

Cover Page

Order ID : P4615

Project ID : Amtrak Sawtooth Bridges 2024

Client : Portal Partners Tri-Venture

Lab Sample Number

P4615-01
P4615-02
P4615-03
P4615-04

Client Sample Number

B-131-1-SB01
B-131-2-SB01
B-131-3-SB01
TB-10292024

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

Signature : _____

Date: 11/7/2024

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following “ Results Qualifiers” are used:

J	Indicates the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit (IDL).
U	Indicates the analyte was analyzed for, but not detected.
ND	Indicates the analyte was analyzed for, but not detected
E	Indicates the reported value is estimated because of the presence of interference
M	Indicates Duplicate injection precision not met.
N	Indicates the spiked sample recovery is not within control limits.
S	Indicates the reported value was determined by the Method of Standard Addition (MSA).
*	Indicates that the duplicate analysis is not within control limits.
+	Indicates the correlation coefficient for the MSA is less than 0.995.
D	Indicates the reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
M	Method qualifiers “P” for ICP instrument “PM” for ICP when Microwave Digestion is used “CV” for Manual Cold Vapor AA “AV” for automated Cold Vapor AA “CA” for MIDI-Distillation Spectrophotometric “AS” for Semi -Automated Spectrophotometric “C” for Manual Spectrophotometric “T” for Titrimetric “NR” for analyte not required to be analyzed
OR	Indicates the analyte’s concentration exceeds the calibrated range of the instrument for that specific analysis.
Q	Indicates the LCS did not meet the control limits requirements
H	Sample Analysis Out Of Hold Time

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: P4615

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)

✓

Check chain-of-custody for proper relinquish/return of samples

✓

Is the chain of custody signed and complete

✓

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts

✓

Collect information for each project id from server. Were all requirements followed

✓

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody on login page

✓

Do lab numbers and client Ids on cover page agree with the Chain of Custody

✓

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results

✓

Do requested analyses on Chain of Custody agree with the log-in page

✓

Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody

✓

Were the samples received within hold time

✓

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle

✓

ANALYTICAL:

Was method requirement followed?

✓

Was client requirement followed?

✓

Does the case narrative summarize all QC failure?

✓

All runlogs and manual integration are reviewed for requirements

✓

All manual calculations and /or hand notations verified

✓

QA Review Signature: SHREENA PATEL

Date: 11/07/2024

LAB CHRONICLE

OrderID:	P4615	OrderDate:	10/29/2024 2:04:00 PM
Client:	Portal Partners Tri-Venture	Project:	Amtrak Sawtooth Bridges 2024
Contact:	Joseph Krupansky	Location:	K51,VOA Ref. #3 Water

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
P4615-01	B-131-1-SB01	SOIL	Metals Group3	6010D	10/29/24	10/31/24	11/01/24	10/29/24
P4615-02	B-131-2-SB01	SOIL	Metals Group3	6010D	10/29/24	10/31/24	11/04/24	10/29/24
P4615-03	B-131-3-SB01	SOIL	Metals Group3	6010D	10/29/24	10/31/24	11/04/24	10/29/24



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Hit Summary Sheet
SW-846

SDG No.: P4615

Order ID: P4615

Client: Portal Partners Tri-Venture

Project ID: Amtrak Sawtooth Bridges 2024

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : P4615-01	B-131-1-SB01 B-131-1-SB01	SOIL	Lead	80.3		0.17	0.66	mg/Kg
Client ID : P4615-02	B-131-2-SB01 B-131-2-SB01	SOIL	Lead	158		0.15	0.58	mg/Kg
Client ID : P4615-03	B-131-3-SB01 B-131-3-SB01	SOIL	Lead	120		0.14	0.57	mg/Kg



SAMPLE DATA

Report of Analysis

Client:	Portal Partners Tri-Venture	Date Collected:	10/29/24
Project:	Amtrak Sawtooth Bridges 2024	Date Received:	10/29/24
Client Sample ID:	B-131-1-SB01	SDG No.:	P4615
Lab Sample ID:	P4615-01	Matrix:	SOIL
Level (low/med):	low	% Solid:	86.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7439-92-1	Lead	80.3	N	1	0.17	0.66	mg/Kg	10/31/24 12:00	11/01/24 16:12	SW6010	SW3050

Color Before:	Brown	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	Metals Group3			

U = Not Detected
 LOQ = Limit of Quantitation
 MDL = Method Detection Limit
 LOD = Limit of Detection
 D = Dilution
 Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 * = indicates the duplicate analysis is not within control limits.
 E = Indicates the reported value is estimated because of the presence of interference.
 OR = Over Range
 N =Spiked sample recovery not within control limits

Report of Analysis

Client:	Portal Partners Tri-Venture	Date Collected:	10/29/24
Project:	Amtrak Sawtooth Bridges 2024	Date Received:	10/29/24
Client Sample ID:	B-131-2-SB01	SDG No.:	P4615
Lab Sample ID:	P4615-02	Matrix:	SOIL
Level (low/med):	low	% Solid:	85

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7439-92-1	Lead	158	N	1	0.15	0.58	mg/Kg	10/31/24 12:00	11/04/24 19:23	SW6010	SW3050

Color Before:	Brown	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	Metals Group3			

U = Not Detected
 LOQ = Limit of Quantitation
 MDL = Method Detection Limit
 LOD = Limit of Detection
 D = Dilution
 Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 * = indicates the duplicate analysis is not within control limits.
 E = Indicates the reported value is estimated because of the presence of interference.
 OR = Over Range
 N =Spiked sample recovery not within control limits

Report of Analysis

Client:	Portal Partners Tri-Venture	Date Collected:	10/29/24
Project:	Amtrak Sawtooth Bridges 2024	Date Received:	10/29/24
Client Sample ID:	B-131-3-SB01	SDG No.:	P4615
Lab Sample ID:	P4615-03	Matrix:	SOIL
Level (low/med):	low	% Solid:	86

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7439-92-1	Lead	120	N	1	0.14	0.57	mg/Kg	10/31/24 12:00	11/04/24 19:19	SW6010	SW3050

Color Before:	Brown	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	Metals Group3			

U = Not Detected
 LOQ = Limit of Quantitation
 MDL = Method Detection Limit
 LOD = Limit of Detection
 D = Dilution
 Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 * = indicates the duplicate analysis is not within control limits.
 E = Indicates the reported value is estimated because of the presence of interference.
 OR = Over Range
 N =Spiked sample recovery not within control limits



METAL CALIBRATION DATA



Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Lead	969	1000	97	90 - 110	P	11/01/2024	15:31	LB133257

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Portal Partners Tri-Venture **SDG No.:** P4615
Contract: PORT06 **Lab Code:** CHEM **Case No.:** P4615 **SAS No.:** P4615
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLICV01	Lead	10.8	12.0	90	80 - 120	P	11/01/2024	15:35	LB133257

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Portal Partners Tri-Venture **SDG No.:** P4615
Contract: PORT06 **Lab Code:** CHEM **Case No.:** P4615 **SAS No.:** P4615
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Lead	4830	5000	97	90 - 110	P	11/01/2024	16:03	LB133257
CCV02	Lead	5070	5000	102	90 - 110	P	11/01/2024	16:56	LB133257
CCV03	Lead	5090	5000	102	90 - 110	P	11/01/2024	17:57	LB133257
CCV04	Lead	4870	5000	97	90 - 110	P	11/01/2024	18:55	LB133257
CCV05	Lead	5340	5000	107	90 - 110	P	11/01/2024	19:18	LB133257

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Portal Partners Tri-Venture **SDG No.:** P4615
Contract: PORT06 **Lab Code:** CHEM **Case No.:** P4615 **SAS No.:** P4615
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Lead	979	1000	98	90 - 110	P	11/04/2024	17:28	LB133296

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Portal Partners Tri-Venture **SDG No.:** P4615
Contract: PORT06 **Lab Code:** CHEM **Case No.:** P4615 **SAS No.:** P4615
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLICV01	Lead	11.8	12.0	98	80 - 120	P	11/04/2024	17:37	LB133296

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Portal Partners Tri-Venture **SDG No.:** P4615
Contract: PORT06 **Lab Code:** CHEM **Case No.:** P4615 **SAS No.:** P4615
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Lead	5120	5000	102	90 - 110	P	11/04/2024	18:11	LB133296
CCV02	Lead	5320	5000	106	90 - 110	P	11/04/2024	19:02	LB133296
CCV03	Lead	5320	5000	106	90 - 110	P	11/04/2024	19:46	LB133296
CCV04	Lead	5020	5000	100	90 - 110	P	11/04/2024	21:07	LB133296
CCV05	Lead	5020	5000	100	90 - 110	P	11/04/2024	21:47	LB133296

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Portal Partners Tri-Venture **SDG No.:** P4615
Contract: PORT06 **Lab Code:** CHEM **Case No.:** P4615 **SAS No.:** P4615
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Lead	1020	1000	102	90 - 110	P	11/07/2024	13:49	LB133344

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Portal Partners Tri-Venture **SDG No.:** P4615
Contract: PORT06 **Lab Code:** CHEM **Case No.:** P4615 **SAS No.:** P4615
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLICV01	Lead	11.4	12.0	95	80 - 120	P	11/07/2024	14:23	LB133344

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Portal Partners Tri-Venture **SDG No.:** P4615

Contract: PORT06 **Lab Code:** CHEM **Case No.:** P4615 **SAS No.:** P4615

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Lead	4920	5000	98	90 - 110	P	11/07/2024	15:01	LB133344
CCV02	Lead	4800	5000	96	90 - 110	P	11/07/2024	15:53	LB133344
CCV03	Lead	4970	5000	99	90 - 110	P	11/07/2024	16:45	LB133344
CCV04	Lead	5010	5000	100	90 - 110	P	11/07/2024	17:56	LB133344
CCV05	Lead	4880	5000	98	90 - 110	P	11/07/2024	18:32	LB133344
CCV06	Lead	4930	5000	99	90 - 110	P	11/07/2024	19:08	LB133344
CCV07	Lead	4850	5000	97	90 - 110	P	11/07/2024	19:58	LB133344
CCV08	Lead	4840	5000	97	90 - 110	P	11/07/2024	20:58	LB133344
CCV09	Lead	4780	5000	96	90 - 110	P	11/07/2024	21:51	LB133344
CCV10	Lead	4710	5000	94	90 - 110	P	11/07/2024	22:52	LB133344
CCV11	Lead	4800	5000	96	90 - 110	P	11/07/2024	23:43	LB133344
CCV12	Lead	4820	5000	96	90 - 110	P	11/08/2024	00:39	LB133344
CCV13	Lead	4870	5000	97	90 - 110	P	11/08/2024	00:57	LB133344



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Metals

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CRDL STANDARD FOR AA & ICP

Client: Portal Partners Tri-Venture

SDG No.: P4615

Contract: PORT06

Lab Code: CHEM

Case No.: P4615

SAS No.: P4615

Initial Calibration Source: _____

Continuing Calibration Source: _____

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Lead	10.6	12.0	88	40 - 160	P	11/01/2024	15:44	LB133257
CRI01	Lead	11.7	12.0	98	40 - 160	P	11/04/2024	17:52	LB133296
CRI01	Lead	11.3	12.0	94	40 - 160	P	11/07/2024	14:42	LB133344



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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client:	Portal Partners Tri-Venture				SDG No.:	P4615			
Contract:	PORT06	Lab Code:	CHEM		Case No.:	P4615	SAS No.:	P4615	
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Lead	12.0	+/-12.0	U	12.0	P	11/01/2024	15:40	LB133257

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Portal Partners Tri-Venture

SDG No.: P4615

Contract: PORT06

Lab Code: CHEM

Case No.: P4615

SAS No.: P4615

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Lead	12.0	+/-12.0	U	12.0	P	11/01/2024	16:07	LB133257
CCB02	Lead	12.0	+/-12.0	U	12.0	P	11/01/2024	17:00	LB133257
CCB03	Lead	12.0	+/-12.0	U	12.0	P	11/01/2024	18:01	LB133257
CCB04	Lead	12.0	+/-12.0	U	12.0	P	11/01/2024	18:59	LB133257
CCB05	Lead	12.0	+/-12.0	U	12.0	P	11/01/2024	19:22	LB133257

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Portal Partners Tri-Venture

SDG No.: P4615

Contract: PORT06

Lab Code: CHEM

Case No.: P4615

SAS No.: P4615

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Lead	12.0	+/-12.0	U	12.0	P	11/04/2024	17:47	LB133296

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Portal Partners Tri-Venture

SDG No.: P4615

Contract: PORT06

Lab Code: CHEM

Case No.: P4615

SAS No.: P4615

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Lead	12.0	+/-12.0	U	12.0	P	11/04/2024	18:16	LB133296
CCB02	Lead	12.0	+/-12.0	U	12.0	P	11/04/2024	19:07	LB133296
CCB03	Lead	12.0	+/-12.0	U	12.0	P	11/04/2024	19:58	LB133296
CCB04	Lead	12.0	+/-12.0	U	12.0	P	11/04/2024	21:11	LB133296
CCB05	Lead	12.0	+/-12.0	U	12.0	P	11/04/2024	21:51	LB133296

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** P4615
Contract: PORT06 **Lab Code:** CHEM **Case No.:** P4615 **SAS No.:** P4615

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	14:38	LB133344

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Portal Partners Tri-Venture		SDG No.: P4615							
Contract: PORT06	Lab Code: CHEM	Case No.: P4615	SAS No.: P4615						
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	15:05	LB133344
CCB02	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	15:58	LB133344
CCB03	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	16:49	LB133344
CCB04	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	18:04	LB133344
CCB05	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	18:37	LB133344
CCB06	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	19:12	LB133344
CCB07	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	20:02	LB133344
CCB08	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	21:02	LB133344
CCB09	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	21:55	LB133344
CCB10	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	22:56	LB133344
CCB11	Lead	12.0	+/-12.0	U	12.0	P	11/07/2024	23:47	LB133344
CCB12	Lead	12.0	+/-12.0	U	12.0	P	11/08/2024	00:43	LB133344
CCB13	Lead	12.0	+/-12.0	U	12.0	P	11/08/2024	01:01	LB133344

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Portal Partners Tri-Venture

SDG No.: P4615

Instrument: P4

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB164563BL		SOLID		Batch Number:	PB164563		Prep Date:	10/31/2024	
	Lead	0.59	<0.59	U	0.59	P	11/07/2024	23:55	LB133344

Metals

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INTERFERENCE CHECK SAMPLE

Client: Portal Partners Tri-Venture **SDG No.:** P4615
Contract: PORT06 **Lab Code:** CHEM **Case No.:** P4615 **SAS No.:** P4615
ICS Source: EPA **Instrument ID:** P4

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSA01	Lead	7.70			-12	12	11/01/2024	15:48	LB133257
ICSAB01	Lead	58.4	49.0	119	37	61	11/01/2024	15:58	LB133257
ICSA01	Lead	1.99			-12	12	11/04/2024	18:03	LB133296
ICSAB01	Lead	50.7	49.0	104	37	61	11/04/2024	18:07	LB133296
ICSA01	Lead	8.91			-12	12	11/07/2024	14:47	LB133344
ICSAB01	Lead	56.6	49.0	116	37	61	11/07/2024	14:51	LB133344



METAL

QC

DATA

metals
- 5a -
MATRIX SPIKE SUMMARY

client: Portal Partners Tri-Venture **level:** low **sdg no.:** P4615
contract: PORT06 **lab code:** CHEM **case no.:** P4615 **sas no.:** P4615
matrix: Solid **sample id:** P4645-01 **client id:** Z-02-WCMS
Percent Solids for Sample: 91.2 **Spiked ID:** P4645-01MS **Percent Solids for Spike Sample:** 91.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Lead	mg/Kg	75 - 125	192		131		44.2	138	N	P

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client:	<u>Portal Partners Tri-Venture</u>	level:	<u>low</u>	sdg no.:	<u>P4615</u>		
contract:	<u>PORT06</u>	lab code:	<u>CHEM</u>	case no.:	<u>P4615</u>	sas no.:	<u>P4615</u>
matrix:	<u>Solid</u>	sample id:	<u>P4645-01</u>	client id:	<u>Z-02-WCMSD</u>		
Percent Solids for Sample:	91.2	Spiked ID:	<u>P4645-01MSD</u>	Percent Solids for Spike Sample:	91.2		

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Lead	mg/Kg	75 - 125	205		131		45.9	160	N	P

Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** P4615
Contract: PORT06 **Lab Code:** CHEM **Case No.:** P4615 **SAS No.:** P4615
Matrix: Solid **Level:** LOW **Client ID:** Z-02-WCA
Sample ID: P4645-01 **Spiked ID:** P4645-01A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Lead	mg/Kg	75 - 125	199		131		44.9	150		P

Metals

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DUPLICATE SAMPLE SUMMARY

Client:	<u>Portal Partners Tri-Venture</u>	Level:	<u>LOW</u>	SDG No.:	<u>P4615</u>
Contract:	<u>PORT06</u>	Lab Code:	<u>CHEM</u>	Case No.:	<u>P4615</u>
Matrix:	<u>Solid</u>	Sample ID:	<u>P4645-01</u>	Client ID:	<u>Z-02-WCDUP</u>
Percent Solids for Sample:	91.2	Duplicate ID	P4645-01DUP	Percent Solids for Spike Sample:	91.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Lead	mg/Kg	20	131		138		5		P

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client:	<u>Portal Partners Tri-Venture</u>	Level:	<u>LOW</u>	SDG No.:	<u>P4615</u>
Contract:	<u>PORT06</u>	Lab Code:	<u>CHEM</u>	Case No.:	<u>P4615</u>
Matrix:	<u>Solid</u>	Sample ID:	<u>P4645-01MS</u>	Client ID:	<u>Z-02-WCMSD</u>
Percent Solids for Sample:	91.2	Duplicate ID	P4645-01MSD	Percent Solids for Spike Sample:	91.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Lead	mg/Kg	20	192		205		7		P

Metals

- 7 -

LABORATORY CONTROL SAMPLE SUMMARY

Client: Portal Partners Tri-Venture

SDG No.: P4615

Contract: PORT06

Lab Code: CHEM

Case No.: P4615

SAS No.: P4615

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB164563BS Lead	mg/Kg	49.0	45.3		92	80 - 120	P

Metals

-9 -

ICP SERIAL DILUTIONS

SAMPLE NO.

Z-02-WCL

Lab Name: Chemtech Consulting Group

Contract: PORT06

Lab Code: CHEM

Lb No.: lb133296

Lab Sample ID : P4645-01L

SDG No.: P4615

Matrix (soil/water): Solid

Level (low/med): LOW

Concentration Units: mg/Kg

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	% Differ- ence	Q	M
Lead	131	137	5		P



METAL PREPARATION & INSTRUMENT DATA

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Portal Partners Tri-Venture

SDG No.: P4615

Contract: PORT06

Lab Code: CHEM

Case No.: P4615

SAS No.: P4615

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Al	Ca	Fe	Mg	Ag
Lead	220.353	-0.0000920	0.0000000	0.0000380	0.0000000	0.0000000



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Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Portal Partners Tri-Venture

SDG No.: P4615

Contract: PORT06

Lab Code: CHEM

Case No.: P4615

SAS No.: P4615

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		As	Ba	Be	Cd	Co
Lead	220.353	0.0000000	0.0003170	0.0000000	0.0000000	0.0000000



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8900, Fax : 908 789 8922

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Portal Partners Tri-Venture

SDG No.: P4615

Contract: PORT06

Lab Code: CHEM

Case No.: P4615

SAS No.: P4615

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Cr	Cu	K	Mn	Mo
Lead	220.353	0.0000000	0.0000000	0.0000000	0.0001400	-0.0008600

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Portal Partners Tri-Venture

SDG No.: P4615

Contract: PORT06

Lab Code: CHEM

Case No.: P4615

SAS No.: P4615

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Na	Ni	Pb	Sb	Se
Lead	220.353	0.0000000	0.0006580	0.0000000	0.0000000	0.0001290

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Portal Partners Tri-Venture

SDG No.: P4615

Contract: PORT06

Lab Code: CHEM

Case No.: P4615

SAS No.: P4615

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Sn	Ti	Tl	V	Zn
Lead	220.353	0.0000000	-0.0003610	0.0000000	0.0000000	0.0000000



METAL PREPARATION & ANALYICAL SUMMARY

Metals

- 13 -

SAMPLE PREPARATION SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** P4615
Contract: PORT06 **Lab Code:** CHEM **Method:**
Case No.: P4615 **SAS No.:** P4615

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB164563							
P4615-01	B-131-1-SB01	SAM	SOLID	10/31/2024	2.08	100.0	86.90
P4615-02	B-131-2-SB01	SAM	SOLID	10/31/2024	2.42	100.0	85.00
P4615-03	B-131-3-SB01	SAM	SOLID	10/31/2024	2.46	100.0	86.00
P4645-01DUP	Z-02-WCDUP	DUP	SOLID	10/31/2024	2.40	100.0	91.20
P4645-01MS	Z-02-WCMS	MS	SOLID	10/31/2024	2.48	100.0	91.20
P4645-01MSD	Z-02-WCMSD	MSD	SOLID	10/31/2024	2.39	100.0	91.20
PB164563BL	PB164563BL	MB	SOLID	10/31/2024	2.04	100.0	100.00
PB164563BS	PB164563BS	LCS	SOLID	10/31/2024	2.04	100.0	100.00

metals
- 14 -
ANALYSIS RUN LOG

Client: Portal Partners Tri-Venture **Contract:** PORT06

Lab code: CHEM **Case no.:** P4615 **Sas no.:** P4615 **Sdg no.:** P4615

Instrument id number: **Method:** **Run number:** LB133257

Start date: 11/01/2024 **End date:** 11/01/2024

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1506	Pb
S1	S1	1	1510	Pb
S2	S2	1	1514	Pb
S3	S3	1	1518	Pb
S4	S4	1	1523	Pb
S5	S5	1	1527	Pb
ICV01	ICV01	1	1531	Pb
LLICV01	LLICV01	1	1535	Pb
ICB01	ICB01	1	1540	Pb
CRI01	CRI01	1	1544	Pb
ICSA01	ICSA01	1	1548	Pb
ICSAB01	ICSAB01	1	1558	Pb
CCV01	CCV01	1	1603	Pb
CCB01	CCB01	1	1607	Pb
P4615-01	B-131-1-SB01	1	1612	Pb
CCV02	CCV02	1	1656	Pb
CCB02	CCB02	1	1700	Pb
CCV03	CCV03	1	1757	Pb
CCB03	CCB03	1	1801	Pb
CCV04	CCV04	1	1855	Pb
CCB04	CCB04	1	1859	Pb
CCV05	CCV05	1	1918	Pb
CCB05	CCB05	1	1922	Pb

metals
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ANALYSIS RUN LOG

Client: Portal Partners Tri-Venture **Contract:** PORT06

Lab code: CHEM **Case no.:** P4615 **Sas no.:** P4615 **Sdg no.:** P4615

Instrument id number: **Method:** **Run number:** LB133296

Start date: 11/04/2024 **End date:** 11/04/2024

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1657	Pb
S1	S1	1	1702	Pb
S2	S2	1	1706	Pb
S3	S3	1	1710	Pb
S4	S4	1	1714	Pb
S5	S5	1	1718	Pb
ICV01	ICV01	1	1728	Pb
LLICV01	LLICV01	1	1737	Pb
ICB01	ICB01	1	1747	Pb
CRI01	CRI01	1	1752	Pb
ICSA01	ICSA01	1	1803	Pb
ICSAB01	ICSAB01	1	1807	Pb
CCV01	CCV01	1	1811	Pb
CCB01	CCB01	1	1816	Pb
P4645-01DUP	Z-02-WCDUP	1	1842	Pb
P4645-01L	Z-02-WCL	5	1846	Pb
P4645-01MS	Z-02-WCMS	1	1850	Pb
P4645-01MSD	Z-02-WCMSD	1	1854	Pb
P4645-01A	Z-02-WCA	1	1858	Pb
CCV02	CCV02	1	1902	Pb
CCB02	CCB02	1	1907	Pb
P4615-03	B-131-3-SB01	1	1919	Pb
P4615-02	B-131-2-SB01	1	1923	Pb
CCV03	CCV03	1	1946	Pb
CCB03	CCB03	1	1958	Pb
CCV04	CCV04	1	2107	Pb
CCB04	CCB04	1	2111	Pb
CCV05	CCV05	1	2147	Pb
CCB05	CCB05	1	2151	Pb

metals
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ANALYSIS RUN LOG

Client: Portal Partners Tri-Venture **Contract:** PORT06

Lab code: CHEM **Case no.:** P4615 **Sas no.:** P4615 **Sdg no.:** P4615

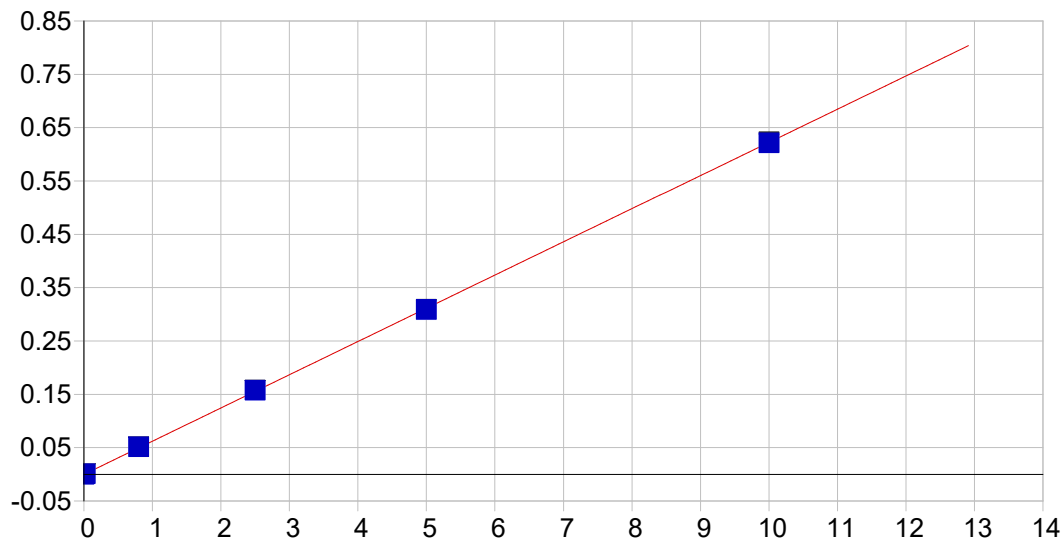
Instrument id number: **Method:** **Run number:** LB133344

Start date: 11/07/2024 **End date:** 11/08/2024

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1323	Pb
S1	S1	1	1328	Pb
S2	S2	1	1332	Pb
S3	S3	1	1336	Pb
S4	S4	1	1340	Pb
S5	S5	1	1345	Pb
ICV01	ICV01	1	1349	Pb
LLICV01	LLICV01	1	1423	Pb
ICB01	ICB01	1	1438	Pb
CRI01	CRI01	1	1442	Pb
ICSA01	ICSA01	1	1447	Pb
ICSAB01	ICSAB01	1	1451	Pb
CCV01	CCV01	1	1501	Pb
CCB01	CCB01	1	1505	Pb
CCV02	CCV02	1	1553	Pb
CCB02	CCB02	1	1558	Pb
CCV03	CCV03	1	1645	Pb
CCB03	CCB03	1	1649	Pb
CCV04	CCV04	1	1756	Pb
CCB04	CCB04	1	1804	Pb
CCV05	CCV05	1	1832	Pb
CCB05	CCB05	1	1837	Pb
CCV06	CCV06	1	1908	Pb
CCB06	CCB06	1	1912	Pb
CCV07	CCV07	1	1958	Pb
CCB07	CCB07	1	2002	Pb
CCV08	CCV08	1	2058	Pb
CCB08	CCB08	1	2102	Pb
CCV09	CCV09	1	2151	Pb
CCB09	CCB09	1	2155	Pb
CCV10	CCV10	1	2252	Pb
CCB10	CCB10	1	2256	Pb
CCV11	CCV11	1	2343	Pb
CCB11	CCB11	1	2347	Pb
PB164563BL	PB164563BL	1	2355	Pb
PB164563BS	PB164563BS	1	0005	Pb
CCV12	CCV12	1	0039	Pb
CCB12	CCB12	1	0043	Pb
CCV13	CCV13	1	0057	Pb
CCB13	CCB13	1	0101	Pb



METAL RAW DATA

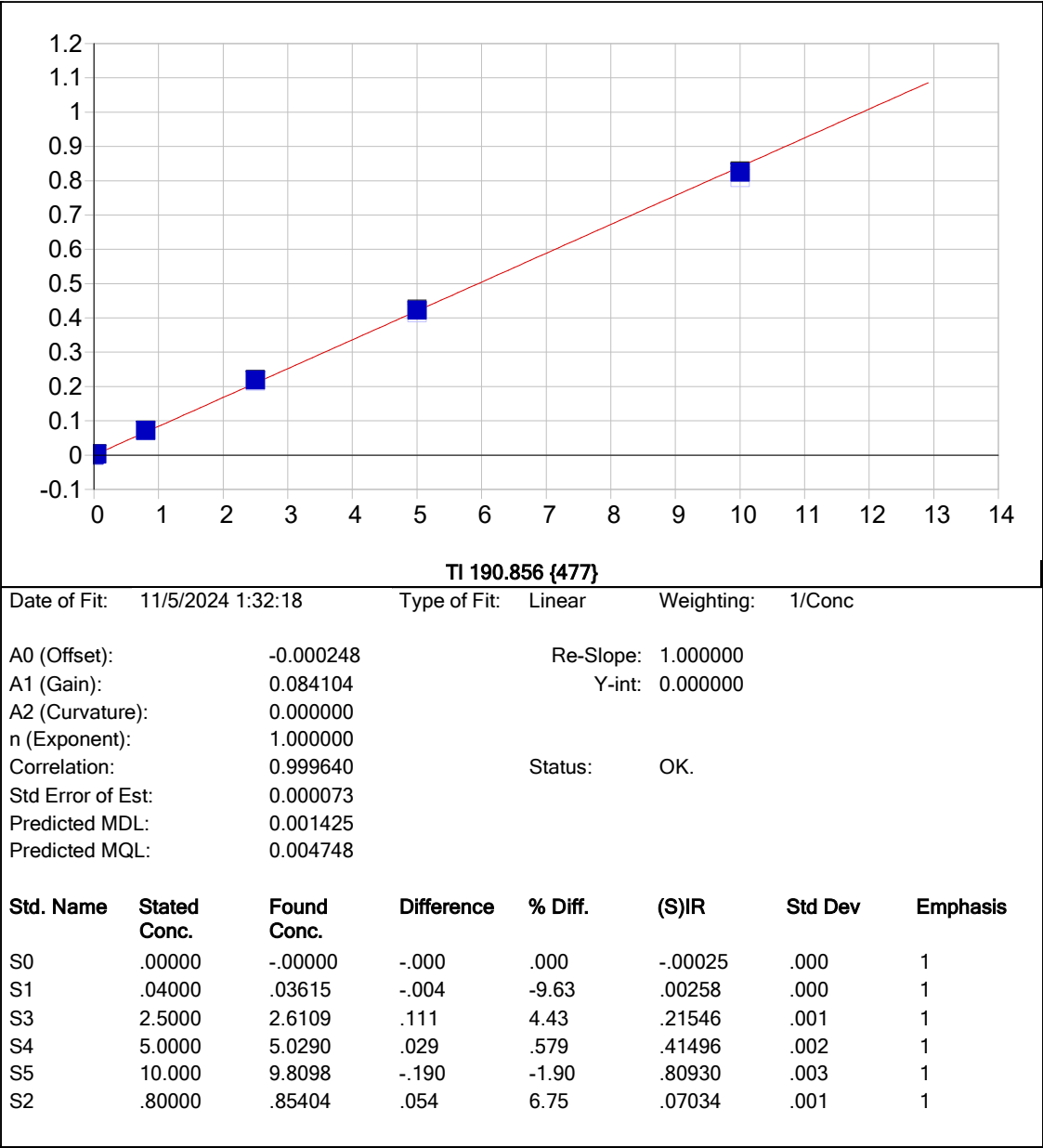


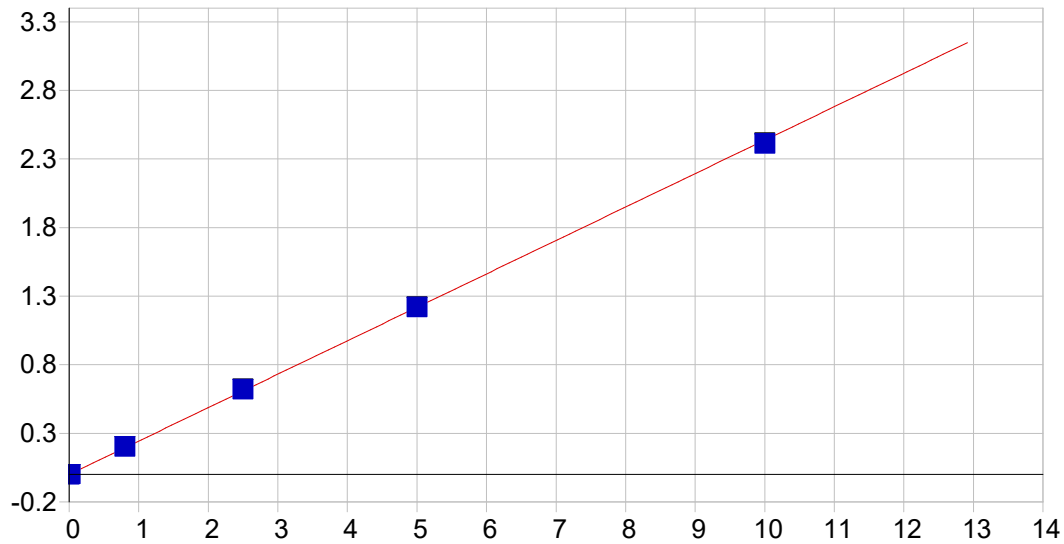
As 189.042 {479}

Date of Fit: 11/5/2024 1:32:18 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset): -0.000212 Re-Slope: 1.000000
A1 (Gain): 0.062274 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999950 Status: OK.
Std Error of Est: 0.000015
Predicted MDL: 0.002244
Predicted MQL: 0.007479

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00021	.000	1
S1	.02000	.01930	-.001	-3.49	.00098	.000	1
S3	2.5000	2.5297	.030	1.19	.15715	.000	1
S4	5.0000	4.9579	-.042	-.841	.30820	.001	1
S5	10.000	9.9837	-.016	-.163	.62084	.002	1
S2	.80000	.82940	.029	3.67	.05138	.000	1



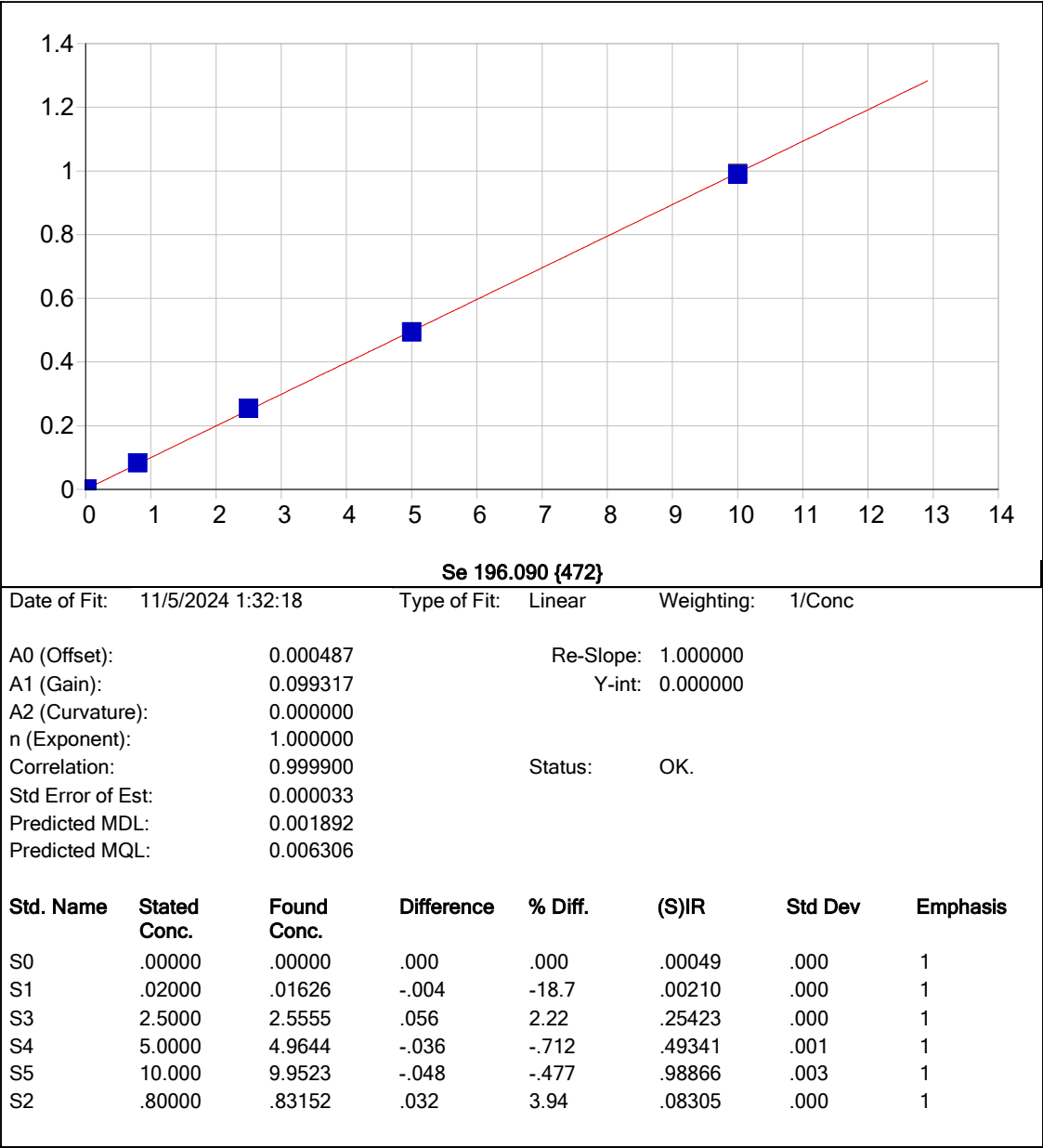


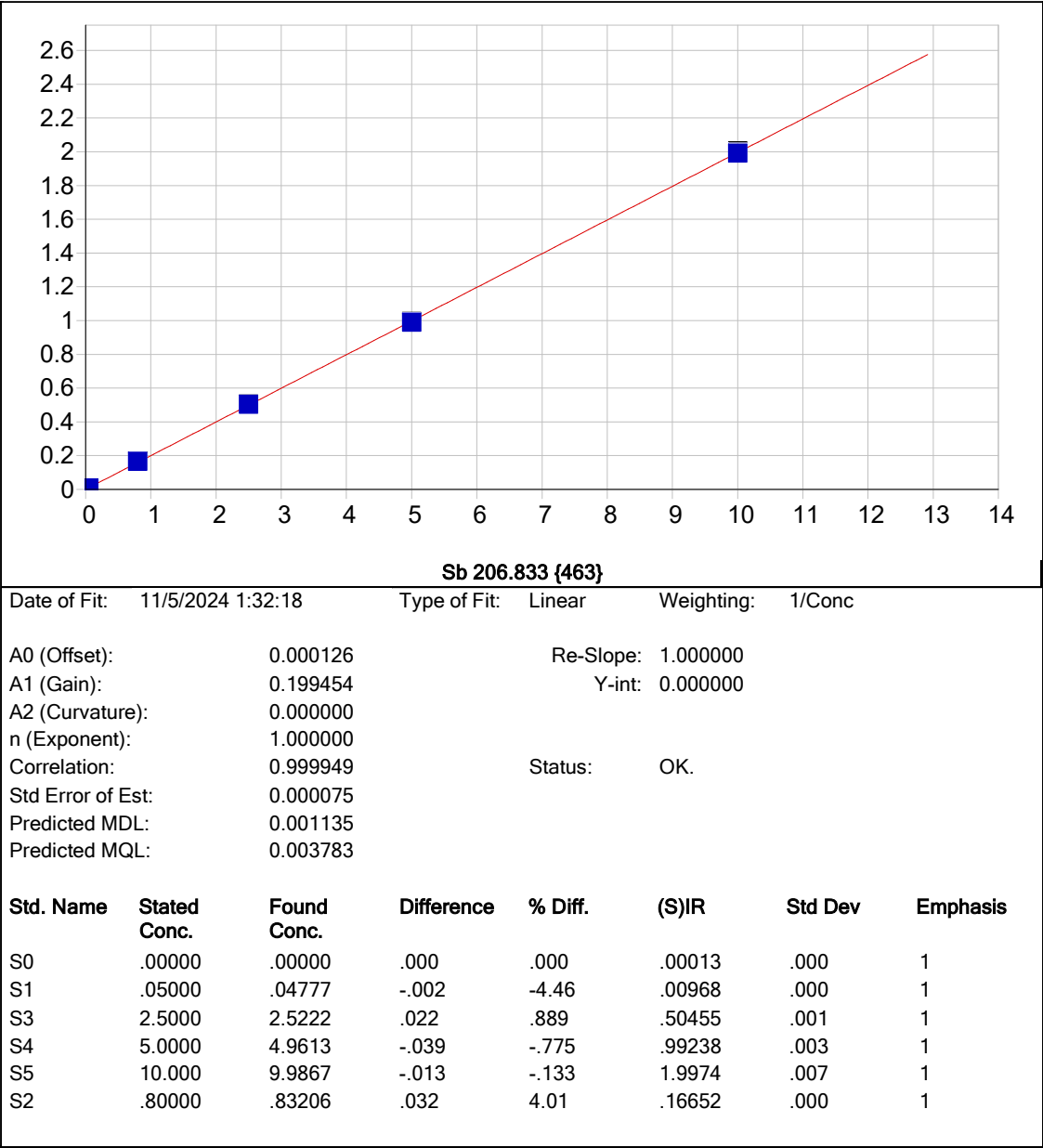
Pb 220.353 {453}

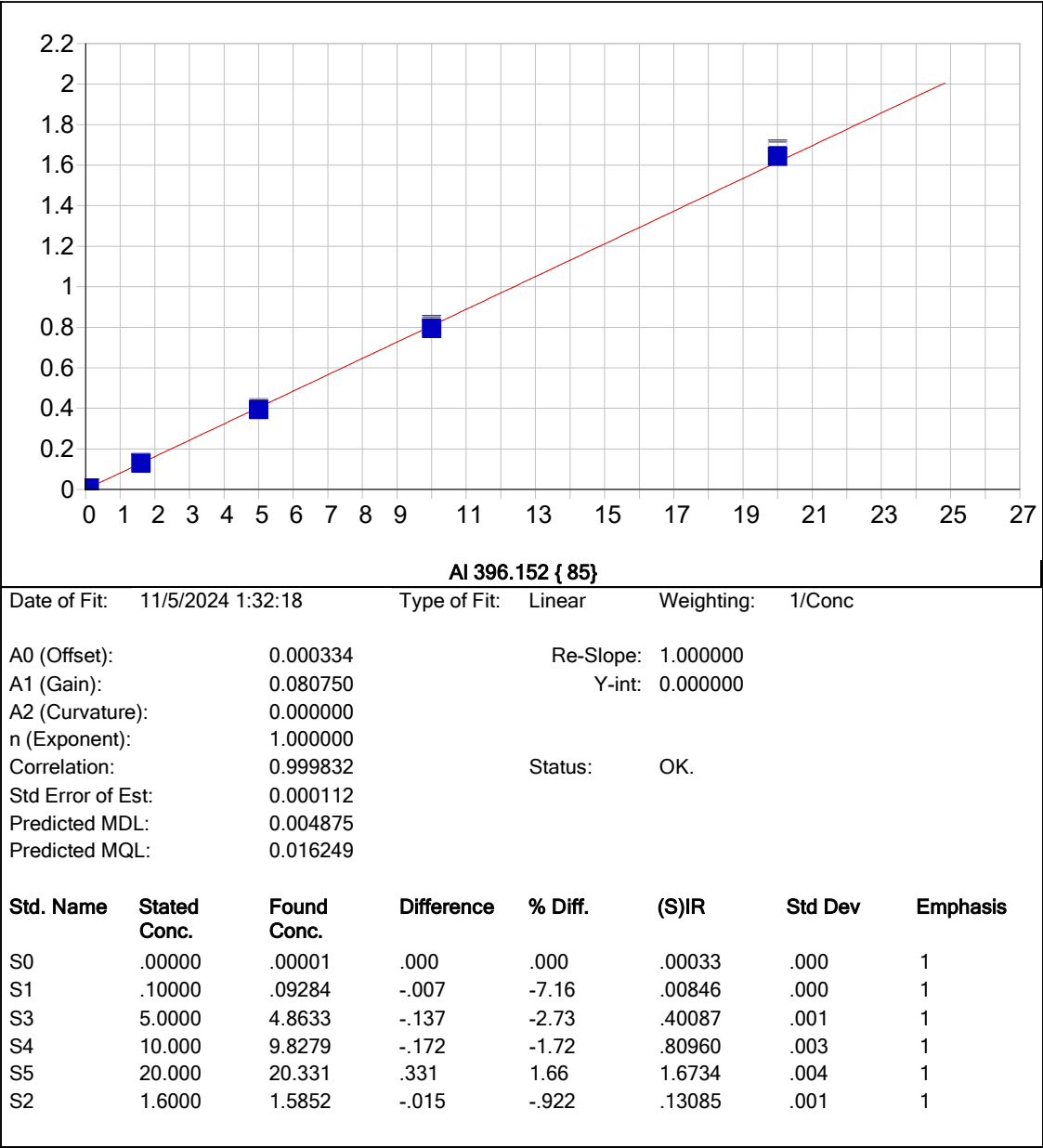
Date of Fit: 11/5/2024 1:32:18 Type of Fit: Linear Weighting: 1/Conc

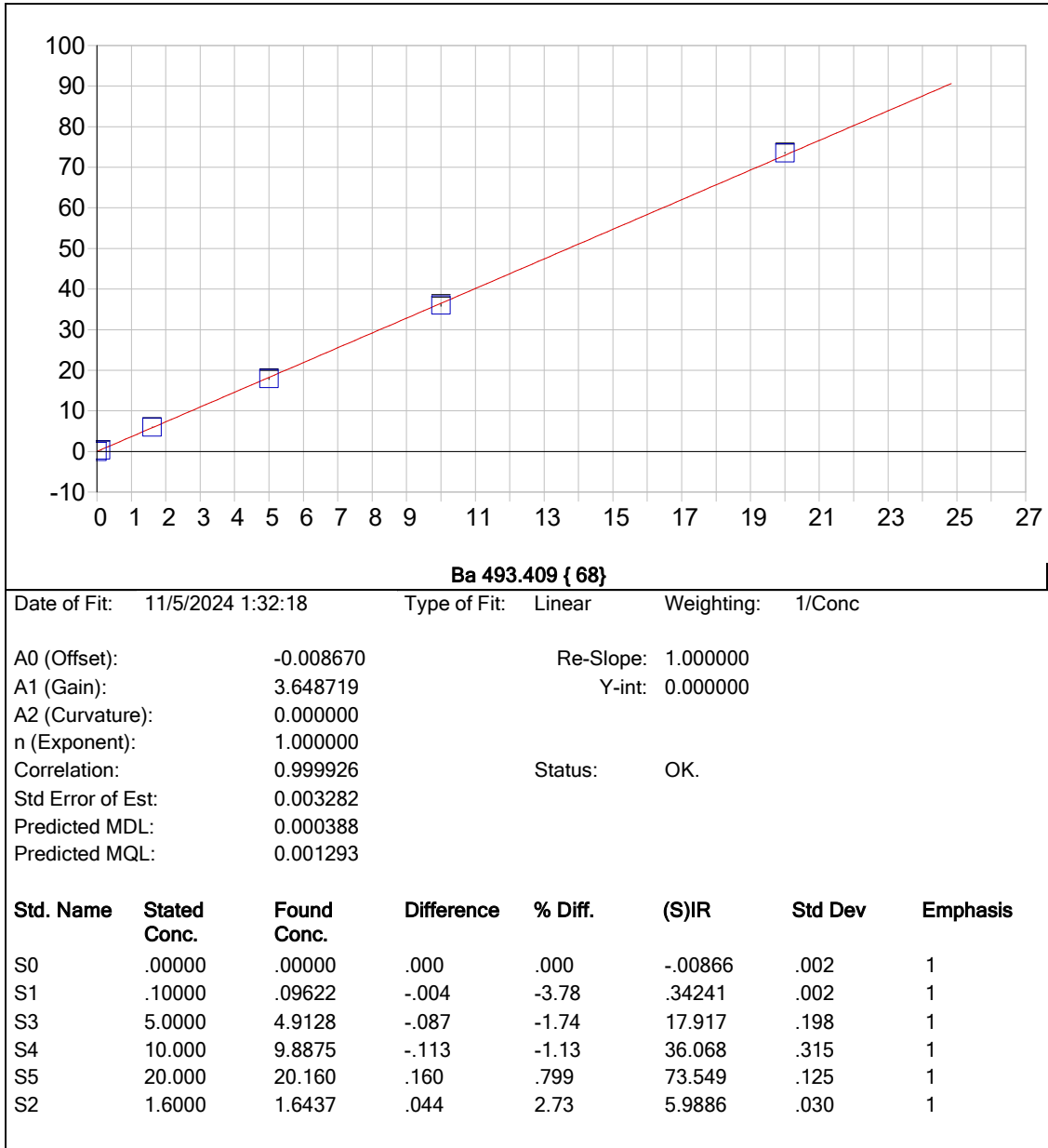
A0 (Offset):	-0.000217	Re-Slope:	1.000000
A1 (Gain):	0.243769	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999882	Status:	OK.
Std Error of Est:	0.000068		
Predicted MDL:	0.000983		
Predicted MQL:	0.003278		

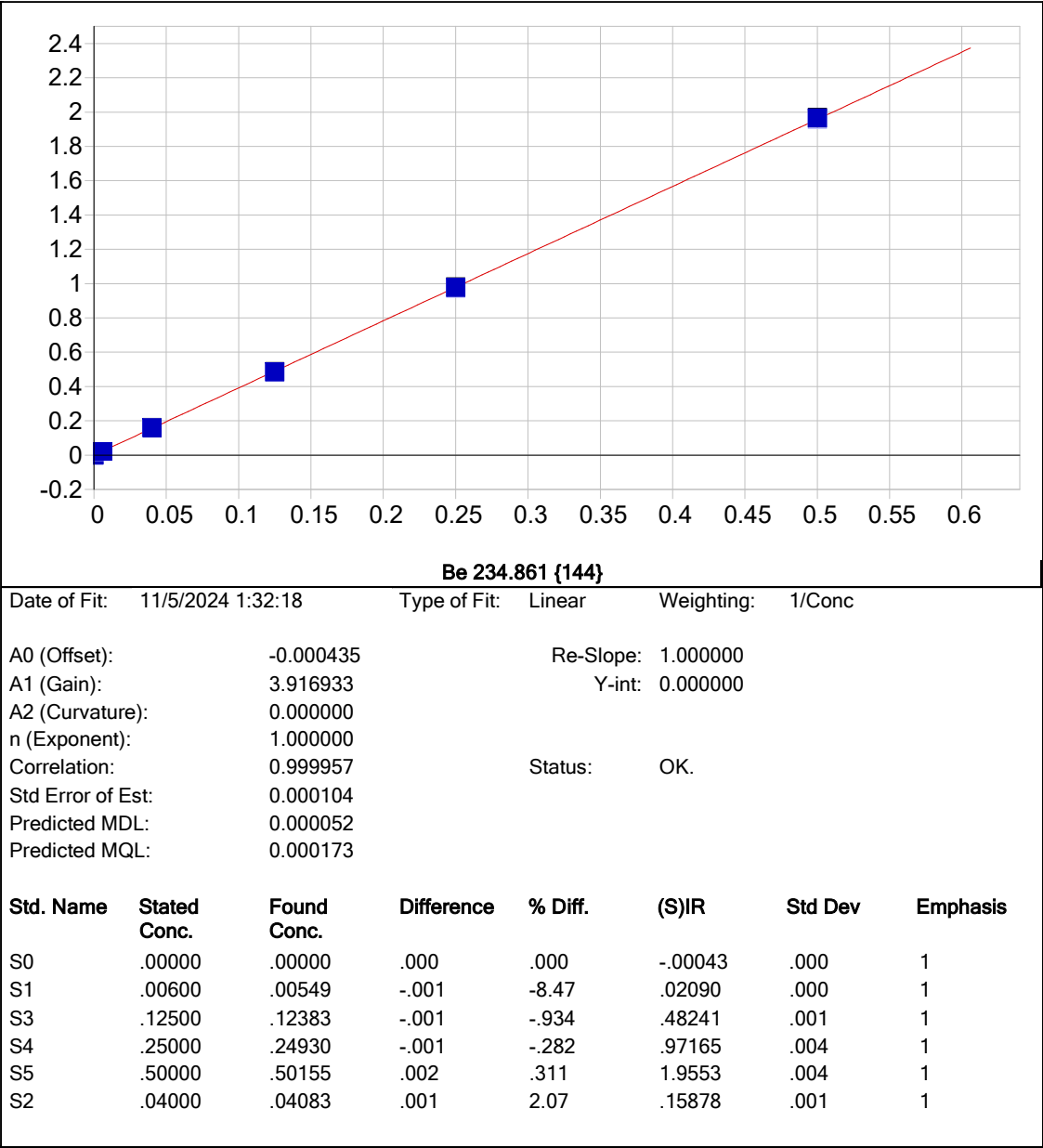
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00022	.000	1
S1	.01200	.00993	-.002	-17.2	.00215	.000	1
S3	2.5000	2.5530	.053	2.12	.62147	.000	1
S4	5.0000	5.0087	.009	.173	1.2194	.000	1
S5	10.000	9.9019	-.098	-.981	2.4109	.004	1
S2	.80000	.83841	.038	4.80	.20395	.000	1

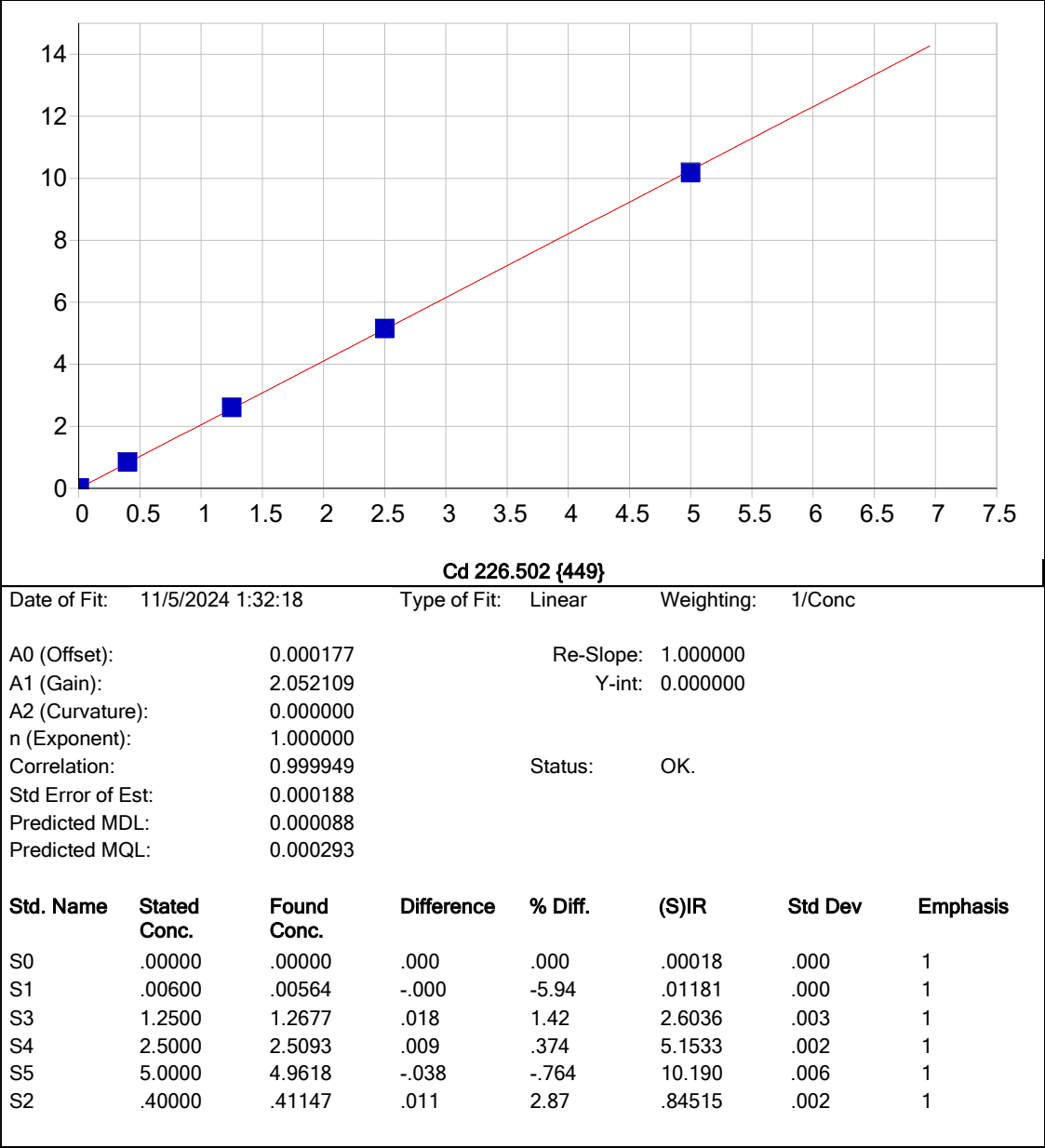


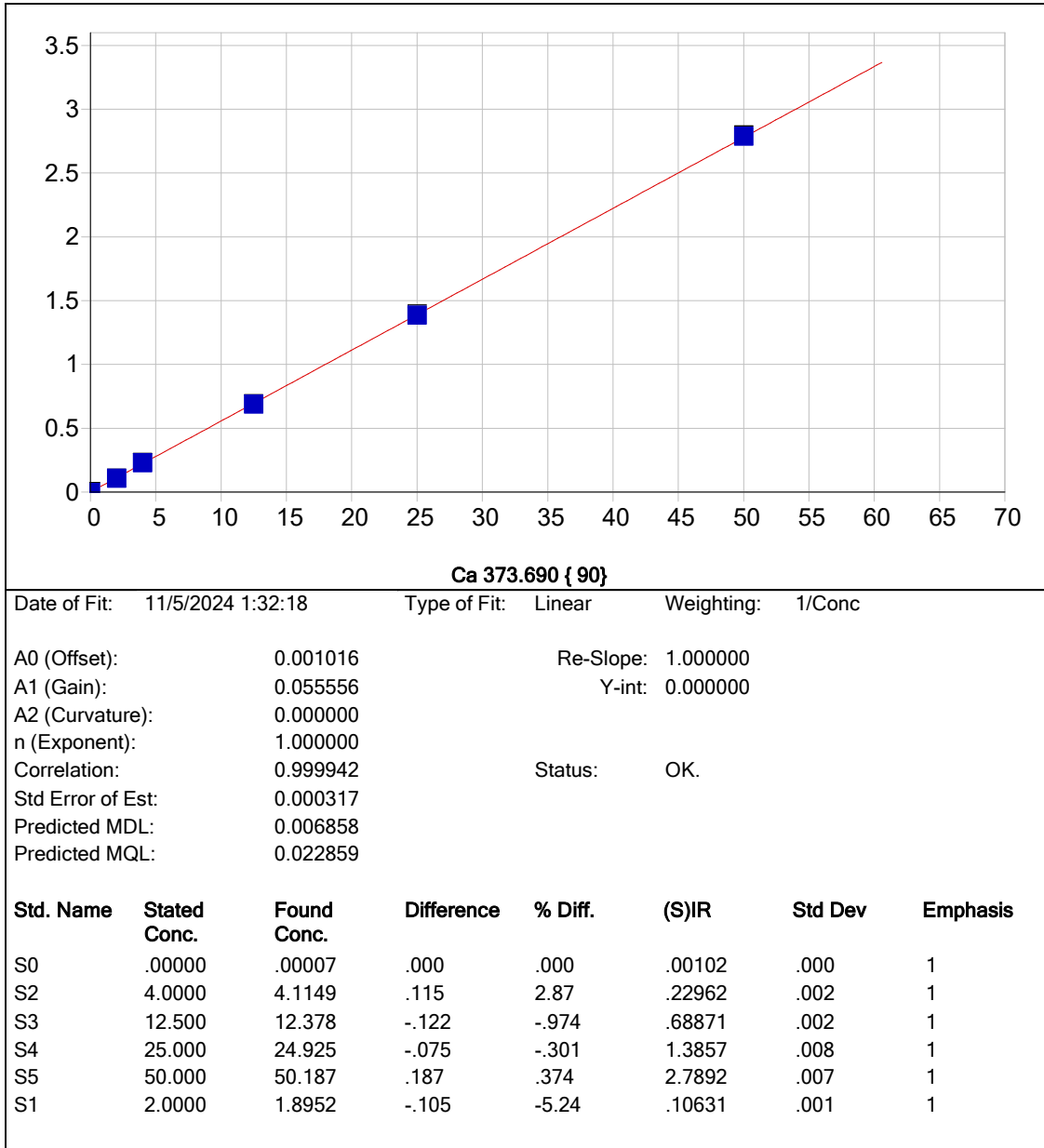


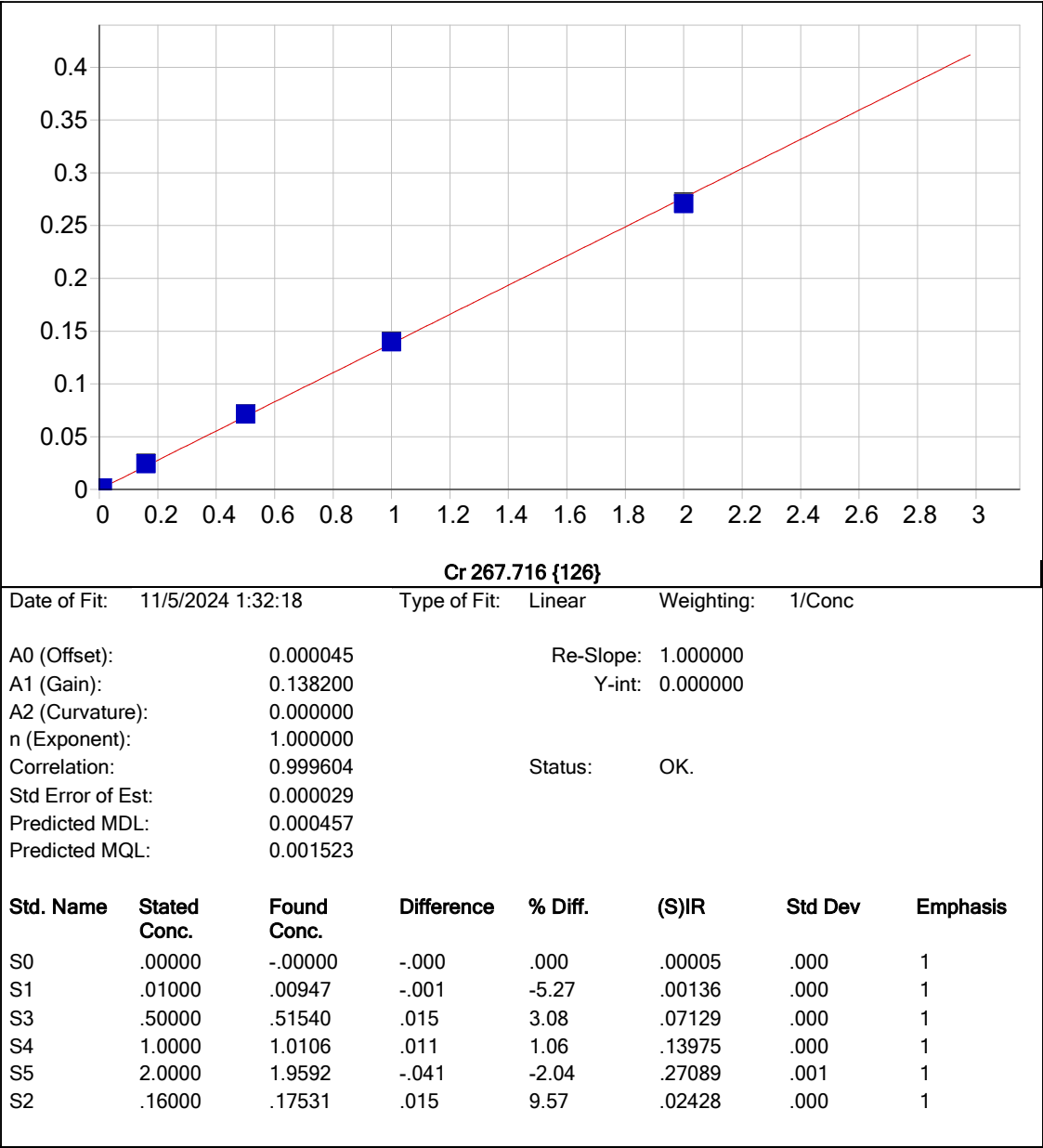


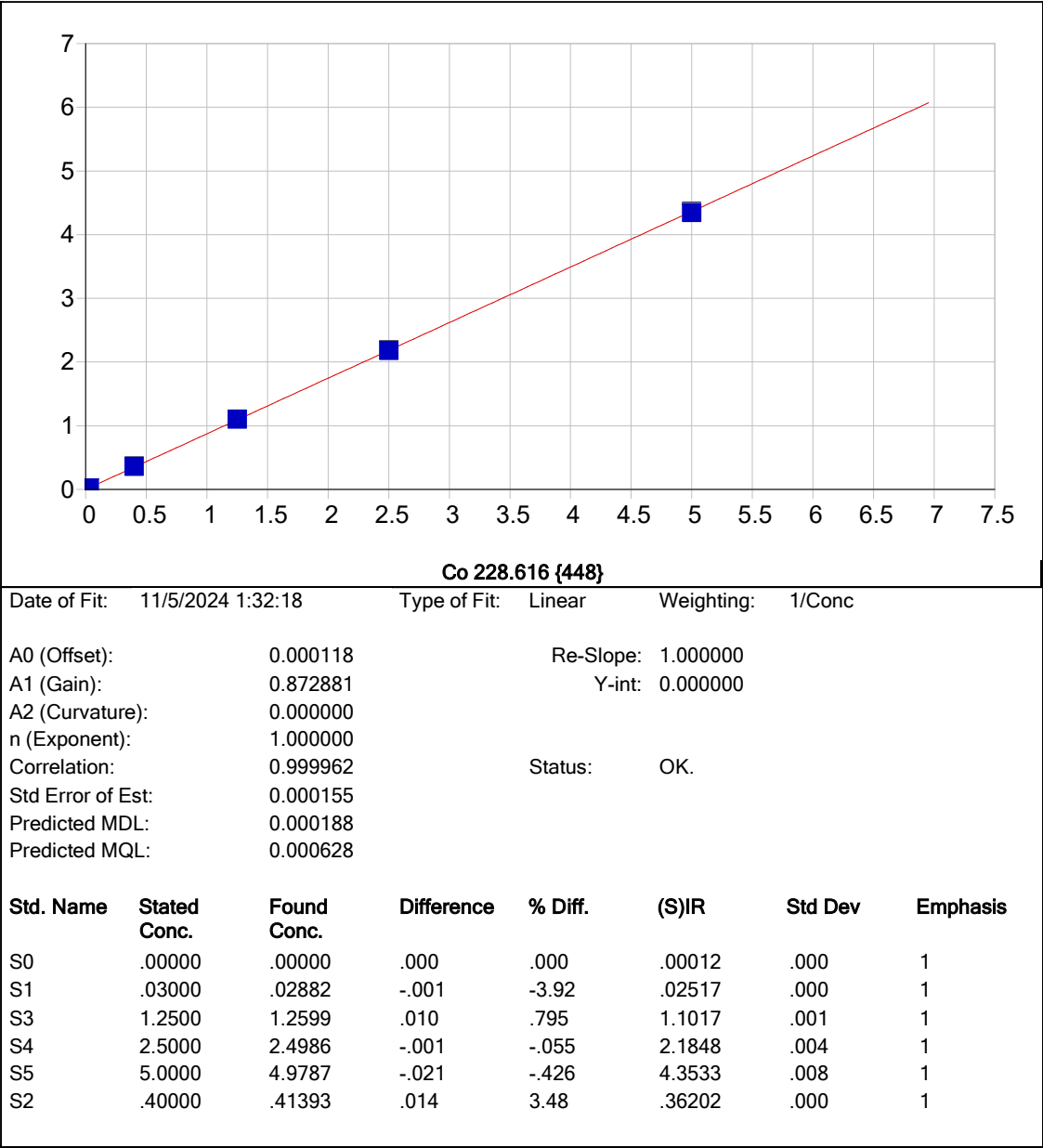


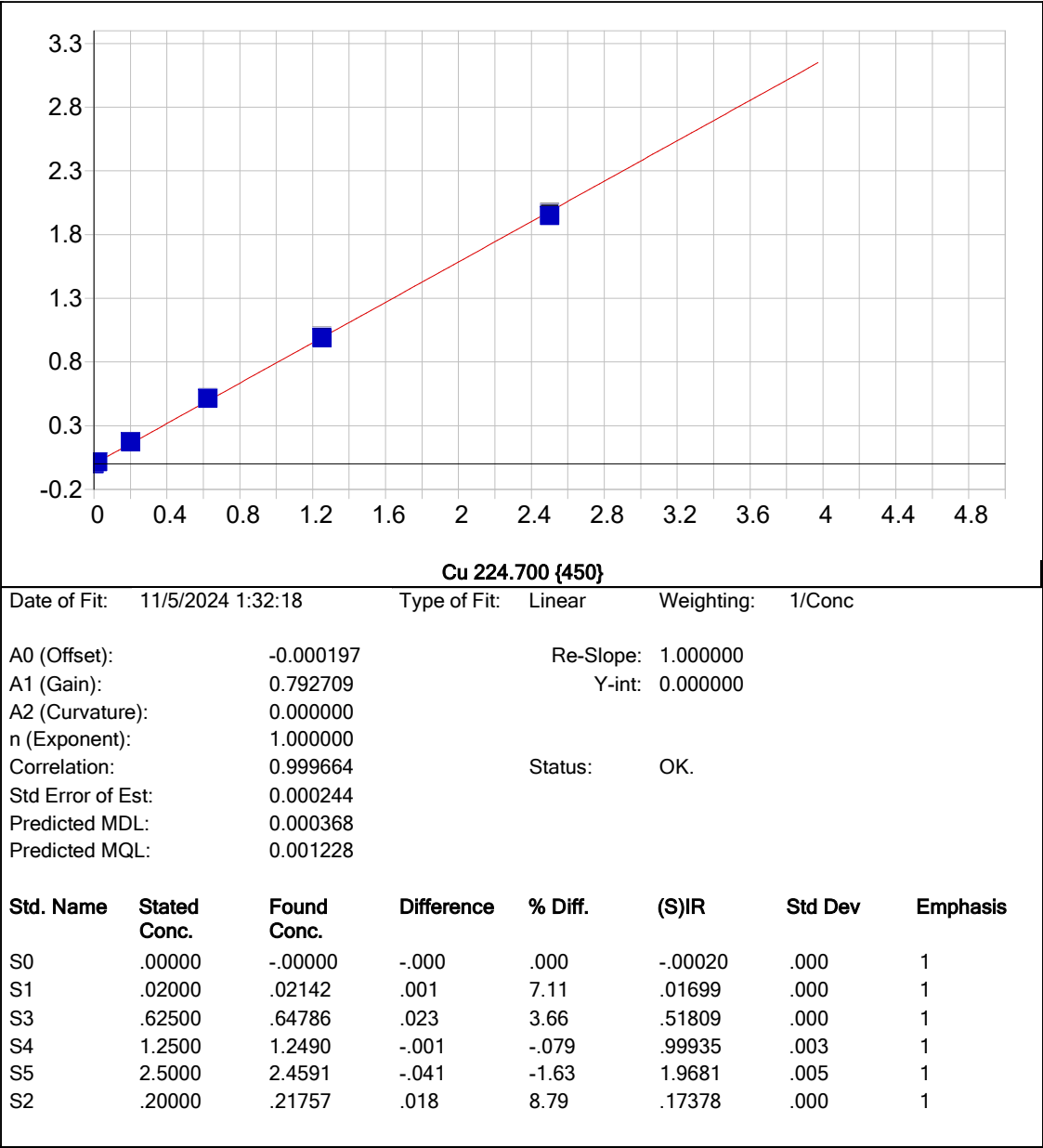


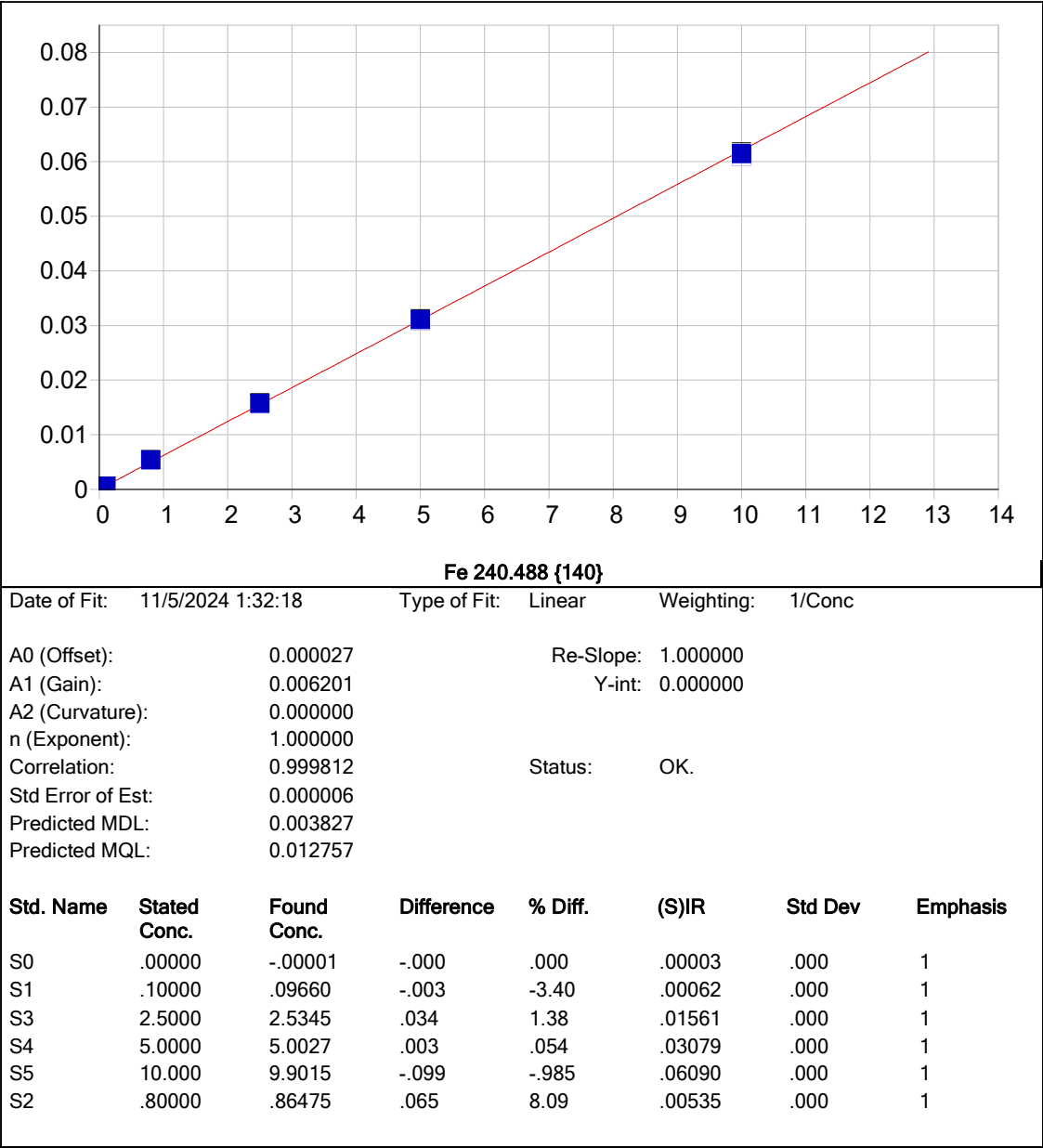


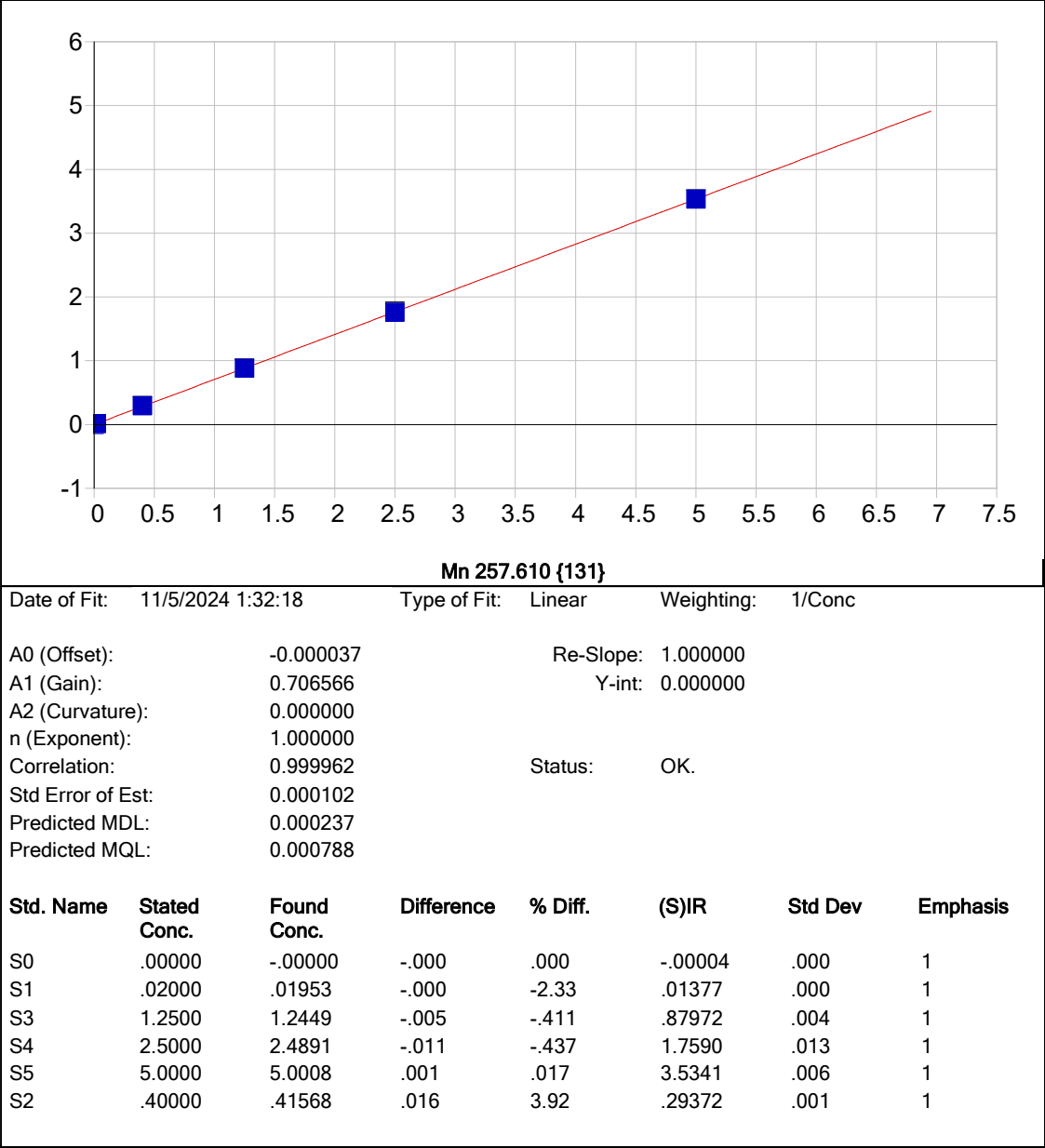


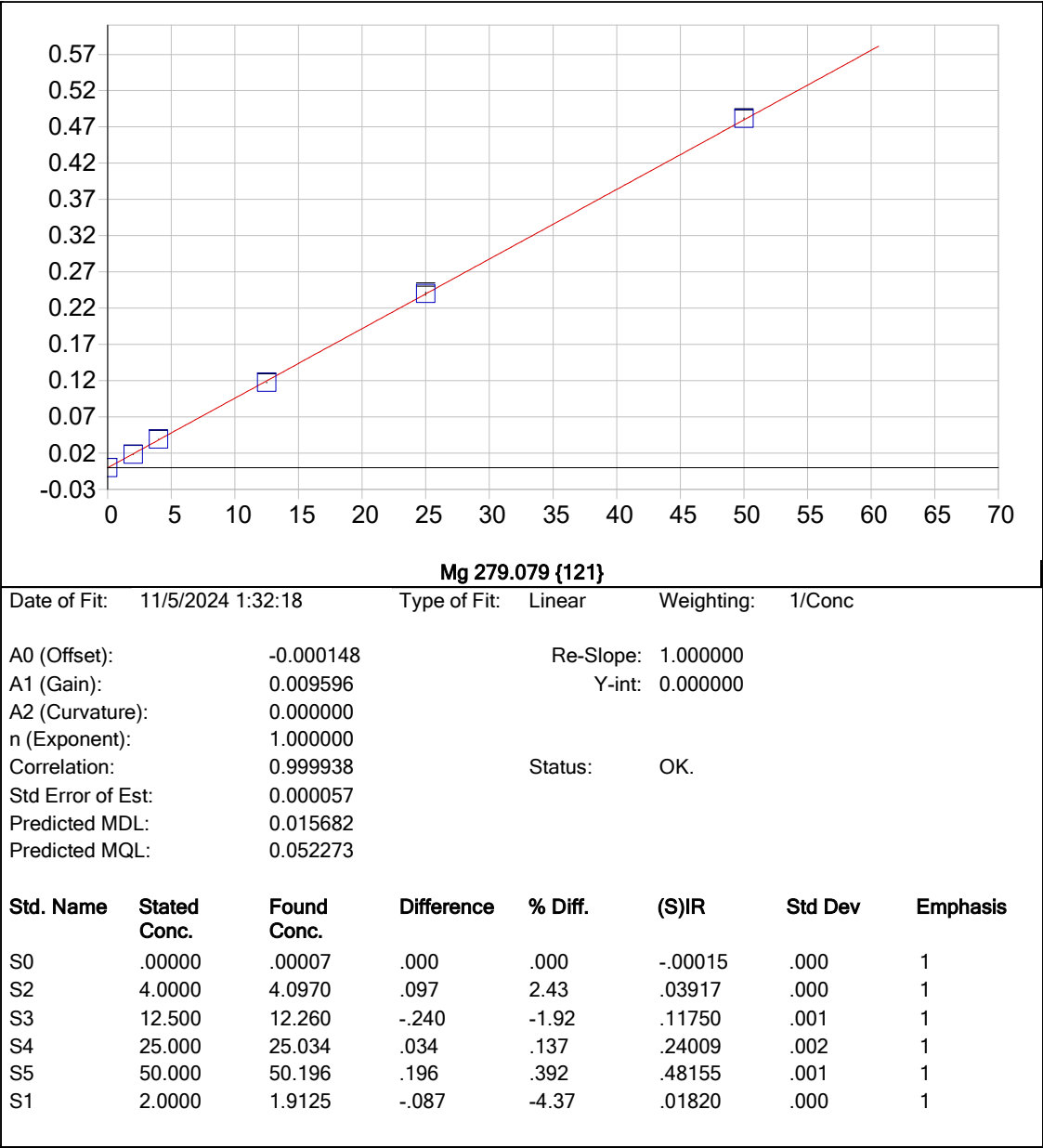


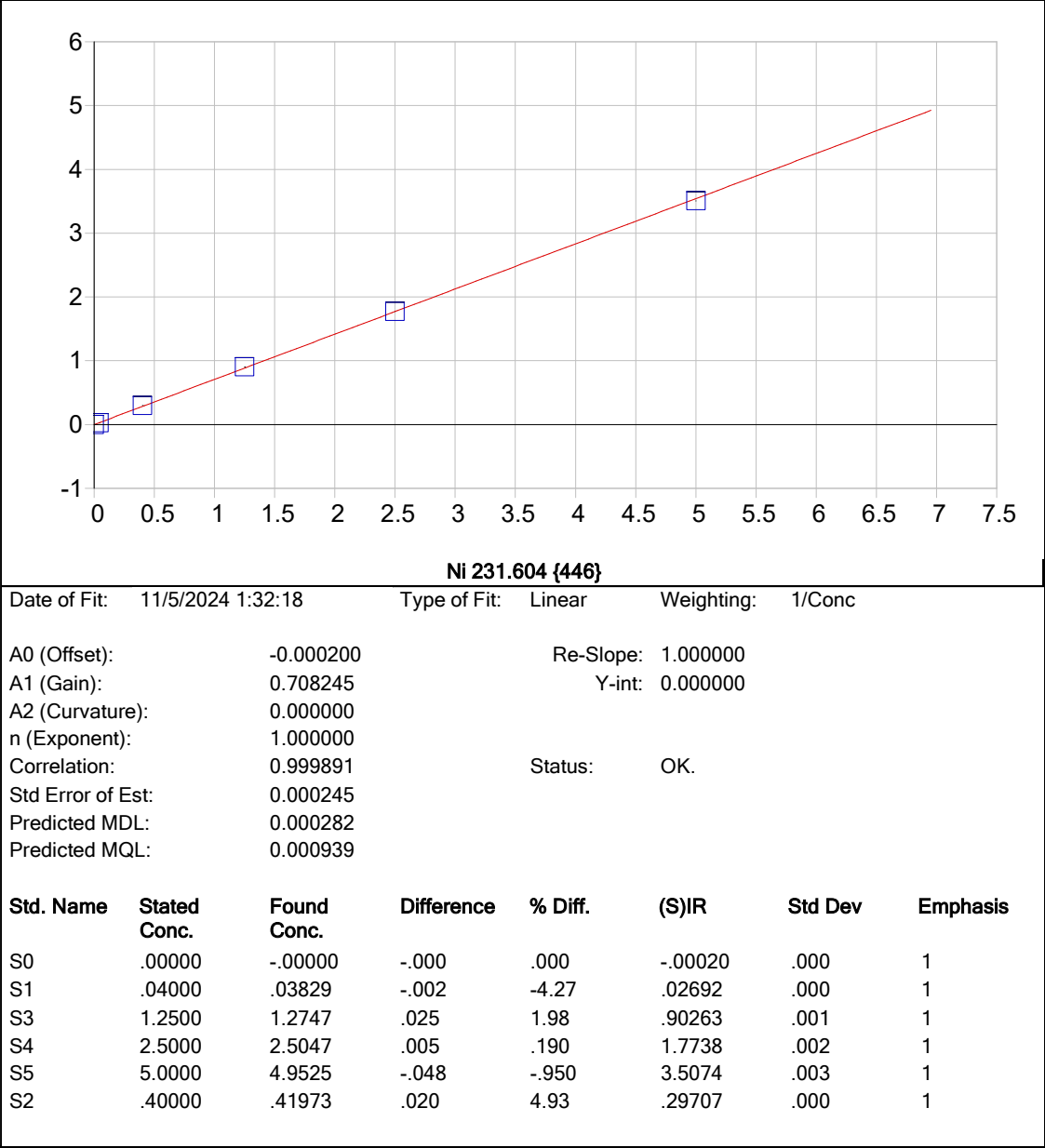


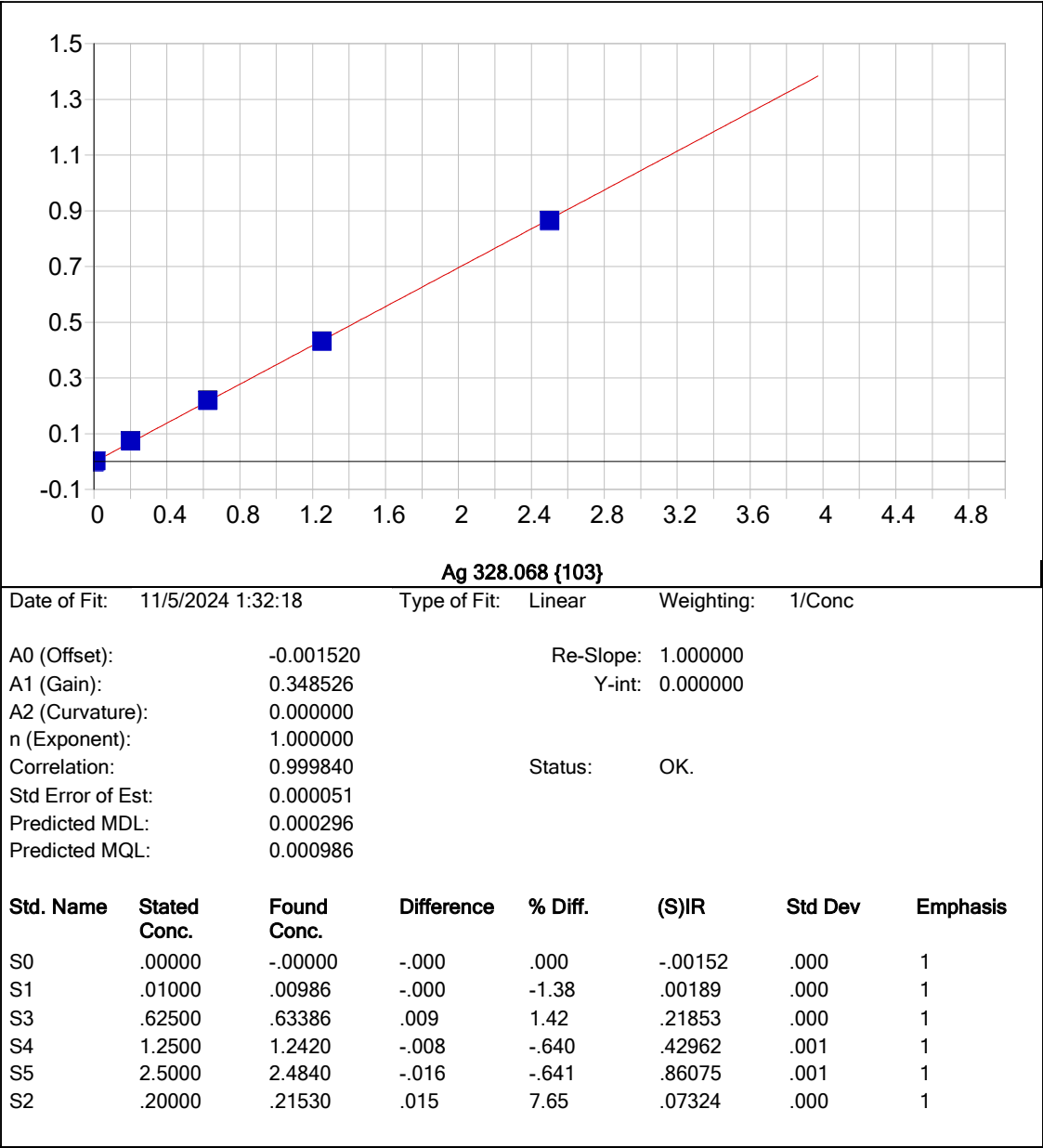


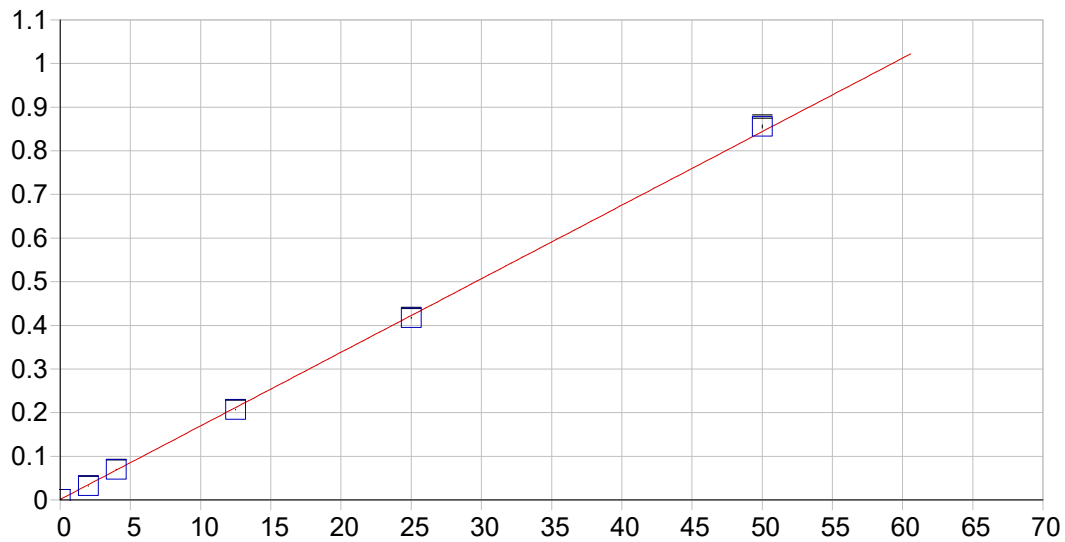










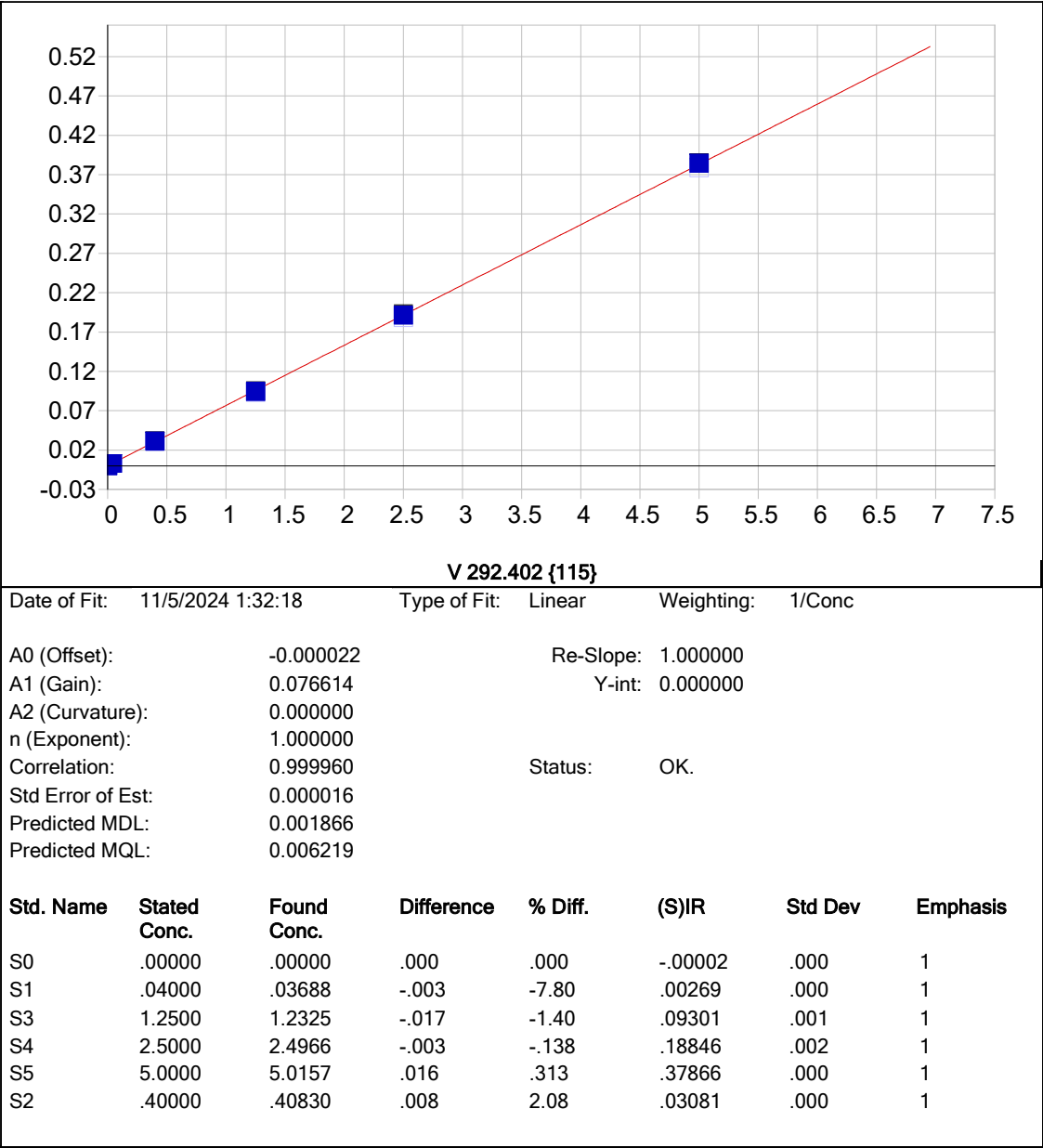


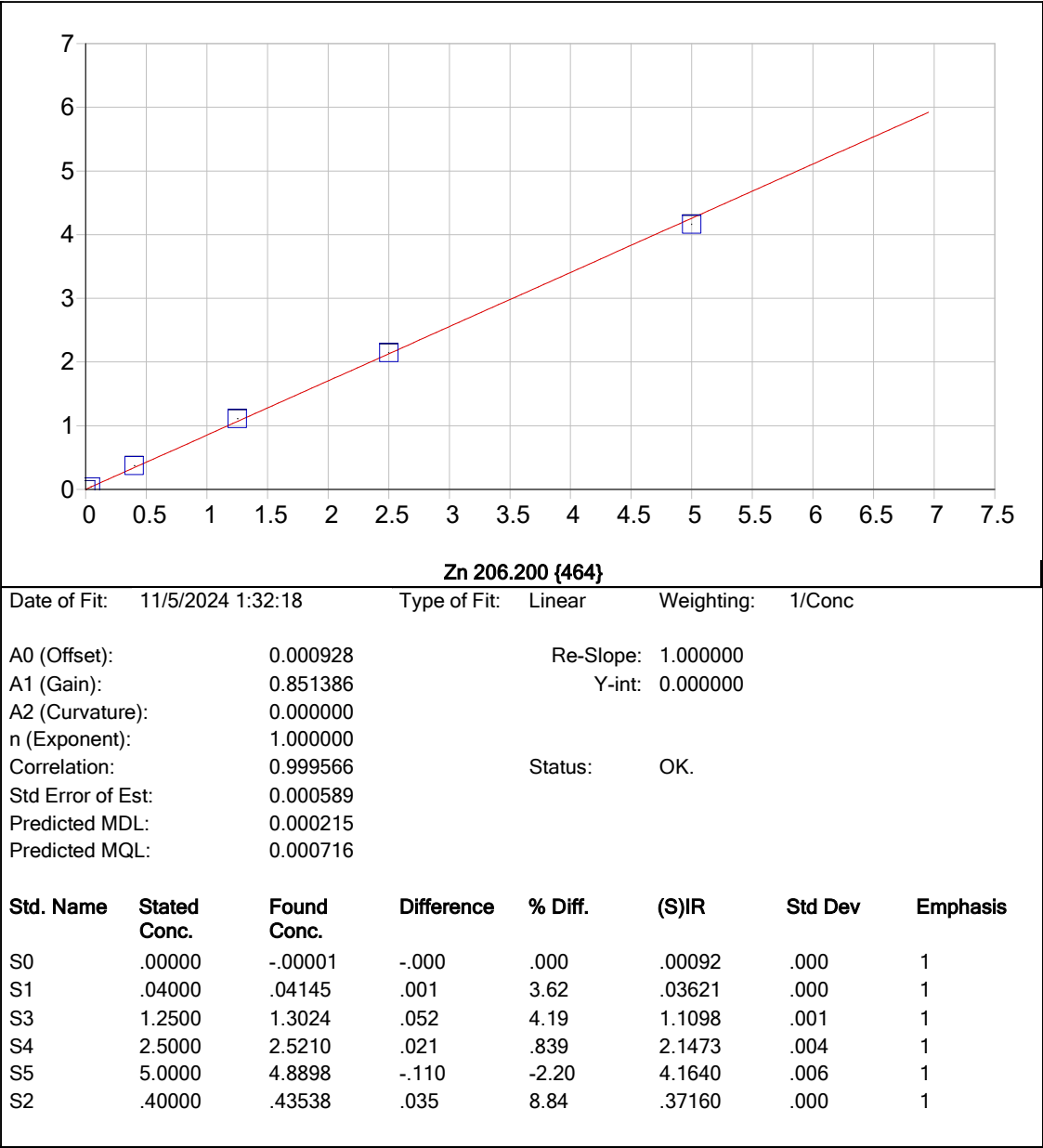
Na 589.592 { 57}

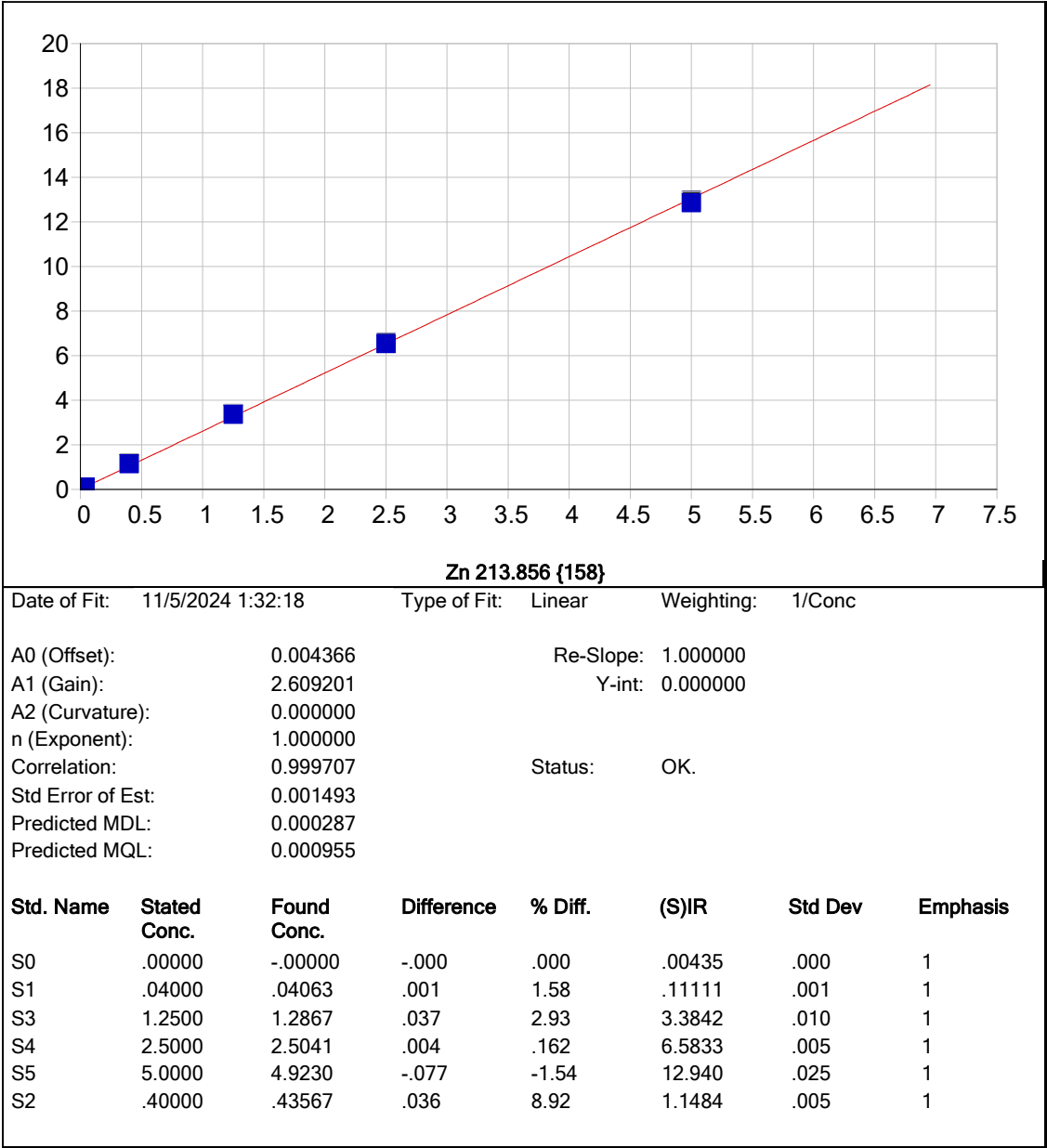
Date of Fit: 11/5/2024 1:32:18 Type of Fit: Linear Weighting: 1/Conc

