

PREP BATCH REPORT

Prep Code: **PRP-3010**
 Prep Batch **164321** Prep Temp **89.7 °C**

Technician: **Jason E. Backes**
 Batch Units: **ML**

Prep Start Date: **3/8/2022 2:10:55 PM**
 Prep End Date: **3/9/2022 12:16:00 PM**

Sample ID	Matrix	pH	Initial Samp Amt	Sol Added	Sol Recovered	Final Vol (mL)	Factor	Balance	Prep Start Date	Prep End Date
MB-164321	Temp Cell C3, supervised by JPV		50	0	0	50	1		3/8/2022	3/9/2022
LCS4-164321			50	0	0	50	1		3/8/2022	3/9/2022
B22030502-001B	Ground Water		50	0	0	50	1		3/8/2022	3/9/2022
B22030502-001BMS4	Ground Water		50	0	0	50	1		3/8/2022	3/9/2022
B22030502-001BMSD4	Ground Water		50	0	0	50	1		3/8/2022	3/9/2022
B22030502-006B	Ground Water		50	0	0	50	1		3/8/2022	3/9/2022
B22030502-011B	Ground Water		50	0	0	50	1		3/8/2022	3/9/2022
B22030502-016B	Ground Water		50	0	0	50	1		3/8/2022	3/9/2022
B22030502-021B	Ground Water		50	0	0	50	1		3/8/2022	3/9/2022
B22030502-026B	Ground Water		50	0	0	50	1		3/8/2022	3/9/2022
B22030502-031B	Ground Water		50	0	0	50	1		3/8/2022	3/9/2022

Number	Reagent Name	Exp Date
14614	50mL DigiTubes J526127-2104	12/10/2022
14721	Hydrochloric Acid E1421	1/4/2027
14778	Nitric Acid, 69.0-70.0% D0521	1/18/2027

Spk ID	Spike Name	SampType	AmtAdd	Exp Date
ME220125 EL-MS	EL-MSICV-2	LCS4/MS4	0.05 ml	1/25/2023
ME220216 EL200	EL-200.2MS	LCS4/MS4	0.05 mL	2/16/2023
ME220223 AUDI	AUDIGSPK	LCS4/MS4	0.05 ml	10/25/2022

PREP BATCH REPORT

Prep Code: **PRP-3010**
 Prep Batch **164435** Prep Temp **89.2 °C**

Technician: **Jason E. Backes**
 Batch Units: **ML**

Prep Start Date: **3/11/2022 8:27:09 AM**
 Prep End Date: **3/11/2022 5:30:00 PM**

Sample ID	Matrix	pH	Initial Samp Amt	Sol Added	Sol Recovered	Final Vol (mL)	Factor	Balance	Prep Start Date	Prep End Date
MB-164435	Temp Cell C3, supervised by JPV		50	0	0	50	1		3/11/2022	3/11/2022
LCS4-164435			50	0	0	50	1		3/11/2022	3/11/2022
B22030586-001B	Ground Water		50	0	0	50	1		3/11/2022	3/11/2022
B22030586-001BMS4	Ground Water		50	0	0	50	1		3/11/2022	3/11/2022
B22030586-001BMSD4	Ground Water		50	0	0	50	1		3/11/2022	3/11/2022
B22030586-007B	Ground Water		50	0	0	50	1		3/11/2022	3/11/2022

Number	Reagent Name	Exp Date
14614	50mL DigiTubes J526127-2104	12/10/2022
14721	Hydrochloric Acid E1421	1/4/2027
14778	Nitric Acid, 69.0-70.0% D0521	1/18/2027

Spk ID	Spike Name	SampType	AmtAdd	Exp Date
ME220125	EL-MS	EL-MSICV-2	0.05 ml	1/25/2023
ME220216	EL200	EL-200.2MS	0.05 mL	2/16/2023
ME220309	AUDI	AUDIGSPK	0.05 ml	10/25/2022

Energy Laboratories Inc

ANALYTICAL RUN Summary

19-Mar-22

Run ID ICPMS207-B_220311A

Run Start Date:	3/11/2022 2:00:10 P
Analyst:	Stacy R. Hendricks
Ical:	0
Column ID:	
Comments:	Reported and Supervised by CAR

Instrument ID	Description
05K74291	Metals 0.5-5 mL Adjustable Pipette
06H37847	100-1000 uL volume displacement pipette
340760037	Metals 100-1000 uL Adjustable Pipette
340760040	Metals 100-1000 uL Adjustable Pipette
841980007	1000-5000uL Pipette
841980009	1000-5000uL Pipette
M38354H	eppendorf adjustable 10-100 ul pipet

