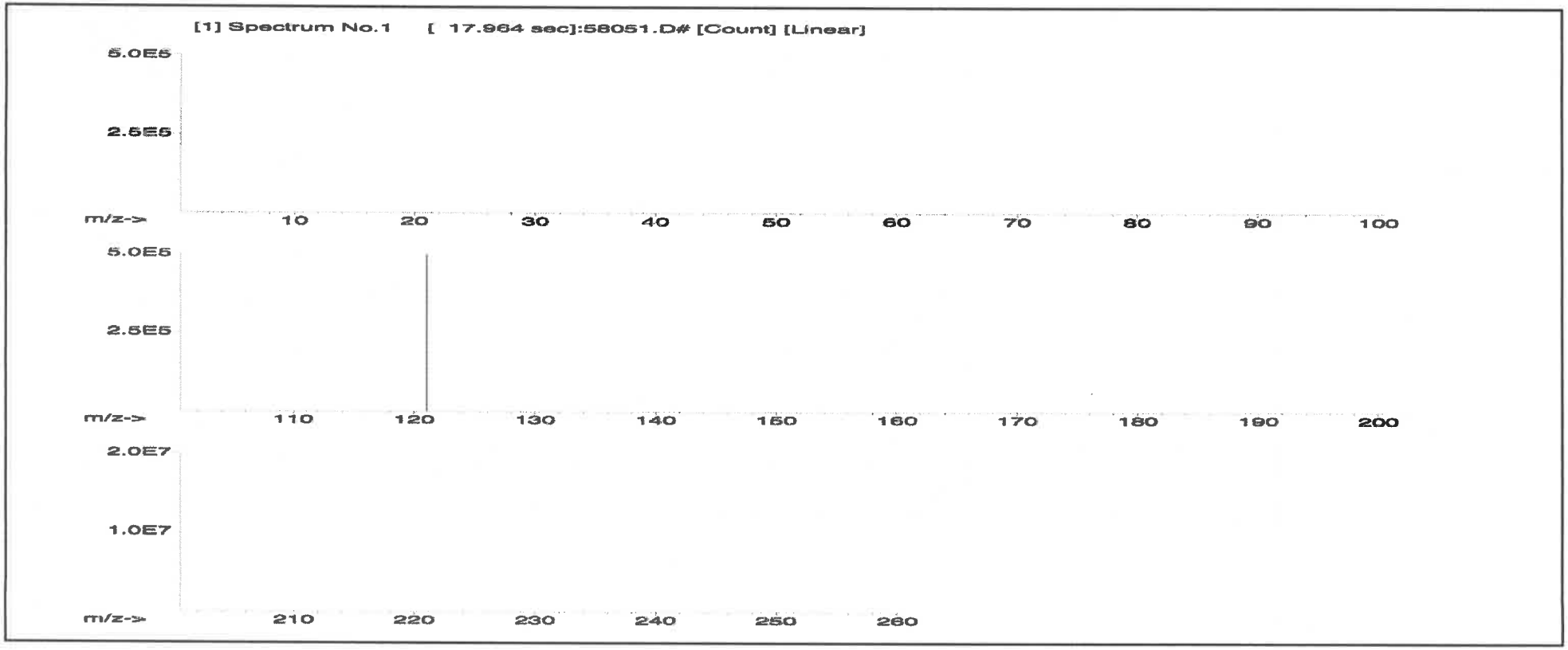
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CERTIFIED WEIGHT REPORT:

		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



330

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:

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M6030

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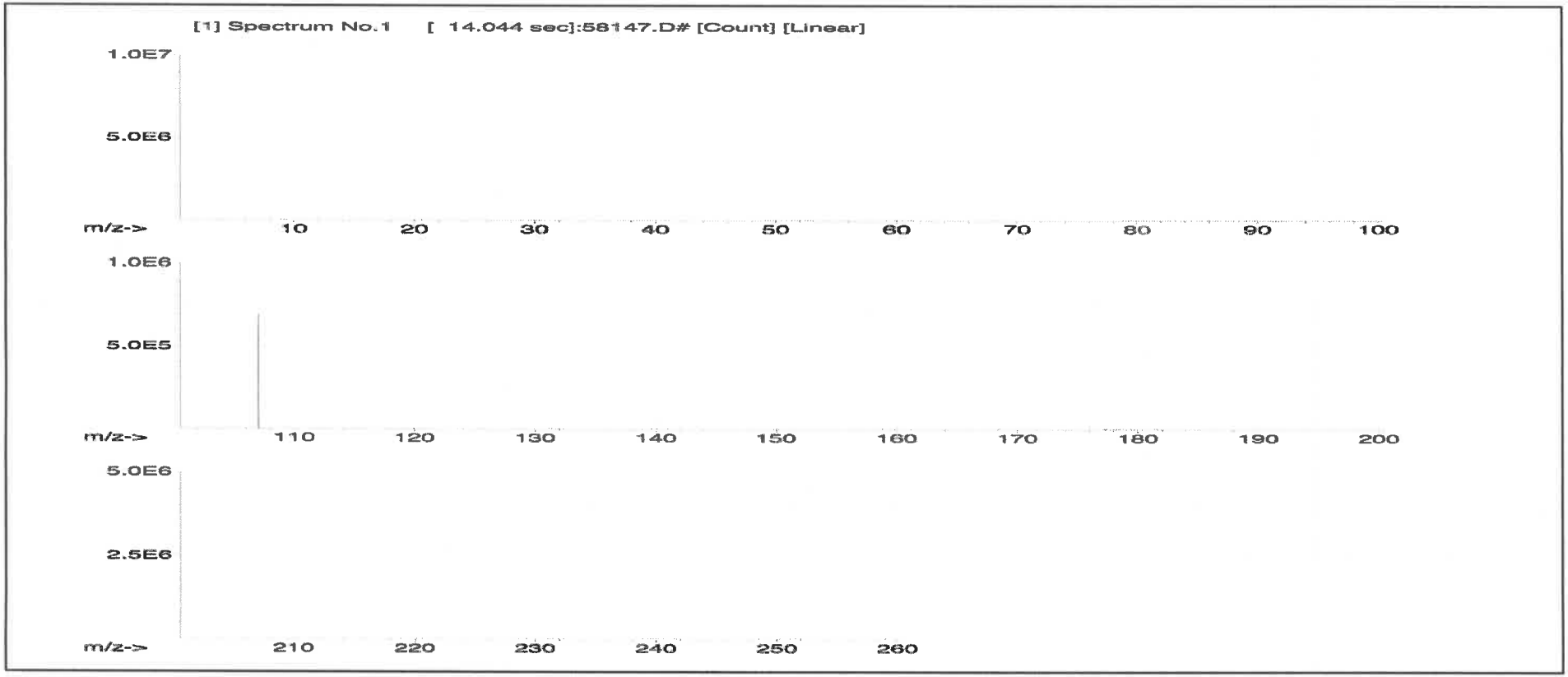
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CERTIFIED WEIGHT REPORT:

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:

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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 885.01 ACCREDITED Reference Material Producer Certificate 885.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSR1
Lot Number:	U2-SR730227
Matrix:	0.1% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Strontium
Starting Material:	SrCO3
Starting Material Lot#:	M2-2192
Starting Material Purity:	99.9993%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1001 ± 3 µg/mL

Density: 1.000 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **998 ± 4 µg/mL**
ICP Assay NIST SRM Traceable to 3153a Lot Number: K2-SR650985

Assay Method #2 **1001 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **1001 ± 2 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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	<	0.001980	M	Eu	<	0.000495	O	Na		0.000200	M	Se	<	0.013862	O	Zn		0.000143
O	Al		0.000370	O	Fe		0.000410	M	Nb	<	0.000495	i	Si	<		M	Zr	<	0.000495
M	As	<	0.000495	M	Ga	<	0.000495	M	Nd	<	0.000495	M	Sm	<	0.000495				
M	Au	<	0.000989	M	Gd	<	0.000495	O	Ni	<	0.007631	M	Sn	<	0.000990				
M	B	<	0.039606	M	Ge	<	0.000495	M	Os	<	0.000494	s	Sr	<					
M	Ba		0.006486	M	Hf	<	0.000495	i	P	<		M	Ta	<	0.000495				
M	Be	<	0.000990	M	Hg	<	0.000989	M	Pb	<	0.002970	M	Tb	<	0.000495				
M	Bi	<	0.000495	M	Ho	<	0.000495	M	Pd	<	0.003957	M	Te	<	0.027724				
O	Ca		0.004255	M	In	<	0.000495	M	Pr	<	0.000495	M	Th	<	0.000990				
M	Cd		0.001339	M	Ir	<	0.000494	M	Pt	<	0.002970	M	Ti	<	0.005940				
M	Ce	<	0.004950	O	K	<	0.008184	M	Rb	<	0.002970	M	Tl	<	0.000495				
M	Co	<	0.000495	M	La	<	0.000495	M	Re	<	0.000495	M	Tm	<	0.000495				
O	Cr	<	0.003207	O	Li	<	0.000884	O	Rh	<	0.012829	M	U	<	0.001485				
M	Cs	<	0.000990	M	Lu	<	0.002970	M	Ru	<	0.000989	M	V	<	0.001980				
M	Cu		0.000099	O	Mg		0.000064	i	S	<		M	W	<	0.003960				
M	Dy	<	0.000495	O	Mn		0.000066	M	Sb	<	0.014852	O	Y	<	0.000995				
M	Er	<	0.000495	M	Mo	<	0.001980	M	Sc	<	0.001980	M	Yb	<	0.000495				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 87.62 +2 6 $Sr(H_2O)_6^{+2}$

Chemical Compatibility - Soluble in HCl, and HNO_3. Avoid H_2SO_4, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO_3 / LDPE container.