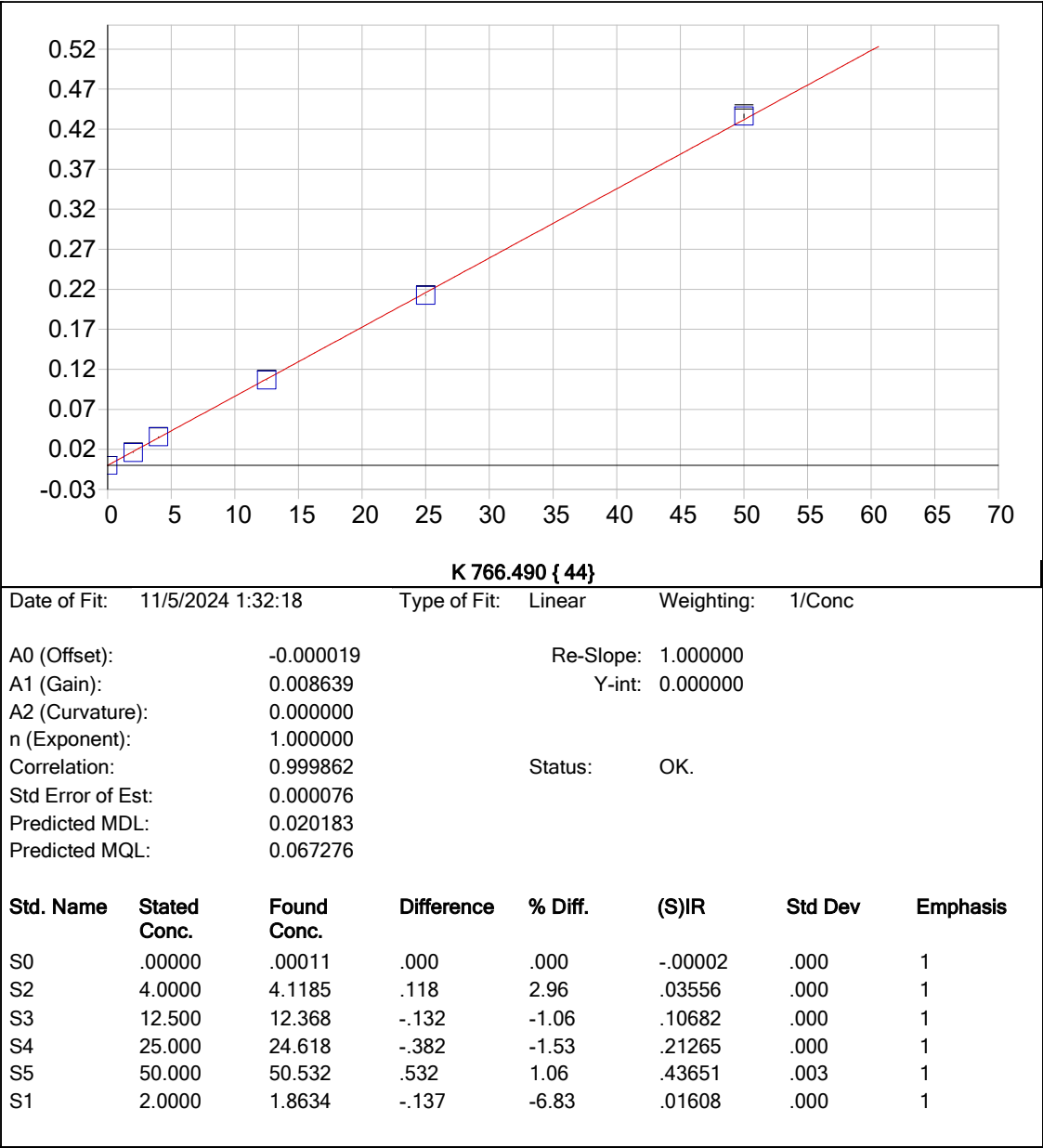
A0 (Offset): 0.001145 Re-Slope: 1.000000
A1 (Gain): 0.016855 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999803 Status: OK.
Std Error of Est: 0.000177
Predicted MDL: 0.008717
Predicted MQL: 0.029058

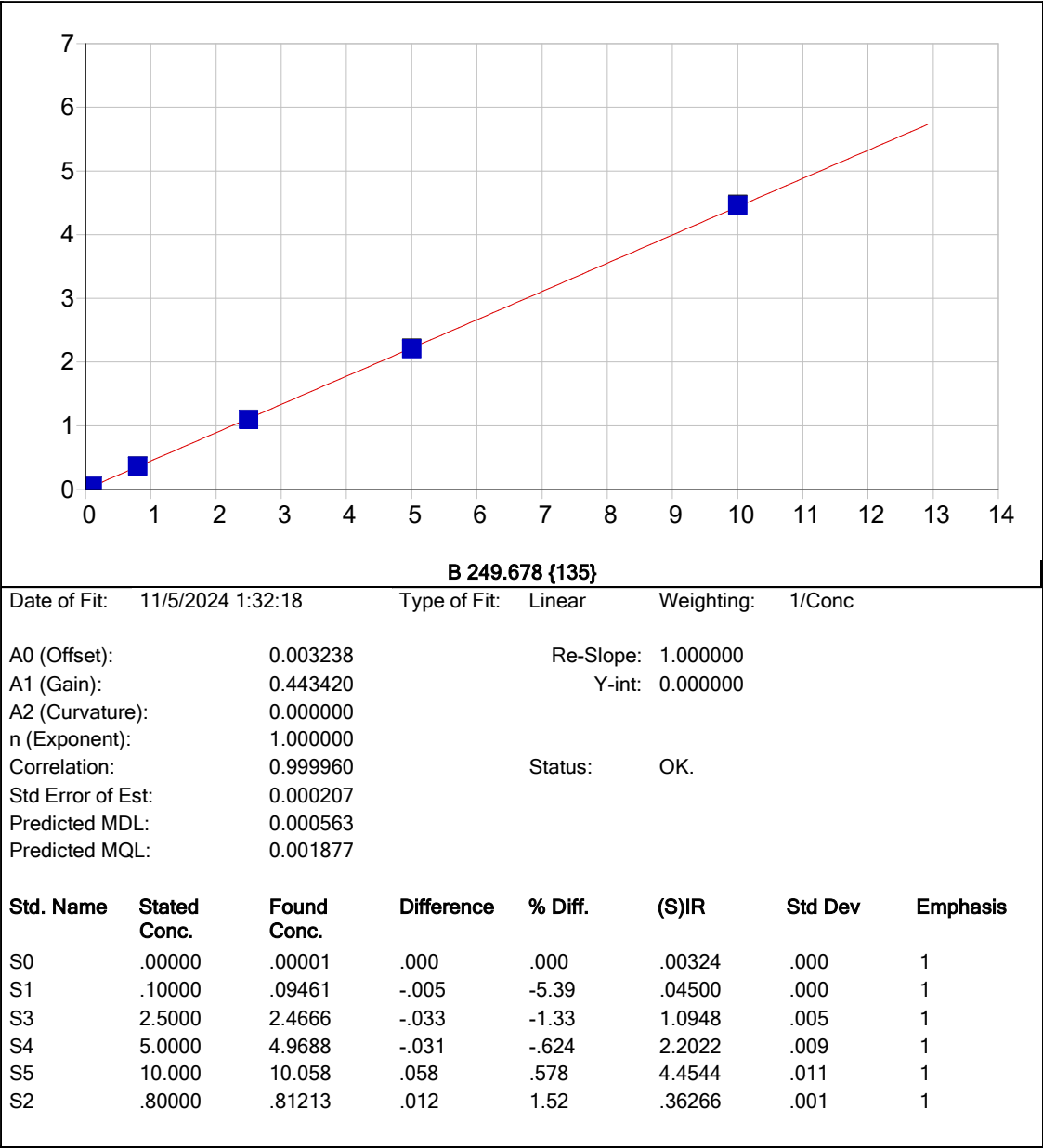
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00018	.000	.000	.00115	.000	1
S2	4.0000	4.0766	.077	1.92	.06986	.001	1
S3	12.500	12.207	-.293	-2.34	.20689	.001	1
S4	25.000	24.684	-.316	-1.26	.41719	.001	1
S5	50.000	50.703	.703	1.41	.85573	.004	1
S1	2.0000	1.8295	-.170	-8.52	.03198	.000	1

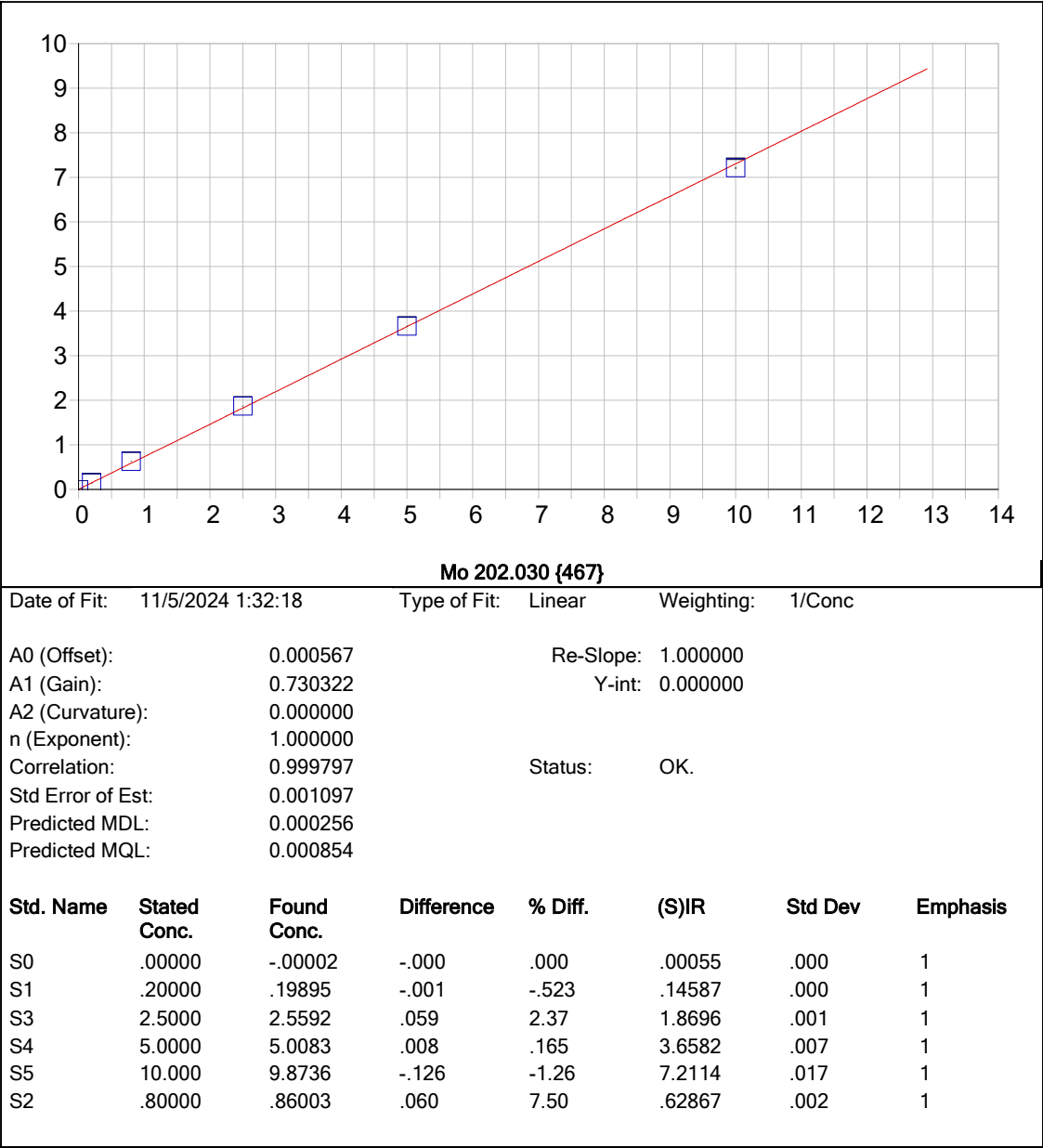


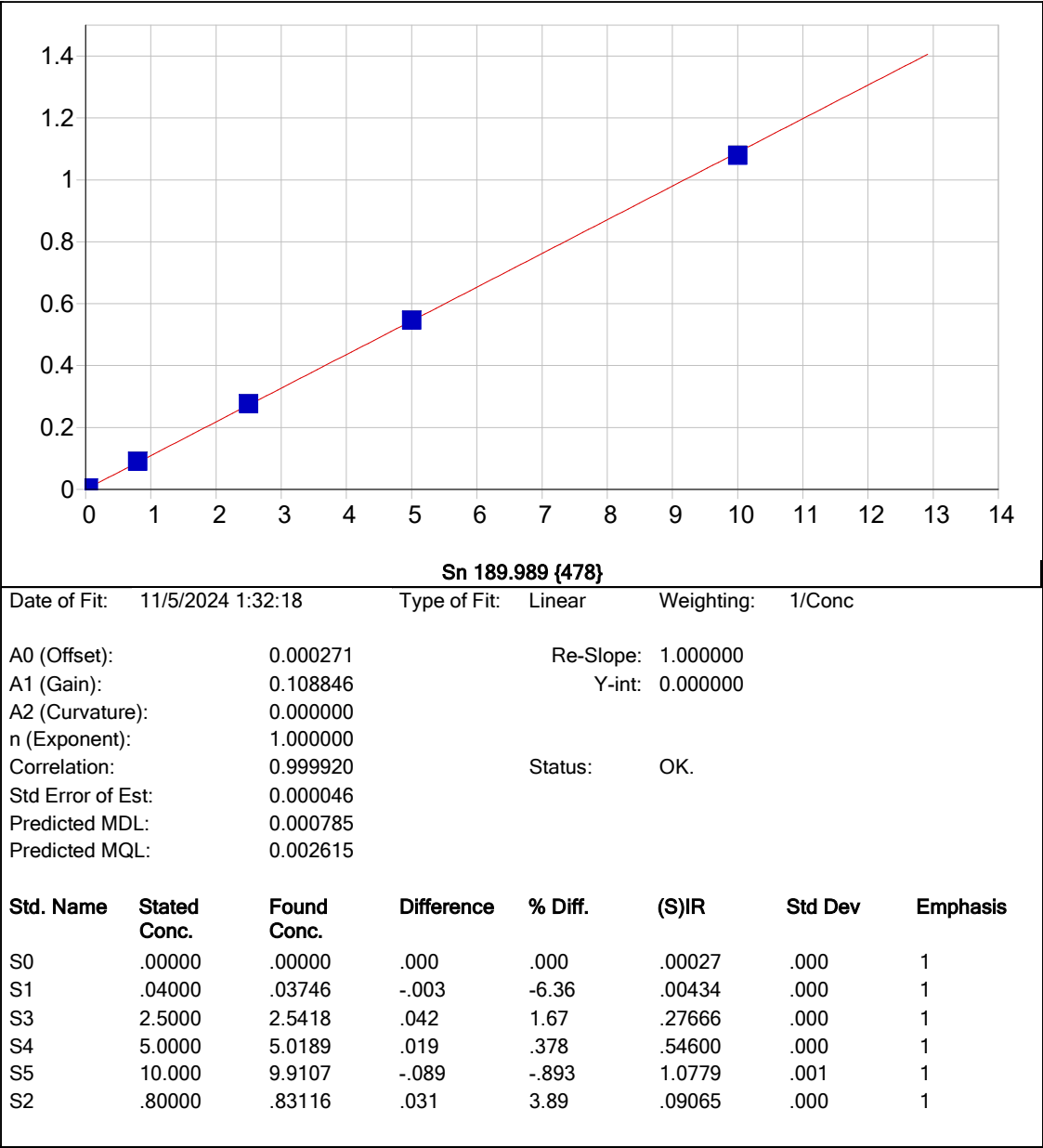


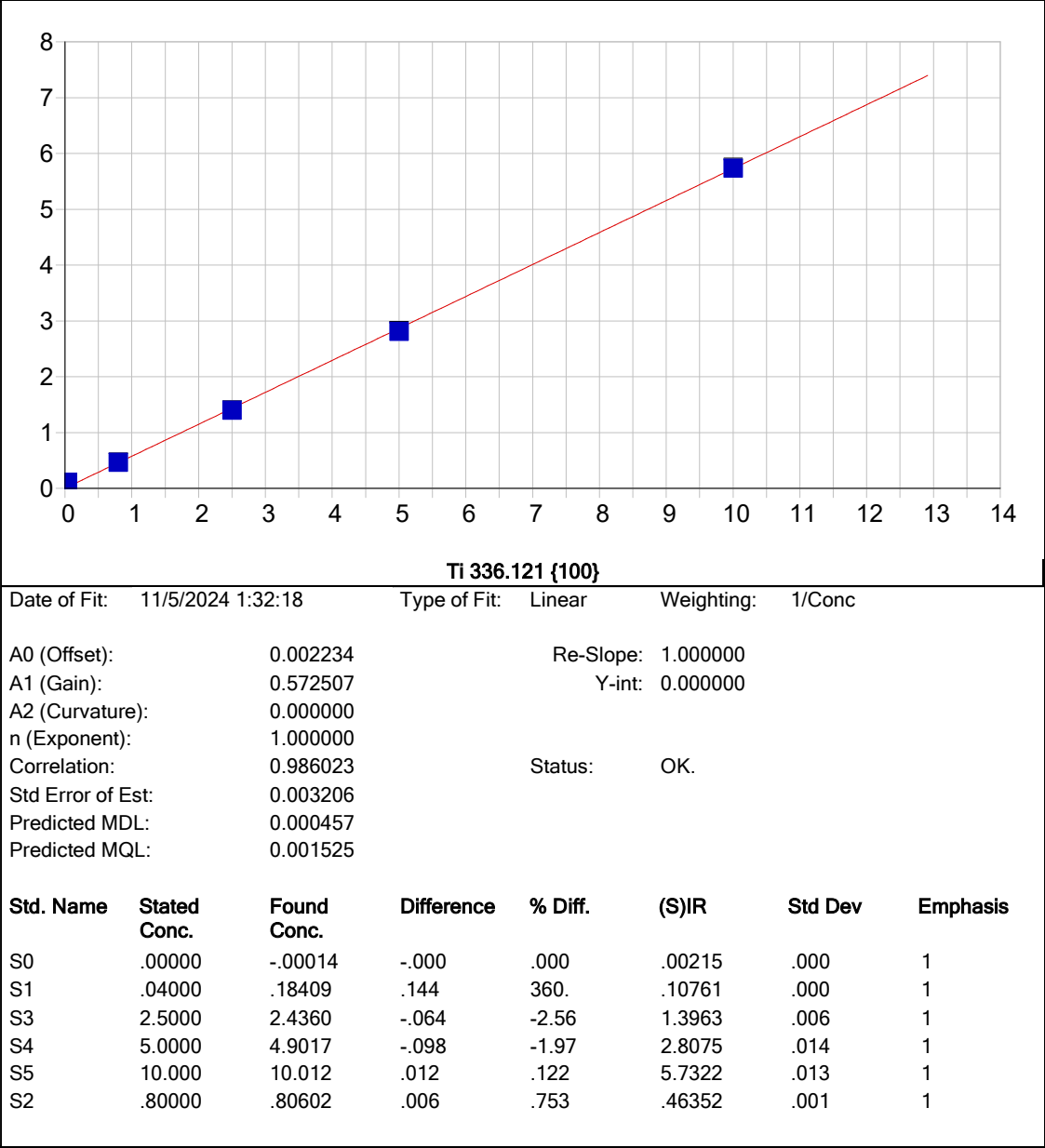


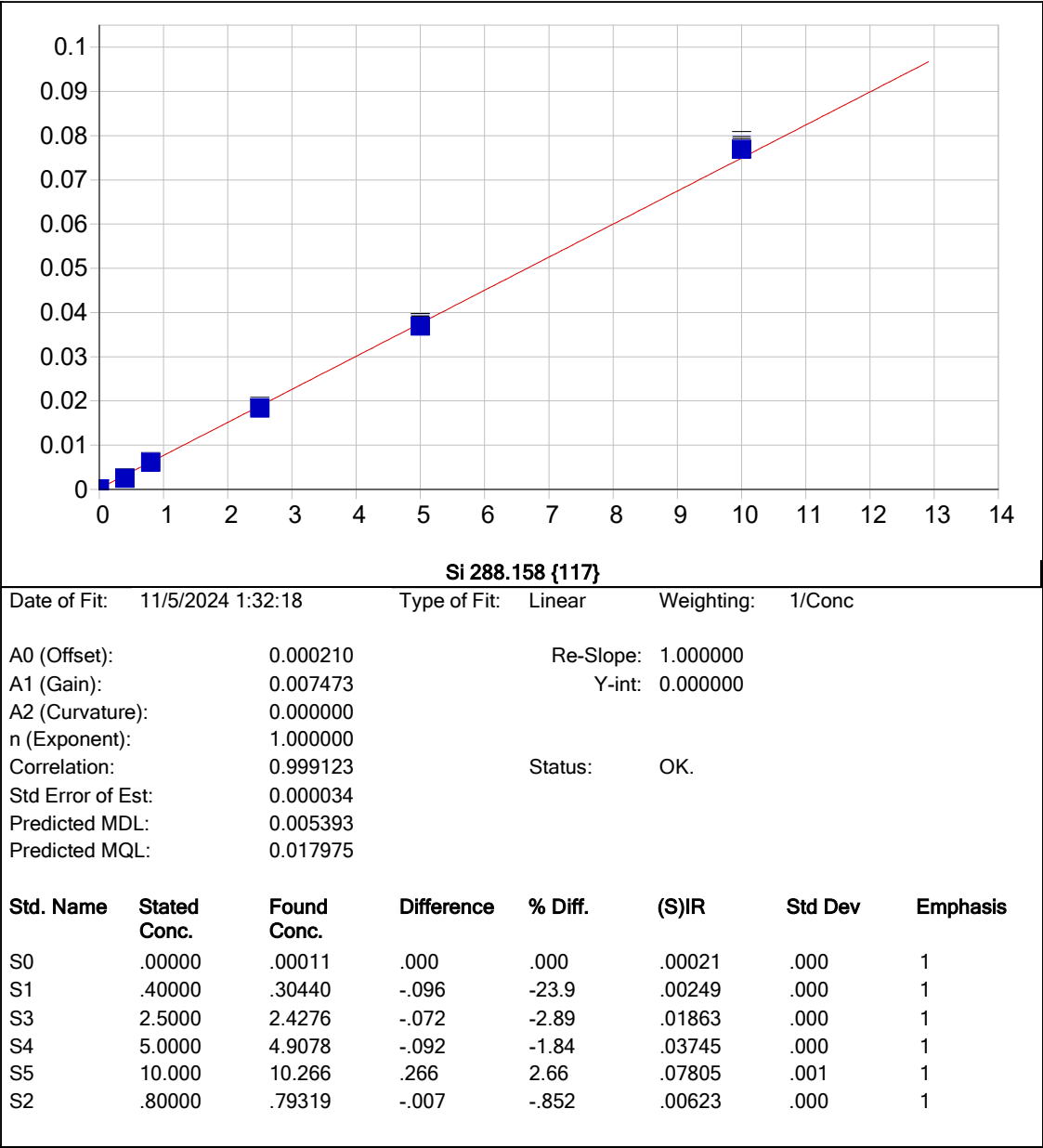


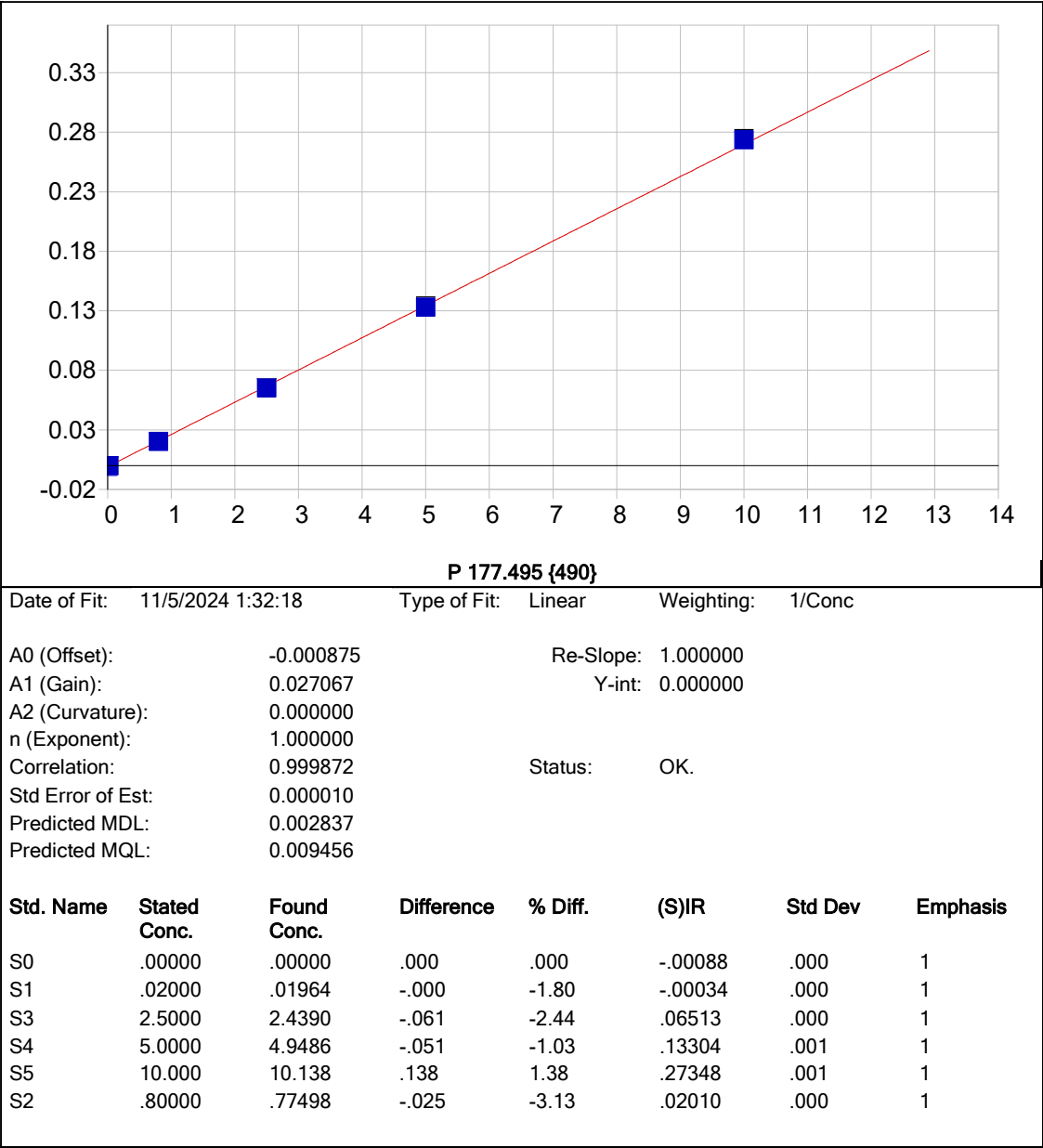


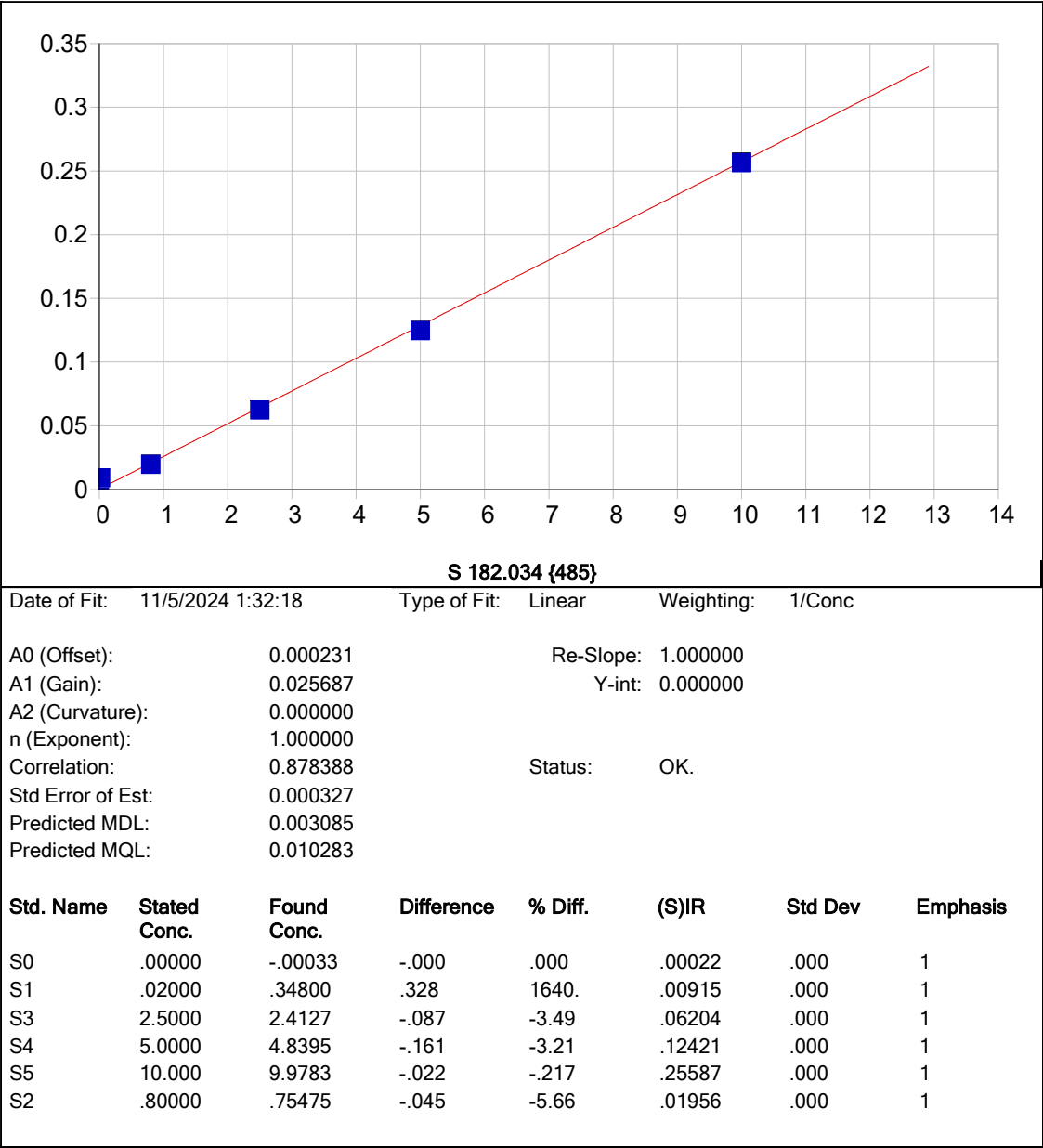


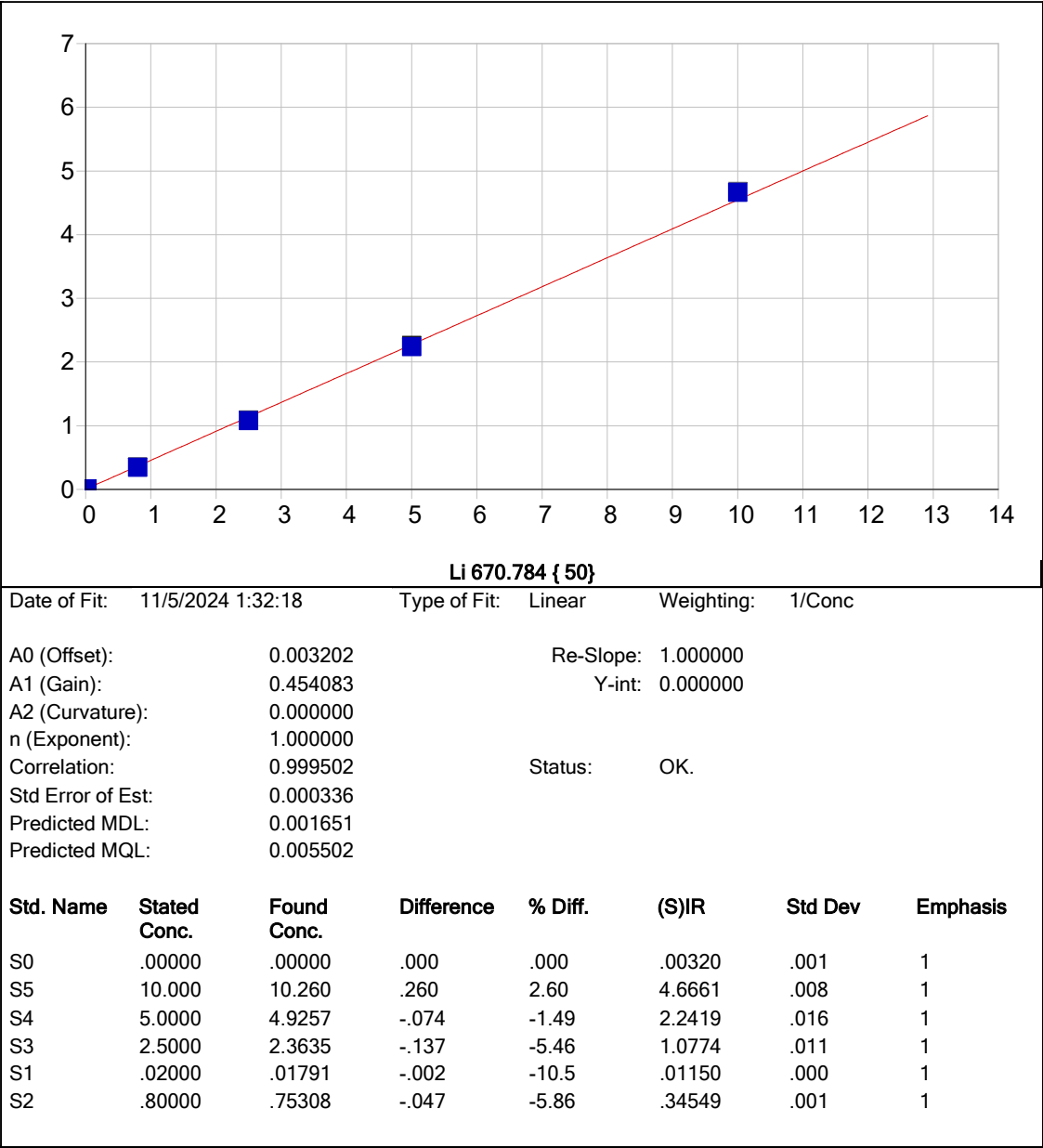


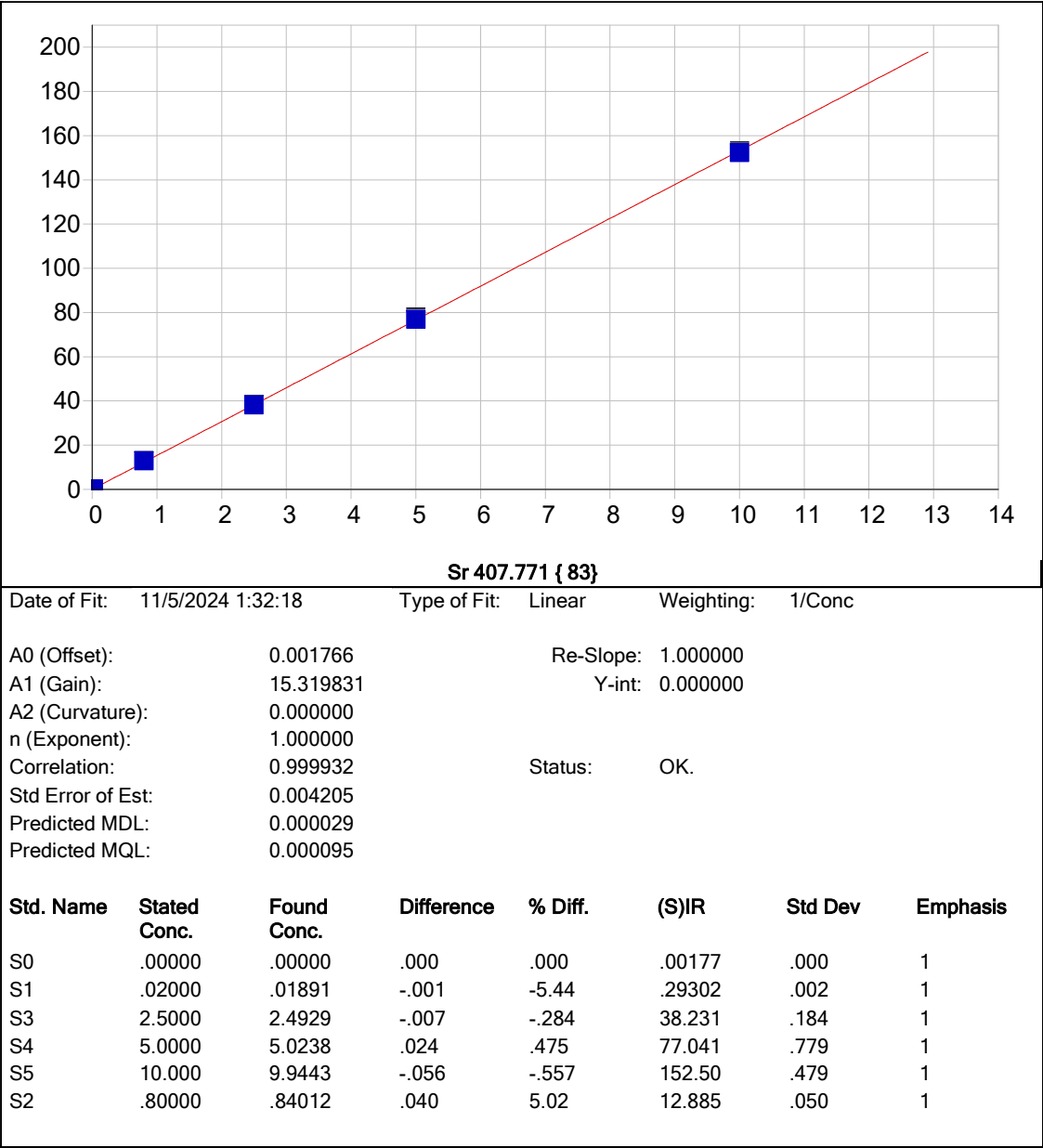














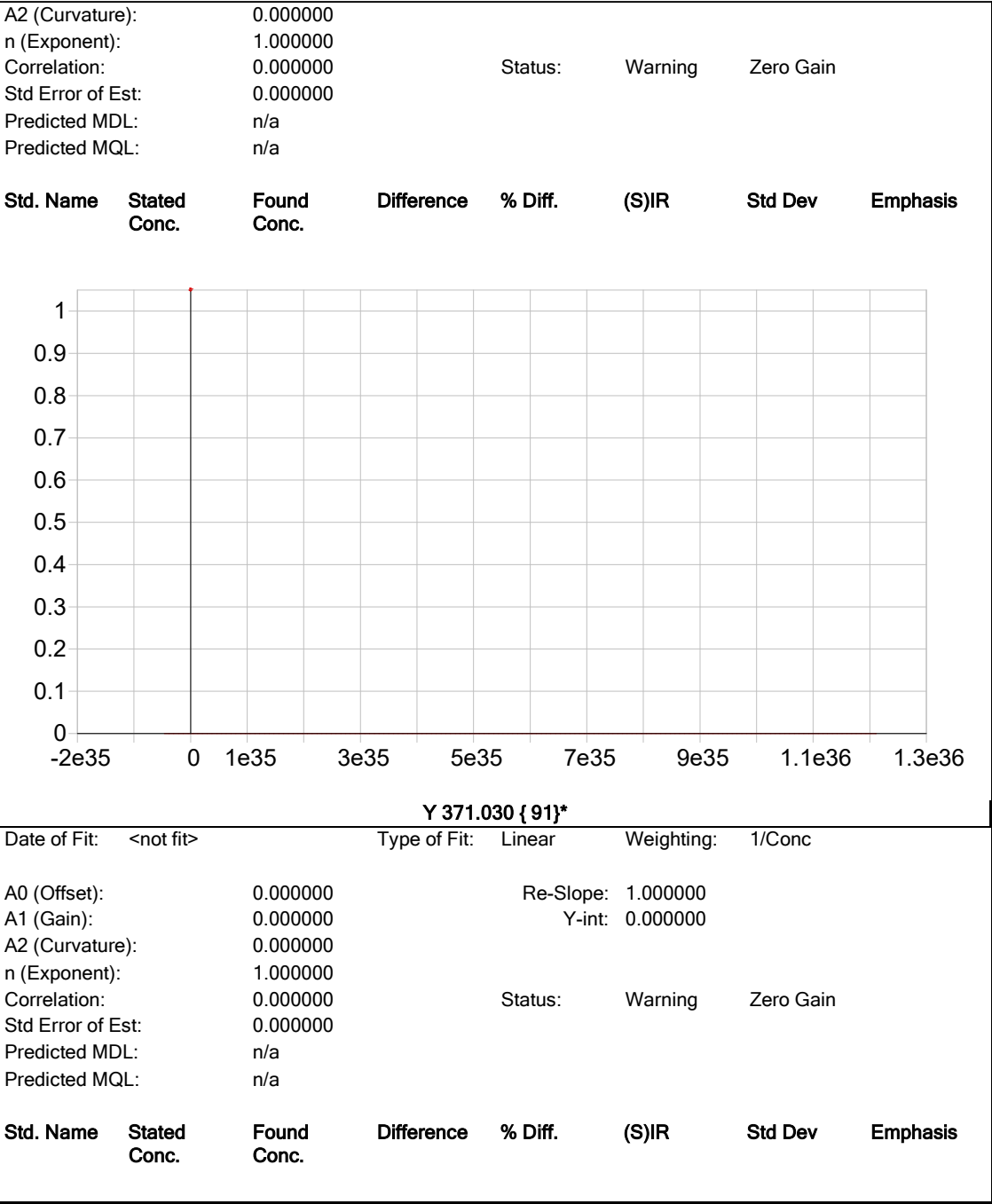
Date of Fit: 11/5/2024 1:32:18 Type of Fit: Linear Weighting: 1/Conc

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		

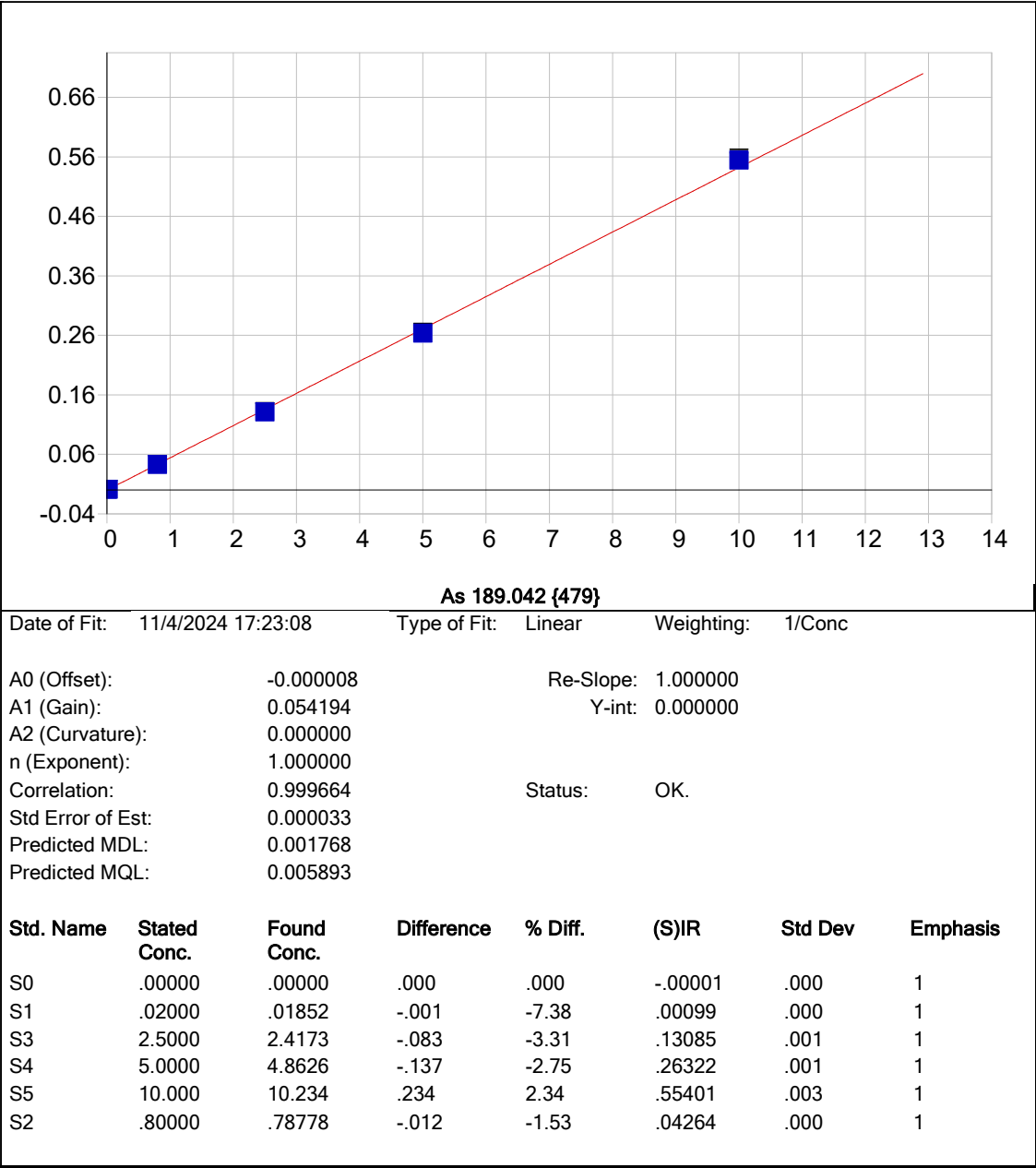
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
							
Y 360.073 { 94}*							

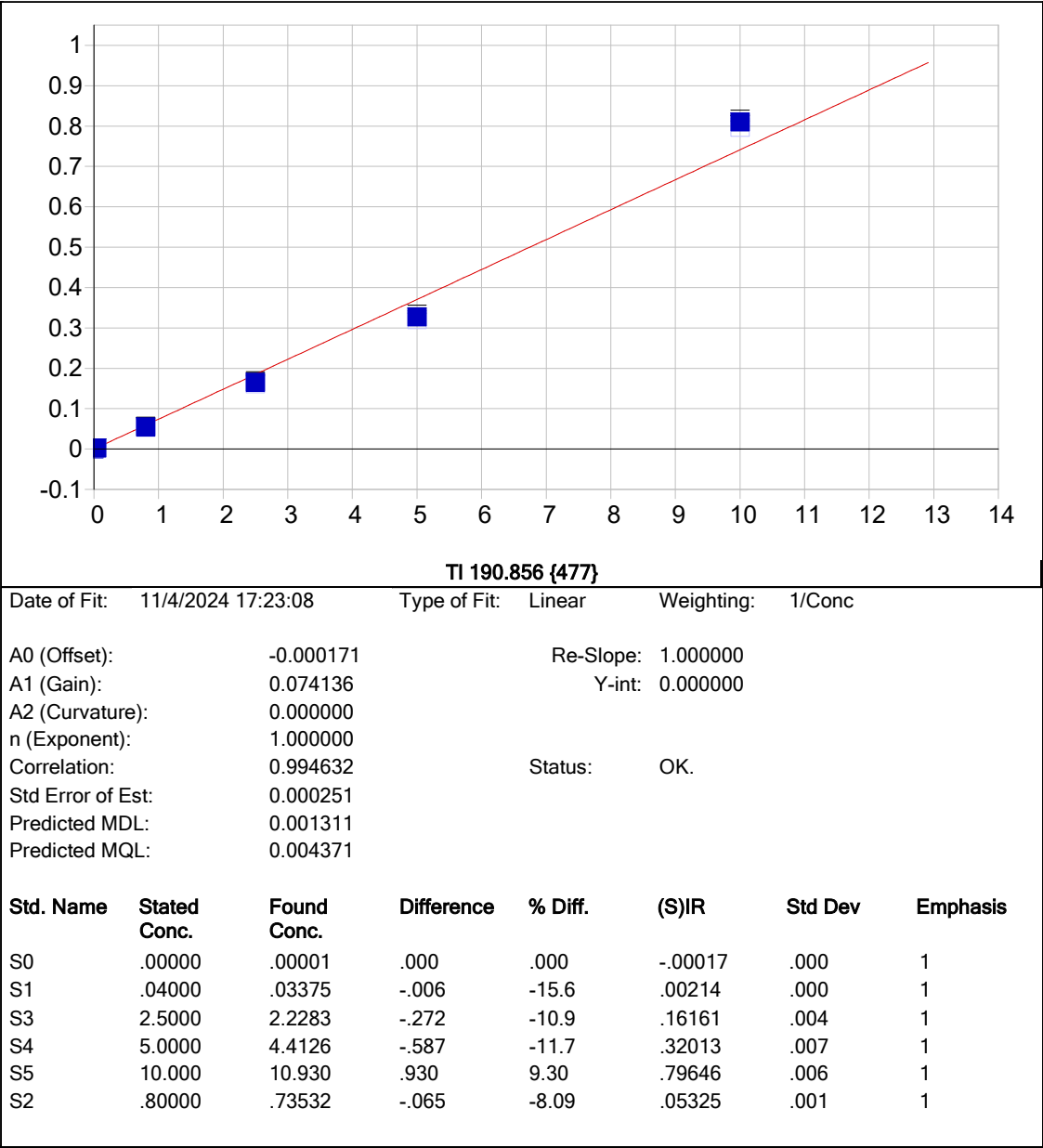
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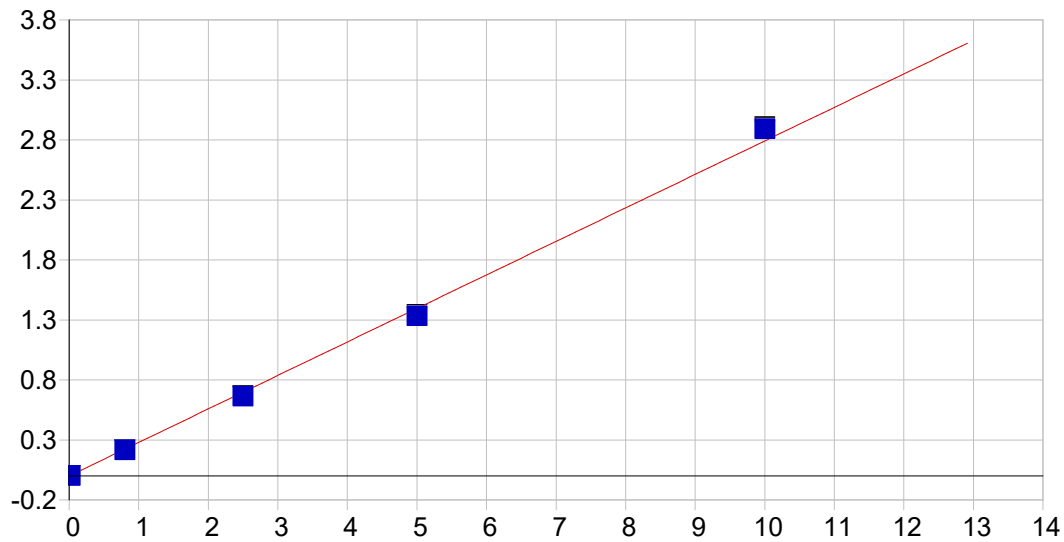
A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000



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





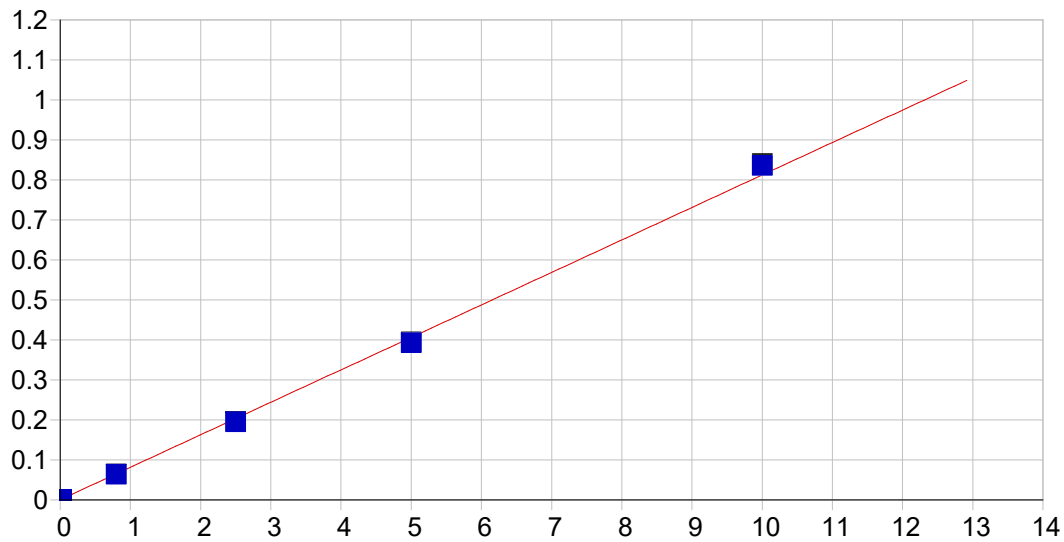


Pb 220.353 {453}

Date of Fit: 11/4/2024 17:23:08 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset):	-0.000033	Re-Slope:	1.000000
A1 (Gain):	0.279179	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999186	Status:	OK.
Std Error of Est:	0.000204		
Predicted MDL:	0.000817		
Predicted MQL:	0.002725		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00003	.000	1
S1	.01200	.01022	-.002	-14.8	.00275	.000	1
S3	2.5000	2.3824	-.118	-4.71	.66430	.005	1
S4	5.0000	4.7769	-.223	-4.46	1.3321	.011	1
S5	10.000	10.366	.366	3.66	2.8907	.016	1
S2	.80000	.77693	-.023	-2.88	.21662	.001	1

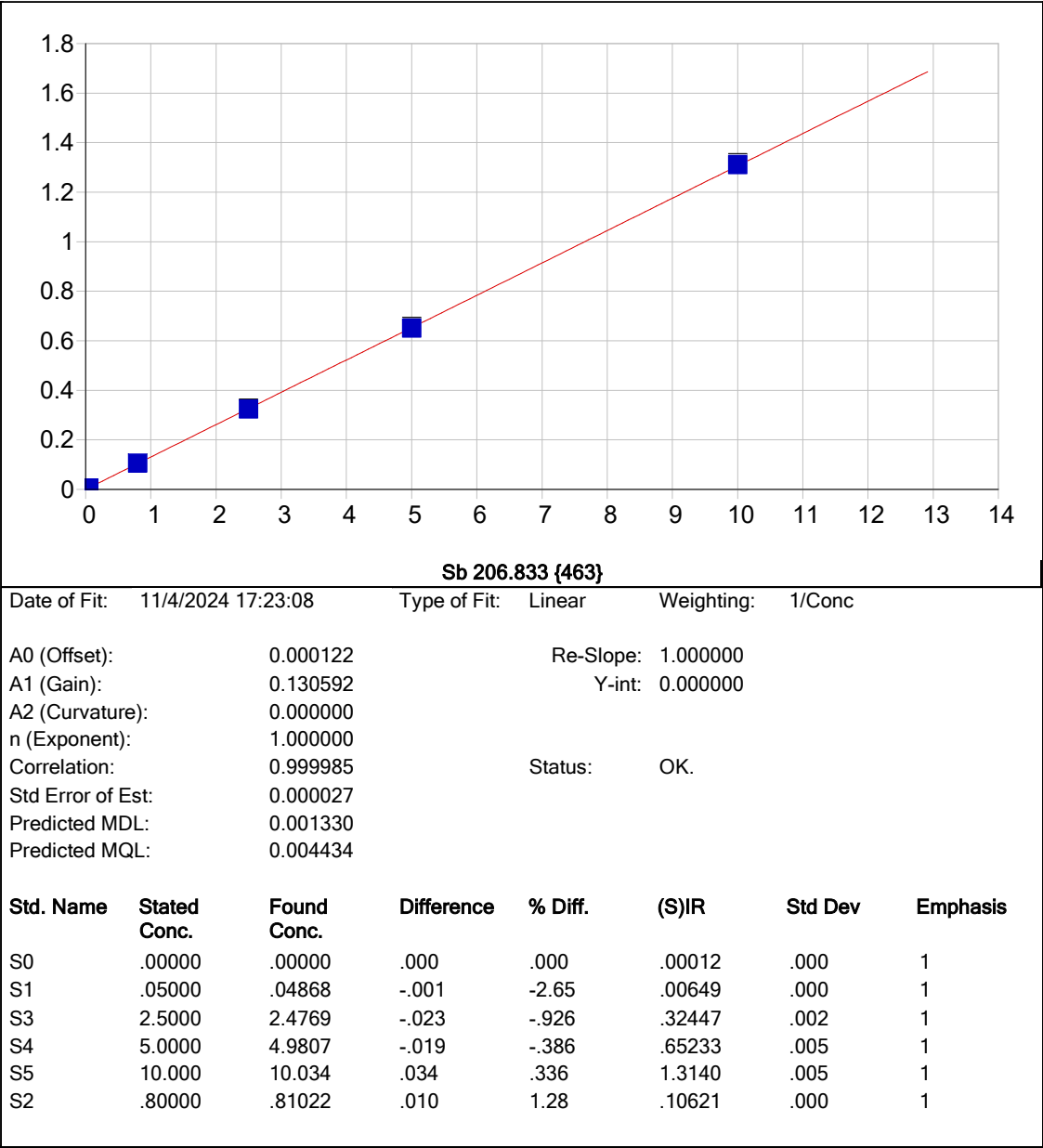


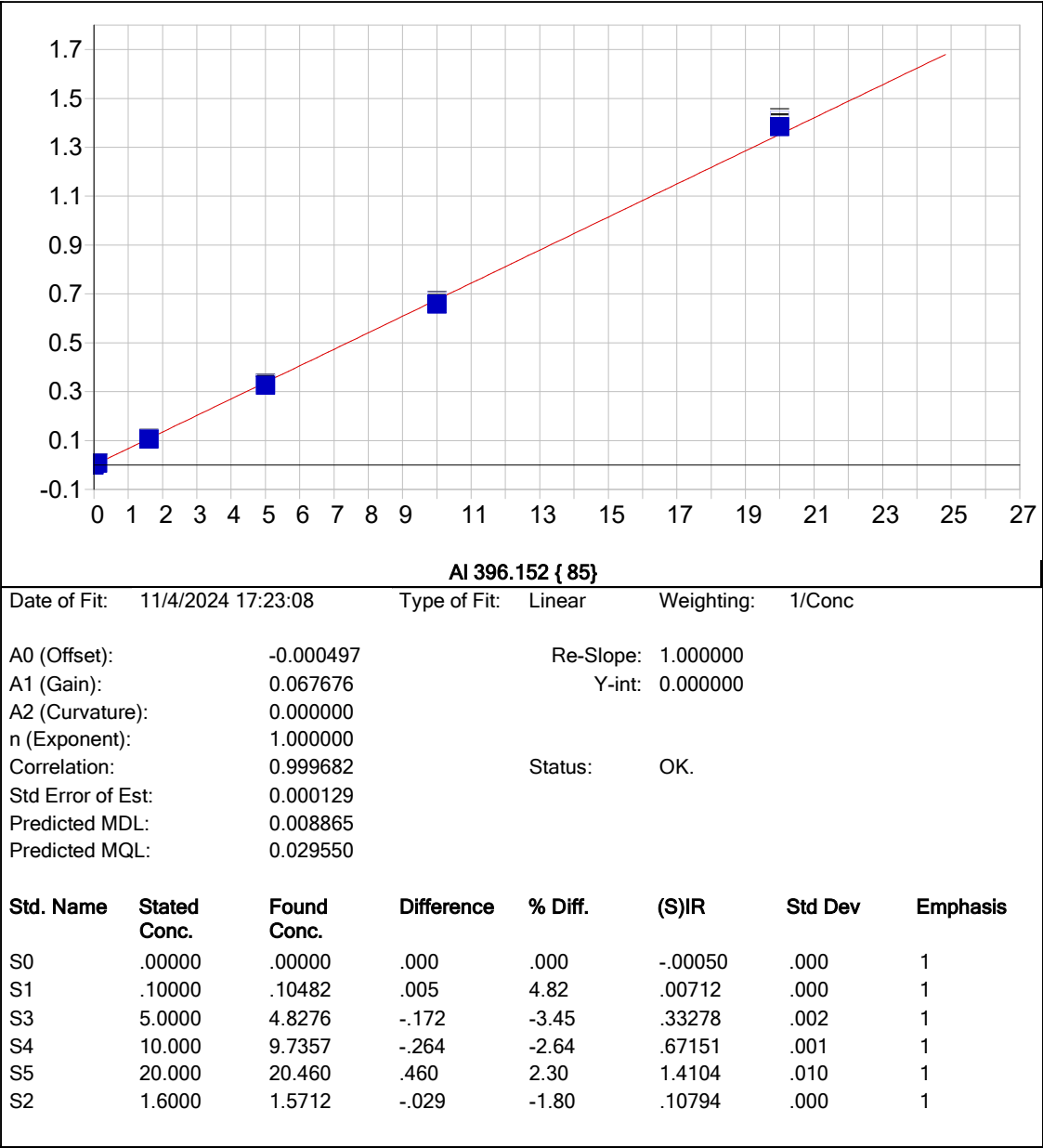
Se 196.090 {472}

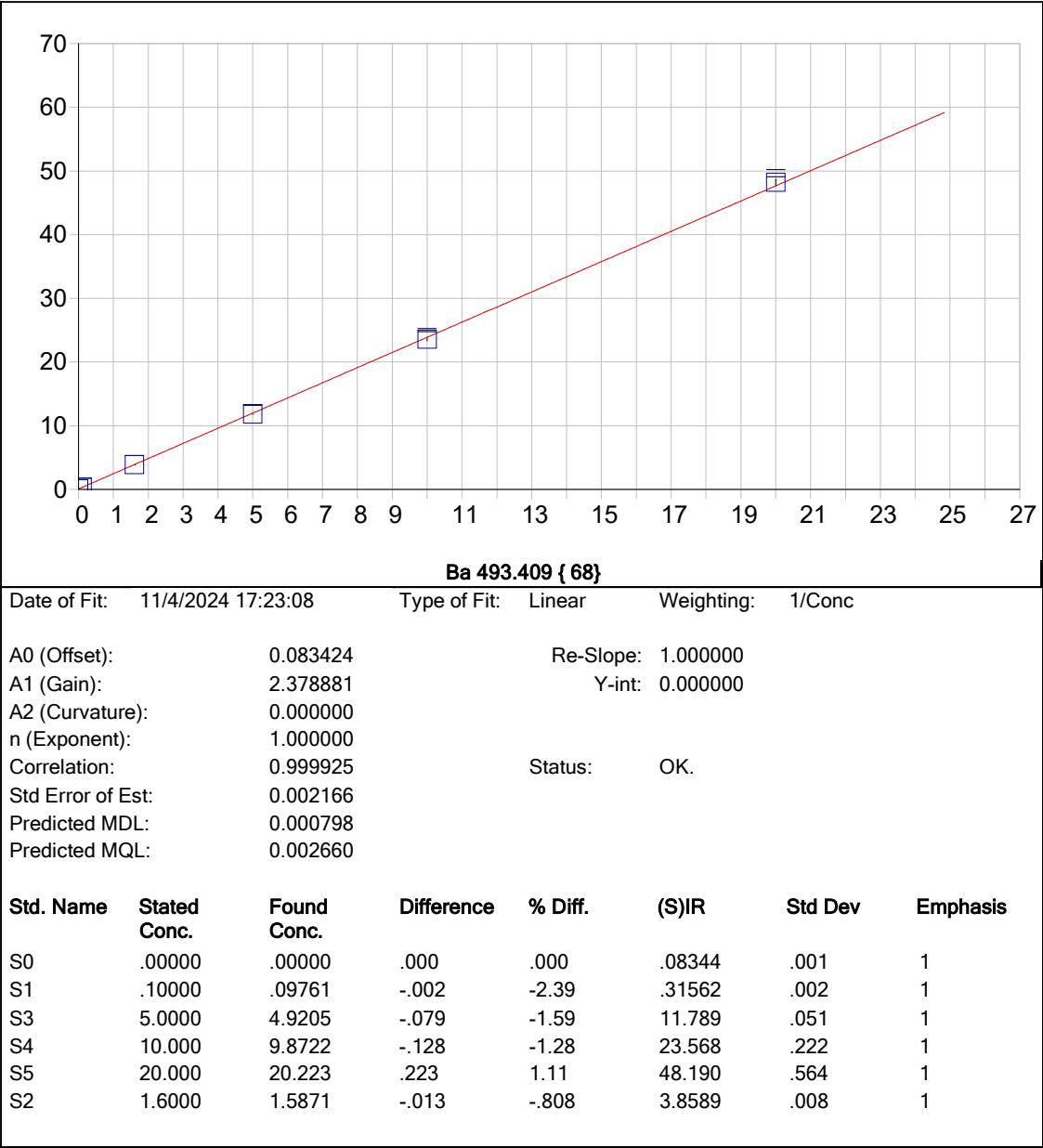
Date of Fit: 11/4/2024 17:23:08 Type of Fit: Linear Weighting: 1/Conc

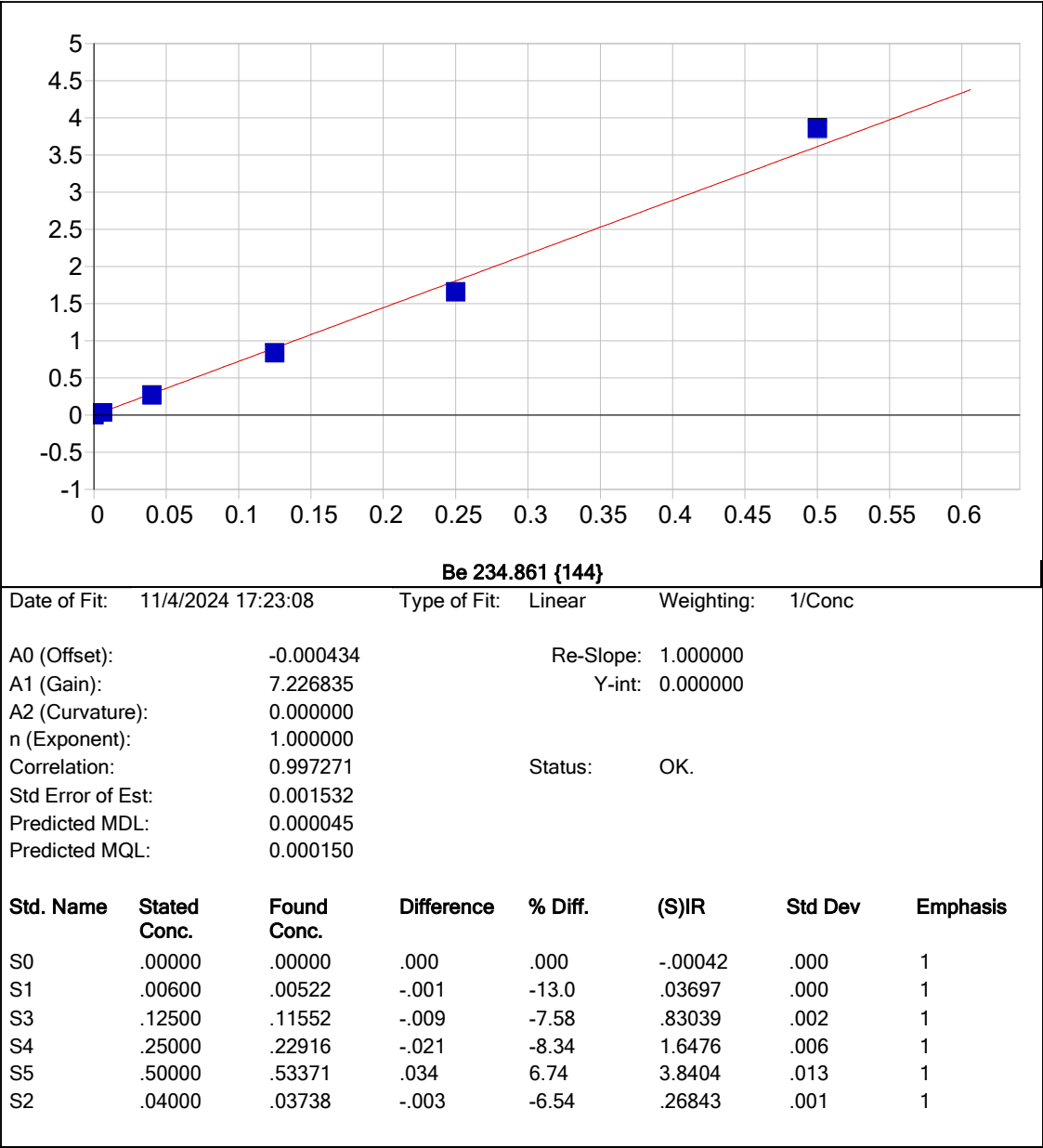
A0 (Offset): 0.000455 Re-Slope: 1.000000
A1 (Gain): 0.081178 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999469 Status: OK.
Std Error of Est: 0.000062
Predicted MDL: 0.001716
Predicted MQL: 0.005721

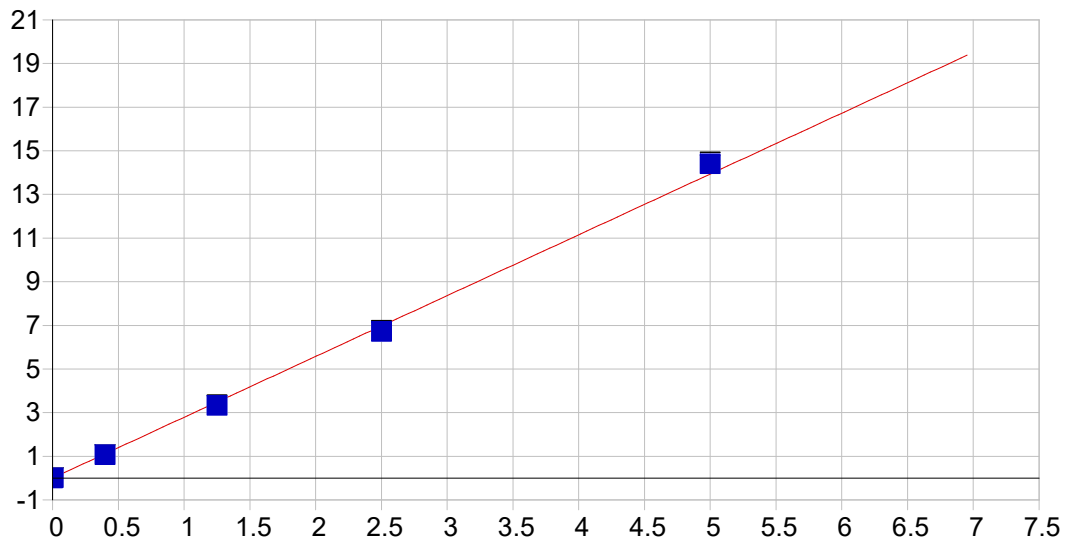
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00046	.000	1
S1	.02000	.01819	-.002	-9.03	.00193	.000	1
S3	2.5000	2.3945	-.106	-4.22	.19478	.001	1
S4	5.0000	4.8299	-.170	-3.40	.39243	.002	1
S5	10.000	10.295	.295	2.95	.83597	.004	1
S2	.80000	.78262	-.017	-2.17	.06397	.000	1









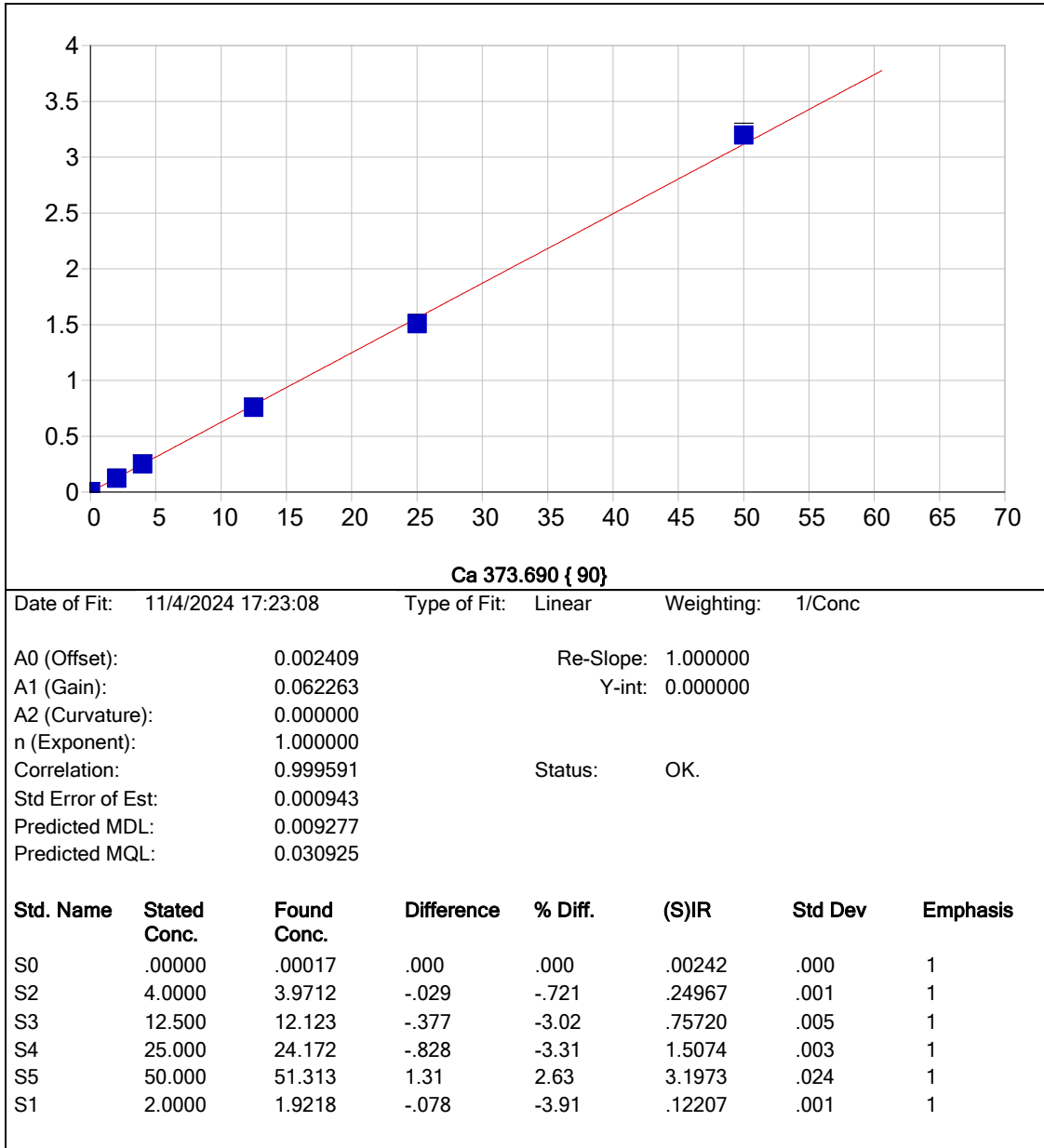


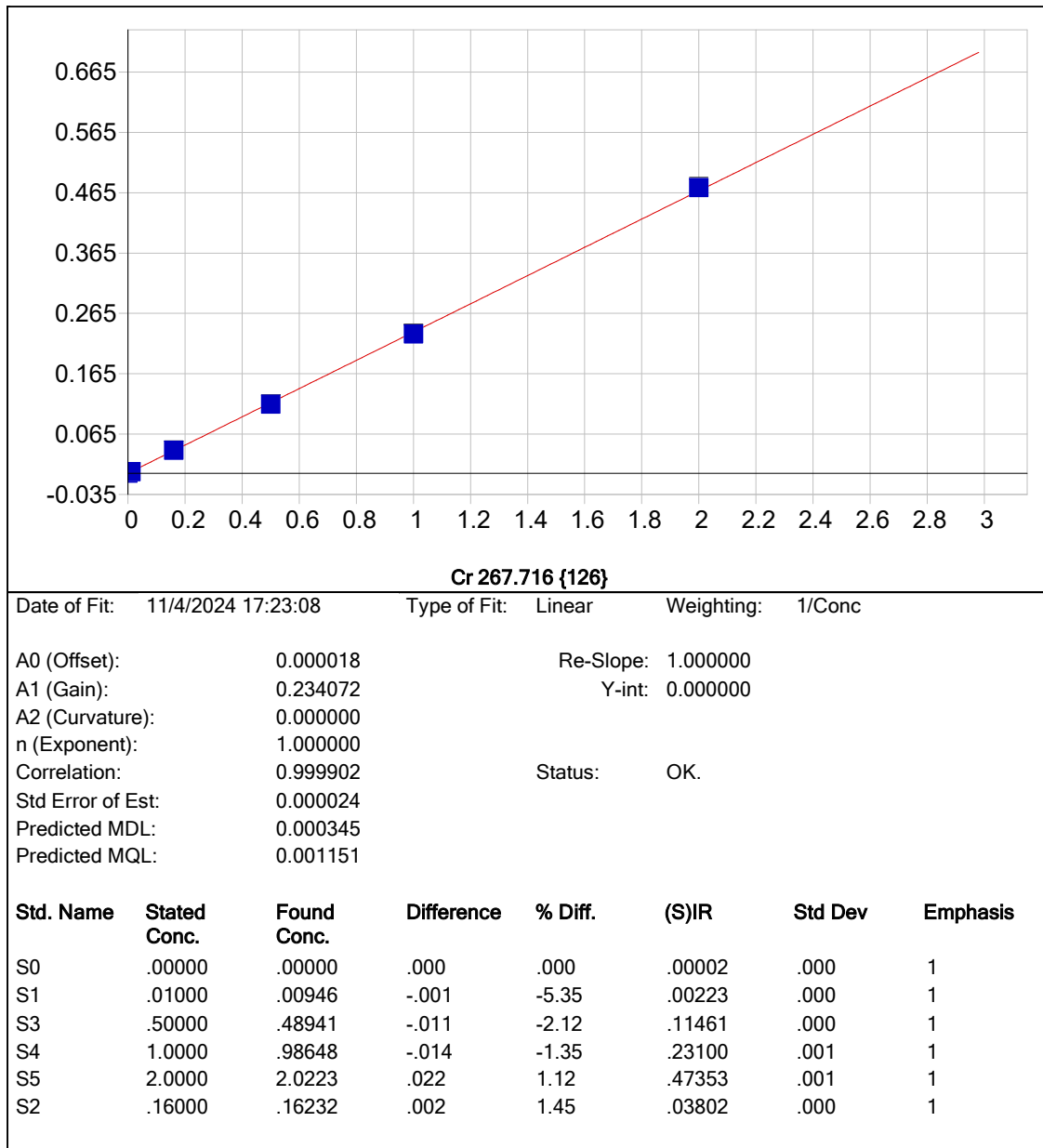
Cd 226.502 {449}

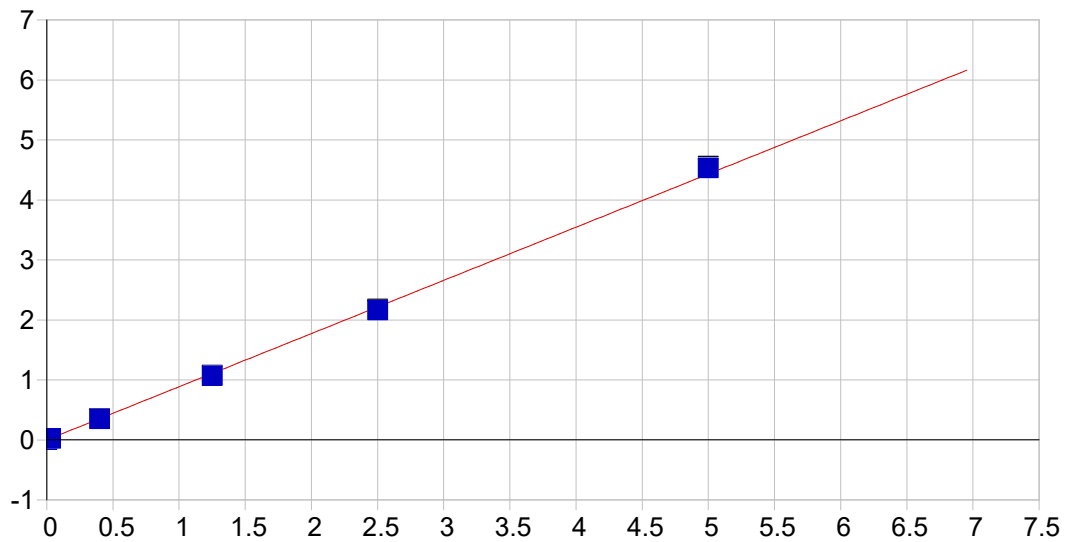
Date of Fit: 11/4/2024 17:23:08 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset):	-0.000005	Re-Slope:	1.000000
A1 (Gain):	2.787563	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999344	Status:	OK.
Std Error of Est:	0.000917		
Predicted MDL:	0.000062		
Predicted MQL:	0.000207		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00000	.000	1
S1	.00600	.00592	-.000	-1.31	.01656	.000	1
S3	1.2500	1.1937	-.056	-4.50	3.3300	.021	1
S4	2.5000	2.4073	-.093	-3.71	6.7153	.051	1
S5	5.0000	5.1650	.165	3.30	14.407	.076	1
S2	.40000	.38408	-.016	-3.98	1.0714	.004	1





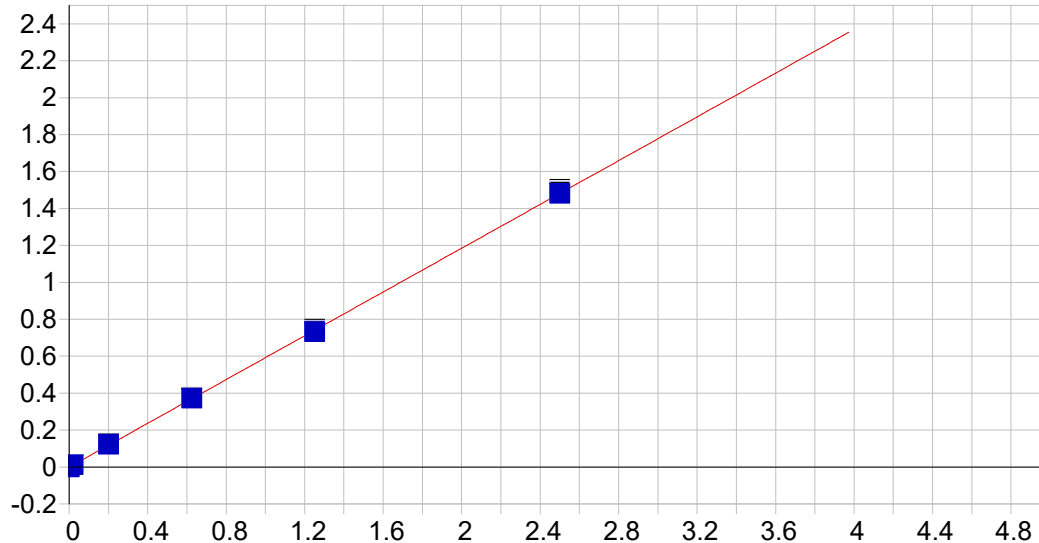


Co 228.616 {448}

Date of Fit: 11/4/2024 17:23:08 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.886246	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999688	Status:	OK.
Std Error of Est:	0.000451		
Predicted MDL:	0.000174		
Predicted MQL:	0.000581		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00001	.000	1
S1	.03000	.02892	-.001	-3.59	.02552	.000	1
S3	1.2500	1.2078	-.042	-3.37	1.0723	.006	1
S4	2.5000	2.4380	-.062	-2.48	2.1644	.017	1
S5	5.0000	5.1136	.114	2.27	4.5394	.022	1
S2	.40000	.39164	-.008	-2.09	.34769	.001	1

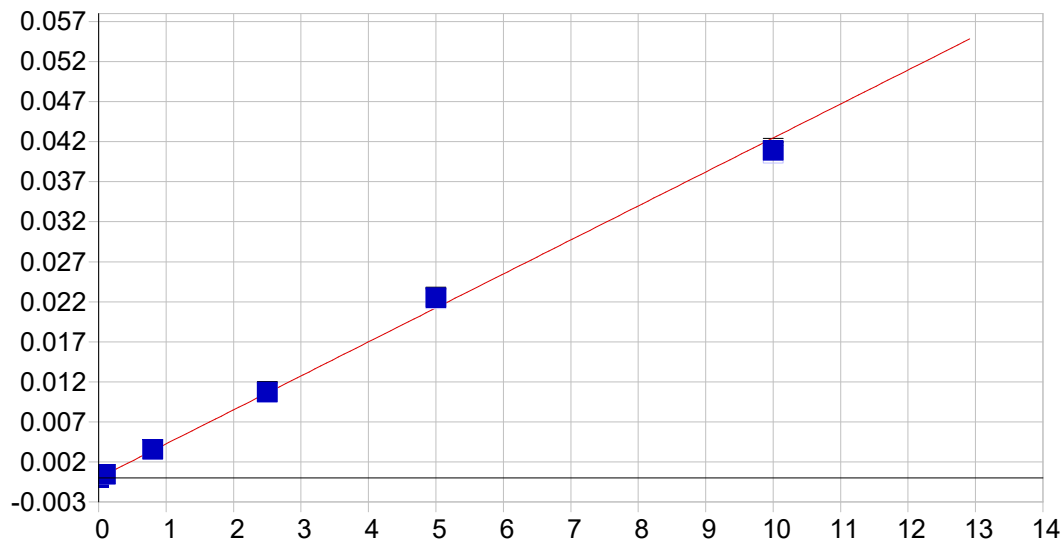


Cu 224.700 {450}

Date of Fit: 11/4/2024 17:23:08 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset):	-0.000721	Re-Slope:	1.000000
A1 (Gain):	0.592695	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999931	Status:	OK.
Std Error of Est:	0.000082		
Predicted MDL:	0.000389		
Predicted MQL:	0.001297		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00072	.000	1
S1	.02000	.02171	.002	8.57	.01230	.000	1
S3	.62500	.62724	.002	.358	.37457	.002	1
S4	1.2500	1.2370	-.013	-1.04	.73950	.006	1
S5	2.5000	2.5007	.001	.026	1.4955	.007	1
S2	.20000	.20839	.008	4.20	.12392	.001	1