Std ID	Std Name	Std Amount	Std Units	Samp Amount	Samp Units	SampType	Expiration Date
ME210901 ICSA	ICSA					ICSA	9/1/2022
ME210901 ICSAB	ICSAB					ICSAB	9/1/2022
ME211206 ICV STANDARD	ICV for ICPMS Standards					ICV	4/30/2022
ME220112 0.025 PPB STAND	0.025 ppb Standard						11/18/2022
ME220112 0.05 PPB STANDA	0.5 ppb Standard						11/18/2022
ME220112 0.1 PPB STANDAR	0.1 ppb Standard						11/18/2022
ME220112 0.5 PPB STANDAR	0.5 ppb Standard						11/18/2022
ME220112 1 PPB STANDARD	1 ppb Standard						11/18/2022
ME220112 10 PPB STANDAR	10 ppb Standard					CCV	11/18/2022
ME220112 100 PPB STANDAR	100 ppb Standard					CAL8	11/18/2022
ME220112 50 PPB STANDAR	50 ppb Standard/CCV					CRI	11/18/2022
ME220112 SS1	SS1 ICPMS Spiking Solution					LFB/MS	12/8/2022
ME220112A 1000 PPB STAND	1000 PPB Standard					URL	11/18/2022
ME220114A Tune Solution	Tune Solution						12/7/2022