Sr Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO_3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolution in dilute HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 88 amu	1200 ppt	N/A	72Ge16O, 176Yb+2, 176Lu+2 , 176Hf+2
ICP-OES 407.771 nm	0.0004 / 0.00006 µg/mL	1	U, Ce
ICP-OES 421.552 nm	0.0008 / 0.00004 µg/mL	1	Rb
ICP-OES 460.733 nm	0.07 / 0.003 µg/mL	1	Ce

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 03, 2023

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **March 03, 2028**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

R: 03/16/23 M5473, M5474, M5475, M5476

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

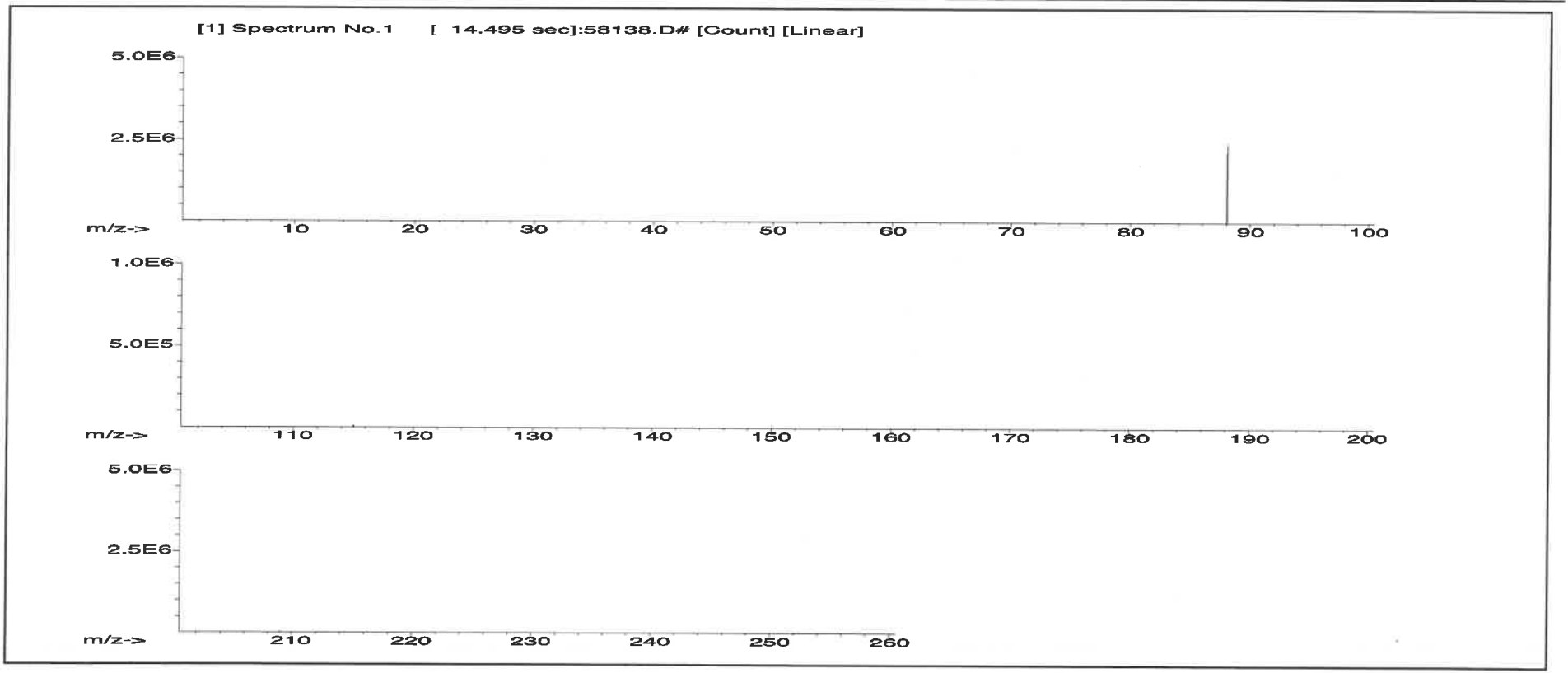
337

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



338

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.