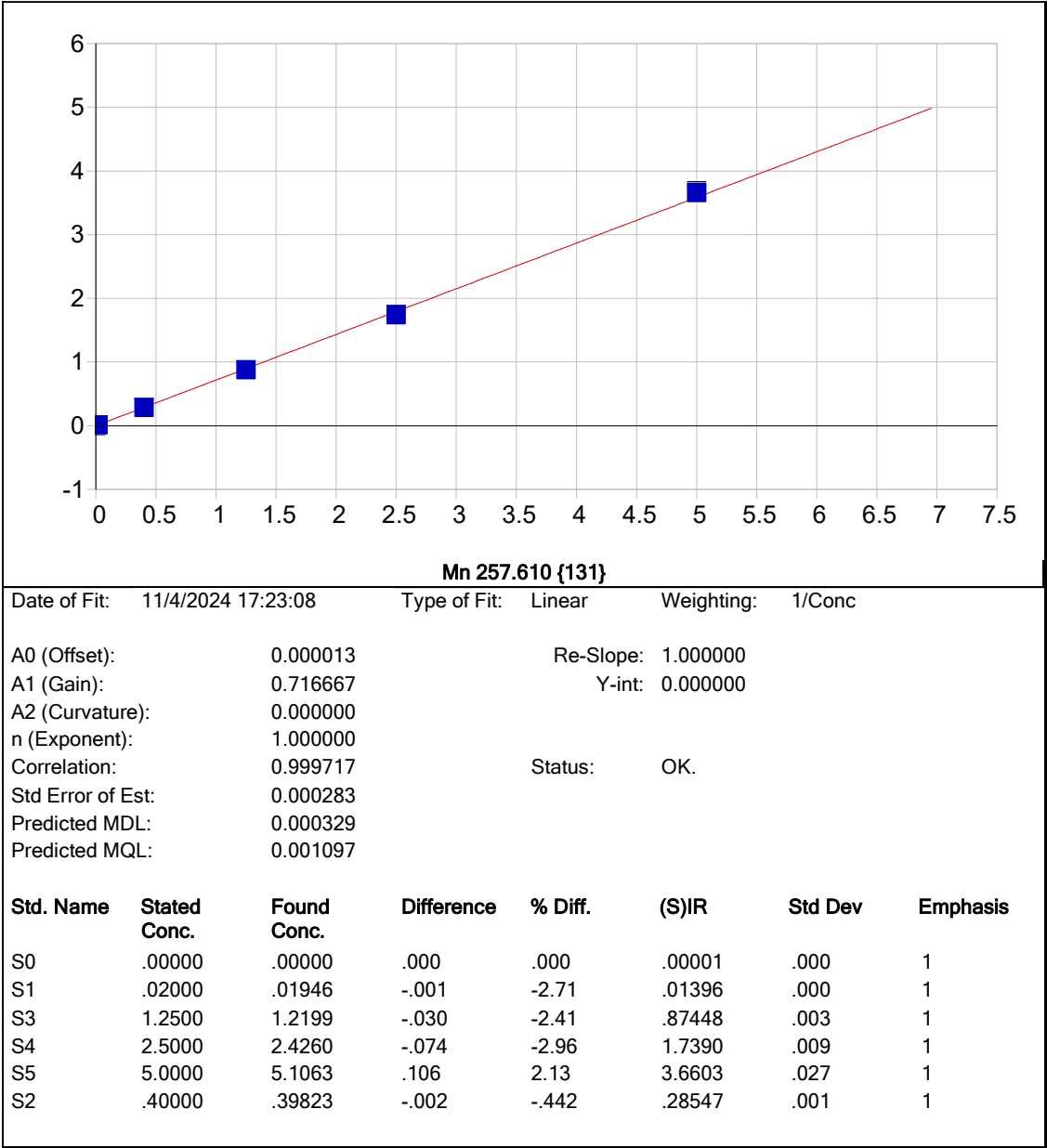


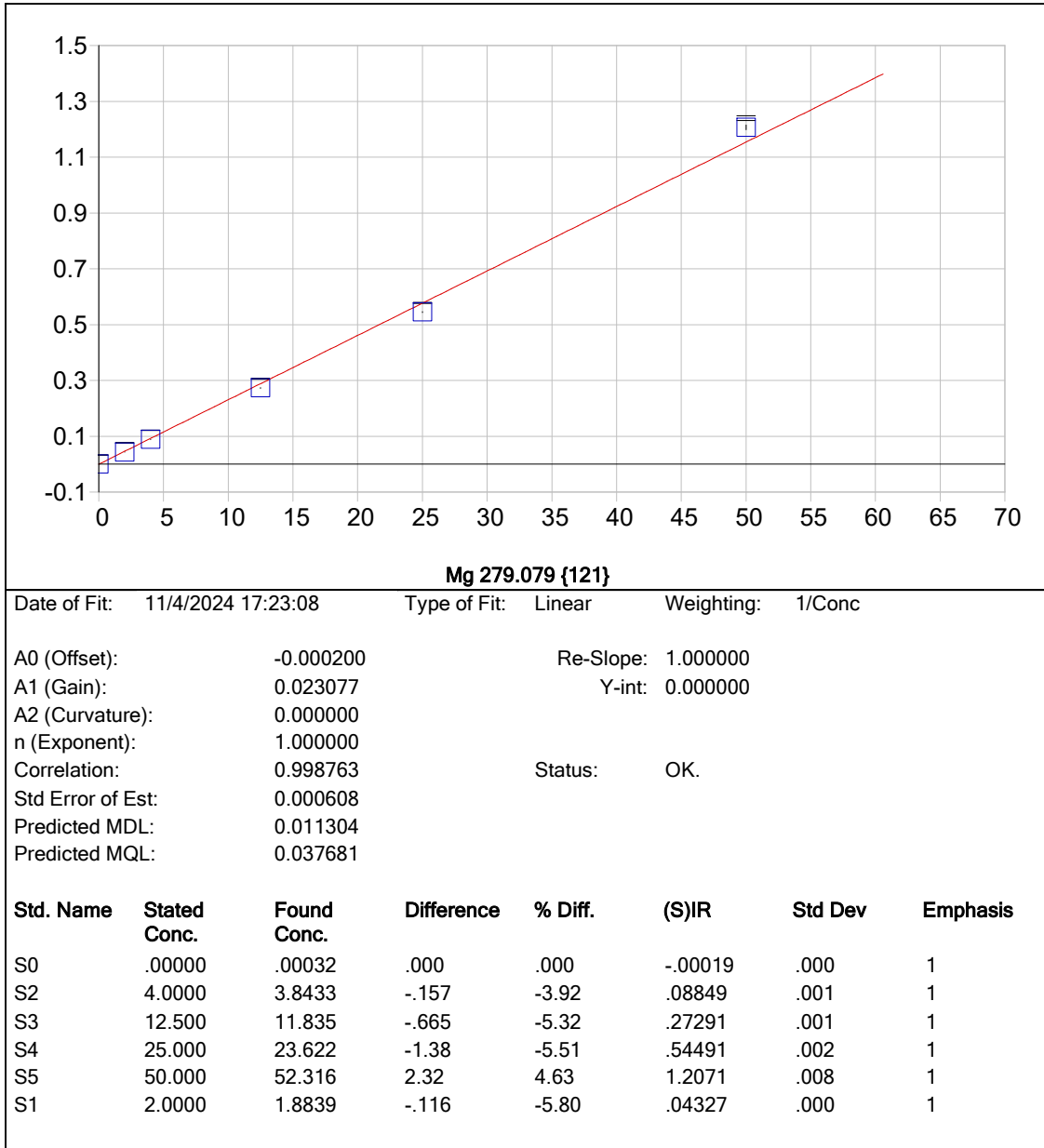
Fe 240.488 {140}

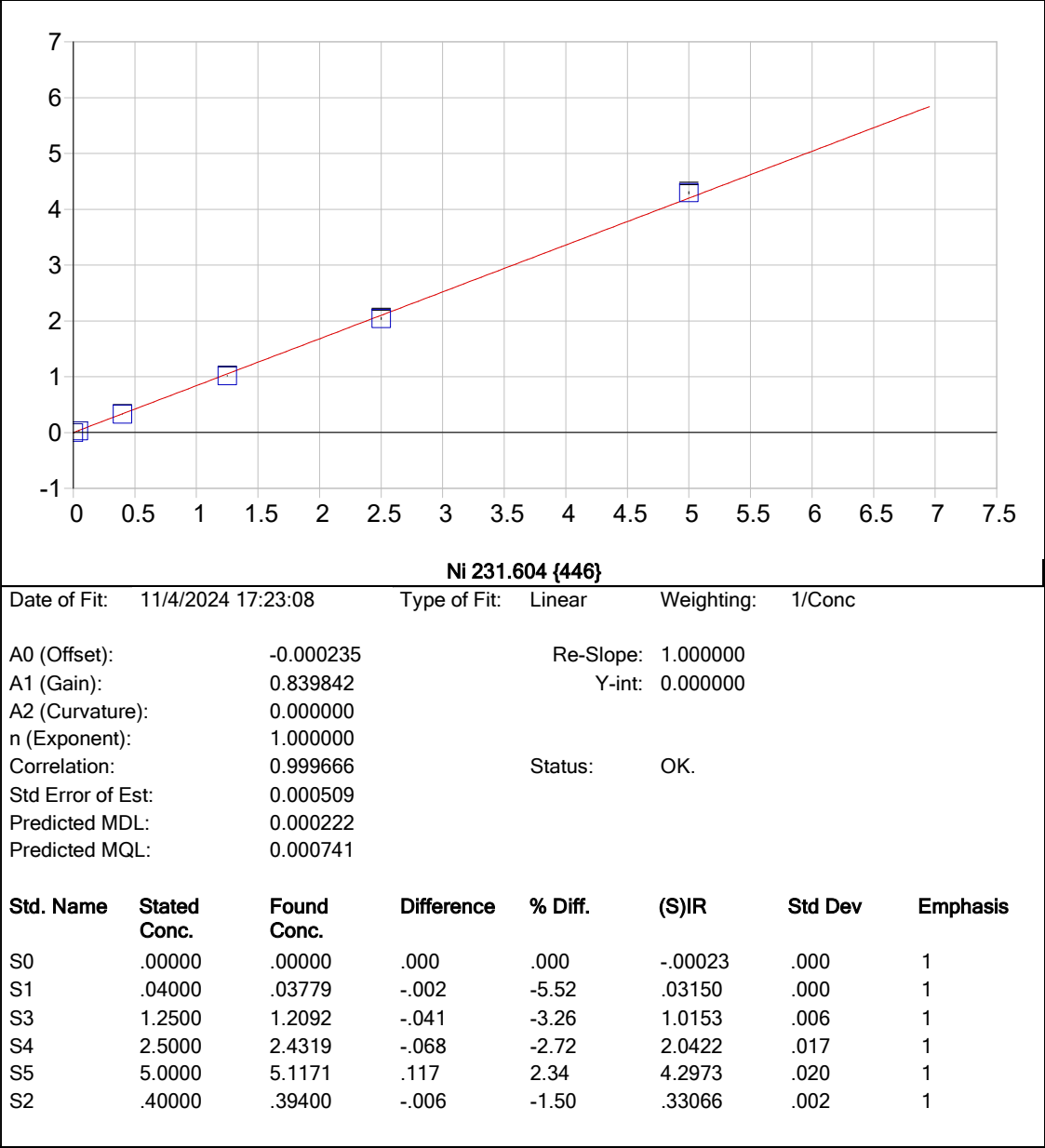
Date of Fit: 11/4/2024 17:23:08 Type of Fit: Linear Weighting: 1/Conc

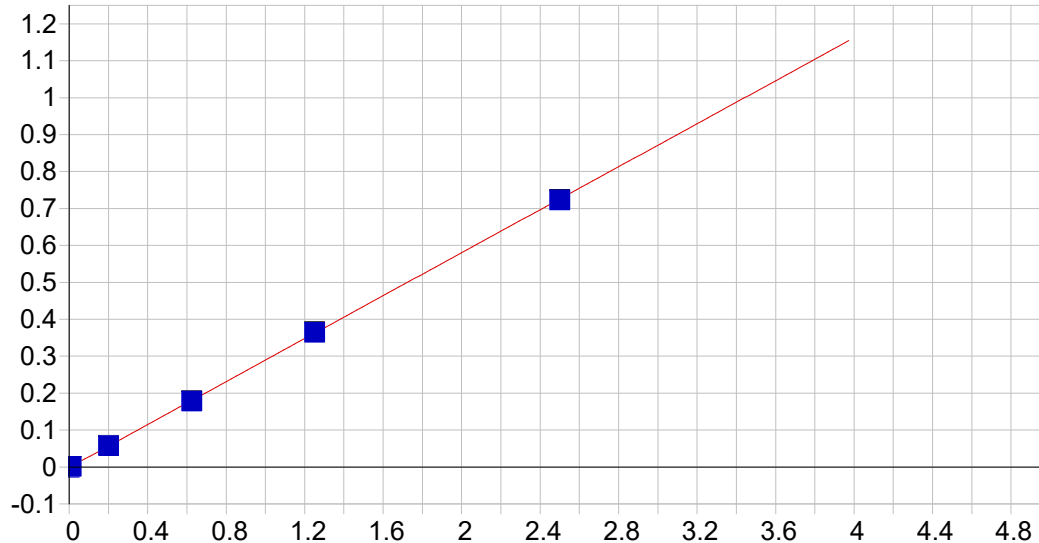
A0 (Offset): 0.000001 Re-Slope: 1.000000
A1 (Gain): 0.004246 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999075 Status: OK.
Std Error of Est: 0.000010
Predicted MDL: 0.005165
Predicted MQL: 0.017217

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00000	.000	1
S1	.10000	.10261	.003	2.61	.00043	.000	1
S3	2.5000	2.5270	.027	1.08	.01064	.000	1
S4	5.0000	5.3015	.301	6.03	.02233	.000	1
S5	10.000	9.6337	-.366	-3.66	.04054	.000	1
S2	.80000	.83529	.035	4.41	.00352	.000	1







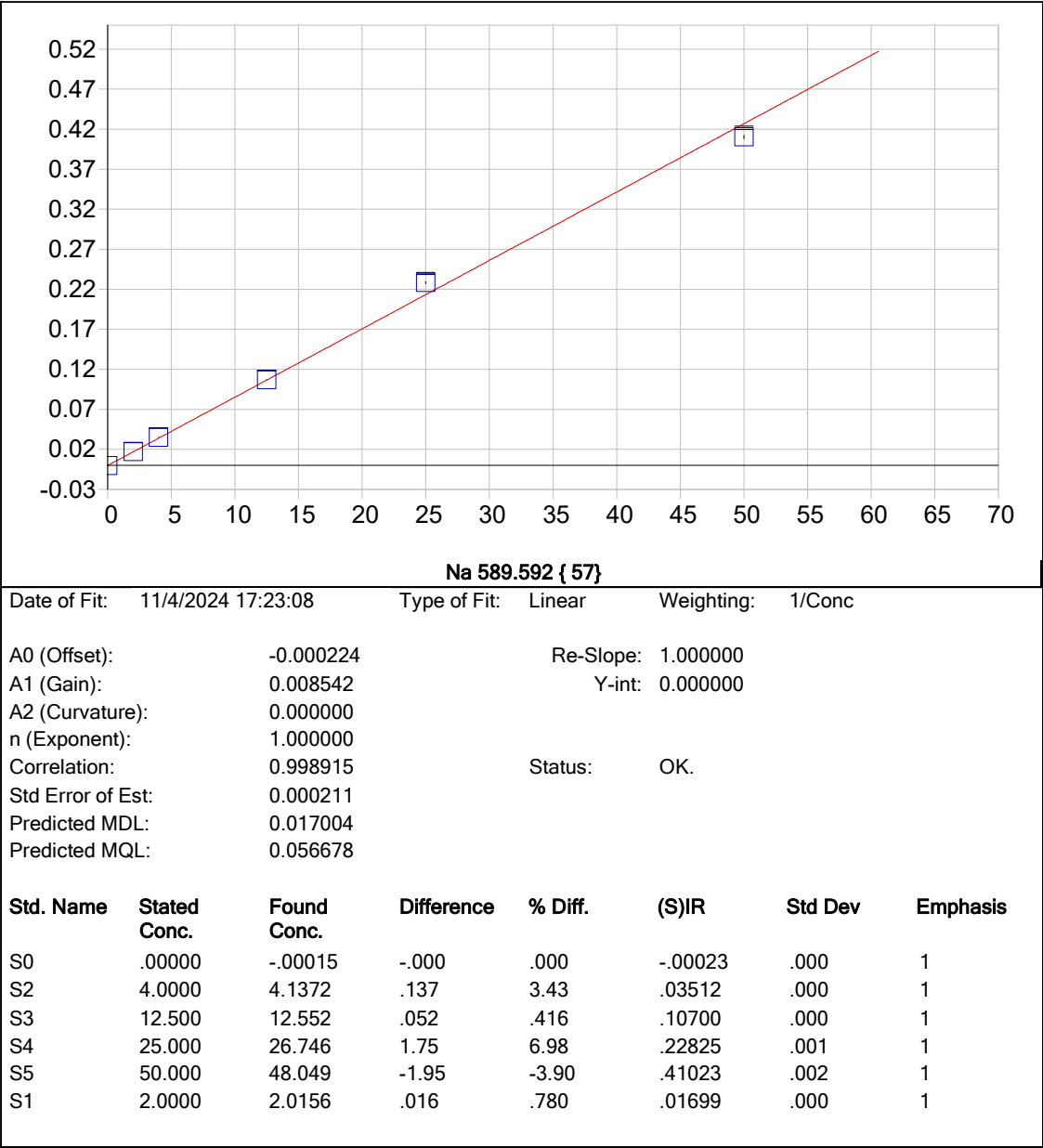


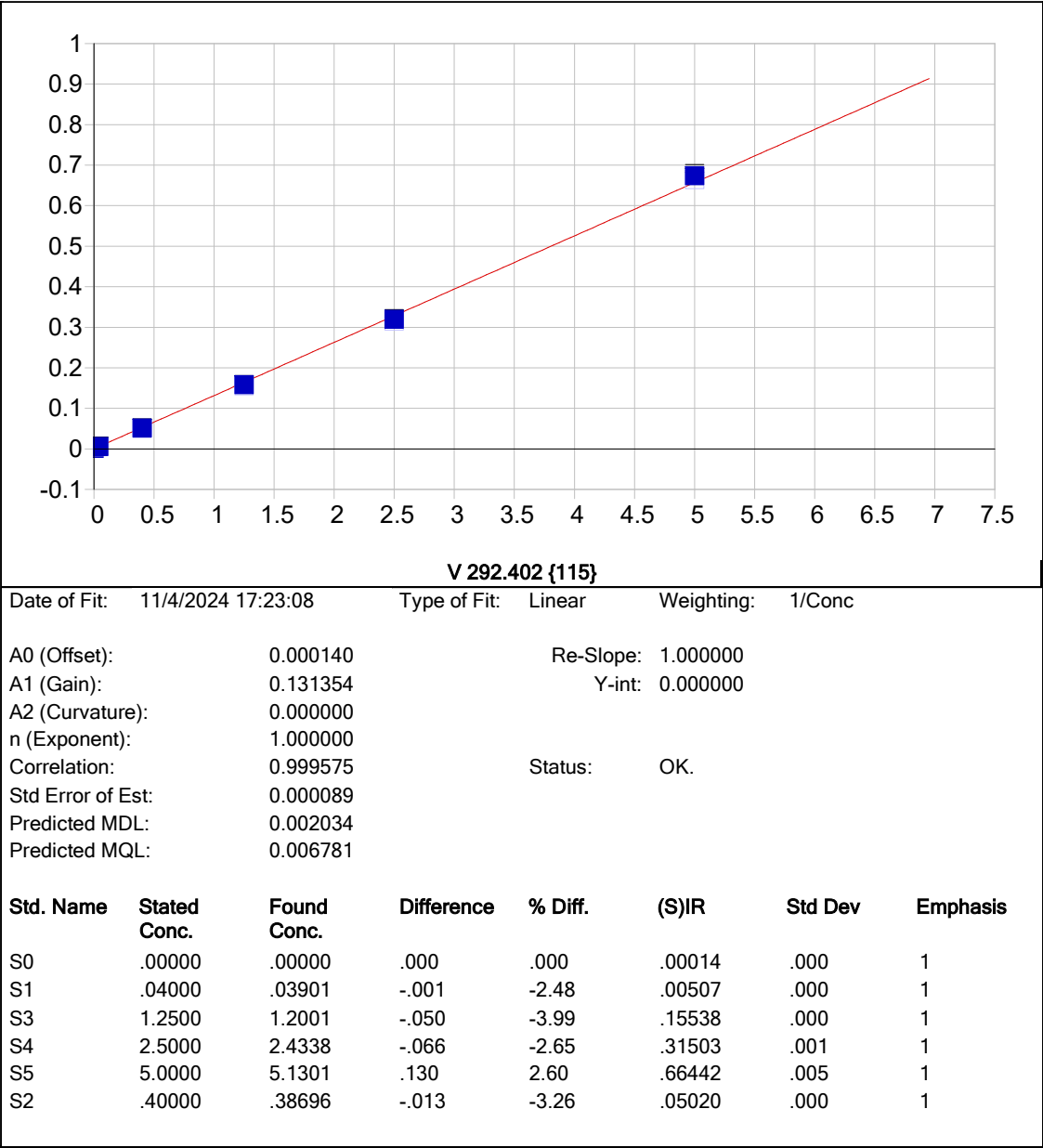
Ag 328.068 {103}

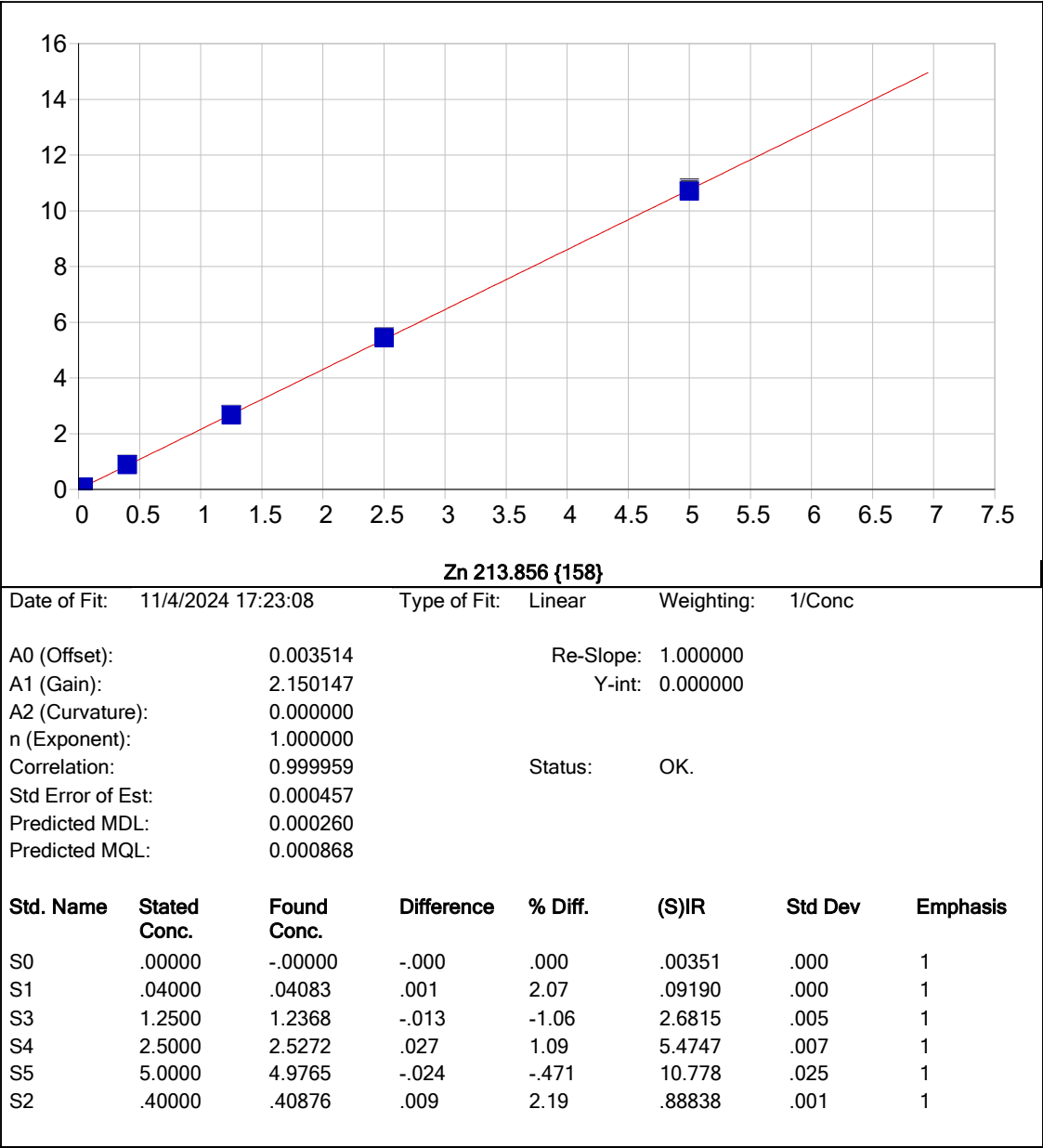
Date of Fit: 11/4/2024 17:23:08 Type of Fit: Linear Weighting: 1/Conc

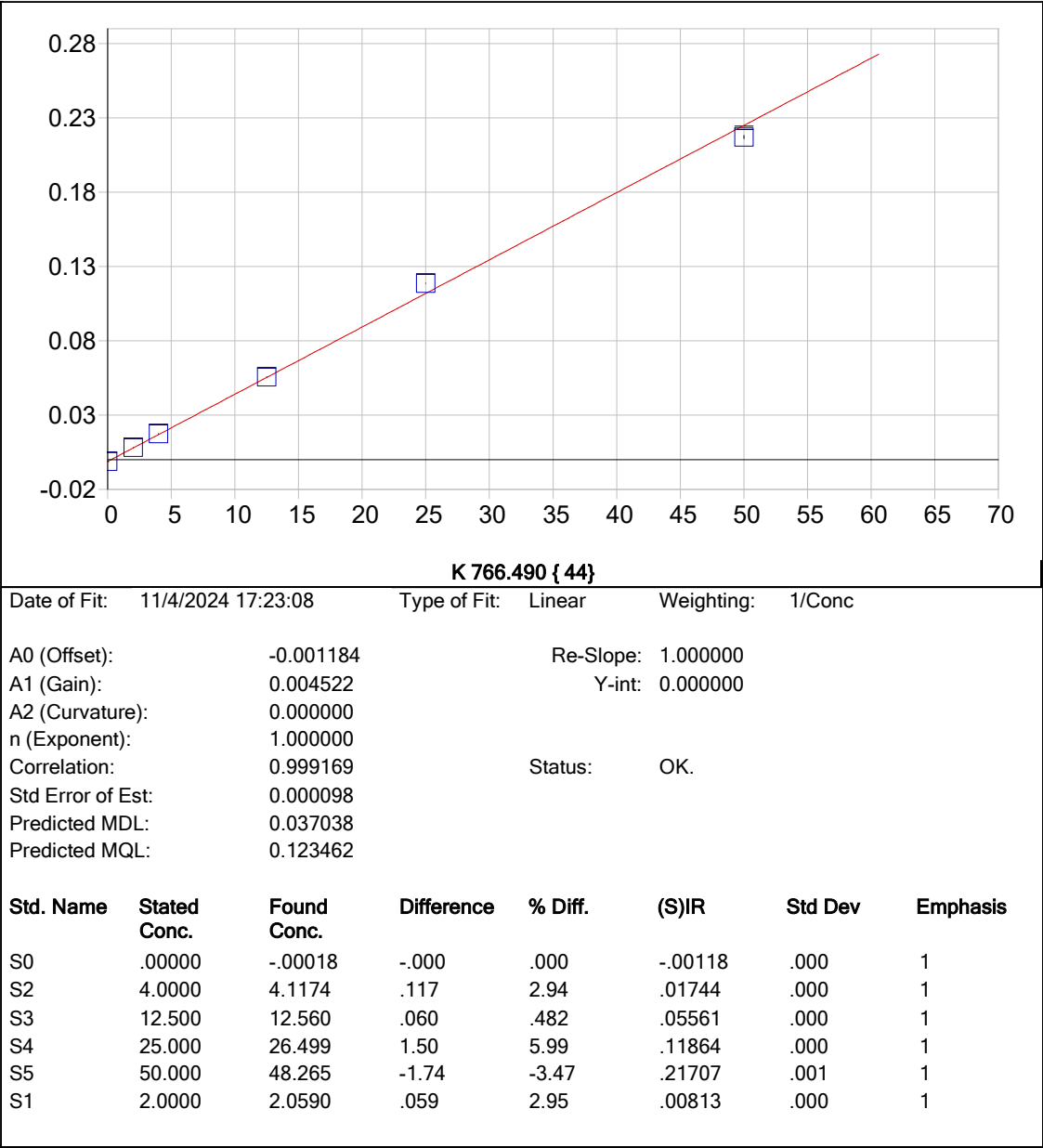
A0 (Offset):	-0.001514	Re-Slope:	1.000000
A1 (Gain):	0.290900	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999967	Status:	OK.
Std Error of Est:	0.000019		
Predicted MDL:	0.000383		
Predicted MQL:	0.001275		

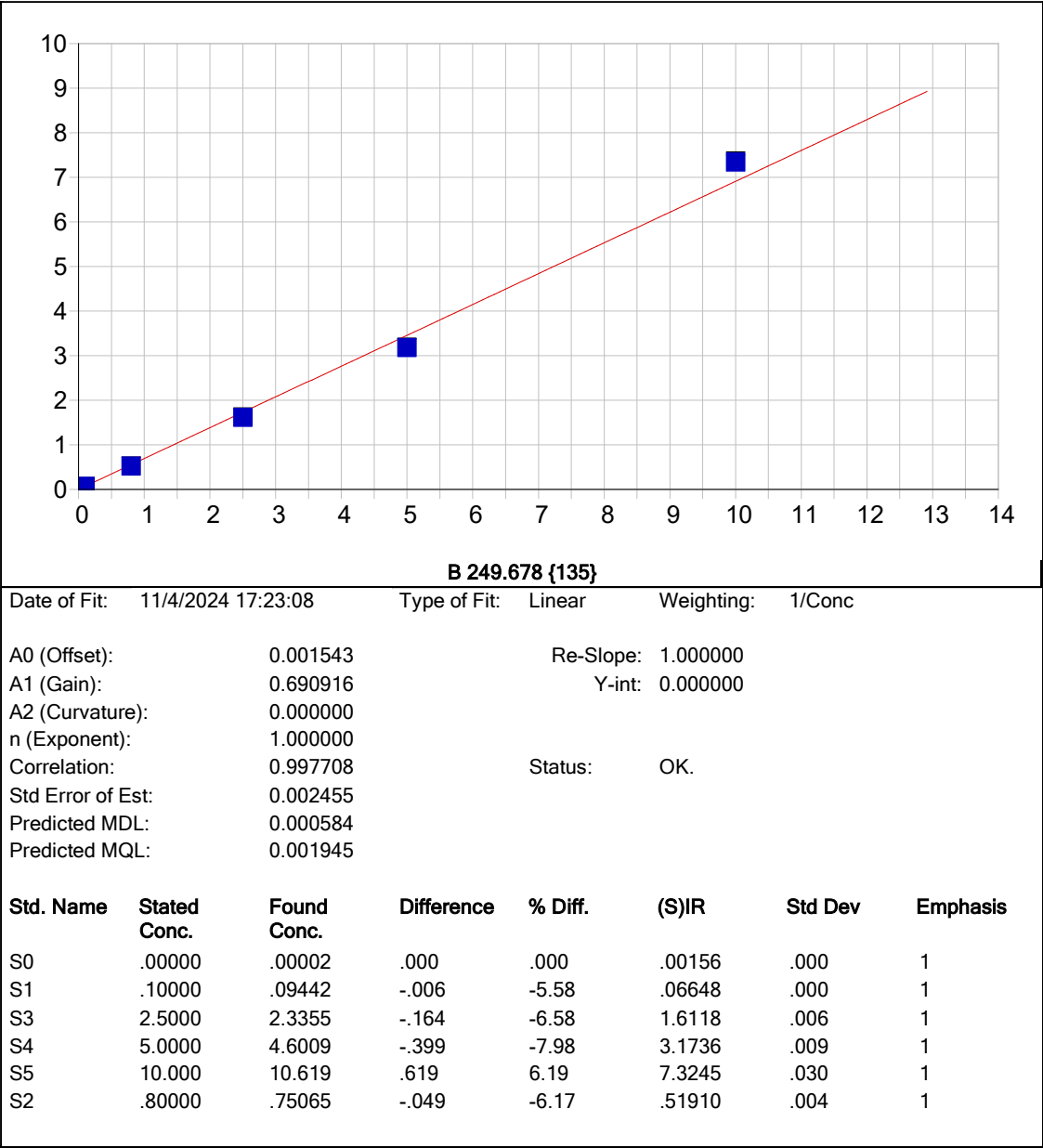
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00151	.000	1
S1	.01000	.01030	.000	2.98	.00146	.000	1
S3	.62500	.61897	-.006	-.966	.17782	.001	1
S4	1.2500	1.2595	.009	.757	.36342	.001	1
S5	2.5000	2.4912	-.009	-.351	.72030	.001	1
S2	.20000	.20504	.005	2.52	.05790	.000	1

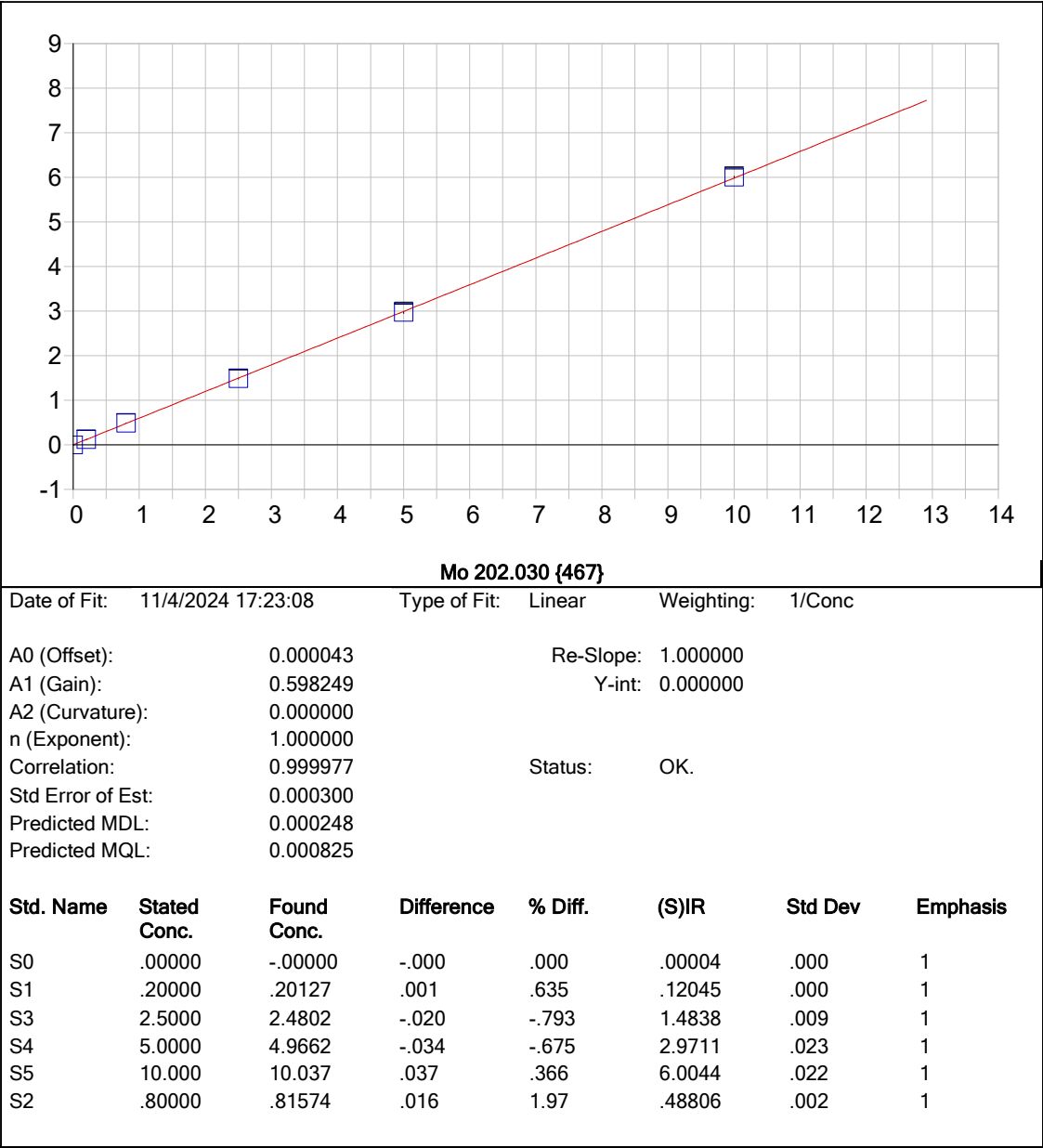


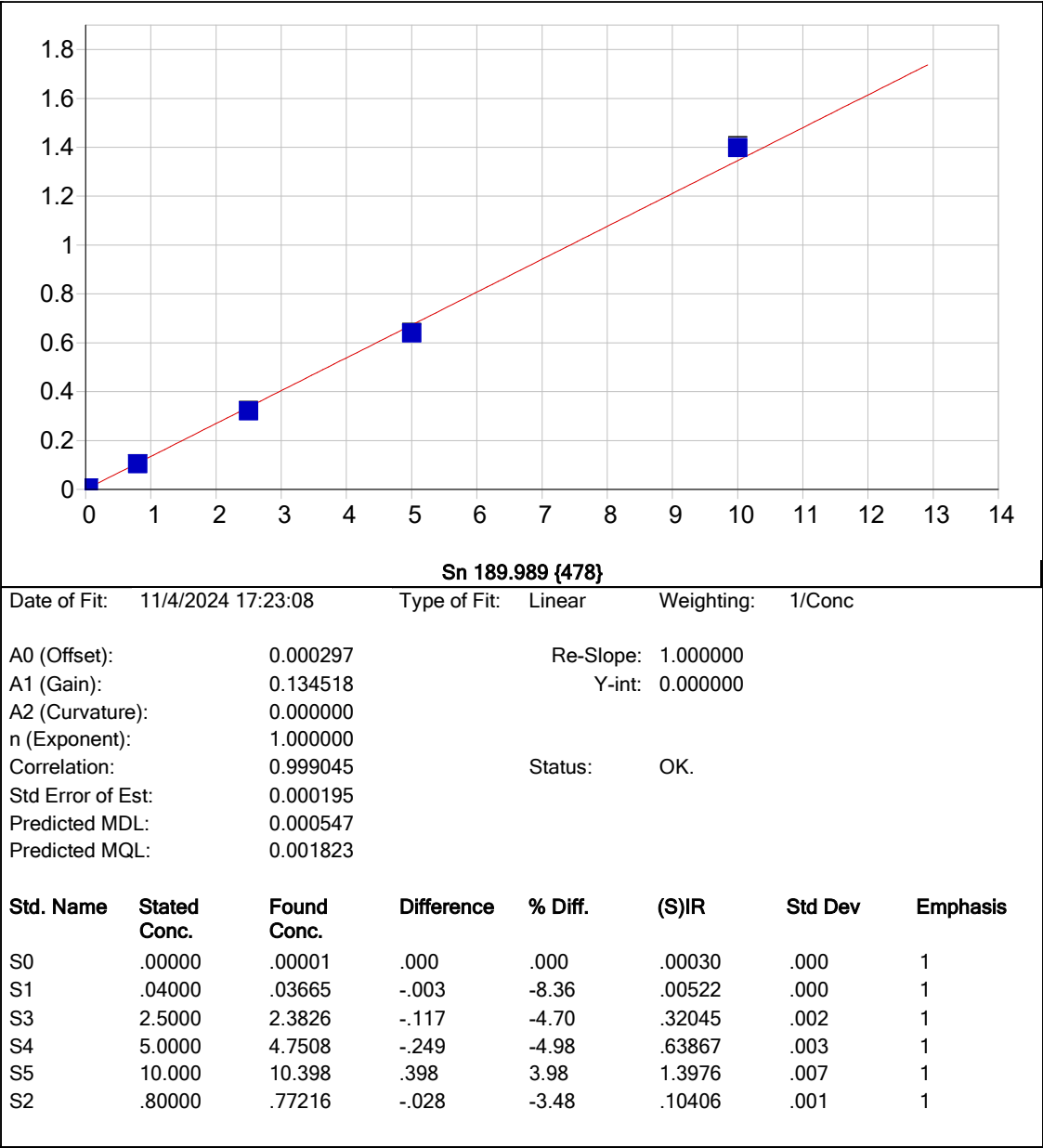


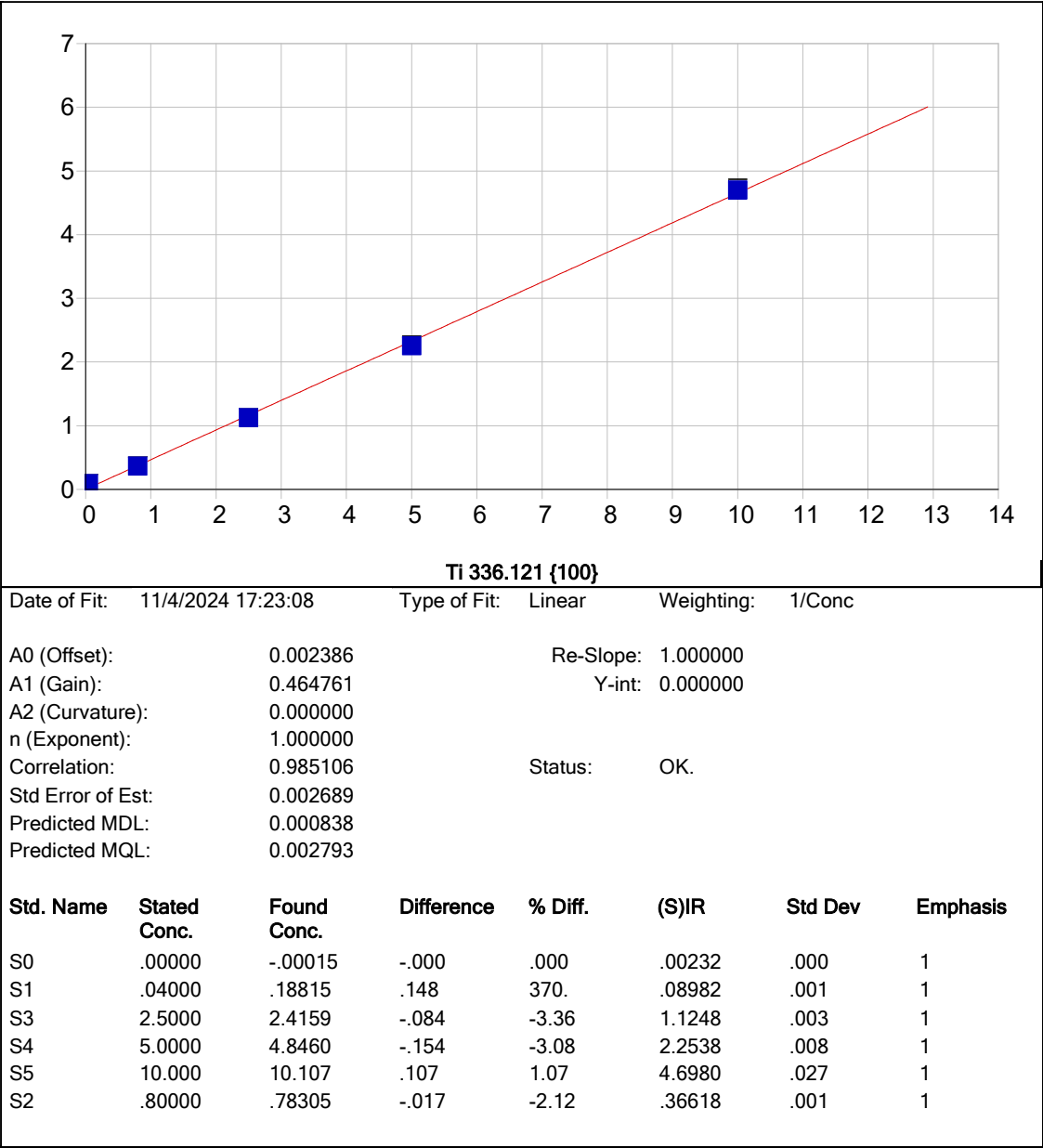


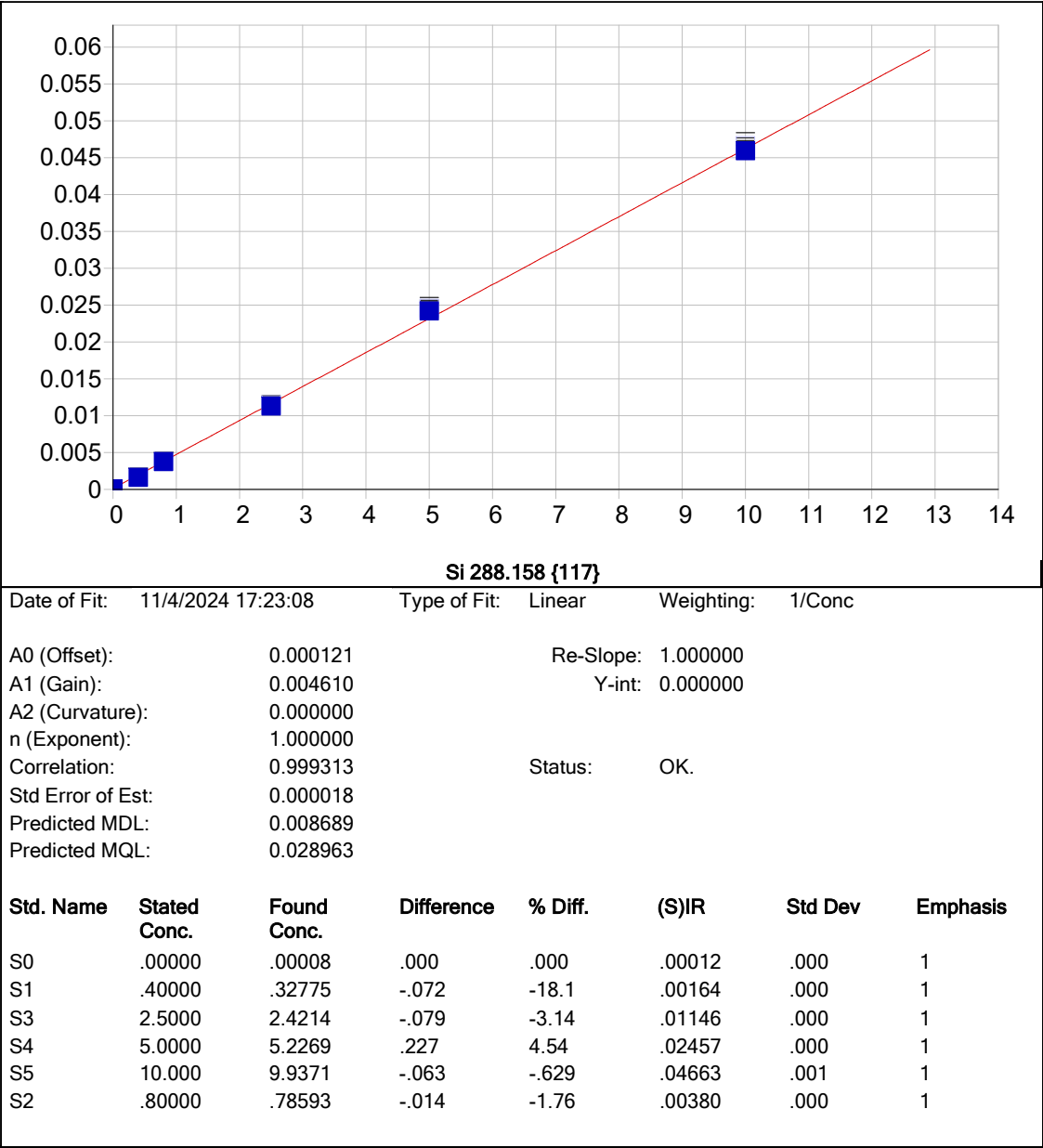


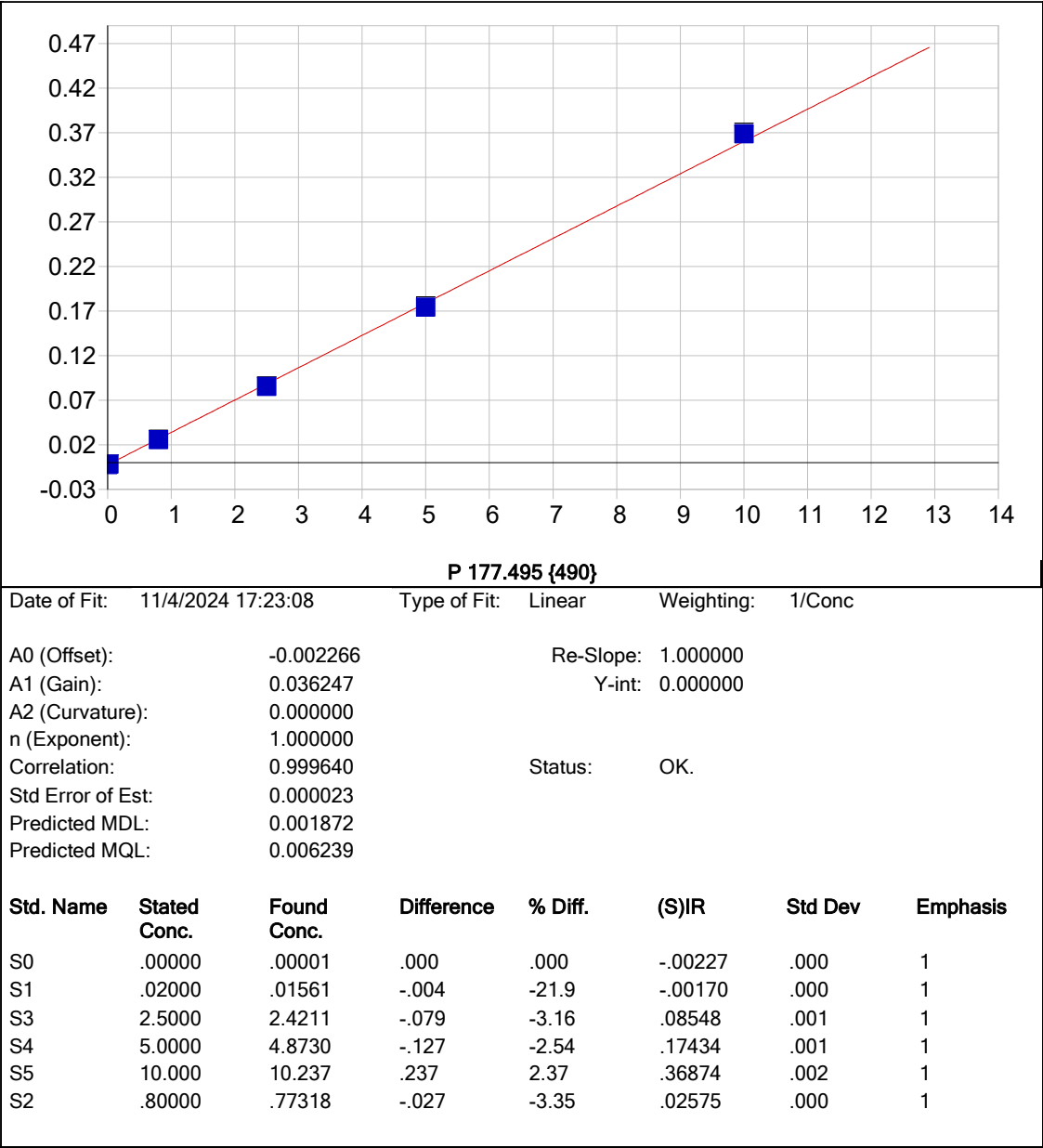


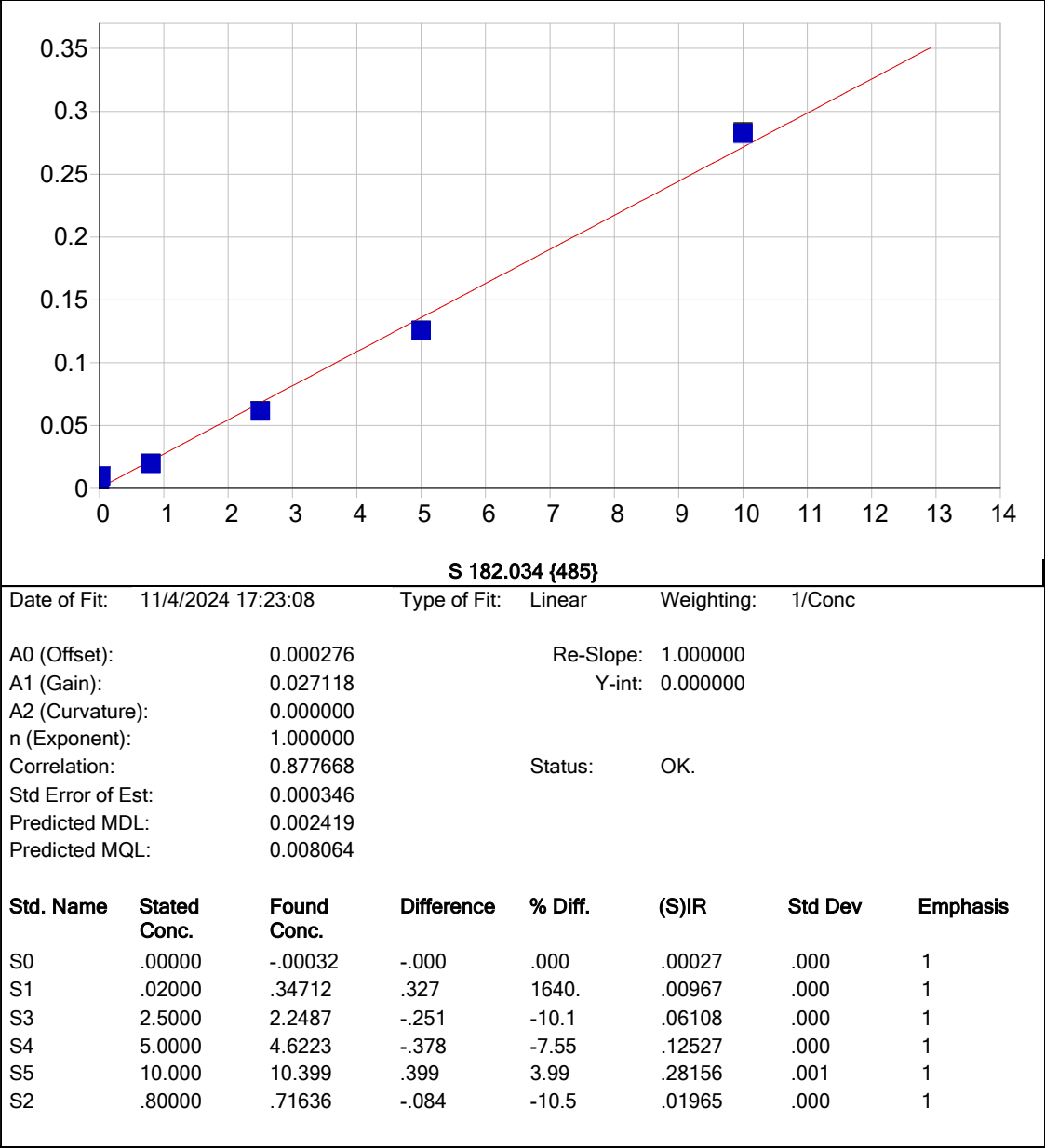


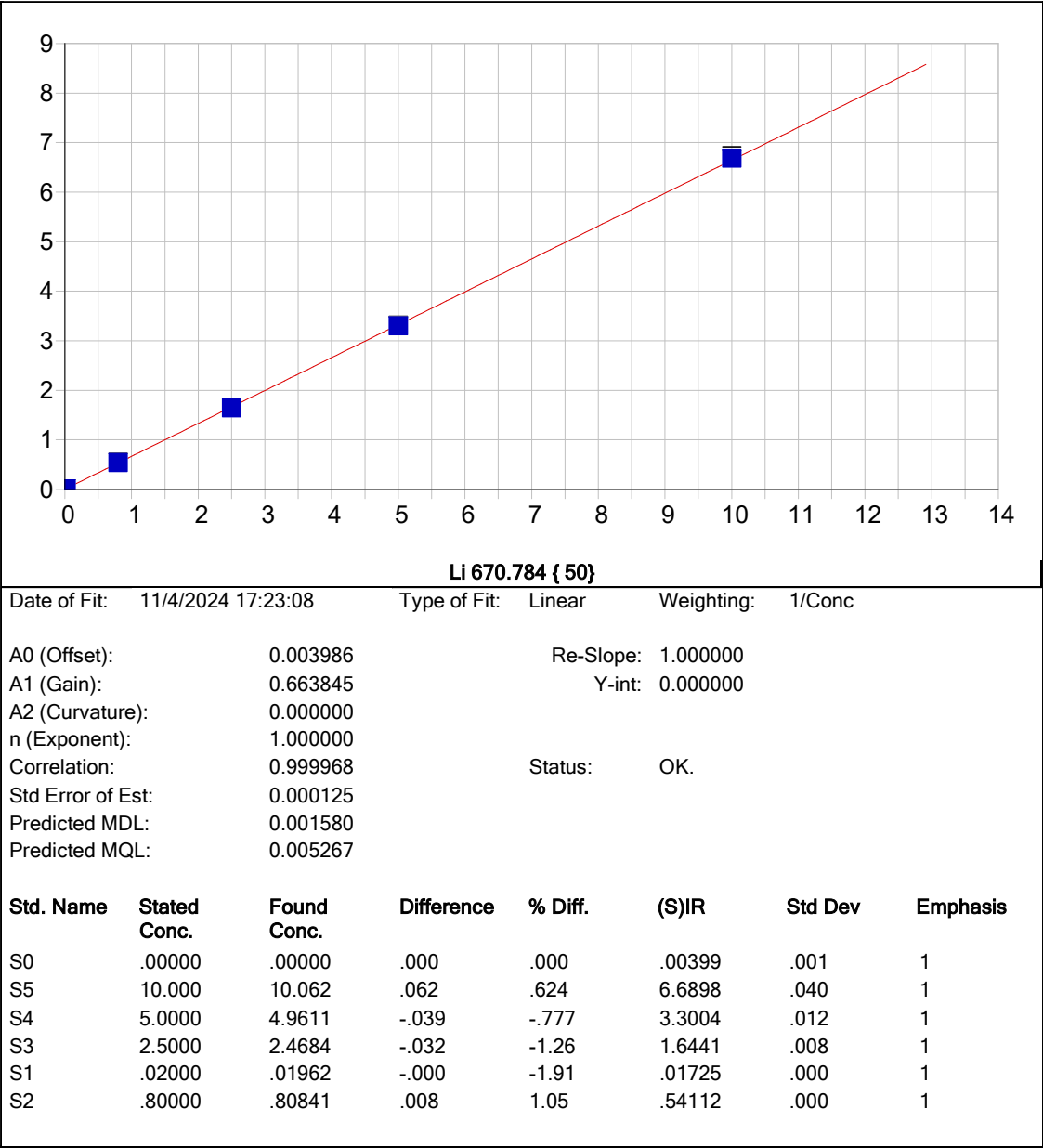


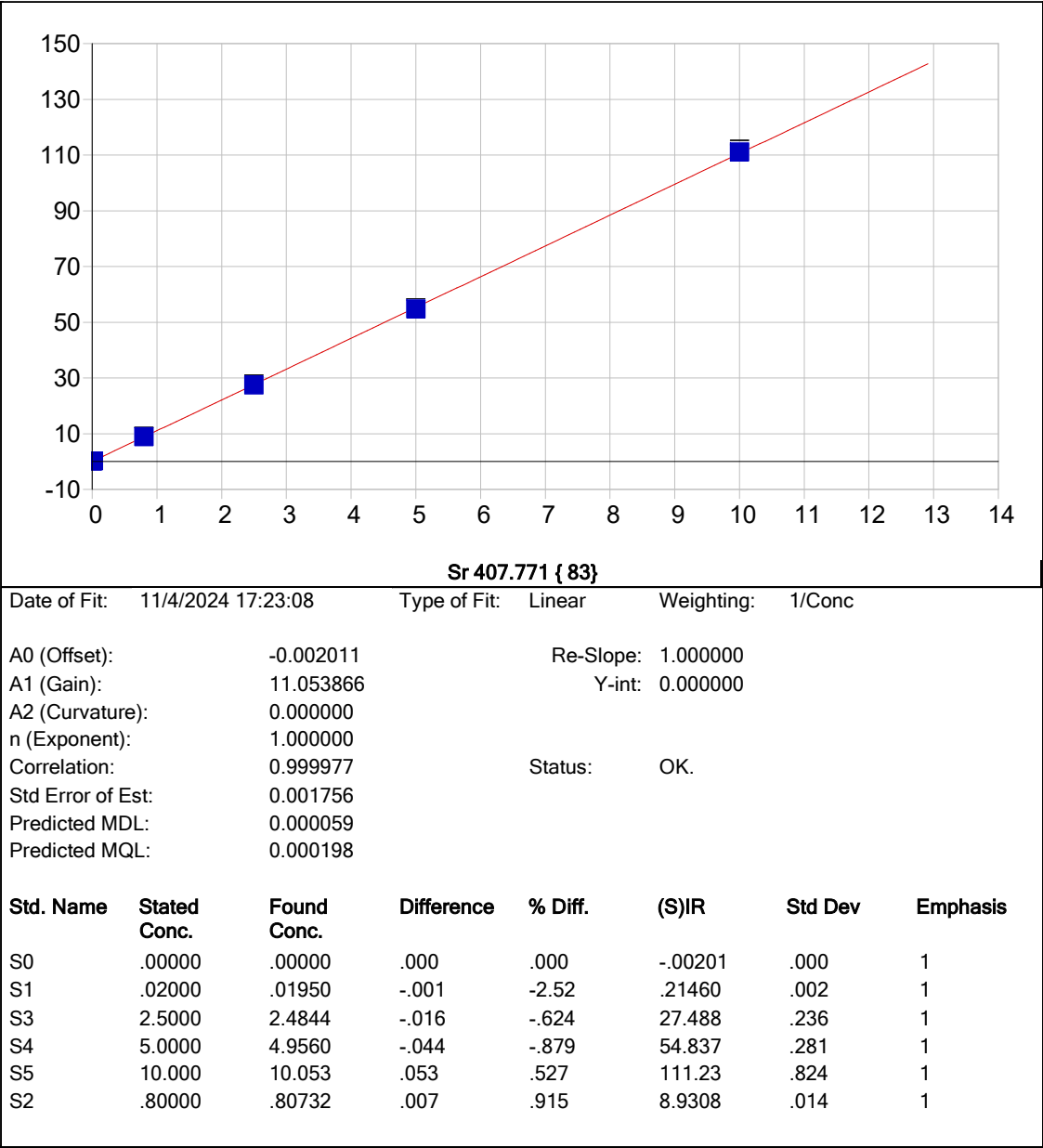


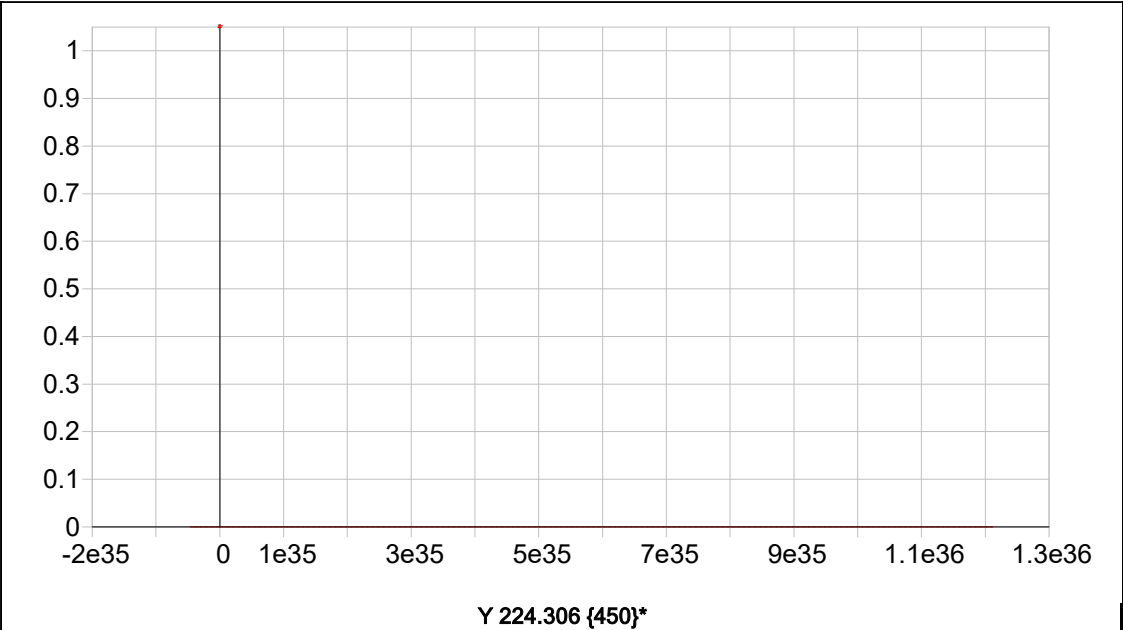






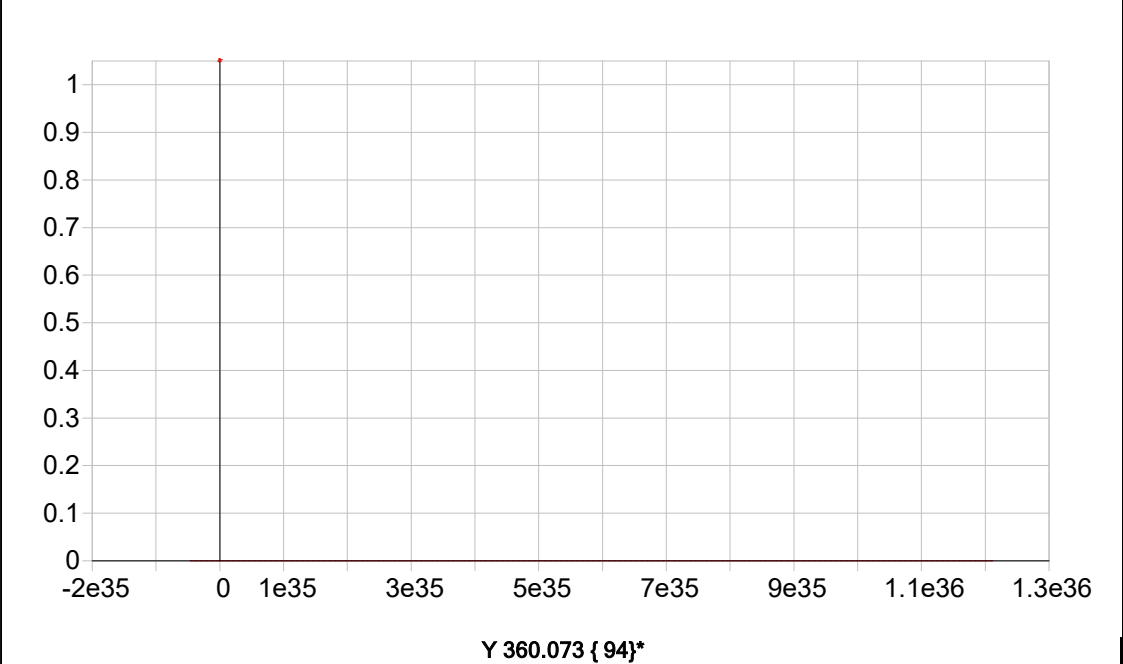




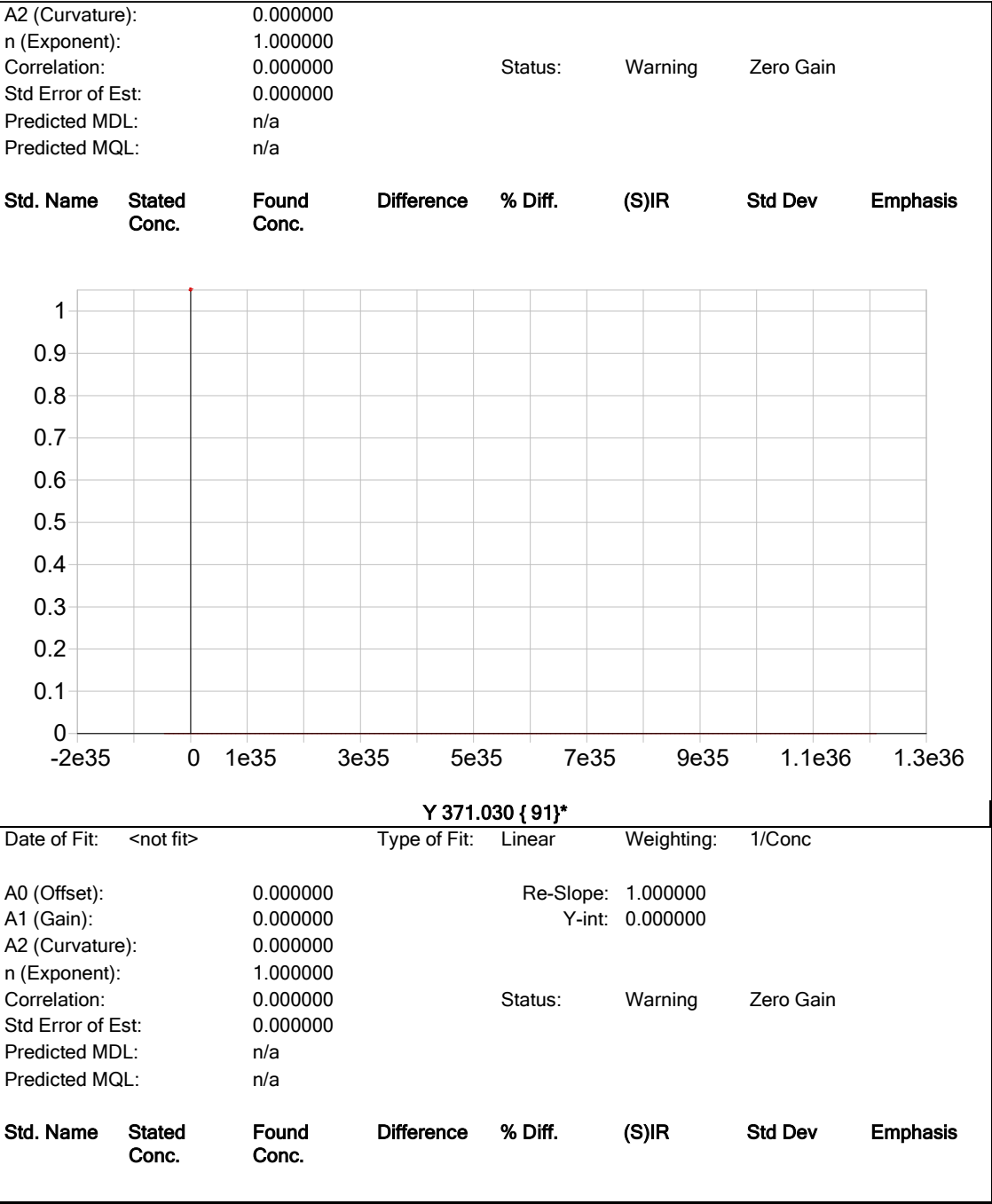


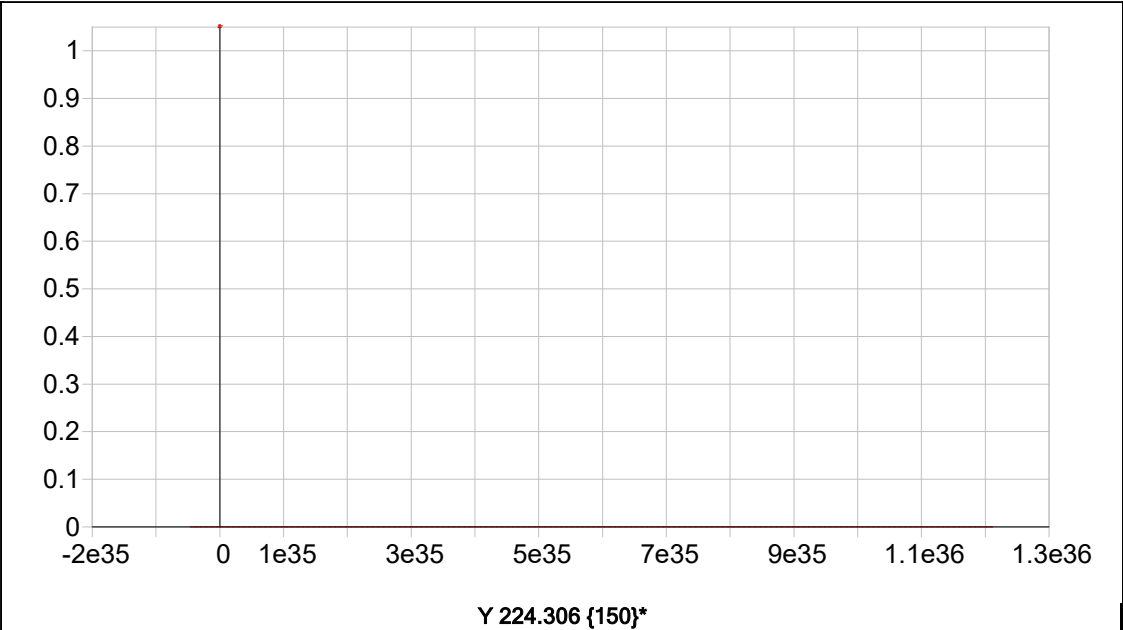
Date of Fit:	10/28/2024 11:57:24	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

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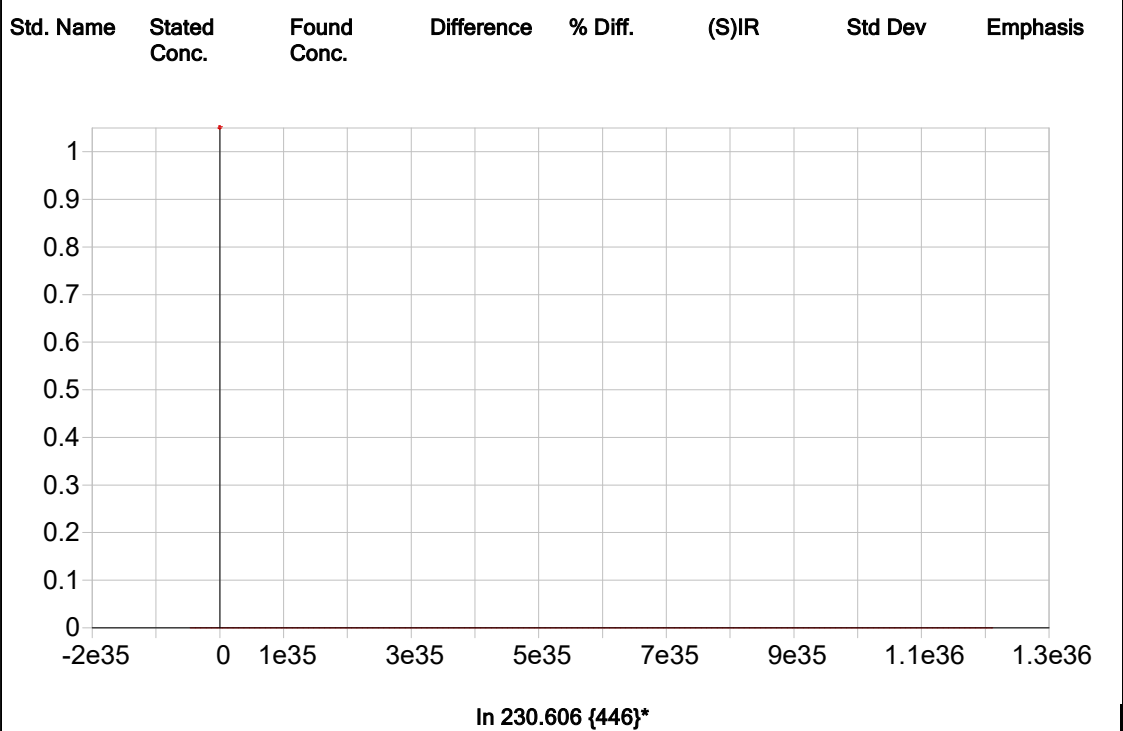


Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		





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

Sample Name: S0 Acquired: 11/4/2024 16:57:46 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00001	-.00017	-.00003	.00046	.00012	-.00050	.08344	-.00042
Stddev	.00012	.00008	.00010	.00009	.00004	.00043	.00082	.00046
%RSD	1421.9	48.387	310.36	20.159	32.785	85.635	.98447	108.27
#1	.00005	-.00018	.00008	.00040	.00012	-.00022	.08335	.00005
#2	-.00014	-.00025	-.00012	.00041	.00016	-.00099	.08266	-.00046
#3	.00007	-.00008	-.00006	.00056	.00009	-.00028	.08430	-.00086
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00000	.00242	.00002	.00001	-.00072	.00000	.00001	-.00019
Stddev	.00005	.00034	.00006	.00018	.00027	.00002	.00010	.00014
%RSD	1417.9	13.874	331.64	2815.0	37.493	2604.6	697.82	72.124
#1	.00005	.00211	.00008	.00018	-.00062	.00002	-.00005	-.00024
#2	-.00003	.00237	-.00004	.00002	-.00103	.00000	-.00004	-.00030
#3	-.00003	.00278	.00002	-.00019	-.00052	-.00002	.00013	-.00004
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00023	-.00151	-.00023	.00014	.00351	-.00118	.00156	.00004
Stddev	.00009	.00010	.00006	.00022	.00026	.00004	.00016	.00006
%RSD	37.224	6.6360	25.264	157.64	7.3034	2.9604	10.111	153.12
#1	-.00014	-.00154	-.00027	-.00009	.00346	-.00116	.00142	-.00003
#2	-.00025	-.00160	-.00024	.00016	.00328	-.00122	.00152	.00007
#3	-.00031	-.00140	-.00016	.00035	.00379	-.00116	.00173	.00008
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00030	.00232	.00012	-.00227	.00027	.00399	-.00201	
Stddev	.00006	.00023	.00001	.00002	.00002	.00055	.00029	
%RSD	19.437	10.070	10.902	1.1027	8.0513	13.683	14.529	
#1	.00034	.00206	.00011	-.00229	.00028	.00338	-.00230	
#2	.00023	.00252	.00014	-.00226	.00024	.00444	-.00201	
#3	.00032	.00237	.00012	-.00225	.00028	.00414	-.00171	

Sample Name: S0 Acquired: 11/4/2024 16:57:46 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5932.9	94024.	12927.	4295.9	8191.8
Stddev	4.5	116.	72.	17.2	10.3
%RSD	.07578	.12311	.55431	.40093	.12541
#1	5933.7	93907.	13007.	4277.2	8190.3
#2	5937.0	94138.	12902.	4311.1	8202.8
#3	5928.1	94027.	12871.	4299.3	8182.4

Sample Name: S1 Acquired: 11/4/2024 17:02:09 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00099	.00214	.00275	.00193	.00649	.00712	.31562	.03697
Stddev	.00008	.00007	.00019	.00003	.00012	.00025	.00211	.00038
%RSD	7.8752	3.3969	6.7956	1.4078	1.8617	3.5415	.66854	1.0342
#1	.00090	.00208	.00271	.00196	.00649	.00706	.31802	.03652
#2	.00104	.00222	.00296	.00191	.00637	.00740	.31482	.03719
#3	.00103	.00212	.00259	.00192	.00662	.00691	.31403	.03718
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01656	.12207	.00223	.02552	.01230	.00043	.01396	.04327
Stddev	.00015	.00078	.00011	.00008	.00030	.00002	.00012	.00030
%RSD	.91713	.63610	5.0990	.31273	2.4151	4.5335	.86204	.69387
#1	.01673	.12290	.00237	.02545	.01261	.00043	.01396	.04345
#2	.01649	.12137	.00218	.02552	.01226	.00041	.01385	.04293
#3	.01645	.12193	.00216	.02561	.01202	.00045	.01409	.04344
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.03150	.00146	.01699	.00507	.09190	.00813	.06648	.12045
Stddev	.00021	.00009	.00027	.00044	.00041	.00010	.00045	.00041
%RSD	.66889	5.9123	1.6171	8.6535	.44403	1.2790	.68305	.34195
#1	.03146	.00155	.01707	.00464	.09180	.00817	.06633	.12063
#2	.03132	.00138	.01669	.00505	.09155	.00821	.06700	.11998
#3	.03173	.00145	.01722	.00551	.09235	.00801	.06613	.12074
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00522	.08982	.00164	-.00170	.00967	.01725	.21460	
Stddev	.00008	.00090	.00004	.00006	.00008	.00021	.00182	
%RSD	1.5006	.99860	2.2651	3.8239	.87878	1.2125	.84697	
#1	.00514	.09023	.00163	-.00173	.00961	.01721	.21552	
#2	.00524	.08879	.00160	-.00174	.00963	.01706	.21251	
#3	.00529	.09043	.00167	-.00162	.00976	.01747	.21577	

Sample Name: S1 Acquired: 11/4/2024 17:02:09 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6236.7	96559.	13244.	4446.7	8489.6
Stddev	19.3	147.	42.	11.2	26.8
%RSD	.30871	.15174	.31482	.25207	.31559
#1	6215.3	96422.	13196.	4441.9	8462.5
#2	6252.7	96714.	13266.	4459.5	8516.1
#3	6242.1	96540.	13270.	4438.7	8490.1

Sample Name: S2 Acquired: 11/4/2024 17:06:25 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.04264	.05325	.21662	.06397	.10621	.10794	3.8589	.26843
Stddev	.00023	.00138	.00084	.00036	.00045	.00045	.0083	.00118
%RSD	.54624	2.5857	.38747	.56847	.42442	.41766	.21569	.43803
#1	.04260	.05479	.21643	.06428	.10596	.10782	3.8612	.26720
#2	.04243	.05284	.21590	.06357	.10595	.10844	3.8658	.26954
#3	.04289	.05213	.21754	.06406	.10673	.10756	3.8496	.26856

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.0714	.24967	.03802	.34769	.12392	.00352	.28547	.08849
Stddev	.0041	.00089	.00019	.00148	.00060	.00003	.00066	.00069
%RSD	.37987	.35756	.48698	.42500	.48649	.75791	.23263	.78316
#1	1.0709	.24864	.03818	.34748	.12363	.00354	.28568	.08770
#2	1.0676	.25026	.03782	.34633	.12352	.00349	.28601	.08899
#3	1.0757	.25010	.03808	.34926	.12461	.00353	.28473	.08879

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.33066	.05790	.03512	.05020	.88838	.01744	.51910	.48806
Stddev	.00155	.00010	.00021	.00042	.00057	.00017	.00355	.00219
%RSD	.46766	.17705	.60647	.84514	.06373	.98304	.68484	.44842
#1	.32980	.05802	.03529	.04981	.88901	.01762	.51529	.48693
#2	.32974	.05783	.03488	.05065	.88791	.01728	.52234	.48667
#3	.33245	.05786	.03518	.05015	.88822	.01741	.51967	.49058

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.10406	.36618	.00380	.02575	.01965	.54112	8.9308	
Stddev	.00064	.00055	.00001	.00017	.00012	.00040	.0135	
%RSD	.61475	.14920	.26582	.67514	.59558	.07351	.15124	
#1	.10429	.36630	.00381	.02574	.01971	.54075	8.9343	
#2	.10333	.36666	.00379	.02559	.01951	.54107	8.9423	
#3	.10454	.36559	.00379	.02594	.01971	.54154	8.9159	

Sample Name: S2 Acquired: 11/4/2024 17:06:25 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6216.2	96088.	13087.	4475.6	8315.4
Stddev	30.0	365.	76.	12.5	34.0
%RSD	.48265	.37962	.57948	.27911	.40917
#1	6246.3	95818.	13170.	4461.7	8348.9
#2	6216.1	96503.	13021.	4486.0	8316.6
#3	6186.3	95943.	13072.	4479.0	8280.9

Sample Name: S3 Acquired: 11/4/2024 17:10:32 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.13085	.16161	.66430	.19478	.32447	.33278	11.789	.83039
Stddev	.00064	.00354	.00469	.00104	.00222	.00162	.051	.00215
%RSD	.49124	2.1895	.70527	.53579	.68502	.48822	.43099	.25946
#1	.13035	.15859	.66191	.19397	.32295	.33398	11.847	.83177
#2	.13061	.16551	.66130	.19441	.32343	.33093	11.751	.82791
#3	.13157	.16074	.66970	.19596	.32702	.33343	11.769	.83150

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.3300	.75720	.11461	1.0723	.37457	.01064	.87448	.27291
Stddev	.0205	.00453	.00039	.0061	.00210	.00007	.00336	.00130
%RSD	.61653	.59810	.34354	.57281	.55995	.67489	.38397	.47778
#1	3.3228	.76106	.11447	1.0700	.37375	.01071	.87794	.27285
#2	3.3141	.75222	.11431	1.0677	.37301	.01065	.87123	.27164
#3	3.3532	.75832	.11506	1.0793	.37695	.01056	.87427	.27425

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.0153	.17782	.10700	.15538	2.6815	.05561	1.6118	1.4838
Stddev	.0064	.00060	.00048	.00042	.0053	.00024	.0061	.0095
%RSD	.62809	.33751	.44466	.27267	.19603	.42964	.37853	.63836
#1	1.0137	.17796	.10754	.15586	2.6874	.05577	1.6132	1.4770
#2	1.0099	.17716	.10662	.15504	2.6794	.05534	1.6051	1.4797
#3	1.0223	.17834	.10684	.15526	2.6776	.05573	1.6171	1.4946

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.32045	1.1248	.01146	.08548	.06108	1.6441	27.488	
Stddev	.00175	.0034	.00001	.00053	.00031	.0083	.236	
%RSD	.54527	.30344	.13003	.61429	.50226	.50652	.85956	
#1	.31935	1.1285	.01147	.08519	.06078	1.6530	27.758	
#2	.31955	1.1218	.01144	.08515	.06107	1.6365	27.317	
#3	.32247	1.1240	.01146	.08608	.06139	1.6428	27.389	

Sample Name: S3 Acquired: 11/4/2024 17:10:32 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6246.2	96591.	12949.	4474.8	8182.0
Stddev	30.4	230.	45.	15.1	34.5
%RSD	.48641	.23781	.35112	.33750	.42194
#1	6258.4	96358.	12905.	4461.3	8194.0
#2	6268.7	96818.	12996.	4472.0	8208.9
#3	6211.7	96596.	12947.	4491.1	8143.1

Sample Name: S4 Acquired: 11/4/2024 17:14:41 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.26322	.32013	1.3321	.39243	.65233	.67151	23.568	1.6476
Stddev	.00146	.00660	.0108	.00196	.00505	.00140	.222	.0055
%RSD	.55528	2.0631	.80744	.49897	.77377	.20899	.94343	.33596

#1	.26217	.32048	1.3232	.39066	.64964	.67283	23.823	1.6539
#2	.26261	.32656	1.3289	.39210	.64920	.67004	23.467	1.6438
#3	.26489	.31336	1.3440	.39453	.65816	.67165	23.415	1.6451

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6.7153	1.5074	.23100	2.1644	.73950	.02233	1.7390	.54491
Stddev	.0511	.0028	.00075	.0168	.00638	.00005	.0085	.00185
%RSD	.76063	.18854	.32490	.77391	.86264	.24348	.49120	.33997

#1	6.6741	1.5105	.23177	2.1521	.73597	.02239	1.7485	.54560
#2	6.6993	1.5049	.23027	2.1577	.73567	.02231	1.7368	.54282
#3	6.7724	1.5068	.23094	2.1835	.74687	.02229	1.7318	.54633

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.0422	.36342	.22825	.31503	5.4747	.11864	3.1736	2.9711
Stddev	.0172	.00118	.00139	.00080	.0071	.00011	.0087	.0225
%RSD	.84071	.32422	.60892	.25441	.12962	.09093	.27533	.75843

#1	2.0298	.36472	.22968	.31540	5.4761	.11877	3.1836	2.9572
#2	2.0350	.36242	.22818	.31558	5.4810	.11860	3.1698	2.9590
#3	2.0618	.36312	.22690	.31411	5.4670	.11857	3.1674	2.9971

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.63867	2.2538	.02457	.17434	.12527	3.3004	54.837	
Stddev	.00294	.0077	.00024	.00127	.00027	.0123	.281	
%RSD	.46032	.34027	.98533	.72675	.21628	.37245	.51252	

#1	.63564	2.2620	.02432	.17363	.12506	3.3058	55.044	
#2	.63886	2.2526	.02458	.17358	.12518	3.3091	54.517	
#3	.64151	2.2467	.02480	.17580	.12557	3.2863	54.949	

Sample Name: S4 Acquired: 11/4/2024 17:14:41 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6054.4	90892.	12823.	4198.4	7816.8
Stddev	43.4	429.	59.	18.5	50.2
%RSD	.71726	.47210	.46158	.44135	.64280
#1	6063.0	90403.	12755.	4181.6	7834.8
#2	6092.9	91205.	12853.	4195.3	7855.6
#3	6007.4	91068.	12862.	4218.3	7760.1

Sample Name: S5 Acquired: 11/4/2024 17:18:56 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.55401	.79646	2.8907	.83597	1.3140	1.4104	48.190	3.8404
Stddev	.00307	.00628	.0158	.00375	.0049	.0103	.564	.0125
%RSD	.55438	.78809	.54521	.44820	.37443	.72771	1.1709	.32657

#1	.55047	.79048	2.8747	.83173	1.3091	1.4223	48.119	3.8412
#2	.55595	.80300	2.8913	.83734	1.3139	1.4051	47.665	3.8525
#3	.55562	.79592	2.9062	.83883	1.3189	1.4039	48.787	3.8275

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	14.407	3.1973	.47353	4.5394	1.4955	.04054	3.6603	1.2071
Stddev	.076	.0242	.00143	.0216	.0074	.00026	.0268	.0085
%RSD	.52421	.75783	.30214	.47643	.49262	.64090	.73128	.70272

#1	14.328	3.2243	.47213	4.5180	1.4878	.04074	3.6903	1.2166
#2	14.416	3.1899	.47346	4.5390	1.4963	.04025	3.6516	1.2044
#3	14.478	3.1776	.47499	4.5613	1.5025	.04064	3.6389	1.2003

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4.2973	.72030	.41023	.66442	10.778	.21707	7.3245	6.0044
Stddev	.0202	.00114	.00209	.00466	.025	.00107	.0301	.0221
%RSD	.46979	.15858	.51050	.70085	.22921	.49446	.41107	.36860

#1	4.2770	.72049	.41226	.66978	10.776	.21806	7.3290	5.9825
#2	4.2976	.71907	.40808	.66133	10.755	.21593	7.3522	6.0039
#3	4.3174	.72133	.41036	.66216	10.804	.21721	7.2925	6.0268

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	1.3976	4.6980	.04663	.36874	.28156	6.6898	111.23	
Stddev	.0070	.0265	.00054	.00169	.00117	.0395	.82	
%RSD	.49844	.56470	1.1518	.45730	.41382	.59096	.74056	

#1	1.3902	4.7287	.04619	.36681	.28029	6.7353	111.79	
#2	1.3986	4.6831	.04647	.36949	.28180	6.6704	110.28	
#3	1.4040	4.6823	.04723	.36992	.28258	6.6638	111.61	

Sample Name: S5 Acquired: 11/4/2024 17:18:56 Type: Cal
Method: NON EPA-6010-200.7(v2452) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6253.7	93986.	11361.	4423.4	7753.0
Stddev	19.2	379.	84.	41.6	26.1
%RSD	.30722	.40277	.73910	.94125	.33658
#1	6254.4	93560.	11282.	4377.6	7755.0
#2	6272.5	94283.	11350.	4458.9	7778.1
#3	6234.1	94116.	11449.	4433.7	7726.0

Sample Name: ICV01 Acquired: 11/4/2024 17:28:53 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9480810	1.090732	.9789966	.9885953	.9985169	2.486068
Stddev	.0072338	.010927	.0058361	.0054012	.0063882	.014829
%RSD	.7629961	1.001784	.5961345	.5463562	.6397718	.5964690

#1	.9399262	1.078535	.9736773	.9844942	.9941310	2.495839
#2	.9505925	1.094032	.9780731	.9865765	.9955735	2.493361
#3	.9537244	1.099628	.9852395	.9947151	1.005846	2.469005

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4941133	.5334604	.4847509	9.919627	.5447662	.5130017
Stddev	.0033160	.0028170	.0029915	.042939	.0015179	.0031247
%RSD	.6711024	.5280675	.6171241	.4328681	.2786319	.6091120

#1	.4977940	.5315009	.4818815	9.960981	.5447652	.5105447
#2	.4931867	.5321916	.4845202	9.922638	.5432488	.5119420
#3	.4913592	.5366887	.4878512	9.875262	.5462846	.5165185

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5276294	9.842348	.5103428	6.069255	.5148139	.2600664
Stddev	.0027912	.082694	.0020114	.022931	.0028120	.0011734
%RSD	.5290089	.8401824	.3941302	.3778162	.5462138	.4512051

#1	.5251060	9.927726	.5121470	6.045978	.5123360	.2609586
#2	.5271545	9.836691	.5107073	6.091823	.5142356	.2587372
#3	.5306275	9.762629	.5081740	6.069964	.5178700	.2605035

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.474376	.4931207	1.014782	9.577914	F .0153932	F .0002593
Stddev	.091401	.0027578	.001910	.118480	.0003252	.0001316
%RSD	.9647226	.5592482	.1881932	1.237011	2.112539	50.76750

#1	9.564659	.4953679	1.016265	9.694404	.0157610	.0001077
#2	9.476574	.4900432	1.012627	9.581797	.0152748	.0003442
#3	9.381895	.4939510	1.015454	9.457540	.0151438	.0003260

Sample Name: ICV01 Acquired: 11/4/2024 17:28:53 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.001128	F -.000199	F -.011970	F -.000331	F -.001316	F .0057963
Stddev	.000313	.000743	.002211	.001053	.001730	.0013333
%RSD	27.71105	373.6502	18.47200	318.0009	131.4697	23.00239
#1	-.001442	.000620	-.009525	.000467	-.002471	.0056552
#2	-.000816	-.000832	-.013829	.000065	.000673	.0045392
#3	-.001127	-.000384	-.012555	-.001525	-.002150	.0071946

Elem	Sr4077
Units	ppm
Avg	F -.008440
Stddev	.000091
%RSD	1.073746
#1	-.008537
#2	-.008426
#3	-.008357

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6697.681	95171.39	12164.82	4688.261	8740.289
Stddev	24.888	327.36	18.97	15.972	37.750
%RSD	.3715962	.3439707	.1559170	.3406876	.4319130
#1	6705.072	94802.36	12176.21	4669.834	8761.750
#2	6718.036	95285.02	12175.31	4698.150	8762.417
#3	6669.934	95426.80	12142.92	4696.798	8696.700

Sample Name: LLICV01 Acquired: 11/4/2024 17:37:38 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0191638	.0407467	.0118258	.0176074	.0506995	.1096783
Stddev	.0008810	.0006203	.0004866	.0009850	.0008529	.0082622
%RSD	4.597445	1.522288	4.114884	5.594003	1.682200	7.533137

#1	.0197215	.0401953	.0123848	.0179314	.0499728	.1086949
#2	.0181481	.0414183	.0115958	.0165012	.0516385	.1183883
#3	.0196219	.0406266	.0114968	.0183895	.0504873	.1019519

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1057707	.0063441	.0066437	2.047047	.0109039	.0308708
Stddev	.0003659	.0001134	.0001315	.011082	.0001830	.0003885
%RSD	.3459295	1.786850	1.979472	.5413617	1.678098	1.258428

#1	.1061102	.0063909	.0065908	2.059800	.0108302	.0309004
#2	.1058188	.0064267	.0065469	2.039756	.0111122	.0304683
#3	.1053831	.0062149	.0067934	2.041587	.0107692	.0312436

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0232763	.1023001	.0209261	2.120677	.0410917	.0104125
Stddev	.0001943	.0035169	.0003903	.005797	.0006431	.0004354
%RSD	.8346636	3.437859	1.865244	.2733346	1.565090	4.181129

#1	.0230537	.0982533	.0213065	2.114029	.0408528	.0099586
#2	.0234116	.1046177	.0205266	2.123327	.0406022	.0108265
#3	.0233636	.1040293	.0209451	2.124675	.0418201	.0104524

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.954341	.0402787	.0440341	1.883308	.1171174	.2133800
Stddev	.018552	.0007653	.0004013	.035887	.0014195	.0002355
%RSD	.9492608	1.899926	.9113124	1.905536	1.212048	.1103706

#1	1.974876	.0399293	.0444948	1.923390	.1170118	.2135519
#2	1.938791	.0411563	.0438461	1.854160	.1185867	.2131115
#3	1.949357	.0397505	.0437613	1.872374	.1157535	.2134764

Sample Name: LLICV01 Acquired: 11/4/2024 17:37:38 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0410063	F .1968977	.3341955	F .0151693	F .3834275	F .0273920
Stddev	.0014854	.0010533	.0121289	.0012446	.0082179	.0017033
%RSD	3.622370	.5349593	3.629269	8.204489	2.143273	6.218402
#1	.0416423	.1981060	.3480683	.0158915	.3857111	.0254763
#2	.0393088	.1964142	.3289226	.0158842	.3743093	.0279638
#3	.0420679	.1961730	.3255955	.0137322	.3902621	.0287358

Elem	Sr4077
Units	ppm
Avg	.0198236
Stddev	.0000514
%RSD	.2590263
#1	.0198764
#2	.0197738
#3	.0198206