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085467	Rinse	ICPMS-6020-W- SAMP			3/11/2022 7:55:1	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085468	BLANK	ICPMS-6020-W- SAMP			3/11/2022 8:01:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Antimony	A	mg/L	0	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085468	BLANK	ICPMS-6020-W-	SAMP		3/11/2022 8:01:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	0	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	0	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	0	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Boron	A	mg/L	0	0		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	L
Cadmium	A	mg/L	0	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Calcium	A	mg/L	0	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Cerium	A	mg/L	0	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0	0		0	0	0	0.0001748	0.001	1	0%	0	0	0%	
Iron	A	mg/L	0	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Lanthanum	A	mg/L	0	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Magnesium	A	mg/L	0	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Manganese	A	mg/L	0	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	0	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	0	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Potassium	A	mg/L	0	0		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	L
Selenium	A	mg/L	0	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	0	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	0	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	0	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Strontium	A	mg/L	0	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Tin	A	mg/L	0	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Titanium	A	mg/L	0	0		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	0	0		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	A	mg/L	0	0		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	L
Iron, Ferrous	C	mg/L	0	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085469	0.025 ppb STD	ICPMS-6020B-C	Cal1		3/11/2022 8:08:0	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.000493	0.000493		0	0	0		0.01		0%			0%	
Antimony	A	mg/L	0.00004671	0.00004671		0	0	0		0.001		0%			0%	
Arsenic	A	mg/L	0.00004809	0.00004809		0.000025	0	0		0.001		192%	80	120	0%	S
Barium	A	mg/L	0.0000293	0.0000293		0.000025	0	0		0.0003		117%	80	120	0%	
Beryllium	A	mg/L	0.00002641	0.00002641		0.000025	0	0		0.001		106%	80	120	0%	
Boron	A	mg/L	-3.022E-05	-3.022E-05		0	0	0		0.1		0%			0%	
Cadmium	A	mg/L	0.00002987	0.00002987		0.000025	0	0		0.001		119%	80	120	0%	
Calcium	A	mg/L	0.01468	0.01468		0	0	0		1		0%			0%	
Cerium	A	mg/L	0.00002616	0.00002616		0.000025	0	0		0.001		105%	80	120	0%	
Chromium	A	mg/L	0.00003758	0.00003758		0.000025	0	0		0.001		150%	80	120	0%	S
Cobalt	A	mg/L	0.0000242	0.0000242		0.000025	0	0		0.001		97%	80	120	0%	
Copper	A	mg/L	0.0001152	0.0001152		0	0	0		0.005		0%			0%	
Iron	A	mg/L	0.000927	0.000927		0	0	0		0.01		0%			0%	
Lanthanum	A	mg/L	0.00002632	0.00002632		0.000025	0	0		0.001		105%	80	120	0%	
Lead	A	mg/L	0.0000326	0.0000326		0.000025	0	0		0.001		130%	80	120	0%	S
Lithium	A	mg/L	0.0003127	0.0003127		0.0003125	0	0		1		100%	80	120	0%	
Magnesium	A	mg/L	0.007701	0.007701		0	0	0		1		0%			0%	
Manganese	A	mg/L	0.0000622	0.0000622		0	0	0		0.001		0%			0%	
Mercury	A	mg/L	1.478E-06	1.478E-06		0	0	0		0.001		0%			0%	
Molybdenum	A	mg/L	0.00002162	0.00002162		0	0	0		0.001		0%			0%	
Nickel	A	mg/L	0.00007115	0.00007115		0	0	0		0.005		0%			0%	
Potassium	A	mg/L	0.009193	0.009193		0.00625	0	0		1		147%	80	120	0%	S
Selenium	A	mg/L	0.0000309	0.0000309		0.000025	0	0		0.005		124%	80	120	0%	S
Silicon	A	mg/L	0.0007545	0.0007545		0	0	0		0.1		0%			0%	
Silver	A	mg/L	0.0000101	0.0000101		0	0	0		0.001		0%			0%	
Sodium	A	mg/L	0.01763	0.01763		0.00625	0	0		1		282%	80	120	0%	S
Strontium	A	mg/L	0.00002992	0.00002992		0	0	0		0.001		0%	80	120	0%	
Thallium	A	mg/L	0.00002762	0.00002762		0	0	0		0.001		0%			0%	