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

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Certified Reference Material CRM

R ! 8/5/24

M6023

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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		

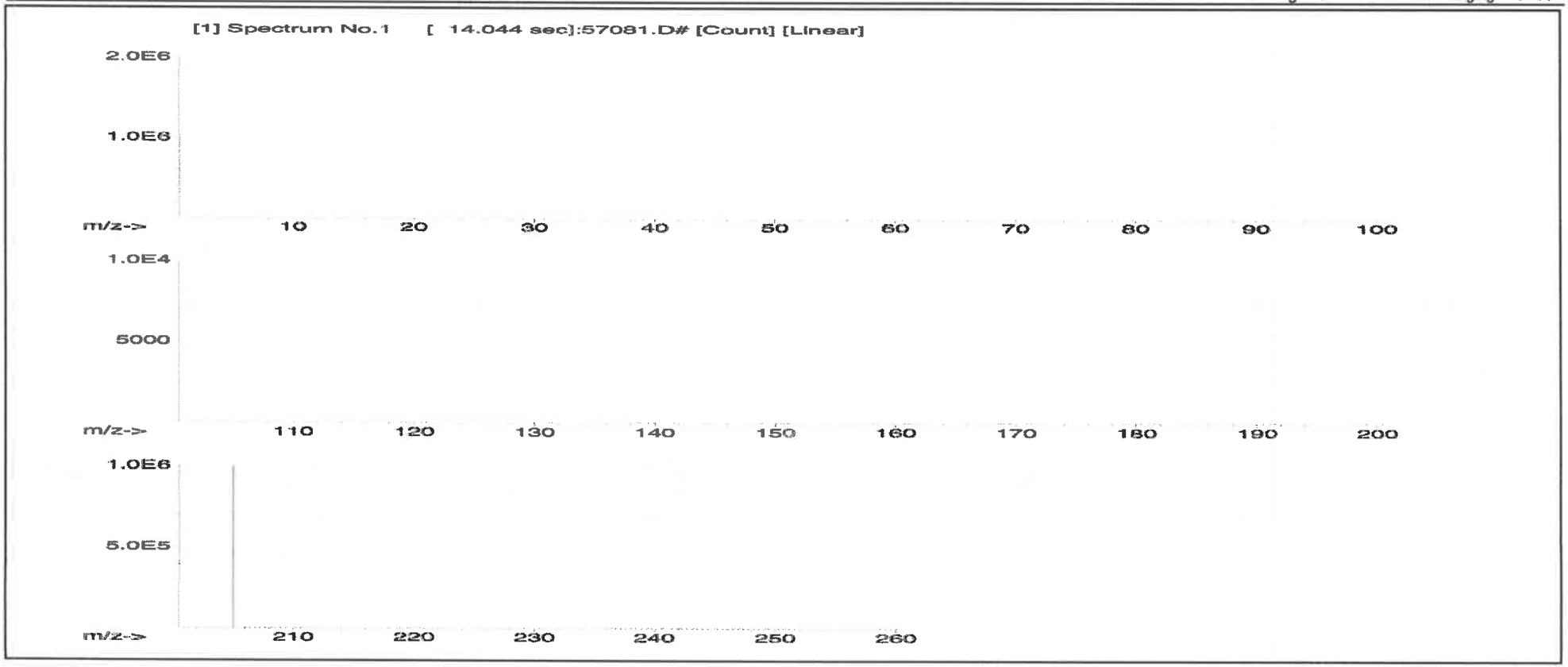
Aleah O'Brady

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



340

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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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).

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Certified Reference Material CRM

M6021

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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57023**	24002546	Nitric Acid	
Lot Number:	**062424**			
Description:	**Vanadium (V)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	062427			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.3	0.06	Flask Uncertainty	