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6579.296	92669.10	11945.74	4480.516	8821.656
Stddev	96.685	216.33	73.01	61.115	80.560
%RSD	1.469536	.2334431	.6112191	1.364016	.9132067
#1	6582.428	92421.99	11956.25	4505.915	8827.882
#2	6481.083	92761.07	11868.05	4524.836	8738.164
#3	6674.377	92824.26	12012.94	4410.797	8898.922

Sample Name: ICB01 Acquired: 11/4/2024 17:47:53 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000390	-.002874	-.000292	-.001492	-.000204	.0117433	.0066627
Stddev	.000456	.000060	.000311	.001327	.001117	.0068880	.0004266
%RSD	116.8107	2.076969	106.5239	88.92447	546.9017	58.65425	6.402323
#1	-.000448	-.002914	-.000639	-.001788	.000779	.0040604	.0061707
#2	.000092	-.002805	-.000197	-.002645	-.001418	.0138034	.0069301
#3	-.000814	-.002902	-.000039	-.000042	.000026	.0173662	.0068872
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001096	.0001206	-.001256	-.000284	.0000867	.0000748	-.006856
Stddev	.0000120	.0000135	.008318	.000188	.0000514	.0003060	.002821
%RSD	10.92359	11.17466	662.1788	66.31030	59.34102	409.3190	41.15197
#1	.0001220	.0001159	-.004515	-.000499	.0000472	.0003633	-.007385
#2	.0001087	.0001101	.008198	-.000147	.0000679	.0001072	-.009375
#3	.0000981	.0001358	-.007451	-.000206	.0001449	-.000246	-.003807
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000227	-.007119	.0001217	-.000357	.0237081	-.002057	.0000790
Stddev	.000544	.004054	.0000586	.000306	.0087676	.000652	.0000726
%RSD	239.7462	56.94755	48.17475	85.50574	36.98152	31.69189	91.86206
#1	-.000144	-.009014	.0001239	-.000186	.0146444	-.001944	.0000965
#2	.000271	-.009878	.0000620	-.000176	.0321461	-.001469	-.000001
#3	-.000808	-.002464	.0001792	-.000710	.0243338	-.002759	.000141
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.162846	.0032730	.0004436	-.000095	.0011309	-.001882	-.005794
Stddev	.036938	.0004901	.0000759	.000495	.0003101	.001854	.001066
%RSD	22.68275	14.97384	17.10902	518.6412	27.42639	98.52650	18.38955
#1	-.133679	.0035908	.0004300	.000352	.0014808	.000205	-.006655
#2	-.204380	.0027086	.0005253	-.000627	.0008898	-.002510	-.006125
#3	-.150477	.0035195	.0003753	-.000011	.0010220	-.003341	-.004603

Sample Name: ICB01 Acquired: 11/4/2024 17:47:53 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000885	.0087611	.0001207
Stddev	.002786	.0009721	.0000455
%RSD	314.9103	11.09550	37.69370
#1	.001382	.0076625	.0000820
#2	-.000041	.0091109	.0001708
#3	-.003995	.0095099	.0001094

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6718.228	94275.93	11589.94	4691.804	9157.193
Stddev	19.339	309.40	28.46	27.302	24.615
%RSD	.2878605	.3281818	.2455287	.5819062	.2688069
#1	6715.584	94626.02	11592.07	4723.319	9155.078
#2	6738.753	94039.22	11560.48	4676.743	9182.797
#3	6700.346	94162.55	11617.28	4675.349	9133.704

Sample Name: CRI01 Acquired: 11/4/2024 17:52:09 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0195544	.0398710	.0117218	.0188439	.0503767	.1176727
Stddev	.0003841	.0014534	.0001192	.0014030	.0010918	.0024754
%RSD	1.964496	3.645324	1.016978	7.445604	2.167232	2.103655

#1	.0196330	.0382049	.0118344	.0193484	.0495152	.1156004
#2	.0198931	.0408789	.0115969	.0172583	.0516045	.1204138
#3	.0191370	.0405292	.0117340	.0199249	.0500104	.1170039

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1045163	.0063409	.0066436	2.039805	.0106910	.0303441
Stddev	.0002813	.0000358	.0000484	.013444	.0000957	.0002316
%RSD	.2691369	.5637446	.7286573	.6591017	.8948900	.7631528

#1	.1045982	.0063452	.0065878	2.024953	.0107602	.0302582
#2	.1042032	.0063743	.0066745	2.043318	.0107310	.0301677
#3	.1047476	.0063032	.0066686	2.051144	.0105819	.0306063

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0224575	.0975797	.0206703	2.107326	.0401925	.0103702
Stddev	.0001643	.0021840	.0001021	.011367	.0003433	.0003516
%RSD	.7315219	2.238210	.4938867	.5393864	.8540569	3.390223

#1	.0225196	.1000572	.0206469	2.099888	.0401448	.0105058
#2	.0225817	.0967491	.0205820	2.101678	.0398756	.0099711
#3	.0222713	.0959328	.0207821	2.120410	.0405572	.0106339

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.960055	.0410233	.0433552	1.816444	.1137903	.2110163
Stddev	.008849	.0012507	.0002590	.025887	.0015191	.0011472
%RSD	.4514787	3.048674	.5974942	1.425127	1.335003	.5436489

#1	1.966389	.0411388	.0432212	1.835302	.1151888	.2106021
#2	1.949944	.0397189	.0436539	1.786930	.1140081	.2101338
#3	1.963832	.0422122	.0431907	1.827099	.1121741	.2123131

Sample Name: CRI01 Acquired: 11/4/2024 17:52:09 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0410005	F .1960991	.3348093	F .0133675	F .3783536	F .0270311
Stddev	.0004865	.0014812	.0107554	.0015668	.0039710	.0022775
%RSD	1.186680	.7553245	3.212388	11.72063	1.049554	8.425387
#1	.0407197	.1966385	.3389622	.0121200	.3776511	.0254431
#2	.0407194	.1944238	.3225967	.0151260	.3747808	.0296405
#3	.0415623	.1972350	.3428692	.0128566	.3826290	.0260097

Elem	Sr4077
Units	ppm
Avg	.0198117
Stddev	.0000093
%RSD	.0467363
#1	.0198047
#2	.0198222
#3	.0198083

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6627.910	92788.43	11861.33	4569.389	8872.582
Stddev	22.708	375.55	7.24	47.843	22.377
%RSD	.3426093	.4047356	.0610752	1.047040	.2522051
#1	6645.868	92637.80	11865.25	4575.330	8889.606
#2	6635.477	93215.91	11865.78	4613.984	8880.903
#3	6602.384	92511.59	11852.97	4518.852	8847.236

Sample Name: ICSA01 Acquired: 11/4/2024 18:03:18 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003230	-.001191	.0019945	-.010984	.0044260	237.9621
Stddev	.002388	.001063	.0004518	.001890	.0013695	.8890
%RSD	73.92398	89.28343	22.65093	17.20868	30.94138	.3736013

#1	-.003076	-.000014	.0025082	-.009586	.0055380	238.7354
#2	-.005691	-.001478	.0018166	-.010230	.0028963	236.9907
#3	-.000923	-.002081	.0016588	-.013134	.0048438	238.1601

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0142320	.0037431	.0031967	232.2544	.0606225	.0028039
Stddev	.0002799	.0000302	.0001095	.5780	.0003367	.0002783
%RSD	1.966547	.8077397	3.424756	.2488824	.5553177	9.926377

#1	.0145424	.0037777	.0030793	232.4845	.0609471	.0028090
#2	.0141546	.0037301	.0032146	231.5967	.0606456	.0025231
#3	.0139989	.0037216	.0032960	232.6819	.0602750	.0030797

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0210799	94.97130	.0069041	251.4416	.0072524	.0003959
Stddev	.0009826	.38975	.0001946	.7325	.0001307	.0004303
%RSD	4.661236	.4103872	2.818968	.2913360	1.801923	108.6989

#1	.0206052	95.41418	.0068141	250.9197	.0071164	.0000310
#2	.0204248	94.81910	.0067707	251.1261	.0073770	.0002862
#3	.0222097	94.68061	.0071274	252.2790	.0072639	.0008704

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1490074	.0080161	.0044457	-.079847	.0201141	.0018625
Stddev	.0176853	.0009487	.0000802	.027003	.0011223	.0003246
%RSD	11.86873	11.83473	1.803067	33.81864	5.579813	17.42582

#1	.1388066	.0069325	.0044977	-.098788	.0203734	.0014937
#2	.1387869	.0086973	.0044861	-.091826	.0188849	.0019890
#3	.1694286	.0084184	.0043534	-.048927	.0210841	.0021047

Sample Name: ICSA01 Acquired: 11/4/2024 18:03:18 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001683	.0011764	.0129155	-.004578	-.018653	F -.029055
Stddev	.000304	.0006530	.0024019	.001180	.001517	.002473
%RSD	18.04349	55.50309	18.59680	25.77982	8.132911	8.511741
#1	-.001908	.0008899	.0103401	-.004948	-.019795	-.031391
#2	-.001803	.0019237	.0133121	-.003258	-.016932	-.029308
#3	-.001338	.0007157	.0150945	-.005530	-.019233	-.026465

Elem	Sr4077
Units	ppm
Avg	.0007162
Stddev	.0005663
%RSD	79.08216
#1	.0007290
#2	.0001435
#3	.0012760

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6054.451	86863.39	11415.57	4337.111	7363.963
Stddev	12.968	308.36	33.01	24.068	14.821
%RSD	.2141918	.3549906	.2891427	.5549345	.2012670
#1	6069.046	86516.59	11419.12	4311.623	7374.559
#2	6050.053	86966.94	11446.66	4359.449	7370.304
#3	6044.253	87106.65	11380.93	4340.260	7347.026

Sample Name: ICSAB01 Acquired: 11/4/2024 18:07:30 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0954363	.0694583	.0506584	.0389109	.6072340	238.6503
Stddev	.0009289	.0041877	.0010115	.0002553	.0062207	.3978
%RSD	.9732661	6.029048	1.996714	.6560799	1.024431	.1666949

#1	.0965082	.0646585	.0518105	.0391581	.6110851	239.1021
#2	.0948673	.0713506	.0499162	.0386483	.6000574	238.3526
#3	.0949334	.0723659	.0502485	.0389262	.6105595	238.4961

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4895223	.5344579	.9840524	232.4609	.5953309	.5153050
Stddev	.0019962	.0020666	.0037342	.4280	.0011124	.0018486
%RSD	.4077852	.3866725	.3794729	.1841214	.1868584	.3587412

#1	.4911279	.5327495	.9860798	232.9486	.5941182	.5157984
#2	.4901519	.5367550	.9797430	232.2863	.5963041	.5132598
#3	.4872873	.5338691	.9863343	232.1478	.5955703	.5168569

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5102553	97.01480	.4914059	250.9688	1.025066	.2012104
Stddev	.0025312	.22713	.0010733	.1689	.003433	.0003684
%RSD	.4960598	.2341240	.2184107	.0672796	.3348675	.1830967

#1	.5098324	97.25551	.4923260	250.8634	1.027474	.2010737
#2	.5079622	96.80425	.4916649	250.8796	1.021135	.2016276
#3	.5129713	96.98465	.4902269	251.1636	1.026588	.2009298

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1455388	.4849975	1.050469	-.080287	F .0229212	F .0014719
Stddev	.0246589	.0039201	.001616	.013833	.0010066	.0003682
%RSD	16.94321	.8082732	.1538644	17.22887	4.391753	25.01599

#1	.1223811	.4813317	1.049046	-.064321	.0234136	.0011892
#2	.1427701	.4891301	1.052226	-.087876	.0217631	.0018883
#3	.1714653	.4845308	1.050135	-.088664	.0235869	.0013382

Sample Name: ICSAB01 Acquired: 11/4/2024 18:07:30 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.001513	F .0001787	F .0006401	F .0025361	F -.020693	F -.030346
Stddev	.000772	.0001927	.0063787	.0016879	.002387	.001145
%RSD	51.02818	107.8062	996.4889	66.55413	11.53571	3.773916
#1	-.001454	.0001825	-.006613	.0044140	-.018304	-.031668
#2	-.000773	-.000016	.003156	.0011454	-.023078	-.029653
#3	-.002314	.000369	.005377	.0020489	-.020698	-.029718

Elem	Sr4077
Units	ppm
Avg	F -.001078
Stddev	.000354
%RSD	32.81133
#1	-.000860
#2	-.000889
#3	-.001486

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6123.748	86983.31	11700.19	4347.506	7479.980
Stddev	10.895	48.42	20.30	5.976	8.601
%RSD	.1779185	.0556682	.1735396	.1374510	.1149899
#1	6131.401	86944.75	11704.76	4348.515	7486.331
#2	6128.569	87037.65	11677.99	4341.090	7483.418
#3	6111.274	86967.52	11717.81	4352.913	7470.192

Sample Name: CCV01 Acquired: 11/4/2024 18:11:40 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.052624	4.719364	5.118357	5.105329	4.941432	9.934432	9.739889
Stddev	.014176	.039367	.004850	.019939	.017248	.076284	.193478
%RSD	.2805607	.8341494	.0947622	.3905447	.3490551	.7678784	1.986446

#1	5.041932	4.684037	5.118042	5.085113	4.933230	10.01885	9.949173
#2	5.047236	4.761801	5.113671	5.105895	4.929816	9.87043	9.702948
#3	5.068703	4.712254	5.123356	5.124978	4.961251	9.91402	9.567545

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2654165	2.557017	25.04033	1.053598	2.517641	1.257387	4.949932
Stddev	.0009493	.004028	.25553	.001640	.004986	.003891	.060833
%RSD	.3576644	.1575202	1.020456	.1556306	.1980366	.3094889	1.228957

#1	.2662767	2.554922	25.31306	1.055481	2.515646	1.255472	4.999837
#2	.2655748	2.554469	24.80645	1.052481	2.513961	1.254825	4.882169
#3	.2643980	2.561661	25.00148	1.052833	2.523315	1.261865	4.967790

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.492734	25.73197	2.521465	1.281354	24.76254	2.482573	2.540411
Stddev	.029394	.23459	.004230	.000798	.25963	.026728	.001365
%RSD	1.179174	.9116818	.1677575	.0623006	1.048472	1.076634	.0537383

#1	2.522694	25.98967	2.520680	1.280732	25.03145	2.510879	2.541289
#2	2.463942	25.53083	2.517682	1.282254	24.51331	2.457767	2.538838
#3	2.491565	25.67540	2.526032	1.281076	24.74286	2.479072	2.541106

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.55841	5.310684	5.042666	5.162594	4.928121	4.878326	5.073233
Stddev	.20369	.023264	.015852	.006461	.052585	.059557	.011376
%RSD	.8294167	.4380631	.3143633	.1251582	1.067044	1.220839	.2242431

#1	24.68600	5.332735	5.030247	5.155860	4.985065	4.864219	5.072760
#2	24.32350	5.312944	5.037230	5.163178	4.881395	4.827090	5.062101
#3	24.66573	5.286372	5.060522	5.168743	4.917902	4.943670	5.084839

Sample Name: CCV01 Acquired: 11/4/2024 18:11:40 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.961179	4.889267	4.943073
Stddev	.005438	.054750	.090219
%RSD	.1096172	1.119799	1.825158

#1	4.954992	4.949753	5.044827
#2	4.965204	4.843098	4.911537
#3	4.963340	4.874951	4.872855

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6381.095	90360.68	11519.49	4448.435	8050.219
Stddev	19.054	203.91	55.13	14.748	14.332
%RSD	.2986012	.2256633	.4785409	.3315435	.1780302

#1	6389.346	90196.24	11455.83	4446.368	8057.005
#2	6394.634	90588.84	11551.16	4464.108	8059.898
#3	6359.306	90296.95	11551.47	4434.829	8033.755

Sample Name: CCB01 Acquired: 11/4/2024 18:16:31 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002157	-.003639	.0002029	-.001888	-.000544	.0189615	.0085172
Stddev	.0005871	.000123	.0011301	.001318	.001015	.0085003	.0001463
%RSD	272.2266	3.369805	556.9525	69.79713	186.5485	44.82910	1.717913
#1	.0008897	-.003709	-.001102	-.002517	-.000199	.0168042	.0086856
#2	-.000184	-.003710	.000870	-.002775	-.001686	.0283325	.0084442
#3	-.000059	-.003497	.000841	-.000374	.000253	.0117477	.0084217
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001224	.0001448	-.001248	-.000070	.0002420	-.000537	-.000193
Stddev	.0000542	.0000306	.007788	.000102	.0001509	.000264	.005468
%RSD	44.30587	21.11340	623.9634	145.5689	62.36056	49.17805	2832.545
#1	.0000605	.0001667	-.009635	-.000011	.0002088	-.000369	-.005438
#2	.0001453	.0001099	.000133	-.000188	.0004068	-.000841	-.000615
#3	.0001614	.0001577	.005757	-.000011	.0001105	-.000400	.005473
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000041	-.000613	.0003069	-.000448	.0384203	.0004465	-.000060
Stddev	.000204	.014452	.0002178	.000210	.0021734	.0031509	.000144
%RSD	501.4804	2355.887	70.98085	46.90381	5.656925	705.6528	241.1896
#1	-.000126	.014243	.0002803	-.000681	.0379570	.0026318	-.000187
#2	.000192	-.001458	.0005368	-.000275	.0365159	.0018732	-.000087
#3	-.000188	-.014625	.0001036	-.000387	.0407880	-.003165	.000096
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.145673	.0063294	.0006923	.0001790	.0001091	.0012827	-.003040
Stddev	.022684	.0005819	.0001814	.0002480	.0009003	.0080983	.001404
%RSD	15.57165	9.194288	26.20940	138.4931	824.9583	631.3652	46.19500
#1	-.167446	.0060421	.0007278	.0000934	-.000926	-.007481	-.003163
#2	-.122177	.0069991	.0008533	.0004585	.000706	.008489	-.004378
#3	-.147397	.0059469	.0004957	-.000015	.000548	.002840	-.001578

Sample Name: CCB01 Acquired: 11/4/2024 18:16:31 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0007521	.0069184	.0001517
Stddev	.0015915	.0011696	.0000321
%RSD	211.6089	16.90558	21.15243

#1	.0022068	.0074689	.0001863
#2	.0009974	.0055751	.0001230
#3	-.000948	.0077111	.0001458

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6752.583	98495.82	11779.26	4819.629	9221.849
Stddev	130.628	277.84	75.87	16.138	131.991
%RSD	1.934484	.2820837	.6440574	.3348455	1.431290

#1	6818.031	98374.65	11696.49	4827.234	9284.630
#2	6837.550	98813.67	11845.48	4830.559	9310.732
#3	6602.169	98299.15	11795.82	4801.093	9070.185

Sample Name: P4640-01 Acquired: 11/4/2024 18:20:48 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1628901	-.024737	3.613564	-.031500	.0929534	142.1769
Stddev	.0017480	.001740	.010199	.001348	.0009600	.7856
%RSD	1.073107	7.032349	.2822482	4.280379	1.032772	.5525372

#1	.1625329	-.026019	3.613152	-.032800	.0923580	142.1613
#2	.1647891	-.022757	3.603577	-.031593	.0924413	141.3992
#3	.1613483	-.025436	3.623963	-.030108	.0940609	142.9701

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.940055	.0209625	.0195397	935.3357	.3147906	.2080044
Stddev	.018399	.0001879	.0002161	11.7542	.0005409	.0001597
%RSD	.6257934	.8961770	1.105769	1.256685	.1718145	.0767585

#1	2.954683	.0207464	.0196231	929.0783	.3152204	.2079236
#2	2.919398	.0210872	.0192943	928.0339	.3149680	.2079014
#3	2.946084	.0210538	.0197016	948.8949	.3141833	.2081883

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8079694	358.3640	10.26365	137.7613	.3707790	.0085925
Stddev	.0034578	1.3682	.03897	.9168	.0006887	.0003068
%RSD	.4279601	.3817784	.3796730	.6654962	.1857537	3.570673

#1	.8080480	357.5280	10.27535	137.0449	.3713543	.0084365
#2	.8044731	359.9429	10.22017	137.4447	.3709670	.0089460
#3	.8113873	357.6212	10.29542	138.7945	.3700158	.0083951

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.76601	.4893454	3.763740	18.51030	.4806683	.0283182
Stddev	.09821	.0023184	.007872	.11871	.0027269	.0001991
%RSD	.9122595	.4737813	.2091616	.6413290	.5673184	.7030075

#1	10.87178	.4901108	3.772162	18.64738	.4791927	.0285308
#2	10.67768	.4867410	3.762490	18.44226	.4838150	.0282876
#3	10.74858	.4911843	3.756567	18.44127	.4789971	.0281362

Sample Name: P4640-01 Acquired: 11/4/2024 18:20:48 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2256009	6.357819	F 33.78357	F 10.02897	F 14.06562	.1161684
Stddev	.0019704	.033884	.23352	.01714	.01913	.0017633
%RSD	.8734240	.5329424	.6912366	.1709150	.1360100	1.517856
#1	.2236480	6.371537	33.93029	10.02211	14.05893	.1182041
#2	.2255665	6.319227	33.51428	10.01633	14.05073	.1151832
#3	.2275884	6.382692	33.90615	10.04848	14.08719	.1151179

Elem	Sr4077
Units	ppm
Avg	3.184803
Stddev	.009371
%RSD	.2942270
#1	3.191532
#2	3.174100
#3	3.188777

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7092.057	99766.17	14465.60	4908.932	6618.847
Stddev	7.203	41.28	107.04	10.419	7.457
%RSD	.1015615	.0413749	.7399755	.2122471	.1126647
#1	7092.810	99813.83	14572.22	4897.231	6610.735
#2	7084.508	99742.23	14466.42	4912.358	6620.404
#3	7098.854	99742.45	14358.14	4917.207	6625.403

Sample Name: P4643-01 Acquired: 11/4/2024 18:25:14 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0425791	-.021709	.2122261	-.035539	.0078995	125.4798
Stddev	.0008258	.003473	.0007692	.001644	.0015493	.2403
%RSD	1.939467	15.99647	.3624416	4.626969	19.61295	.1914769

#1	.0431370	-.020161	.2116011	-.035023	.0061260	125.2065
#2	.0429699	-.025686	.2119921	-.034214	.0089897	125.6578
#3	.0416304	-.019279	.2130851	-.037379	.0085830	125.5751

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.974204	.0179381	.0050417	400.6067	.3256573	.2071479
Stddev	.003976	.0000205	.0001206	3.0282	.0011933	.0007590
%RSD	.1336704	.1143010	2.391775	.7559131	.3664181	.3663998

#1	2.972606	.0179480	.0051785	399.5481	.3269036	.2070053
#2	2.978730	.0179518	.0049960	404.0222	.3255428	.2064704
#3	2.971276	.0179145	.0049507	398.2499	.3245254	.2079681

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8225696	327.2212	10.37201	104.5524	.4571359	.0032145
Stddev	.0006685	1.8427	.03408	.4781	.0013646	.0005869
%RSD	.0812710	.5631276	.3286179	.4573241	.2985167	18.25891

#1	.8227364	325.4115	10.35102	104.0877	.4573312	.0027403
#2	.8218335	327.1569	10.41134	105.0429	.4556841	.0030321
#3	.8231389	329.0952	10.35368	104.5266	.4583923	.0038709

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.70720	.4241729	.8204166	39.94243	.2241603	.0042514
Stddev	.07557	.0020692	.0015171	.15057	.0026822	.0001140
%RSD	.5137973	.4878220	.1849148	.3769691	1.196572	2.681822

#1	14.66734	.4265138	.8203312	39.86444	.2213194	.0041484
#2	14.65991	.4225880	.8219745	39.84685	.2245125	.0043739
#3	14.79435	.4234169	.8189439	40.11599	.2266490	.0042319

Sample Name: P4643-01 Acquired: 11/4/2024 18:25:14 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0092575	5.776980	F 15.78608	F 12.25750	1.117401	.3116150
Stddev	.0009055	.011481	.07046	.04566	.006365	.0001236
%RSD	9.781619	.1987367	.4463568	.3725155	.5696144	.0396569
#1	.0089940	5.766007	15.72728	12.23095	1.117415	.3116807
#2	.0102656	5.788909	15.76676	12.23131	1.111030	.3114724
#3	.0085130	5.776024	15.86418	12.31022	1.123759	.3116918

Elem	Sr4077
Units	ppm
Avg	.2533868
Stddev	.0026285
%RSD	1.037333
#1	.2546502
#2	.2551450
#3	.2503652

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7328.330	104919.0	14410.25	5186.241	7156.693
Stddev	17.976	359.6	76.01	8.337	17.277
%RSD	.2452900	.3427273	.5274829	.1607538	.2414163
#1	7341.763	104568.7	14349.69	5179.731	7156.999
#2	7335.318	105287.2	14385.53	5183.353	7173.816
#3	7307.910	104901.2	14495.55	5195.638	7139.265

Sample Name: P4643-05 Acquired: 11/4/2024 18:29:33 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0101288	-.013689	.1047169	-.013994	.0044922	63.93838
Stddev	.0003389	.001681	.0013585	.001925	.0005223	.59776
%RSD	3.346147	12.28274	1.297326	13.75294	11.62767	.9349030

#1	.0104223	-.012781	.1041471	-.013960	.0048346	63.72594
#2	.0102063	-.012657	.1037362	-.012087	.0038910	63.47586
#3	.0097579	-.015630	.1062676	-.015936	.0047511	64.61335

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5574294	.0081646	.0015439	25.71749	.1870608	.0934535
Stddev	.0035902	.0001992	.0004220	.28814	.0024167	.0007320
%RSD	.6440653	2.439932	27.33616	1.120411	1.291924	.7833051

#1	.5577601	.0080257	.0011270	25.51203	.1898125	.0934334
#2	.5536853	.0080753	.0015338	25.59358	.1852828	.0927318
#3	.5608429	.0083929	.0019709	26.04686	.1860872	.0941954

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3383554	165.2534	1.318697	37.83502	.2197111	.0021509
Stddev	.0041655	3.0095	.015712	.82604	.0013821	.0001791
%RSD	1.231095	1.821120	1.191449	2.183277	.6290506	8.324657

#1	.3356004	168.5928	1.306988	37.13729	.2202146	.0021770
#2	.3363184	164.4161	1.312550	37.62065	.2181479	.0023156
#3	.3431474	162.7513	1.336553	38.74711	.2207709	.0019603

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.493688	.2627179	.4231806	15.52857	.1006273	.0016269
Stddev	.034536	.0005907	.0041455	.30798	.0051740	.0001116
%RSD	2.312152	.2248572	.9795970	1.983327	5.141769	6.859697

#1	1.528346	.2620414	.4277185	15.87511	.1058285	.0015008
#2	1.493442	.2631318	.4195925	15.42448	.1005724	.0016670
#3	1.459275	.2629804	.4222307	15.28612	.0954809	.0017129

Sample Name: P4643-05 Acquired: 11/4/2024 18:29:33 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0052058	3.264109	F 11.65210	7.584287	.2868444	.1615635
Stddev	.0002863	.022899	.25869	.061534	.0004677	.0008155
%RSD	5.500224	.7015442	2.220078	.8113322	.1630330	.5047493
#1	.0055154	3.258002	11.94442	7.591421	.2873494	.1613799
#2	.0051514	3.244882	11.55913	7.519497	.2864263	.1608554
#3	.0049505	3.289442	11.45274	7.641942	.2867576	.1624551

Elem	Sr4077
Units	ppm
Avg	-.015117
Stddev	.003253
%RSD	21.51934
#1	-.018274
#2	-.015302
#3	-.011775

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7364.714	105687.9	13802.39	5199.420	8318.829
Stddev	26.286	1204.3	311.21	55.487	38.722
%RSD	.3569133	1.139474	2.254771	1.067185	.4654754
#1	7377.592	104309.4	14058.71	5148.763	8325.904
#2	7382.078	106535.9	13892.37	5258.722	8353.526
#3	7334.473	106218.3	13456.11	5190.774	8277.057

Sample Name: P4643-09 Acquired: 11/4/2024 18:33:38 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0404267	-.015895	.2039402	-.034268	.0058972	115.8110
Stddev	.0018152	.001635	.0009088	.001521	.0019170	.3578
%RSD	4.490078	10.28736	.4456110	4.438740	32.50636	.3089863

#1	.0397748	-.017722	.2044213	-.033127	.0080467	115.4059
#2	.0390275	-.015393	.2045074	-.033684	.0043646	116.0841
#3	.0424778	-.014570	.2028921	-.035995	.0052804	115.9428

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.923939	.0168530	.0034795	222.1628	.3173261	.1962387
Stddev	.005472	.0001163	.0004470	.5355	.0046390	.0006103
%RSD	.2844059	.6899474	12.84559	.2410402	1.461886	.3110095

#1	1.918058	.0167745	.0039842	222.1104	.3119946	.1965507
#2	1.924881	.0169866	.0031339	222.7226	.3195430	.1955355
#3	1.928879	.0167981	.0033203	221.6554	.3204406	.1966300

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6543738	333.6230	8.387257	82.17283	.4390055	.0044903
Stddev	.0044097	4.1447	.007244	.53020	.0018897	.0004433
%RSD	.6738736	1.242324	.0863732	.6452219	.4304496	9.871488

#1	.6587304	328.8407	8.388336	82.37969	.4383724	.0049462
#2	.6499130	336.1731	8.393901	82.56842	.4375137	.0044640
#3	.6544781	335.8554	8.379534	81.57039	.4411305	.0040609

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.636025	.4147551	.7771267	36.49330	.2153685	.0037455
Stddev	.098126	.0025438	.0120247	.68935	.0065582	.0003449
%RSD	2.116600	.6133384	1.547329	1.888987	3.045116	9.209081

#1	4.526364	.4133595	.7633050	35.75190	.2082518	.0033485
#2	4.666167	.4176913	.7828915	36.61311	.2166853	.0039716
#3	4.715544	.4132145	.7851836	37.11490	.2211685	.0039165

Sample Name: P4643-09 Acquired: 11/4/2024 18:33:38 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0173027	5.708692	F 10.72746	F 11.47372	.7766368	.3041398
Stddev	.0000941	.010813	.21358	.02031	.0034926	.0001665
%RSD	.5441450	.1894112	1.990955	.1770399	.4497049	.0547588
#1	.0172021	5.696594	10.49200	11.45449	.7796705	.3042110
#2	.0173887	5.717414	10.78168	11.47171	.7774210	.3042590
#3	.0173172	5.712068	10.90871	11.49497	.7728187	.3039496

Elem	Sr4077
Units	ppm
Avg	.0817685
Stddev	.0031460
%RSD	3.847487
#1	.0852690
#2	.0791773
#3	.0808592

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7415.310	106438.0	14742.96	5181.815	7441.562
Stddev	14.924	1078.3	143.58	46.041	9.746
%RSD	.2012573	1.013040	.9739009	.8885040	.1309618
#1	7402.166	107672.9	14628.37	5234.877	7436.503
#2	7412.231	105957.5	14696.48	5158.125	7435.386
#3	7431.534	105683.5	14904.02	5152.444	7452.797

Sample Name: P4645-01 Acquired: 11/4/2024 18:37:51 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0450480	-.014038	2.918445	-.032531	.0157327	105.8097
Stddev	.0014241	.001338	.002656	.001239	.0009057	.4121
%RSD	3.161249	9.533358	.0910214	3.807371	5.756548	.3894715
#1	.0452277	-.013156	2.921021	-.031839	.0150961	105.3684
#2	.0435426	-.015578	2.918599	-.033961	.0167695	106.1846
#3	.0463737	-.013380	2.915715	-.031793	.0153325	105.8761

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.818879	.0119524	.0117076	171.7556	.2745006	.1637438
Stddev	.006672	.0000589	.0003597	.6181	.0007629	.0002207
%RSD	.3668259	.4924041	3.072547	.3598663	.2779290	.1347639
#1	1.817123	.0120028	.0113946	171.1808	.2753033	.1636712
#2	1.826253	.0119666	.0116277	172.4094	.2744135	.1635687
#3	1.813260	.0118877	.0121006	171.6766	.2737850	.1639917

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.342939	352.9093	6.112696	56.34842	.3687920	.0101544
Stddev	.001453	1.8453	.025527	.27892	.0007065	.0002713
%RSD	.1081732	.5228690	.4176136	.4949865	.1915749	2.671710
#1	1.341395	352.5373	6.101774	56.09674	.3686555	.0100679
#2	1.343143	354.9122	6.141867	56.64829	.3695569	.0104584
#3	1.344279	351.2783	6.094446	56.30022	.3681638	.0099369

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.168632	.3969484	3.338198	20.57125	.5881707	.0135695
Stddev	.019579	.0005363	.002712	.07307	.0035139	.0000800
%RSD	.3173956	.1351104	.0812495	.3552288	.5974268	.5892076
#1	6.182625	.3975253	3.338144	20.49487	.5896238	.0135279
#2	6.177013	.3968550	3.340938	20.64050	.5907250	.0135189
#3	6.146257	.3964649	3.335514	20.57836	.5841633	.0136617

Sample Name: P4645-01 Acquired: 11/4/2024 18:37:51 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1905271	5.359691	F 14.67257	F 11.00263	3.775721	.1599799
Stddev	.0005024	.017809	.04505	.01684	.010352	.0002721
%RSD	.2636882	.3322844	.3070322	.1530909	.2741822	.1700818
#1	.1910862	5.349139	14.65781	10.99194	3.767992	.1600664
#2	.1901135	5.380253	14.72315	10.99390	3.787483	.1596751
#3	.1903815	5.349681	14.63676	11.02205	3.771689	.1601983

Elem	Sr4077
Units	ppm
Avg	.2004805
Stddev	.0006722
%RSD	.3353007
#1	.2000377
#2	.2001499
#3	.2012540

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7577.999	108913.2	15628.75	5230.764	7496.084
Stddev	44.706	159.4	47.18	29.359	38.487
%RSD	.5899460	.1463612	.3018564	.5612831	.5134235
#1	7629.443	108951.7	15645.08	5261.403	7539.756
#2	7555.989	108738.0	15575.57	5202.878	7481.374
#3	7548.565	109049.8	15665.59	5228.013	7467.122

Sample Name: P4645-01DUP Acquired: 11/4/2024 18:42:00 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0456871	-.014704	3.022698	-.032922	.0166782	106.9703
Stddev	.0007874	.001415	.012228	.002009	.0021705	.3689
%RSD	1.723448	9.625268	.4045352	6.102817	13.01379	.3448874

#1	.0447822	-.015520	3.034951	-.035110	.0170924	106.7952
#2	.0462160	-.013070	3.010495	-.032497	.0143305	106.7215
#3	.0460632	-.015521	3.022647	-.031159	.0186117	107.3942

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.823325	.0125530	.0133153	176.1301	.2813917	.1687677
Stddev	.001963	.0000467	.0003394	.6416	.0011360	.0013546
%RSD	.1076712	.3722793	2.548774	.3642634	.4037203	.8026440

#1	1.822516	.0125311	.0137070	175.9772	.2821232	.1700073
#2	1.821895	.0126066	.0131290	175.5787	.2819689	.1673218
#3	1.825563	.0125211	.0131099	176.8343	.2800830	.1689741

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.387787	344.4990	6.196554	57.95110	.3813920	.0087187
Stddev	.004626	3.1235	.015071	.32509	.0020391	.0011405
%RSD	.3333300	.9066895	.2432197	.5609677	.5346569	13.08152

#1	1.393095	342.4082	6.200379	57.86363	.3832210	.0079922
#2	1.385645	342.9992	6.179939	57.67869	.3791933	.0081306
#3	1.384620	348.0896	6.209344	58.31097	.3817619	.0100332

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.163569	.4018894	3.479740	20.18733	.5743587	.0129357
Stddev	.049505	.0020496	.002635	.13680	.0039186	.0001826
%RSD	.8031926	.5099985	.0757229	.6776439	.6822530	1.412002

#1	6.113861	.4033832	3.478901	20.03264	.5715728	.0129514
#2	6.212869	.3995527	3.477626	20.29238	.5726639	.0127457
#3	6.163976	.4027323	3.482692	20.23695	.5788394	.0131100

Sample Name: P4645-01DUP Acquired: 11/4/2024 18:42:00 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1981603	5.438280	F 11.39763	F 11.63452	4.054618	.1599634
Stddev	.0007702	.009937	.01839	.06522	.025961	.0009069
%RSD	.3887020	.1827200	.1613211	.5605561	.6402876	.5669515
#1	.1986540	5.436623	11.37747	11.69067	4.076373	.1589163
#2	.1972727	5.429276	11.41348	11.56299	4.025880	.1604734
#3	.1985541	5.448941	11.40194	11.64991	4.061602	.1605004

Elem	Sr4077
Units	ppm
Avg	.2124098
Stddev	.0025591
%RSD	1.204805
#1	.2140595
#2	.2137082
#3	.2094618

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7688.941	109714.6	15191.22	5334.551	7504.865
Stddev	37.663	115.0	43.74	43.135	42.491
%RSD	.4898372	.1047932	.2879281	.8086044	.5661746
#1	7645.491	109834.4	15156.39	5352.439	7457.798
#2	7712.273	109704.3	15240.31	5365.864	7540.397
#3	7709.060	109605.2	15176.96	5285.349	7516.401

Sample Name: P4645-01LX5 Acquired: 11/4/2024 18:46:08 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0080800	-.006074	.6110294	-.009655	.0040941	25.05625	.4267894
Stddev	.0006418	.000564	.0005978	.000420	.0015209	.26602	.0051792
%RSD	7.942593	9.280556	.0978298	4.348922	37.14780	1.061686	1.213524
#1	.0087279	-.006662	.6111156	-.009674	.0055003	24.75692	.4208328
#2	.0074445	-.005538	.6103932	-.009225	.0024800	25.14619	.4293058
#3	.0080677	-.006021	.6115793	-.010064	.0043018	25.26564	.4302295
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033034	.0012468	42.24682	.0664446	.0324667	.3507311	77.64351
Stddev	.0000487	.0000130	.53558	.0002526	.0000645	.0005730	.39869
%RSD	1.474838	1.041508	1.267733	.3802074	.1986280	.1633883	.5134879
#1	.0032473	.0012598	41.63134	.0666061	.0325374	.3510886	77.21813
#2	.0033277	.0012338	42.50230	.0661535	.0324110	.3500701	77.70373
#3	.0033351	.0012469	42.60682	.0665744	.0324518	.3510346	78.00866
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.497418	14.26482	.0750610	.0009227	1.350046	.0977719	.7915870
Stddev	.021517	.17672	.0000796	.0003649	.017342	.0008680	.0016031
%RSD	1.436947	1.238858	.1061160	39.54299	1.284551	.8877576	.2025180
#1	1.472716	14.06759	.0750340	.0009138	1.330711	.0971730	.7929041
#2	1.507454	14.31808	.0749983	.0012919	1.355199	.0987674	.7920549
#3	1.512083	14.40878	.0751506	.0005623	1.364227	.0973755	.7898020
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.273737	.1394119	.0030875	.0379472	1.294190	2.863282	2.215872
Stddev	.024489	.0006878	.0000697	.0005143	.015053	.013204	.002798
%RSD	.5730077	.4933520	2.256937	1.355300	1.163153	.4611379	.1262821
#1	4.248773	.1387490	.0030106	.0385132	1.276897	2.873085	2.213483
#2	4.297721	.1393647	.0031054	.0378199	1.304358	2.848268	2.218951
#3	4.274717	.1401221	.0031464	.0375085	1.301315	2.868492	2.215184

Sample Name: P4645-01LX5 Acquired: 11/4/2024 18:46:08 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.7322574	.0430930	.0529279
Stddev	.0040445	.0005776	.0012359
%RSD	.5523368	1.340371	2.335088

#1	.7345419	.0427777	.0515159
#2	.7346428	.0427416	.0538132
#3	.7275875	.0437596	.0534547

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7043.252	102131.2	13002.86	4975.546	8617.501
Stddev	15.132	236.7	96.83	13.922	22.760
%RSD	.2148383	.2317856	.7446885	.2798051	.2641187

#1	7027.432	101882.7	13114.67	4959.605	8592.097
#2	7044.740	102354.1	12946.43	4985.310	8624.371
#3	7057.585	102156.7	12947.49	4981.725	8636.036

Sample Name: P4645-01MS Acquired: 11/4/2024 18:50:12 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6214296	1.758845	4.341428	1.342692	.3962194	117.0419
Stddev	.0033221	.011058	.022569	.004014	.0016659	.4678
%RSD	.5345885	.6287234	.5198558	.2989715	.4204468	.3996627

#1	.6199155	1.746150	4.335639	1.340362	.3954044	116.5071
#2	.6191342	1.766386	4.322317	1.340386	.3951179	117.2441
#3	.6252390	1.763998	4.366327	1.347327	.3981359	117.3746

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.128706	.1637837	.2169373	210.1684	.5390715	.3922450
Stddev	.012278	.0004595	.0011275	1.0596	.0011616	.0020374
%RSD	.5767586	.2805442	.5197417	.5041787	.2154886	.5194190

#1	2.115285	.1641923	.2165437	208.9955	.5401843	.3919672
#2	2.131462	.1632863	.2160594	211.0566	.5391638	.3903608
#3	2.139372	.1638725	.2182089	210.4531	.5378665	.3944071

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.420261	294.2346	6.510106	59.51187	.8866936	.0641935
Stddev	.005119	1.5881	.024783	.17626	.0040377	.0002436
%RSD	.3604572	.5397473	.3806876	.2961832	.4553611	.3794676

#1	1.418265	293.5457	6.484001	59.30900	.8859842	.0639551
#2	1.416440	293.1072	6.513004	59.59905	.8830576	.0641835
#3	1.426078	296.0508	6.533312	59.62756	.8910389	.0644420

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.793045	.5894498	4.070265	28.36306	.6715337	.2856588
Stddev	.066176	.0029926	.008677	.15520	.0029280	.0003176
%RSD	.7525936	.5076882	.2131679	.5471965	.4360219	.1111739

#1	8.716896	.5860026	4.079992	28.18431	.6722306	.2856266
#2	8.836621	.5913809	4.063323	28.46346	.6683201	.2853585
#3	8.825618	.5909659	4.067480	28.44143	.6740504	.2859912

Sample Name: P4645-01MS Acquired: 11/4/2024 18:50:12 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8714906	4.475904	F 14.72967	F 31.33195	3.579054	.3355745
Stddev	.0040481	.020385	.02424	.11210	.015796	.0020279
%RSD	.4644994	.4554439	.1645910	.3577864	.4413512	.6043120
#1	.8691813	4.453404	14.70539	31.29934	3.569355	.3333675
#2	.8691257	4.481165	14.72973	31.23976	3.570526	.3360006
#3	.8761648	4.493144	14.75388	31.45674	3.597282	.3373556

Elem	Sr4077
Units	ppm
Avg	.5037936
Stddev	.0030772
%RSD	.6108105
#1	.5002419
#2	.5056626
#3	.5054761

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	8620.247	121801.9	16595.98	6002.345	7574.570
Stddev	16.971	313.5	42.88	12.600	27.352
%RSD	.1968707	.2573851	.2583738	.2099249	.3611017
#1	8622.349	121517.7	16549.63	5988.220	7586.092
#2	8636.070	121749.9	16604.10	6006.385	7594.276
#3	8602.324	122138.2	16634.22	6012.430	7543.342

Sample Name: P4645-01MSD Acquired: 11/4/2024 18:54:17 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6411005	1.796295	4.461814	1.389893	.4088752	119.5285
Stddev	.0025321	.026291	.039271	.007042	.0033276	1.1702
%RSD	.3949660	1.463611	.8801604	.5066688	.8138475	.9790418

#1	.6436190	1.803580	4.483466	1.394180	.4090856	118.1785
#2	.6385549	1.767130	4.416483	1.381766	.4054473	120.2541
#3	.6411275	1.818175	4.485495	1.393733	.4120926	120.1530

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.167550	.1646762	.2232210	212.0610	.5545659	.4034969
Stddev	.024009	.0005502	.0021150	2.8138	.0002670	.0030259
%RSD	1.107652	.3341302	.9475070	1.326869	.0481404	.7499105

#1	2.140201	.1641484	.2244983	208.8262	.5544195	.4055686
#2	2.177293	.1646337	.2207796	213.4156	.5548741	.4000245
#3	2.185156	.1652464	.2243851	213.9413	.5544042	.4048977

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.461276	302.9345	6.580933	60.34510	.9137873	.0666163
Stddev	.011400	1.3597	.062982	.49616	.0078178	.0001002
%RSD	.7801243	.4488584	.9570312	.8222000	.8555358	.1504256

#1	1.471504	301.3799	6.508234	59.77618	.9184017	.0665226
#2	1.448986	303.9021	6.615620	60.68800	.9047608	.0667220
#3	1.463339	303.5216	6.618946	60.57112	.9181993	.0666043

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.985849	.6004522	4.051758	29.28893	.6798808	.2964242
Stddev	.073614	.0066300	.000822	.18738	.0019108	.0016718
%RSD	.8192167	1.104173	.0202854	.6397617	.2810548	.5639731

#1	8.900963	.5928056	4.052369	29.07489	.6778049	.2966119
#2	9.024461	.6045993	4.050824	29.36857	.6815662	.2946665
#3	9.032124	.6039518	4.052081	29.42333	.6802714	.2979942

Sample Name: P4645-01MSD Acquired: 11/4/2024 18:54:17 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8948530	4.567194	F 15.81434	F 32.05116	3.659445	.3436332
Stddev	.0086408	.042112	.07140	.24610	.035119	.0048769
%RSD	.9656074	.9220563	.4515018	.7678339	.9596799	1.419204
#1	.8995497	4.518569	15.73657	32.21126	3.679887	.3382624
#2	.8848811	4.591903	15.87694	31.76778	3.618894	.3448524
#3	.9001282	4.591109	15.82952	32.17442	3.679555	.3477848

Elem	Sr4077
Units	ppm
Avg	.5080642
Stddev	.0075681
%RSD	1.489593
#1	.4994444
#2	.5111292
#3	.5136191

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	8369.990	121030.1	16732.91	5875.520	7336.633
Stddev	34.155	181.9	55.85	5.639	45.073
%RSD	.4080608	.1503198	.3337536	.0959781	.6143487
#1	8343.399	120842.7	16785.09	5880.722	7306.198
#2	8408.509	121206.0	16739.63	5876.312	7388.413
#3	8358.062	121041.7	16674.01	5869.527	7315.288

Sample Name: P4645-01A Acquired: 11/4/2024 18:58:28 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6352544	1.747718	4.421173	1.378134	.4056934	119.3284
Stddev	.0012986	.015573	.004063	.000634	.0026482	.5181
%RSD	.2044139	.8910492	.0919058	.0459718	.6527582	.4341905

#1	.6345723	1.754768	4.416538	1.377714	.4071988	118.8118
#2	.6344391	1.758520	4.422859	1.378863	.4026356	119.3252
#3	.6367519	1.729867	4.424121	1.377826	.4072457	119.8480

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.138206	.1608226	.2207585	209.4805	.5570758	.4011784
Stddev	.007146	.0005539	.0006018	2.8403	.0014330	.0013587
%RSD	.3342265	.3443843	.2725856	1.355888	.2572374	.3386806

#1	2.132167	.1603486	.2205062	206.5425	.5586863	.4005820
#2	2.136355	.1606878	.2203240	209.6870	.5565996	.4002200
#3	2.146096	.1614314	.2214454	212.2119	.5559415	.4027334

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.435728	309.5572	6.457942	59.64006	.9078410	.0686720
Stddev	.004271	2.2841	.031907	.37017	.0015971	.0007144
%RSD	.2974699	.7378685	.4940748	.6206652	.1759229	1.040283

#1	1.436140	307.4934	6.435178	59.29762	.9073943	.0678581
#2	1.431267	312.0114	6.444236	59.58974	.9065149	.0691950
#3	1.439778	309.1670	6.494412	60.03281	.9096139	.0689630

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.153918	.5949824	4.066764	30.13630	.6814487	.2972469
Stddev	.027085	.0034891	.007007	.03919	.0042785	.0009468
%RSD	.2958828	.5864235	.1722871	.1300275	.6278559	.3185271

#1	9.132042	.5924415	4.066860	30.09106	.6765769	.2968573
#2	9.145500	.5935451	4.059710	30.15859	.6845949	.2965570
#3	9.184213	.5989606	4.073722	30.15926	.6831744	.2983263

Sample Name: P4645-01A Acquired: 11/4/2024 18:58:28 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8839321	4.545571	F 16.49199	F 31.34081	3.591496	.3407728
Stddev	.0013228	.018467	.01831	.04442	.013662	.0015633
%RSD	.1496501	.4062556	.1110089	.1417324	.3803920	.4587493
#1	.8828603	4.528669	16.49916	31.30239	3.600387	.3390253
#2	.8854104	4.542763	16.50563	31.33060	3.598336	.3420385
#3	.8835255	4.565281	16.47118	31.38945	3.575766	.3412546

Elem	Sr4077
Units	ppm
Avg	.4933462
Stddev	.0038126
%RSD	.7728103
#1	.4929355
#2	.4897555
#3	.4973475

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	8319.310	117516.2	16885.78	5678.112	7306.458
Stddev	55.727	214.1	30.99	5.791	41.523
%RSD	.6698496	.1821763	.1835094	.1019951	.5683013
#1	8313.157	117305.6	16913.68	5675.559	7305.376
#2	8377.858	117509.3	16891.22	5674.035	7348.511
#3	8266.915	117733.6	16852.43	5684.741	7265.487

Sample Name: CCV02 Acquired: 11/4/2024 19:02:40 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.311790	4.916325	5.323461	5.385878	5.219489	10.41295
Stddev	.018180	.013677	.021752	.022039	.016059	.02494
%RSD	.3422534	.2781870	.4086094	.4091906	.3076676	.2395093

#1	5.321238	4.910854	5.327721	5.380630	5.215746	10.38635
#2	5.290831	4.906230	5.299894	5.366938	5.205633	10.41669
#3	5.323300	4.931890	5.342768	5.410068	5.237089	10.43581

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.20456	.2674909	2.665787	25.95940	1.057480	2.632013
Stddev	.05145	.0009893	.009430	.02330	.005036	.009864
%RSD	.5042091	.3698535	.3537344	.0897558	.4762425	.3747692

#1	10.19531	.2682384	2.669534	25.94101	1.061710	2.633895
#2	10.26001	.2678651	2.655059	25.95160	1.051909	2.621344
#3	10.15837	.2663690	2.672767	25.98560	1.058820	2.640801

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.316808	5.202009	2.522834	26.23920	2.637191	1.334457
Stddev	.003885	.032651	.001403	.03856	.008013	.003484
%RSD	.2950299	.6276670	.0556029	.1469561	.3038633	.2610832

#1	1.319232	5.191195	2.523413	26.20262	2.640536	1.334704
#2	1.312327	5.176137	2.523855	26.23550	2.628047	1.330856
#3	1.318866	5.238696	2.521235	26.27948	2.642990	1.337810

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	26.43601	2.561967	2.650069	26.48338	5.326210	5.337945
Stddev	.07522	.005262	.005480	.18947	.014660	.016076
%RSD	.2845364	.2053774	.2067898	.7154284	.2752477	.3011564

#1	26.37782	2.560247	2.656377	26.41850	5.333267	5.339236
#2	26.40926	2.557781	2.647342	26.33487	5.336007	5.321264
#3	26.52095	2.567874	2.646487	26.69676	5.309356	5.353337

Sample Name: CCV02 Acquired: 11/4/2024 19:02:40 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.374110	5.086275	F 5.507733	5.220675	5.171156	5.148720
Stddev	.017982	.005605	.040910	.025331	.017382	.005586
%RSD	.3346007	.1101969	.7427793	.4852044	.3361421	.1085001
#1	5.377969	5.081123	5.470588	5.224231	5.180711	5.142480
#2	5.354512	5.085460	5.501031	5.193754	5.151092	5.150424
#3	5.389850	5.092243	5.551581	5.244041	5.181664	5.153255

Elem	Sr4077
Units	ppm
Avg	5.187224
Stddev	.007200
%RSD	.1388056
#1	5.181154
#2	5.195179
#3	5.185340

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6220.273	89410.51	11749.23	4271.483	7889.237
Stddev	10.432	290.27	36.07	13.943	14.431
%RSD	.1677096	.3246524	.3070046	.3264235	.1829141
#1	6220.100	89279.92	11716.61	4255.834	7888.514
#2	6230.791	89743.14	11743.12	4282.585	7904.015
#3	6209.929	89208.47	11787.97	4276.029	7875.181

Sample Name: CCB02 Acquired: 11/4/2024 19:07:13 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001678	-.004964	.0000481	.0001172	-.000525	.0228256	.0063495
Stddev	.0010708	.001350	.0002887	.0006630	.000679	.0027080	.0015778
%RSD	638.1333	27.20151	600.4351	565.4829	129.1898	11.86380	24.84898

#1	.0010888	-.005046	-.000268	.0006582	.000201	.0210968	.0051233
#2	-.001007	-.006272	.000297	.0003158	-.001143	.0259464	.0057957
#3	.000422	-.003575	.000115	-.000622	-.000635	.0214335	.0081295

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000857	.0001478	.0250453	-.000176	.0001811	-.000321	.0081445
Stddev	.0000444	.0000278	.0072015	.000061	.0001523	.000285	.0012909
%RSD	51.73311	18.84324	28.75410	34.57979	84.10402	88.75931	15.85016

#1	.0000483	.0001797	.0281513	-.000242	.0003436	-.000523	.0092061
#2	.0000741	.0001281	.0301725	-.000121	.0001582	-.000444	.0085199
#3	.0001348	.0001356	.0168119	-.000166	.0000416	.000005	.0067075

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000529	-.000716	.0005114	-.000550	.0483455	-.001991	.0006549
Stddev	.0001112	.010840	.0001340	.000194	.0078532	.001228	.0000109
%RSD	210.1655	1513.501	26.19828	35.31953	16.24400	61.64642	1.660644

#1	.0001672	-.001518	.0004921	-.000715	.0552320	-.001239	.0006466
#2	.0000465	.010502	.0006540	-.000600	.0397929	-.003408	.0006672
#3	-.000055	-.011133	.0003881	-.000336	.0500115	-.001327	.0006508

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.092819	.0067418	.0004768	-.000544	-.000522	.0089094	-.004010
Stddev	.011178	.0002636	.0002124	.000685	.000609	.0050909	.001488
%RSD	12.04289	3.910310	44.54744	126.1210	116.7053	57.14057	37.10697

#1	-.083202	.0065143	.0007192	-.000671	.000129	.0072123	-.002350
#2	-.090171	.0070307	.0003234	-.001156	-.000617	.0048838	-.004453
#3	-.105083	.0066805	.0003878	.000197	-.001077	.0146321	-.005225

Sample Name: CCB02 Acquired: 11/4/2024 19:07:13 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001324	.0083057	.0002540
Stddev	.002035	.0014217	.0000531
%RSD	153.6919	17.11755	20.91535
#1	.000263	.0067937	.0003039
#2	-.000616	.0085079	.0001982
#3	-.003618	.0096155	.0002599

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6720.279	93955.45	12209.10	4645.018	9174.720
Stddev	26.157	142.47	313.30	35.604	33.829
%RSD	.3892298	.1516409	2.566135	.7665039	.3687155
#1	6690.090	93905.51	12570.84	4627.599	9136.669
#2	6736.186	93844.66	12032.31	4621.477	9201.392
#3	6734.562	94116.17	12024.15	4685.978	9186.098

Sample Name: PB164563BL Acquired: 11/4/2024 19:11:28 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000532	-.005490	.0003886	-.002173	.0007359	.0164487	.0075061
Stddev	.001269	.002011	.0009084	.001216	.0004026	.0049009	.0004195
%RSD	238.2233	36.63030	233.7656	55.96084	54.70613	29.79506	5.589375
#1	-.001369	-.003788	.0006589	-.003064	.0011899	.0189454	.0072561
#2	.000927	-.004973	-.000624	-.000788	.0004222	.0108022	.0072718
#3	-.001155	-.007708	.001131	-.002668	.0005956	.0195985	.0079905
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000852	.0000667	.0234176	-.000517	.0001325	-.000319	.0012813
Stddev	.0000259	.0000419	.0061891	.000259	.0000682	.000040	.0050274
%RSD	30.38024	62.85837	26.42915	50.12401	51.47281	12.53799	392.3771
#1	.0001151	.0000296	.0163064	-.000487	.0000677	-.000357	.0020216
#2	.0000720	.0001121	.0263588	-.000790	.0001262	-.000322	-.004075
#3	.0000686	.0000584	.0275877	-.000274	.0002036	-.000277	.005897
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000927	.0123999	.0000093	-.000801	.0443305	.0002710	.0006181
Stddev	.0000804	.0076077	.0001503	.000288	.0033459	.0010999	.0000702
%RSD	86.74584	61.35299	1616.815	35.93809	7.547751	405.9418	11.35100
#1	.0000944	.0071025	.0001601	-.000661	.0424212	.0014272	.0006639
#2	.0001723	.0089798	.0000083	-.001133	.0481940	.0001479	.0005373
#3	.0000114	.0211174	-.000141	-.000610	.0423763	-.000762	.0006530
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.140629	.0045786	.0000300	-.000709	-.000231	.0036523	-.004768
Stddev	.011930	.0007801	.0001030	.000146	.000412	.0052395	.000952
%RSD	8.483191	17.03897	343.0245	20.57676	178.6804	143.4594	19.96367
#1	-.147455	.0043978	.0000197	-.000755	-.000494	.0096950	-.004486
#2	-.126853	.0039047	-.000067	-.000826	-.000441	.0008890	-.005829
#3	-.147578	.0054333	.000138	-.000546	.000244	.0003728	-.003989

Sample Name: PB164563BL Acquired: 11/4/2024 19:11:28 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000786	.0078503	.0001859
Stddev	.000963	.0011278	.0000388
%RSD	122.4584	14.36603	20.87783
#1	-.001785	.0066820	.0002237
#2	-.000709	.0079362	.0001461
#3	.000136	.0089326	.0001880

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6737.637	96465.10	12052.42	4738.846	9155.438
Stddev	30.500	251.30	23.12	8.923	45.745
%RSD	.4526783	.2605077	.1918489	.1882990	.4996437
#1	6743.209	96195.87	12057.78	4728.703	9169.101
#2	6764.966	96693.46	12072.38	4745.489	9192.795
#3	6704.735	96505.95	12027.08	4742.346	9104.419

Sample Name: PB164563BS Acquired: 11/4/2024 19:15:43 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7812722	1.879995	1.000041	1.991286	.8051997	2.018433
Stddev	.0008519	.012878	.003797	.010699	.0015082	.008106
%RSD	.1090423	.6849878	.3797041	.5372702	.1873107	.4016055

#1	.7819638	1.875355	.997517	1.985110	.8051748	2.022988
#2	.7815322	1.870079	.998198	1.985109	.8037041	2.023237
#3	.7803206	1.894549	1.004408	2.003640	.8067202	2.009074

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2002246	.2183494	.1956660	1.075349	.4455539	.2083493
Stddev	.0003890	.0002166	.0009057	.004856	.0015123	.0008533
%RSD	.1942997	.0991890	.4628909	.4515334	.3394298	.4095487

#1	.2005538	.2184134	.1949285	1.080954	.4454198	.2077481
#2	.1997953	.2181080	.1953925	1.072655	.4441131	.2079739
#3	.2003247	.2185268	.1966769	1.072438	.4471289	.2093259

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3231382	2.999794	.1990903	2.082351	.5197476	.0794869
Stddev	.0009280	.015340	.0016628	.006136	.0023505	.0006378
%RSD	.2871835	.5113764	.8351874	.2946483	.4522294	.8024412

#1	.3226658	2.986249	.1998434	2.082912	.5180304	.0789386
#2	.3225414	2.996680	.1971842	2.075955	.5187860	.0793351
#3	.3242073	3.016452	.2002433	2.088188	.5224264	.0801869

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.430431	.2934947	.2151431	9.879974	.3227458	.4265030
Stddev	.006126	.0007570	.0004974	.062392	.0012307	.0015340
%RSD	.2520520	.2579344	.2312125	.6315013	.3813185	.3596732

#1	2.426482	.2942567	.2146043	9.822794	.3233250	.4253750
#2	2.427324	.2934846	.2155849	9.946519	.3213323	.4258841
#3	2.437488	.2927427	.2152402	9.870608	.3235799	.4282497

Sample Name: PB164563BS Acquired: 11/4/2024 19:15:43 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7408205	.1936094	F .7031577	6.028804	F -.014433	.2137990
Stddev	.0025528	.0011917	.0065904	.019843	.000699	.0005576
%RSD	.3445895	.6155084	.9372543	.3291310	4.845113	.2607970
#1	.7386266	.1922336	.6968434	6.011080	-.014787	.2137871
#2	.7402126	.1942768	.7099932	6.025090	-.013627	.2143625
#3	.7436224	.1943178	.7026365	6.050241	-.014884	.2132475

Elem	Sr4077
Units	ppm
Avg	.1953996
Stddev	.0005338
%RSD	.2731564
#1	.1956453
#2	.1947872
#3	.1957662

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6636.084	93055.42	11962.25	4563.720	8776.733
Stddev	14.753	157.60	12.41	9.460	20.655
%RSD	.2223112	.1693604	.1037032	.2072815	.2353342
#1	6640.152	93236.46	11948.52	4561.126	8786.724
#2	6648.376	92980.98	11972.66	4555.829	8790.493
#3	6619.724	92948.84	11965.56	4574.207	8752.983

Sample Name: P4615-03 Acquired: 11/4/2024 19:19:41 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0937804	-.008641	2.532554	-.028694	.0419477	133.4022
Stddev	.0022895	.001758	.004762	.002128	.0021389	.4465
%RSD	2.441315	20.34658	.1880471	7.414845	5.098914	.3346794

#1	.0956711	-.006914	2.527060	-.029831	.0408154	132.8867
#2	.0912349	-.010429	2.535108	-.026240	.0406131	133.6521
#3	.0944353	-.008581	2.535496	-.030012	.0444148	133.6676

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.370533	.0144384	.0046386	174.9622	.3148183	.1984661
Stddev	.004239	.0000488	.0003387	.5049	.0009399	.0004647
%RSD	.3092985	.3378195	7.300694	.2885759	.2985445	.2341635

#1	1.365644	.0144925	.0044596	174.3808	.3157500	.1980614
#2	1.372784	.0144246	.0044269	175.2158	.3138705	.1983632
#3	1.373172	.0143979	.0050291	175.2901	.3148343	.1989736

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.420313	395.9204	7.660014	62.86999	.3549983	.0073742
Stddev	.008177	.7515	.018701	.33384	.0009535	.0003482
%RSD	.3378391	.1898223	.2441424	.5310000	.2686027	4.721830

#1	2.415088	395.2474	7.639567	62.48493	.3539486	.0076231
#2	2.416114	396.7313	7.676254	63.04681	.3552352	.0075232
#3	2.429736	395.7825	7.664220	63.07822	.3558111	.0069763

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.487395	.5254347	2.015683	18.01648	.2448221	.0201227
Stddev	.006273	.0019612	.001388	.02747	.0024445	.0005434
%RSD	.2522052	.3732579	.0688742	.1524544	.9984929	2.700512

#1	2.484055	.5235520	2.015581	17.98597	.2420037	.0197379
#2	2.494632	.5252860	2.017120	18.02422	.2463656	.0198858
#3	2.483500	.5274660	2.014349	18.03924	.2460971	.0207443

Sample Name: P4615-03 Acquired: 11/4/2024 19:19:41 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2179619	5.415403	F 10.95944	7.590234	5.678634	.2098855
Stddev	.0006459	.010222	.00981	.012704	.027794	.0004868
%RSD	.2963503	.1887628	.0895466	.1673677	.4894411	.2319293
#1	.2179367	5.403617	10.95759	7.581364	5.650826	.2100998
#2	.2173289	5.420730	10.97005	7.584551	5.678664	.2102284
#3	.2186200	5.421861	10.95069	7.604787	5.706413	.2093284

Elem	Sr4077
Units	ppm
Avg	.5475958
Stddev	.0018014
%RSD	.3289728
#1	.5456643
#2	.5478928
#3	.5492303

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6726.183	98755.25	13605.97	4775.368	7343.805
Stddev	18.129	291.67	18.16	15.954	13.062
%RSD	.2695243	.2953458	.1334912	.3340853	.1778656
#1	6719.624	98437.44	13626.40	4763.291	7339.697
#2	6746.678	98817.62	13599.84	4769.359	7358.427
#3	6712.247	99010.69	13591.65	4793.454	7333.290

Sample Name: P4615-02 Acquired: 11/4/2024 19:23:48 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0516290	-.035634	3.257304	-.030871	.0269514	135.3088
Stddev	.0029948	.000030	.011945	.000378	.0012105	.7259
%RSD	5.800696	.0830957	.3667279	1.225071	4.491581	.5364490

#1	.0482735	-.035666	3.261732	-.030457	.0256159	134.7290
#2	.0525825	-.035629	3.243777	-.031198	.0272616	136.1229
#3	.0540310	-.035607	3.266403	-.030958	.0279766	135.0744

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.498326	.0112900	.0114058	714.8512	.3900955	.1572871
Stddev	.007499	.0000889	.0001510	6.7930	.0005166	.0002244
%RSD	.3001664	.7873546	1.324111	.9502616	.1324312	.1426765

#1	2.490948	.0111918	.0114771	708.7918	.3897791	.1575384
#2	2.505940	.0113650	.0112323	722.1945	.3898159	.1571067
#3	2.498089	.0113132	.0115080	713.5673	.3906917	.1572162

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8180701	265.7260	4.821127	113.6744	.4695267	.0073752
Stddev	.0014836	.5473	.008372	.6248	.0017300	.0001202
%RSD	.1813517	.2059545	.1736489	.5496746	.3684450	1.629113

#1	.8188648	266.2011	4.813449	113.2842	.4703251	.0072822
#2	.8163585	265.1276	4.830053	114.3951	.4675417	.0075109
#3	.8189871	265.8494	4.819880	113.3440	.4707132	.0073325

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.622345	.4333828	2.829781	21.17038	.5531646	.0076752
Stddev	.009104	.0013431	.006396	.08806	.0023080	.0002801
%RSD	.1969586	.3099151	.2260089	.4159736	.4172348	3.649503

#1	4.614671	.4324041	2.829058	21.10646	.5551468	.0074452
#2	4.619959	.4349141	2.836507	21.13384	.5506307	.0079872
#3	4.632404	.4328303	2.823777	21.27083	.5537162	.0075933

Sample Name: P4615-02 Acquired: 11/4/2024 19:23:48 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1083084	8.166945	F 83.13591	9.723026	F 79.61330	.0911030
Stddev	.0013630	.023720	.06533	.041625	.23213	.0004671
%RSD	1.258409	.2904449	.0785819	.4281045	.2915657	.5126974
#1	.1082900	8.150663	83.15468	9.699556	79.71307	.0914898
#2	.1069547	8.194160	83.18980	9.698435	79.34797	.0905841
#3	.1096804	8.156012	83.06325	9.771085	79.77886	.0912351

Elem	Sr4077
Units	ppm
Avg	2.548409
Stddev	.017221
%RSD	.6757474
#1	2.547434
#2	2.566097
#3	2.531697

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6814.608	98760.29	14143.90	4833.902	6820.276
Stddev	34.500	175.46	63.73	25.695	33.698
%RSD	.5062644	.1776583	.4505854	.5315572	.4940910
#1	6774.977	98603.67	14169.00	4814.164	6783.066
#2	6830.923	98727.30	14071.44	4824.586	6848.738
#3	6837.925	98949.90	14191.26	4862.955	6829.023

Sample Name: P4397-04 Acquired: 11/4/2024 19:28:05 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0028259	-.011950	.0019209	-.002720	.0030944	.1603699
Stddev	.0025136	.002763	.0018150	.001559	.0015813	.0159706
%RSD	88.94677	23.12301	94.48482	57.33146	51.10292	9.958585

#1	.0008574	-.015115	.0006866	-.002392	.0027990	.1749770
#2	.0019631	-.010711	.0010713	-.001351	.0048025	.1433179
#3	.0056573	-.010022	.0040049	-.004417	.0016816	.1628147

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1031644	.0000324	.0002280	287.5049	.0210111	.0002433
Stddev	.0004549	.0000258	.0000611	3.3602	.0003073	.0001233
%RSD	.4409529	79.63219	26.79040	1.168732	1.462695	50.66570

#1	.1027119	.0000207	.0001586	284.2726	.0212960	.0003540
#2	.1031597	.0000145	.0002520	287.2623	.0210519	.0002655
#3	.1036217	.0000620	.0002735	290.9797	.0206854	.0001105

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030680	.5778483	.1098249	730.9586	.0083889	-.000489
Stddev	.0003663	.0085968	.0005927	3.8781	.0003417	.000262
%RSD	11.93995	1.487717	.5396595	.5305466	4.073788	53.59814

#1	.0031232	.5800597	.1094872	728.5155	.0087835	-.000235
#2	.0034036	.5851233	.1094783	728.9301	.0081921	-.000759
#3	.0026772	.5683619	.1105093	735.4302	.0081911	-.000474

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 3104.524	.0088599	.0245645	449.8351	2.124764	.0115628
Stddev	30.117	.0008006	.0000708	1.7885	.006976	.0003790
%RSD	.9701154	9.036726	.2883899	.3975798	.3282972	3.277861

#1	3137.815	.0086605	.0245556	447.7770	2.128889	.0119467
#2	3096.587	.0097413	.0246394	451.0114	2.116710	.0111889
#3	3079.170	.0081777	.0244985	450.7170	2.128693	.0115529

Sample Name: P4397-04 Acquired: 11/4/2024 19:28:05 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003826	.0013843	7.947086	.5290038	F 668.5058	.1207806
Stddev	.001017	.0018286	.032948	.0076945	3.4950	.0009180
%RSD	26.57846	132.1006	.4145884	1.454533	.5228112	.7600256
#1	-.004204	.0015034	7.915221	.5282102	667.3090	.1218288
#2	-.002675	.0031504	7.981019	.5217367	665.7663	.1201201
#3	-.004600	-.000501	7.945017	.5370643	672.4420	.1203928

Elem	Sr4077
Units	ppm
Avg	5.338130
Stddev	.024885
%RSD	.4661773
#1	5.326027
#2	5.321611
#3	5.366752

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3695.566	59150.70	11858.76	2602.990	4392.480
Stddev	31.143	100.90	13.57	21.222	33.785
%RSD	.8427117	.1705803	.1143892	.8152905	.7691608
#1	3693.733	59223.44	11852.25	2590.154	4388.755
#2	3727.584	59035.51	11874.35	2591.331	4427.973
#3	3665.379	59193.15	11849.67	2627.486	4360.711

Sample Name: P4397-04DUP Acquired: 11/4/2024 19:32:44 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001036	-.010385	.0035519	-.004364	.0041947	.0994238
Stddev	.000932	.001459	.0018013	.002261	.0017833	.0074796
%RSD	90.01512	14.05323	50.71361	51.80489	42.51344	7.522933

#1	-.001368	-.009886	.0018875	-.003621	.0062325	.1019663
#2	-.001756	-.009240	.0054643	-.006902	.0034319	.0910044
#3	.000017	-.012028	.0033038	-.002568	.0029197	.1053007

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1025444	.0000564	.0001335	284.4702	.0207871	-.000147
Stddev	.0007560	.0000282	.0000671	3.1292	.0002757	.000192
%RSD	.7372870	49.89710	50.25875	1.100023	1.326196	130.6195

#1	.1022009	.0000240	.0002077	280.8609	.0205359	.000074
#2	.1020210	.0000702	.0001160	286.1263	.0207435	-.000278
#3	.1034112	.0000751	.0000769	286.4233	.0210820	-.000238

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0035667	.5504414	.1084654	722.6897	.0085145	-.000073
Stddev	.0005812	.0057851	.0003689	1.7477	.0001870	.000244
%RSD	16.29445	1.050996	.3400759	.2418382	2.195845	332.8711

#1	.0041838	.5514916	.1088245	724.4966	.0084181	.000037
#2	.0030297	.5442032	.1084843	721.0078	.0083955	.000096
#3	.0034868	.5556296	.1080875	722.5649	.0087300	-.000353

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 2945.031	.0077049	.0241018	448.9167	2.112761	.0118722
Stddev	43.452	.0012574	.0003459	1.5616	.006045	.0002738
%RSD	1.475442	16.31988	1.435186	.3478621	.2861245	2.306245

#1	2987.814	.0065040	.0244783	447.5097	2.116338	.0121824
#2	2946.340	.0075986	.0240289	450.5969	2.116164	.0116641
#3	2900.939	.0090121	.0237981	448.6434	2.105782	.0117702

Sample Name: P4397-04DUP Acquired: 11/4/2024 19:32:44 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003725	-.000789	7.776979	.5291381	F 671.4727	.1192083
Stddev	.001045	.001175	.041177	.0042324	2.5181	.0006582
%RSD	28.04458	148.8841	.5294673	.7998709	.3750055	.5521019
#1	-.003328	.000492	7.796521	.5278660	670.6039	.1199659
#2	-.002937	-.001044	7.804746	.5256876	669.5041	.1187778
#3	-.004910	-.001815	7.729671	.5338607	674.3101	.1188813

Elem	Sr4077
Units	ppm
Avg	5.277909
Stddev	.061855
%RSD	1.171969
#1	5.257696
#2	5.347342
#3	5.228688

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3659.498	59346.42	11893.78	2609.524	4361.571
Stddev	37.257	117.18	53.38	5.442	37.944
%RSD	1.018101	.1974569	.4487880	.2085368	.8699664
#1	3677.219	59318.22	11849.05	2612.318	4376.803
#2	3684.587	59245.91	11879.41	2603.253	4389.533
#3	3616.688	59475.13	11952.87	2613.001	4318.378

Sample Name: P4397-04LX5 Acquired: 11/4/2024 19:37:27 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008370	-.006667	.0000561	.0000929	-.000004	.0155885
Stddev	.0015149	.000629	.0003489	.0005952	.000393	.0107904
%RSD	180.9774	9.426703	622.3942	640.8800	11066.49	69.22022

#1	-.000581	-.006167	.0002969	.0002891	-.000439	.0189869
#2	.002433	-.006463	-.000344	.0005651	.000105	.0035080
#3	.000659	-.007373	.000215	-.000576	.000324	.0242706

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0256172	.0001073	.0000375	63.96074	.0046748	.0000385
Stddev	.0010019	.0000253	.0000583	.40067	.0002432	.0001114
%RSD	3.911122	23.59826	155.2931	.6264313	5.203323	289.2868

#1	.0244957	.0001076	.0000666	63.55332	.0046610	.0001531
#2	.0264240	.0001325	-.000030	64.35430	.0049246	-.000069
#3	.0259319	.0000819	.000076	63.97462	.0044387	.000032

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007773	.1033069	.0242359	168.7331	.0022478	-.000343
Stddev	.0003254	.0039698	.0003256	.9697	.0001961	.000344
%RSD	41.85815	3.842730	1.343680	.5746846	8.722729	100.0581

#1	.0006685	.1053305	.0240707	167.6142	.0021801	-.000713
#2	.0011431	.1058570	.0246110	169.2583	.0024688	-.000283
#3	.0005203	.0987330	.0240259	169.3270	.0020946	-.000034

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1014.568	.0030711	.0045189	72.86538	.5816428	.0027572
Stddev	7.240	.0015928	.0003951	.60421	.0044261	.0001726
%RSD	.7136267	51.86544	8.744440	.8292183	.7609671	6.261056

#1	1022.332	.0049096	.0043339	72.16858	.5795497	.0029561
#2	1008.001	.0021080	.0049726	73.24422	.5867272	.0026460
#3	1013.370	.0021956	.0042502	73.18335	.5786514	.0026695

Sample Name: P4397-04LX5 Acquired: 11/4/2024 19:37:27 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002110	.0000179	1.349367	.0966395	F 144.4226	.0240360
Stddev	.000518	.0005949	.011481	.0028380	.5768	.0008783
%RSD	24.52976	3322.618	.8508716	2.936656	.3993975	3.654249
#1	-.002444	-.000625	1.336780	.0942402	144.8642	.0245181
#2	-.002371	.000549	1.359265	.0997722	143.7700	.0230222
#3	-.001514	.000130	1.352056	.0959061	144.6336	.0245678

Elem	Sr4077
Units	ppm
Avg	1.069037
Stddev	.007948
%RSD	.7434556
#1	1.063514
#2	1.078146
#3	1.065451

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5269.564	74386.93	11986.39	3636.024	6323.896
Stddev	17.792	33.28	46.99	6.566	21.188
%RSD	.3376372	.0447373	.3920111	.1805699	.3350524
#1	5264.942	74420.25	12008.29	3640.831	6312.515
#2	5289.211	74386.85	11932.45	3638.698	6348.343
#3	5254.539	74353.69	12018.43	3628.544	6310.830

Sample Name: P4397-04MS Acquired: 11/4/2024 19:41:49 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9119169	1.582442	.8557886	2.296542	1.008379	2.104269
Stddev	.0070900	.039658	.0027865	.011592	.006449	.006697
%RSD	.7774812	2.506123	.3256002	.5047641	.6395214	.3182371

#1	.9154124	1.626660	.8583309	2.301364	1.006597	2.098139
#2	.9037579	1.550023	.8528096	2.283317	1.003008	2.103251
#3	.9165804	1.570643	.8562252	2.304944	1.015531	2.111416

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3014910	.1585633	.1803262	291.9461	.3977607	.1980723
Stddev	.0016514	.0001381	.0004287	1.6148	.0045761	.0007868
%RSD	.5477543	.0870936	.2377445	.5531212	1.150468	.3972073

#1	.3025145	.1586355	.1801894	293.0853	.3933519	.1982482
#2	.2995859	.1586504	.1799826	292.6550	.4024875	.1972124
#3	.3023727	.1584041	.1808067	290.0981	.3974427	.1987561

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2780392	4.480349	.2814617	741.1072	.4924383	.1027046
Stddev	.0005039	.050470	.0001064	1.7511	.0015473	.0012281
%RSD	.1812299	1.126478	.0377965	.2362785	.3142109	1.195760

#1	.2783937	4.425281	.2815442	742.5083	.4925126	.1015160
#2	.2774624	4.524402	.2814992	739.1441	.4908551	.1039687
#3	.2782615	4.491363	.2813416	741.6692	.4939470	.1026290

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 3047.749	.2817897	.2932393	489.3610	2.320400	.4354519
Stddev	57.648	.0020754	.0045342	5.8231	.007283	.0018136
%RSD	1.891482	.7364890	1.546241	1.189936	.3138488	.4164808

#1	3078.577	.2802564	.2889379	482.9464	2.328669	.4360219
#2	3083.427	.2841513	.2979750	494.3141	2.317588	.4334217
#3	2981.242	.2809615	.2928050	490.8224	2.314942	.4369119

Sample Name: P4397-04MS Acquired: 11/4/2024 19:41:49 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6622531	.1863385	9.320384	7.893283	F 671.5021	.3855445
Stddev	.0028600	.0010721	.115925	.037867	3.8250	.0012960
%RSD	.4318591	.5753709	1.243774	.4797355	.5696127	.3361549
#1	.6631637	.1868535	9.190946	7.894070	674.1532	.3855071
#2	.6590487	.1851060	9.414647	7.855029	667.1173	.3842675
#3	.6645469	.1870560	9.355560	7.930750	673.2358	.3868588

Elem	Sr4077
Units	ppm
Avg	5.625723
Stddev	.013678
%RSD	.2431331
#1	5.629800
#2	5.636898
#3	5.610470

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3496.863	56319.50	11581.37	2412.610	4187.548
Stddev	20.401	547.85	47.25	26.093	19.926
%RSD	.5833959	.9727575	.4080062	1.081542	.4758458
#1	3500.885	56771.35	11528.16	2441.194	4194.636
#2	3514.952	55710.15	11597.51	2390.068	4202.961
#3	3474.750	56477.00	11618.44	2406.568	4165.047

Sample Name: CCV03 Acquired: 11/4/2024 19:46:11 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.308305	4.831617	5.318580	5.386724	5.190687	10.25469	10.07175
Stddev	.028960	.025164	.022965	.023326	.030406	.03564	.05255
%RSD	.5455587	.5208185	.4317873	.4330270	.5857841	.3475109	.5217327
#1	5.303014	4.856594	5.305957	5.387594	5.187631	10.21383	10.03969
#2	5.282355	4.831986	5.304697	5.362976	5.161925	10.27092	10.04317
#3	5.339545	4.806270	5.345088	5.409603	5.222506	10.27933	10.13239
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.655027	2.661826	25.53321	1.087721	2.623944	1.314296	5.042945
Stddev	.0020570	.012617	.13511	.004756	.012932	.007274	.007323
%RSD	.7747664	.4740062	.5291729	.4372561	.4928270	.5534151	.1452039
#1	.2631912	2.656401	25.38593	1.085352	2.619265	1.311367	5.051074
#2	.2661848	2.652828	25.56226	1.093197	2.614004	1.308943	5.040895
#3	.2671320	2.676248	25.65143	1.084615	2.638564	1.322577	5.036866
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.480946	25.93960	2.628122	1.318265	22.82524	2.516334	2.620458
Stddev	.015802	.19731	.013409	.002709	.11627	.011056	.013391
%RSD	.6369429	.7606604	.5102047	.2054706	.5094002	.4393824	.5110341
#1	2.468537	25.72722	2.622579	1.319462	22.94767	2.503675	2.628099
#2	2.475565	25.97434	2.618373	1.320170	22.81174	2.521229	2.628279
#3	2.498736	26.11724	2.643413	1.315165	22.71631	2.524097	2.604995
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	26.46597	5.296306	5.282927	5.367489	5.000226	5.283687	5.267259
Stddev	.07569	.035741	.025032	.022600	.025683	.041322	.025914
%RSD	.2860008	.6748296	.4738347	.4210568	.5136441	.7820620	.4919870
#1	26.51414	5.258058	5.277865	5.358742	4.975731	5.236393	5.253438
#2	26.50505	5.302005	5.260813	5.350569	4.997995	5.312810	5.251184
#3	26.37873	5.328856	5.310104	5.393155	5.026952	5.301856	5.297153

Sample Name: CCV03 Acquired: 11/4/2024 19:46:11 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.268932	5.111510	5.093493
Stddev	.018866	.017156	.045466
%RSD	.3580593	.3356358	.8926302

#1	5.269349	5.095958	5.047420
#2	5.249861	5.108660	5.094734
#3	5.287586	5.129913	5.138327

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6090.232	88234.95	11523.56	4246.286	7703.862
Stddev	26.111	260.53	82.04	17.025	29.542
%RSD	.4287289	.2952638	.7119625	.4009442	.3834636

#1	6093.259	88215.83	11615.48	4239.112	7708.376
#2	6114.697	87984.51	11497.48	4234.021	7730.887
#3	6062.740	88504.51	11457.73	4265.724	7672.324

Sample Name: CCB03 Acquired: 11/4/2024 19:58:45 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000614	-.002807	-.000360	-.001038	-.000820	.0133995
Stddev	.000856	.000496	.000316	.001179	.000243	.0073946
%RSD	139.4458	17.67376	87.77157	113.5827	29.64755	55.18593

#1	-.001285	-.003149	-.000011	-.001955	-.000716	.0132315
#2	-.000907	-.002238	-.000441	-.001452	-.000647	.0208767
#3	.000350	-.003035	-.000626	.000292	-.001098	.0060903

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0066504	.0001158	.0001062	.0003314	.0000169	.0002066
Stddev	.0007784	.0000427	.0000610	.0022564	.0001551	.0000622
%RSD	11.70497	36.88401	57.41152	680.8174	917.5977	30.10947

#1	.0072818	.0001057	.0001303	.0027637	.0001394	.0001351
#2	.0068888	.0001627	.0001514	-.000076	-.000157	.0002483
#3	.0057806	.0000791	.0000369	-.001694	.000069	.0002364

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000032	-.000993	-.000162	.0146065	.0000188	-.000552
Stddev	.000176	.003887	.000259	.0030130	.0001097	.000142
%RSD	550.7880	391.4332	159.7677	20.62776	584.5566	25.66509

#1	-.000231	.003399	-.000461	.0160910	-.000083	-.000388
#2	.000104	-.002391	-.000012	.0111393	.000005	-.000632
#3	.000031	-.003987	-.000013	.0165892	.000135	-.000635

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3872430	.0007120	-.000716	.2402785	.0041765	.0003609
Stddev	.0321794	.0029595	.000219	.0389854	.0003415	.0001306
%RSD	8.309877	415.6826	30.55827	16.22510	8.177763	36.17520

#1	.3651857	-.002704	-.000948	.1987732	.0037923	.0003121
#2	.3723754	.002515	-.000513	.2761257	.0042913	.0005088
#3	.4241681	.002324	-.000687	.2459366	.0044458	.0002617

Sample Name: CCB03 Acquired: 11/4/2024 19:58:45 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000356	.0004561	.0082083	-.002496	F .0290466	.0093599
Stddev	.000343	.0005877	.0049935	.001400	.0027115	.0017181
%RSD	96.20631	128.8480	60.83447	56.07846	9.335060	18.35625
#1	-.000658	-.000200	.0103654	-.000942	.0320013	.0075742
#2	-.000427	.000934	.0117606	-.002888	.0284662	.0110014
#3	.000017	.000634	.0024989	-.003658	.0266723	.0095040

Elem	Sr4077
Units	ppm
Avg	.0002183
Stddev	.0000374
%RSD	17.14303
#1	.0002595
#2	.0002088
#3	.0001865

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6381.290	92975.04	12137.81	4477.489	8704.438
Stddev	20.890	162.09	9.91	21.480	20.421
%RSD	.3273690	.1743353	.0816304	.4797377	.2346003
#1	6388.619	92813.20	12134.91	4465.749	8707.181
#2	6397.529	93137.38	12148.84	4502.280	8723.349
#3	6357.723	92974.55	12129.67	4464.437	8682.785

Sample Name: P4397-04MSD Acquired: 11/4/2024 20:04:10 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8936769	1.810415	.8346880	2.254425	.9896932	2.064693
Stddev	.0038884	.018527	.0064586	.007090	.0047368	.008492
%RSD	.4350995	1.023330	.7737798	.3144972	.4786177	.4113105

#1	.8901176	1.789212	.8314055	2.246686	.9878052	2.062783
#2	.8930862	1.823481	.8305298	2.255980	.9861916	2.073977
#3	.8978268	1.818550	.8421286	2.260608	.9950829	2.057318

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2958731	.1551265	.1757941	342.3098	.3846289	.1930264
Stddev	.0023318	.0015431	.0016558	1.5470	.0021989	.0013841
%RSD	.7881224	.9947038	.9419140	.4519434	.5716850	.7170555

#1	.2935579	.1541938	.1749350	341.0234	.3848948	.1921845
#2	.2982213	.1569076	.1747444	344.0264	.3866827	.1922709
#3	.2958400	.1542780	.1777029	341.8795	.3823092	.1946239

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2175479	4.353664	.2763040	723.5895	.4803491	.0996276
Stddev	.0016342	.007975	.0023571	4.6754	.0042295	.0002946
%RSD	.7511778	.1831801	.8530860	.6461410	.8805019	.2956894

#1	.2158763	4.353075	.2738996	721.0939	.4773791	.0999401
#2	.2176255	4.361918	.2786108	728.9832	.4784767	.0995878
#3	.2191419	4.346001	.2764017	720.6914	.4851916	.0993550

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 3630.958	.2746873	.3630637	384.3586	2.261043	.4270138
Stddev	73.194	.0015073	.0012102	.8108	.018106	.0032412
%RSD	2.015824	.5487453	.3333329	.2109532	.8007763	.7590417

#1	3714.153	.2734184	.3629426	384.2417	2.248661	.4252556
#2	3576.467	.2763535	.3643299	383.6125	2.281823	.4250315
#3	3602.254	.2742899	.3619186	385.2215	2.252645	.4307542

Sample Name: P4397-04MSD Acquired: 11/4/2024 20:04:10 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6504166	.1851786	8.997924	7.747105	F 662.6007	.3699019
Stddev	.0064318	.0017296	.048329	.078164	3.6909	.0019313
%RSD	.9888670	.9340321	.5371163	1.008941	.5570346	.5221043
#1	.6458503	.1832075	9.049190	7.713391	659.4086	.3679798
#2	.6476274	.1858852	8.953198	7.691457	661.7511	.3698838
#3	.6577721	.1864430	8.991383	7.836468	666.6423	.3718422

Elem	Sr4077
Units	ppm
Avg	5.522598
Stddev	.020656
%RSD	.3740184
#1	5.498856
#2	5.536441
#3	5.532498

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3530.093	57637.08	11704.40	2459.644	4228.635
Stddev	13.234	134.74	74.28	2.495	20.050
%RSD	.3748912	.2337790	.6346541	.1014509	.4741554
#1	3527.855	57536.49	11759.23	2462.507	4229.012
#2	3544.303	57584.58	11619.86	2458.490	4248.494
#3	3518.120	57790.17	11734.11	2457.935	4208.399

Sample Name: P4397-04A Acquired: 11/4/2024 20:08:32 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8801865	1.778105	.8312403	2.196252	.9720391	2.035619
Stddev	.0041247	.021149	.0078689	.014996	.0046302	.010884
%RSD	.4686195	1.189388	.9466409	.6827816	.4763444	.5346630

#1	.8839350	1.798215	.8372414	2.200909	.9696533	2.027039
#2	.8757677	1.756052	.8223313	2.179481	.9690883	2.031956
#3	.8808568	1.780047	.8341481	2.208367	.9773757	2.047861

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2967241	.1571605	.1751602	338.4318	.3824747	.1919119
Stddev	.0025398	.0006903	.0011311	2.1308	.0010779	.0013637
%RSD	.8559532	.4392619	.6457555	.6296012	.2818231	.7105789

#1	.2943895	.1567306	.1757289	336.3068	.3837108	.1925071
#2	.2963541	.1567941	.1738576	338.4202	.3819827	.1903518
#3	.2994286	.1579568	.1758940	340.5683	.3817306	.1928769

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2149258	4.264455	.2774051	720.5394	.4770549	.0980639
Stddev	.0016120	.020768	.0020592	3.7071	.0024817	.0004940
%RSD	.7500444	.4869966	.7422895	.5144958	.5202067	.5037495

#1	.2150255	4.251070	.2756707	716.2930	.4779044	.0975236
#2	.2132663	4.288379	.2768638	723.1307	.4742600	.0984924
#3	.2164858	4.253915	.2796808	722.1944	.4790002	.0981757

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 3453.345	.2724047	.3552005	375.4405	2.290404	.4214729
Stddev	89.091	.0011994	.0006607	.4321	.011907	.0018294
%RSD	2.579833	.4402940	.1860110	.1150907	.5198443	.4340376

#1	3552.219	.2710372	.3552649	374.9970	2.282265	.4220666
#2	3428.505	.2728992	.3558266	375.8602	2.284878	.4194205
#3	3379.311	.2732778	.3545099	375.4642	2.304070	.4229317

Sample Name: P4397-04A Acquired: 11/4/2024 20:08:32 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6482656	.1854885	8.723754	7.756021	F 651.1218	.3655430
Stddev	.0048201	.0003136	.063398	.048950	4.6302	.0030256
%RSD	.7435303	.1690610	.7267256	.6311195	.7111188	.8276943
#1	.6514579	.1858129	8.728535	7.774330	654.0676	.3638470
#2	.6427211	.1854654	8.784626	7.700556	645.7848	.3637459
#3	.6506180	.1851870	8.658101	7.793176	653.5128	.3690362

Elem	Sr4077
Units	ppm
Avg	5.486751
Stddev	.037806
%RSD	.6890446
#1	5.472559
#2	5.458095
#3	5.529600

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3635.318	58890.29	11639.05	2552.187	4330.347
Stddev	14.179	195.83	47.10	6.892	20.995
%RSD	.3900263	.3325261	.4046656	.2700421	.4848343
#1	3634.986	58742.12	11675.46	2551.442	4323.130
#2	3649.660	58816.46	11655.83	2545.698	4353.999
#3	3621.309	59112.30	11585.86	2559.421	4313.913

Sample Name: P4663-02 Acquired: 11/4/2024 20:12:53 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0383208	-.035508	.2410524	-.040764	.0035223	201.5093
Stddev	.0014225	.002016	.0002325	.000644	.0015049	1.8833
%RSD	3.711966	5.677507	.0964604	1.578966	42.72571	.9346093

#1	.0394107	-.033423	.2409860	-.040088	.0017939	199.9092
#2	.0367117	-.037447	.2408603	-.041369	.0045421	203.5848
#3	.0388401	-.035653	.2413109	-.040834	.0042309	201.0340

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.024020	.0192133	.0114708	46.21370	.3135864	.3134129
Stddev	.004735	.0000415	.0002349	.07914	.0015091	.0025494
%RSD	.4624379	.2158402	2.048072	.1712499	.4812262	.8134294

#1	1.029209	.0192609	.0113899	46.13842	.3137379	.3115321
#2	1.022918	.0191935	.0112870	46.20648	.3120074	.3123920
#3	1.019933	.0191854	.0117355	46.29620	.3150140	.3163145

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4194493	409.7213	7.091309	44.36778	.3012290	.0053644
Stddev	.0024274	2.4576	.010076	.26990	.0015566	.0005278
%RSD	.5787025	.5998167	.1420922	.6083299	.5167578	9.838905

#1	.4192096	407.9099	7.102033	44.09642	.2999357	.0048978
#2	.4171508	408.7354	7.082039	44.37071	.3007946	.0052582
#3	.4219877	412.5188	7.089855	44.63620	.3029567	.0059372

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.992013	.7751511	.9016954	12.30042	.1357781	.0076999
Stddev	.184690	.0019263	.0026293	.04439	.0020329	.0005391
%RSD	2.641439	.2485083	.2915996	.3609217	1.497259	7.000766

#1	6.816547	.7734527	.9043452	12.30058	.1361586	.0078858
#2	6.974773	.7772442	.8990870	12.25594	.1335818	.0070925
#3	7.184718	.7747564	.9016542	12.34473	.1375939	.0081214

Sample Name: P4663-02 Acquired: 11/4/2024 20:12:53 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0137526	8.354412	F 15.73203	9.620012	7.744257	.1424394
Stddev	.0009814	.018246	.03543	.056177	.057778	.0013943
%RSD	7.136320	.2183942	.2252316	.5839596	.7460723	.9789016
#1	.0146876	8.372561	15.72217	9.568795	7.690669	.1433889
#2	.0138396	8.336071	15.70256	9.611148	7.736635	.1430907
#3	.0127306	8.354603	15.77135	9.680095	7.805468	.1408386

Elem	Sr4077
Units	ppm
Avg	-.258401
Stddev	.002967
%RSD	1.148121
#1	-.255791
#2	-.257785
#3	-.261628

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	8271.857	122051.1	16630.63	5845.005	7531.264
Stddev	38.855	350.7	8.59	25.553	51.153
%RSD	.4697274	.2872992	.0516452	.4371788	.6792138
#1	8282.919	121845.1	16636.91	5821.191	7558.675
#2	8303.982	122456.0	16634.13	5872.000	7562.870
#3	8228.670	121852.2	16620.84	5841.825	7472.247

Sample Name: P4663-04 Acquired: 11/4/2024 20:17:09 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0266012	-.033593	.3102517	-.037561	.0068059	193.6088
Stddev	.0007579	.001316	.0028222	.001462	.0011051	.5372
%RSD	2.849121	3.918510	.9096474	3.891407	16.23699	.2774858

#1	.0273936	-.032073	.3073144	-.037888	.0062108	193.1058
#2	.0258833	-.034339	.3129426	-.038831	.0061259	194.1747
#3	.0265265	-.034367	.3104980	-.035963	.0080810	193.5460

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.033042	.0173296	.0085478	41.66492	.3514499	.2486983
Stddev	.003541	.0000161	.0003129	.12755	.0005356	.0007582
%RSD	.3427875	.0926788	3.660582	.3061330	.1523978	.3048832

#1	1.035518	.0173482	.0083713	41.54212	.3510068	.2481316
#2	1.034623	.0173208	.0083631	41.79674	.3512978	.2484036
#3	1.028986	.0173199	.0089091	41.65589	.3520451	.2495596

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4066686	406.2748	7.119437	49.14195	.3228478	.0076543
Stddev	.0033441	.9345	.016476	.36678	.0016288	.0002300
%RSD	.8223086	.2300244	.2314294	.7463738	.5045081	3.005279

#1	.4068732	406.2328	7.113012	48.72142	.3214215	.0074146
#2	.4032270	407.2297	7.138158	49.30872	.3224993	.0078733
#3	.4099057	405.3620	7.107141	49.39572	.3246227	.0076751