Thorium	A	mg/L	0.00001861	0.00001861		0	0	0		0.05		0%			0%	
Tin	A	mg/L	0.0002512	0.0002512		0	0	0		0.001		0%			0%	
Titanium	A	mg/L	0.00007193	0.00007193		0	0	0		0.001		0%			0%	
Uranium	A	mg/L	0.00002511	0.00002511		0.000025	0	0		0.001		100%	80	120	0%	
Vanadium	A	mg/L	0.000141	0.000141		0	0	0		0.005		0%			0%	
Zinc	A	mg/L	0.0008282	0.0008282		0	0	0		0.01		0%			0%	
Iron, Ferrous	C	mg/L	0.000927	0.000927		0.000025	0	0		0.01	5	3708%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085469	0.025 ppb STD	ICPMS-6020B-C	Cal1		3/11/2022 8:08:0	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Silicon as SiO2	C	mg/L	0.00161463	0.00161463		0.0000535	0	0		0.214	0.9	3018%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085470	0.05 ppb STD	ICPMS-6020B-C	Cal2		3/11/2022 8:14:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0004773	0.0004773		0	0	0		0.01		0%			0%	
Antimony	A	mg/L	0.00006866	0.00006866		0.00005	0	0		0.001		137%	80	120	0%	S
Arsenic	A	mg/L	0.00006835	0.00006835		0.00005	0	0		0.001		137%	80	120	0%	S
Barium	A	mg/L	0.0000571	0.0000571		0.00005	0	0		0.0003		114%	80	120	0%	
Beryllium	A	mg/L	0.00006293	0.00006293		0.00005	0	0		0.001		126%	80	120	0%	S
Boron	A	mg/L	-0.0001108	-0.0001108		0	0	0		0.1		0%			0%	
Cadmium	A	mg/L	0.00006156	0.00006156		0.00005	0	0		0.001		123%	80	120	0%	S
Calcium	A	mg/L	0.01984	0.01984		0.0125	0	0		1		159%	80	120	0%	S
Cerium	A	mg/L	0.00005827	0.00005827		0.00005	0	0		0.001		117%	80	120	0%	
Chromium	A	mg/L	0.00008085	0.00008085		0.00005	0	0		0.001		162%	80	120	0%	S
Cobalt	A	mg/L	0.00005967	0.00005967		0	0	0		0.001		0%			0%	
Copper	A	mg/L	0.0001331	0.0001331		0.00005	0	0		0.005		266%	80	120	0%	S
Iron	A	mg/L	0.001707	0.001707		0.00125	0	0		0.01		137%	80	120	0%	S
Lanthanum	A	mg/L	0.00005912	0.00005912		0.00005	0	0		0.001		118%	80	120	0%	
Lead	A	mg/L	0.00005642	0.00005642		0.00005	0	0		0.001		113%	80	120	0%	
Lithium	A	mg/L	0.0007495	0.0007495		0.000625	0	0		1		120%	80	120	0%	
Magnesium	A	mg/L	0.01628	0.01628		0.0125	0	0		1		130%	80	120	0%	S
Manganese	A	mg/L	0.00009284	0.00009284		0.00005	0	0		0.001		186%	80	120	0%	S
Mercury	A	mg/L	1.489E-06	1.489E-06		0	0	0		0.001		0%			0%	
Molybdenum	A	mg/L	0.00005467	0.00005467		0.00005	0	0		0.001		109%	80	120	0%	
Nickel	A	mg/L	0.0001044	0.0001044		0	0	0		0.005		0%			0%	
Potassium	A	mg/L	0.01942	0.01942		0.0125	0	0		1		155%	80	120	0%	S
Selenium	A	mg/L	0.00006186	0.00006186		0.00005	0	0		0.005		124%	80	120	0%	S
Silicon	A	mg/L	0.0006251	0.0006251		0	0	0		0.1		0%			0%	
Silver	A	mg/L	0.00002239	0.00002239		0.00002	0	0		0.001		112%	80	120	0%	
Sodium	A	mg/L	0.01906	0.01906		0.0125	0	0		1		152%	80	120	0%	S
Strontium	A	mg/L	0.00007318	0.00007318		0.00005	0	0		0.001		146%	80	120	0%	S
Thallium	A	mg/L	0.00005774	0.00005774		0	0	0		0.001		0%			0%	
Thorium	A	mg/L	0.00004398	0.00004398		0	0	0		0.05		0%			0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085470	0.05 ppb STD	ICPMS-6020B-C	Cal2		3/11/2022 8:14:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Tin	A	mg/L	0.0001895	0.0001895		0	0	0		0.001		0%			0%	
Titanium	A	mg/L	0.00009356	0.00009356		0	0	0		0.001		0%			0%	
Uranium	A	mg/L	0.00005592	0.00005592		0.00005	0	0		0.001		112%	80	120	0%	
Vanadium	A	mg/L	0.0002806	0.0002806		0	0	0		0.005		0%			0%	
Zinc	A	mg/L	0.0004496	0.0004496		0	0	0		0.01		0%			0%	
Iron, Ferrous	C	mg/L	0.001707	0.001707		0.00005	0	0		0.01	5	3414%	80	120	0%	S
Silicon as SiO2	C	mg/L	0.00133771	0.00133771		0.00428	0	0		0.214	0.9	31%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085471	0.10 ppb STD	ICPMS-6020B-C	Cal3		3/11/2022 8:21:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0005302	0.0005302		0.0001	0	0		0.01		530%	80	120	0%	S
Antimony	A	mg/L	0.0001225	0.0001225		0.0001	0	0		0.001		123%	80	120	0%	S
Arsenic	A	mg/L	0.0001281	0.0001281		0.0001	0	0		0.001		128%	80	120	0%	S
Barium	A	mg/L	0.000115	0.000115		0.0001	0	0		0.0003		115%	80	120	0%	
Beryllium	A	mg/L	0.0001111	0.0001111		0.0001	0	0		0.001		111%	80	120	0%	
Boron	A	mg/L	-3.867E-05	-3.867E-05		0	0	0		0.1		0%			0%	