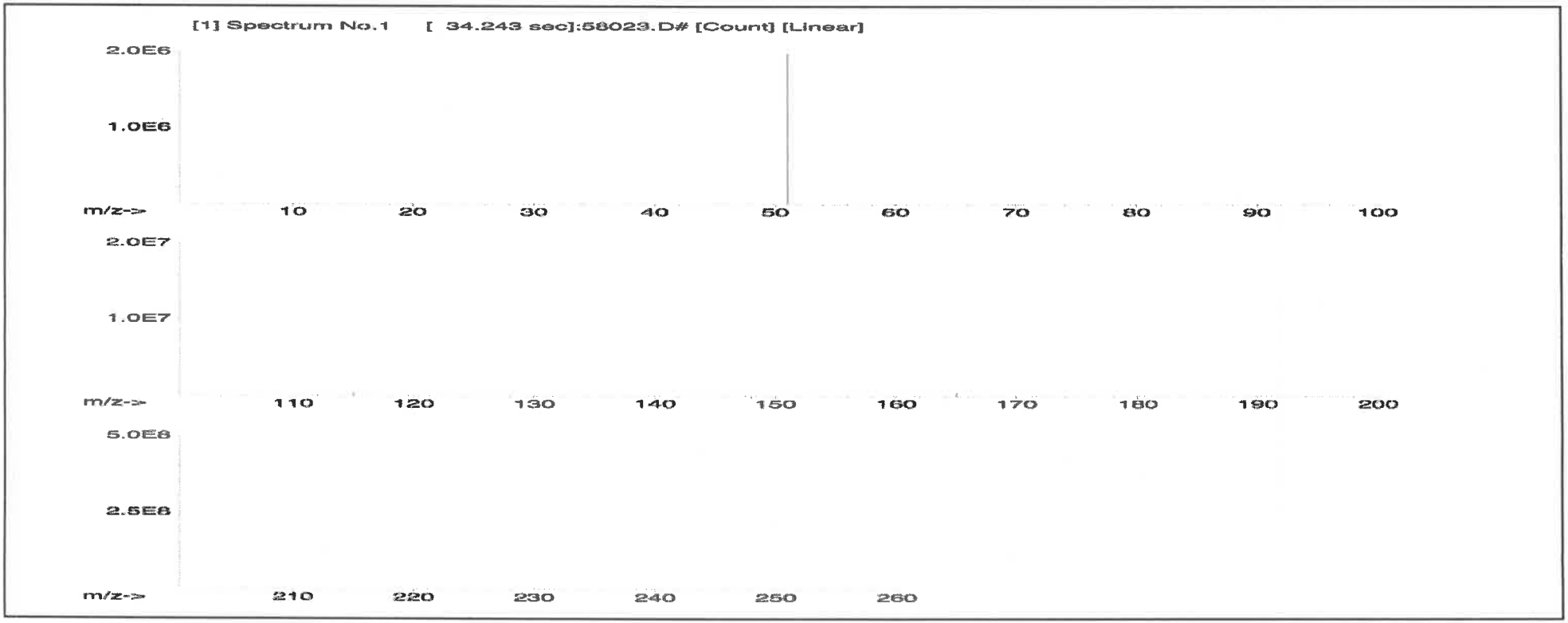
Aleah O'Brady

Formulated By:	Aleah O'Brady	062424

Pedro Rentas

Reviewed By:	Pedro L. Rentas	062424

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium metavanadate (V)	58123	021224	0.1000	200.0	0.084	1000	10000.3	**1000.0**	**2.2**	7803-55-6	0.05 mg/m3	orl-rat 58.1mg/kg	3165



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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:

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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* 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).

Alliance TECHNICAL GROUP

Soil/Sludge Metals Preparation Sheet

PB166278

SOP ID : M3050B-Digestion-20, MSFAM01.1-Trace Metals-2

SDG No : MBHH96

Matrix : SOIL

Pippete ID: ICP A

Balance ID : M SC-2

Filter paper ID : N/A

pH Strip ID : N/A

Hood ID : #3

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

Start Digest Date: 01/27/2025 **Time :** 11:35 **Temp :** 96 °C

End Digest Date: 01/27/2025 **Time :** 12:05 **Temp :** 96 °C

Digestion tube ID: M6054

Block thermometer ID: MET-DIG. #2

Dig Technician Signature: SKJ.

Supervisor Signature:

Temp : 1. 96°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LCSS	1.00	MP84063
Spike Sol 6	1.00	MP84070
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
1:1 HNO3	10.00	MP84041
Conc. HNO3	5.00	M6126
30% H2O2	3.00	M6125
Conc. HCL	10.00	M6121
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 #2 CELL #35 : 96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
01/27/25 13:05	SKJ. met digestion	[signature]
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Soil/Sludge Metals Preparation Sheet

PB166278

Lab Sample ID	Client Sample ID	pH	Initial Weight (g)	Final Vol (ml)	Color Before	Color After	Texture	Artifact	Comment	Prep Pos
PB166278BL	PBS278	N/A	1.00	100	Colorless	Colorless	Fine	N/A	N/A	10
PB166278BS	LCS278	N/A	1.00	100	Colorless	Colorless	Fine	N/A	MP84063	11
Q1181-01	MBHH96	N/A	1.16	100	Brown	Yellow	Medium	N/A	N/A	12
Q1181-02	MBHH97	N/A	1.25	100	Brown	Yellow	Medium	N/A	N/A	13
Q1181-03	MBHH98	N/A	1.12	100	Brown	Yellow	Medium	N/A	N/A	14
Q1181-04	MBHH99	N/A	1.30	100	Brown	Yellow	Medium	N/A	N/A	15
Q1181-05	MBHH99D	N/A	1.29	100	Brown	Yellow	Medium	N/A	N/A	16
Q1181-06	MBHH99S	N/A	1.17	100	Brown	Yellow	Medium	N/A	MP84070	17