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.575948	.7981216	1.014793	11.31254	.1538886	.0082633
Stddev	.151889	.0017151	.001769	.07008	.0006298	.0000574
%RSD	2.309759	.2148945	.1743507	.6194683	.4092675	.6950171

#1	6.411037	.7980716	1.015516	11.23178	.1545071	.0081992
#2	6.606699	.7998612	1.012777	11.34860	.1532480	.0082807
#3	6.710108	.7964320	1.016086	11.35725	.1539107	.0083100

Sample Name: P4663-04 Acquired: 11/4/2024 20:17:09 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0158435	9.213308	F 17.49571	8.658920	3.523368	.1709914
Stddev	.0007317	.021476	.04193	.055031	.018845	.0008989
%RSD	4.618641	.2330993	.2396868	.6355410	.5348606	.5257196
#1	.0159568	9.211121	17.46963	8.611071	3.518629	.1702632
#2	.0150617	9.235794	17.47342	8.646634	3.507344	.1719961
#3	.0165120	9.193010	17.54408	8.719056	3.544130	.1707149

Elem	Sr4077
Units	ppm
Avg	-.265808
Stddev	.000446
%RSD	.1679392
#1	-.265561
#2	-.266324
#3	-.265541

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7699.605	112227.8	15857.90	5373.636	7419.130
Stddev	8.274	231.9	39.08	28.141	8.497
%RSD	.1074607	.2066391	.2464593	.5236861	.1145262
#1	7692.404	112230.5	15898.66	5367.275	7424.703
#2	7708.643	112458.3	15820.74	5404.413	7423.338
#3	7697.767	111994.5	15854.31	5349.220	7409.351

Sample Name: P4463-06 Acquired: 11/4/2024 20:21:19 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0277101	-.031427	.1886967	-.035978	.0052562	171.4499
Stddev	.0011658	.003080	.0013054	.000968	.0005737	1.2452
%RSD	4.207073	9.801258	.6917989	2.691037	10.91542	.7262675

#1	.0267239	-.033110	.1872061	-.035017	.0046092	170.0249
#2	.0289966	-.027872	.1892478	-.036953	.0054566	171.9965
#3	.0274097	-.033298	.1896362	-.035965	.0057029	172.3284

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.056611	.0161593	.0120923	96.66868	.2926116	.2938206
Stddev	.008004	.0004306	.0001934	.65052	.0047213	.0003667
%RSD	.7575464	2.665034	1.599216	.6729339	1.613506	.1248166

#1	1.047444	.0158115	.0120299	95.94348	.2909154	.2940766
#2	1.060171	.0160254	.0119378	96.86175	.2889727	.2939848
#3	1.062218	.0166410	.0123092	97.20080	.2979467	.2934005

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5586400	400.2038	8.236408	72.14360	.3592691	.0072075
Stddev	.0018686	1.2989	.071648	.50901	.0006973	.0011537
%RSD	.3344942	.3245664	.8698959	.7055509	.1940767	16.00718

#1	.5572084	401.0687	8.154644	71.58375	.3585556	.0075485
#2	.5579577	400.8325	8.266363	72.26856	.3593029	.0081523
#3	.5607539	398.7101	8.288218	72.57850	.3599489	.0059217

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.022937	.6920408	1.037056	15.28775	.1375755	.0119851
Stddev	.091616	.0061256	.001135	.04458	.0077098	.0001638
%RSD	1.521125	.8851449	.1094726	.2915782	5.604033	1.366269

#1	5.917396	.6857103	1.038346	15.27213	.1436377	.0120751
#2	6.081977	.6924736	1.036615	15.33804	.1401904	.0120840
#3	6.069439	.6979384	1.036208	15.25309	.1288983	.0117960

Sample Name: P4463-06 Acquired: 11/4/2024 20:21:19 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0102048	8.132569	F 18.94015	F 14.33024	5.251013	.1569409
Stddev	.0003545	.059907	.08762	.02733	.004285	.0015282
%RSD	3.474083	.7366272	.4626103	.1906817	.0816070	.9737630
#1	.0101928	8.064661	18.98215	14.31079	5.246264	.1558568
#2	.0098564	8.155113	18.99885	14.31845	5.254591	.1586888
#3	.0105651	8.177932	18.83943	14.36148	5.252184	.1562771

Elem	Sr4077
Units	ppm
Avg	-.191579
Stddev	.002567
%RSD	1.340068
#1	-.194240
#2	-.191381
#3	-.189117

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	8418.726	119637.6	17080.56	5749.559	7398.930
Stddev	30.098	981.8	29.92	132.437	24.652
%RSD	.3575167	.8206830	.1751446	2.303435	.3331864
#1	8413.307	118716.8	17113.82	5649.551	7393.383
#2	8451.166	119525.2	17055.85	5699.372	7425.882
#3	8391.706	120670.8	17072.00	5899.755	7377.523

Sample Name: P4463-08 Acquired: 11/4/2024 20:25:27 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0253775	-.031720	.1720203	-.037371	.0030494	175.8697
Stddev	.0002275	.001047	.0015430	.001721	.0002865	.3592
%RSD	.8964006	3.301461	.8969788	4.604341	9.396700	.2042393

#1	.0252697	-.032006	.1731781	-.037329	.0030390	175.4652
#2	.0252240	-.030559	.1702686	-.035672	.0033410	175.9927
#3	.0256389	-.032594	.1726141	-.039112	.0027682	176.1513

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.033875	.0178203	.0087498	38.89464	.3044330	.2595266
Stddev	.003062	.0000637	.0005064	.07111	.0001188	.0009900
%RSD	.2961939	.3576368	5.787137	.1828326	.0390130	.3814720

#1	1.030595	.0178567	.0091914	38.84444	.3043182	.2600266
#2	1.036658	.0177467	.0081971	38.97601	.3044255	.2583863
#3	1.034372	.0178574	.0088609	38.86346	.3045554	.2601670

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4426268	396.6192	7.978412	50.57139	.3261723	.0074930
Stddev	.0049754	4.3044	.023749	.07124	.0012229	.0006465
%RSD	1.124055	1.085281	.2976681	.1408708	.3749349	8.628615

#1	.4462006	392.4167	7.962079	50.52843	.3270342	.0068843
#2	.4369444	401.0188	8.005656	50.65363	.3247726	.0081717
#3	.4447356	396.4219	7.967501	50.53212	.3267100	.0074229

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.559426	.7184589	.9139065	12.28958	.1379466	.0043570
Stddev	.097662	.0007823	.0012656	.08863	.0058426	.0003451
%RSD	2.743762	.1088906	.1384801	.7211625	4.235390	7.919522

#1	3.449552	.7179144	.9124453	12.18799	.1327788	.0047463
#2	3.592373	.7181070	.9146158	12.35110	.1442863	.0042356
#3	3.636354	.7193554	.9146583	12.32964	.1367747	.0040890

Sample Name: P4463-08 Acquired: 11/4/2024 20:25:27 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0062479	9.183690	F 19.37580	9.769839	2.219013	.1713589
Stddev	.0000939	.023448	.11707	.025641	.013751	.0004311
%RSD	1.503075	.2553223	.6041828	.2624495	.6196929	.2516007
#1	.0061551	9.163849	19.24429	9.783192	2.222871	.1718218
#2	.0062457	9.209566	19.46862	9.740278	2.203745	.1709688
#3	.0063428	9.177657	19.41450	9.786048	2.230423	.1712862

Elem	Sr4077
Units	ppm
Avg	-.256211
Stddev	.003933
%RSD	1.535125
#1	-.252339
#2	-.260203
#3	-.256091

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7929.978	113954.5	15910.63	5528.721	7461.249
Stddev	10.986	87.1	59.64	11.296	12.165
%RSD	.1385401	.0764239	.3748452	.2043066	.1630424
#1	7934.334	113861.9	15841.80	5515.951	7462.355
#2	7938.118	113967.0	15947.14	5532.806	7472.824
#3	7917.482	114034.8	15942.93	5537.405	7448.569

Sample Name: LR1 Acquired: 11/4/2024 20:33:54 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.008173	.0411157	.0194808	-.107500	.0002921	2011.712	.0235457
Stddev	.005332	.0102302	.0075487	.001005	.0071405	22.627	.0016017
%RSD	65.23458	24.88139	38.74980	.9345752	2444.899	1.124784	6.802663
#1	-.010105	.0528673	.0115971	-.106702	-.002224	1986.790	.0217063
#2	-.002145	.0341997	.0202023	-.108628	-.005250	2017.377	.0242982
#3	-.012269	.0362802	.0266428	-.107169	.008350	2030.969	.0246326
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0117202	.0045871	1875.419	.0062054	.0257142	-.139825	1096.390
Stddev	.0001368	.0011678	4.971	.0002501	.0003434	.008638	4.479
%RSD	1.166859	25.45870	.2650456	4.030732	1.335618	6.177676	.4085643
#1	.0116823	.0043000	1869.686	.0061391	.0256803	-.138828	1095.268
#2	.0116064	.0035896	1878.518	.0064820	.0253890	-.148919	1101.324
#3	.0118720	.0058718	1878.054	.0059951	.0260734	-.131729	1092.578
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.086383	1641.329	.0305513	.0107898	1942.742	.0515551	.0805063
Stddev	.000430	5.801	.0007501	.0014114	41.027	.0029015	.0004386
%RSD	.4982811	.3534043	2.455208	13.08049	2.111787	5.627939	.5448141
#1	-.085891	1644.049	.0299120	.0094983	1987.635	.0525041	.0807449
#2	-.086563	1634.668	.0313770	.0122964	1933.397	.0538632	.0807739
#3	-.086693	1645.269	.0303649	.0105748	1907.194	.0482979	.0800001
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1225.478	.4029401	.0007748	.0088506	-.038535	.1728346	.0737000
Stddev	21.945	.0068629	.0012680	.0019355	.000961	.0007065	.0034708
%RSD	1.790710	1.703215	163.6518	21.86792	2.494891	.4087586	4.709407
#1	1250.459	.3997634	.0020578	.0092188	-.039643	.1733068	.0777072
#2	1216.665	.4108159	-.000478	.0105756	-.037924	.1731746	.0717596
#3	1209.310	.3982411	.000745	.0067575	-.038037	.1720224	.0716334

Sample Name: LR1 Acquired: 11/4/2024 20:33:54 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.215652	-.286479	-1.08355
Stddev	.006300	.001096	.00449
%RSD	2.921381	.3826884	.4141886
#1	-.219537	-.285305	-1.08241
#2	-.208383	-.286657	-1.08850
#3	-.219036	-.287476	-1.07975

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4215.797	64915.23	11080.97	3002.863	4777.362
Stddev	18.120	268.69	49.46	7.790	15.874
%RSD	.4298049	.4139079	.4463390	.2594225	.3322852
#1	4222.300	64605.87	11083.28	2994.392	4790.588
#2	4229.769	65090.24	11129.24	3004.476	4781.739
#3	4195.324	65049.60	11030.40	3009.720	4759.757

Sample Name: LR2 Acquired: 11/4/2024 20:38:45 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0133747	.0047075	239.0840	.0220013	-.006977	.1485233	^F *****
Stddev	.0009489	.0002310	2.7565	.0022325	.001206	.0048670	-----
%RSD	7.094437	4.907487	1.152955	10.14696	17.27954	3.276925	-----

#1	.0130251	.0044832	242.1105	.0197063	-.005655	.1460865	^ -----
#2	.0144487	.0046947	236.7172	.0241655	-.007258	.1453560	98.38144
#3	.0126502	.0049447	238.4242	.0221322	-.008016	.1541273	^ -----

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003758	-.006291	.2570941	.0254343	-.017383	239.1580	.0202792
Stddev	.000024	.000067	.0057540	.0001964	.000689	1.0053	.0028600
%RSD	.6438928	1.070907	2.238101	.7722234	3.960836	.4203528	14.10336

#1	-.003782	-.006349	.2544603	.0255973	-.017025	239.3214	.0203899
#2	-.003734	-.006307	.2531284	.0254893	-.016947	238.0810	.0173654
#3	-.003759	-.006217	.2636936	.0252162	-.018177	240.0716	.0230823

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	45.18470	.0541240	50.92211	.0020113	2.122247	-.014717	35.85757
Stddev	.31394	.0095586	.36838	.0002250	.074103	.001503	.05481
%RSD	.6947917	17.66045	.7234246	11.18681	3.491710	10.21127	.1528436

#1	45.54056	.0646301	50.95725	.0022542	2.037774	-.014657	35.89080
#2	44.94694	.0518006	50.53742	.0019696	2.176291	-.016248	35.79431
#3	45.06660	.0459414	51.27167	.0018100	2.152678	-.013244	35.88759

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.319787	.0020350	-.013243	-.004060	-.042125	-.012705	2.156075
Stddev	.086209	.0008682	.000223	.000098	.000512	.013350	.019732
%RSD	6.532048	42.66312	1.681194	2.413593	1.214851	105.0762	.9152017

#1	1.312087	.0013200	-.013106	-.004173	-.042716	-.023864	2.178670
#2	1.409589	.0017841	-.013124	-.004015	-.041829	-.016337	2.147318
#3	1.237687	.0030011	-.013500	-.003993	-.041830	.002085	2.142236

Sample Name: LR2 Acquired: 11/4/2024 20:38:45 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0064188	.0052539	.0022213
Stddev	.0046657	.0005011	.0000407
%RSD	72.68861	9.537014	1.830911

#1	.0010329	.0047564	.0022654
#2	.0092281	.0057585	.0021852
#3	.0089953	.0052470	.0022134

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5509.743	92521.49	12254.90	4187.856	8104.950
Stddev	33.458	209.82	100.18	18.723	37.271
%RSD	.6072425	.2267818	.8174572	.4470693	.4598593

#1	5514.020	92292.01	12146.49	4166.344	8099.047
#2	5540.856	92568.92	12274.16	4200.475	8144.820
#3	5474.352	92703.53	12344.06	4196.749	8070.982

Sample Name: PB164522TB Acquired: 11/4/2024 20:44:09 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002063	-.005417	.0090606	-.000843	.0001294	.0405396
Stddev	.001280	.000555	.0008805	.000975	.0007050	.0027803
%RSD	62.06238	10.24956	9.717451	115.6263	544.7696	6.858335

#1	-.003411	-.005745	.0097932	-.001417	.0002620	.0428920
#2	-.001912	-.004776	.0093047	.000282	.0007587	.0412555
#3	-.000865	-.005731	.0080838	-.001394	-.000632	.0374713

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0084486	-.000008	.0000256	.0103984	.0004744	.0000820
Stddev	.0017520	.000055	.0000067	.0039755	.0001136	.0001347
%RSD	20.73666	721.1730	26.23592	38.23195	23.95778	164.2881

#1	.0067838	.000029	.0000181	.0058221	.0005417	.0002374
#2	.0082857	-.000071	.0000275	.0129992	.0003431	.0000002
#3	.0102763	.000019	.0000311	.0123739	.0005382	.0000083

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0104853	.0299376	.0041041	.0378056	.0029919	-.000539
Stddev	.0007721	.0034690	.0008074	.0074443	.0001295	.000269
%RSD	7.363338	11.58750	19.67363	19.69096	4.327320	49.82433

#1	.0113420	.0327090	.0031744	.0406030	.0031094	-.000846
#2	.0102706	.0260472	.0045081	.0293679	.0030134	-.000427
#3	.0098434	.0310565	.0046297	.0434461	.0028531	-.000345

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 387.2240	.0005952	.0036014	.7719065	.0006092	.0001910
Stddev	2.0760	.0013568	.0003678	.0216676	.0005254	.0000373
%RSD	.5361242	227.9469	10.21260	2.807026	86.23649	19.54327

#1	385.7176	.0014564	.0034572	.7599514	.0000117	.0002116
#2	386.3624	.0012980	.0040195	.7588501	.0009986	.0002135
#3	389.5921	-.000969	.0033276	.7969181	.0008173	.0001479

Sample Name: PB164522TB Acquired: 11/4/2024 20:44:09 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000961	.0002197	.0169577	.0004972	.0110182	.0036162
Stddev	.000174	.0012132	.0041281	.0026320	.0011480	.0011466
%RSD	18.10080	552.3162	24.34366	529.3350	10.41913	31.70640
#1	-.001162	-.000101	.0123677	.0017432	.0098399	.0044787
#2	-.000856	-.000801	.0181387	.0022748	.0110814	.0023151
#3	-.000865	.001561	.0203665	-.002526	.0121333	.0040548

Elem	Sr4077
Units	ppm
Avg	.0001167
Stddev	.0000658
%RSD	56.35906
#1	.0000601
#2	.0001011
#3	.0001889

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5757.914	83526.25	12450.52	3947.313	7308.592
Stddev	114.891	170.93	121.51	13.476	99.927
%RSD	1.995354	.2046389	.9759449	.3414047	1.367250
#1	5708.762	83373.41	12586.74	3962.754	7267.582
#2	5675.777	83710.82	12411.51	3941.258	7235.694
#3	5889.205	83494.53	12353.31	3937.925	7422.499

Sample Name: PB164564BL Acquired: 11/4/2024 20:48:36 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001229	-.002964	.0016013	-.002451	.0002000	.0229692	.0071284
Stddev	.000910	.000292	.0009654	.001482	.0012112	.0019249	.0016293
%RSD	74.00237	9.853788	60.29241	60.46097	605.5782	8.380484	22.85707
#1	-.001138	-.003283	.0005881	-.002896	-.001175	.0251521	.0058342
#2	-.002182	-.002710	.0017051	-.000797	.001109	.0222405	.0065930
#3	-.000369	-.002898	.0025107	-.003659	.000666	.0215150	.0089581
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001017	.0000690	.0307095	-.000285	.0001585	.0022649	.0031606
Stddev	.0000324	.0000871	.0103442	.000317	.0000123	.0003454	.0020980
%RSD	31.85766	126.1859	33.68391	111.0947	7.783174	15.24829	66.37840
#1	.0000644	.0001411	.0191440	-.000447	.0001685	.0020174	.0032191
#2	.0001177	.0000936	.0390770	-.000488	.0001447	.0021178	.0052287
#3	.0001230	-.000028	.0339076	.000080	.0001623	.0026594	.0010340
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004307	.0147642	.0005794	-.000478	1.618859	.0003441	.0005773
Stddev	.0001758	.0056399	.0002534	.000169	.081461	.0023596	.0003218
%RSD	40.83198	38.19993	43.74408	35.37275	5.031991	685.6617	55.75020
#1	.0002282	.0101371	.0003101	-.000510	1.535458	-.000516	.0004245
#2	.0005450	.0210465	.0006148	-.000630	1.622888	.003013	.0003603
#3	.0005188	.0131089	.0008132	-.000296	1.698231	-.001465	.0009470
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9764957	.0015692	.0000042	-.001007	.0000841	.0062907	.0020510
Stddev	.0971557	.0001879	.0001432	.000369	.0011263	.0055928	.0008481
%RSD	9.949429	11.97266	3428.391	36.67587	1338.747	88.90615	41.34960
#1	.8681369	.0013543	.0001609	-.000680	-.000402	.0112764	.0030267
#2	1.005515	.0016506	-.000028	-.000932	-.000718	.0002430	.0014906
#3	1.055835	.0017026	-.000120	-.001407	.001372	.0073527	.0016358

Sample Name: PB164564BL Acquired: 11/4/2024 20:48:36 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0062877	.0053503	.0001302
Stddev	.0012060	.0009458	.0000824
%RSD	19.18005	17.67723	63.32580
#1	.0066244	.0059992	.0002192
#2	.0049491	.0057866	.0001149
#3	.0072895	.0042651	.0000564

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6233.938	91253.44	11851.86	4396.927	8632.450
Stddev	10.514	250.79	11.80	18.256	14.552
%RSD	.1686501	.2748273	.0995626	.4151902	.1685780
#1	6228.632	90972.97	11840.48	4383.506	8618.883
#2	6227.135	91456.11	11864.04	4417.715	8630.648
#3	6246.047	91331.23	11851.06	4389.560	8647.820

Sample Name: CCV04 Acquired: 11/4/2024 21:07:38 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.205426	4.740062	5.022759	5.298393	5.259931	10.12717	10.20075
Stddev	.015592	.028383	.013800	.021548	.028283	.02442	.09273
%RSD	.2995305	.5987805	.2747543	.4066859	.5377092	.2411717	.9090905
#1	5.199311	4.714752	5.025541	5.284064	5.251230	10.10135	10.20385
#2	5.193818	4.770748	5.007779	5.287941	5.237020	10.13024	10.29190
#3	5.223148	4.734687	5.034956	5.323173	5.291542	10.14990	10.10651
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2477305	2.533715	24.85038	1.047774	2.543262	1.291395	5.270021
Stddev	.0012338	.006072	.05628	.004814	.008084	.005451	.039473
%RSD	.4980580	.2396404	.2264622	.4594111	.3178554	.4221100	.7490158
#1	.2478007	2.535008	24.79168	1.052940	2.543223	1.289714	5.279312
#2	.2489278	2.527101	24.90387	1.043414	2.535197	1.286983	5.226731
#3	.2464631	2.539036	24.85558	1.046967	2.551365	1.297489	5.304021
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.469629	24.76705	2.538124	1.311589	26.76131	2.509763	2.607925
Stddev	.007761	.11957	.008351	.003615	.16159	.005559	.008438
%RSD	.3142416	.4827649	.3290132	.2756511	.6038315	.2214964	.3235580
#1	2.467339	24.65986	2.537626	1.315261	26.91848	2.504456	2.616712
#2	2.478277	24.89601	2.530033	1.308033	26.59563	2.515543	2.599886
#3	2.463271	24.74528	2.546712	1.311473	26.76982	2.509290	2.607176
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.67974	4.969709	5.308452	5.077149	4.979686	5.448878	5.000151
Stddev	.14749	.024105	.024565	.013260	.010345	.050572	.006943
%RSD	.5743490	.4850284	.4627497	.2611622	.2077444	.9281098	.1388579
#1	25.74800	4.976130	5.289770	5.075008	4.979625	5.407933	5.006446
#2	25.51049	4.989953	5.299309	5.065090	4.990062	5.433293	4.992704
#3	25.78074	4.943044	5.336277	5.091348	4.969372	5.505408	5.001304

Sample Name: CCV04 Acquired: 11/4/2024 21:07:38 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.998925	5.316990	5.084847
Stddev	.003106	.010323	.027562
%RSD	.0621305	.1941430	.5420457

#1	5.001960	5.321434	5.116265
#2	4.999061	5.324346	5.073534
#3	4.995753	5.305190	5.064741

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5745.748	85854.97	11797.24	3969.970	7414.234
Stddev	28.020	221.50	57.42	8.721	28.142
%RSD	.4876581	.2579934	.4866946	.2196856	.3795707

#1	5768.686	85793.33	11821.04	3963.493	7433.478
#2	5754.039	86100.76	11731.75	3979.887	7427.288
#3	5714.518	85670.82	11838.93	3966.530	7381.935

Sample Name: CCB04 Acquired: 11/4/2024 21:11:26 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000191	-.000774	-.000015	-.001846	.0009284	.0179051	.0013448
Stddev	.001589	.000689	.000804	.001558	.0006016	.0075295	.0010229
%RSD	833.3920	88.96392	5514.410	84.43923	64.80210	42.05227	76.06547
#1	-.001981	-.001137	-.000820	-.003562	.0014295	.0147734	.0021014
#2	.001051	-.001206	.000788	-.001456	.0002611	.0264950	.0017521
#3	.000358	.000020	-.000011	-.000519	.0010947	.0124469	.0001810
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000501	.0001895	-.017754	-.000048	.0002108	.0002070	.0005512
Stddev	.0000197	.0000242	.006551	.000162	.0000763	.0001553	.0034704
%RSD	39.38303	12.74837	36.90154	337.5321	36.20853	75.02054	629.6560
#1	.0000607	.0002174	-.022484	-.000069	.0002868	.0002581	-.000900
#2	.0000274	.0001767	-.010276	.000124	.0002114	.0003302	-.001958
#3	.0000624	.0001744	-.020501	-.000198	.0001342	.0000326	.004512
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001232	.0009622	.0002147	-.000095	.6623104	.0003331	-.000439
Stddev	.0000739	.0052022	.0001213	.000107	.0161254	.0005825	.000170
%RSD	60.00084	540.6724	56.50034	113.4936	2.434720	174.8456	38.83379
#1	.0000647	.0006497	.0000799	.000024	.6447558	.0006359	-.000604
#2	.0000986	.0063135	.0003150	-.000186	.6764642	.0007019	-.000264
#3	.0002063	-.004077	.0002493	-.000122	.6657111	-.000338	-.000448
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8451676	.0046277	.0007031	-.000319	.0003035	.0066995	.0033632
Stddev	.0395764	.0002363	.0000980	.000408	.0003303	.0064443	.0024906
%RSD	4.682674	5.106730	13.94628	127.9556	108.8386	96.19089	74.05410
#1	.7997257	.0046376	.0005971	.000007	.0006475	.0122283	.0023140
#2	.8636972	.0048588	.0007216	-.000187	-.000011	.0082482	.0062068
#3	.8720800	.0043865	.0007906	-.000776	.000274	-.000378	.0015689

Sample Name: CCB04 Acquired: 11/4/2024 21:11:26 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0038532	.0076835	.0003574
Stddev	.0009068	.0004839	.0000718
%RSD	23.53408	6.297246	20.07912

#1	.0035776	.0073291	.0004379
#2	.0048659	.0074867	.0003342
#3	.0031163	.0082347	.0003002

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5984.214	91848.86	12655.20	4159.931	8339.590
Stddev	134.525	166.86	39.93	6.977	133.336
%RSD	2.247991	.1816677	.3155151	.1677234	1.598828

#1	5918.703	91771.60	12648.96	4158.470	8267.650
#2	5894.994	92040.35	12618.75	4153.800	8257.674
#3	6138.946	91734.63	12697.87	4167.523	8493.445

Sample Name: PB164564BS Acquired: 11/4/2024 21:16:27 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7762929	2.155671	.9613678	1.981683	.8221794	2.026999
Stddev	.0033845	.013433	.0047969	.012297	.0037907	.014737
%RSD	.4359808	.6231329	.4989612	.6205345	.4610609	.7270279

#1	.7775497	2.149557	.9633130	1.986350	.8235791	2.011941
#2	.7724598	2.146382	.9559039	1.967736	.8178878	2.041392
#3	.7788692	2.171073	.9648866	1.990964	.8250713	2.027664

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2067004	.2057688	.1897272	1.072546	.4250766	.2055747
Stddev	.0004450	.0012494	.0008834	.004230	.0021922	.0009963
%RSD	.2152838	.6071859	.4656070	.3943567	.5157184	.4846351

#1	.2062338	.2043497	.1901553	1.075352	.4225948	.2058686
#2	.2071201	.2062533	.1887114	1.067681	.4258860	.2044646
#3	.2067472	.2067034	.1903151	1.074605	.4267490	.2063911

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3220071	3.081909	.2041638	2.036275	.5133010	.0784892
Stddev	.0012019	.025884	.0004199	.020124	.0024768	.0002502
%RSD	.3732358	.8398786	.2056497	.9882981	.4825235	.3187621

#1	.3228628	3.104788	.2041338	2.032598	.5145468	.0785131
#2	.3206331	3.053814	.2045979	2.057984	.5104487	.0782280
#3	.3225255	3.087125	.2037598	2.018243	.5149076	.0787267

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.728479	.3007425	.2222045	10.92713	.3069809	.4298400
Stddev	.018992	.0009491	.0007689	.01002	.0020718	.0013345
%RSD	.6960634	.3155924	.3460413	.0916622	.6748812	.3104554

#1	2.710297	.3006132	.2213173	10.92320	.3045895	.4301564
#2	2.726951	.3017496	.2226197	10.91968	.3082315	.4283758
#3	2.748189	.2998647	.2226767	10.93851	.3081218	.4309879

Sample Name: PB164564BS Acquired: 11/4/2024 21:16:27 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7176777	.1982470	F .7048334	5.851654	F -.004995	.2299504
Stddev	.0045104	.0011149	.0048828	.036175	.001855	.0015378
%RSD	.6284723	.5623844	.6927633	.6181966	37.13762	.6687679
#1	.7187164	.1993137	.6991952	5.860216	-.005687	.2312687
#2	.7127386	.1983379	.7076642	5.811966	-.002893	.2303215
#3	.7215782	.1970894	.7076408	5.882779	-.006404	.2282610

Elem	Sr4077
Units	ppm
Avg	.2016707
Stddev	.0002597
%RSD	.1287541
#1	.2017281
#2	.2018968
#3	.2013871

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6178.282	92518.10	12043.79	4367.090	8255.496
Stddev	30.407	151.19	27.17	9.361	41.179
%RSD	.4921611	.1634172	.2256176	.2143611	.4988093
#1	6157.618	92426.76	12074.57	4368.185	8233.845
#2	6213.197	92692.61	12023.12	4375.855	8302.984
#3	6164.031	92434.91	12033.68	4357.229	8229.659

Sample Name: P4397-04DLX10 Acquired: 11/4/2024 21:21:03 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001639	-.004918	.0003435	-.000616	.0003255	.0298609
Stddev	.0015999	.001084	.0003309	.001070	.0006097	.0038055
%RSD	976.4271	22.03299	96.33345	173.8273	187.3307	12.74422

#1	.0018303	-.004343	.0000582	.000528	.0003292	.0320836
#2	-.001360	-.006168	.0002660	-.001593	-.000286	.0320323
#3	.000021	-.004243	.0007062	-.000783	.000933	.0254667

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0119312	.0000839	.0001369	31.81530	.0023014	.0001185
Stddev	.0004770	.0000370	.0000519	.21698	.0002474	.0001433
%RSD	3.997624	44.13066	37.88785	.6819910	10.74979	120.9591

#1	.0118779	.0000796	.0001185	31.64241	.0025857	.0000096
#2	.0114831	.0001229	.0000967	31.74471	.0021356	.0002808
#3	.0124326	.0000492	.0001954	32.05878	.0021827	.0000650

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004485	.0510617	.0122970	82.68824	.0013389	-.000262
Stddev	.0001978	.0024198	.0002735	.71147	.0002085	.000352
%RSD	44.11438	4.738913	2.223762	.8604301	15.57030	134.1267

#1	.0006537	.0538211	.0120751	82.05973	.0013686	-.000637
#2	.0002590	.0500627	.0126025	82.54430	.0011172	-.000211
#3	.0004327	.0493015	.0122134	83.46067	.0015310	.000061

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	709.2325	.0024904	.0016460	33.41506	.2935158	.0017180
Stddev	9.4077	.0007814	.0001298	.15221	.0009486	.0001365
%RSD	1.326466	31.37510	7.884313	.4555146	.3231956	7.946855

#1	718.4404	.0024543	.0015998	33.30093	.2924206	.0017187
#2	709.6200	.0032893	.0015456	33.35638	.2940429	.0018541
#3	699.6370	.0017277	.0017925	33.58788	.2940837	.0015810

Sample Name: P4397-04DLX10 Acquired: 11/4/2024 21:21:03 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001396	.0011557	.6330809	.0458833	F 66.66356	.0167664
Stddev	.000293	.0015011	.0015367	.0017841	.35676	.0003719
%RSD	20.99300	129.8810	.2427317	3.888337	.5351597	2.217918
#1	-.001086	.0001708	.6346698	.0447756	66.31203	.0167521
#2	-.001431	.0028834	.6316024	.0449328	66.65334	.0171452
#3	-.001669	.0004130	.6329705	.0479414	67.02532	.0164018

Elem	Sr4077
Units	ppm
Avg	.5342488
Stddev	.0024890
%RSD	.4658914
#1	.5321162
#2	.5336467
#3	.5369837

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5470.083	81275.53	12187.15	3866.529	6739.697
Stddev	22.704	250.30	65.17	12.490	20.288
%RSD	.4150653	.3079627	.5347061	.3230357	.3010298
#1	5489.040	81205.93	12232.74	3864.089	6753.177
#2	5476.289	81553.26	12216.20	3880.059	6749.551
#3	5444.921	81067.39	12112.51	3855.439	6716.364

Sample Name: P4397-04DUPDLX10 Acquired: 11/4/2024 21:25:29 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001826	-.005321	-.000003	-.000161	.0006654	.0144268
Stddev	.003194	.001334	.000597	.000862	.0012612	.0025130
%RSD	174.8960	25.05978	22683.94	537.2505	189.5303	17.41889

#1	-.004444	-.004622	-.000514	-.001145	-.000671	.0144444
#2	.001732	-.006859	.000653	.000199	.001835	.0119051
#3	-.002767	-.004483	-.000146	.000464	.000833	.0169310

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0116460	.0000886	.0000888	32.31725	.0022955	.0000934
Stddev	.0000657	.0000060	.0000448	.13306	.0002657	.0002098
%RSD	.5643638	6.824454	50.40423	.4117172	11.57557	224.5155

#1	.0115849	.0000832	.0001030	32.19464	.0021457	-.000119
#2	.0117155	.0000875	.0001247	32.45873	.0026023	.000099
#3	.0116376	.0000951	.0000387	32.29837	.0021385	.000301

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001164	.0497679	.0121758	83.32008	.0011146	-.000165
Stddev	.0001487	.0059602	.0003090	.34647	.0000696	.000261
%RSD	127.7093	11.97607	2.538174	.4158308	6.240883	157.6475

#1	-.000037	.0429285	.0119621	82.93174	.0011642	-.000077
#2	.000260	.0538521	.0120351	83.59752	.0011444	-.000459
#3	.000126	.0525230	.0125301	83.43100	.0010351	.000040

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	741.5411	.0016722	.0017848	35.52666	.2895447	.0017040
Stddev	8.3441	.0009082	.0002925	.17643	.0016398	.0002522
%RSD	1.125242	54.31142	16.38653	.4966106	.5663311	14.80278

#1	750.7970	.0016219	.0019795	35.44656	.2876715	.0014267
#2	739.2303	.0026045	.0019264	35.72893	.2907203	.0017655
#3	734.5958	.0007902	.0014485	35.40449	.2902424	.0019198

Sample Name: P4397-04DUPDLX10 Acquired: 11/4/2024 21:25:29 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001546	-.000573	.6395427	.0438056	F 69.10544	.0172728
Stddev	.000150	.001284	.0103207	.0002442	.70160	.0018974
%RSD	9.718892	224.1468	1.613755	.5574661	1.015266	10.98475
#1	-.001668	-.001353	.6303397	.0440821	69.09051	.0151082
#2	-.001378	-.001275	.6375872	.0437153	68.41142	.0186485
#3	-.001590	.000909	.6507013	.0436194	69.81439	.0180616

Elem	Sr4077
Units	ppm
Avg	.5463326
Stddev	.0026054
%RSD	.4768816
#1	.5447990
#2	.5493408
#3	.5448579

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5204.822	78291.76	12243.09	3658.017	6434.434
Stddev	112.027	198.82	16.43	9.354	99.640
%RSD	2.152379	.2539460	.1341953	.2557056	1.548541
#1	5127.387	78122.63	12261.67	3651.534	6355.236
#2	5153.800	78241.88	12230.46	3653.778	6401.756
#3	5333.278	78510.77	12237.16	3668.740	6546.309

Sample Name: P4397-04LDLX50 Acquired: 11/4/2024 21:29:54 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001121	-.005482	.0005230	-.000830	-.000502	.0182089
Stddev	.0004684	.000985	.0006168	.000757	.000121	.0063309
%RSD	417.7564	17.97604	117.9281	91.18662	24.13487	34.76817

#1	.0006131	-.006533	.0006856	-.000146	-.000363	.0121610
#2	.0000383	-.005334	.0010423	-.000701	-.000581	.0247891
#3	-.000315	-.004579	-.000159	-.001643	-.000563	.0176765

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0053536	.0001012	.0000954	6.734706	.0004626	.0001711
Stddev	.0007414	.0000546	.0000649	.042785	.0004784	.0001886
%RSD	13.84790	53.98920	67.99712	.6352960	103.4294	110.2068

#1	.0052415	.0001293	.0000271	6.687780	.0009942	.0001852
#2	.0061447	.0000382	.0001030	6.771549	.0000666	.0003522
#3	.0046748	.0001360	.0001561	6.744790	.0003269	-.000024

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001483	.0130108	.0025642	17.48482	.0004150	-.000391
Stddev	.0003255	.0048844	.0004002	.10474	.0000541	.000082
%RSD	219.4441	37.54111	15.60843	.5990415	13.03865	21.01262

#1	.0004959	.0096834	.0029995	17.36483	.0003941	-.000297
#2	.0000984	.0186183	.0022120	17.55797	.0004764	-.000444
#3	-.000149	.0107306	.0024812	17.53165	.0003744	-.000433

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	150.7982	.0009557	.0001396	6.685082	.0657455	.0004062
Stddev	1.7018	.0008108	.0001188	.052371	.0000660	.0000682
%RSD	1.128516	84.84355	85.09852	.7834065	.1003137	16.79143

#1	152.2180	.0006397	.0001497	6.702252	.0657884	.0003744
#2	151.2648	.0018770	.0002531	6.726713	.0656696	.0003597
#3	148.9118	.0003504	.0000161	6.626281	.0657786	.0004845

Sample Name: P4397-04LDLX50 Acquired: 11/4/2024 21:29:54 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000538	-.000068	.1201675	.0064696	F 13.00722	.0084539
Stddev	.000295	.000301	.0007255	.0011038	.11593	.0010444
%RSD	54.93750	445.7045	.6037760	17.06095	.8913049	12.35409
#1	-.000208	-.000117	.1209819	.0051977	12.98489	.0086522
#2	-.000777	.000255	.1195901	.0070336	12.90407	.0073245
#3	-.000628	-.000341	.1199304	.0071773	13.13269	.0093848

Elem	Sr4077
Units	ppm
Avg	.1088720
Stddev	.0003261
%RSD	.2995720
#1	.1086405
#2	.1092450
#3	.1087306

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5895.622	86472.05	12170.67	4126.613	7510.354
Stddev	27.090	544.94	33.11	36.912	33.861
%RSD	.4594908	.6301941	.2720517	.8944954	.4508544
#1	5908.809	85875.60	12199.49	4088.367	7526.852
#2	5913.593	86596.67	12178.02	4129.442	7532.804
#3	5864.463	86943.90	12134.50	4162.029	7471.406

Sample Name: P4397-04MSDLX10 Acquired: 11/4/2024 21:34:13 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0805484	.1653579	.0926884	.2056234	.0829979	.2049731
Stddev	.0026460	.0026678	.0004478	.0009444	.0027158	.0036819
%RSD	3.284929	1.613325	.4831006	.4592947	3.272171	1.796275

#1	.0833932	.1636905	.0929300	.2067113	.0798646	.2092089
#2	.0800910	.1684347	.0921717	.2050140	.0844517	.2025397
#3	.0781609	.1639484	.0929635	.2051448	.0846774	.2031706

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0315594	.0181465	.0193488	31.62560	.0429619	.0206657
Stddev	.0004911	.0000614	.0000378	.07320	.0004582	.0000984
%RSD	1.555976	.3381340	.1954407	.2314446	1.066474	.4762681

#1	.0310321	.0181546	.0193833	31.69688	.0434001	.0207623
#2	.0316425	.0182034	.0193084	31.62928	.0424861	.0206691
#3	.0320036	.0180815	.0193547	31.55063	.0429994	.0205655

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0301235	.3790613	.0303333	81.89032	.0520207	.0075618
Stddev	.0003911	.0039557	.0001690	.13722	.0001350	.0002593
%RSD	1.298486	1.043563	.5572564	.1675715	.2594461	3.428841

#1	.0297228	.3835391	.0303849	81.80071	.0519161	.0078345
#2	.0301436	.3760415	.0301445	81.82196	.0521730	.0075324
#3	.0305043	.3776034	.0304705	82.04830	.0519729	.0073185

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	710.0173	.0303549	.0233881	34.98453	.3141800	.0435074
Stddev	8.6676	.0007489	.0001264	.12050	.0005788	.0000552
%RSD	1.220753	2.467278	.5403983	.3444362	.1842183	.1268240

#1	719.7544	.0310954	.0233880	35.06625	.3139155	.0435284
#2	707.1534	.0303717	.0232618	34.84615	.3148438	.0435490
#3	703.1441	.0295978	.0235145	35.04120	.3137808	.0434448

Sample Name: P4397-04MSDLX10 Acquired: 11/4/2024 21:34:13 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0694022	.0198407	.6909926	.7015330	F 67.13461	.0374830
Stddev	.0004852	.0027143	.0092820	.0029482	.11180	.0007730
%RSD	.6990902	13.68039	1.343289	.4202559	.1665381	2.062385
#1	.0690919	.0192994	.6804659	.7021096	67.00826	.0379242
#2	.0691533	.0174379	.6945104	.6983391	67.17485	.0365904
#3	.0699613	.0227849	.6980016	.7041504	67.22073	.0379344

Elem	Sr4077
Units	ppm
Avg	.5494497
Stddev	.0020123
%RSD	.3662313
#1	.5516830
#2	.5488887
#3	.5477775

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5273.483	78877.68	12037.24	3736.834	6506.129
Stddev	30.430	165.15	16.77	9.344	34.950
%RSD	.5770380	.2093799	.1393368	.2500531	.5371930
#1	5303.857	78741.42	12028.40	3729.076	6543.328
#2	5273.596	79061.35	12026.73	3747.207	6501.083
#3	5242.997	78830.26	12056.58	3734.218	6473.975

Sample Name: P4397-04MSDDLX10 Acquired: 11/4/2024 21:38:31 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0790373	.1626639	.0912320	.1979848	.0820278	.2065170
Stddev	.0022435	.0008228	.0006667	.0002231	.0014158	.0157989
%RSD	2.838581	.5058465	.7307674	.1126975	1.726040	7.650156

#1	.0810084	.1619465	.0917229	.1980426	.0836340	.2232967
#2	.0765959	.1624830	.0915001	.1981733	.0814889	.2043270
#3	.0795078	.1635621	.0904730	.1977385	.0809606	.1919275

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0320474	.0179465	.0190401	31.10735	.0416762	.0203721
Stddev	.0002252	.0000431	.0001690	.03123	.0002445	.0002293
%RSD	.7026703	.2401786	.8878357	.1003971	.5865688	1.125357

#1	.0319064	.0178999	.0190418	31.12710	.0414323	.0206368
#2	.0319286	.0179544	.0192083	31.07134	.0416751	.0202439
#3	.0323071	.0179850	.0188703	31.12361	.0419212	.0202356

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0296261	.3714375	.0304930	80.38930	.0515184	.0076797
Stddev	.0001367	.0058957	.0001696	.42669	.0003284	.0001138
%RSD	.4614152	1.587267	.5562498	.5307764	.6374621	1.481664

#1	.0294784	.3691051	.0303975	80.02343	.0511910	.0076761
#2	.0296517	.3670648	.0306889	80.28646	.0515164	.0075678
#3	.0297482	.3781426	.0303927	80.85801	.0518478	.0077953

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	698.9900	.0287771	.0225867	34.04226	.3089909	.0428177
Stddev	8.5040	.0009075	.0005462	.14335	.0010988	.0000859
%RSD	1.216613	3.153673	2.418391	.4210899	.3556169	.2006091

#1	708.0106	.0295561	.0231846	34.16821	.3078778	.0429089
#2	697.8396	.0277806	.0224615	34.07230	.3090201	.0428057
#3	691.1197	.0289946	.0221139	33.88627	.3100748	.0427384

Sample Name: P4397-04MSDDLX10 Acquired: 11/4/2024 21:38:31 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0688244	.0191599	.6816827	.6905896	F 65.20823	.0362470
Stddev	.0003698	.0009065	.0088489	.0037011	.11356	.0003495
%RSD	.5373328	4.731309	1.298097	.5359282	.1741428	.9640759
#1	.0690403	.0200988	.6835393	.6871111	65.29357	.0359529
#2	.0690356	.0182897	.6894561	.6901788	65.25178	.0361547
#3	.0683974	.0190913	.6720529	.6944790	65.07935	.0366333

Elem	Sr4077
Units	ppm
Avg	.5417490
Stddev	.0017896
%RSD	.3303412
#1	.5435134
#2	.5417984
#3	.5399352

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5359.612	80043.81	12058.16	3802.423	6597.442
Stddev	15.510	369.82	16.47	20.718	11.091
%RSD	.2893936	.4620232	.1365667	.5448538	.1681059
#1	5346.395	79620.86	12071.95	3778.837	6587.910
#2	5376.688	80204.24	12062.60	3817.678	6609.615
#3	5355.754	80306.31	12039.92	3810.754	6594.801

Sample Name: P4397-04ADLX10 Acquired: 11/4/2024 21:42:51 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0795109	.1650900	.0920512	.1964924	.0824778	.2003433
Stddev	.0019572	.0019241	.0012158	.0029815	.0026855	.0024920
%RSD	2.461505	1.165489	1.320775	1.517374	3.256058	1.243885

#1	.0781131	.1654852	.0906974	.1930532	.0794913	.1995320
#2	.0786719	.1629990	.0924059	.1980754	.0832479	.2031398
#3	.0817477	.1667858	.0930501	.1983485	.0846941	.1983579

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0322305	.0183212	.0190933	31.56421	.0425449	.0203136
Stddev	.0002696	.0000993	.0000862	.19517	.0002092	.0000230
%RSD	.8363468	.5421313	.4514833	.6183320	.4917601	.1131727

#1	.0324125	.0183890	.0190828	31.71509	.0426534	.0202885
#2	.0323583	.0183673	.0190129	31.63375	.0423037	.0203336
#3	.0319209	.0182072	.0191843	31.34379	.0426776	.0203186

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0291725	.3769682	.0309702	81.62107	.0513091	.0077688
Stddev	.0002251	.0054533	.0004483	.46994	.0005026	.0001610
%RSD	.7715718	1.446609	1.447383	.5757533	.9795473	2.072113

#1	.0289331	.3716693	.0313531	81.87710	.0508155	.0076617
#2	.0292044	.3766717	.0310803	81.90738	.0512916	.0079539
#3	.0293799	.3825637	.0304771	81.07871	.0518203	.0076907

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	709.1317	.0313902	.0228431	34.23976	.3160543	.0428166
Stddev	2.9282	.0020064	.0003393	.15072	.0019219	.0003294
%RSD	.4129262	6.391820	1.485257	.4401781	.6080790	.7692097

#1	712.4738	.0293942	.0226212	34.06829	.3182449	.0426002
#2	707.9051	.0334068	.0232337	34.29975	.3152668	.0426540
#3	707.0164	.0313695	.0226745	34.35125	.3146513	.0431957

Sample Name: P4397-04ADLX10 Acquired: 11/4/2024 21:42:51 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0692800	.0190952	.6796843	.6978456	F 64.92339	.0381456
Stddev	.0007079	.0005144	.0047007	.0058770	.50226	.0011837
%RSD	1.021805	2.693863	.6916067	.8421584	.7736161	3.103144
#1	.0688083	.0193899	.6765733	.6944987	64.50337	.0370512
#2	.0689378	.0185012	.6773878	.6944065	64.78707	.0394019
#3	.0700940	.0193944	.6850918	.7046315	65.47974	.0379837

Elem	Sr4077
Units	ppm
Avg	.5505143
Stddev	.0035866
%RSD	.6514987
#1	.5537638
#2	.5511131
#3	.5466660

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5443.044	80774.01	12052.00	3854.866	6707.739
Stddev	42.527	124.67	60.68	12.848	46.309
%RSD	.7813138	.1543433	.5035036	.3332852	.6903806
#1	5486.237	80885.25	11992.10	3856.815	6753.981
#2	5441.681	80797.52	12050.46	3841.156	6707.871
#3	5401.215	80639.26	12113.43	3866.628	6661.364

Sample Name: CCV05 Acquired: 11/4/2024 21:47:09 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.113593	4.732233	5.021376	5.184521	5.114842	9.943310	10.11319
Stddev	.012124	.014018	.013991	.016254	.005770	.049839	.02614
%RSD	.2370884	.2962170	.2786240	.3135173	.1128002	.5012269	.2585076
#1	5.106131	4.728729	5.014220	5.171925	5.108332	9.975977	10.14140
#2	5.107066	4.720301	5.012411	5.178769	5.116870	9.885946	10.08978
#3	5.127582	4.747671	5.037497	5.202870	5.119324	9.968008	10.10837
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2541835	2.524232	24.63994	1.037009	2.517507	1.267781	5.034829
Stddev	.0003344	.007816	.05466	.003976	.006743	.002913	.021091
%RSD	.1315475	.3096565	.2218521	.3833712	.2678492	.2297457	.4189040
#1	.2542378	2.521494	24.70114	1.036614	2.514272	1.265322	5.024617
#2	.2544875	2.518153	24.59595	1.041167	2.512991	1.267024	5.020789
#3	.2538254	2.533049	24.62273	1.033245	2.525258	1.270998	5.059083
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.467913	24.80746	2.514311	1.287346	25.48318	2.474865	2.571999
Stddev	.009744	.07678	.007479	.007639	.00623	.007104	.011917
%RSD	.3948183	.3095091	.2974704	.5933751	.0244316	.2870392	.4633553
#1	2.473832	24.89589	2.511836	1.282800	25.47599	2.481061	2.564387
#2	2.456667	24.75767	2.508383	1.296165	25.48701	2.467112	2.585733
#3	2.473240	24.76884	2.522714	1.283073	25.48653	2.476423	2.565876
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	26.63547	5.103123	5.200374	5.094256	4.923948	5.096046	5.011610
Stddev	.08216	.010095	.010599	.014708	.014754	.056673	.013185
%RSD	.3084684	.1978153	.2038194	.2887259	.2996291	1.112102	.2630798
#1	26.56164	5.098465	5.191621	5.092468	4.933080	5.030747	4.997605
#2	26.72398	5.114705	5.197342	5.080523	4.906927	5.124968	5.013444
#3	26.62077	5.096197	5.212159	5.109777	4.931837	5.132423	5.023782

Sample Name: CCV05 Acquired: 11/4/2024 21:47:09 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.941027	5.252693	5.032944
Stddev	.012822	.023036	.035378
%RSD	.2595035	.4385547	.7029289

#1	4.935678	5.261847	5.073790
#2	4.931744	5.226487	5.011924
#3	4.955657	5.269744	5.013119

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6022.089	88835.51	11643.69	4199.868	7696.076
Stddev	5.878	442.38	36.73	14.715	4.772
%RSD	.0976063	.4979748	.3154549	.3503575	.0620006

#1	6025.191	88924.22	11611.43	4193.805	7696.798
#2	6015.310	88355.50	11635.97	4189.153	7700.445
#3	6025.767	89226.81	11683.66	4216.645	7690.984

Sample Name: CCB05 Acquired: 11/4/2024 21:51:21 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005697	-.003771	-.000093	-.000753	.0001270	.0144718	.0043160
Stddev	.0009777	.000637	.000439	.001159	.0011676	.0081527	.0002459
%RSD	171.6342	16.90034	472.2240	153.9742	919.3526	56.33488	5.696826
#1	-.000494	-.003100	.000302	-.001987	.0013570	.0155446	.0044331
#2	.000773	-.003844	-.000567	-.000582	-.000010	.0058359	.0040335
#3	.001430	-.004368	-.000014	.000311	-.000966	.0220350	.0044815
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000628	.0001929	-.009458	.0002286	.0002111	-.000160	-.001329
Stddev	.0000307	.0000316	.004633	.0000753	.0000926	.000384	.001448
%RSD	48.78084	16.38060	48.97998	32.95104	43.85092	240.0999	108.9380
#1	.0000450	.0001617	-.009632	.0002095	.0001397	.000232	-.000655
#2	.0000982	.0001921	-.004741	.0001647	.0001779	-.000535	-.000341
#3	.0000453	.0002248	-.014002	.0003117	.0003156	-.000176	-.002991
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000011	.0015581	.0001693	.0000830	.6689538	.0002847	-.000239
Stddev	.000201	.0097534	.0000814	.0002812	.0353636	.0024014	.000049
%RSD	1815.978	625.9591	48.06493	338.9257	5.286403	843.4291	20.57624
#1	-.000018	.0092205	.0001865	.0003902	.6289803	-.002241	-.000206
#2	.000193	-.009421	.0002407	-.000162	.6817176	.000557	-.000296
#3	-.000208	.004875	.0000807	.000020	.6961635	.002539	-.000216
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1993769	.0055299	.0006555	-.000585	-.000067	.0061202	.0001532
Stddev	.0209479	.0002525	.0000821	.000320	.001231	.0096141	.0011066
%RSD	10.50666	4.565506	12.52178	54.66113	1836.058	157.0891	722.0957
#1	.2079496	.0058026	.0005608	-.000329	-.000931	.0157008	-.001101
#2	.1755024	.0054829	.0007058	-.000482	.001342	.0061866	.000571
#3	.2146786	.0053042	.0006999	-.000943	-.000613	-.003527	.000990

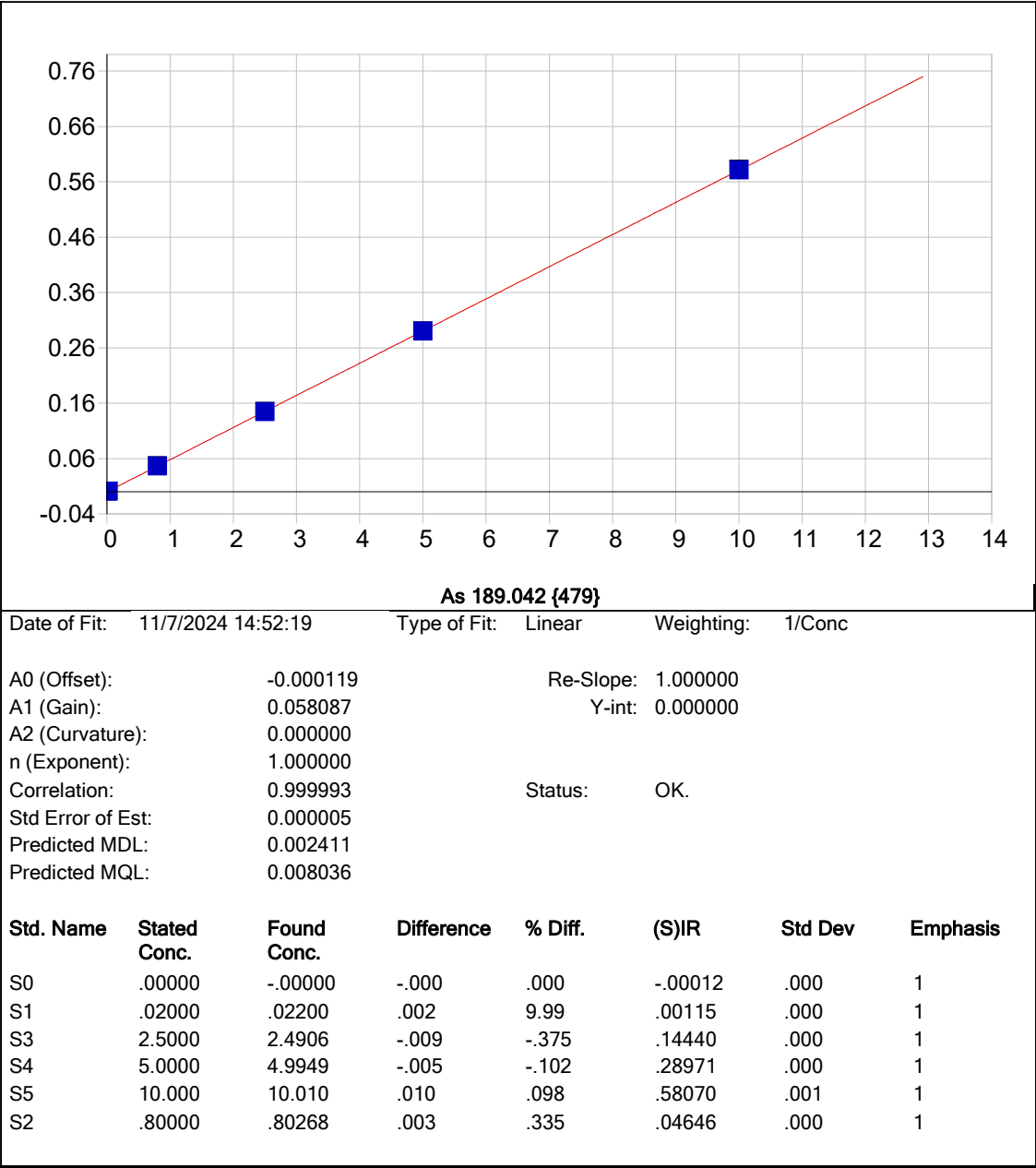
Sample Name: CCB05 Acquired: 11/4/2024 21:51:21 Type: Unk
Method: NON EPA-6010-200.7(v2452) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

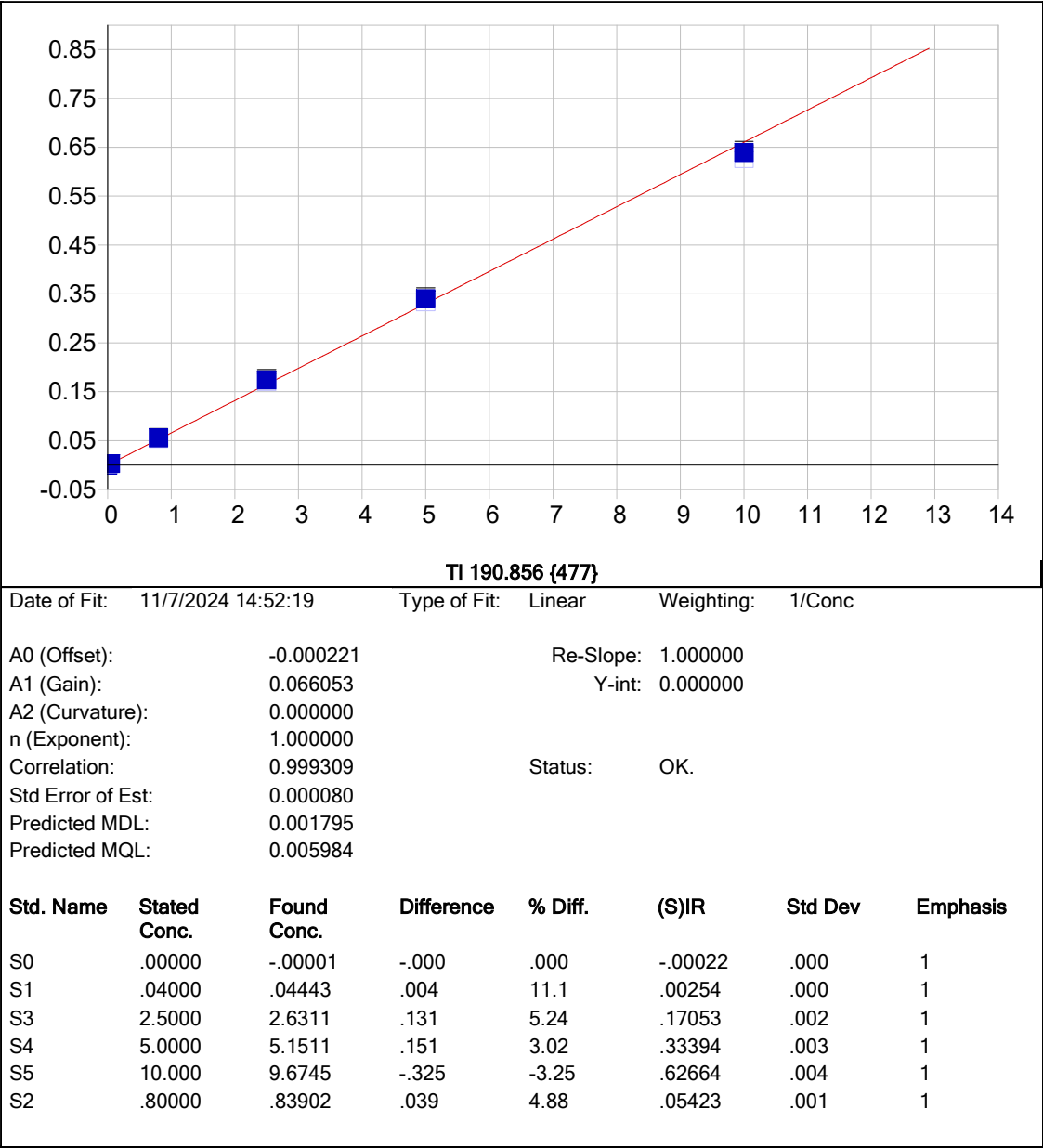
Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0042827	.0070536	.0002327
Stddev	.0009127	.0012957	.0000359
%RSD	21.31127	18.36912	15.41954

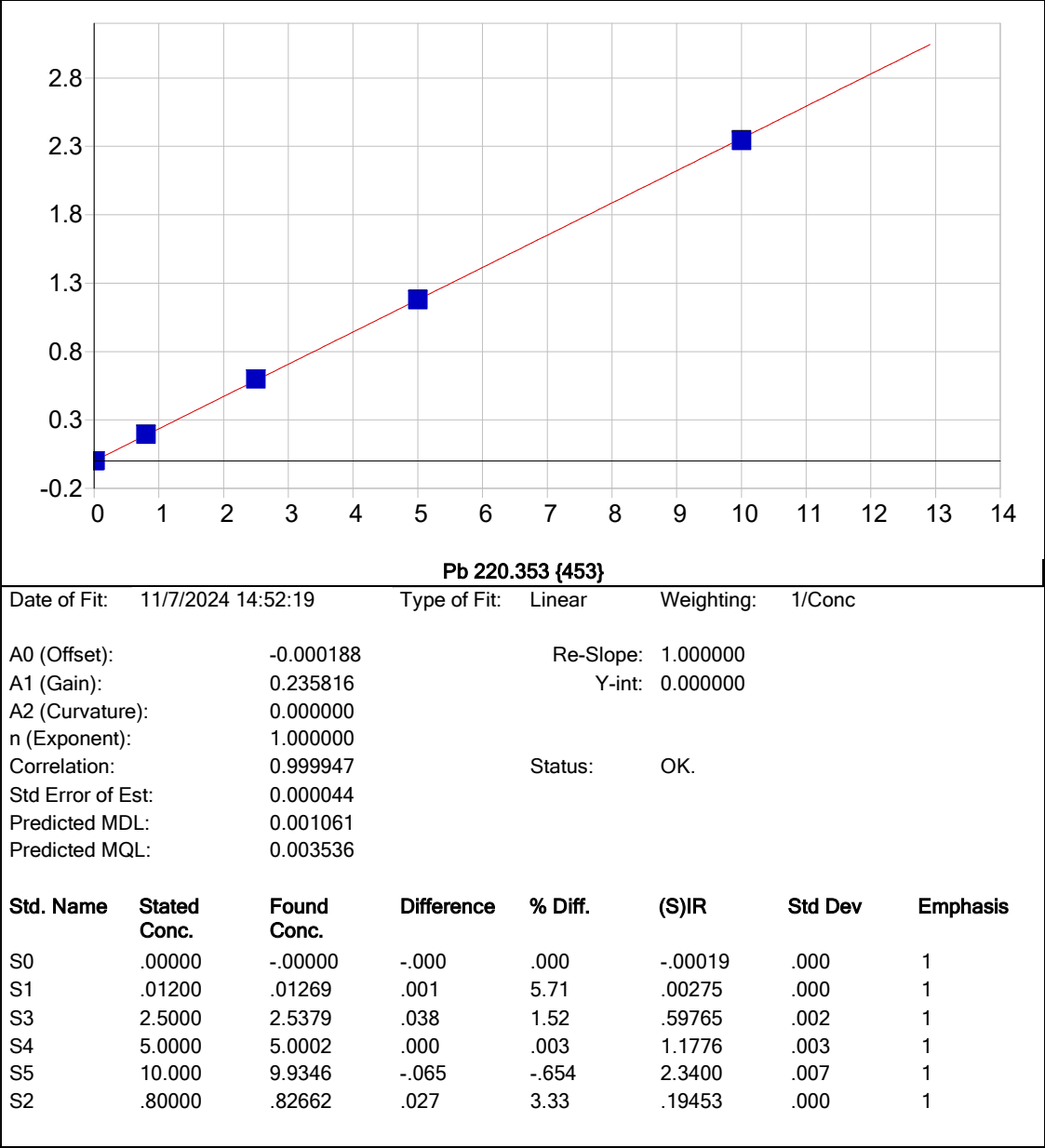
#1	.0045962	.0084944	.0002660
#2	.0049972	.0066825	.0001947
#3	.0032545	.0059840	.0002374

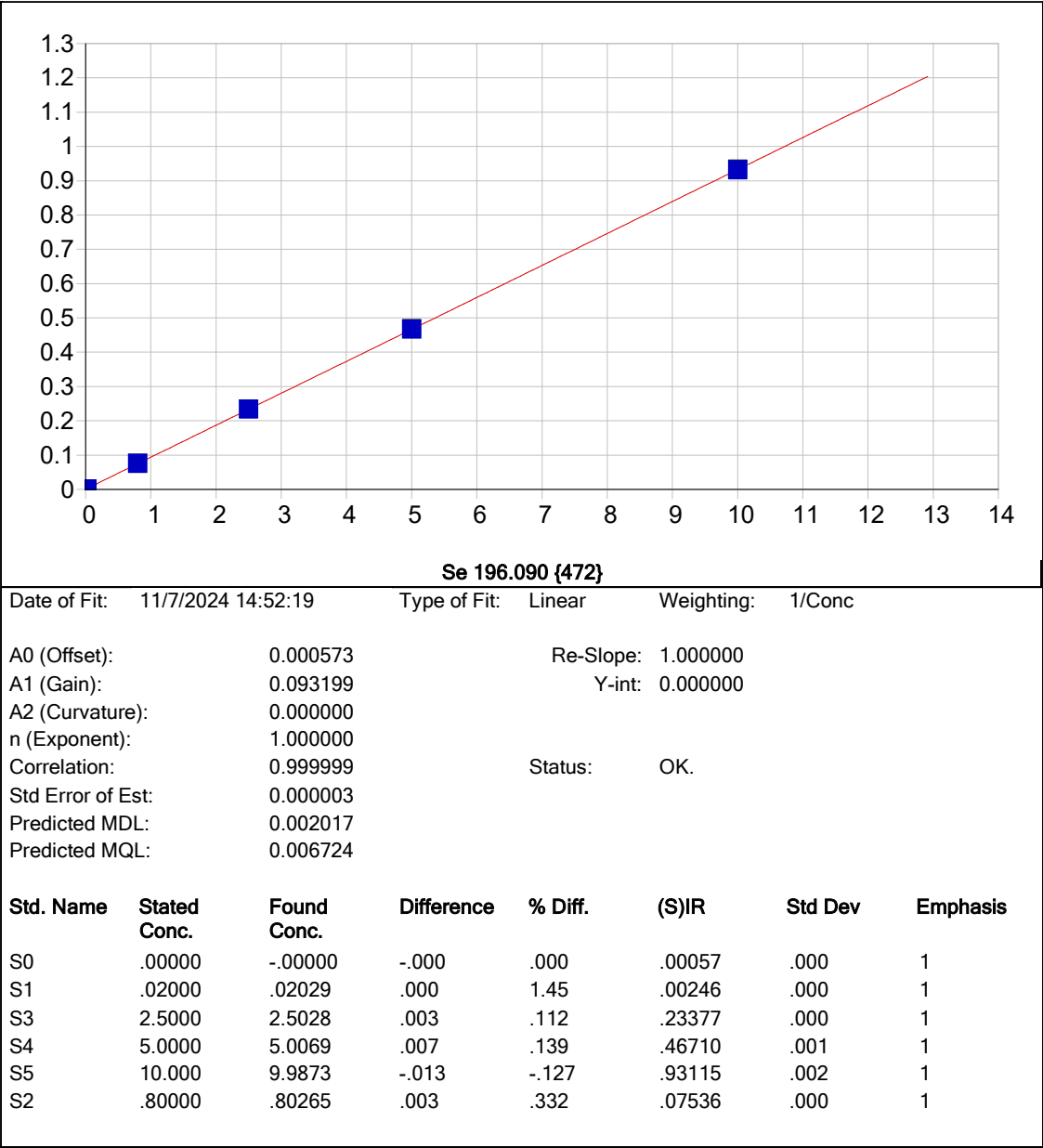
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6190.082	92564.32	12099.19	4331.758	8559.048
Stddev	26.010	230.13	46.23	4.239	39.150
%RSD	.4201948	.2486158	.3820583	.0978661	.4574125

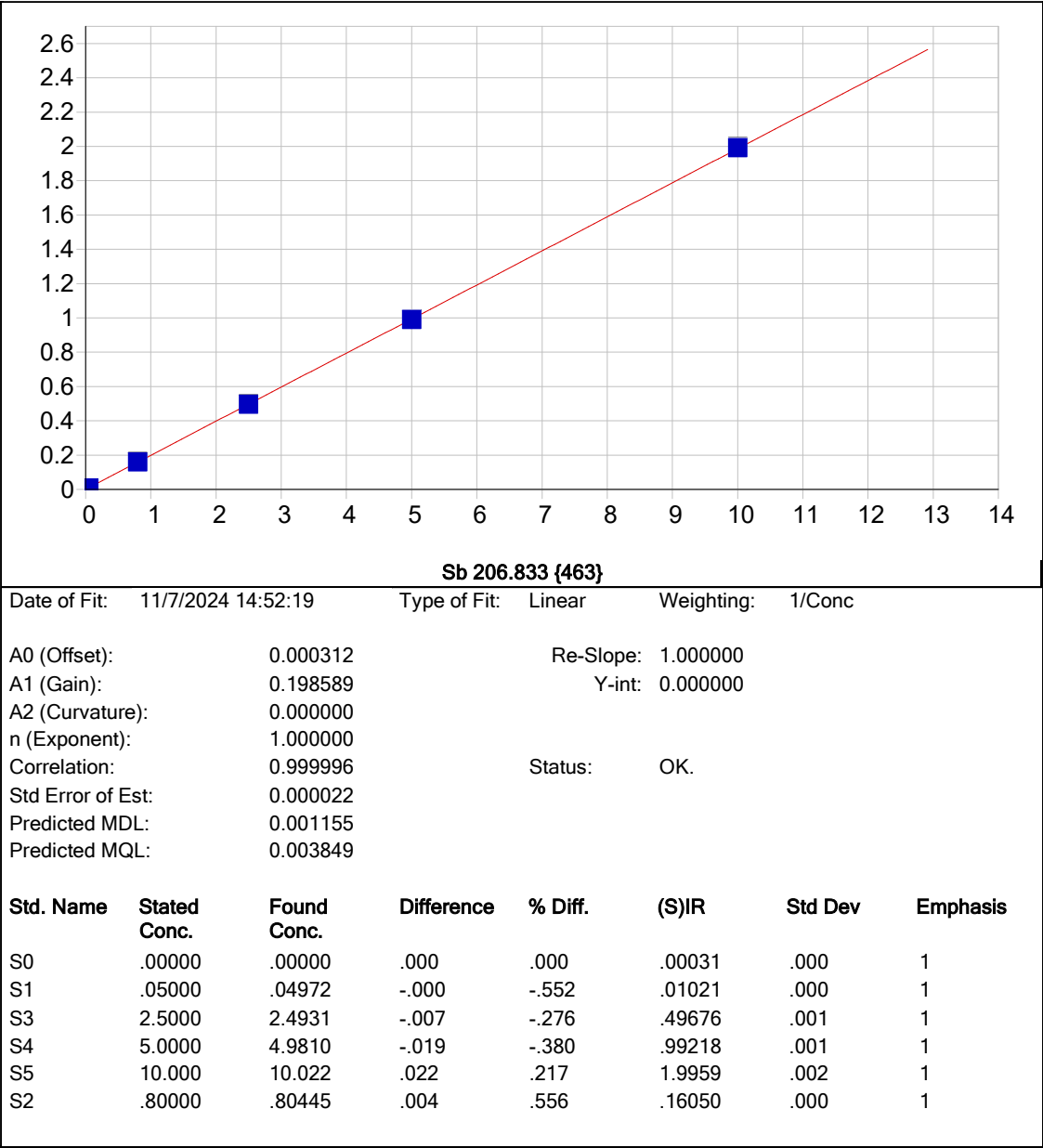
#1	6196.410	92394.68	12054.43	4332.578	8574.114
#2	6212.345	92826.28	12146.75	4335.528	8588.427
#3	6161.492	92472.02	12096.39	4327.169	8514.603

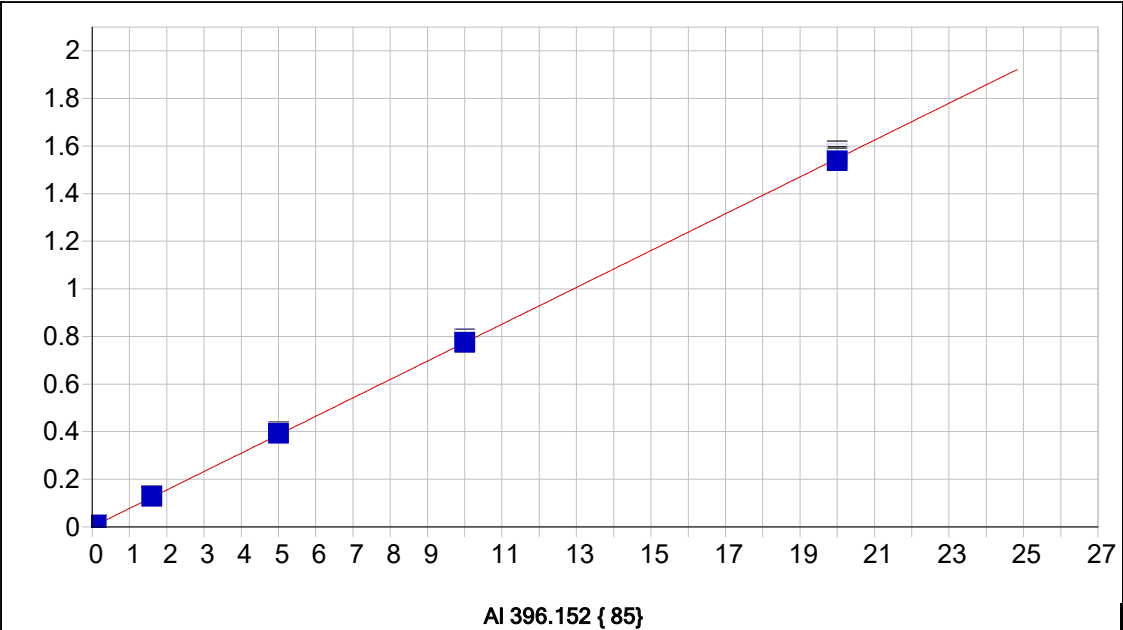






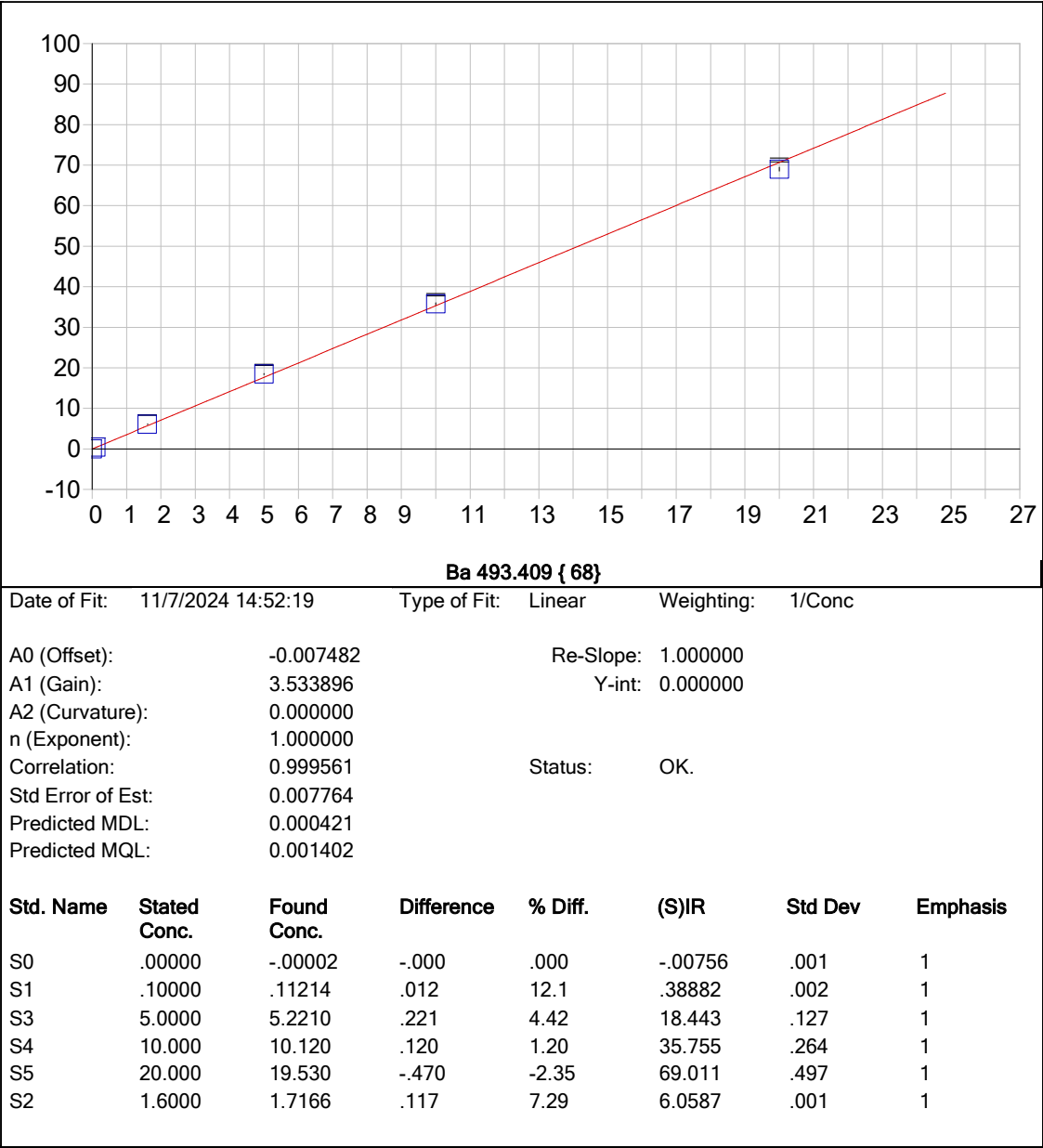


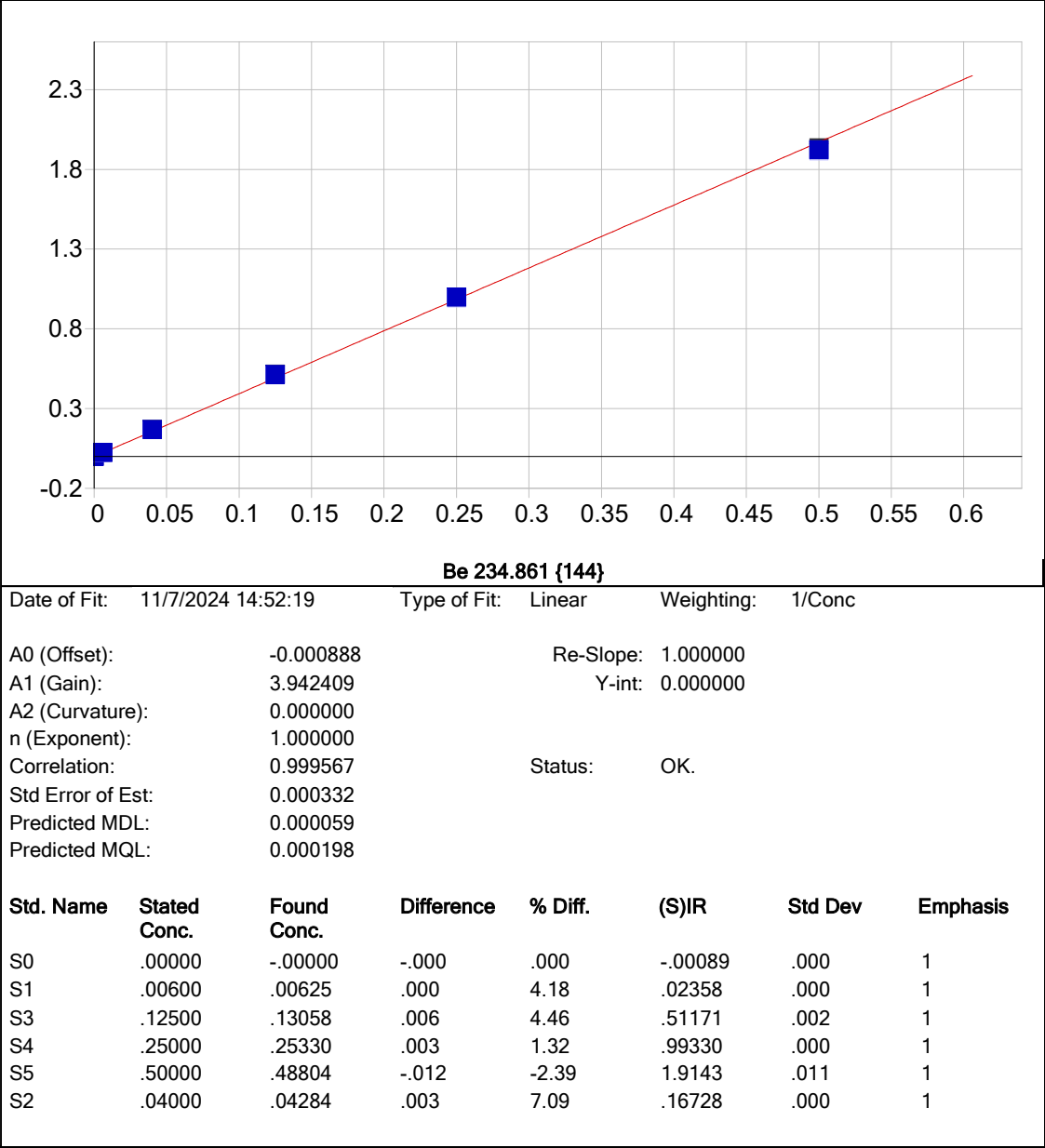


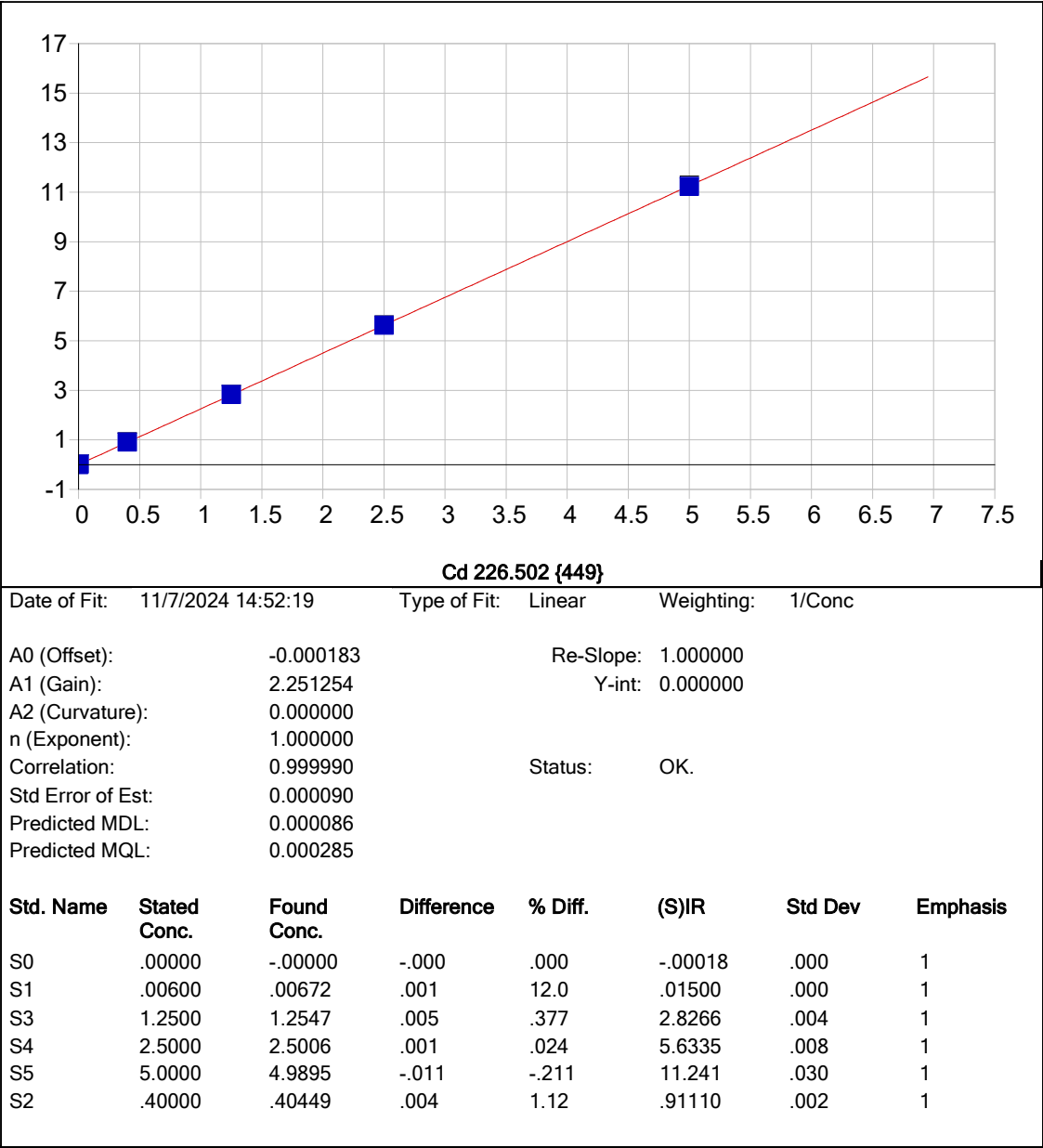


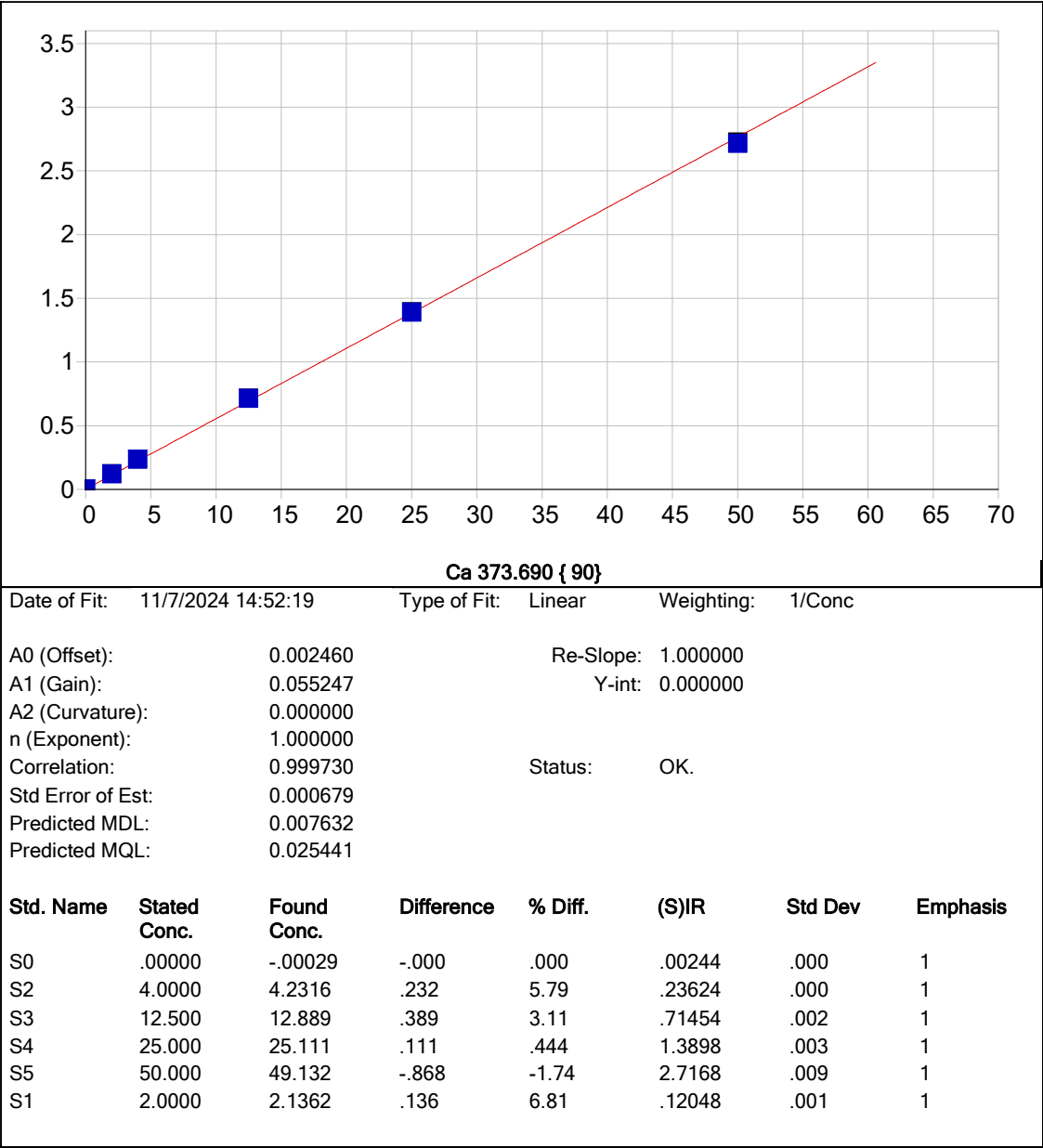
Date of Fit:	11/7/2024 14:52:19	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000396	Re-Slope:	1.000000		
A1 (Gain):	0.077373	Y-int:	0.000000		
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999953	Status:	OK.		
Std Error of Est:	0.000057				
Predicted MDL:	0.005612				
Predicted MQL:	0.018706				

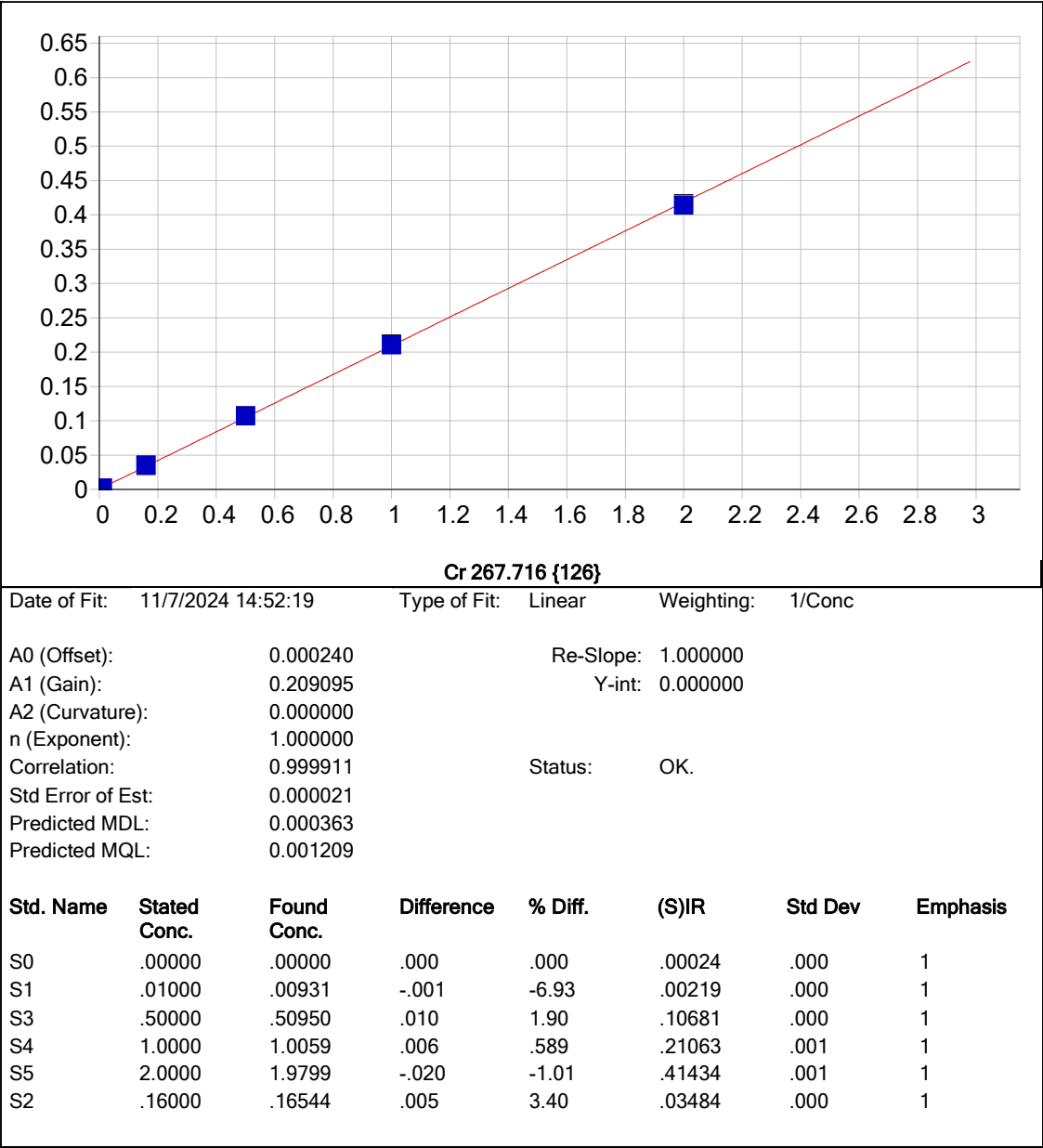
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00040	.000	1
S1	.10000	.10483	.005	4.83	.00911	.000	1
S3	5.0000	5.0653	.065	1.31	.39982	.001	1
S4	10.000	10.011	.011	.107	.78996	.001	1
S5	20.000	19.868	-.132	-.658	1.5677	.012	1
S2	1.6000	1.6505	.051	3.16	.13050	.000	1

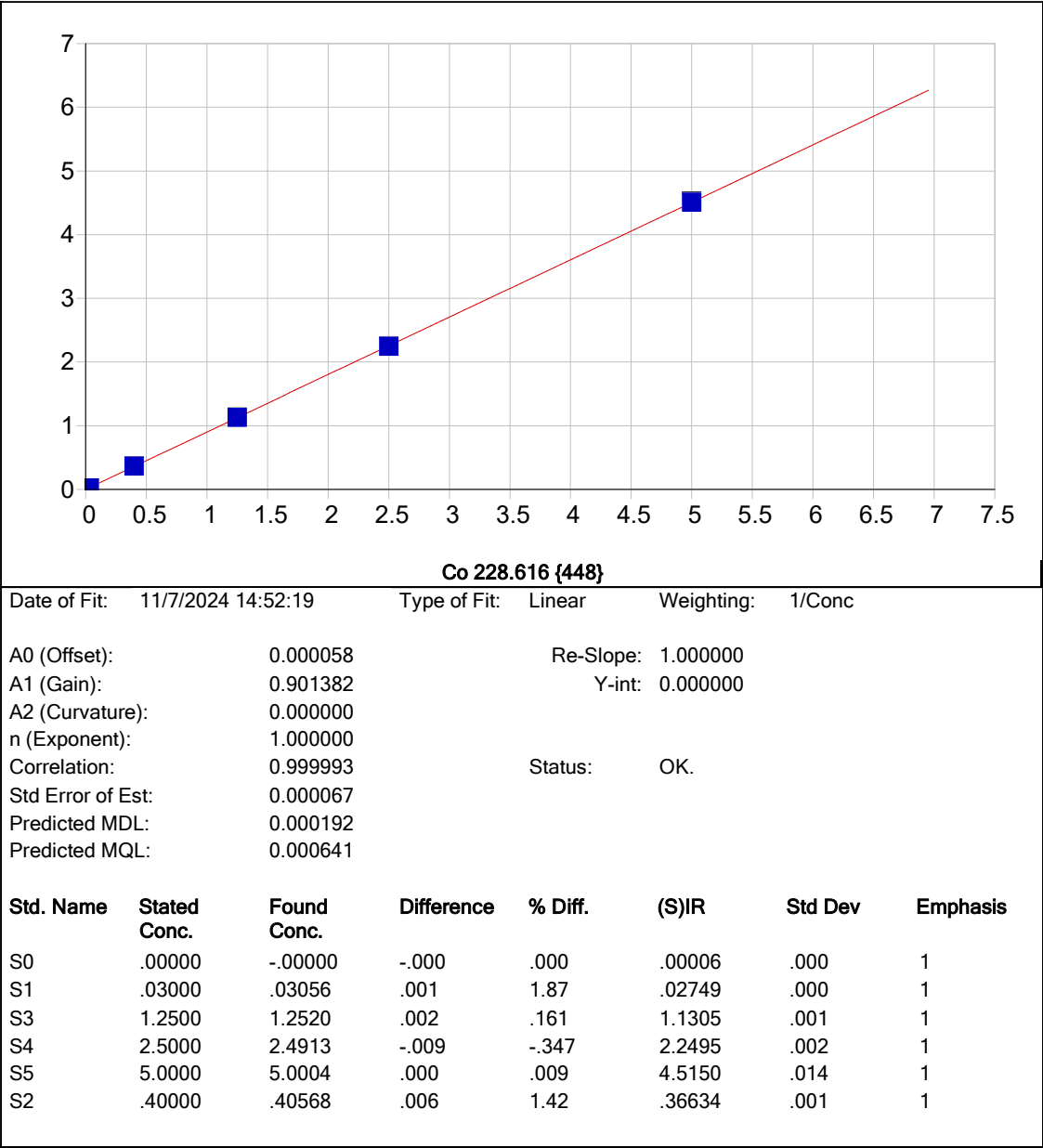


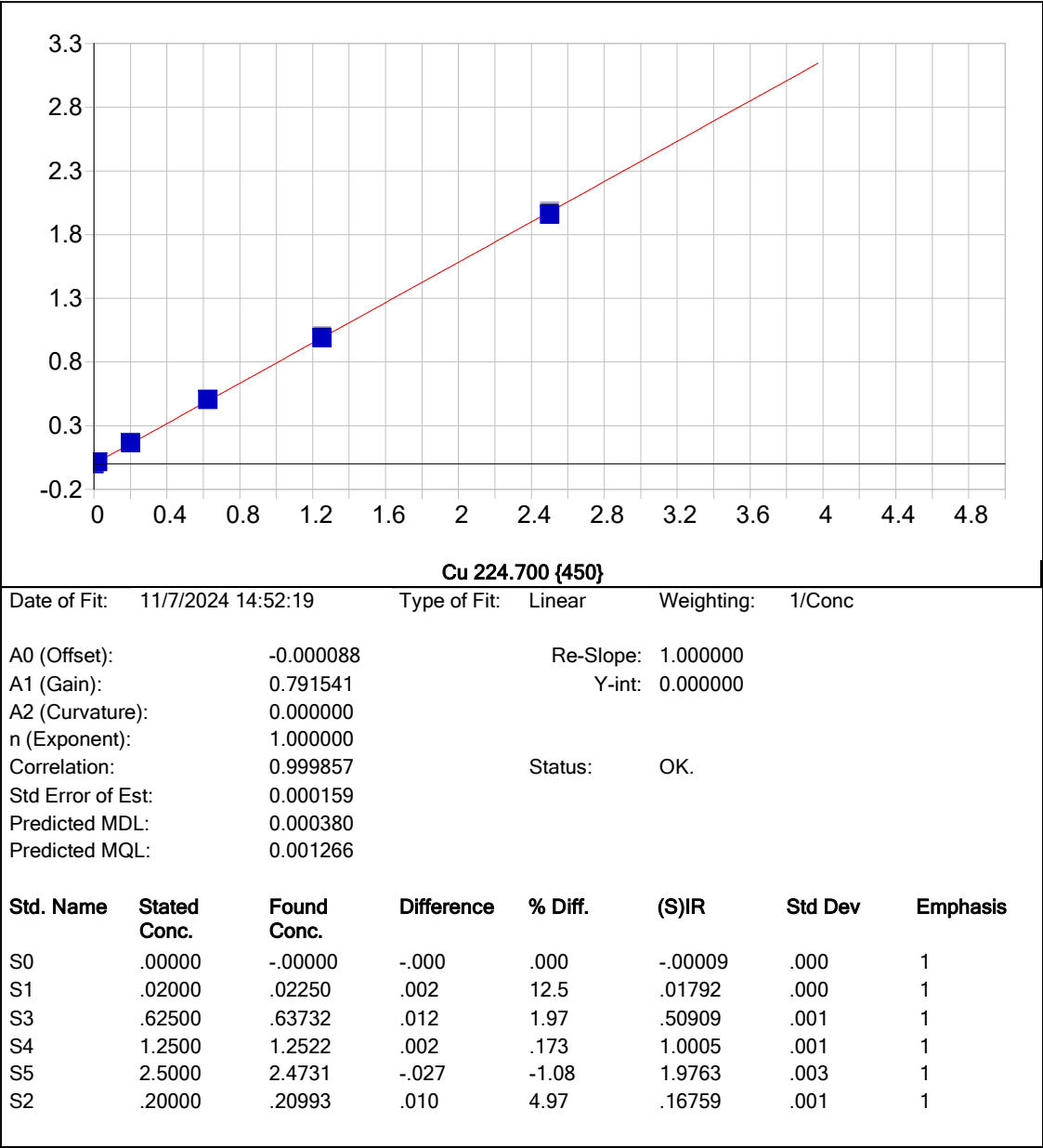


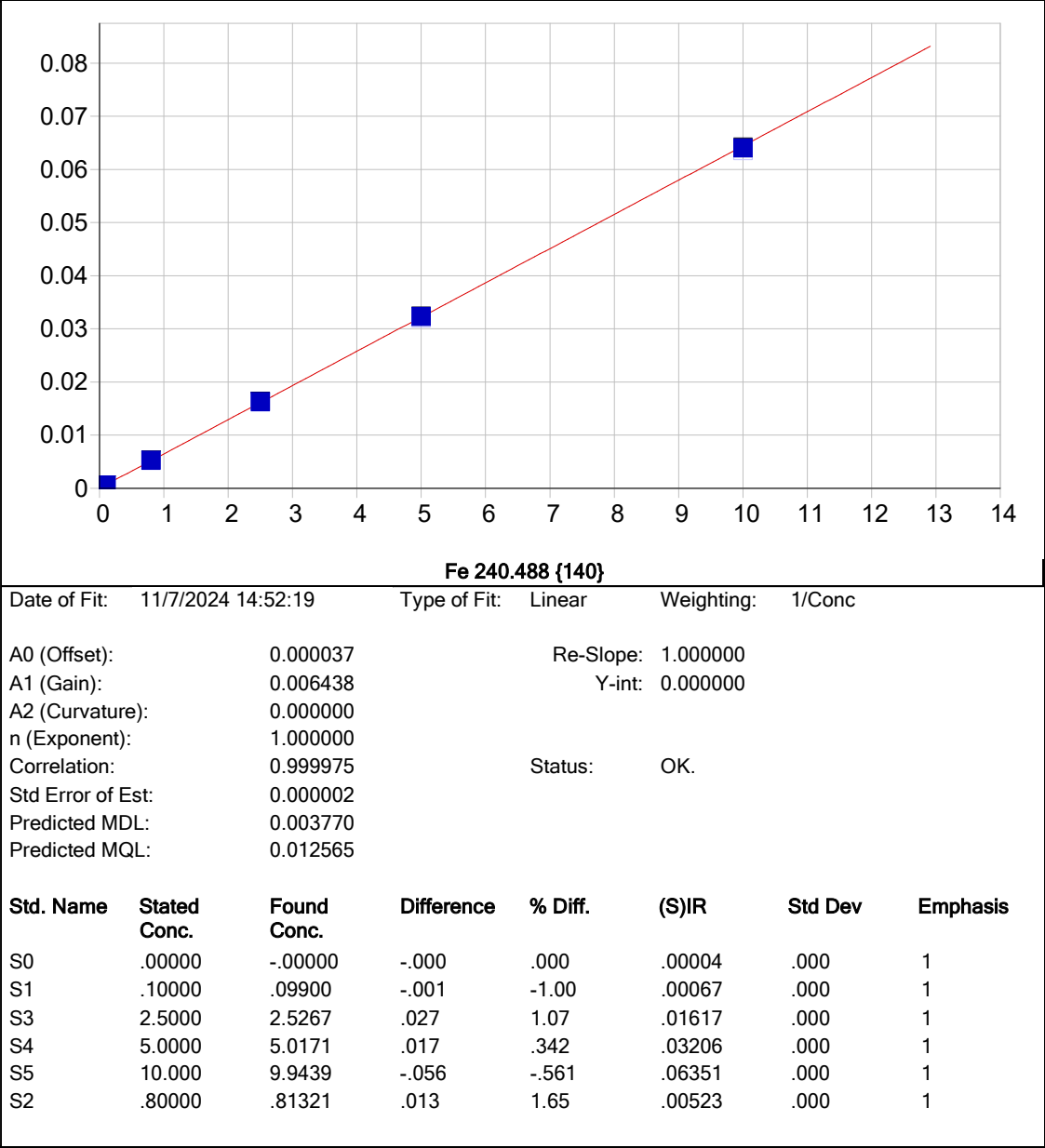


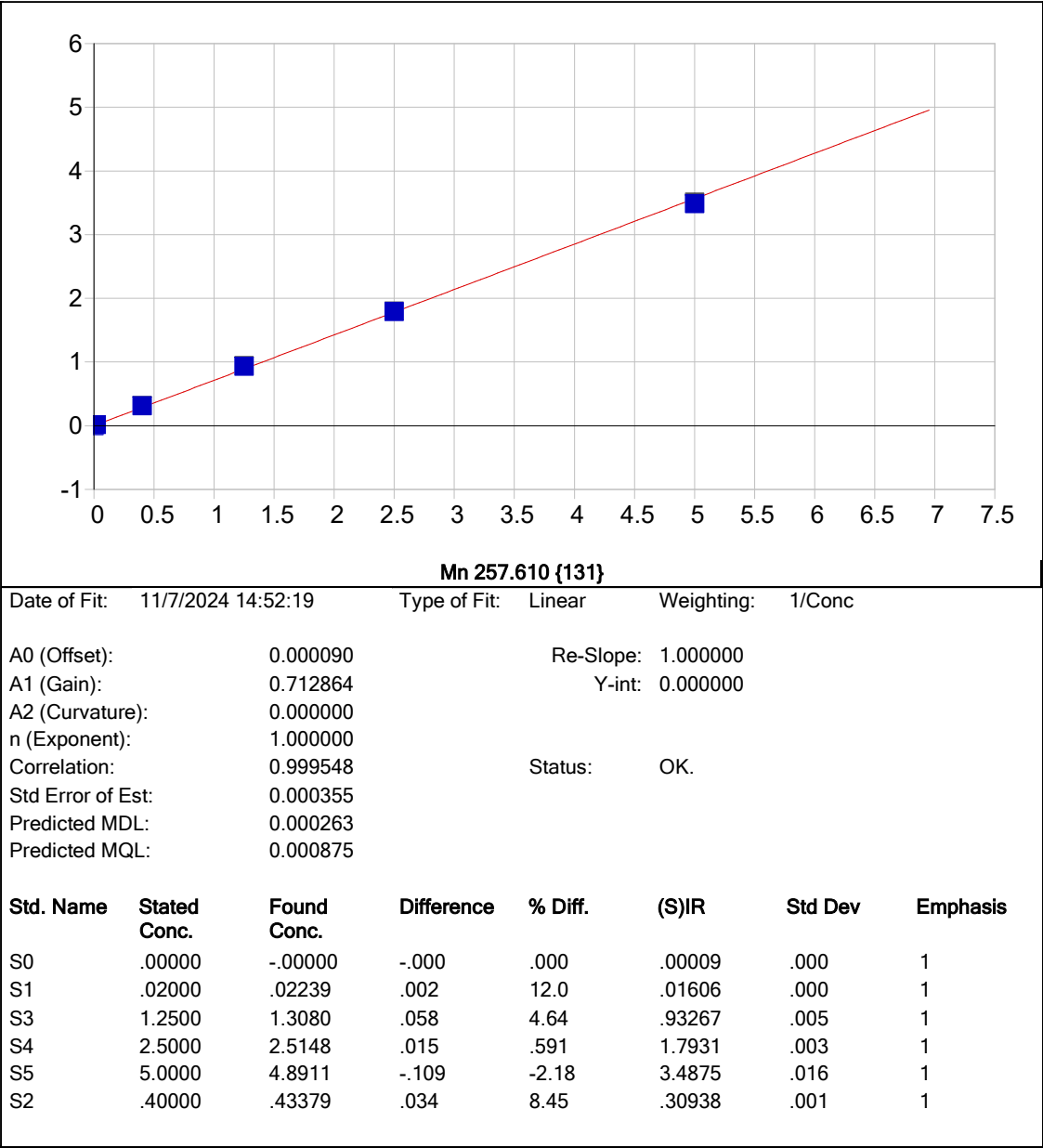


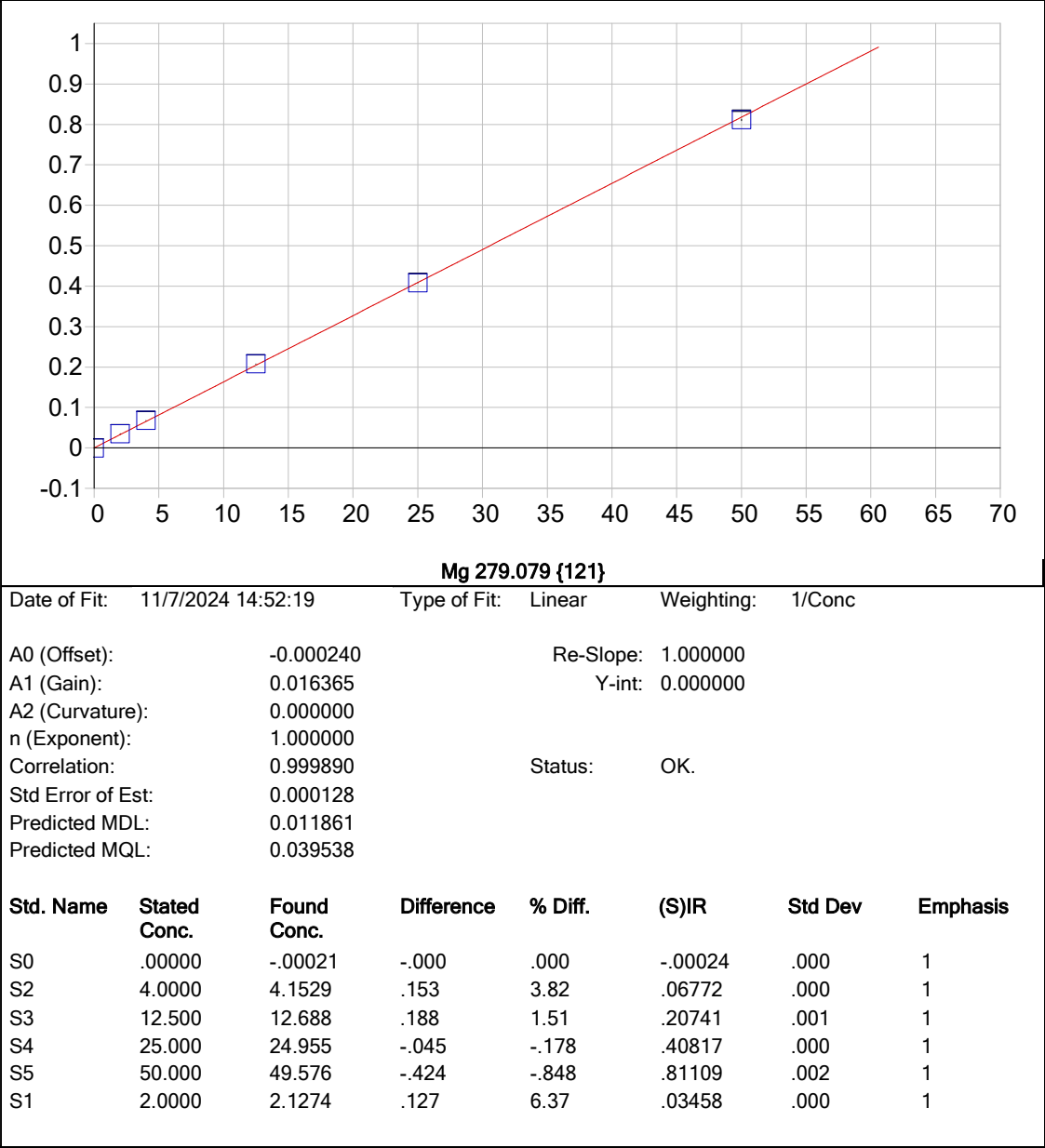


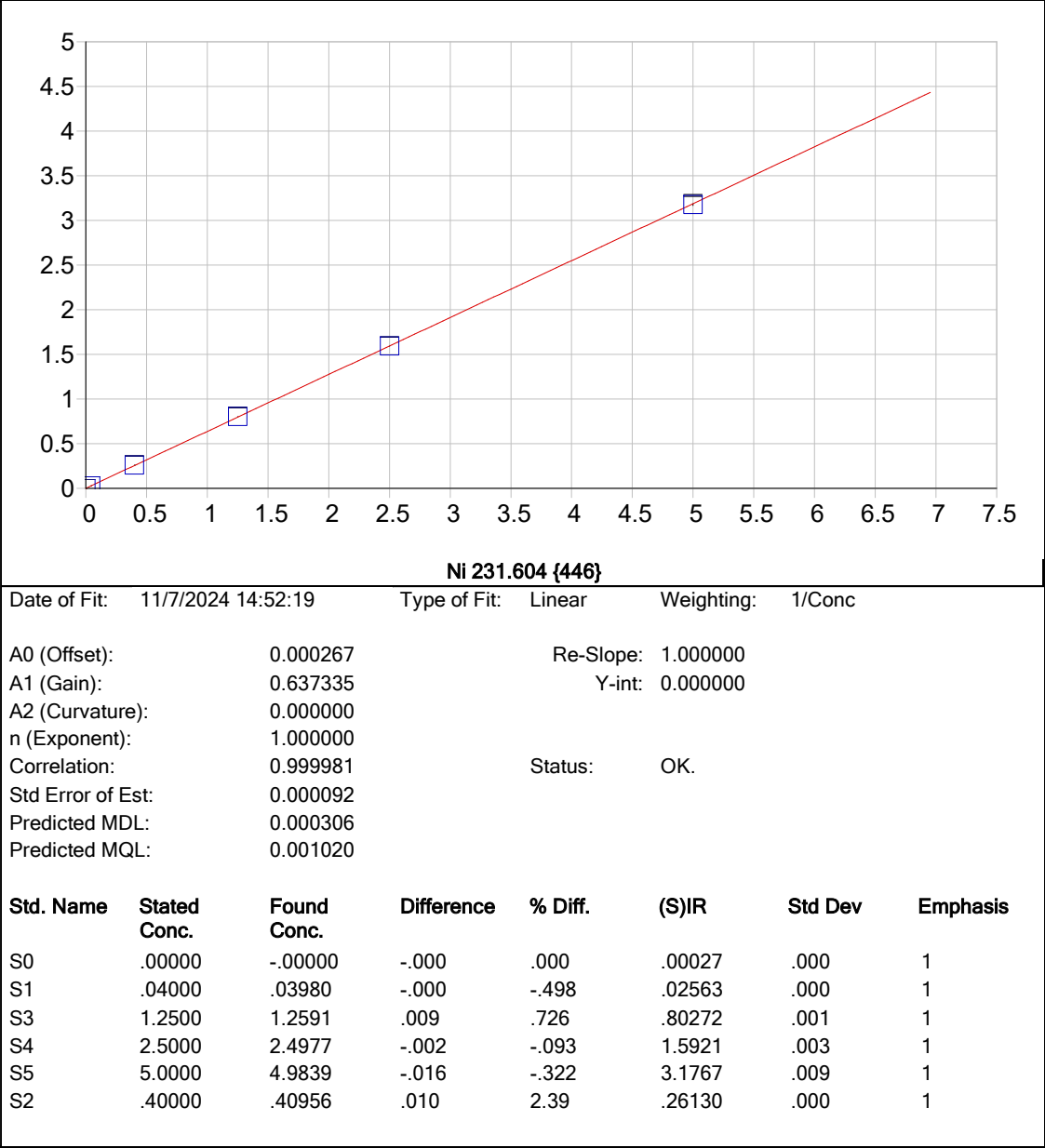


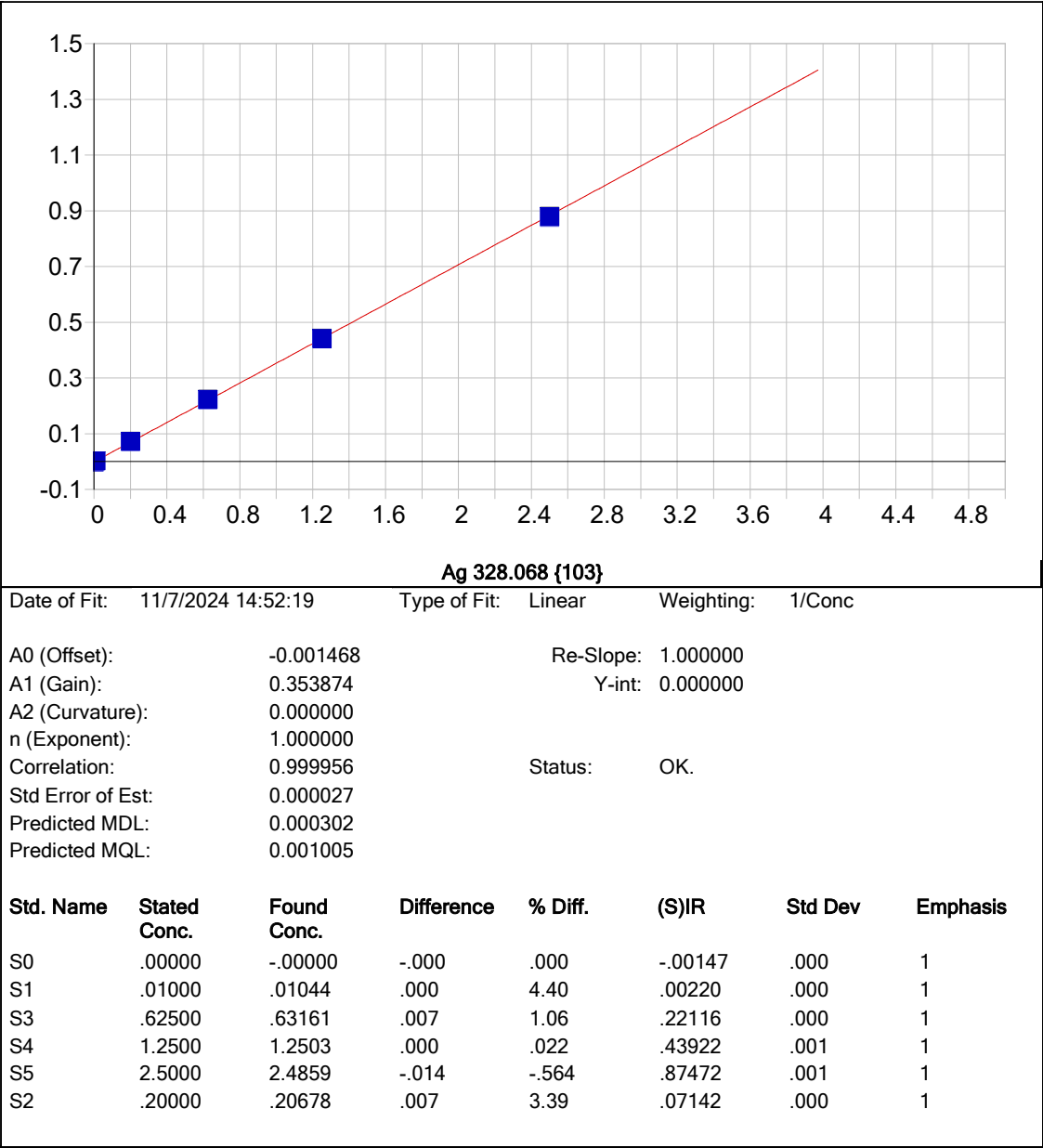


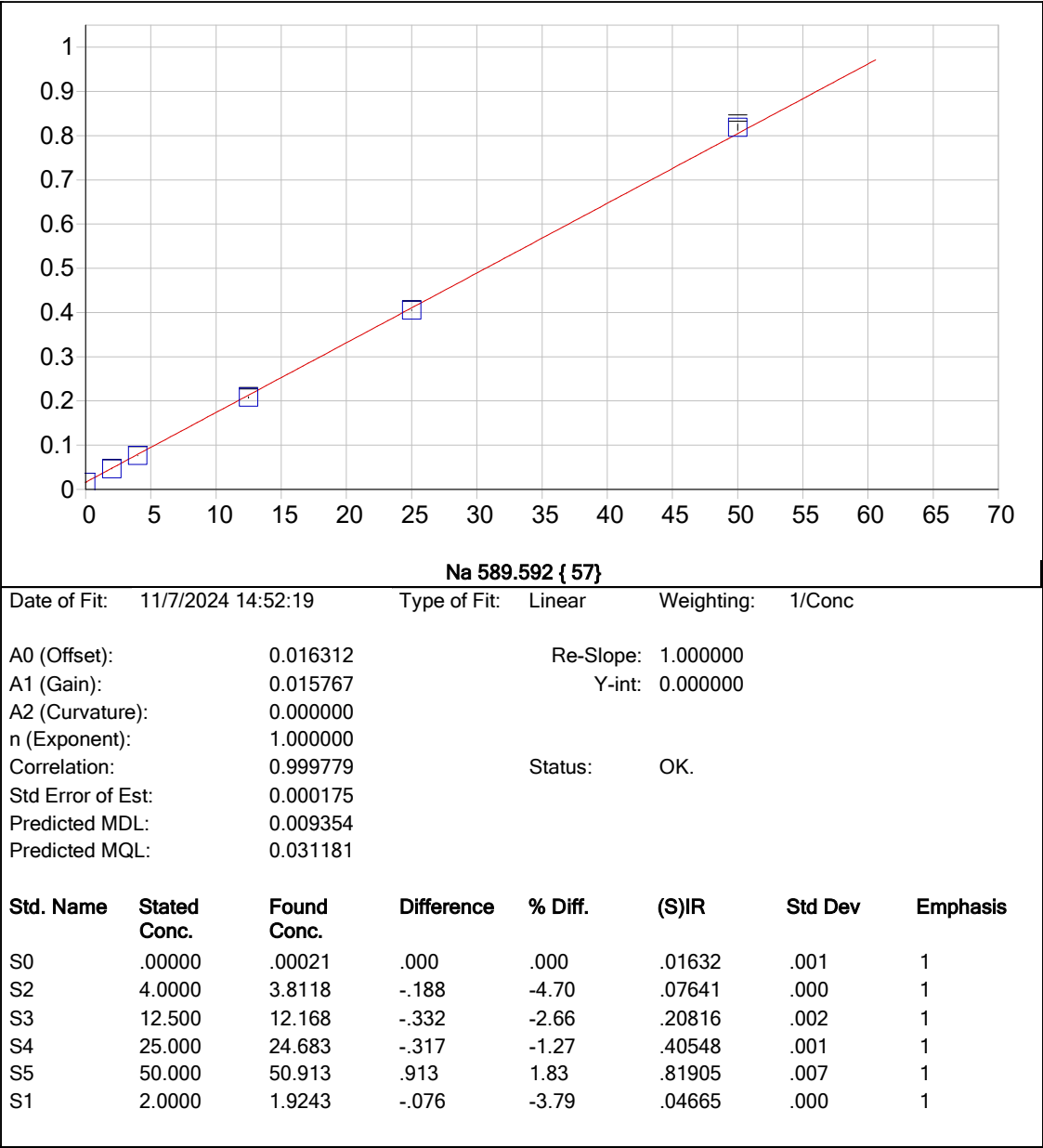


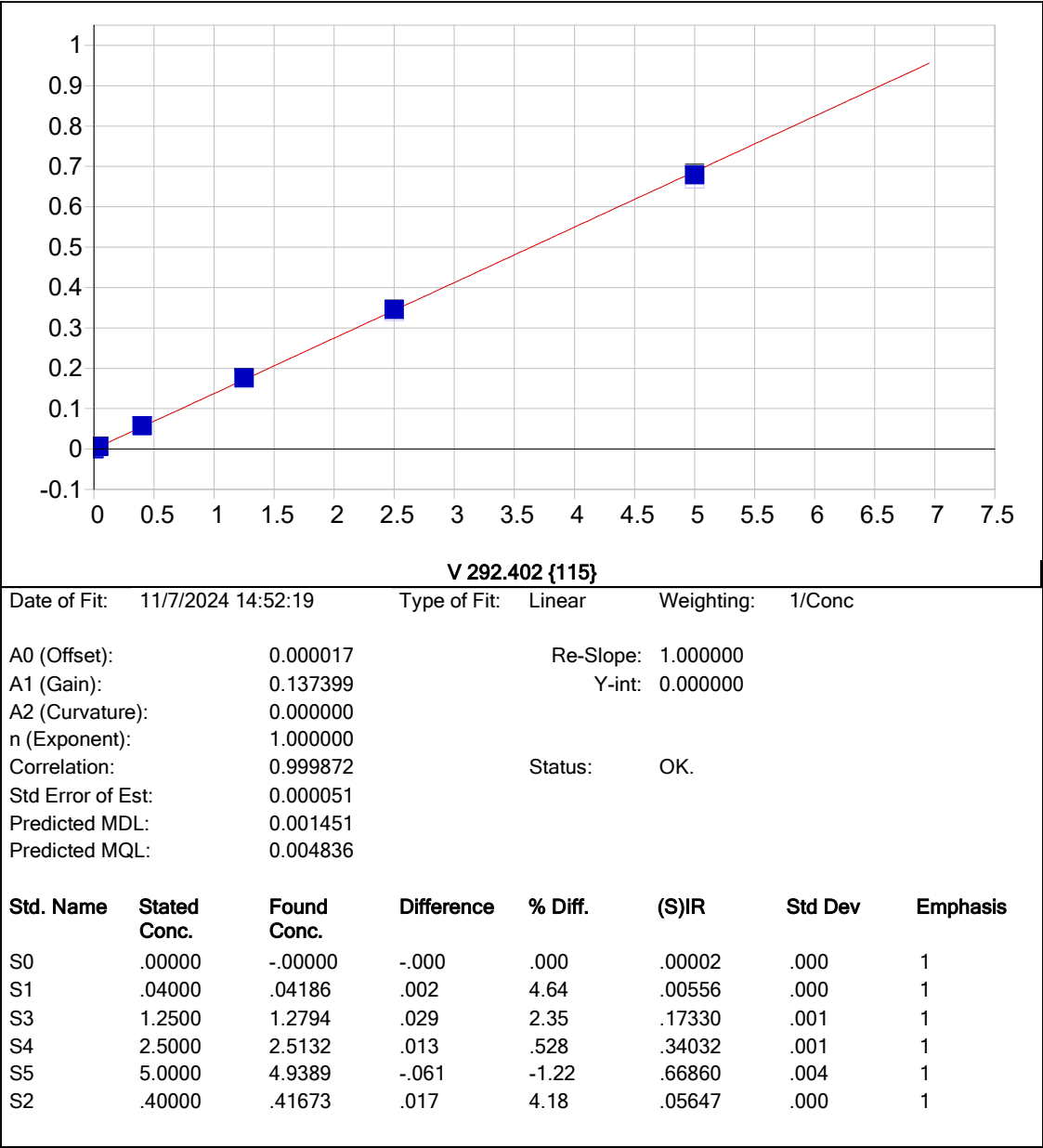


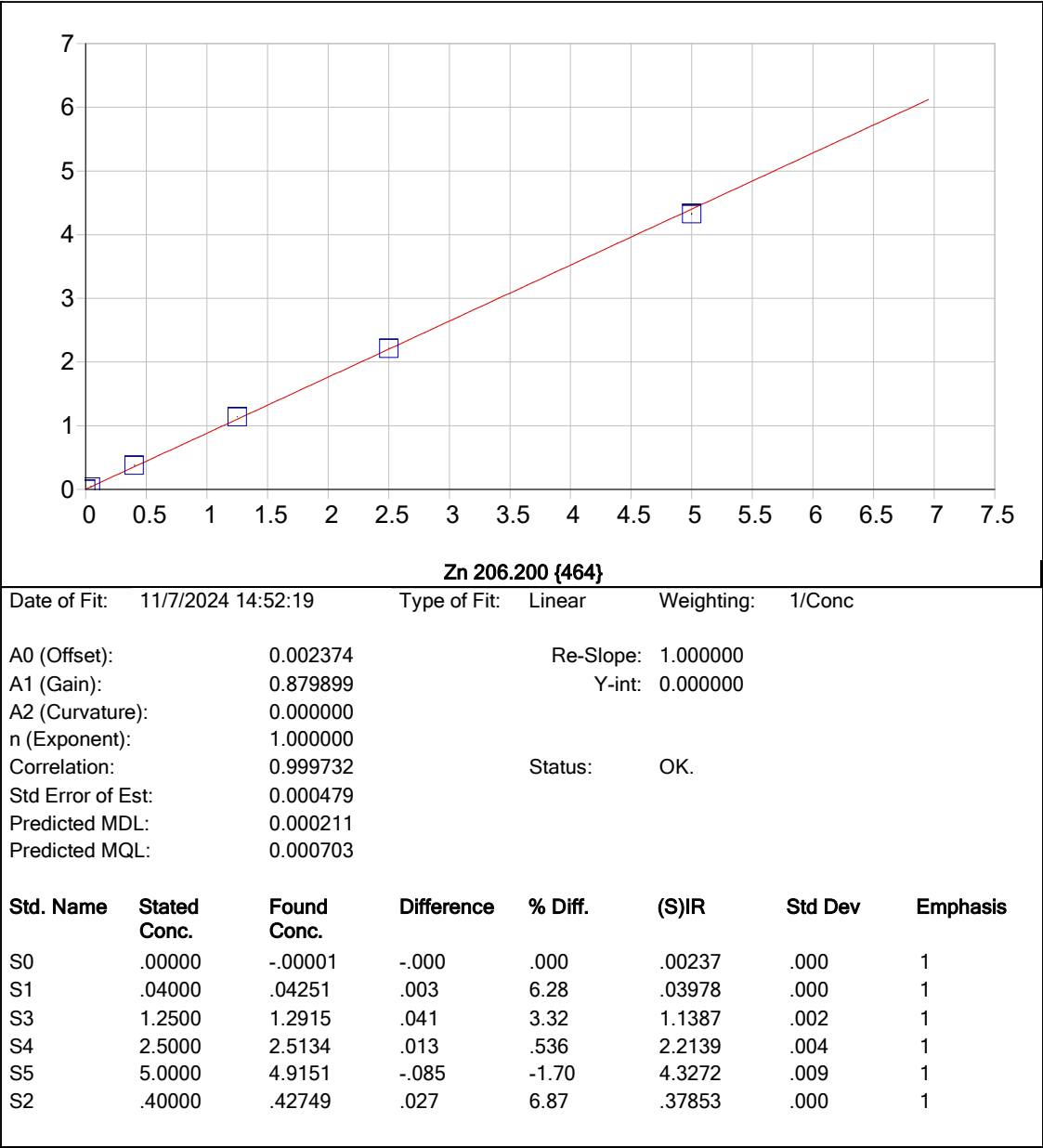


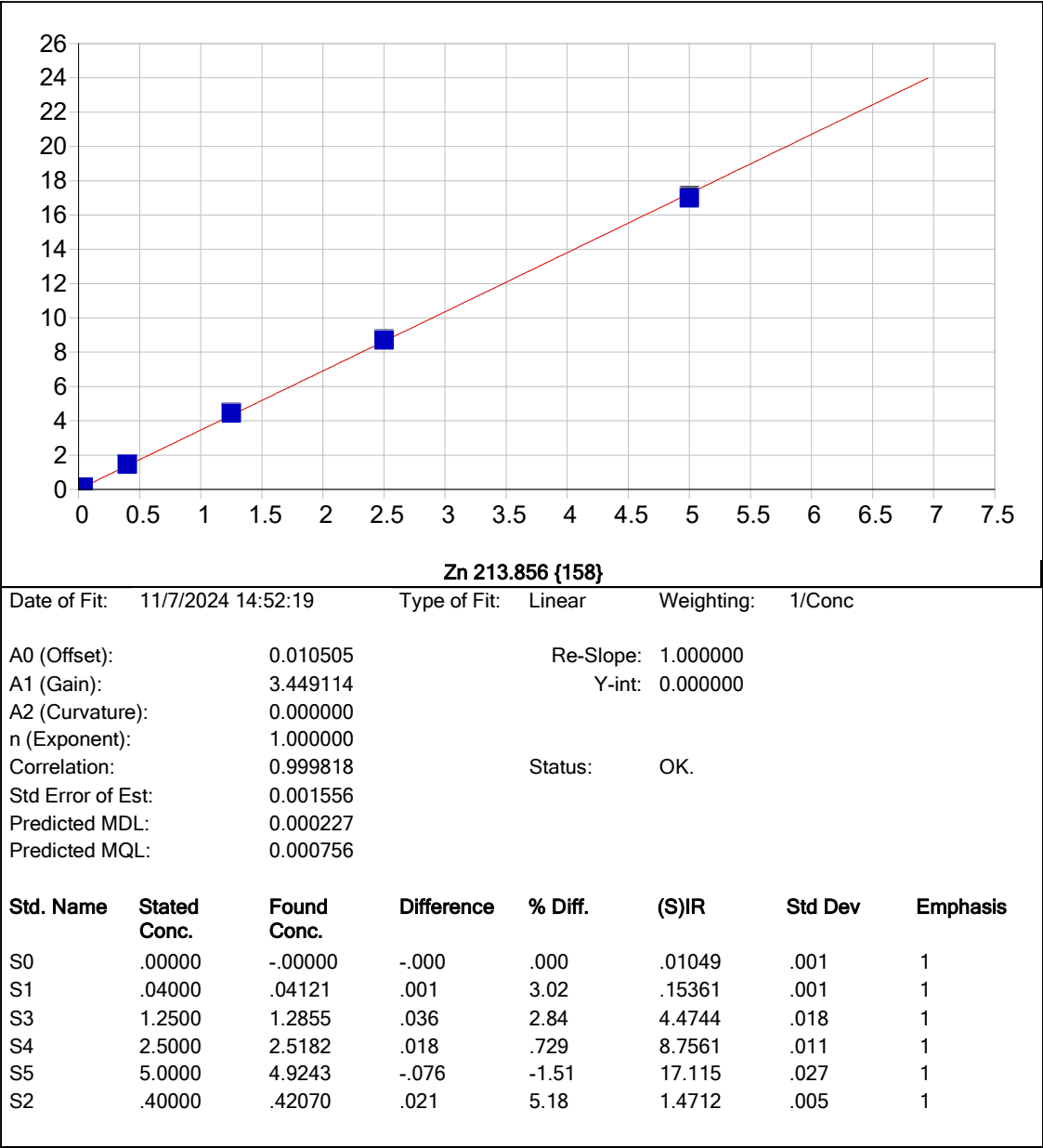


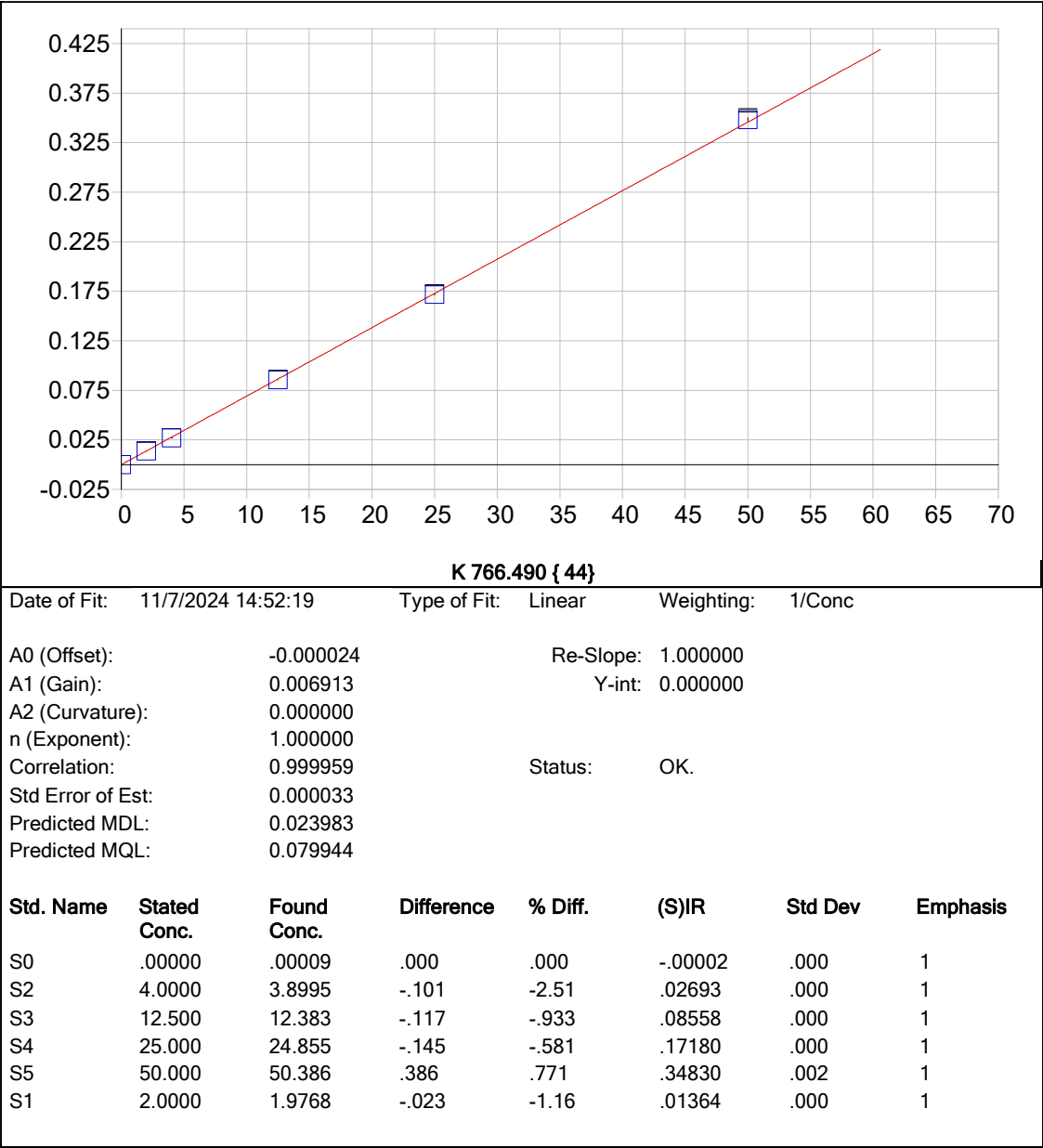


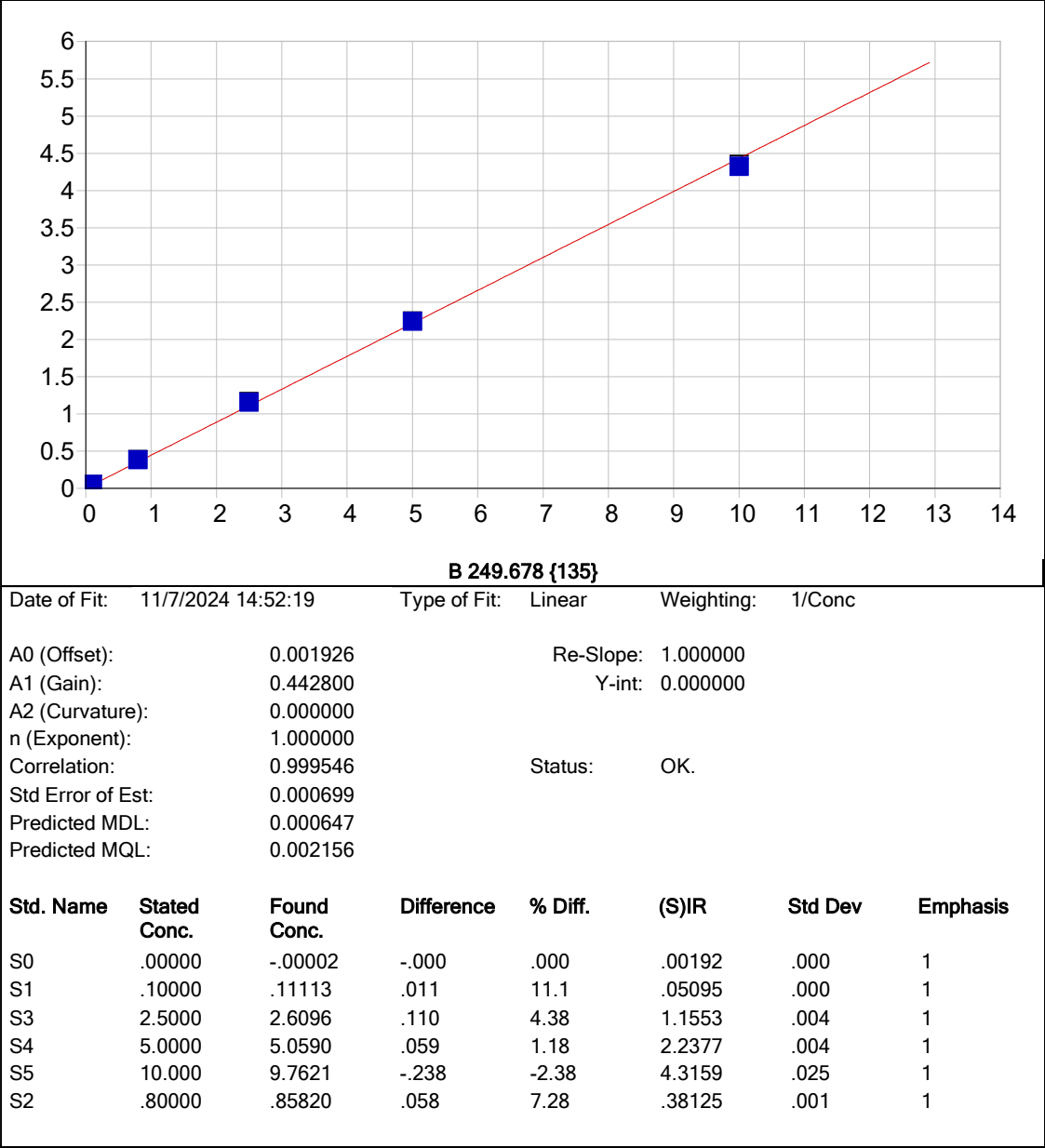


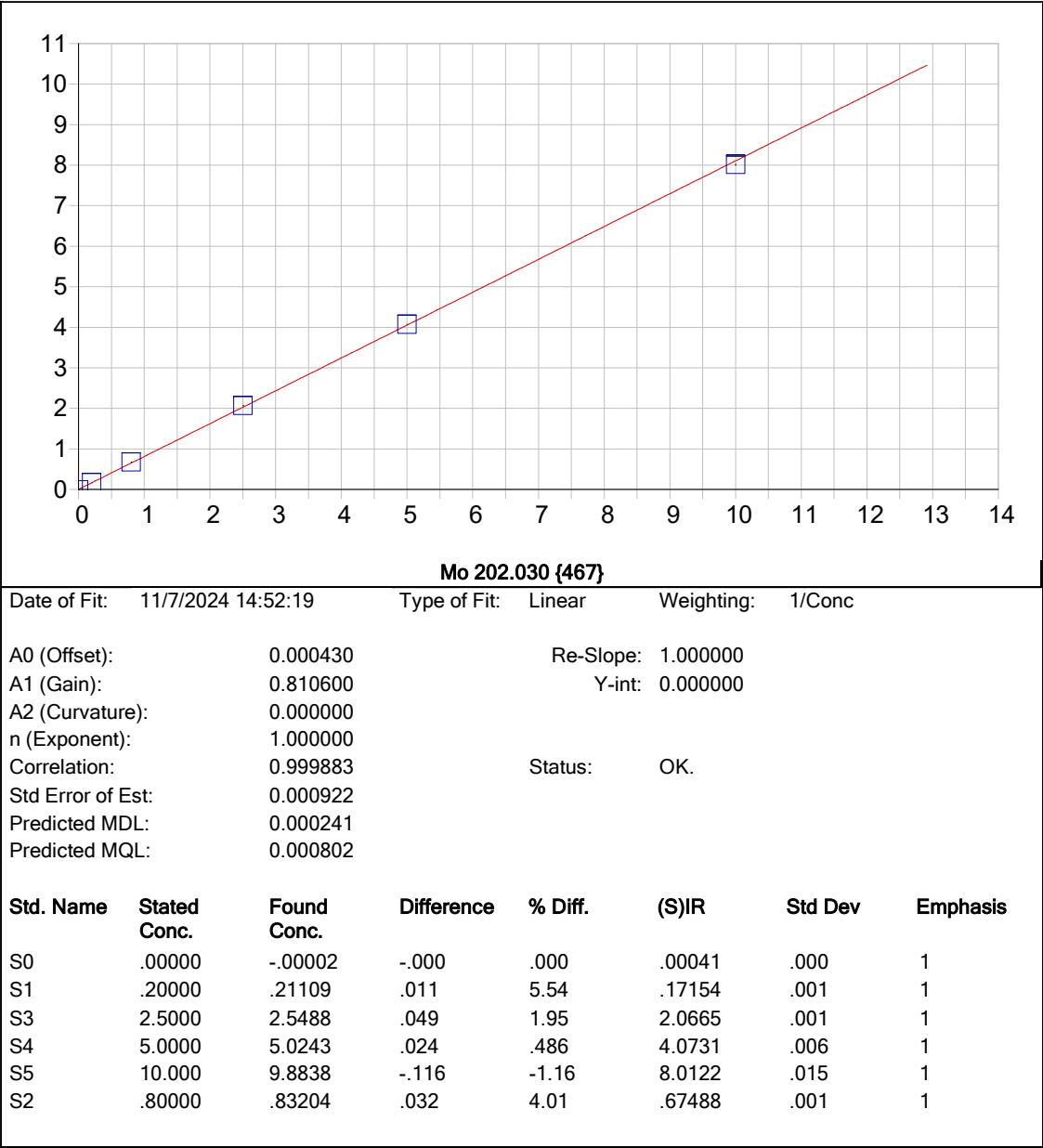


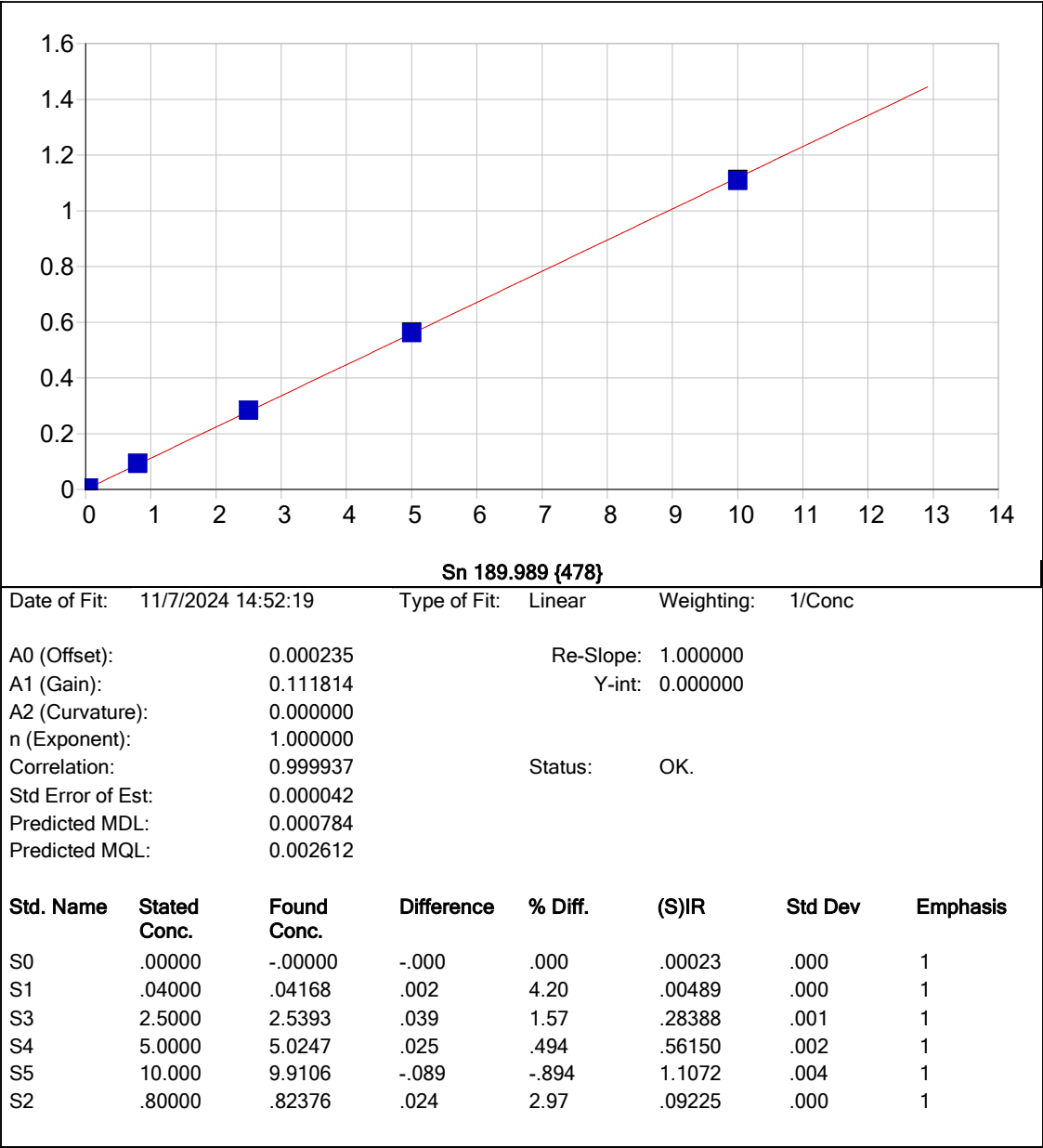


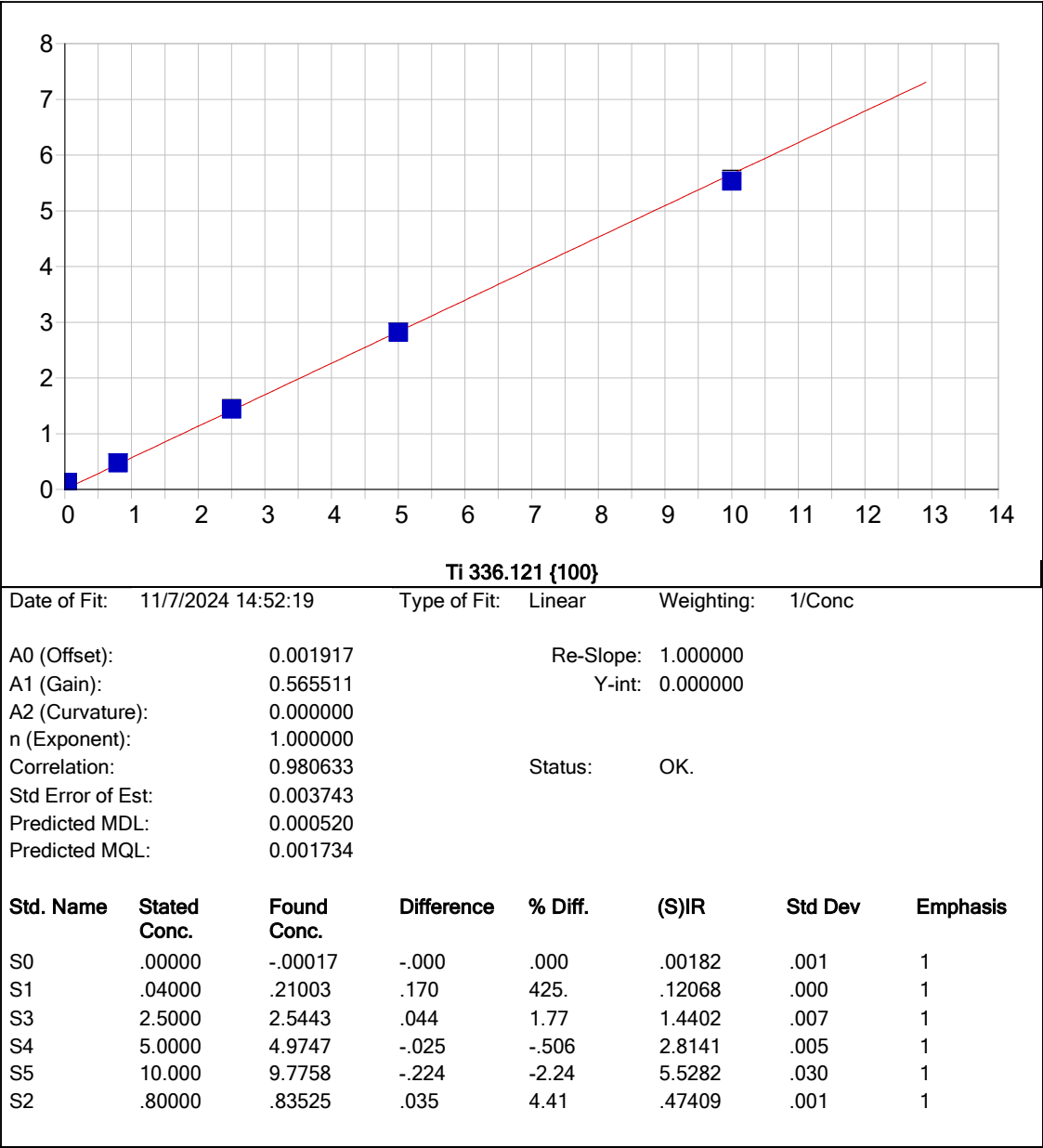


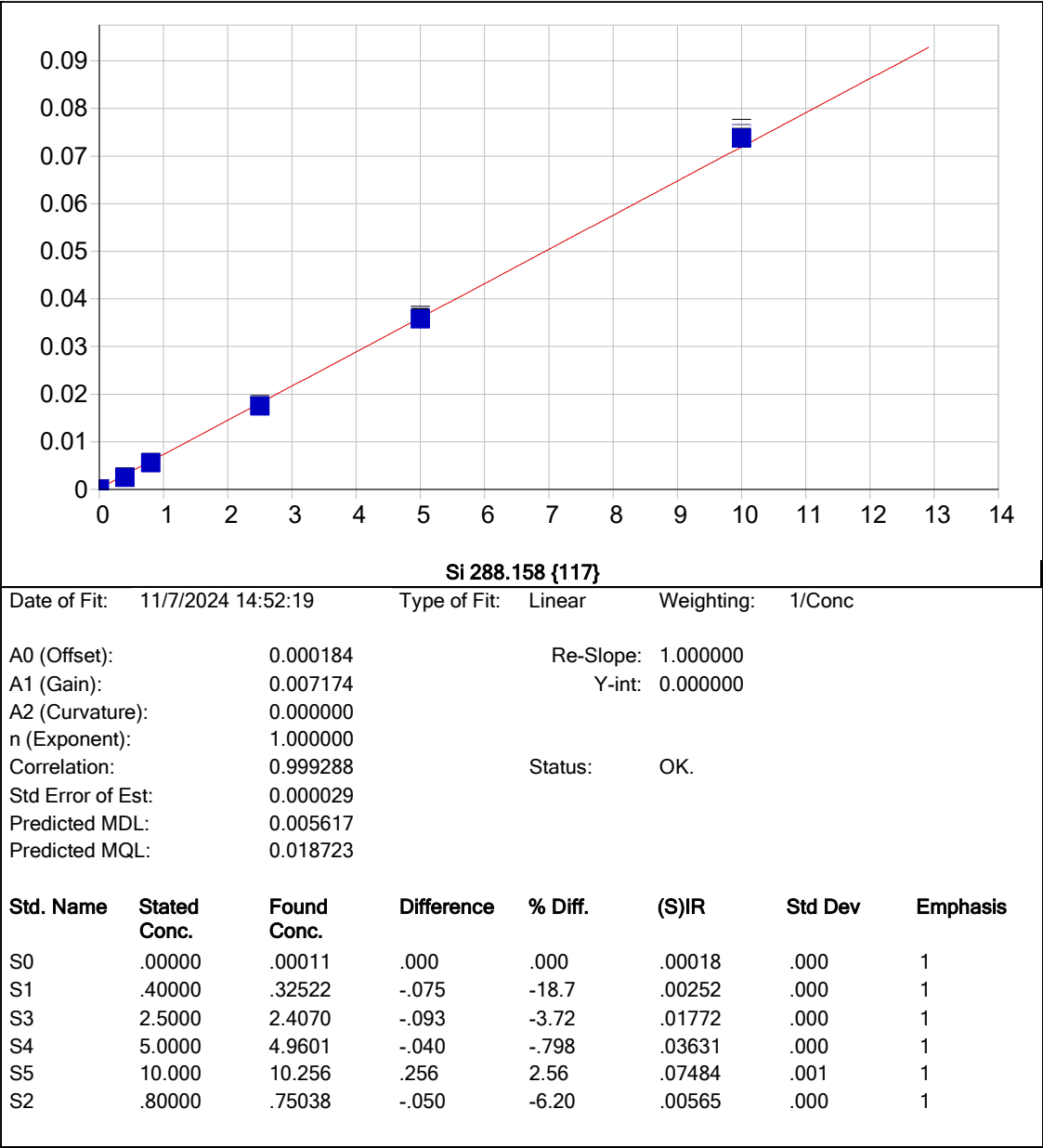


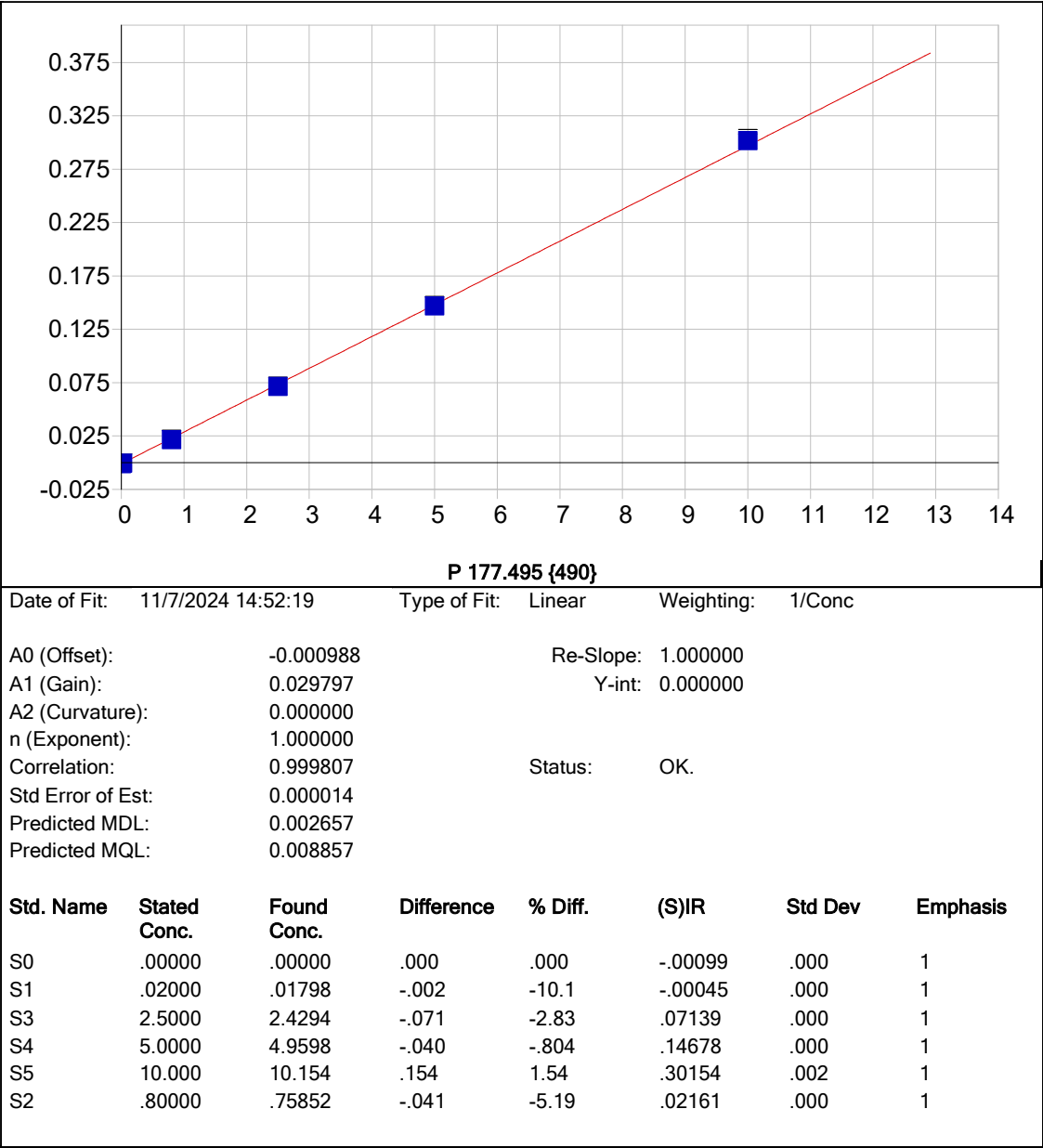


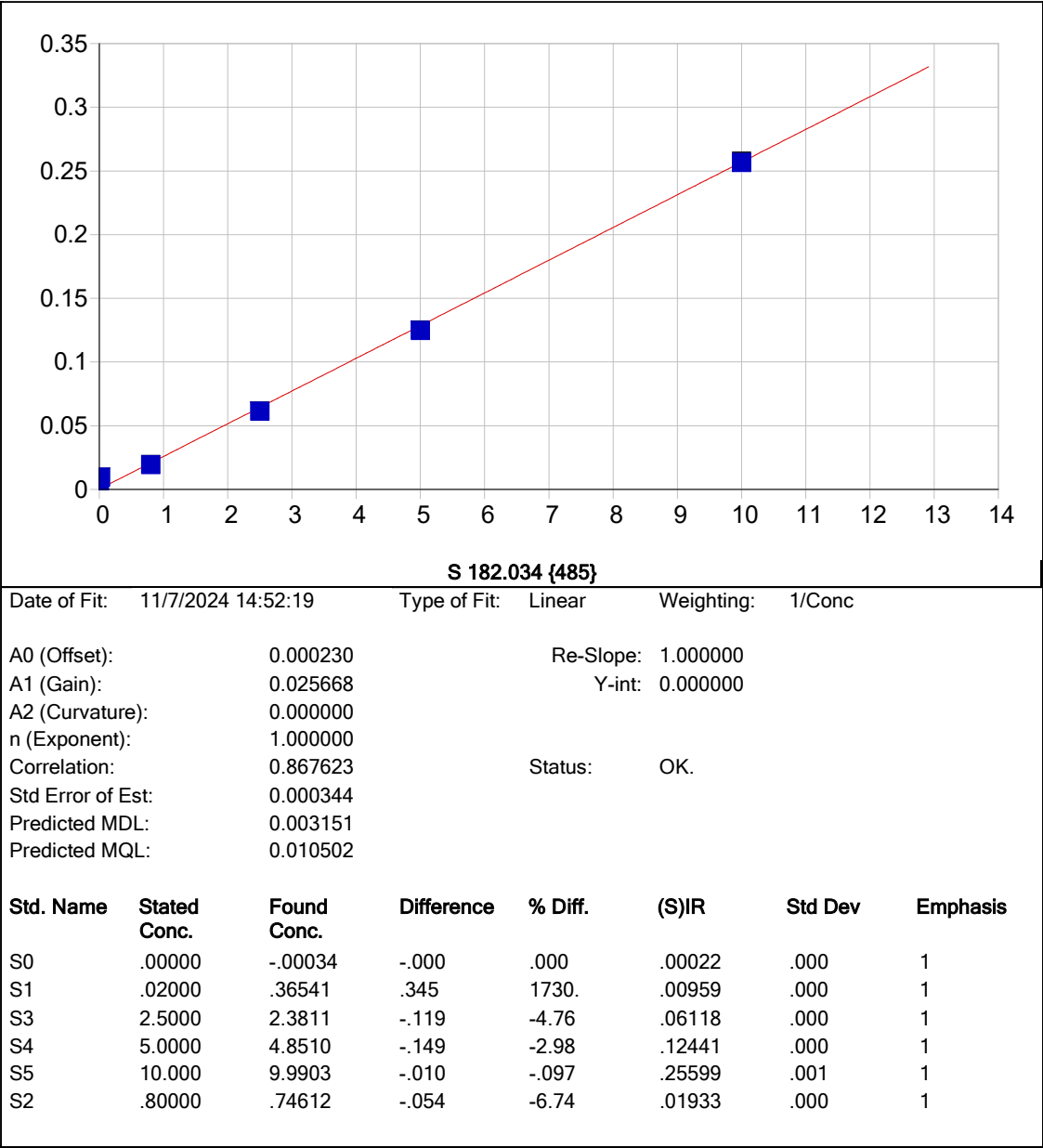


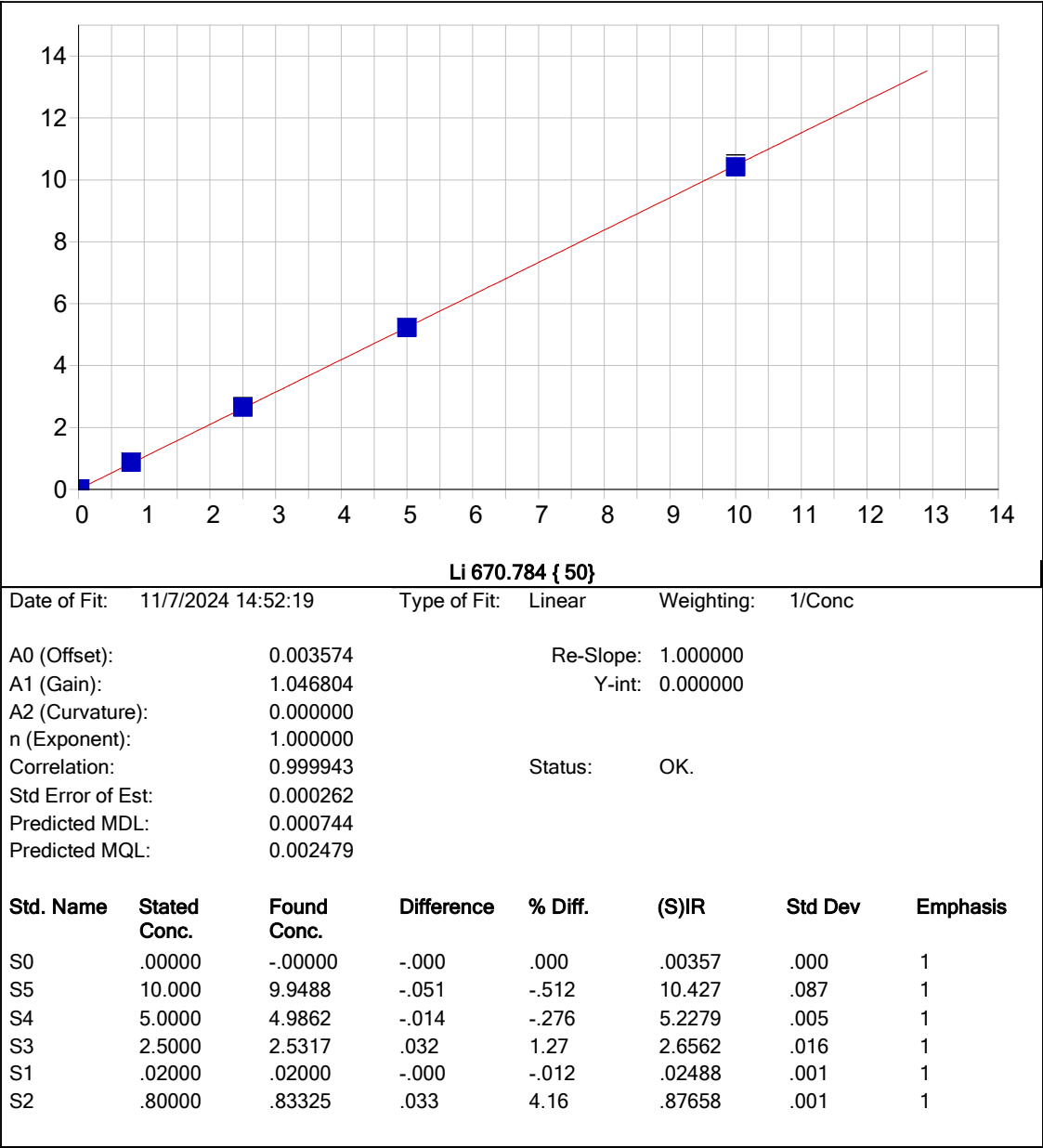


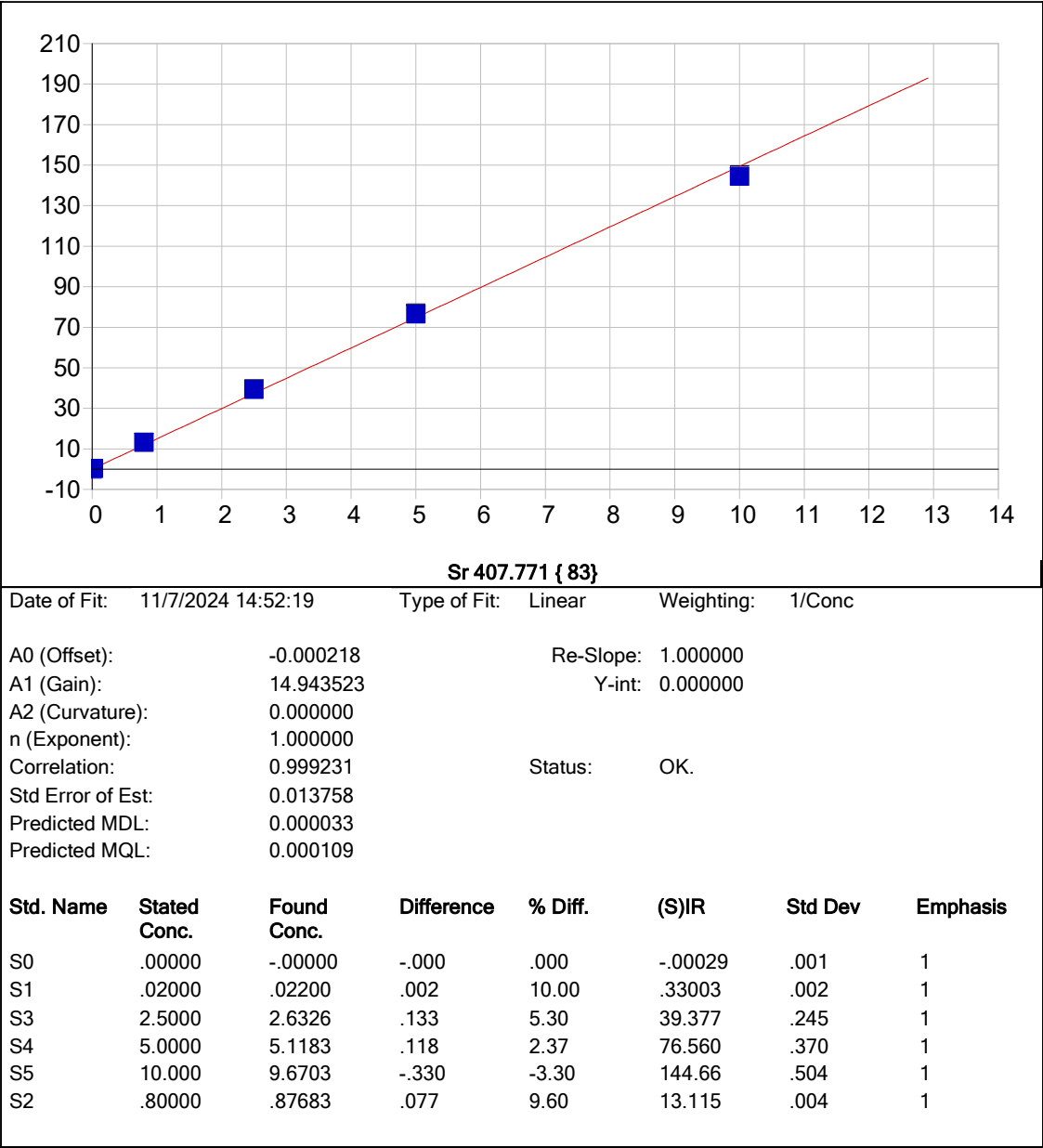


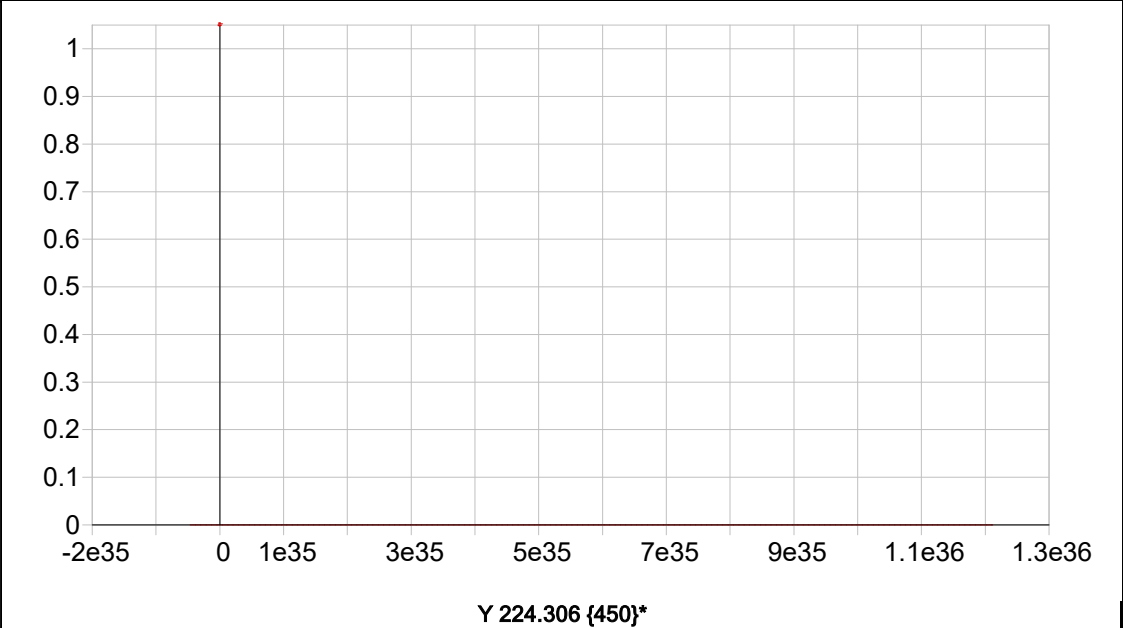








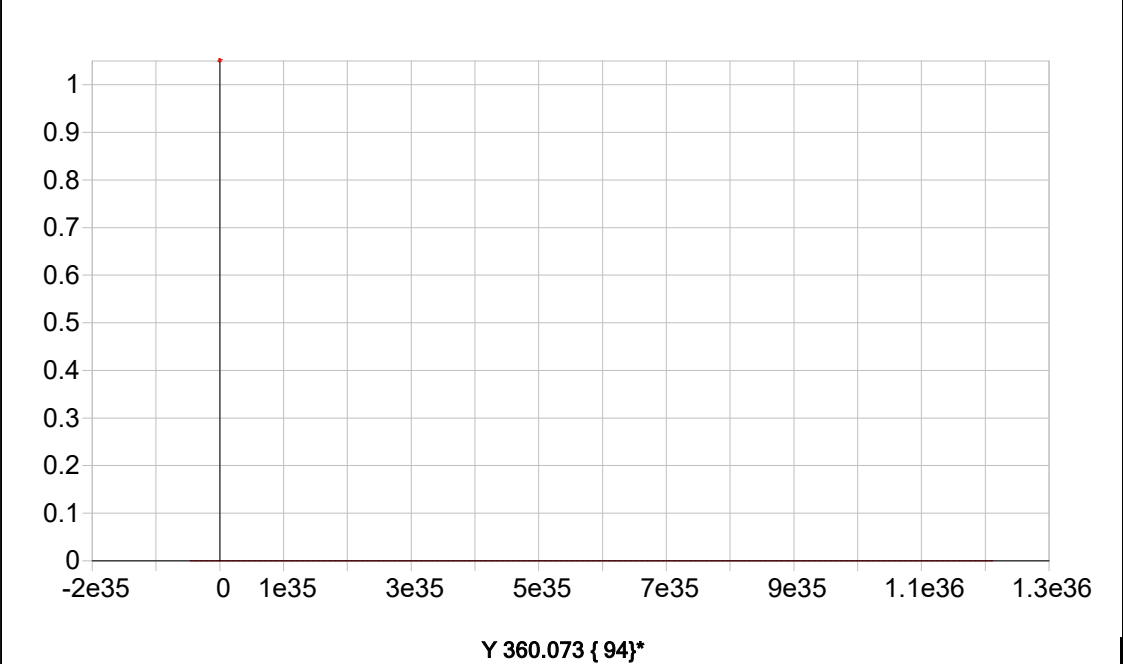




Date of Fit: 11/7/2024 14:52:19 Type of Fit: Linear Weighting: 1/Conc

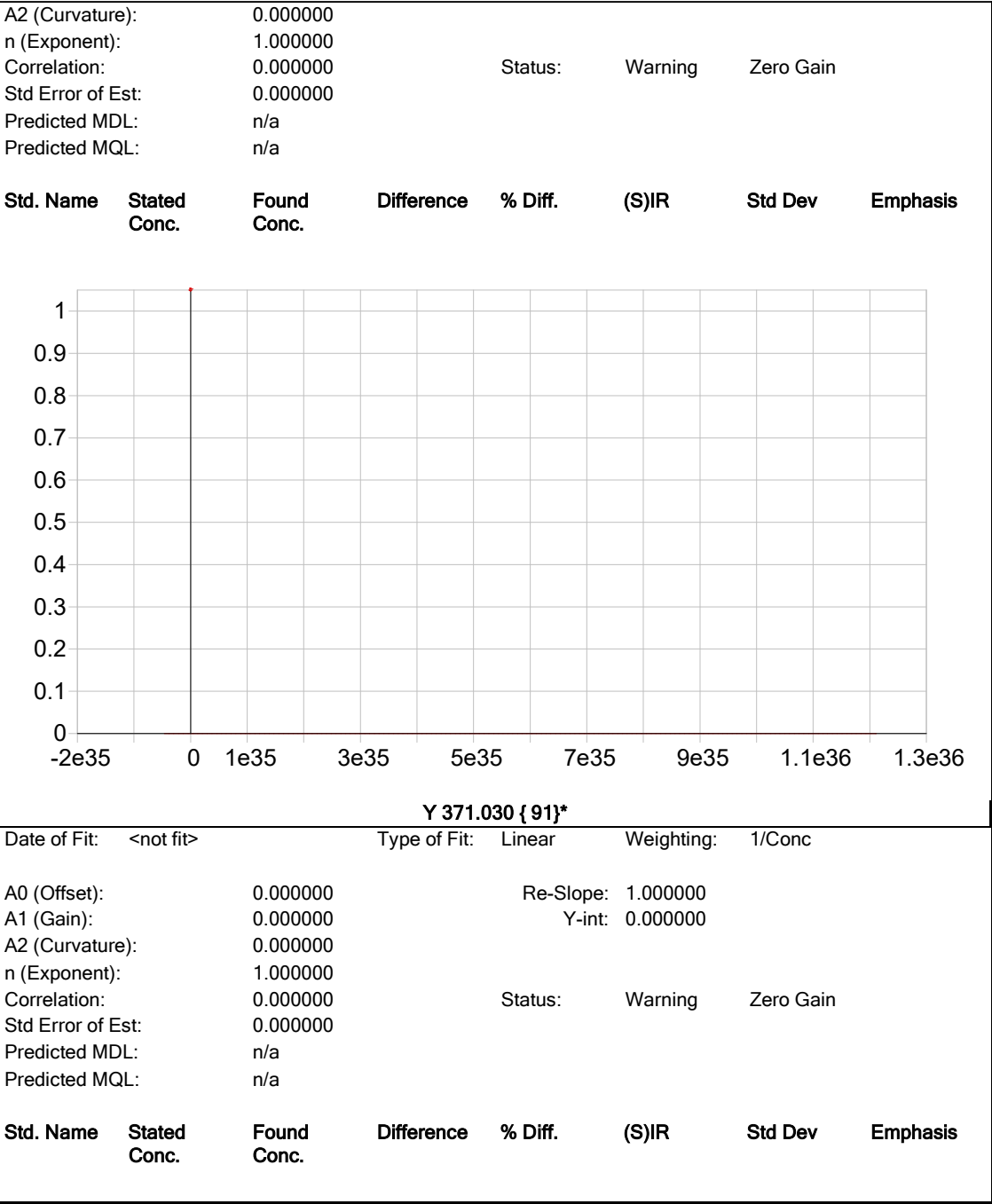
A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.000000	Status:	Warning Zero Gain
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

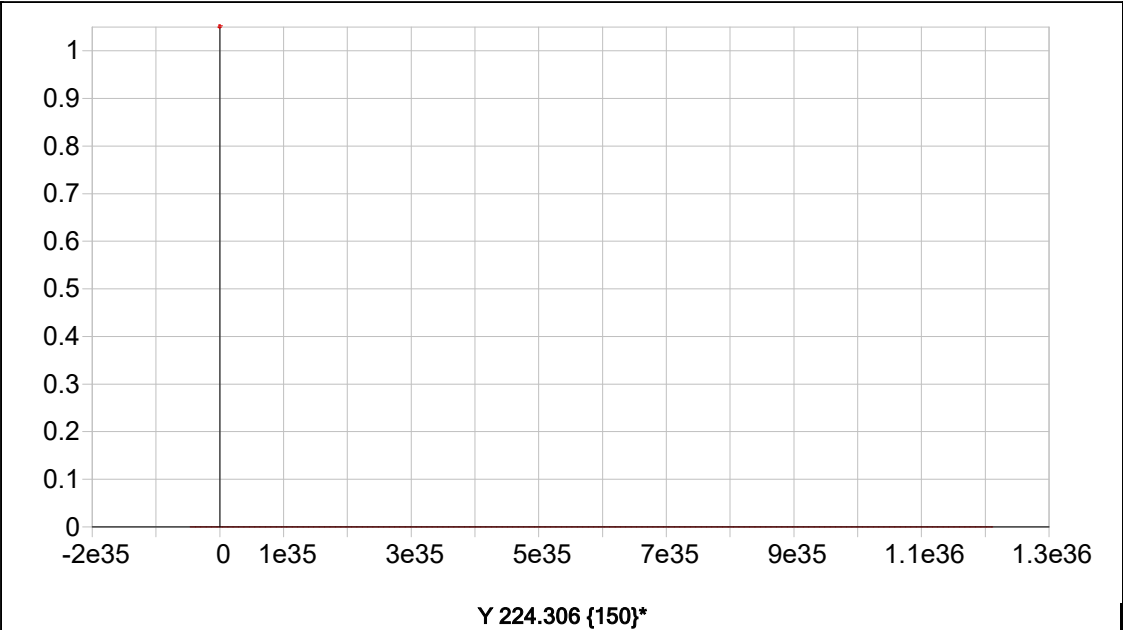
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
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Date of Fit: <not fit> Type of Fit: Linear Weighting: 1/Conc

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





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

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

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

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

SOP ID : M3050B-Digestion-20

SDG No : N/A

Matrix : SOIL

Pipette ID: ICP A

Balance ID : M SC-2

Filter paper ID : N/A

pH Strip ID : N/A

Hood ID : #3

Block ID: 1. HOT BLOCK #3 2. N/A

Start Digest Date: 10/31/2024 Time : 12:00 Temp : 95 °C

End Digest Date: 10/31/2024 Time : 14:10 Temp : 95 °C

Digestion tube ID: M6054

Block thermometer ID: MET-DIG. #3

Dig Technician Signature:

Supervisor Signature:

Temp : 1. 95°C 2. N/A

Standard Name	MLS USED	STD REF. # FROM LOG
LFS-1	1.00	M6000
LFS-2	1.00	M6009
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	MP81119
Conc. HNO3	5.00	M6113
30% H2O2	3.00	M5634
CONC: HCL	10.00	M6095
PTFE Boiling Stones	N/A	M5585
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 # 3 Cell # 34 Temp: 95 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
10/31/24 15:00	JGP / Met dig	ST / Metals Lab
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	pH	Initial Weight (g)	Final Vol (ml)	Color Before	Color After	Texture	Artifact	Comment	Prep Pos
P4615-01	B-131-1-SB01	N/A	2.08	100	Brown	Yellow	Medium	N/A	N/A	1
P4615-02	B-131-2-SB01	N/A	2.42	100	Brown	Yellow	Medium	N/A	N/A	2
P4615-03	B-131-3-SB01	N/A	2.46	100	Brown	Yellow	Medium	N/A	N/A	3
P4639-01	EO-01-103024	N/A	2.11	100	Brown	Yellow	Medium	N/A	N/A	4
P4639-03	EO-02-103024	N/A	2.20	100	Brown	Yellow	Medium	N/A	N/A	5
P4640-01	MH-3	N/A	2.36	100	Brown	Yellow	Medium	N/A	N/A	6
P4643-01	BP-F9-ADDITIONAL	N/A	2.27	100	Brown	Yellow	Medium	N/A	N/A	7
P4643-05	BP-F8	N/A	2.29	100	Brown	Yellow	Medium	N/A	N/A	8
P4643-09	TP-9	N/A	2.22	100	Brown	Yellow	Medium	N/A	N/A	9
P4645-01	Z-02-WC	N/A	2.44	100	Brown	Yellow	Medium	N/A	N/A	10
P4645-01DUP	Z-02-WCDUP	N/A	2.40	100	Brown	Yellow	Medium	N/A	N/A	11
P4645-01MS	Z-02-WCMS	N/A	2.48	100	Brown	Yellow	Medium	N/A	M6000,M6009	12
P4645-01MSD	Z-02-WCMSD	N/A	2.39	100	Brown	Yellow	Medium	N/A	M6000,M6009	13
PB164563BL	PBS563	N/A	2.04	100	Colorless	Colorless	Fine	N/A	N/A	14
PB164563BS	LCS563	N/A	2.04	100	Colorless	Colorless	Fine	N/A	M6000,M6009	15

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB164563

WorkList ID : 184986

Department : Digestion

Date : 10-31-2024 11:30:26

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4615-01	B-131-1-SB01	Solid	Metals Group3	Cool 4 deg C	PORT06	K51	10/29/2024	6010D
P4615-02	B-131-2-SB01	Solid	Metals Group3	Cool 4 deg C	PORT06	K51	10/29/2024	6010D
P4615-03	B-131-3-SB01	Solid	Metals Group3	Cool 4 deg C	PORT06	K51	10/29/2024	6010D
P4639-01	EO-01-103024	Solid	Metals ICP-TAL	Cool 4 deg C	PSEG03	K61	10/30/2024	6010D
P4639-03	EO-02-103024	Solid	Metals ICP-TAL	Cool 4 deg C	PSEG03	K61	10/30/2024	6010D
P4640-01	MH-3	Solid	Metals ICP-TAL	Cool 4 deg C	PSEG03	K61	10/30/2024	6010D
P4643-01	BP-F9-ADDITIONAL	Solid	Metals ICP-TAL	Cool 4 deg C	PSEG03	K51	10/30/2024	6010D
P4643-05	BP-F8	Solid	Metals ICP-TAL	Cool 4 deg C	PSEG03	K51	10/30/2024	6010D
P4643-09	TP-9	Solid	Metals ICP-TAL	Cool 4 deg C	PSEG03	K51	10/30/2024	6010D
P4645-01	Z-02-WC	Solid	Metals ICP-TAL	Cool 4 deg C	PSEG03	K63	10/31/2024	6010D

Date/Time 10/31/24 11:40

Raw Sample Received by: JSP (not sig)

Raw Sample Relinquished by: JSP (not sig)

Date/Time 10/31/24 11:48

Raw Sample Received by: JSP (not sig)

Raw Sample Relinquished by: JSP (not sig)

PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 10/31/2024

OVENTEMP IN Celsius(°C): 107
Time IN: 17:00
In Date: 10/30/2024
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: 10/31/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC:LB133204

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
P4615-01	B-131-1-SB01	29	1.15	8.81	9.96	8.81	86.9	
P4615-02	B-131-2-SB01	30	1.15	8.80	9.95	8.63	85.0	
P4615-03	B-131-3-SB01	31	1.17	8.55	9.72	8.52	86.0	
P4620-01	P001-CF06-01	1	1.15	8.40	9.55	9.15	95.2	
P4620-02	P001-CF06-01	2	1.18	8.50	9.68	9.24	94.8	
P4620-03	P001-CF07-01	3	1.15	8.76	9.91	9.52	95.5	
P4620-04	P001-CF07-01	4	1.18	8.51	9.69	9.3	95.4	
P4620-05	P001-CF08-01	5	1.14	8.63	9.77	9.35	95.1	
P4620-06	P001-CF08-01	6	1.18	8.74	9.92	9.52	95.4	
P4620-07	P001-CF09-01	7	1.11	8.72	9.83	9.41	95.2	
P4620-08	P001-CF09-01	8	1.14	8.59	9.73	9.31	95.1	
P4620-09	P001-CF10-01	9	1.15	8.36	9.51	9.11	95.2	
P4620-10	P001-CF10-01	10	1.12	8.80	9.92	9.52	95.5	
P4620-11	P001-CF11-01	11	1.15	8.82	9.97	9.53	95.0	
P4620-12	P001-CF11-01	12	1.15	8.30	9.45	9.11	95.9	
P4620-13	P001-CF12-01	13	1.15	8.56	9.71	9.32	95.4	
P4620-14	P001-CF12-01	14	1.14	8.79	9.93	9.47	94.8	
P4620-15	P001-CF13-01	15	1.17	8.68	9.85	9.42	95.0	
P4620-16	P001-CF13-01	16	1.15	8.37	9.52	9.13	95.3	
P4620-17	P001-CF14-01	17	1.18	8.54	9.72	9.32	95.3	
P4620-18	P001-CF14-01	18	1.19	8.53	9.72	9.37	95.9	
P4620-19	P001-CF15-01	19	1.17	8.60	9.77	9.38	95.5	
P4620-20	P001-CF15-01	20	1.15	8.81	9.96	9.22	91.6	
P4620-22	P001-CF16-01	21	1.15	8.51	9.66	9.3	95.8	
P4620-23	P4620-22MS	22	1.15	8.51	9.66	9.3	95.8	
P4620-24	P4620-22MSD	23	1.15	8.51	9.66	9.3	95.8	
P4620-25	P001-CF16-01	24	1.15	8.69	9.84	9.46	95.6	
P4620-26	P4620-25MS	25	1.15	8.69	9.84	9.46	95.6	



PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 10/31/2024

OVENTEMP IN Celsius(°C): 107
Time IN: 17:00
In Date: 10/30/2024
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: 10/31/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC:LB133204

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
P4620-27	P4620-25MSD	26	1.15	8.69	9.84	9.46	95.6	
P4620-29	P001-CF16-02	27	1.15	8.59	9.74	9.33	95.2	
P4620-30	P001-CF16-02	28	1.12	8.70	9.82	9.45	95.7	
P4639-01	EO-01-103024	32	1.17	8.60	9.77	9.24	93.8	
P4639-02	EO-01-103024-E2	33	1.16	8.50	9.66	8.93	91.4	
P4639-03	EO-02-103024	34	1.15	8.40	9.55	8.75	90.5	
P4639-04	EO-02-103024-E2	35	1.18	8.50	9.68	8.79	89.5	
P4640-01	MH-3	36	1.18	8.57	9.75	8.67	87.4	
P4640-02	MH-3-EPH	37	1.15	8.84	9.99	8.78	86.3	
P4640-03	MH-3-VOC	38	1.17	8.40	9.57	8.39	86.0	

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

WORKLIST(Hardcopy Internal Chain)

133204

WorkList Name : %1-103024

WorkList ID : 184927

Department : Wet-Chemistry

Date : 10-30-2024 08:17:15

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4615-01	B-131-1-SB01	Solid	Percent Solids	Cool 4 deg C	PORT06	K51	10/29/2024	Chemtech -SO
P4615-02	B-131-2-SB01	Solid	Percent Solids	Cool 4 deg C	PORT06	K51	10/29/2024	Chemtech -SO
P4615-03	B-131-3-SB01	Solid	Percent Solids	Cool 4 deg C	PORT06	K51	10/29/2024	Chemtech -SO
P4620-01	P001-CF06-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-02	P001-CF06-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-03	P001-CF07-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-04	P001-CF07-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-05	P001-CF08-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-06	P001-CF08-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-07	P001-CF09-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-08	P001-CF09-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-09	P001-CF10-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-10	P001-CF10-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-11	P001-CF11-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-12	P001-CF11-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-13	P001-CF12-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-14	P001-CF12-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-15	P001-CF13-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-16	P001-CF13-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-17	P001-CF14-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-18	P001-CF14-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO