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

Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB134438

Review By	Sarabjit Jaswal	Review On	1/28/2025 6:59:17 AM
Supervise By	Kareem Khairalla	Supervise On	1/28/2025 12:16:01 PM

STD. NAME	STD REF.#
ICAL Standard	MP84204,MP84212,MP84210,MP84209,MP84208,MP84207,MP84206
ICV Standard	MP84213
CCV Standard	MP84216
ICSA Standard	MP84214,MP84215
CRI Standard	
LCS Standard	MP84063
Chk Standard	MP84218,MP84219

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	01/27/25 14:23		Kareem	OK
2	S1	S01	CAL2	01/27/25 14:27		Kareem	OK
3	S2	S02	CAL3	01/27/25 14:32		Kareem	OK
4	S3	S03	CAL4	01/27/25 14:36		Kareem	OK
5	S4	S04	CAL5	01/27/25 14:40		Kareem	OK
6	S5	S05	CAL6	01/27/25 14:44		Kareem	OK
7	S6	S06	CAL7	01/27/25 14:48		Kareem	OK
8	ICV003	ICV003	ICV	01/27/25 15:41	Inst. paused for calibration review	Kareem	OK
9	ICB003	ICB003	ICB	01/27/25 15:45		Kareem	OK
10	ICSA003	ICSA003	ICSA	01/27/25 15:56	Inst. paused for review	Kareem	OK
11	ICSAB003	ICSAB003	ICSAB	01/27/25 16:01		Kareem	OK
12	CCV021	CCV021	CCV	01/27/25 16:10	Inst. paused for review	Kareem	OK
13	CCB021	CCB021	CCB	01/27/25 16:14		Kareem	OK
14	Q1106-01DL	YE8G3	SAM	01/27/25 16:19	2x for Ca	Kareem	Confirms
15	Q1106-02DL	YE8G5	SAM	01/27/25 16:23	2x for Mn	Kareem	Confirms
16	Q1106-07DL	YE8H1	SAM	01/27/25 16:27	2x for Mn	Kareem	Confirms
17	Q1106-12DL	YE8H6	SAM	01/27/25 16:31	2x for Mn	Kareem	Confirms
18	Q1045-17DL	GCQ12	SAM	01/27/25 16:39	2x for Ba	Kareem	Confirms

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

Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB134438

Review By	Sarabjit Jaswal	Review On	1/28/2025 6:59:17 AM
Supervise By	Kareem Khairalla	Supervise On	1/28/2025 12:16:01 PM

STD. NAME	STD REF.#
ICAL Standard	MP84204,MP84212,MP84210,MP84209,MP84208,MP84207,MP84206
ICV Standard	MP84213
CCV Standard	MP84216
ICSA Standard	MP84214,MP84215
CRI Standard	
LCS Standard	MP84063
Chk Standard	MP84218,MP84219

19	PB166225TB	LEB225	MB	01/27/25 16:43		Kareem	OK
20	Q1136-01	YE8F5	SAM	01/27/25 16:47		Kareem	OK
21	Q1136-02	YE8F7	SAM	01/27/25 16:56	NOT USE	Kareem	Not Ok
22	Q1105-01DL	YE8G3	SAM	01/27/25 17:00	5x for Ca	Kareem	Confirms
23	Q1136-03	YE8F7D	DUP	01/27/25 17:04	NOT USE	Kareem	Not Ok
24	Q1136-02L	YE8F7L	SD	01/27/25 17:08	NOT USE	Kareem	Not Ok
25	Q1136-04	YE8F7S	MS	01/27/25 17:12	NOT USE	Kareem	Not Ok
26	Q1136-05	YE8F8	SAM	01/27/25 17:16		Kareem	OK
27	Q1136-06	YE8E3	SAM	01/27/25 17:20		Kareem	OK
28	Q1136-07	YE8E4	SAM	01/27/25 17:24		Kareem	OK
29	Q1136-08	YE8E5	SAM	01/27/25 17:28		Kareem	OK
30	Q1136-09	YE8E6	SAM	01/27/25 17:32		Kareem	OK
31	Q1136-10	YE8E7	SAM	01/27/25 17:36		Kareem	OK
32	Q1136-11	YE8E8	SAM	01/27/25 17:40		Kareem	OK
33	Q1136-12	YE8D1	SAM	01/27/25 17:44		Kareem	OK
34	CCV022	CCV022	CCV	01/27/25 17:57		Kareem	OK
35	CCB022	CCB022	CCB	01/27/25 18:01		Kareem	OK
36	Q1136-13	YE8D2	SAM	01/27/25 18:05		Kareem	OK
37	Q1136-14	YE8D4	SAM	01/27/25 18:09		Kareem	OK
38	Q1136-15	YE8C3	SAM	01/27/25 18:13		Kareem	OK