Date/Time 10/30/24 15:30
 Raw Sample Received by: [Signature]
 Raw Sample Relinquished by: CP Sm

Date/Time 10/30/24 17:10
 Raw Sample Received by: CP Sm
 Raw Sample Relinquished by: [Signature]

WORKLIST(Hardcopy Internal Chain)

133204

WorkList Name : %1-103024

WorkList ID : 184927

Department : Wet-Chemistry

Date : 10-30-2024 08:17:15

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4620-19	P001-CF15-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-20	P001-CF15-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-22	P001-CF16-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-23	P4620-22MS	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-24	P4620-22MSD	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-25	P001-CF16-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-26	P4620-25MS	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-27	P4620-25MSD	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-29	P001-CF16-02	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4620-30	P001-CF16-02	Solid	Percent Solids	Cool 4 deg C	ROYF02	K41	10/29/2024	Chemtech -SO
P4639-01	EO-01-103024	Solid	Percent Solids	Cool 4 deg C	PSEG03	K61	10/30/2024	Chemtech -SO
P4639-02	EO-01-103024-E2	Solid	Percent Solids	Cool 4 deg C	PSEG03	K61	10/30/2024	Chemtech -SO
P4639-03	EO-02-103024	Solid	Percent Solids	Cool 4 deg C	PSEG03	K61	10/30/2024	Chemtech -SO
P4639-04	EO-02-103024-E2	Solid	Percent Solids	Cool 4 deg C	PSEG03	K61	10/30/2024	Chemtech -SO
P4640-01	MH-3	Solid	Percent Solids	Cool 4 deg C	PSEG03	K61	10/30/2024	Chemtech -SO
P4640-02	MH-3-EPH	Solid	Percent Solids	Cool 4 deg C	PSEG03	K61	10/30/2024	Chemtech -SO
P4640-03	MH-3-VOC	Solid	Percent Solids	Cool 4 deg C	PSEG03	K61	10/30/2024	Chemtech -SO

Date/Time 10/30/24 15:30
 Raw Sample Received by: 80 wll1
 Raw Sample Relinquished by: 80 sm

Date/Time 10/30/24 17:16
 Raw Sample Received by: 80 sm
 Raw Sample Relinquished by: 80 wll1

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133257

Review By	mohan	Review On	11/6/2024 4:20:36 AM
Supervise By	kareem	Supervise On	11/6/2024 11:50:09 PM
STD. NAME	STD REF.#		
ICAL Standard	MP83078 MP83079 MP73080 MP83081 MP83082 MP83084		
ICV Standard	MP83085		
CCV Standard	MP83088		
ICSA Standard	MP83086 MP83087		
CRI Standard	MP83084		
LCS Standard			
Chk Standard	MP83091 MP83092		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	11/01/24 15:06		Kareem	OK
2	S1	S1	CAL2	11/01/24 15:10		Kareem	OK
3	S2	S2	CAL3	11/01/24 15:14		Kareem	OK
4	S3	S3	CAL4	11/01/24 15:18		Kareem	OK
5	S4	S4	CAL5	11/01/24 15:23		Kareem	OK
6	S5	S5	CAL6	11/01/24 15:27		Kareem	OK
7	ICV01	ICV01	ICV	11/01/24 15:31		Kareem	OK
8	LLICV01	LLICV01	LLICV	11/01/24 15:35		Kareem	OK
9	ICB01	ICB01	ICB	11/01/24 15:40		Kareem	OK
10	CRI01	CRI01	CRDL	11/01/24 15:44		Kareem	OK
11	ICSA01	ICSA01	ICSA	11/01/24 15:48		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	11/01/24 15:58		Kareem	OK
13	CCV01	CCV01	CCV	11/01/24 16:03		Kareem	OK
14	CCB01	CCB01	CCB	11/01/24 16:07		Kareem	OK
15	P4615-01	B-131-1-SB01	SAM	11/01/24 16:12		Kareem	OK
16	P4611-03	TP-1	SAM	11/01/24 16:17		Kareem	OK
17	P4611-06	TP-2	SAM	11/01/24 16:21		Kareem	OK
18	P4611-09	TP-3	SAM	11/01/24 16:26		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133257

Review By	mohan	Review On	11/6/2024 4:20:36 AM
Supervise By	kareem	Supervise On	11/6/2024 11:50:09 PM

STD. NAME	STD REF.#
ICAL Standard	MP83078 MP83079 MP73080 MP83081 MP83082 MP83084
ICV Standard	MP83085
CCV Standard	MP83088
ICSA Standard	MP83086 MP83087
CRI Standard	MP83084
LCS Standard	
Chk Standard	MP83091 MP83092

19	P4611-12	TP-4	SAM	11/01/24 16:30		Kareem	OK
20	P4611-15	TP-5	SAM	11/01/24 16:35		Kareem	OK
21	P4611-18	TP-6	SAM	11/01/24 16:39		Kareem	OK
22	P4639-01	EO-01-103024	SAM	11/01/24 16:43		Kareem	OK
23	P4639-03	EO-02-103024	SAM	11/01/24 16:48		Kareem	OK
24	P4612-04	MOO-24-00335	SAM	11/01/24 16:52		Kareem	OK
25	CCV02	CCV02	CCV	11/01/24 16:56		Kareem	OK
26	CCB02	CCB02	CCB	11/01/24 17:00		Kareem	OK
27	P4613-02	ARS20-0001	SAM	11/01/24 17:07		Kareem	OK
28	P4616-04	BP-F10	SAM	11/01/24 17:11		Kareem	OK
29	P4616-08	BP-F9-MOVED	SAM	11/01/24 17:16		Kareem	OK
30	P4617-04	CONCRETE-PILE	SAM	11/01/24 17:20	MS Fail For Many Parameter	Kareem	Not Ok
31	P4460-06DL	WB-303-SWDL	SAM	11/01/24 17:25	Not Use	Kareem	Not Ok
32	P4460-06DUPDL	WB-303-SWDUPDL	DUP	11/01/24 17:29	Not Use	Kareem	Not Ok
33	P4460-06LDL	WB-303-SWLDL	SD	11/01/24 17:34	Not Use	Kareem	Not Ok
34	P4460-06MSDL	WB-303-SWMSDL	MS	11/01/24 17:38	Not Use	Kareem	Not Ok
35	P4460-06MSDDL	WB-303-SWMSDDL	MSD	11/01/24 17:43	Not Use	Kareem	Not Ok
36	P4460-06ADL	WB-303-SWADL	PS	11/01/24 17:52	Not Use	Kareem	Not Ok
37	CCV03	CCV03	CCV	11/01/24 17:57		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133257

Review By	mohan	Review On	11/6/2024 4:20:36 AM
Supervise By	kareem	Supervise On	11/6/2024 11:50:09 PM
STD. NAME	STD REF.#		
ICAL Standard	MP83078 MP83079 MP73080 MP83081 MP83082 MP83084		
ICV Standard	MP83085		
CCV Standard	MP83088		
ICSA Standard	MP83086 MP83087		
CRI Standard	MP83084		
LCS Standard			
Chk Standard	MP83091 MP83092		

38	CCB03	CCB03	CCB	11/01/24 18:01		Kareem	OK
39	P4460-06DL2	WB-303-SWDL2	SAM	11/01/24 18:05	25X for Na	Kareem	Confirms
40	P4460-06DUPDL2	WB-303-SWDUPDL2	DUP	11/01/24 18:10	25X for Na	Kareem	Confirms
41	P4460-06LDL2	WB-303-SWLDL2	SD	11/01/24 18:14	25X for Na	Kareem	Confirms
42	P4460-06MSDL2	WB-303-SWMSDL2	MS	11/01/24 18:18	25X for Na	Kareem	Confirms
43	P4460-06MSDDL2	WB-303-SWMSDDL2	MSD	11/01/24 18:23	25X for Na	Kareem	Confirms
44	P4460-06ADL2	WB-303-SWADL2	PS	11/01/24 18:27	25X for Na	Kareem	Confirms
45	P4617-04DUP	CONCRETE-PILEDU	DUP	11/01/24 18:32	MS Fail For Many Parameter	Kareem	Not Ok
46	P4617-04L	CONCRETE-PILEL	SD	11/01/24 18:36	MS Fail For Many Parameter	Kareem	Not Ok
47	P4617-04MS	CONCRETE-PILEMS	MS	11/01/24 18:40	MS Fail For Many Parameter	Kareem	Not Ok
48	P4617-04MSD	CONCRETE-PILEMS	MSD	11/01/24 18:45	MS Fail For Many Parameter	Kareem	Not Ok
49	CCV04	CCV04	CCV	11/01/24 18:55		Kareem	OK
50	CCB04	CCB04	CCB	11/01/24 18:59		Kareem	OK
51	P4617-04A	CONCRETE-PILEA	PS	11/01/24 19:05	MS Fail For Many Parameter	Kareem	Not Ok
52	LR1	LR1	HIGH STD	11/01/24 19:09		Kareem	OK
53	LR2	LR2	HIGH STD	11/01/24 19:14		Kareem	OK
54	CCV05	CCV05	CCV	11/01/24 19:18		Kareem	OK
55	CCB05	CCB05	CCB	11/01/24 19:22		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133296

Review By	jaswal	Review On	11/6/2024 3:15:05 AM
Supervise By	kareem	Supervise On	11/7/2024 12:42:46 AM

STD. NAME	STD REF.#
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084
ICV Standard	MP83085
CCV Standard	MP83088
ICSA Standard	MP83086,MP83087
CRI Standard	MP83084
LCS Standard	
Chk Standard	MP83091,MP83092

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	11/04/24 16:57		Kareem	OK
2	S1	S1	CAL2	11/04/24 17:02		Kareem	OK
3	S2	S2	CAL3	11/04/24 17:06		Kareem	OK
4	S3	S3	CAL4	11/04/24 17:10		Kareem	OK
5	S4	S4	CAL5	11/04/24 17:14		Kareem	OK
6	S5	S5	CAL6	11/04/24 17:18		Kareem	OK
7	ICV01	ICV01	ICV	11/04/24 17:28		Kareem	OK
8	LLICV01	LLICV01	LLICV	11/04/24 17:37		Kareem	OK
9	ICB01	ICB01	ICB	11/04/24 17:47		Kareem	OK
10	CRI01	CRI01	CRDL	11/04/24 17:52		Kareem	OK
11	ICSA01	ICSA01	ICSA	11/04/24 18:03		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	11/04/24 18:07		Kareem	OK
13	CCV01	CCV01	CCV	11/04/24 18:11		Kareem	OK
14	CCB01	CCB01	CCB	11/04/24 18:16		Kareem	OK
15	P4640-01	MH-3	SAM	11/04/24 18:20		Kareem	OK
16	P4643-01	BP-F9-ADDITIONAL	SAM	11/04/24 18:25		Kareem	OK
17	P4643-05	BP-F8	SAM	11/04/24 18:29		Kareem	OK
18	P4643-09	TP-9	SAM	11/04/24 18:33		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133296

Review By	jaswal	Review On	11/6/2024 3:15:05 AM
Supervise By	kareem	Supervise On	11/7/2024 12:42:46 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084		
ICV Standard	MP83085		
CCV Standard	MP83088		
ICSA Standard	MP83086,MP83087		
CRI Standard	MP83084		
LCS Standard			
Chk Standard	MP83091,MP83092		

19	P4645-01	Z-02-WC	SAM	11/04/24 18:37		Kareem	OK
20	P4645-01DUP	Z-02-WCDUP	DUP	11/04/24 18:42		Kareem	OK
21	P4645-01L	Z-02-WCL	SD	11/04/24 18:46		Kareem	OK
22	P4645-01MS	Z-02-WCMS	MS	11/04/24 18:50	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF SAMPLE	Kareem	OK
23	P4645-01MSD	Z-02-WCMSD	MSD	11/04/24 18:54	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF SAMPLE	Kareem	OK
24	P4645-01A	Z-02-WCA	PS	11/04/24 18:58	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF SAMPLE	Kareem	OK
25	CCV02	CCV02	CCV	11/04/24 19:02		Kareem	OK
26	CCB02	CCB02	CCB	11/04/24 19:07		Kareem	OK
27	PB164563BL	PB164563BL	MB	11/04/24 19:11	NOT USE	Kareem	Not Ok
28	PB164563BS	PB164563BS	LCS	11/04/24 19:15	NOT USE	Kareem	Not Ok
29	P4615-03	B-131-3-SB01	SAM	11/04/24 19:19		Kareem	OK
30	P4615-02	B-131-2-SB01	SAM	11/04/24 19:23		Kareem	OK
31	P4397-04	WB-301-SW	SAM	11/04/24 19:28	Na high	Kareem	Dilution
32	P4397-04DUP	WB-301-SWDUP	DUP	11/04/24 19:32	Na high	Kareem	Dilution
33	P4397-04L	WB-301-SWL	SD	11/04/24 19:37	Na high	Kareem	Dilution
34	P4397-04MS	WB-301-SWMS	MS	11/04/24 19:41	Na high	Kareem	Dilution
35	CCV03	CCV03	CCV	11/04/24 19:46		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133296

Review By	jaswal	Review On	11/6/2024 3:15:05 AM
Supervise By	kareem	Supervise On	11/7/2024 12:42:46 AM

STD. NAME	STD REF.#
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084
ICV Standard	MP83085
CCV Standard	MP83088
ICSA Standard	MP83086,MP83087
CRI Standard	MP83084
LCS Standard	
Chk Standard	MP83091,MP83092

36	CCB03	CCB03	CCB	11/04/24 19:58		Kareem	OK
37	P4397-04MSD	WB-301-SWMSD	MSD	11/04/24 20:04	Na high	Kareem	Dilution
38	P4397-04A	WB-301-SWA	PS	11/04/24 20:08	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF SAMPLE	Kareem	OK
39	P4663-02	TENNANT-PAD-2-3-S	SAM	11/04/24 20:12		Kareem	OK
40	P4663-04	RES-BUILDING-PAD-	SAM	11/04/24 20:17		Kareem	OK
41	P4663-06	RES-BUILDING-PAD-	SAM	11/04/24 20:21		Kareem	OK
42	P4663-08	RES-BUILDING-PAD-	SAM	11/04/24 20:25		Kareem	OK
43	LR1	LR1	HIGH STD	11/04/24 20:33		Kareem	OK
44	LR2	LR2	HIGH STD	11/04/24 20:38		Kareem	OK
45	PB164522TB	PB164522TB	MB	11/04/24 20:44		Kareem	OK
46	PB164564BL	PB164564BL	MB	11/04/24 20:48		Kareem	OK
47	CCV04	CCV04	CCV	11/04/24 21:07		Kareem	OK
48	CCB04	CCB04	CCB	11/04/24 21:11		Kareem	OK
49	PB164564BS	PB164564BS	LCS	11/04/24 21:16	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF SAMPLE	Kareem	OK
50	P4397-04DL	WB-301-SWDL	SAM	11/04/24 21:21	10X for Na	Kareem	Confirms
51	P4397-04DUPDL	WB-301-SWDUPDL	DUP	11/04/24 21:25	10X for Na	Kareem	Confirms
52	P4397-04LDL	WB-301-SWLDL	SD	11/04/24 21:29	10X for Na	Kareem	Confirms
53	P4397-04MSDL	WB-301-SWMSDL	MS	11/04/24 21:34	10X for Na	Kareem	Confirms

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133296

Review By	jaswal	Review On	11/6/2024 3:15:05 AM
Supervise By	kareem	Supervise On	11/7/2024 12:42:46 AM

STD. NAME	STD REF.#
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084
ICV Standard	MP83085
CCV Standard	MP83088
ICSA Standard	MP83086,MP83087
CRI Standard	MP83084
LCS Standard	
Chk Standard	MP83091,MP83092

54	P4397-04MSDDL	WB-301-SWMSDDL	MSD	11/04/24 21:38	10X for Na	Kareem	Confirms
55	P4397-04ADL	WB-301-SWADL	PS	11/04/24 21:42	Not used	Kareem	Not Ok
56	CCV05	CCV05	CCV	11/04/24 21:47		Kareem	OK
57	CCB05	CCB05	CCB	11/04/24 21:51		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133344

Review By	mohan	Review On	11/9/2024 12:07:42 AM
Supervise By	jaswal	Supervise On	11/9/2024 12:08:14 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084		
ICV Standard	MP83085		
CCV Standard	MP83088		
ICSA Standard	MP83086,MP83087		
CRI Standard	MP83084		
LCS Standard			
Chk Standard	MP83091,MP83092		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	11/07/24 13:23		Kareem	OK
2	S1	S1	CAL2	11/07/24 13:28		Kareem	OK
3	S2	S2	CAL3	11/07/24 13:32		Kareem	OK
4	S3	S3	CAL4	11/07/24 13:36		Kareem	OK
5	S4	S4	CAL5	11/07/24 13:40		Kareem	OK
6	S5	S5	CAL6	11/07/24 13:45		Kareem	OK
7	ICV01	ICV01	ICV	11/07/24 13:49		Kareem	OK
8	LLICV01	LLICV01	LLICV	11/07/24 14:23		Kareem	OK
9	ICB01	ICB01	ICB	11/07/24 14:38		Kareem	OK
10	CRI01	CRI01	CRDL	11/07/24 14:42		Kareem	OK
11	ICSA01	ICSA01	ICSA	11/07/24 14:47		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	11/07/24 14:51		Kareem	OK
13	CCV01	CCV01	CCV	11/07/24 15:01		Kareem	OK
14	CCB01	CCB01	CCB	11/07/24 15:05		Kareem	OK
15	P4645-04	Z-02-WC	SAM	11/07/24 15:09		Kareem	OK
16	P4659-04	MH-2	SAM	11/07/24 15:14		Kareem	OK
17	P4660-03	WC-TA2-01-C	SAM	11/07/24 15:18		Kareem	OK
18	P4660-07	WC-WOOD-01-C	SAM	11/07/24 15:22		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133344

Review By	mohan	Review On	11/9/2024 12:07:42 AM
Supervise By	jaswal	Supervise On	11/9/2024 12:08:14 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084		
ICV Standard	MP83085		
CCV Standard	MP83088		
ICSA Standard	MP83086,MP83087		
CRI Standard	MP83084		
LCS Standard			
Chk Standard	MP83091,MP83092		

19	P4660-11	WC-CONCRETE-01-C	SAM	11/07/24 15:27		Kareem	OK
20	P4667-04	BP-F-6	SAM	11/07/24 15:31		Kareem	OK
21	P4667-08	BP-F-5	SAM	11/07/24 15:36		Kareem	OK
22	P4667-12	BP-F-10	SAM	11/07/24 15:40		Kareem	OK
23	P4667-16	BP-F-7	SAM	11/07/24 15:45		Kareem	OK
24	P4679-04	MH-1	SAM	11/07/24 15:49		Kareem	OK
25	CCV02	CCV02	CCV	11/07/24 15:53		Kareem	OK
26	CCB02	CCB02	CCB	11/07/24 15:58		Kareem	OK
27	P4680-04	BP-F26	SAM	11/07/24 16:02		Kareem	OK
28	P4680-08	BP-F25	SAM	11/07/24 16:06		Kareem	OK
29	P4684-01	MECHANIC-ST-SWEI	SAM	11/07/24 16:11		Kareem	OK
30	P4684-01DUP	MECHANIC-ST-SWEI	DUP	11/07/24 16:15		Kareem	OK
31	P4684-01L	MECHANIC-ST-SWEI	SD	11/07/24 16:20		Kareem	OK
32	P4684-01MS	MECHANIC-ST-SWEI	MS	11/07/24 16:24		Kareem	OK
33	P4684-01MSD	MECHANIC-ST-SWEI	MSD	11/07/24 16:28		Kareem	OK
34	P4684-01A	MECHANIC-ST-SWEI	PS	11/07/24 16:32		Kareem	OK
35	PB164560TB	PB164560TB	MB	11/07/24 16:36		Kareem	OK
36	PB164665BL	PB164665BL	MB	11/07/24 16:41		Kareem	OK
37	CCV03	CCV03	CCV	11/07/24 16:45		Kareem	OK
38	CCB03	CCB03	CCB	11/07/24 16:49		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133344

Review By	mohan	Review On	11/9/2024 12:07:42 AM
Supervise By	jaswal	Supervise On	11/9/2024 12:08:14 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084		
ICV Standard	MP83085		
CCV Standard	MP83088		
ICSA Standard	MP83086,MP83087		
CRI Standard	MP83084		
LCS Standard			
Chk Standard	MP83091,MP83092		

39	PB164665BS	PB164665BS	LCS	11/07/24 16:54		Kareem	OK
40	P4693-04	BP-G5-WC	SAM	11/07/24 16:58		Kareem	OK
41	P4693-08	BP-G4-WC	SAM	11/07/24 17:02		Kareem	OK
42	P4694-04	Z-03A	SAM	11/07/24 17:06		Kareem	OK
43	P4694-08	Z-04	SAM	11/07/24 17:11		Kareem	OK
44	P4695-04	Z-01	SAM	11/07/24 17:15		Kareem	OK
45	P4700-04	MH-8	SAM	11/07/24 17:20		Kareem	OK
46	P4701-01	BP-F3	SAM	11/07/24 17:24		Kareem	OK
47	P4701-08	BP-F4	SAM	11/07/24 17:29		Kareem	OK
48	P4711-05	CF-613-COMP-16	SAM	11/07/24 17:33		Kareem	OK
49	CCV04	CCV04	CCV	11/07/24 17:56		Kareem	OK
50	CCB04	CCB04	CCB	11/07/24 18:04		Kareem	OK
51	P4711-10	CF-613-COMP-17	SAM	11/07/24 18:08		Kareem	OK
52	P4702-01	TOTE-1	SAM	11/07/24 18:13		Kareem	OK
53	P4662-06DL2	102524-DDL2	SAM	11/07/24 18:17	NOT USE	Kareem	Not Ok
54	P4662-06DL	102524-DDL	SAM	11/07/24 18:22	NOT USE	Kareem	Not Ok
55	P4662-06	102524-D	SAM	11/07/24 18:28		Kareem	OK
56	CCV05	CCV05	CCV	11/07/24 18:32		Kareem	OK
57	CCB05	CCB05	CCB	11/07/24 18:37		Kareem	OK
58	P4702-01DUP	TOTE-1DUP	DUP	11/07/24 18:43		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133344

Review By	mohan	Review On	11/9/2024 12:07:42 AM
Supervise By	jaswal	Supervise On	11/9/2024 12:08:14 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084		
ICV Standard	MP83085		
CCV Standard	MP83088		
ICSA Standard	MP83086,MP83087		
CRI Standard	MP83084		
LCS Standard			
Chk Standard	MP83091,MP83092		

59	P4702-01L	TOTE-1L	SD	11/07/24 18:47		Kareem	OK
60	P4706-01	TR-04-110424	SAM	11/07/24 18:51		Kareem	OK
61	P4708-01	OR-02-110424	SAM	11/07/24 18:56		Kareem	OK
62	P4711-01	CF-613-COMP-16	SAM	11/07/24 19:00		Kareem	OK
63	P4711-06	CF-613-COMP-17	SAM	11/07/24 19:04		Kareem	OK
64	CCV06	CCV06	CCV	11/07/24 19:08		Kareem	OK
65	CCB06	CCB06	CCB	11/07/24 19:12		Kareem	OK
66	P4702-01MS	TOTE-1MS	MS	11/07/24 19:16		Kareem	OK
67	P4702-01MSD	TOTE-1MSD	MSD	11/07/24 19:20		Kareem	OK
68	P4702-01A	TOTE-1A	PS	11/07/24 19:24		Kareem	OK
69	PB164662TB	PB164662TB	MB	11/07/24 19:28		Kareem	OK
70	PB164685TB	PB164685TB	MB	11/07/24 19:32		Kareem	OK
71	PB164712BL	PB164712BL	MB	11/07/24 19:37		Kareem	OK
72	PB164712BS	PB164712BS	LCS	11/07/24 19:41		Kareem	OK
73	P4720-01	JC-701-COMP-01	SAM	11/07/24 19:45		Kareem	OK
74	P4720-01DUP	JC-701-COMP-01DUP	DUP	11/07/24 19:50		Kareem	OK
75	P4720-01L	JC-701-COMP-01L	SD	11/07/24 19:54		Kareem	OK
76	CCV07	CCV07	CCV	11/07/24 19:58		Kareem	OK
77	CCB07	CCB07	CCB	11/07/24 20:02		Kareem	OK
78	P4617-04	CONCRETE-PILE	SAM	11/07/24 20:08		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133344

Review By	mohan	Review On	11/9/2024 12:07:42 AM
Supervise By	jaswal	Supervise On	11/9/2024 12:08:14 AM

STD. NAME	STD REF.#
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084
ICV Standard	MP83085
CCV Standard	MP83088
ICSA Standard	MP83086,MP83087
CRI Standard	MP83084
LCS Standard	
Chk Standard	MP83091,MP83092

79	P4617-04DUP	CONCRETE-PILEDU	DUP	11/07/24 20:12		Kareem	OK
80	P4617-04L	CONCRETE-PILEL	SD	11/07/24 20:17		Kareem	OK
81	P4617-04MS	CONCRETE-PILEMS	MS	11/07/24 20:21		Kareem	OK
82	P4617-04MSD	CONCRETE-PILEMS	MSD	11/07/24 20:25		Kareem	OK
83	P4549-04	TT-069-IDWGW-2024	SAM	11/07/24 20:34		Kareem	OK
84	P4617-04A	CONCRETE-PILEA	PS	11/07/24 20:41		Kareem	OK
85	P4549-04DUP	TT-069-IDWGW-2024	DUP	11/07/24 20:45		Kareem	OK
86	P4549-04L	TT-069-IDWGW-2024	SD	11/07/24 20:49		Kareem	OK
87	P4549-04MS	TT-069-IDWGW-2024	MS	11/07/24 20:54		Kareem	OK
88	CCV08	CCV08	CCV	11/07/24 20:58		Kareem	OK
89	CCB08	CCB08	CCB	11/07/24 21:02		Kareem	OK
90	P4549-04MSD	TT-069-IDWGW-2024	MSD	11/07/24 21:08		Kareem	OK
91	P4549-04A	TT-069-IDWGW-2024	PS	11/07/24 21:12		Kareem	OK
92	P4720-01MS	JC-701-COMP-01MS	MS	11/07/24 21:16		Kareem	OK
93	P4720-01MSD	JC-701-COMP-01MS	MSD	11/07/24 21:20		Kareem	OK
94	P4720-01A	JC-701-COMP-01A	PS	11/07/24 21:24		Kareem	OK
95	P4722-03	WC-1(0-6)	SAM	11/07/24 21:29	Fe high	Kareem	Dilution
96	P4722-08	WC-2(0-6)	SAM	11/07/24 21:33		Kareem	OK
97	P4722-13	WC-3(0-6)	SAM	11/07/24 21:38		Kareem	OK
98	PB164723BL	PB164723BL	MB	11/07/24 21:42		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133344

Review By	mohan	Review On	11/9/2024 12:07:42 AM
Supervise By	jaswal	Supervise On	11/9/2024 12:08:14 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084		
ICV Standard	MP83085		
CCV Standard	MP83088		
ICSA Standard	MP83086,MP83087		
CRI Standard	MP83084		
LCS Standard			
Chk Standard	MP83091,MP83092		

99	PB164723BS	PB164723BS	LCS	11/07/24 21:47		Kareem	OK
100	CCV09	CCV09	CCV	11/07/24 21:51		Kareem	OK
101	CCB09	CCB09	CCB	11/07/24 21:55		Kareem	OK
102	P4693-01	BP-G5-WC	SAM	11/07/24 22:09		Kareem	OK
103	P4693-05	BP-G4-WC	SAM	11/07/24 22:13		Kareem	OK
104	P4694-01	Z-03A	SAM	11/07/24 22:17		Kareem	OK
105	P4694-05	Z-04	SAM	11/07/24 22:22		Kareem	OK
106	P4695-01	Z-01	SAM	11/07/24 22:26		Kareem	OK
107	P4697-01	TP-1	SAM	11/07/24 22:30		Kareem	OK
108	P4699-01	MIXED-DEMO	SAM	11/07/24 22:34	Confirm Wt	Kareem	OK
109	P4699-01DUP	MIXED-DEMODUP	DUP	11/07/24 22:39	Confirm	Kareem	OK
110	P4699-01L	MIXED-DEMOL	SD	11/07/24 22:43		Kareem	OK
111	P4699-01MS	MIXED-DEMOMS	MS	11/07/24 22:47		Kareem	OK
112	CCV10	CCV10	CCV	11/07/24 22:52		Kareem	OK
113	CCB10	CCB10	CCB	11/07/24 22:56		Kareem	OK
114	P4699-01MSD	MIXED-DEMOMSD	MSD	11/07/24 23:00		Kareem	OK
115	P4699-01A	MIXED-DEMOA	PS	11/07/24 23:04		Kareem	OK
116	P4700-01	MH-8	SAM	11/07/24 23:09		Kareem	OK
117	P4701-01RE	BP-F3RE	SAM	11/07/24 23:13	NOT USE	Kareem	Not Ok
118	P4701-05	BP-F4	SAM	11/07/24 23:17		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133344

Review By	mohan	Review On	11/9/2024 12:07:42 AM
Supervise By	jaswal	Supervise On	11/9/2024 12:08:14 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084		
ICV Standard	MP83085		
CCV Standard	MP83088		
ICSA Standard	MP83086,MP83087		
CRI Standard	MP83084		
LCS Standard			
Chk Standard	MP83091,MP83092		

119	P4707-01	HD-02-110424	SAM	11/07/24 23:22		Kareem	OK
120	P4718-01	WB-307-SB01	SAM	11/07/24 23:26		Kareem	OK
121	P4718-02	WB-307-SB02	SAM	11/07/24 23:30		Kareem	OK
122	P4719-01	BAYAVE-STOCKPILE	SAM	11/07/24 23:34		Kareem	OK
123	PB164708BL	PB164708BL	MB	11/07/24 23:38		Kareem	OK
124	CCV11	CCV11	CCV	11/07/24 23:43		Kareem	OK
125	CCB11	CCB11	CCB	11/07/24 23:47		Kareem	OK
126	PB164708BS	PB164708BS	LCS	11/07/24 23:51		Kareem	OK
127	PB164563BL	PB164563BL	MB	11/07/24 23:55		Kareem	OK
128	PB164563BS	PB164563BS	LCS	11/08/24 00:05		Kareem	OK
129	PB164634BL	PB164634BL	MB	11/08/24 00:08		Kareem	OK
130	PB164634BS	PB164634BS	LCS	11/08/24 00:13		Kareem	OK
131	PB164647BL	PB164647BL	MB	11/08/24 00:17		Kareem	OK
132	PB164647BS	PB164647BS	LCS	11/08/24 00:21		Kareem	OK
133	P4722-03DL	WC-1(0-6)DL	SAM	11/08/24 00:26	5x for Fe	Kareem	Confirms
134	LR1	LR1	HIGH STD	11/08/24 00:30		Kareem	OK
135	LR2	LR2	HIGH STD	11/08/24 00:35		Kareem	OK
136	CCV12	CCV12	CCV	11/08/24 00:39		Kareem	OK
137	CCB12	CCB12	CCB	11/08/24 00:43		Kareem	OK
138	P4701-01DL	BP-F3DL	SAM	11/08/24 00:48	NOT USE	Kareem	Not Ok

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133344

Review By	mohan	Review On	11/9/2024 12:07:42 AM
Supervise By	jaswal	Supervise On	11/9/2024 12:08:14 AM

STD. NAME	STD REF.#
ICAL Standard	MP83078,MP83079,MP73080,MP83081,MP83082,MP83084
ICV Standard	MP83085
CCV Standard	MP83088
ICSA Standard	MP83086,MP83087
CRI Standard	MP83084
LCS Standard	
Chk Standard	MP83091,MP83092

139	CCV13	CCV13	CCV	11/08/24 00:57		Kareem	OK
140	CCB13	CCB13	CCB	11/08/24 01:01		Kareem	OK

Prep Standard - Chemical Standard Summary

Order ID : P4615

Test : Metals Group3

Prepbatch ID : PB164563,

Sequence ID/Qc Batch ID: LB133257, LB133257, LB133296, LB133296, LB133344,

Standard ID :

MP73080, MP81119, MP83078, MP83078 MP83079 MP73080 MP83081 MP83082
MP83084, MP83083, MP83085, MP83086, MP83086 MP83087, MP83088, MP83091, MP83091 MP83092,

Chemical ID :

M5130, M5192, M5218, M5223, M5288, M5295, M5296, M5390, M5394, M5404, M5429, M5467, M5498, M5515, M5585, M5634
, M5658, M5697, M5698, M5747, M5748, M5769, M5798, M5799, M5800, M5801, M5802, M5806, M5814, M5815, M5816, M581
7, M5818, M5819, M5820, M5875, M5935, M5962, M5970, M5978, M5982, M5984, M5985, M6000, M6009, M6021, M6023, M60
28, M6030, M6033, M6095, M6111, M6113, M6117, W2606, W3112,

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
903	ICP AES RINSE SOLN	MP73080	12/27/2022	01/08/2023	Bin He	None	METALS_PIPETTE_3 (A)	Sarabjit Jaswal 12/28/2022

FROM 200.00000ml of M5404 + 9800.00000ml of W2606 = Final Quantity: 10000.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
169	1:1HNO3	MP81119	06/21/2024	04/24/2025	AI-Terek Isaac	METALS_SCALE_2 (M SC-2)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 06/21/2024

FROM 1250.00000ml of M5935 + 1250.00000ml of W2606 = Final Quantity: 2500.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP83078	11/06/2024	12/06/2024	Kareem Khairalla	None	None	Sarabjit Jaswal
								11/07/2024

FROM 125.00000ml of M6111 + 2350.00000ml of W3112 + 25.00000ml of M6117 = Final Quantity: 2500.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2950	ICP AES S1/CRI STOCK STD	MP83083	11/06/2024	12/06/2024	Kareem Khairalla	None	None	Sarabjit Jaswal
								11/07/2024

FROM 0.03000ml of M5798 + 0.03000ml of M6028 + 0.05000ml of M5515 + 0.05000ml of M5658 + 0.05000ml of M6030 + 0.05000ml of M6033 + 0.06000ml of M5747 + 0.10000ml of M5697 + 0.10000ml of M5698 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5962 + 0.10000ml of M5970 + 0.10000ml of M5982 + 0.15000ml of M5800 + 0.20000ml of M5748 + 0.20000ml of M5799 + 0.20000ml of M5819 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.25000ml of M5467 + 0.25000ml of M5802 + 0.50000ml of M5390 + 0.50000ml of M5814 + 1.00000ml of M5192 + 1.00000ml of M5288 + 1.00000ml of M5498 + 1.00000ml of M5769 + 1.00000ml of M5806 + 1.00000ml of M5978 + 2.00000ml of M5816 + 2.00000ml of M5818 + 77.68000ml of MP83078 = Final Quantity: 100.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
912	ICP AES ICV SOLN	MP83085	11/06/2024	12/06/2024	Kareem Khairalla	None	None	Sarabjit Jaswal 11/07/2024
<u>FROM</u>	0.02500ml of M5429 + 0.02500ml of M5815 + 0.02500ml of M5817 + 0.25000ml of M5218 + 0.25000ml of M5982 + 10.00000ml of M5295 + 89.77500ml of MP83078 = Final Quantity: 100.000 ml							

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
904	ICP AES ICSA SOLN	MP83086	11/06/2024	11/19/2024	Kareem Khairalla	None	None	Sarabjit Jaswal 11/07/2024
<u>FROM</u> 25.00000ml of M5130 + 225.00000ml of MP83078 = Final Quantity: 250.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
911	ICP AES CCV SOLN	MP83088	11/06/2024	12/06/2024	Kareem Khairalla	None	None	Sarabjit Jaswal
11/07/2024								

FROM 50.00000ml of MP83078 + 50.00000ml of MP83079 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
919	ICP AES INTERNAL STD	MP83091	11/06/2024	12/06/2024	Kareem Khairalla	None	None	Sarabjit Jaswal
11/07/2024								

FROM 1.00000ml of M5984 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6117 = Final Quantity: 2000.000 ml

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	11/19/2024	05/20/2024 /	04/20/2021 / bin	M5130

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Mo, 1000 PPM, 125 ml	051722	05/17/2025	07/01/2022 / bin	06/17/2022 / jaswal	M5192

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	S2-MEB711674	11/02/2026	07/01/2022 / bin	09/10/2021 / bin	M5218

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	11/19/2024	05/20/2024 /	04/20/2021 / bin	M5223

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58119 / K, 10000 PPM, 500 ml	071122	07/11/2025	09/01/2022 / jaswal	07/21/2022 / jaswal	M5288

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV-1014	02/05/2025	08/07/2024 / jaswal	02/20/2020 / bin	M5295

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	S2-MEB711673	11/02/2026	09/19/2022 / jaswal	08/20/2022 / jaswal	M5296

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57056 / Ba, 1000 PPM, 125 ml	072122	07/21/2025	08/07/2024 / jaswal	09/18/2022 / bin	M5390

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	T2-MEB714159	01/13/2027	11/28/2022 / bin	09/19/2022 / bin	M5394

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)	22C0462001	06/12/2023	12/20/2022 / Al-Terek	02/11/2022 / Al-Terek	M5404

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	020623	02/06/2026	03/06/2023 / bin	03/01/2023 / bin	M5467

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	08/15/2023 / jaswal	03/17/2023 / bin	M5498

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58126 / Fe, 10000 PPM, 500 ml	092122	09/21/2025	08/01/2024 / Jaswal	03/17/2023 / bin	M5515

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	26397-103 / PTFE BOILING STONES	W126678	02/28/2025	01/20/2024 /	06/12/2023 / jaswal	M5585

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	02/03/2025	04/18/2024 /	08/03/2022 / Al-Terek	M5634

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

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	102623	10/26/2026	04/18/2024 / jaswal	10/27/2023 / jaswal	M5698

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ Lead (Pb) 1000PPM	100923	10/09/2026	05/20/2024 / Jaswal	12/20/2023 / jaswal	M5747

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ Nickel (Ni) 1000PPM	091223	09/12/2026	01/02/2024 / bin	12/20/2023 / jaswal	M5748

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58112 / Mg, 10000 PPM, 500 ml	091823	09/18/2026	05/24/2024 / Jaswal	01/03/2024 / bin	M5769

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

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57005 / B, 1000 PPM, 125 ml	071123	07/11/2026	03/26/2024 / Sohil	01/03/2024 / jaswal	M5814

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57115 / P, 10000 PPM, 125 ml	041723	04/17/2026	05/21/2024 / Jaswal	02/09/2024 / jaswal	M5815

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57016 / S, 1000 PPM, 125 ml	122923	12/29/2026	05/20/2024 / Jaswal	02/09/2024 / jaswal	M5816

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57116 / S, 10000 PPM, 125 ml	071123	07/11/2026	03/01/2024 / jaswal	02/09/2024 / jaswal	M5817

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57014 / Si, 1000 PPM, 125 ml	122023	12/20/2026	03/06/2024 / jaswal	02/09/2024 / jaswal	M5818

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	111623	11/16/2026	03/20/2024 / jaswal	02/09/2024 / jaswal	M5819

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57015 / P, 1000 PPM, 125 ml	091123	09/11/2026	05/01/2024 / jaswal	02/09/2024 / jaswal	M5820

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	T2-MEB714417	01/27/2027	04/19/2024 / jaswal	02/22/2024 / jaswal	M5875

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	12/08/2024	06/21/2024 / Al-Terek	06/07/2024 / Al-Terek	M5935

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57034 / Se, 1000 PPM, 125 ml	060624	06/06/2027	07/02/2024 / Jaswal	06/14/2024 / Jaswal	M5962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Li, 1000 PPM, 125 ml	061224	06/21/2027	07/01/2024 / Jaswal	07/01/2024 / Jaswal	M5970

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5978

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	031524	03/15/2027	07/01/2024 / Jaswal	06/11/2024 / Jaswal	M5982

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	V2-Y740548	02/20/2029	08/05/2024 / kareem	06/14/2024 / Jaswal	M5984

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-1 / Laboratory Fortified Stock Solution 1, 125 ml	T2-MEB723367	08/30/2026	08/13/2024 / Jaswal	05/14/2024 / Jaswal	M6000

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	U2-MEB731108	03/17/2028	08/13/2024 / Jaswal	05/14/2024 / Jaswal	M6009

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57048 / Cd, 1000 PPM, 125 ml	070124	07/01/2027	08/05/2024 / kareem	01/25/2019 / Jaswal	M6028

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Al, 10000 PPM, 500 ml	011623	01/16/2026	08/07/2024 / Jaswal	01/03/2024 / Jaswal	M6033

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)		03/17/2029	10/26/2024 / Janvi	10/21/2024 / Janvi	M6095

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	22F0762009	05/09/2027	11/04/2024 / Eman	09/29/2024 / Janvi	M6111

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24B1362001	04/29/2025	10/31/2024 / Janvi	09/29/2024 / Eman	M6113

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24B1362001	05/06/2025	11/06/2024 / Janvi	09/29/2024 / Eman	M6117

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	10/24/2024	10/24/2019 / apatel	10/24/2019 / apatel	W2606

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57048
070124
Cadmium (Cd)

Solvent: 24002546 Nitric Acid

Lot #

2% 40.0 Nitric Acid (mL)

Expiration Date: 070127

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

SE-05 Balance Uncertainty

Weight shown below was diluted to (mL): 2000.07 0.100 Flask Uncertainty

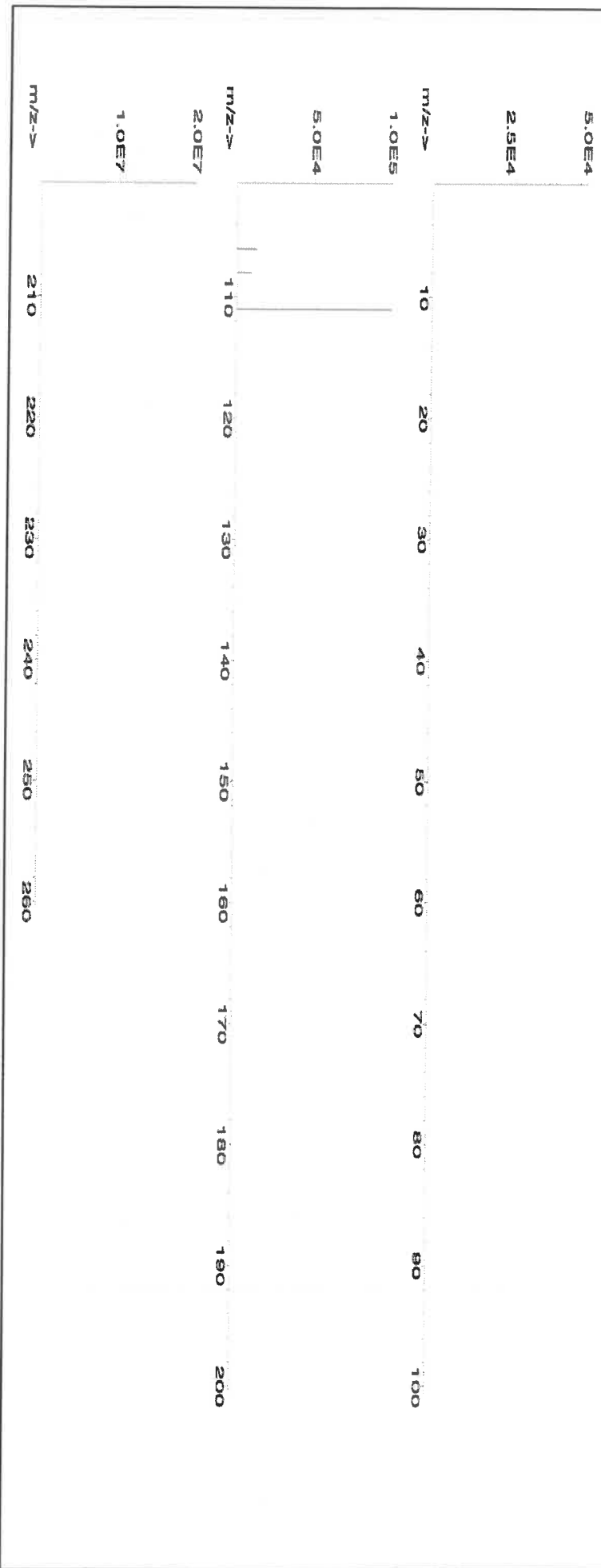
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	070124
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	070124

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	------------	-----------------------	------------	-----------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. Cadmium nitrate tetrahydrate (Cd)	IN024 CDM09221A1	1000	99.999	0.10	36.5	5.4797	5.4804	1000.1	2.0	10022-68-1	0.01 mg/m3	or-rat 60.2mg/kg	3108
--------------------------------------	------------------	------	--------	------	------	--------	--------	--------	-----	------------	------------	------------------	------

[1] Spectrum No.1 [12.514 sec]:\$8148.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



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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).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: S2-MEB711673
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 6 µg/mL	Molybdenum, Mo	1 000 ± 6 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 6 µg/mL
Titanium, Ti	1 000 ± 7 µg/mL		

Density: 1.030 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 02, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 02, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





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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).



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution	
Catalog Number:	CLPP-CAL-1	
Lot Number:	T2-MEB714417	
Matrix:	5% (v/v) HNO ₃	
Value / Analyte(s):	5 000 µg/mL ea:	Potassium, Sodium,
	Calcium, Magnesium,	
	2 000 µg/mL ea:	Barium,
	Aluminum,	
	1 000 µg/mL ea:	
	Iron,	
	500 µg/mL ea:	Vanadium, Cobalt,
	Nickel,	
	Zinc,	
	Manganese,	
	250 µg/mL ea:	Copper,
	Silver,	
	200 µg/mL ea:	
	Chromium,	
	50 µg/mL ea:	
	Beryllium	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.00 ± 0.26 µg/mL	Calcium, Ca	5 000 ± 22 µg/mL
Chromium, Cr	200.0 ± 1.0 µg/mL	Cobalt, Co	500.0 ± 2.4 µg/mL
Copper, Cu	250.0 ± 1.0 µg/mL	Iron, Fe	1 000 ± 4 µg/mL
Magnesium, Mg	5 000 ± 20 µg/mL	Manganese, Mn	500.0 ± 2.0 µg/mL
Nickel, Ni	500.0 ± 2.2 µg/mL	Potassium, K	5 000 ± 19 µg/mL
Silver, Ag	250.0 ± 1.1 µg/mL	Sodium, Na	5 000 ± 18 µg/mL
Vanadium, V	499.7 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.118 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cr	Calculated		See Sec. 4.2
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information.

<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 27, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- January 27, 2027

- The date after which this CRM/RM should not be used.
- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





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2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CLPP-CAL-3
Lot Number: T2-MEB714159
Matrix: 7% (v/v) HNO₃
Value / Analyte(s):
1 000 µg/mL ea:
Arsenic, Lead,
Selenium, Thallium,
500 µg/mL ea:
Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	1 000 ± 8 µg/mL	Cadmium, Cd	500.0 ± 2.1 µg/mL
Lead, Pb	1 000 ± 5 µg/mL	Selenium, Se	1 000 ± 8 µg/mL
Thallium, Tl	1 000 ± 7 µg/mL		

Density: 1.043 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 13, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 13, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

RD:05/14/2024

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	WW-LFS-1
Lot Number:	T2-MEB723367
Matrix:	5% (v/v) HNO ₃

Value / Analyte(s):	1 000 µg/mL ea:	
	Potassium,	
	600 µg/mL ea:	
	Phosphorus,	
	300 µg/mL ea:	
	Sodium,	Iron,
	200 µg/mL ea:	
	Magnesium,	Aluminum,
	Cerium,	Selenium,
	Thallium,	
	100 µg/mL ea:	
	Lead,	Calcium,
	80 µg/mL ea:	
	Arsenic,	
	70 µg/mL ea:	
	Mercury,	
	50 µg/mL ea:	
	Nickel,	
	40 µg/mL ea:	
	Chromium,	
	30 µg/mL ea:	
	Copper,	Boron,
	Vanadium,	
	20 µg/mL ea:	
	Zinc,	Strontium,
	Barium,	Beryllium,
	Cadmium,	Cobalt,
	Manganese,	Lithium,
	7.5 µg/mL ea:	
	Silver	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	200.0 ± 0.7 µg/mL	Arsenic, As	80.0 ± 0.7 µg/mL
Barium, Ba	20.00 ± 0.09 µg/mL	Beryllium, Be	20.00 ± 0.13 µg/mL
Boron, B	30.00 ± 0.18 µg/mL	Cadmium, Cd	20.00 ± 0.09 µg/mL
Calcium, Ca	100.0 ± 0.4 µg/mL	Cerium, Ce	200.0 ± 0.8 µg/mL
Chromium, Cr	40.00 ± 0.30 µg/mL	Cobalt, Co	20.00 ± 0.10 µg/mL
Copper, Cu	30.00 ± 0.13 µg/mL	Iron, Fe	300.0 ± 1.3 µg/mL
Lead, Pb	100.0 ± 0.4 µg/mL	Lithium, Li	20.00 ± 0.08 µg/mL
Magnesium, Mg	200.0 ± 0.8 µg/mL	Manganese, Mn	20.00 ± 0.08 µg/mL
Mercury, Hg	70.0 ± 0.3 µg/mL	Nickel, Ni	50.00 ± 0.22 µg/mL
Phosphorus, P	600.0 ± 2.7 µg/mL	Potassium, K	1 000 ± 4 µg/mL
Selenium, Se	200.0 ± 1.3 µg/mL	Silver, Ag	7.50 ± 0.03 µg/mL
Sodium, Na	300.0 ± 1.4 µg/mL	Strontium, Sr	20.01 ± 0.08 µg/mL
Thallium, Tl	200.0 ± 1.4 µg/mL	Vanadium, V	30.00 ± 0.13 µg/mL
Zinc, Zn	20.00 ± 0.09 µg/mL		

Density: 1.034 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
As	ICP Assay	3103a	100818
B	ICP Assay	3107	190605
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Ce	ICP Assay	3110	090504
Ce	EDTA	928	928
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
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Li	ICP Assay	3129a	100714
Li	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	Traceable to 3152A	S2-NA700842
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Tl	ICP Assay	3158	151215
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty (z)} = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty (z)} = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

- 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

Low Silver Note: This solution contains "LOW" levels of Silver. Please store this entire bottle inside a sealed glass jar.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 30, 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

- August 30, 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:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

RD:05/14/2024

Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: WW-LFS-2
Lot Number: U2-MEB731108
Matrix: 5% (v/v) HNO₃
tr. HF
Value / Analyte(s): 200 µg/mL ea:
Silica,
80 µg/mL ea:
Antimony,
70 µg/mL ea:
Tin,
40 µg/mL ea:
Molybdenum,
20 µg/mL ea:
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.6 µg/mL	Molybdenum, Mo	40.03 ± 0.18 µg/mL
Silica, SiO ₂	200.2 ± 1.3 µg/mL	Tin, Sn	70.0 ± 0.4 µg/mL
Titanium, Ti	20.01 ± 0.13 µg/mL		

Density: 1.025 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Mo	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
SiO ₂	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925
Ti	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, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty } (z) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{ITS}}^2 + u_{\text{TS}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{TS} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (z) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{ITS}}^2 + u_{\text{TS}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{TS} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; info@inorganicventures.com;

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 17, 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 17, 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





Instructions for QATS Reference Material: ICP-AES ICS

**QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)**

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) BREAKAGE OR MISSING ITEMS

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

**QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120**

(C) ANALYSIS OF SAMPLES

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,



Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

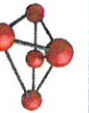
Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57042
051722
Molybdenum (Mo)

Lot # **Solvent:**
MKB08597V Ammonium hydroxide

0.5% **15.0** **Ammonium hydroxide**
(mL)

Expiration Date: 051725

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

3000.41

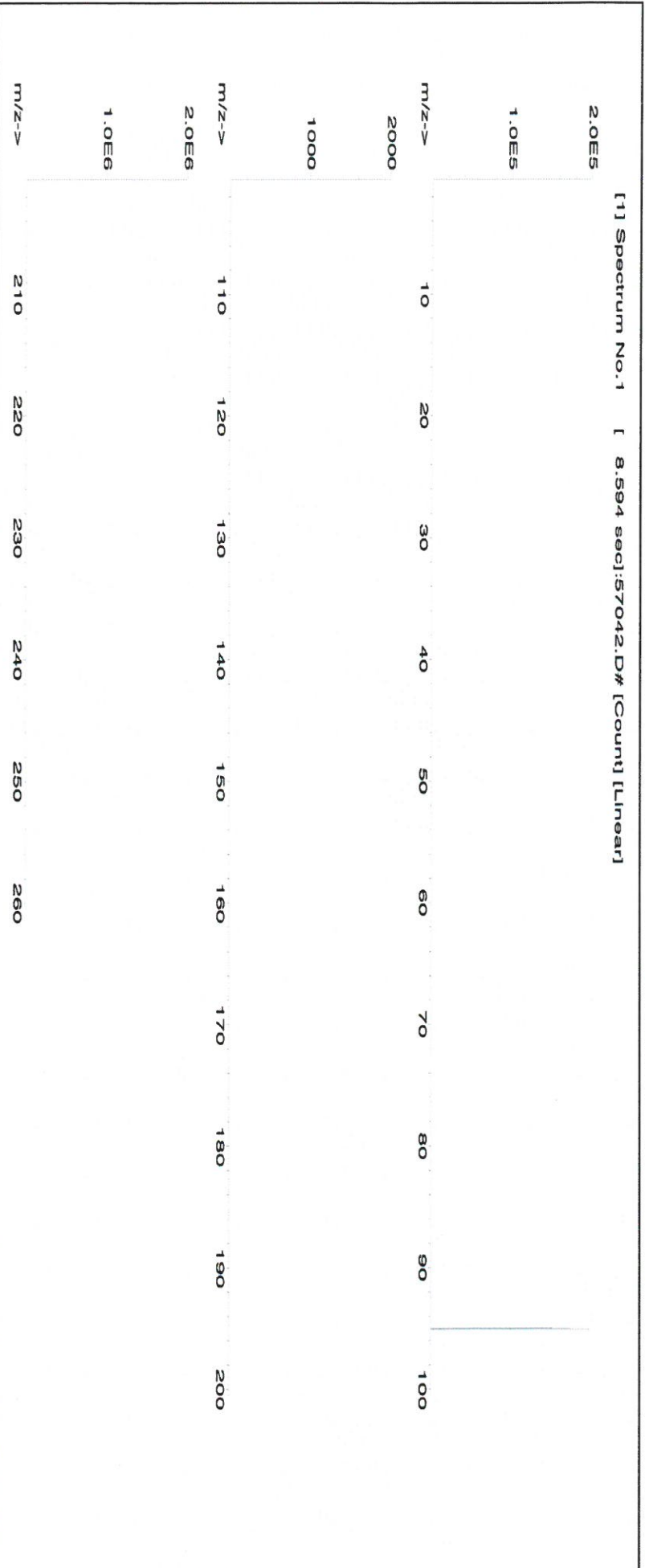
5E-05 **Balance Uncertainty**
0.058 **Flask Uncertainty**

Formulated By:	Lawrence Barry
	051722
Reviewed By:	Pedro L. Rendas
	051722

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	NIST SRM
----------	-------------	------------	-----------------	-------------------	--------------------------	-----------------------	-----------------------	---------------------	----------------------------------	--	----------

1. Ammonium molybdate (Mo) 58142 022222 0.1000 300.0 0.084 1000 10001.0 1000.0 2.1 13106-76-8 5 mg(Mo)/m3 or-trat 333 mg/kg 3134





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

P: 800-669-6799/540-585-3030
 F: 540-585-3012
 info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: CHEM-QC-4
 Lot Number: S2-MEB711674
 Matrix: 3% (v/v) HNO₃
 3% (v/v) HF
 Value / Analyte(s): 1 000 µg/mL ea:
 Boron, Molybdenum,
 Silicon, Tin,
 Titanium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 7 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 001 ± 6 µg/mL		

Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 02, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 02, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Instructions for QATS Reference Material: ICP-AES ICS

**QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)**

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) BREAKAGE OR MISSING ITEMS

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

**QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120**

(C) ANALYSIS OF SAMPLES

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,





Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223



CERTIFIED WEIGHT REPORT:

Part Number: **58119**
Lot Number: **071122**
Description: **Potassium (K)**

Solvent: 20510011 Nitric Acid
Lot #

Expiration Date: 071125
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): **10000**
NIST Test Number: 6UTB

2% 40.0 mL Nitric Acid

Weight shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry
	071122
Reviewed By:	Pedro L. Rentas
	071122

Compound

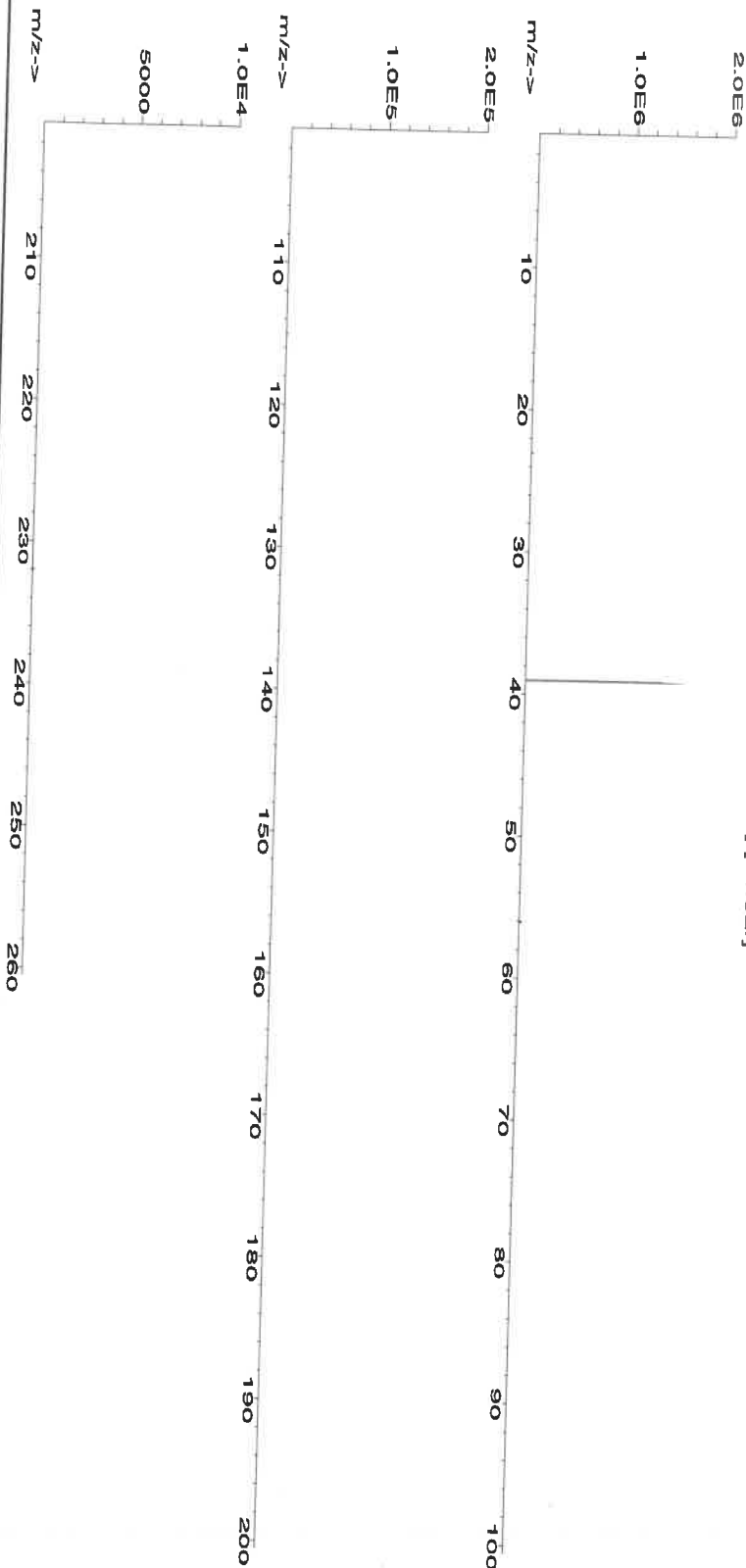
1. Potassium nitrate (K)

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
IN034	KD022021A1	10000	99.999	0.10	37.6	53.1925	53.1934	10000.2	20.0	7757-79-1	5 mg/m3	or-rat 3015 mg/kg	3141a

SDS Information

(Solvent Safety Info. On Attached pg.)
NIST SRM

[1] Spectrum No. 1 [35.763 sec]:58119.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



R: 4/20/21

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INITIAL CALIBRATION VERIFICATION SOLUTIONS
(ICV1, ICV5, AND ICV6)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

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.





QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

- ICV1-1014** For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.
- ICV5-0415** For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.
- ICV6-0400** For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS

ICV1-1014		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2500	500
Sb	1000	200
As	1000	200
Ba	520	100
Be	510	100
Cd	510	100
Ca	10000	2000
Cr	520	100
Co	520	100
Cu	510	100
Fe	10000	2000
Pb	1000	200
Mg	6000	1200
Mn	520	100
Ni	530	110
K	9900	2000
Se	1000	200
Ag	250	50
Na	10000	2000
Tl	1000	210
V	500	100
Zn	1000	200

ICV5-0415		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN ⁻	99



R-09/18/22 **(RTH)**

Certified Reference Material CRM

CERTIFIED WEIGHT REPORT:

Part Number: 57056
Lot Number: 072122
Description: Barium (Ba)

Solvent: 20510011 Nitric Acid

Lot #

Expiration Date: 072125
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

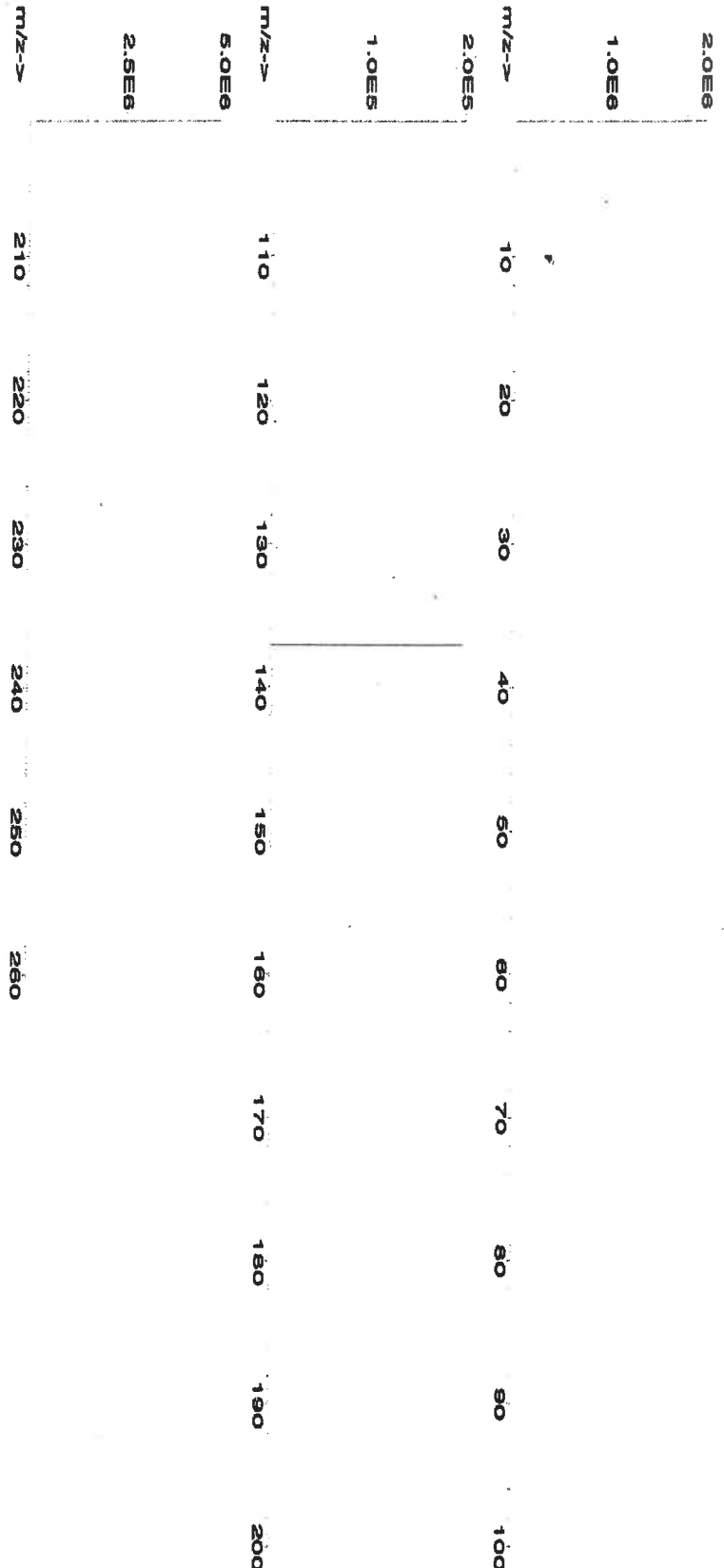
2% 40.0 (mL) Nitric Acid

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Renteria</i>
	072122

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
1. Barium nitrate (Ba)	IN023 BA022019A1	1000	99.899	0.10	52.3	3.82417	3.82426	1000.0	2.0

1. Barium nitrate (Ba) IN023 BA022019A1 1000 99.899 0.10 52.3 3.82417 3.82426 1000.0 2.0 10022-31-8 0.5 mg/m3 or-al 355 mg/kg 31046

[1] Spectrum No. 1 [12.514 sec]:58156.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.02	Er	<0.2	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	T	Cs	<0.02	Cd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.2	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	<0.2	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

Ben. L. R.

- * 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 certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Nitric Acid
CMOS



M5402 M5403 M5404
M5405 M5406 M5407

Material No.: 9606-03
Batch No.: 22C0462001
Manufactured Date: 2022-02-11
Retest Date: 2027-02-10
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 - 70.0 %	69.4 %
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	1.2 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	1.7 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

Nitric Acid
CMOS



Material No.: 9606-03
Batch No.: 22C0462001

Test	Specification	Result
Trace Impurities - Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities - Potassium (K)	≤ 50 ppb	< 10 ppb
Trace Impurities - Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities - Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities - Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count - 0.5 µm and greater	≤ 60 par/ml	7 par/ml
Particle Count - 1.0 µm and greater	≤ 10 par/ml	2 par/ml

>>> Continued on page 3 >>>

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

Nitric Acid
CMOS



Material No.: 9606-03
Batch No.: 22C0462001

Test	Specification	Result
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For Microelectronic Use
Country of Origin: USA
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



Certified Reference Material CRM

M5429 R1 0126/23 (B)

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57103
070622
Lithium (Li)

Solvent: 20510011 Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

070625
Ambient (20 °C)
10000
6UTB

2% 20.0 (mL)

Weight shown below was diluted to (mL): 1000.12
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

<i>Lawrence Barry</i>	
Formulated By:	Lawrence Barry
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
070622	

SDS Information

Expanded Uncertainty: (Solvent Safety Info. On Attached pg.)
+/- (µg/mL) CAS# OSHA PEL (TWA) LD50 NIST SRM

Actual Conc. (µg/mL)

Target Weight (g)

Assay Purity (%)

Nominal Conc. (µg/mL)

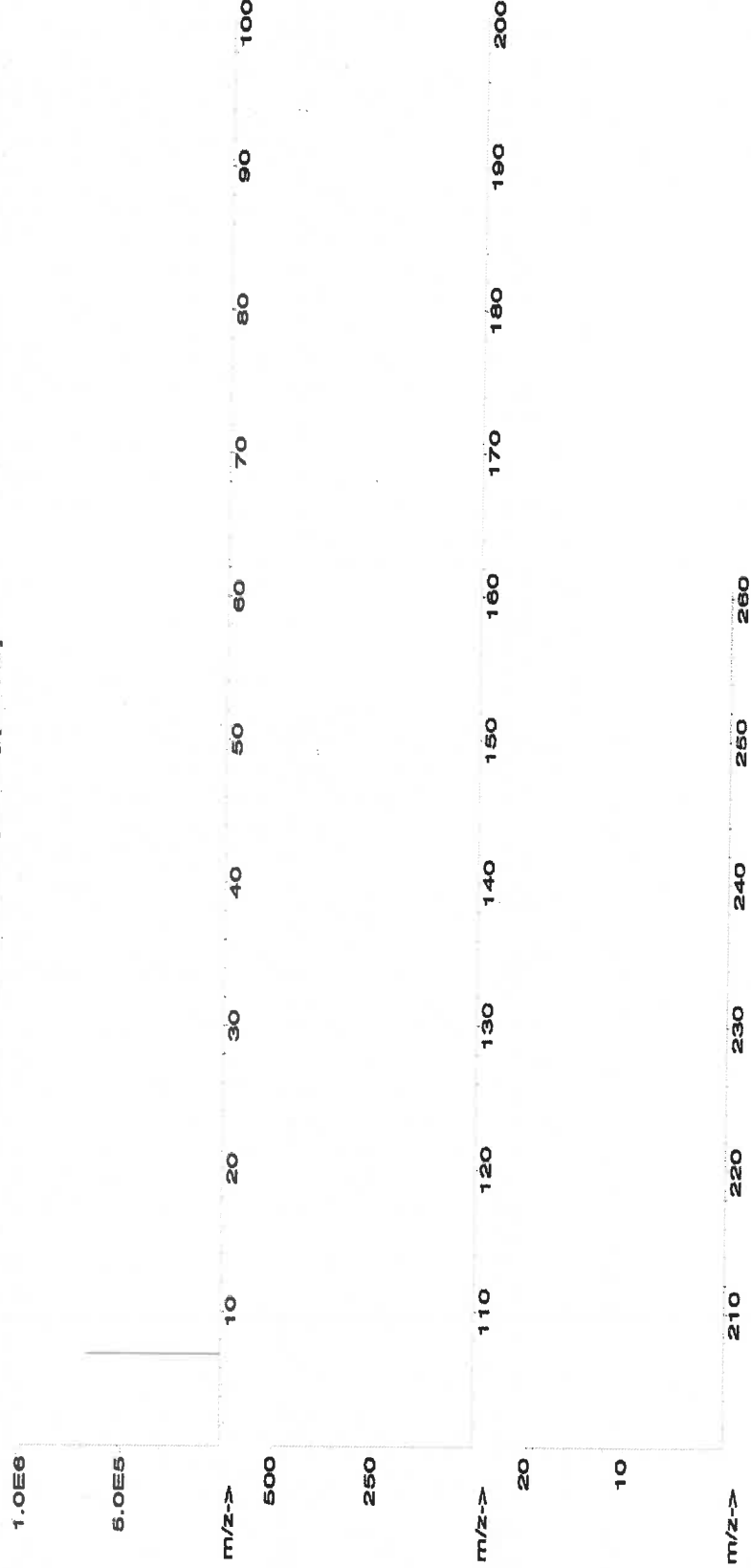
Lot Number

RM#

Compound

1. Lithium nitrate (Li)	IN019	L2042019A1	10000	99.999	0.10	10.0	100.0134	100.0173	10000.4	20.0	7790-69-4	5 mg/m3	of-rat 1426 mg/kg	NA
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[1] Spectrum No.1 [9.619 sec]:58103.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.2	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	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	<0.2	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
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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).



M5467 R: 03/01/23 (14)

CERTIFIED WEIGHT REPORT:

Part Number: 57058
Lot Number: 020623
Description: Cerium (Ce)

Expiration Date: 020626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 1000.12

Solvent: 21110221 Nitric Acid

2% 20.0 Nitric Acid (mL)

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

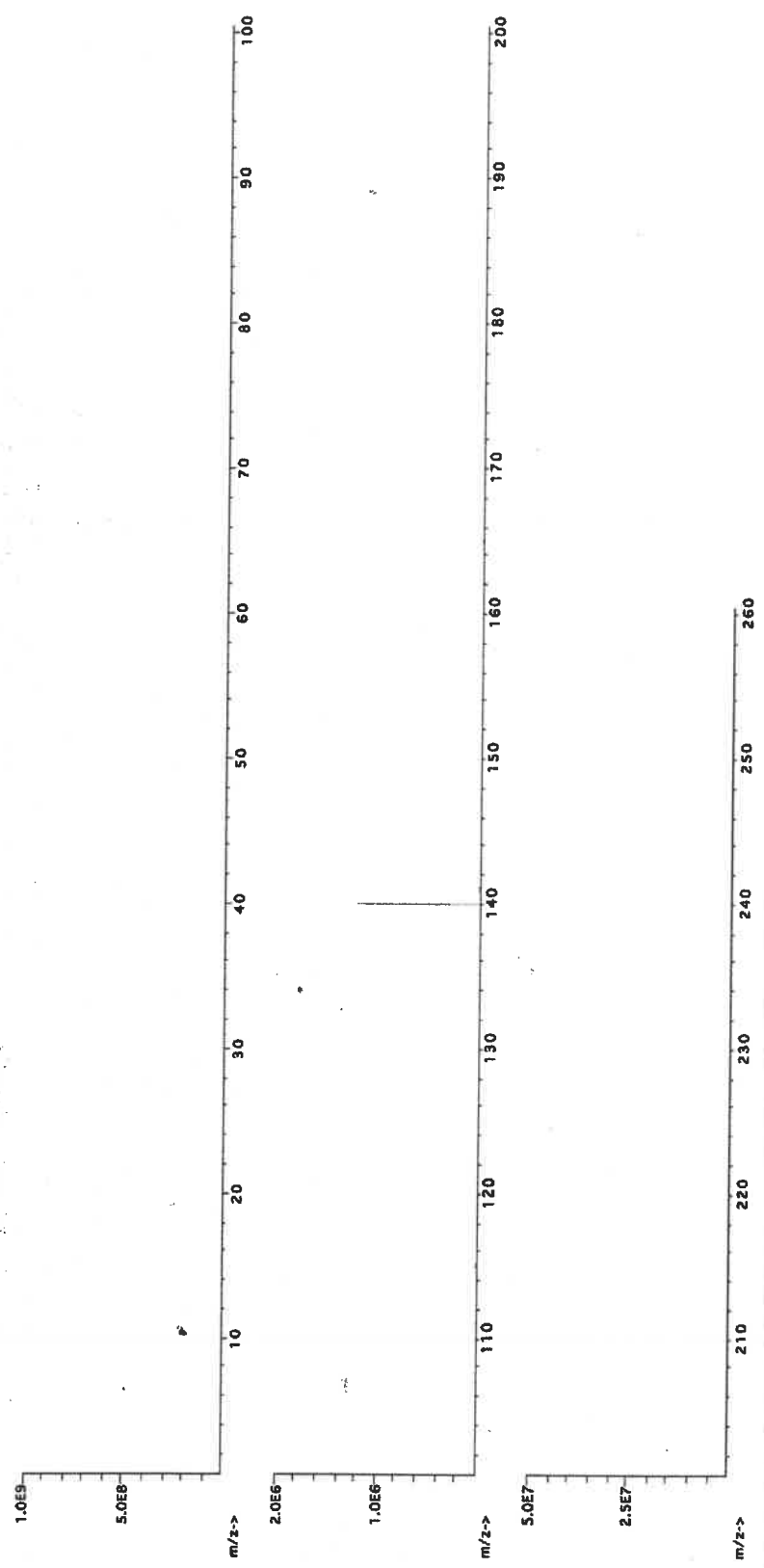
SDS Information

Expanded Uncertainty +/- (µg/mL) 2.0
Actual Weight (g) 3.04921
Actual Conc. (µg/mL) 1000.0
CAS# 10294-41-4
OSHA PEL (TWA) NA
LD50 NA
SRM NA

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	OSHA PEL (TWA)	LD50	SRM
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1. Cerium nitrate hexahydrate (Ce) IN146 Z512CEB1 1000 99.999 0.10 32.8 3.04919 3.04921 1000.0 2.0 NA NA NA

[1] Spectrum No.1 [43.472 sec]58158.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



15497-15498 R203/17/23(2)

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58120
031523
Calcium (Ca)

Solvent: 21110221 Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

031526
Ambient (20 °C)
10000
6UTB

2%
60.0
(mL)
5E-05
Balance Uncertainty
0.058
Flask Uncertainty

Weight shown below was diluted to (mL): 3000.41

Giovanni Esposito

Formulated By: Giovanni Esposito **031523**

Pedro L. Rentas

Reviewed By: Pedro L. Rentas **031523**

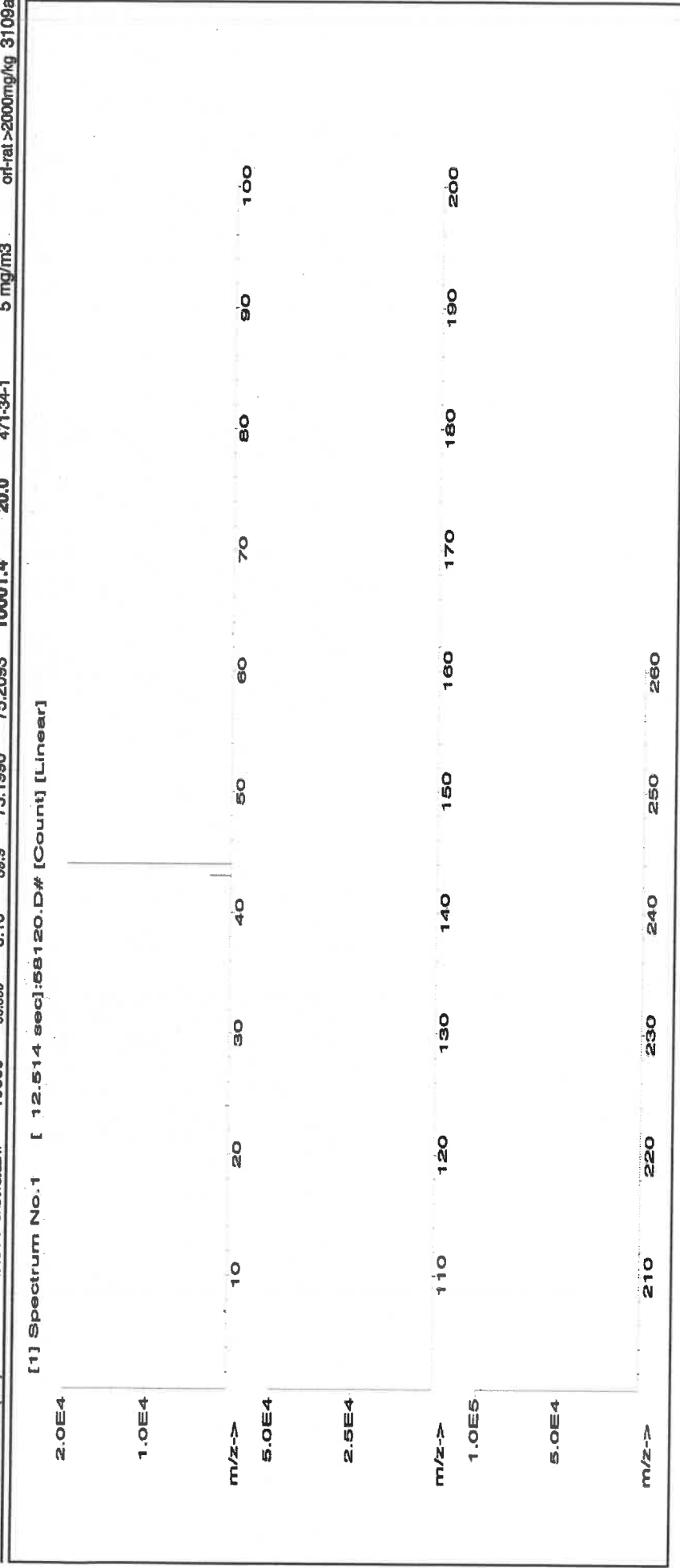
SDS Information

Expanded Uncertainty
Actual Conc. (µg/mL)
Target Weight (g)
Actual Weight (g)
Actual Conc. (µg/mL)
OSHA PEL (TWA)
LD50
NIST SRM

20.0
10001.4
75.2093
75.1990
39.9
0.10
99.999
10000
IN014 CAD072022A1

5 mg/m3
471-34-1
2000mg/kg
3109a

1. Calcium carbonate (Ca) **[12.514 sec]:58120.D# [Count] [Linear]**





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

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

(T) = Target analyte

Physical Characterization:

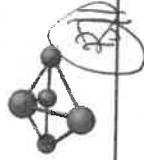
Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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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).



Certified Reference Material CRM



MS54-MS55 R:03/17/22

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58126
092122
Iron (Fe)

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

092125
Ambient (20 °C)
10000
6UTB

Weight shown below was diluted to (mL):

5000.1

Solvent: 20510011 Nitric Acid

7.0% 350.0 Nitric Acid (mL)

5E-05 Balance Uncertainty
0.12 Flask Uncertainty

Formulated By:	Giovanni Esposito	092122
Reviewed By:	Pedro L. Rentas	092122

Expanded
Uncertainty

SDS Information

(Solvent Safety Info. On Attached pg.)
LD50 OSHA PEL (TWA)

NIST
SRM

Actual
Weight (g)

Target
Weight (g)

Assay
(%)

Purity
(%)

Nominal
Conc. (µg/mL)

Lot
Number

RM#

Compound

20.0 7439-88-6 5 mg/m3 orl-rat 7500mg/kg 3126a

10001.5

50.0111

50.0034

100.0

99.985

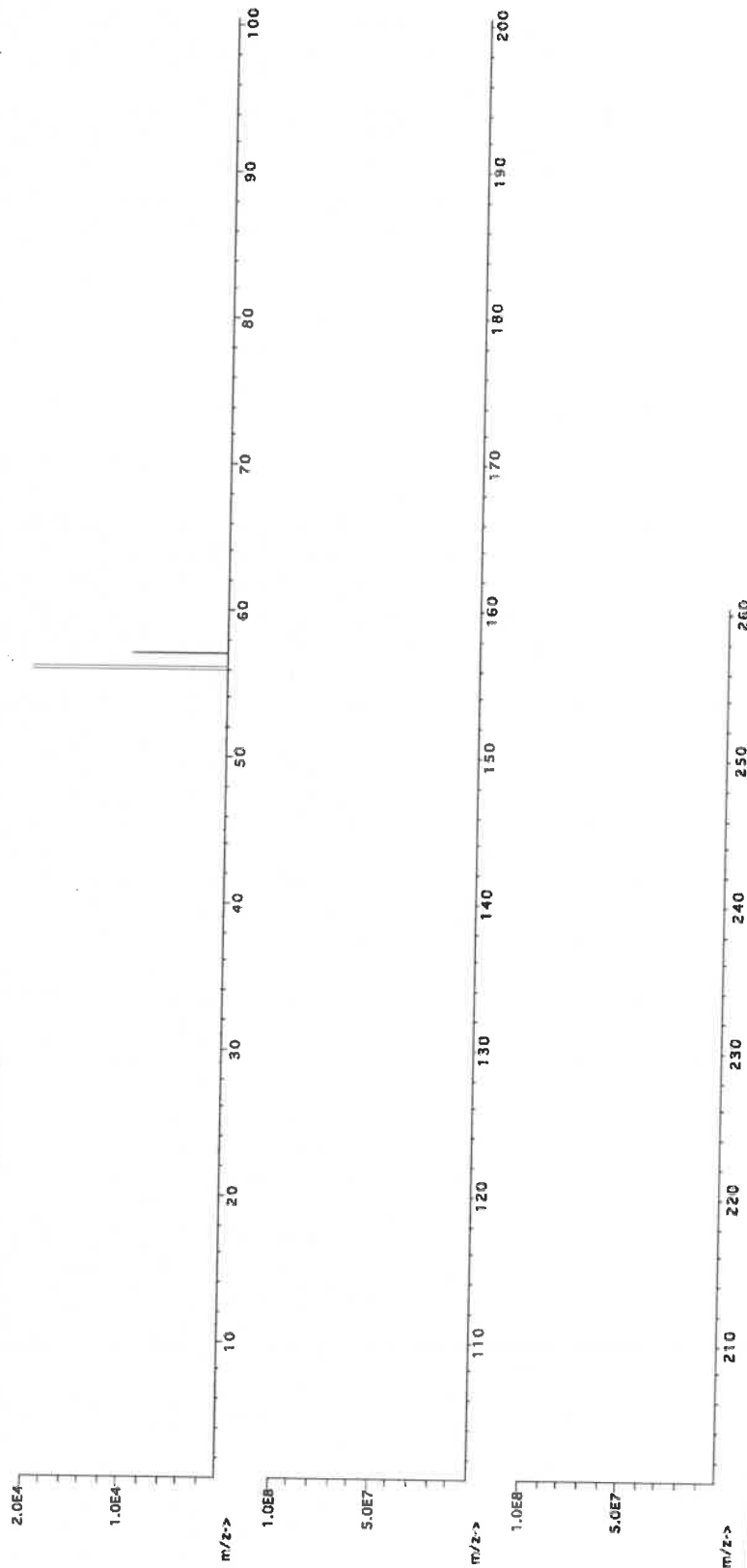
10000

2224912-500

IN346

1. Iron (Fe)

[1] Spectrum No.1 [30.763 sec]:58126.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.10	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.05	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.10	Ge	<0.10	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.05
B	<0.02	Cu	<0.10	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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

Certified by:

Ben P. Galt

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



MATERIAL CERTIFICATE OF COMPLIANCE

DATE: JUNE 12, 2023

CUSTOMER: PCI SCIENTIFIC SUPPLY, INC

PURCHASE ORDER NO. 6054931

CATALOG NO. BOI5021-450L

PRODUCT DESCRIPTION: BOILING STONES, TFE, 454GMS

QUANTITY: 10 EACH

LOT NO. W126678

SPECIFICATION (S): Made from Virgin PTFE Resin

We certify that we have complied with the terms and conditions of the above Purchase Order and the Part Specifications in the manufacturing of the above product.



Laura Valencia
Quality Assurance Inspector

F:\J:\A\CF\PCISCI\COC-55118-BOI5021-061223

CORCO CHEMICAL CORPORATION

Manufacturers of ACS Reagents and Semiconductor Grade Chemicals

CERTIFICATE OF ANALYSIS

Date: 8/3/2022

MS631 MS632 MS633 MS634

Lot No 820803

Hydrogen Peroxide, ACS
Reagent Grade

<u>TEST</u>	<u>MAXIMUM LIMITS</u>	<u>RESULT</u>
Appearance	Colorless and free from suspended matter or sediment	Pass
Assay	29-32%	31.4%
Color (APHA)	10	5
Residue after Evaporation	0.002%	.0001%
Titrateable Acid	0.0006 meq/g	< .0006 meq/g
Chloride (Cl)	2 ppm	< 1 ppm
Nitrate (NO ₃)	2 ppm	< 1 ppm
Phosphate	2 ppm	< 1 ppm
Sulfate (SO ₄)	5 ppm	< .5 ppm
Ammonium (NH ₄)	5 ppm	< 1 ppm
Heavy Metals (as Pb)	1 ppm	< .1 ppm
Iron (Fe)	0.5 ppm	< .1 ppm
Sodium Stannate	200 – 300 ppb	Pass

***Our Hydrogen Peroxide is considered un-stabilized because it is very slightly stabilized with Sodium Stannate, 500 ppb maximum, just for safety purposes.

Date of MFG: 8/2022

Retest date: 8/2024

Gina M. Rambo
Office Manager



CERTIFIED WEIGHT REPORT:

Part Number: 58024
Lot Number: 060523
Description: Chromium (Cr)

Lot #
21110221
Solvent: Nitric Acid

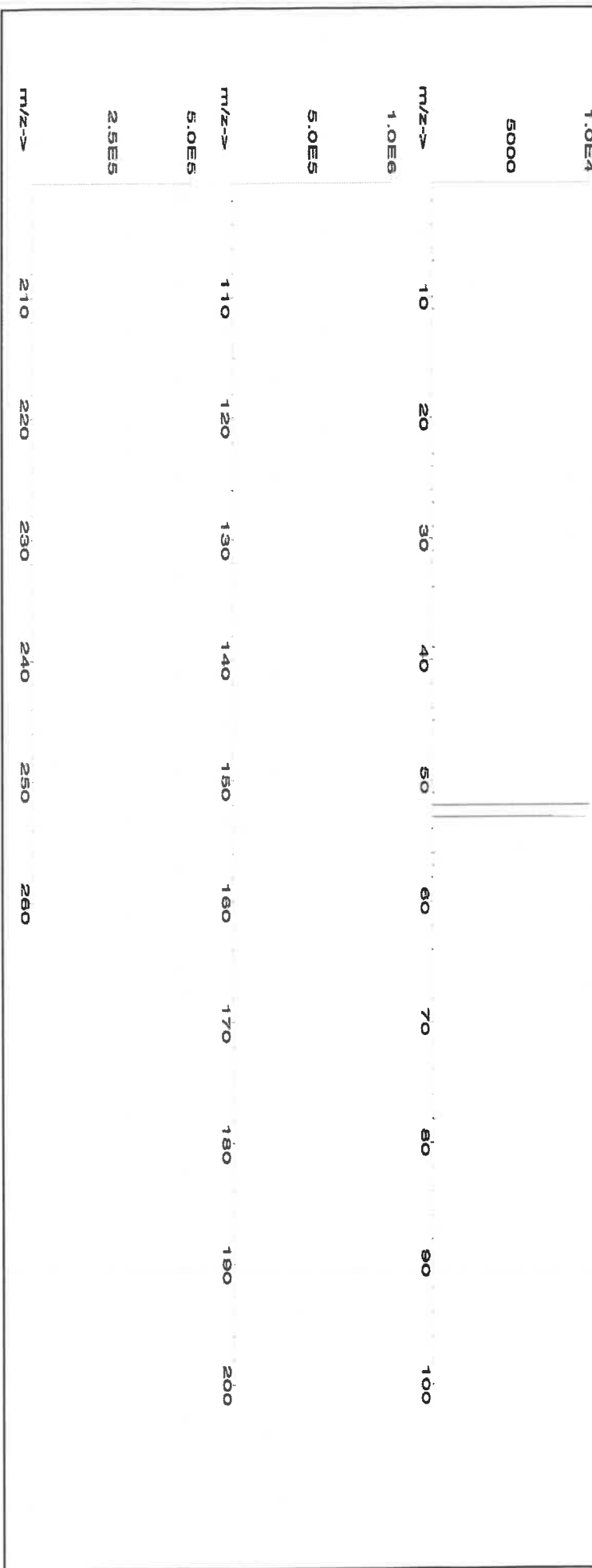
Formulated By:	Lawrence Barry
	060523
Reviewed By:	Pedro L. Ruelas
	060523

Expiration Date: 060526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

[1] Spectrum No.1 [31.393 sec]:57024.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

M5697 R: 10/27/23



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 58029
Lot Number: 102523
Description: Copper (Cu)

Lot # 24002546
Solvent: Nitric Acid

2.0% 40.0
(mL) Nitric Acid

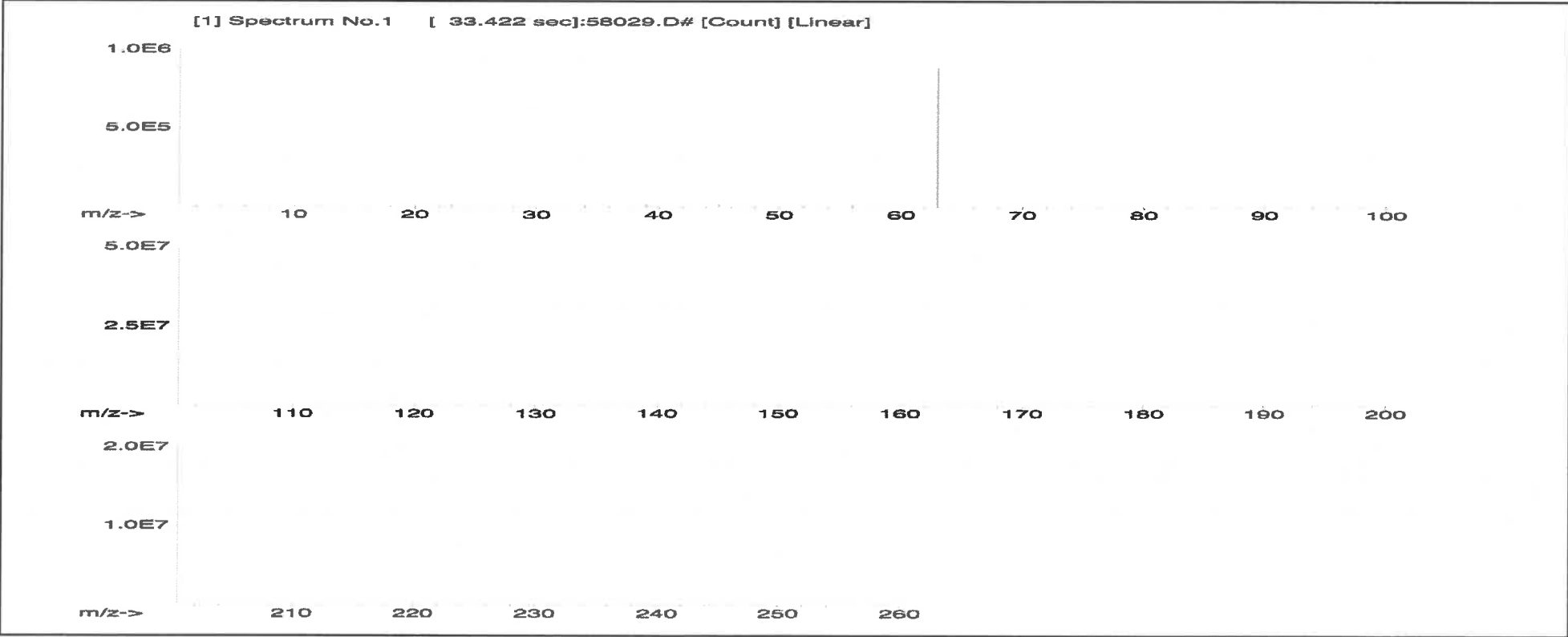
Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

Expiration Date: 102526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Volume shown below was diluted to (mL): 2000.02 5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Expanded										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	ori-rat 794 mg/kg	3114
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

M5698 R: 10/23/23

CERTIFIED WEIGHT REPORT:

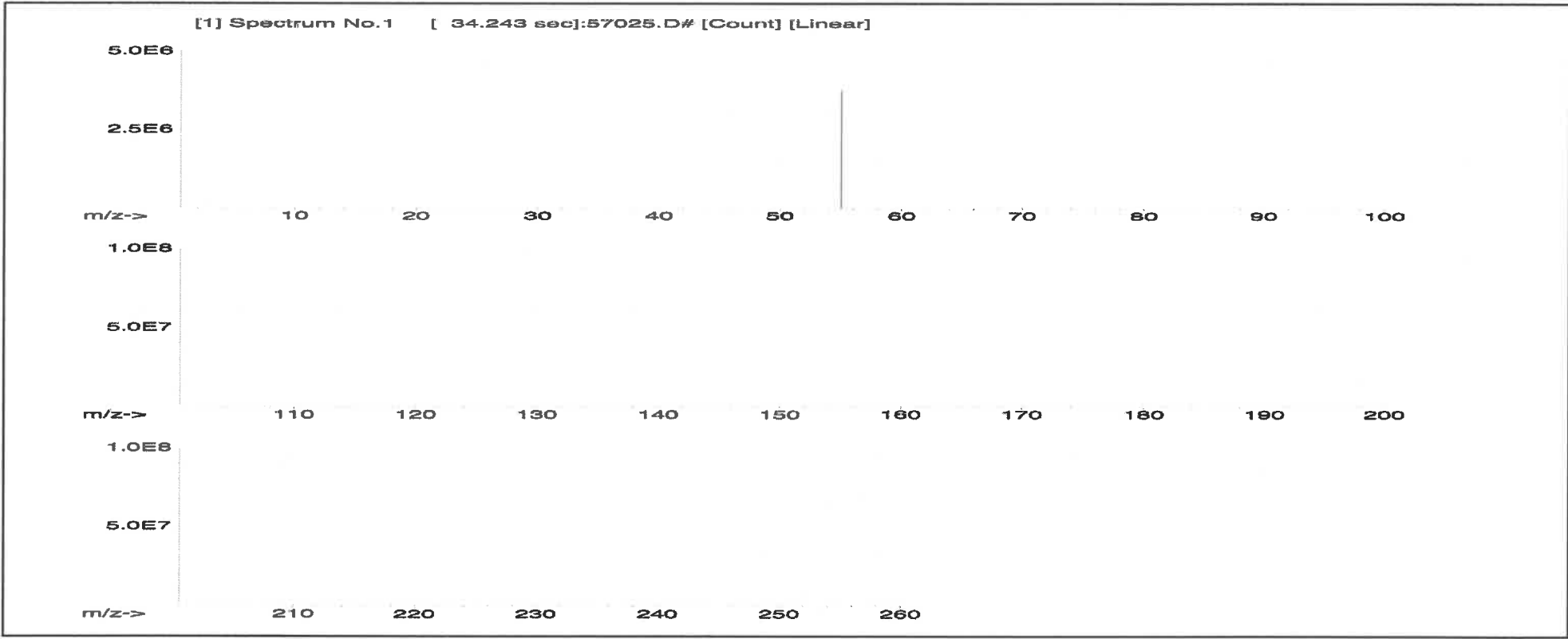
Part Number: 58025
Lot Number: 102623
Description: Manganese (Mn)

Lot # 24002546
Solvent: Nitric Acid
2.0% 60.0 (mL) Nitric Acid

Formulated By: Benson Chan 102623
Reviewed By: Pedro L. Rentas 102623

Expiration Date: 102626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 3000.41
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded	SDS Information			NIST
									Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)			SRM
										CAS#	OSHA PEL (TWA)	LD50	
Manganese(II) nitrate tetrahydrate (Mn)	58125	071123	0.1000	300.0	0.084	1000	10000.1	1000.0	2.1	20694-39-7	5 mg/m3	ori-rat >300mg/kg	3132





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 balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57082
Lot Number: 100923
Description: Lead (Pb)

Solvent: 24002546 Nitric Acid

Lot #

Expiration Date: 100926

2% 60.0 (mL) Nitric Acid

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): 3000.41 **0.06 Flask Uncertainty**

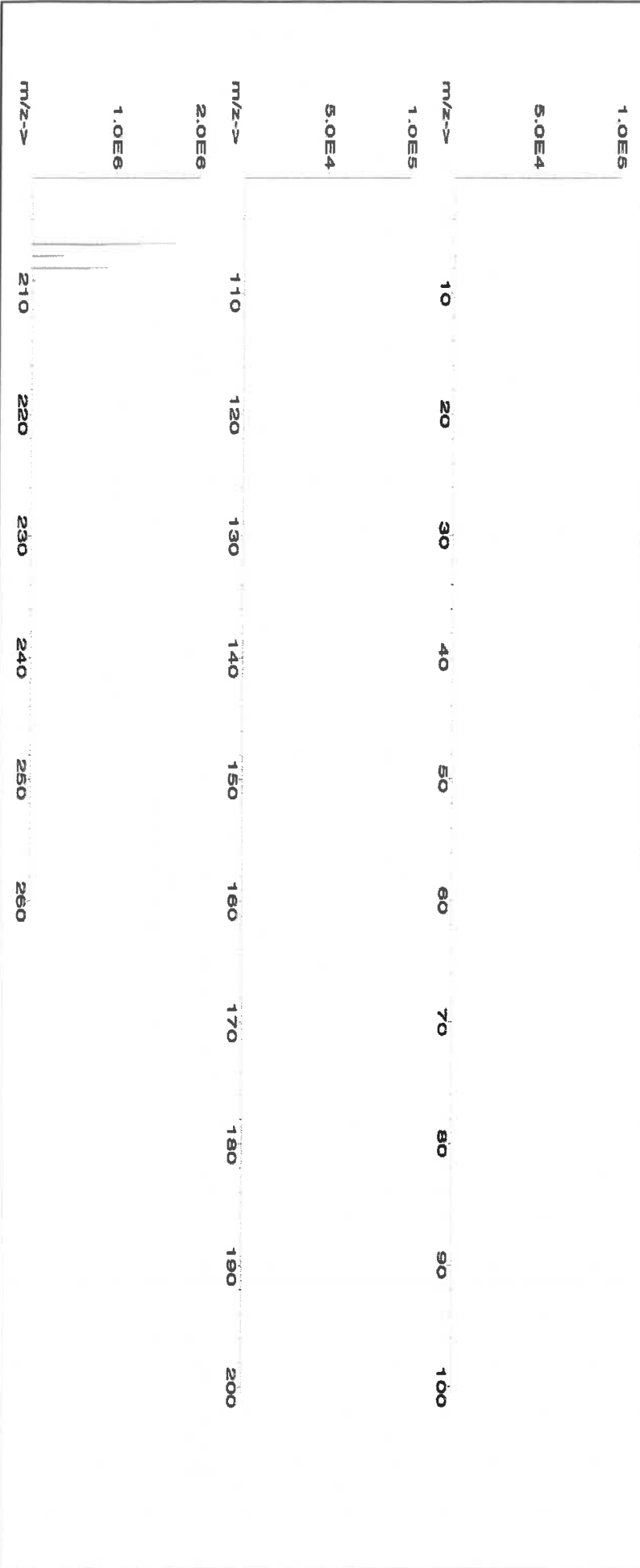
Formulated By:	Lawrence Barry
	100923
Reviewed By:	Pedro L. Rentas
	100923

SDS Information

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Lead(II) nitrate (Pb) IN029 PB0122016A1 1000 99.999 0.10 62.5 4.80071 4.80077 1000.0 2.0 10099-74-8 0.05 mg/m3 Intvms-ret 89 mg/kg 3128

[1] Spectrum No.1 [14.144 sec]:58082.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (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	Ba	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	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	T	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **57028**
Lot Number: **091223**
Description: **Nickel (NI)**

Lot # **24002546** Solvent: **Nitric Acid**

Expiration Date: **091226**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**

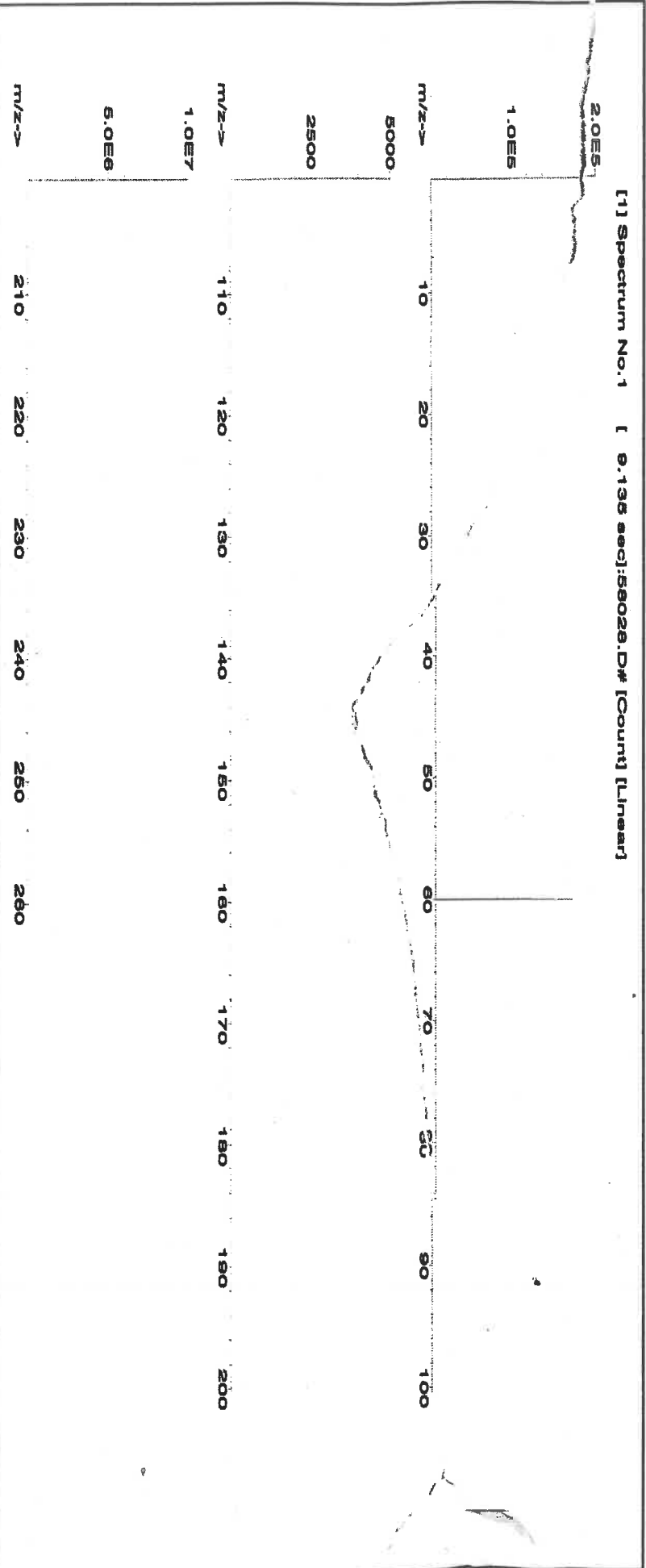
2.0% 40.0 (mL) Nitric Acid

Formulated By:	<i>Lawrence Barry</i>	091223
Reviewed By:	<i>Pedro L. Renteria</i>	091223

NIST Test Number: **6U7B**
Volume shown below was diluted to (mL): **2000.02** Balance Uncertainty **5E-05** Flask Uncertainty **0.056**

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Nickel(II) nitrate hexahydrate (NI) 58128 062023 0.1000 200.0 0.084 1000 10000.4 1000.0 2.2 13478-00-7 1 mg/m3 or-rel 1620 mg/kg 3136





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * 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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Printed: 12/29/2023. 2:56:15 PM



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.
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- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57004
Lot Number: 102523
Description: Beryllium (Be)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date:

102526

2.0%

40.0 (mL)

Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

2000.02

5E-05

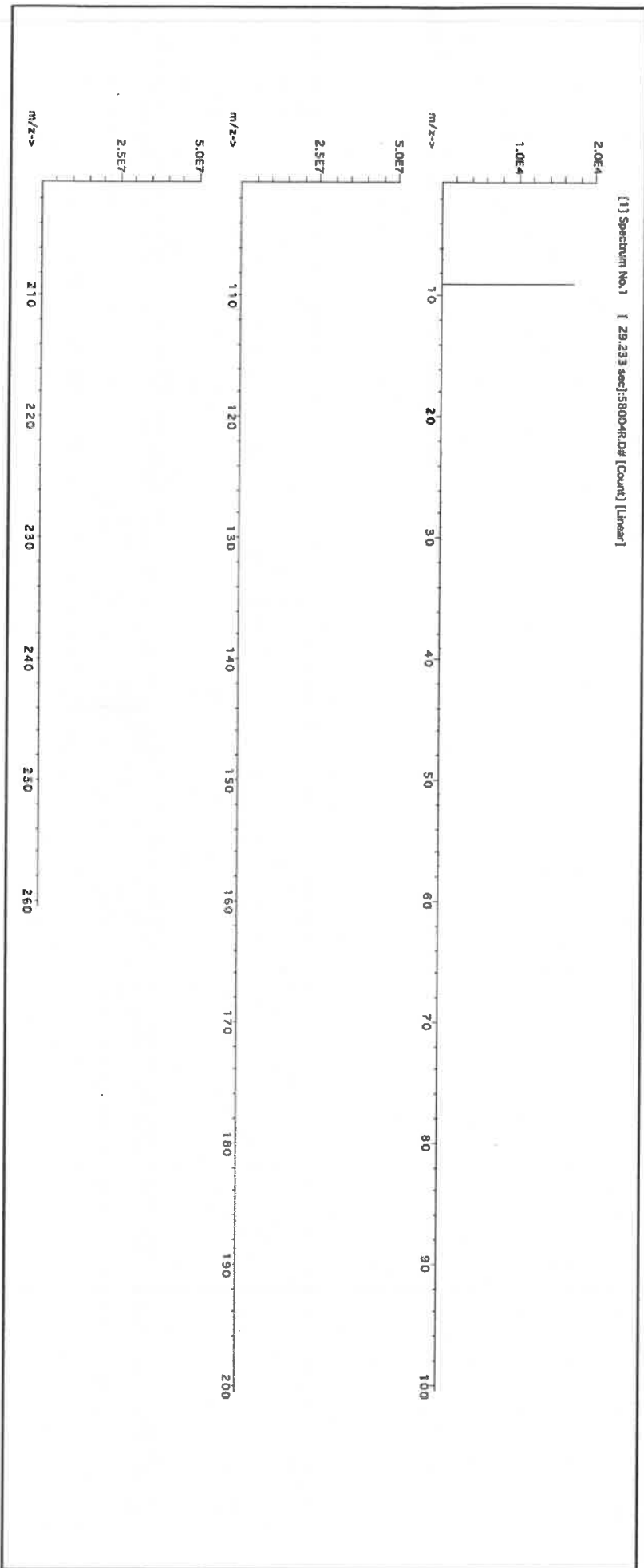
Balance Uncertainty
0.058 Flask Uncertainty

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

SDS Information

Compound	Part Number	Lot	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	1000.0	2.2	13597-99-4	0.2µg/m3	intrinsc-rat 3.16mg/kg	NA
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.

* All standard containers are meticulously cleaned prior to use.

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 * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.

* All Standards should be stored with caps tight and under appropriate laboratory conditions.

* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

CERTIFIED WEIGHT REPORT:

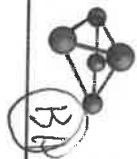
Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

Solvents: 21110221 Nitric Acid
22D0562008 Hydrochloric acid

Lot #

R-02509124

M599



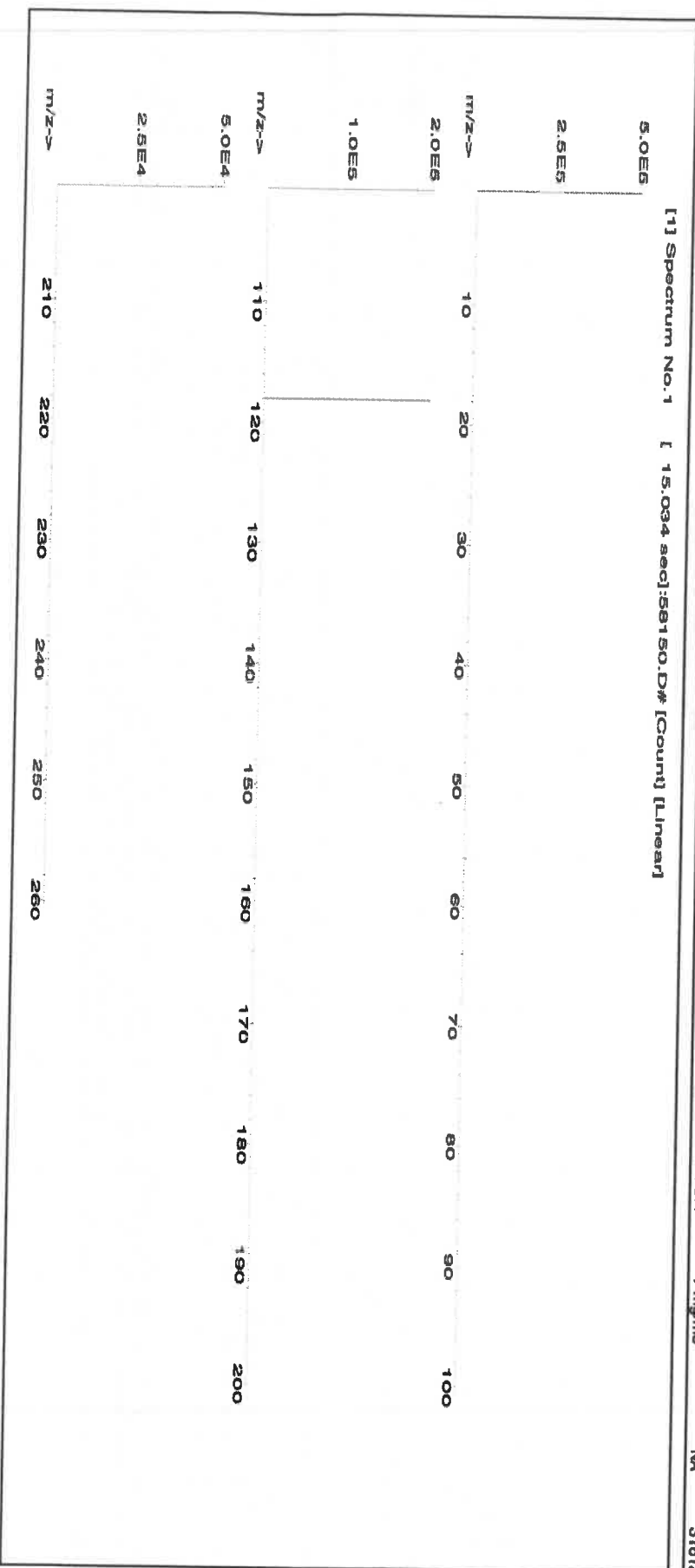
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

SDS Information												
Compound	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty (%)	NIST		
										(Solvent Safety Info. On Attached pg.)		
RM#	Number											

1. Ammonium hexafluoroantimonate(V) (Sn) INO10 SMD042023A1 1000 99.999 0.10 44.2 1.13107 1.13286 1001.6 2.0 16919-24-7 7 mg/m3 NA 3161a

[1] Spectrum No. 1 [15.034 sec]:56150.D# [Count] [Linear]



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

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<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	<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:

[Signature]

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



R: 02/09/24 115800 (54)

CERTIFIED WEIGHT REPORT:

Part Number: 57027
Lot Number: 091923
Description: Cobalt (Co)

Expiration Date: 091926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Volume shown below was diluted to (mL): 2000.02

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Lot # 24002546
Solvent: Nitric Acid

2.0% Nitric Acid
40.0 (mL)

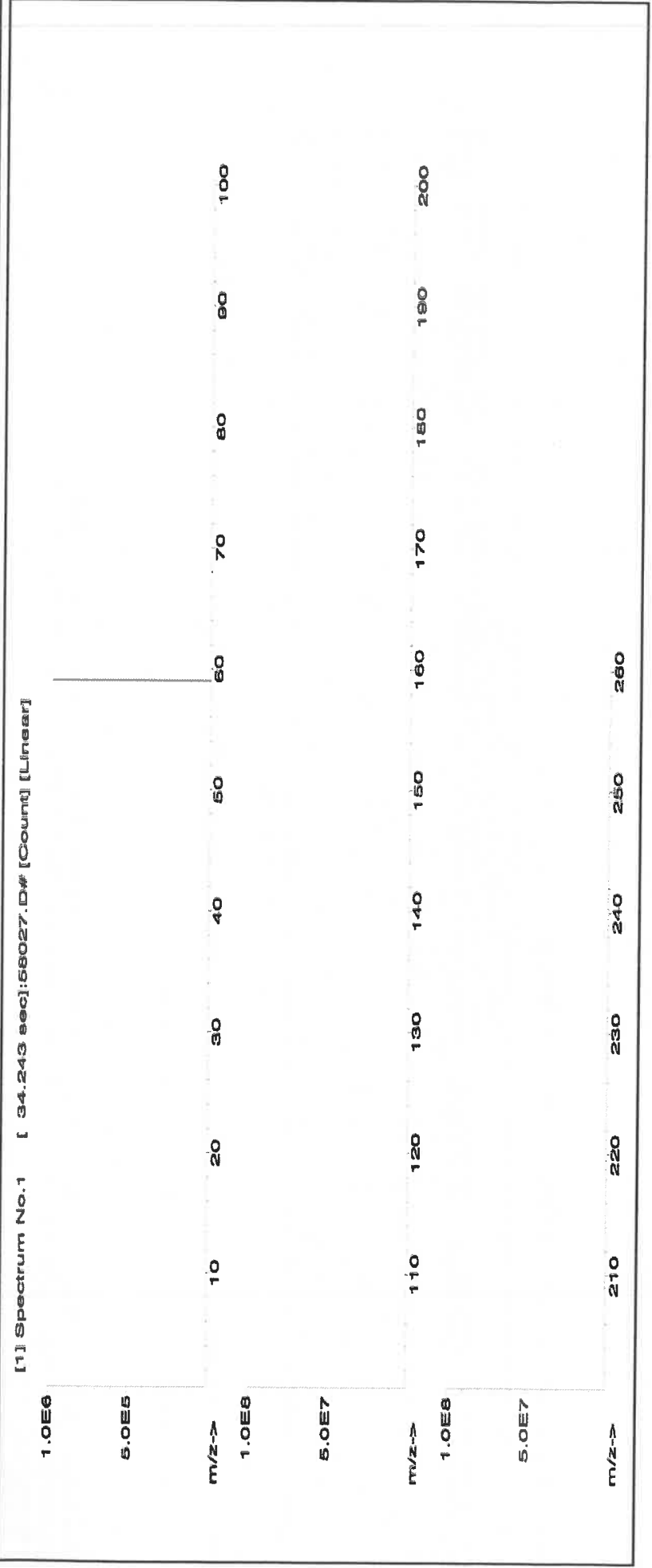
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas

SDS Information

Expanded Uncertainty +/- (µg/mL)
Final Conc. (µg/mL)
Initial Conc. (µg/mL)
Nominal Conc. (µg/mL)
Pipette (mL)
Dilution Factor

(Solvent Safety Info. On Attached pg.)
CAS#
OSHA PEL (TWA)
LD50
NIST
SRM

1. Cobalt(II) nitrate hexahydrate (Co) 58127 050923 0.1000 200.0 0.084 1000 10000.0 1000.0 2.2 10026-22-9 0.02 mg/m3 orl-rat 691 mg/kg 3113





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T)= Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57033
111323
Arsenic (As)

Lot #
Solvent:

24002546
Nitric Acid

2.0%

80.0

Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):

111326
Ambient (20 °C)
1000

NIST Test Number:
Volume shown below was diluted to (mL):

6UTB
4000.0

5E-05
Balance Uncertainty
0.06
Flask Uncertainty

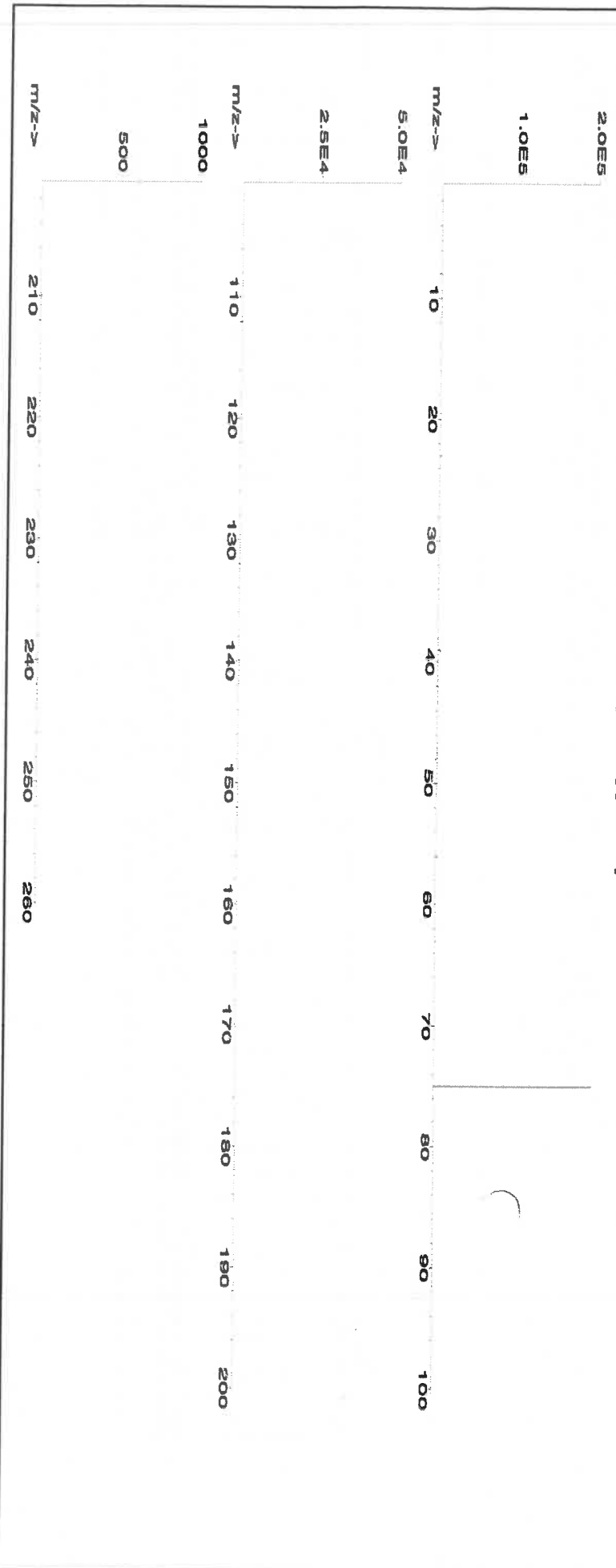
Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rendas	111323

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
-------------	------------	-----------------	-------------------	--------------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. Arsenic (As)	58133	020522	0.1000	400.0	0.084	1000	10001.0	1000.0	2.0	7440-38-2	0.5 mg/m3	or-rat 500 mg/kg	3103a
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[1] Spectrum No. 1 [34.433 sec]:57033.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **57005**
Lot Number: **071123**
Description: **Boron (B)**

Solvent: MKB0857V Ammonium hydroxide

Lot #

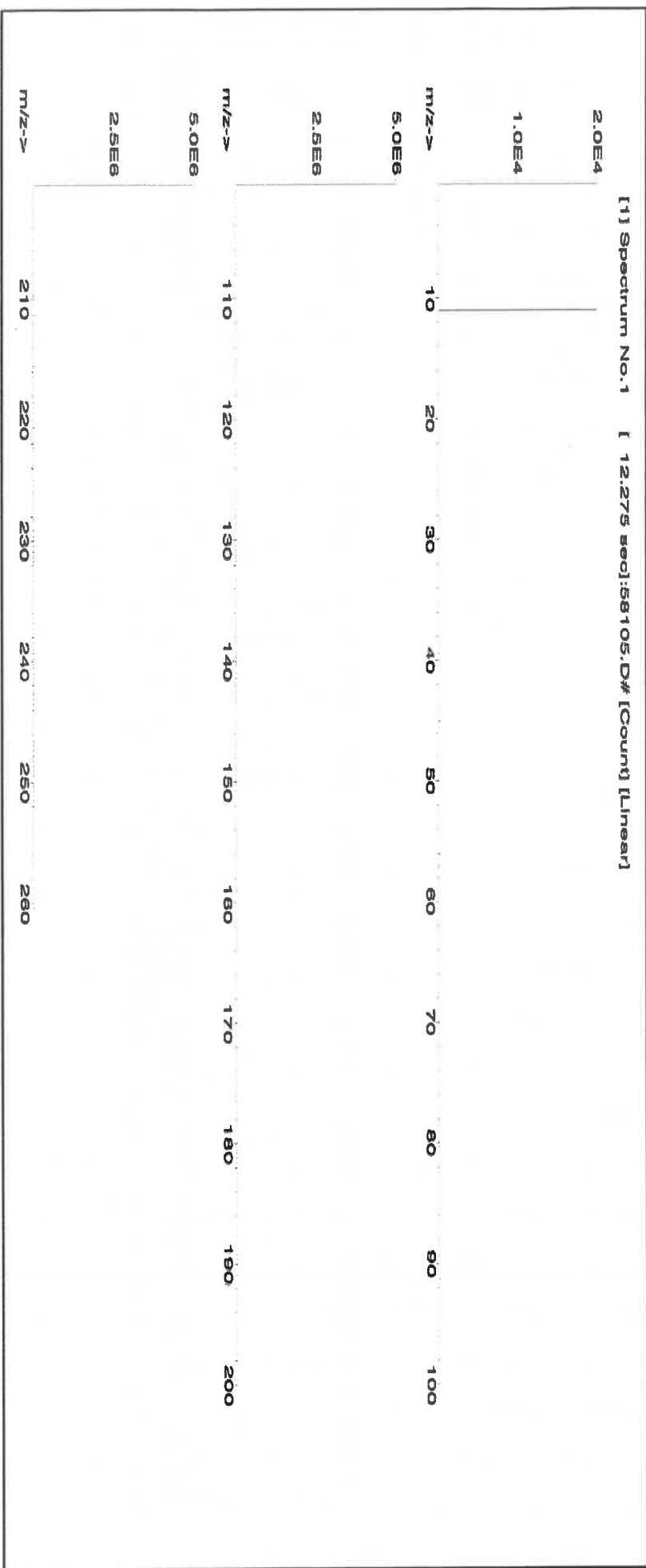
AI: 021009124 M5814

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1999.48 0.058 Balance Uncertainty
2.0% 40.0 Ammonium hydroxide (mL)

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

SDS Information									
Compound	Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	NIST
	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	SRM

1. Boric acid (B) IN018 BV082018A1 1000 99.999 0.10 17.3 11.55772 11.56201 1000.4 2.0 10043-35-3 2 mg/m3 or-nat 2660 mg/kg 3107





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57115
Lot Number: 041723
Description: Phosphorous (P)

Solvent: 21110221 Nitric Acid

Lot #

R102109124 M5815

Expiration Date: 041726
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

2% 40.0 (mL) Nitric Acid

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

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

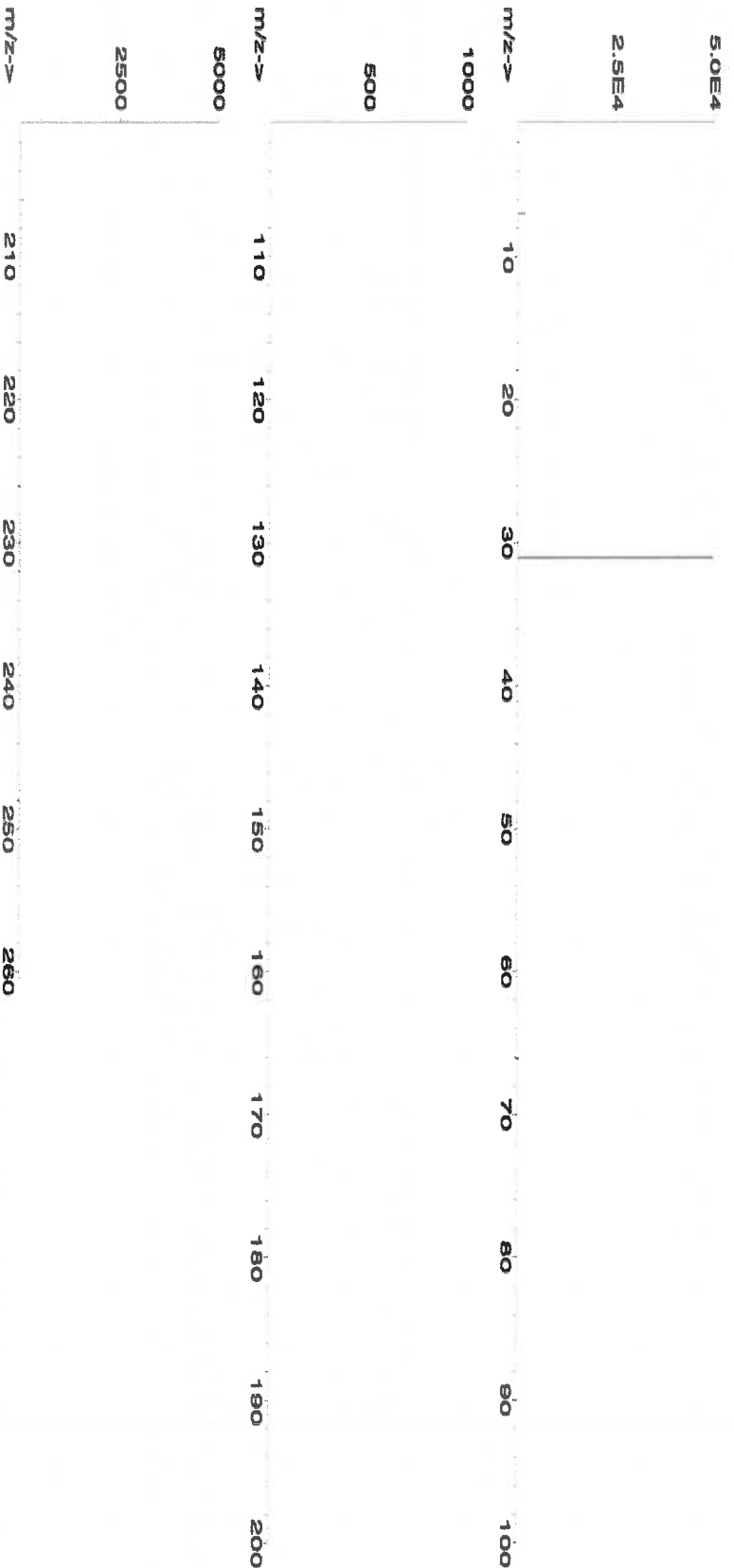
Compound									
RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)

1. Ammonium dihydrogen phosphate (P) IN008 PVR2019A1 10000 99.999 0.10 27.5 72.7287 72.7289 10000.0 20.0 7722-76-1 5 mg/m3 or-hal->2000mg/kg 3186

SDS Information

Expanded Uncertainty (Solvent Safety Info. On Attached pg.)
CAS# OSHA PEL (TWA) **LD50** **NIST SRM**

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57016
122923
Sulfur (S)

Lot #

ASTM Type 1 Water

Formulated By:	Benson Chan	122923
Reviewed By:	Pedro L. Rentas	122923

Expiration Date: 122926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LUTB

Weight shown below was diluted to (mL): 4000.0
SE-05 Balance Uncertainty
0.06 Flask Uncertainty

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium sulfate (S) IN117 SLBR725V 1000 99.9 0.10 24.3 16.4979 16.4980 1000.0 2.0 7783-20-2 NA 0.01-0.1 4250mg/kg 3181

[1] Spectrum No. 1 [33.603 sec]:57016.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Ba	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	S	<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	Ta	<0.02	Ti	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	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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- * 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).



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57116
071123
Sulfur (S)

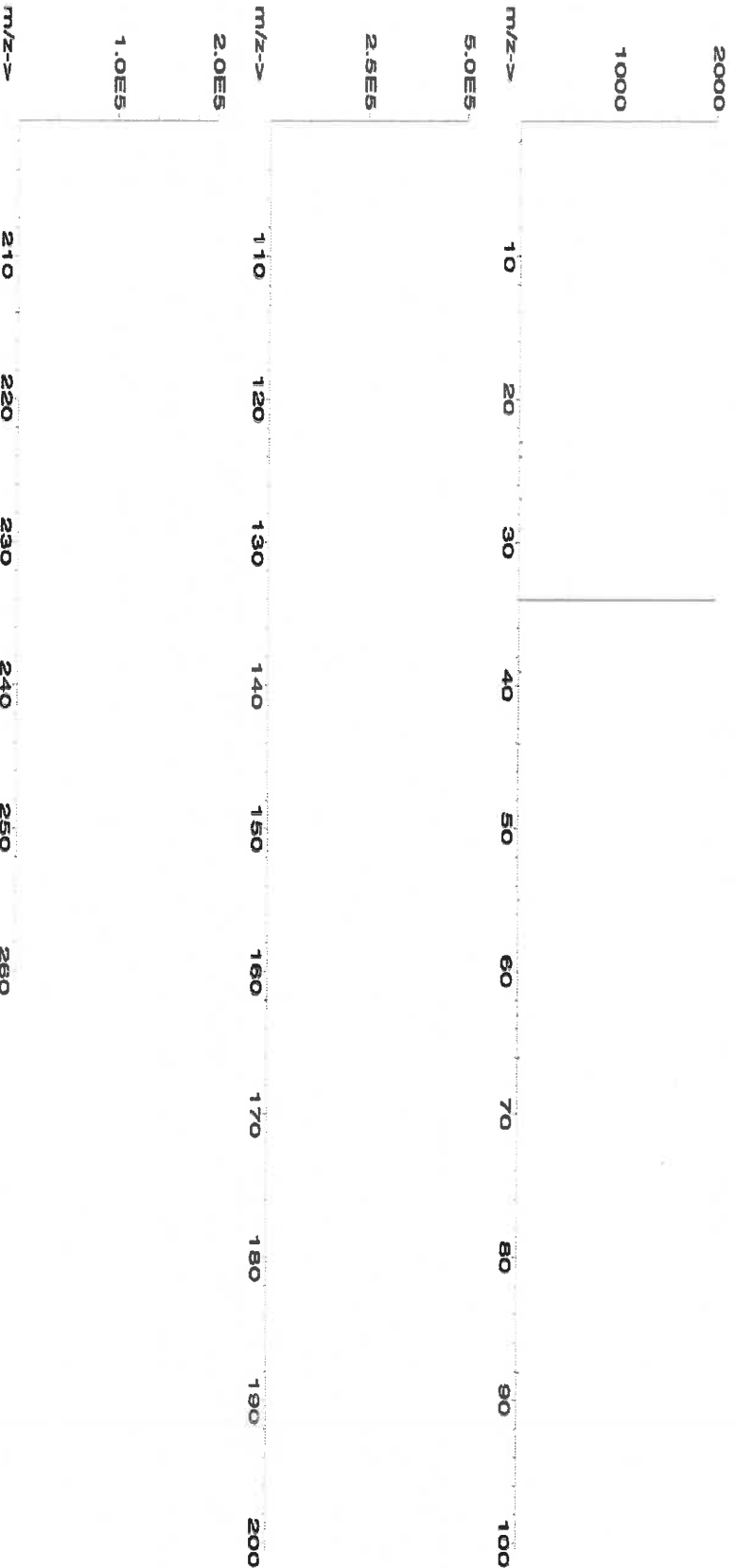
Lot #
Solvent: 071123
ASTM Type 1 Water

Formulated By:	Lawrence Barry
	071123
Reviewed By:	Pedro L. Rentas
	071123

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1999.48
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
Ammonium sulfate (S)	IN117 SLBR725V	10000	99.9	0.10	24.3	82.4675	82.4692	10000.1	20.0
						7763-20-2	NA		
							oral 4250mg/kg	3181	

[1] Spectrum No. 1 [24.004 sec]:58116.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	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

Physical Characterization:

(T)= Target analyte

Certified by:

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

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



CERTIFIED WEIGHT REPORT:

Part Number: **57014**
Lot Number: **122023**
Description: **Silicon (Si)**

Solvent: **24002546 Nitric Acid**

Lot #

R: 02/09/24 M5818

Expiration Date: **122026**

2% 40.0 (mL) Nitric Acid

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): **1999.48 0.058 Flask Uncertainty**

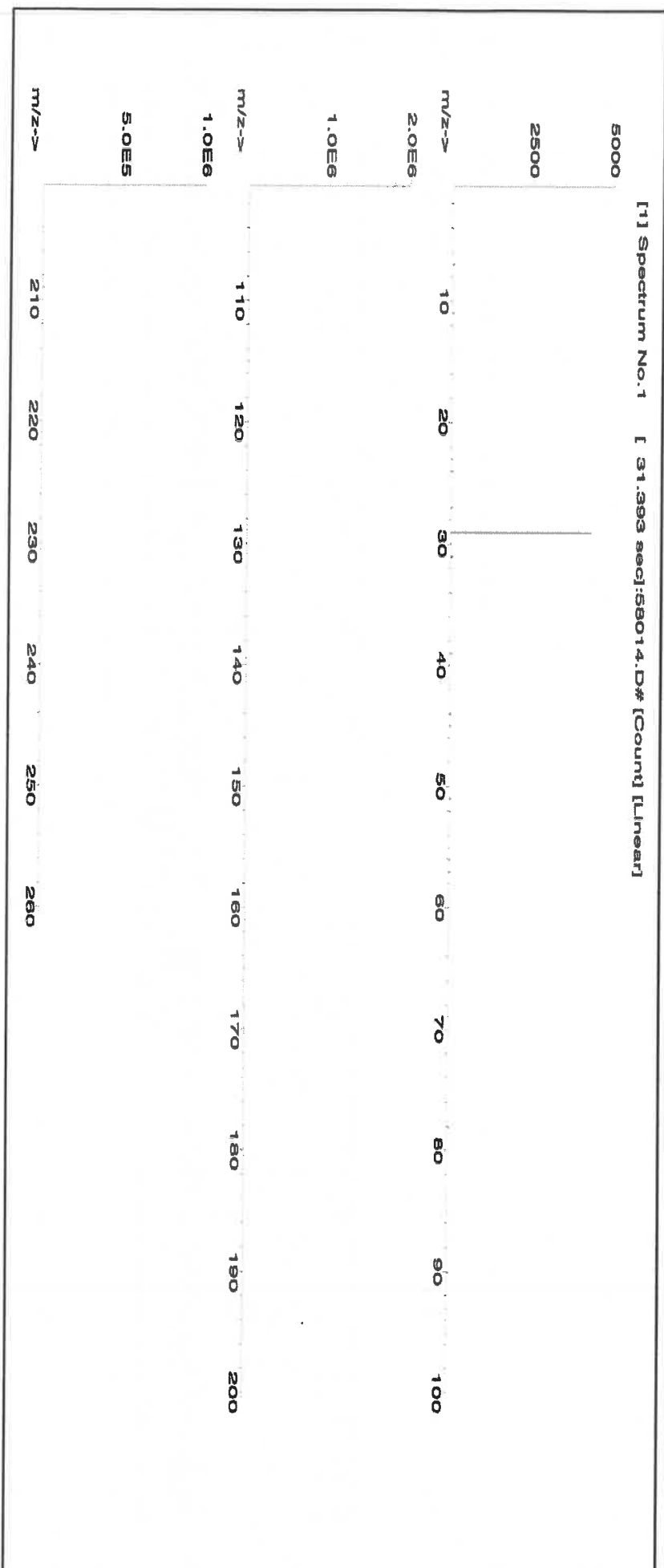
<i>Aleah O Brady</i>	
Formulated By:	Aleah O Brady
	122023
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	122023

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	------------	-----------------------	------------	-----------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. Ammonium hexafluorosilicate (Si) IN009 S1D08022A1 1000 99.999 0.10 14.4 13.8854 13.8855 1000.0 2.0 18919-19-0 2.5 mg/m3 off-mus 70 mg/kg NA

[1] Spectrum No. 1 [31.393 sec; 158014.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	T	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Ru	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<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	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 58030
Lot Number: 111623
Description: Zinc (Zn)

Solvent: 24002546 Nitric Acid

2% 60.0 (mL) Nitric Acid

Expiration Date: 111626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

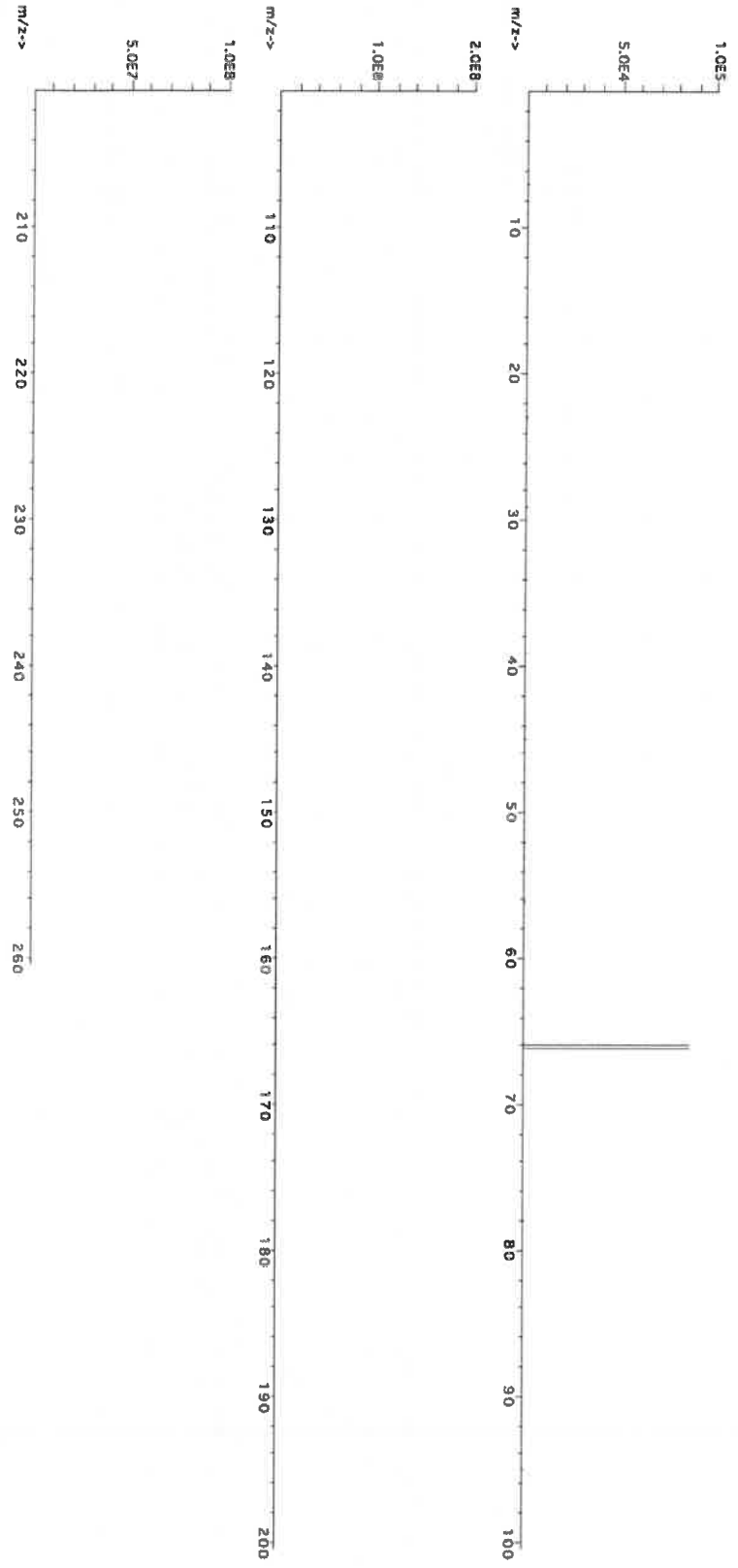
Formulated By:	Benson Chan
Reviewed By:	Pedro L. Reintias
111623	

Weight shown below was diluted to (mL): 3000.4 0.06 Balance Uncertainty Flask Uncertainty

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LDSO	NIST SRM
----------	------------	-----------------------	------------	-----------------------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. Zinc nitrate hexahydrate (Zn) IN016 ZNE03021A1 1000 99.999 0.10 24.3 12.3475 12.3502 1000.2 2.0 10196-16-6 1 mg/mL 3168

[1] Spectrum No.1 [31.103 sec]58130.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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CERTIFIED WEIGHT REPORT:

Part Number: 57015
Lot Number: 091123
Description: Phosphorous (P)

Solvent: 24002546 Nitric Acid

Lot #

R: 02109124 M5820

Lawrence Barry
Formulated By: Lawrence Barry
091123

Pedro L. Rentas
Reviewed By: Pedro L. Rentas
091123

2% 40.0 (mL) Nitric Acid

Expiration Date: 091126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LJB

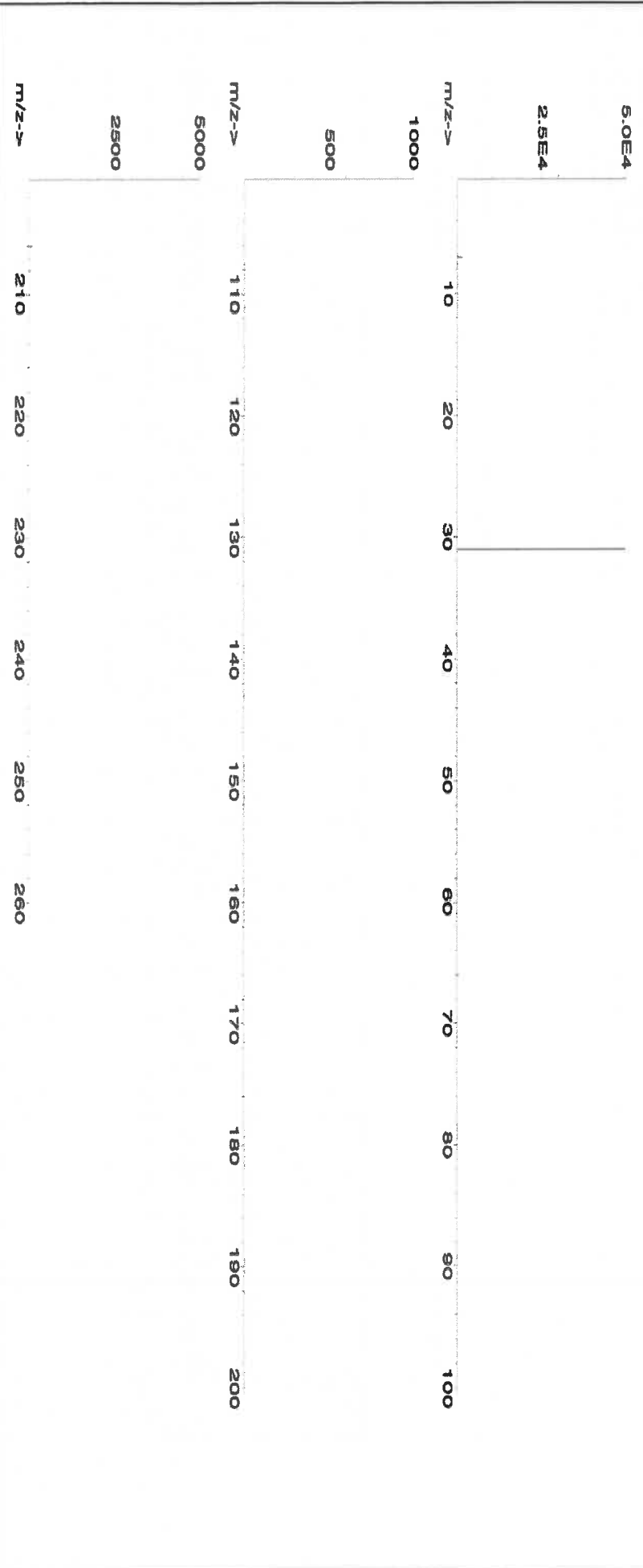
Weight shown below was diluted to (mL): 2000.02 0.058 Balance Uncertainty Flask Uncertainty

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium dihydrogen phosphate (P) IN008 PVO62019A1 1000 99.999 0.10 27.5 7.2729 7.2730 1000.0 2.0 7722-76-1 5 mg/m3 xH-rat >2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (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	Tc	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	T	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sa	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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CERTIFIED WEIGHT REPORT:

MS962 **R10614124**

Lot # **24002546** Solvent: **Nitric Acid**

Part Number: **57034**
Lot Number: **060624**
Description: **Selenium (Se)**

2.0% 40.0 (mL) Nitric Acid

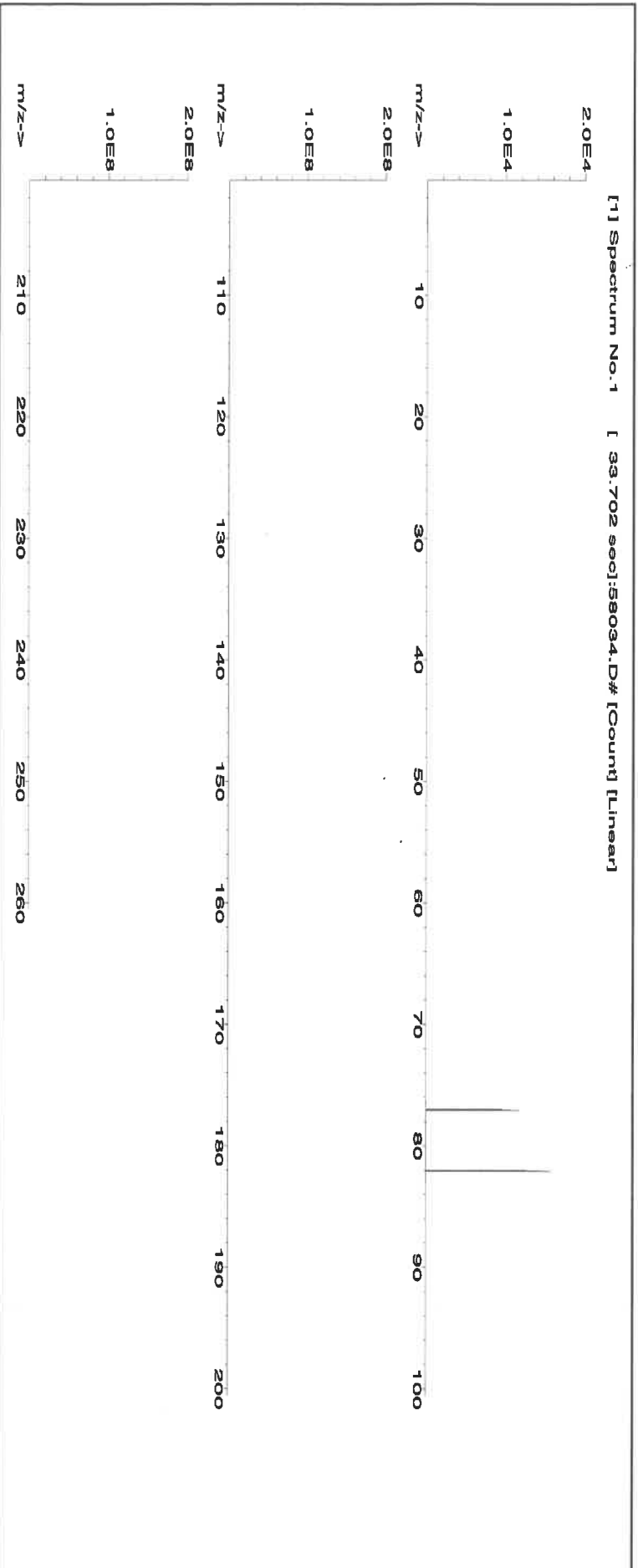
Expiration Date: **060627**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Volume shown below was diluted to (mL): **2000.07**
SE-05 Balance Uncertainty **0.100** Flask Uncertainty

Formulated By:	Benson Chan	060624
Reviewed By:	Pedro L. Rantas	060624

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	CAS#	OSHA PEL (TWA)	LDSO	NIST SRM
----------	-------------	------------	-----------------	-------------------	--------------	-----------------------	-----------------------	---------------------	----------------------------------	--	------	----------------	------	----------

1. Selenium (Se)	58134	071223	0.1000	200.0	0.084	1000	10002.5	1000.0	2.2	7782-49-2	0.2 mg/m3	or-tral 6700 mg/kg	3149
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
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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).

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com



Certified Reference Material CRM

M5970 M5971



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: **57003**
Lot Number: **062124**
Description: **Lithium (Li)**
Expiration Date: **06/127**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Volume shown below was diluted to (mL): **250.11**
SE-05 Balance Uncertainty
0.016 Flask Uncertainty

Lot # **24002546**
Solvent: **Nitric Acid**

2.0% 5.0 (mL) Nitric Acid

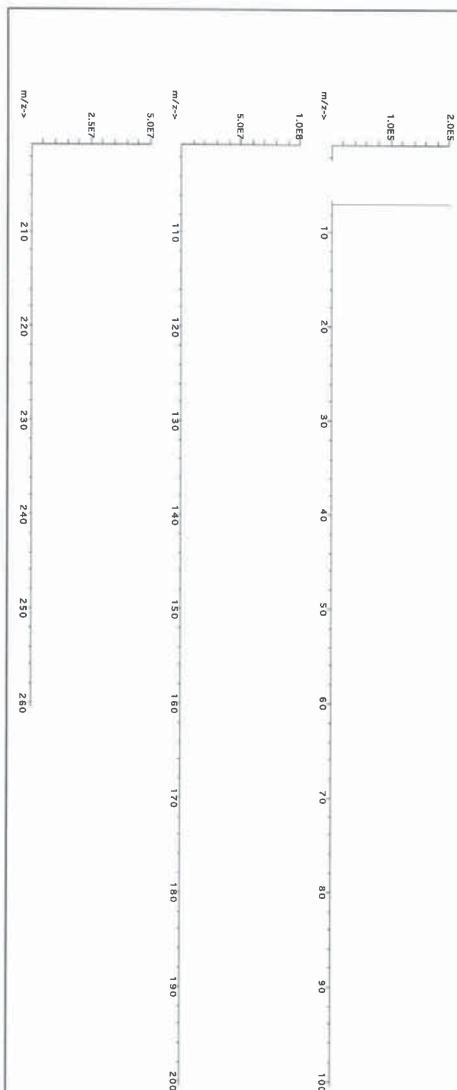
Microvial Capable	
Formulated By:	062124
Giovanni Esposito	

Reviewed By: *[Signature]*
Petro L. Parias

Compound		Part		Lot		Dilution		Initial		Uncertainty		Nominal		Initial		Final		Expanded		SDS Information		NIST	
Number	Factor	Number	Factor	Number	Factor	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Uncertainty	± (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	SM

1. Lithium nitrate (Li) 58103 070622 0.1000 25.0 0.004 1000 10000.4 1000.0 2.0 7790-68-4 5 mg/m3 or-hal 1428 mg/kg NA

[1] Spectrum No. 1 [32.093 sec; 15000.0Hz Count [Lines]





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

Trace Metals Verification by ICP-MS (µg/mL)															
Al	<0.02	Ca	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pb	<0.02	Se	<0.02
Sb	<0.02	Ce	<0.2	Er	<0.02	In	<0.02	Mg	<0.02	Nb	<0.02	Rb	<0.02	Si	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	Ir	<0.02	Mn	<0.02	Os	<0.02	Rh	<0.02	Ag	<0.02
Ba	<0.02	Cr	<0.02	Gd	<0.02	Te	<0.2	Hg	<0.2	Pd	<0.02	Ru	<0.02	Nd	<0.2
Be	<0.01	Cr	<0.02	Ga	<0.02	Ta	<0.02	K	<0.02	P	<0.02	Sn	<0.02	Sr	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	Tb	<0.02	Mo	<0.02	Fe	<0.2	Sb	<0.02	Sc	<0.02
B	<0.02	Co	<0.02	Au	<0.02	Ti	<0.02	Nd	<0.02	K	<0.2	Se	<0.02	Ta	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

[Signature]

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

Certificate of Analysis

MS978, MS979



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300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

R: 2/22/24

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution

Catalog Number: CGT1

Lot Number: T2-T1719972

Matrix: 2% (v/v) HNO₃

Value / Analyte(s): tr. HF

1 000 µg/mL ea.

Titanium

Ti Metal

Starting Material Lot#: 2094

Starting Material Purity: 99.9975%

Certified Value: 1002 ± 5 µg/mL

Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Method #1

1002 ± 4 µg/mL

ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods
Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \sum (X_i / U_i^2)$
 X_i = mean of Assay Method A with
 $U_{char A}$ = the standard uncertainty of characterization Method A

$U_{char A} = \sqrt{U_{char A}^2 + U_{rep A}^2 + U_{hom A}^2 + U_{stab A}^2}$
 $U_{char A}$ = long term stability standard uncertainty (storage)
 $U_{rep A}$ = bottle to bottle homogeneity standard uncertainty
 $U_{hom A}$ = the mean from characterization
 k = coverage factor = 2

CRM/RM Expanded Uncertainty (U) = $U_{CRM/RM} = k \cdot U_{char A} + U_{rep A} + U_{hom A} + U_{stab A}$
 $U_{char A}$ = long term stability standard uncertainty (storage)
 $U_{rep A}$ = bottle to bottle homogeneity standard uncertainty
 $U_{hom A}$ = the mean from characterization
 k = coverage factor = 2

CRM/RM Expanded Uncertainty (U) = $U_{CRM/RM} = k \cdot U_{char A} + U_{rep A} + U_{hom A} + U_{stab A}$
 $U_{char A}$ = long term stability standard uncertainty (storage)
 $U_{rep A}$ = bottle to bottle homogeneity standard uncertainty
 $U_{hom A}$ = the mean from characterization
 k = coverage factor = 2

CRM/RM Expanded Uncertainty (U) = $U_{CRM/RM} = k \cdot U_{char A} + U_{rep A} + U_{hom A} + U_{stab A}$
 $U_{char A}$ = long term stability standard uncertainty (storage)
 $U_{rep A}$ = bottle to bottle homogeneity standard uncertainty
 $U_{hom A}$ = the mean from characterization
 k = coverage factor = 2

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an UHPA-filtered Clean Room. An UHPA-filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag	<	0.000536	M Eu	<	0.000268	O Na	<	0.032670	M Se	<	0.001204	O Zn	<	0.003267
M Al	<	0.000872	O Fe	<	0.003225	O Nb	<	0.043560	O Si	<	0.004735	O Zr	<	0.043560
M As	<	0.008586	M Ga	<	0.000268	M Nd	<	0.000268	M Sm	<	0.000268			
M Au	<	0.004577	M Gd	<	0.000268	O Ni	<	0.010890	M Sn	<	0.000986			
O B	<	0.008929	M Ge	<	0.002146	M Os	<	0.000269	O Sr	<	0.000986			
M Ba	<	0.002683	M Hf	<	0.002161	O P	<	0.054450	M Ta	<	0.010560			
M Be	<	0.005366	M Hg	<	0.003231	M Pb	<	0.001073	M Tb	<	0.000268			
M Bi	<	0.001609	M Ho	<	0.000268	M Pd	<	0.000268	M Th	<	0.001341			
O Ca	<	0.000676	M In	<	0.002683	M Pr	<	0.000268	M Tl	<	0.053663			
M Cd	<	0.000268	M Ir	<	0.000269	M Pt	<	0.000536	S Tl	<				
M Co	<	0.000268	M K	<	0.001172	M Rb	<	0.000268	M Ti	<	0.000268			
M Cr	<	0.000752	O Li	<	0.000268	M Re	<	0.000268	M Tm	<	0.000268			
M Cs	<	0.000268	M Lu	<	0.000268	M Rh	<	0.000268	M U	<	0.000268			
O Cu	<	0.010890	O Mg	<	0.005445	I S	<	0.006976	M Y	<	0.002146			
M Dy	<	0.000268	O Mn	<	0.003267	M Sb	<	0.004900	M Yb	<	0.000536			
M Er	<	0.000268	M Mo	<	0.000774	O Sc	<							

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 ± 4.6 Ti(F)₆-2 media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)₆-2 for months in 1% HNO₃ / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)₆-2 chemically stable for years in 2-5% HNO₃ / trace HF in an LDPE container.

TI Containing Samples (Preparation and Solution) - Metal (Soluble in H₂O / HF caution - powder reacts violently). Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H₂O / HF / H₂SO₄); K₂SiO₇ - no KF if silica not present); Organic Matrices (Dry ash at 450EC in P10 and dissolve by heating with 1:1:1 H₂O / HF / H₂SO₄ or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystaline form).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order
ICP-MS 48 amu	14 ppt	N/A
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	14N160180, 32S160, 32S14N,
ICP-OES 334.941 nm	0.0038 / 0.00028 µg/mL	14N17N2, 36A12C,
ICP-OES 336.121 nm	0.0053 / 0.00034 µg/mL	48Ca, [96X=2
HF Note: This standard should not be prepared or stored in glass.		(where X = Zr, Mo, W, Mo, Co
		Nb, Ta, Cr, U
		Ce, Ar, Ni
		Ru]]

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: 800.868.6786; 540.565.3030; Fax: 540.565.3030; Email: info@inorganicventures.com

11.0

CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- June 17, 2027

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date:

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0

NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozlikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Paul Gaines

80978



Certified Reference Material CRM



45982 R: 6/11/24

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57038
031524
Strontium (Sr)

Solvent: 24002546 Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

031527
Ambient (20 °C)
1000
6UTB
5E-05 Balance Uncertainty
0.100 Flask Uncertainty

Weight shown below was diluted to (mL): 2000.07

Formulated By:	Benson Chan	031524
Reviewed By:	Pedro L. Rentas	031524

SDS Information

Expanded

Uncertainty

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

Actual

Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

Actual

Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

Actual

Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

Actual

Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

Actual

Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

Actual

Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

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Target

Conc. (µg/mL)

Actual

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Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

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Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

Actual

Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

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Target

Conc. (µg/mL)

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Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

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Target

Conc. (µg/mL)

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Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

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Conc. (µg/mL)

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Target

Assay

Purity (%)

Purity (%)

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Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

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Conc. (µg/mL)

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Assay

Purity (%)

Purity (%)

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Lot

RM#

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Conc. (µg/mL)

Weight (g)

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Conc. (µg/mL)

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Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

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Actual

Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

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Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

Actual

Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Weight (g)

Conc. (µg/mL)

Actual

Actual

Target

Conc. (µg/mL)

Actual

Actual

Target

Assay

Purity (%)

Purity (%)



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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

[Signature]

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

2024 JUN 7 3:58 PM

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

M5984
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGY10
Lot Number: V2-Y740548
Matrix: 2% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Yttrium
Starting Material: Yttrium Oxide
Starting Material Lot#: 2661 and 06230520YL
Starting Material Purity: 99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL
Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10011 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	9997 ± 50 µg/mL ICP Assay NIST SRM 3167a Lot Number: 190730
Assay Method #3	9984 ± 31 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k(u_{char}^2 + u_{bb}^2 + u_{ts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k(u_{char a}^2 + u_{bb}^2 + u_{ts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.004600	M	Eu	0.009037	M	Na	0.086360	M	Se	<	0.005200	M	Zn	0.030125
M	Al	0.014862	O	Fe	0.002410	M	Nb	<	0.000570	O	Si	0.024100	O	Zr	<	0.002600
M	As	<	0.003500	M	Ga	<	0.000570	M	Nd	0.000923	M	Sm	0.000461			
M	Au	<	0.001700	M	Gd	<	0.003500	M	Ni	<	0.005700	M	Sn	<	0.002300	
O	B	0.002209	M	Ge	<	0.005200	M	Os	<	0.001200	M	Sr	<	0.004600		
O	Ba	<	0.002500	M	Hf	<	0.000570	n	P	<		M	Ta	<	0.000570	
O	Be	<	0.001400	M	Hg	<	0.000570	M	Pb	0.005020	M	Tb	0.001044			
M	Bi	<	0.003500	M	Ho	0.009037	M	Pd	<	0.005100	M	Te	<	0.002300		
O	Ca	0.009841	M	In	<	0.002300	M	Pr	<	0.002300	M	Th	<	0.000570		
M	Cd	<	0.000570	M	Ir	<	0.000570	M	Pt	<	0.000570	M	Ti	<	0.003500	
M	Ce	<	0.002300	O	K	0.018677	M	Rb	<	0.000570	M	Tl	<	0.000570		
M	Co	<	0.000570	M	La	0.000461	M	Re	<	0.000570	M	Tm	<	0.003500		
M	Cr	<	0.004000	O	Li	<	0.009300	M	Rh	<	0.008000	M	U	<	0.000570	
M	Cs	<	0.000570	M	Lu	0.000582	M	Ru	<	0.000570	M	V	0.001265			
M	Cu	0.002610	O	Mg	0.001486	n	S	<		M	W	<	0.002300			
M	Dy	0.003815	M	Mn	0.000582	M	Sb	0.005422	s	Y	<					
M	Er	0.003615	M	Mo	<	0.005700	M	Sc	<	0.001200	M	Yb	0.001827			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 88.91 +3 6 Y(OH)(H₂O)_{x+2}

Chemical Compatibility -Soluble in HCl, H₂SO₄ and HNO₃. Avoid HF, H₃PO₄ and neutral to basic media.

Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride.

Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions

chemically stable for years in 2-5% HNO₃ / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H₂O/ HNO₃); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H₂O / HCl or HNO₃).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 89 amu	0.8 ppt	N/A	<u>73Ge</u> <u>16O</u> , <u>178Hf</u> +2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- February 20, 2029

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
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info@inorganicventures.com

M5985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGIN10
Lot Number: U2-IN729349
Matrix: 5% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Indium
Starting Material: Indium Metal
Starting Material Lot#: 2511
Starting Material Purity: 99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL
Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10021 ± 56 µg/mL ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	10035 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	10001 ± 33 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000760	M	Eu	<	0.000760	O	Na	0.012771	M	Se	<	0.023000	M	Zn	<	0.006100
M	Al	0.003385	O	Fe	0.004462	M	Nb	<	0.000760	O	Si	0.024619	M	Zr	<	0.000760		
M	As	<	0.004600	M	Ga	<	0.000760	M	Nd	<	0.000760	M	Sm	<	0.000760			
M	Au	<	0.002300	M	Gd	<	0.000760	O	Ni	<	0.005100	M	Sn	<	0.000760			
O	B	0.003692	M	Ge	<	0.001600	M	Os	<	0.000760	O	Sr	<	0.000610				
M	Ba	<	0.001600	M	Hf	<	0.000760	n	P	<		M	Ta	<	0.000760			
O	Be	<	0.000130	M	Hg	<	0.003100	M	Pb	0.001400	M	Tb	<	0.000760				
M	Bi	<	0.000760	M	Ho	<	0.000760	M	Pd	<	0.001600	M	Te	<	0.000760			
O	Ca	0.004616	s	In	<			M	Pr	<	0.000760	M	Th	<	0.000760			
M	Cd	<	0.000760	M	Ir	<	0.000760	M	Pt	<	0.000760	O	Ti	<	0.001100			
M	Ce	<	0.000760	O	K	0.007078	M	Rb	<	0.000760	M	Tl	<	0.000760				
M	Co	<	0.000760	M	La	<	0.000760	M	Re	<	0.000760	M	Tm	<	0.000760			
O	Cr	<	0.001300	O	Li	<	0.000130	M	Rh	<	0.000760	M	U	<	0.000760			
M	Cs	<	0.000760	M	Lu	<	0.000760	M	Ru	<	0.000760	M	V	<	0.001600			
M	Cu	<	0.003800	O	Mg	0.000707	n	S	<		M	W	<	0.001600				
M	Dy	<	0.000760	O	Mn	0.000149	M	Sb	<	0.000760	M	Y	<	0.000760				
M	Er	<	0.000760	M	Mo	<	0.002300	M	Sc	<	0.000760	M	Yb	<	0.000760			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 114.82 +3 6 In(H₂O)₆+3

Chemical Compatibility -Soluble in HCl, HNO₃, and H₂SO₄. Avoid neutral and basic media. Stable with most metals and inorganic anions. The oxalate, sulfide, carbonate, hydroxide and phosphate are insoluble in water.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

In Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO₃); Oxide (Soluble in mineral acids); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in dilute HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 115 amu	1 ppt	n/a	115Sn, 99Ru16O
ICP-OES 158.583 nm	0.05 / 0.002 µg/mL	1	
ICP-OES 230.606 nm	0.1 / 0.03 µg/mL	1	Ni, Os
ICP-OES 325.609 nm	0.2 / 0.05 µg/mL	1	Mn, Mo, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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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





Certified Reference Material CRM
R: 01/03/24 M6033



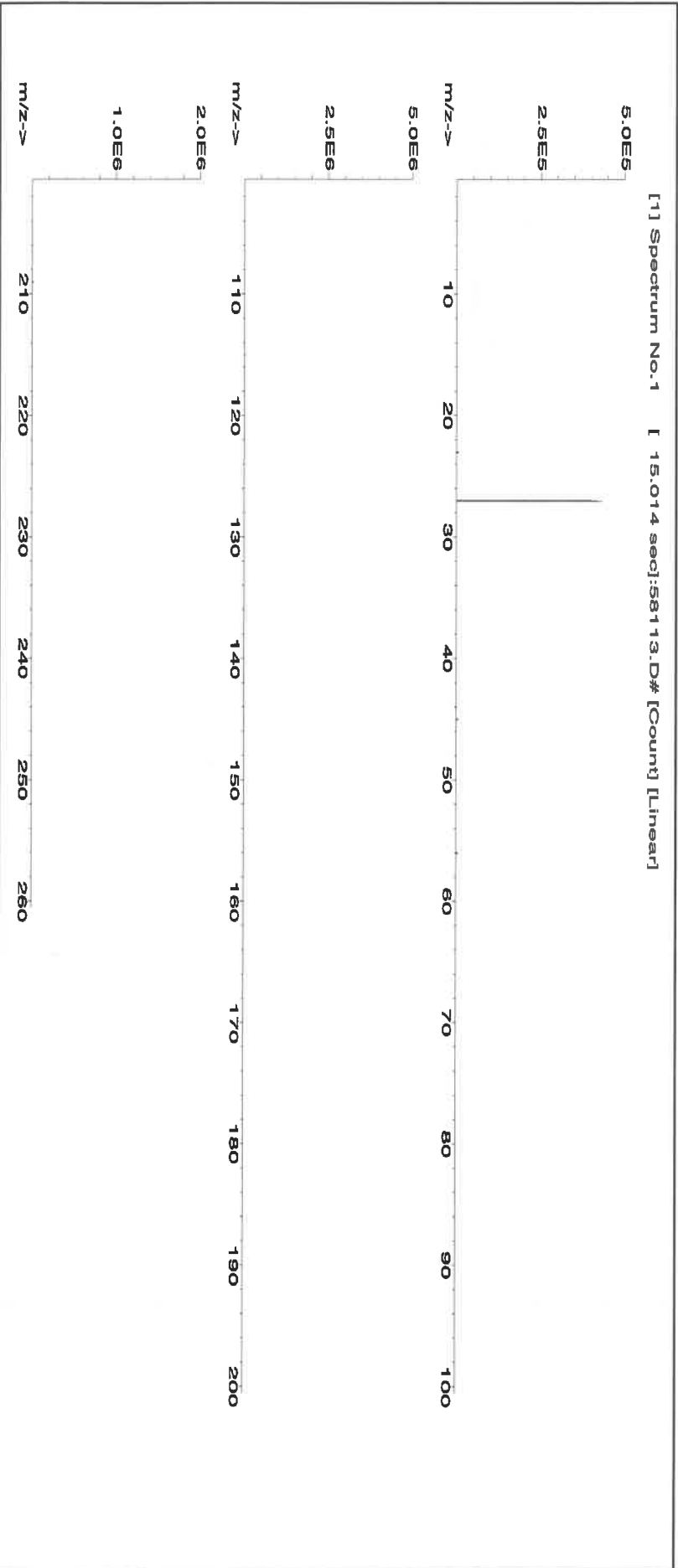
CERTIFIED WEIGHT REPORT:

Part Number: 58113
Lot Number: 011623
Description: Aluminum (Al)
Expiration Date: 011626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6LUTB
Weight shown below was diluted to (mL): 2000.02
Solvent: 20510011 Nitric Acid
Lot #
2% 40.0 (mL) Nitric Acid
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Rentas</i>
	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)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Aluminum nitrate nonahydrate (Al) IN022 ALUM12021A1 10000 99.999 0.10 7.30 273.9779 274.0078 10001.1 20.0 7784-27-2 2 mg/m³ or rat 3671 mg/kg 3101a



Hydrochloric Acid, 36.5–38.0%

BAKER INSTRA-ANALYZED® Reagent

For Trace Metal Analysis

 **avantor™**



M6094
M6095

metdig
10/21/24

Material No.: 9530-33
Batch No.: 24D1562005
Manufactured Date: 2024-03-18
Retest Date: 2029-03-17
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.192
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	2.2 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	0.2 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 1.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	2.0 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	< 0.9 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.4 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	< 0.1 ppb

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

 **avantorsm**



Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result
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For Laboratory, Research, or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Croak
Director Quality Operations, Bioscience Production

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

Receive date
9/29/24
Met diag.

 avantor™



Material No.: 9530-33
Batch No.: 22F0762009
Manufactured Date: 2022-05-10
Retest Date: 2027-05-09
Revision No.: 0

M6109
M6110
M6111

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid–base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.190
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	0.8 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	14.9 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



Material No.: 9530-33
Batch No.: 22F0762009

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.5 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 3.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	< 0.3 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	1.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	0.7 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	< 0.9 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.8 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	< 0.1 ppb

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

 **avantor™**

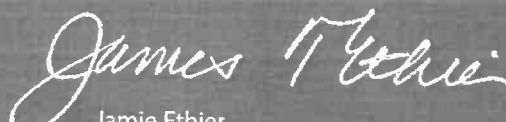


Material No.: 9530-33
Batch No.: 22F0762009

Test	Specification	Result
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For Laboratory, Research, or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

Nitric Acid 69%
CMOS

 **avantor™**



Receive:
9/29/24
met dig

Material No.: 9606-03
Batch No.: 24B1362001
Manufactured Date: 2024-01-25
Retest Date: 2029-01-23
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.6 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	< 0.2 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

 **avantor**TM



Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	3 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	1 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantor™**

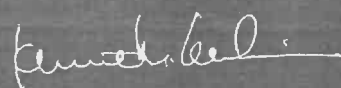


Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result
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For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



Ken Koehnlein
Sr. Manager, Quality Assurance

Nitric Acid 69%
CMOS

avantor™



Receive:
9/29/24
met dig

Material No.: 9606-03
Batch No.: 24B1362001
Manufactured Date: 2024-01-25
Retest Date: 2029-01-23
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.6 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	< 0.2 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

 **avantor**TM



Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	3 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	1 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantorsTM**

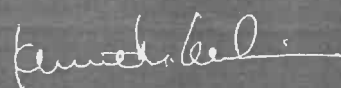


Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result
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For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



Ken Koehnlein
Sr. Manager, Quality Assurance



CERTIFIED WEIGHT REPORT:

Part Number: 58111
Lot Number: 122223
Description: Sodium (Na)

Solvent: 24002546 Nitric Acid

Lot #

<i>Aleah O Brady</i>	
Formulated By:	Aleah O Brady
	122223
<i>Pedro L Rentas</i>	
Reviewed By:	Pedro L Rentas
	122223

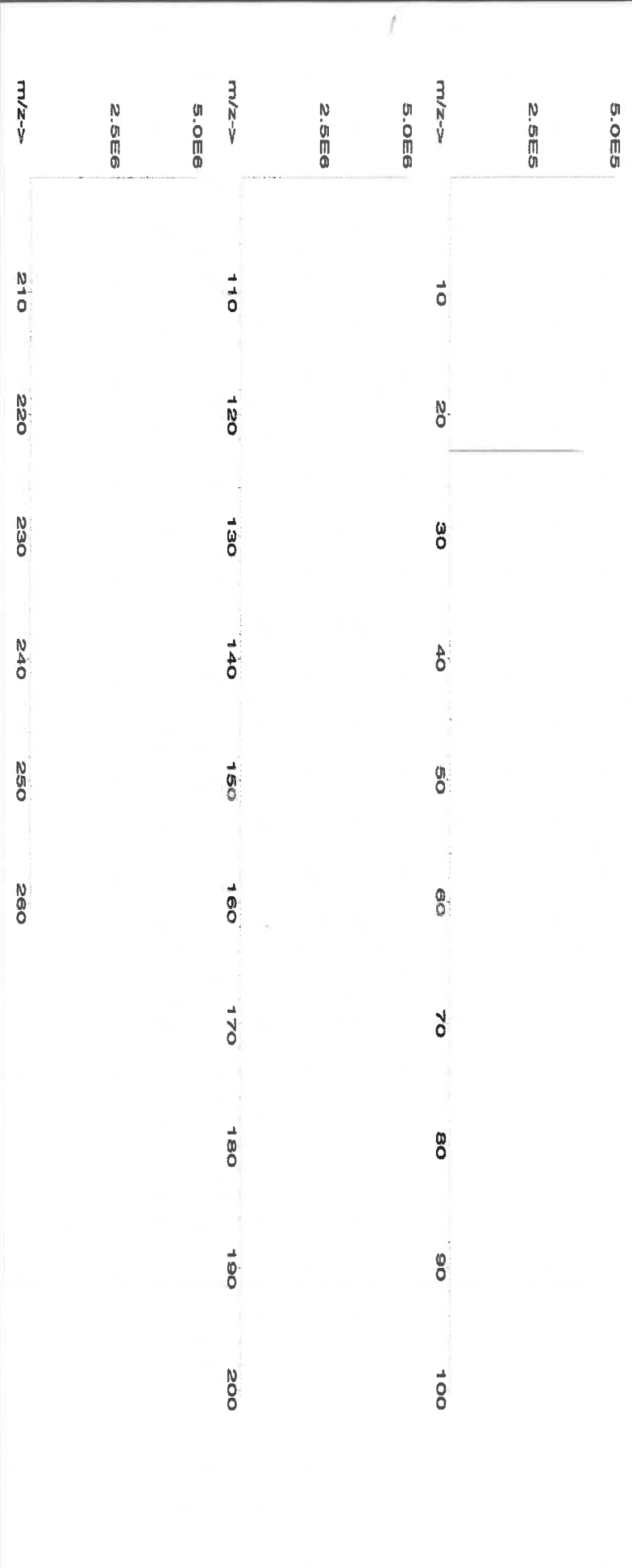
Expiration Date: 122226
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 3000.4 0.06 Flask Uncertainty

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded		CAS#	SDS Information		NIST SRM
										Uncertainty	+/- (µg/mL)		(Solvent Safety Info. On Attached pg.)	OSHA PEL (TWA)	

1. Sodium nitrate (Na) IN036 NAV01201511 10000 99.999 0.10 26.9 111.5406 111.5479 10000.7 20.0 7631-99-4 5 mg/m3 or-trat 3430 mg/kg 3152a

[1] Spectrum No.1 [8.935 sec]:58111.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57051
120523
Antimony (Sb)

Lot #
Solvent:

24002546
Nitric Acid

2.0%
60.0
Nitric Acid

(mL)

Expiration Date:
Recommended Storage:

120526
Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6U7B

Volume shown below was diluted to (mL):

3000.41
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

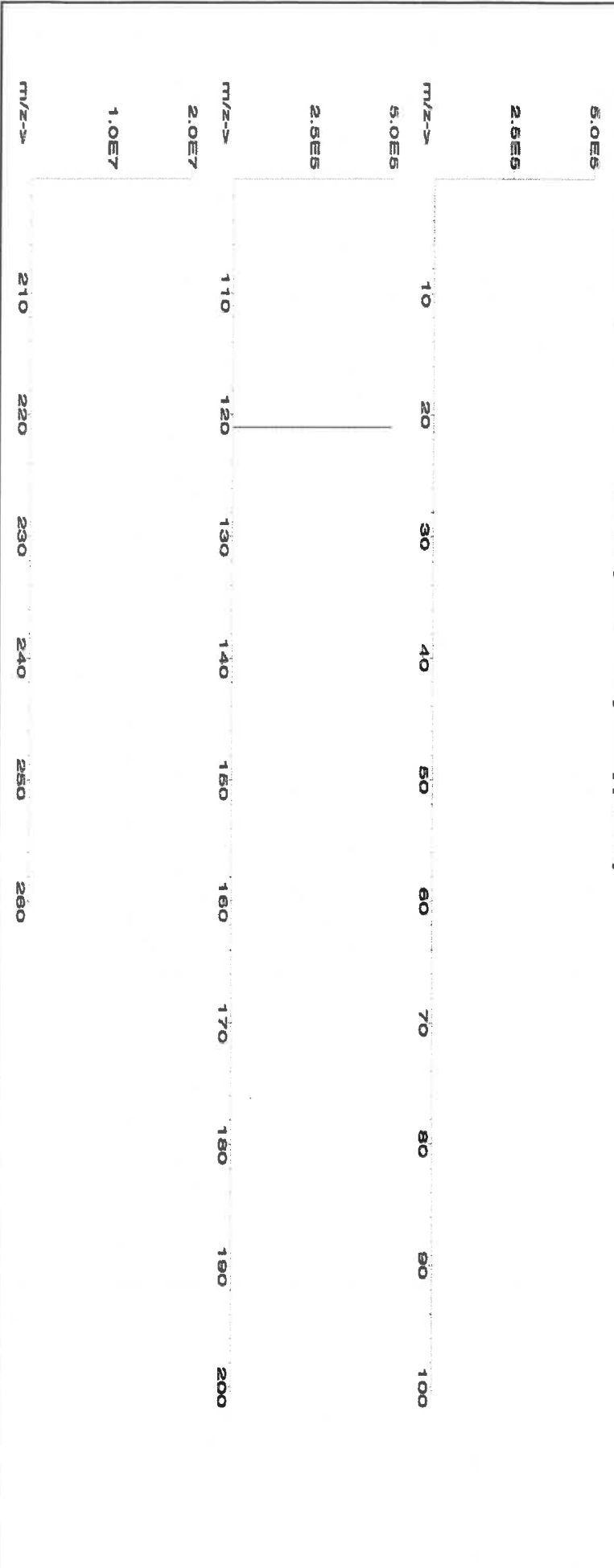
Formulated By:	Lawrence Barry	120523
Reviewed By:	Pedro L. Rientas	120523

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Antimony (Sb) 58151 100923 0.1000 300.0 0.084 1000 10001.4 1000.0 2.1 7440-36-0 0.5 mg/m3 or-rel 7000 mg/kg 3102a

[1] Spectrum No.1 [17.964 sec]:58051.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

M6030



CERTIFIED WEIGHT REPORT:

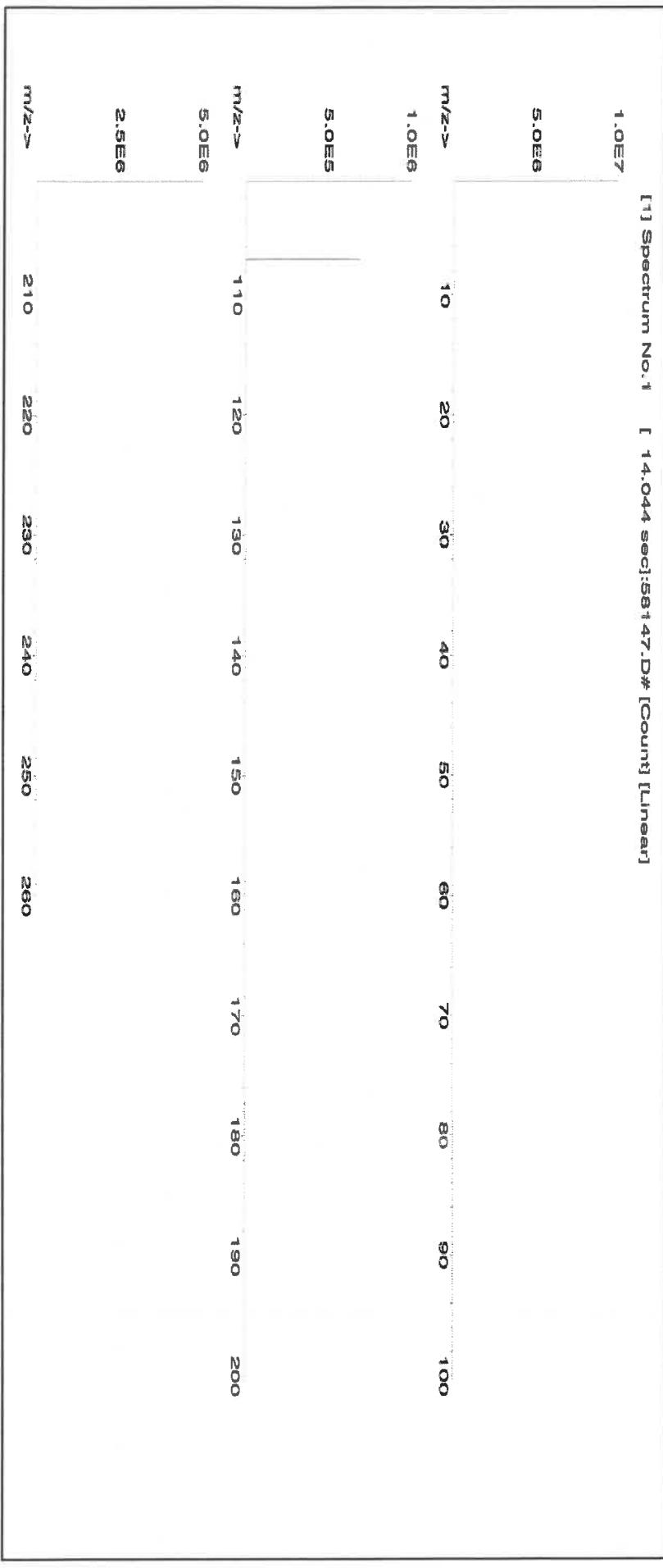
Part Number: **57047**
Lot Number: **122823**
Description: **Silver (Ag)**
Solvent: 24002546 Nitric Acid
Lot #

Expiration Date: 122826
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 4000.30
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas
122823	

SDS Information									
Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)
1. Silver nitrate (Ag)	IN035	J0612AGA1	1000.0	99.999	0.10	63.7	6.27992	6.27998	1000.0
							2.0	7761-88-8	10 µg/mL
									NA
									3151





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T)= Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 57081
Lot Number: 062724
Description: Thallium (TI)

Lot #

Solvent: 24002546 Nitric Acid

2% 40.0 Nitric Acid (mL)

Expiration Date:

062727

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL): 2000.1

5E-05 Balance Uncertainty
0.10 Flask Uncertainty

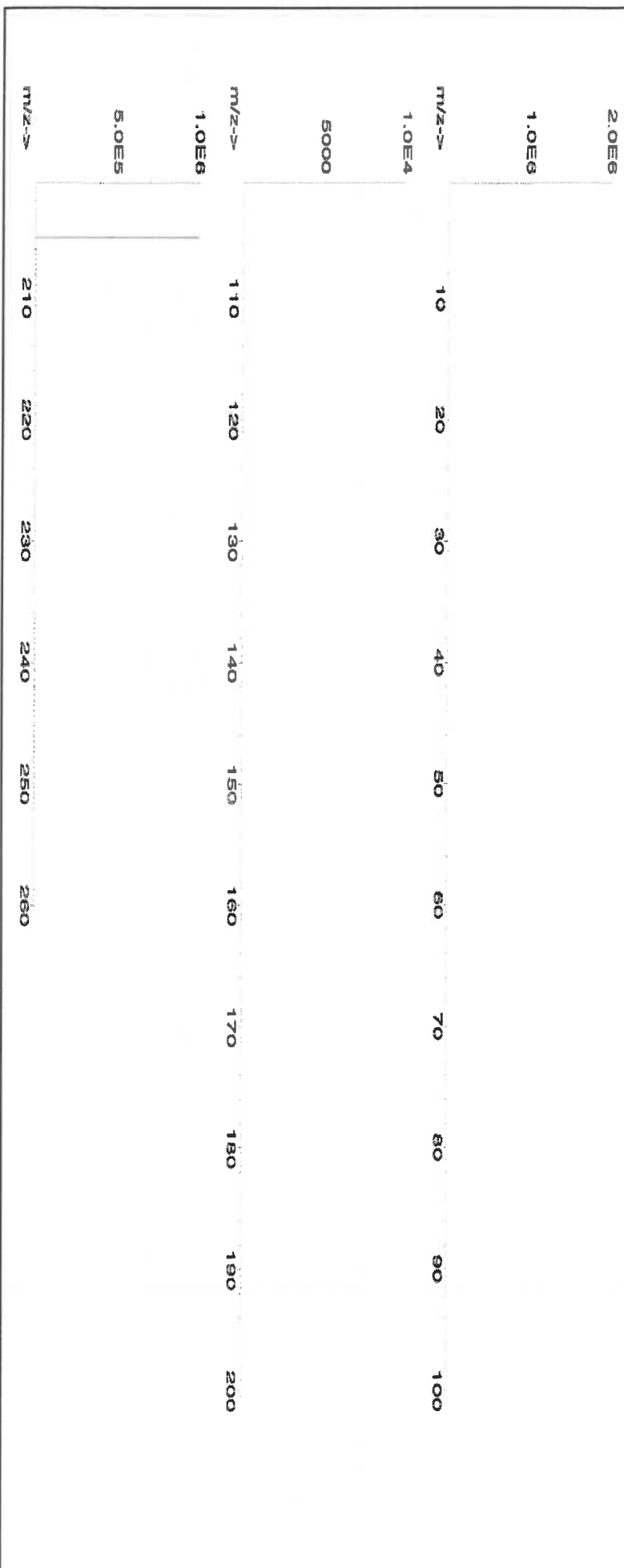
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	062724
Reviewed By:	<i>Pedro L. Renias</i>
	Pedro L. Renias
	062724

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Thallium nitrate (TI) IN037 BCCF4399 1000 99.999 0.10 77.0 2.5975 2.5977 1000.1 2.0 10102-45-1 0.1 mg/m3 or-mus 15mg/kg 3158

[1] Spectrum No.1 [14.044 sec]:57081.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

M6021



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://absolutestandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57023
Lot Number: 062424
Description: Vanadium (V)

Lot # 24002546
Solvent: Nitric Acid

Aleah O'Brady	
Formulated By:	Aleah O'Brady
Reviewed By:	Pedro L. Rantas

062424

062424

062424

Expiration Date: 062427
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

2.0%

40.0 (mL)

Nitric Acid

Aleah O'Brady

062424

Volume shown below was diluted to (mL): 2000.3

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.)	NIST SRM
1. Ammonium metavanadate (V)	58123	021224	0.1000	200.0	0.084	1000	10000.3	1000.0	2.2	7803-55-6 0.05 mg/m3	3165

[1] Spectrum No.1 [34.243 sec]:58023.D# [Count] [Linear]

m/z-->	10	20	30	40	50	60	70	80	90	100
2.0E6										
1.0E6										
2.0E7										
1.0E7										
m/z-->	110	120	130	140	150	160	170	180	190	200
5.0E6										
2.5E6										
m/z-->	210	220	230	240	250	260				



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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



SHIPPING DOCUMENTS

CHEMTECH

CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 • Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.

QUOTE NO.

COC Number 2040874

P4615

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Gannett Fleming
ADDRESS: 1010 ~~Adams~~ Avenue
CITY: Audubon STATE: PA ZIP: 19103
ATTENTION: Joe Krupansky
PHONE: 610-301-8362 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: Antibiotic rep. of Sawtooth Bridge
PROJECT NO.: 50000518 LOCATION: Kearny, NJ
PROJECT MANAGER: Joe Krupansky
e-mail: JAKR@bennys.com
PHONE: 610-301-8362 FAX:

CLIENT BILLING INFORMATION

BILL TO: Chemtech PO#:
ADDRESS: 284 Sheffield St
CITY: Mountainside STATE: NJ ZIP: 07092
ATTENTION: Samantha PHONE: 908-788-3198

ANALYSIS

DATA TURNAROUND INFORMATION

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

DATA DELIVERABLE INFORMATION

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

1	2	3	4	5	6	7	8	9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE		SAMPLE COLLECTION		# OF BOTTLES	PRESERVATIVES									COMMENTS	
			COMP	GRAB	DATE	TIME		1	2	3	4	5	6	7	8	9	← Specify Preservatives A-HCl D-NaOH B-HNO3 E-ICE C-H2SO4 F-OTHER	
1.	B-131-1-SB01	S	X		10/29	8:10	1	X										
2.	B-131-2-SB01	S	X		10/29	9:05	1	X										
3.	B-131-3-SB01	S	X		10/29	8:00	1	X										
4.	1B-1029024	Water			10/29	LAB	2											
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		

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

RELINQUISHED BY SAMPLER:	DATE/TIME: 1340	RECEIVED BY:	1340	Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☐ COOLER TEMP: 3.2°C
1. Yvonda Pujara	10/29/24	1. [Signature]	10-29-24	Comments:
RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:		
2. [Signature]		2. [Signature]		
RELINQUISHED BY SAMPLER:	DATE/TIME: 1425	RECEIVED BY:		
3. [Signature]	10-29-24	3. [Signature]		

Page ____ of ____

CLIENT: ☐ Hand Delivered ☐ Other _____
CHEMTECH: ☐ Picked Up ☐ Field Sampling

Shipment Complete
☐ YES ☐ NO

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT

YELLOW - CHEMTECH COPY

PINK - SAMPLER COPY



284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Laboratory Certification

Certified By	License No.
CAS EPA CLP Contract	68HERH20D0011
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255424 Rev 1
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	T104704488

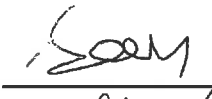
LOGIN REPORT/SAMPLE TRANSFER

Order ID : P4615	PORT06	Order Date : 10/29/2024 2:04:00 PM	Project Mgr :
Client Name : Portal Partners Tri-Venture		Project Name : Amtrak Sawtooth Bridges 2	Report Type : NJ Reduced
Client Contact : Joseph Krupansky		Receive DateTime : 10/29/2024 12:00:00 AM 14:25	EDD Type : EXCEL NJCLEANUP
Invoice Name : Portal Partners Tri-Venture		Purchase Order :	Hard Copy Date :
Invoice Contact : Joseph Krupansky			Date Signoff :

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
P4615-04	TB-10292024	Water	10/29/2024	00:00	VOC-TCLVOA-10		8260-Low		10 Bus. Days

Relinquished By: 

Date / Time : 10-29-24 1615

Received By: 

Date / Time : 10/29/24 16:15

Storage Area : VOA Refridgerator Room