284 Sheffield Street, Mountainside, New Jersey 07092, Phone : 908 789 8900,
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Daily Analysis Runlog For Sequence/QCBatch ID # LB134438

Review By	Sarabjit Jaswal	Review On	1/28/2025 6:59:17 AM
Supervise By	Kareem Khairalla	Supervise On	1/28/2025 12:16:01 PM

STD. NAME	STD REF.#
ICAL Standard	MP84204,MP84212,MP84210,MP84209,MP84208,MP84207,MP84206
ICV Standard	MP84213
CCV Standard	MP84216
ICSA Standard	MP84214,MP84215
CRI Standard	
LCS Standard	MP84063
Chk Standard	MP84218,MP84219

39	Q1136-17	YE8D5	SAM	01/27/25 18:17		Kareem	OK
40	PB166225BL	PBW225	MB	01/27/25 18:21		Kareem	OK
41	PB166225BS	LCS225	LCS	01/27/25 18:26		Kareem	OK
42	Q1151-01	MC0AZ0	SAM	01/27/25 18:30	NOT USE	Kareem	Not Ok
43	Q1151-02	MC0AZ1	SAM	01/27/25 18:34	Co,Ni high	Kareem	Dilution
44	Q1151-03	MC0AZ2	SAM	01/27/25 18:38	Co,Ni high	Kareem	Dilution
45	Q1151-04	MC0AZ3	SAM	01/27/25 18:42		Kareem	OK
46	Q1151-05	MC0AZ4	SAM	01/27/25 18:46	Co high	Kareem	Dilution
47	Q1151-06	MC0AZ5	SAM	01/27/25 18:50		Kareem	OK
48	Q1151-07	MC0AZ6	SAM	01/27/25 18:54		Kareem	OK
49	Q1151-08	MC0AZ7	SAM	01/27/25 18:58		Kareem	OK
50	Q1151-09	MC0AZ7D	DUP	01/27/25 19:01		Kareem	OK
51	Q1151-08L	MC0AZ7L	SD	01/27/25 19:05		Kareem	OK
52	Q1151-10	MC0AZ7S	MS	01/27/25 19:09	MS fail for As(76.26 ppb), Be(17.66 ppb), Cu(243.04 ppb), Mn(384.13 ppb), Zn(541.32 ppb) & Sb,Se,Ag (Below RL)	Kareem	OK
53	Q1151-11	MC0B00	SAM	01/27/25 19:13		Kareem	OK
54	CCV023	CCV023	CCV	01/27/25 19:21		Kareem	OK
55	CCB023	CCB023	CCB	01/27/25 19:26		Kareem	OK
56	Q1151-12	MC0B01	SAM	01/27/25 19:30		Kareem	OK

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

Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB134438

Review By	Sarabjit Jaswal	Review On	1/28/2025 6:59:17 AM
Supervise By	Kareem Khairalla	Supervise On	1/28/2025 12:16:01 PM

STD. NAME	STD REF.#
ICAL Standard	MP84204,MP84212,MP84210,MP84209,MP84208,MP84207,MP84206
ICV Standard	MP84213
CCV Standard	MP84216
ICSA Standard	MP84214,MP84215
CRI Standard	
LCS Standard	MP84063
Chk Standard	MP84218,MP84219

57	Q1163-01	ME2946	SAM	01/27/25 19:34	Fe high	Kareem	Dilution
58	Q1163-02	ME2947	SAM	01/27/25 19:38	Ca high	Kareem	Dilution
59	Q1163-03	ME2947D	DUP	01/27/25 19:42	Ca high	Kareem	Dilution
60	Q1163-02L	ME2947L	SD	01/27/25 19:47	Ca high	Kareem	Dilution
61	Q1163-04	ME2947S	MS	01/27/25 19:51	Ca high	Kareem	Dilution
62	PB166229BL	PBS229	MB	01/27/25 19:55		Kareem	OK
63	PB166229BS	LCS229	LCS	01/27/25 19:59		Kareem	OK
64	Q1181-01	MBHH96	SAM	01/27/25 20:03		Kareem	OK
65	Q1181-02	MBHH97	SAM	01/27/25 20:07		Kareem	OK
66	Q1181-03	MBHH98	SAM	01/27/25 20:11		Kareem	OK
67	Q1181-04	MBHH99	SAM	01/27/25 20:15		Kareem	OK
68	Q1181-05	MBHH99D	DUP	01/27/25 20:19		Kareem	OK
69	Q1181-04L	MBHH99L	SD	01/27/25 20:23		Kareem	OK
70	Q1181-06	MBHH99S	MS	01/27/25 20:27		Kareem	OK
71	PB166278BL	PBS278	MB	01/27/25 20:31		Kareem	OK
72	PB166278BS	LCS278	LCS	01/27/25 20:35		Kareem	OK
73	CCV024	CCV024	CCV	01/27/25 20:44		Kareem	OK
74	CCB024	CCB024	CCB	01/27/25 20:48		Kareem	OK

ORIGIN ID:TTNA (609) 259-8200
SANDRA HERNANDEZ

111A N. GOLD DR.

ROBBINSVILLE, NJ 08691
UNITED STATES US

SHIP DATE: 23JAN25
ACTWGT: 20.00 LB
CAD: 101231258/INET4535

BILL SENDER

TO **MOHAMMAD AHMED**
ALLIANCE TECHNICAL GROUP LLC
284 SHEFFIELD STREET

MOUNTAINSIDE NJ 07092
(908) 789-8900 REF: CN003.100.09
INV:
PO: DEPT:

58CJ3/EC17/C6C4

FedEx Express

J25102412170Uur

FedEx

TRK# 0201 **7716 0062 9736**

FRI - 24 JAN 10:30A
PRIORITY OVERNIGHT

E E2 KBCA

07092
NJ-US EWR

5BCJ3/EC17/C6C4

RT FZ 237 1 10:30 D 9736 01 24

Part # 156297-435 RRDB EXP 12/25

1-24-25 0938

2.6c

Alliance TECHNICAL GROUP 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Login Summary Report

Order ID :	Q1181	Order Date :	1/24/2025 9:38:00 AM	Project Mgr :	Deepak
Client :	USEPA CLP SMO	Project :	51974	Report Type :	USEPA CLP
Contact :	Anita Kapadia	Receive Date :	1/24/2025 9:38:00 AM	EDD Type :	EPA CLP
Date Sign Off :	1/24/2025 2:15:19 PM				

Sample ID	Client ID	Matrix	Sampling Date	Test	Test Group	Method	TAT Days	Fax Due Date	HC Due Date
Q1181-01	MBHH96	Solid	01/21/2025						
				Metals CLP Full		SFAM_AES	10	02/07/2025	02/07/2025
				Percent Solids		Chemtech -SOP	10	02/07/2025	02/07/2025
Q1181-02	MBHH97	Solid	01/21/2025						
				Metals CLP Full		SFAM_AES	10	02/07/2025	02/07/2025
				Percent Solids		Chemtech -SOP	10	02/07/2025	02/07/2025
Q1181-03	MBHH98	Solid	01/21/2025						
				Metals CLP Full		SFAM_AES	10	02/07/2025	02/07/2025
				Percent Solids		Chemtech -SOP	10	02/07/2025	02/07/2025
Q1181-04	MBHH99	Solid	01/21/2025						
				Metals CLP Full		SFAM_AES	10	02/07/2025	02/07/2025
				Percent Solids		Chemtech -SOP	10	02/07/2025	02/07/2025
Q1181-05	MBHH99D	Solid	01/21/2025						
				Metals CLP Full		SFAM_AES	10	02/07/2025	02/07/2025
				Percent Solids		Chemtech -SOP	10	02/07/2025	02/07/2025
Q1181-06	MBHH99S	Solid	01/21/2025						
				Metals CLP Full		SFAM_AES	10	02/07/2025	02/07/2025
				Percent Solids		Chemtech -SOP	10	02/07/2025	02/07/2025

WORKLIST(Hardcopy Internal Chain)

WorkList Name : pb166278 **WorkList ID :** 187173 **Department :** Digestion **Date :** 01-27-2025 10:43:18

351

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1181-01	MBHH96	Solid	Metals CLP Full	Cool 4 deg C	USEP01	C11	01/21/2025	SFAM_AES
Q1181-02	MBHH97	Solid	Metals CLP Full	Cool 4 deg C	USEP01	C11	01/21/2025	SFAM_AES
Q1181-03	MBHH98	Solid	Metals CLP Full	Cool 4 deg C	USEP01	C11	01/21/2025	SFAM_AES
Q1181-04	MBHH99	Solid	Metals CLP Full	Cool 4 deg C	USEP01	C11	01/21/2025	SFAM_AES
Q1181-05	MBHH99D	Solid	Metals CLP Full	Cool 4 deg C	USEP01	C11	01/21/2025	SFAM_AES
Q1181-06	MBHH99S	Solid	Metals CLP Full	Cool 4 deg C	USEP01	C11	01/21/2025	SFAM_AES

Date/Time 01/27/25 11:05
Raw Sample Received by: S129. met. dD
Raw Sample Relinquished by: JD (SM)

Date/Time 01/27/25 12:05
Raw Sample Received by: JD (SM)
Raw Sample Relinquished by: S129.met.dD