Cadmium	A	mg/L	0.0001156	0.0001156		0.0001	0	0		0.001		116%	80	120	0%	
Calcium	A	mg/L	0.03629	0.03629		0.025	0	0		1		145%	80	120	0%	S
Cerium	A	mg/L	0.0001236	0.0001236		0.0001	0	0		0.001		124%	80	120	0%	S
Chromium	A	mg/L	0.0001189	0.0001189		0.0001	0	0		0.001		119%	80	120	0%	
Cobalt	A	mg/L	0.0001141	0.0001141		0.0001	0	0		0.001		114%	80	120	0%	
Copper	A	mg/L	0.0001952	0.0001952		0.0001	0	0		0.005		195%	80	120	0%	S
Iron	A	mg/L	0.003382	0.003382		0.0025	0	0		0.01		135%	80	120	0%	S
Lanthanum	A	mg/L	0.0001197	0.0001197		0.0001	0	0		0.001		120%	80	120	0%	
Lead	A	mg/L	0.0001119	0.0001119		0.0001	0	0		0.001		112%	80	120	0%	
Lithium	A	mg/L	0.001463	0.001463		0.00125	0	0		1		117%	80	120	0%	
Magnesium	A	mg/L	0.03241	0.03241		0.025	0	0		1		130%	80	120	0%	S
Manganese	A	mg/L	0.0001571	0.0001571		0.0001	0	0		0.001		157%	80	120	0%	S
Mercury	A	mg/L	1.852E-06	1.852E-06		0.000002	0	0		0.001		93%	80	120	0%	
Molybdenum	A	mg/L	0.0001054	0.0001054		0.0001	0	0		0.001		105%	80	120	0%	
Nickel	A	mg/L	0.000154	0.000154		0.0001	0	0		0.005		154%	80	120	0%	S
Potassium	A	mg/L	0.03305	0.03305		0.025	0	0		1		132%	80	120	0%	S
Selenium	A	mg/L	0.0001317	0.0001317		0.0001	0	0		0.005		132%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085471	0.10 ppb STD	ICPMS-6020B-C	Cal3		3/11/2022 8:21:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Silicon	A	mg/L	0.001271	0.001271		0.0004	0	0		0.1		318%	80	120	0%	S
Silver	A	mg/L	0.0000439	0.0000439		0.00004	0	0		0.001		110%	80	120	0%	
Sodium	A	mg/L	0.03239	0.03239		0.025	0	0		1		130%	80	120	0%	S
Strontium	A	mg/L	0.0001111	0.0001111		0.0001	0	0		0.001		111%	80	120	0%	
Thallium	A	mg/L	0.0001148	0.0001148		0.0001	0	0		0.001		115%	80	120	0%	
Thorium	A	mg/L	0.0000883	0.0000883		0.0001	0	0		0.05		88%	80	120	0%	
Tin	A	mg/L	0.0002544	0.0002544		0.0001	0	0		0.001		254%	80	120	0%	S
Titanium	A	mg/L	0.0001451	0.0001451		0.0001	0	0		0.001		145%	80	120	0%	S
Uranium	A	mg/L	0.0001071	0.0001071		0.0001	0	0		0.001		107%	80	120	0%	
Vanadium	A	mg/L	0.000383	0.000383		0.0001	0	0		0.005		383%	80	120	0%	S
Zinc	A	mg/L	0.0004681	0.0004681		0.0001	0	0		0.01		468%	80	120	0%	S
Iron, Ferrous	C	mg/L	0.003382	0.003382		0.0001	0	0		0.01	5	3382%	80	120	0%	S
Silicon as SiO2	C	mg/L	0.00271994	0.00271994		0.00856	0	0		0.214	0.9	32%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085472	0.5 ppb STD	ICPMS-6020B-C	Cal4		3/11/2022 8:28:0	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0009559	0.0009559		0.0005	0	0		0.01		191%	80	120	0%	S
Antimony	A	mg/L	0.0005199	0.0005199		0.0005	0	0		0.001		104%	80	120	0%	
Arsenic	A	mg/L	0.0005525	0.0005525		0.0005	0	0		0.001		110%	80	120	0%	
Barium	A	mg/L	0.0004864	0.0004864		0.0005	0	0		0.0003		97%	80	120	0%	
Beryllium	A	mg/L	0.0005171	0.0005171		0.0005	0	0		0.001		103%	80	120	0%	
Boron	A	mg/L	0.0002943	0.0002943		0.0005	0	0		0.1		59%	80	120	0%	S
Cadmium	A	mg/L	0.000527	0.000527		0.0005	0	0		0.001		105%	80	120	0%	
Calcium	A	mg/L	0.15	0.15		0.125	0	0		1		120%	80	120	0%	
Cerium	A	mg/L	0.0005234	0.0005234		0.0005	0	0		0.001		105%	80	120	0%	
Chromium	A	mg/L	0.0005842	0.0005842		0.0005	0	0		0.001		117%	80	120	0%	
Cobalt	A	mg/L	0.0005503	0.0005503		0.0005	0	0		0.001		110%	80	120	0%	
Copper	A	mg/L	0.0006641	0.0006641		0.0005	0	0		0.005		133%	80	120	0%	S
Iron	A	mg/L	0.01496	0.01496		0.0125	0	0		0.01		120%	80	120	0%	
Lanthanum	A	mg/L	0.0005353	0.0005353		0.0005	0	0		0.001		107%	80	120	0%	
Lead	A	mg/L	0.0005065	0.0005065		0.0005	0	0		0.001		101%	80	120	0%	
Lithium	A	mg/L	0.00678	0.00678		0.00625	0	0		1		108%	80	120	0%	
Magnesium	A	mg/L	0.1447	0.1447		0.125	0	0		1		116%	80	120	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085472	0.5 ppb STD	ICPMS-6020B-C Cal4			3/11/2022 8:28:0	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Manganese	A	mg/L	0.0006122	0.0006122		0.0005	0	0		0.001		122%	80	120	0%	S
Mercury	A	mg/L	8.475E-06	8.475E-06		0.00001	0	0		0.001		85%	80	120	0%	
Molybdenum	A	mg/L	0.0004975	0.0004975		0.0005	0	0		0.001		99%	80	120	0%	
Nickel	A	mg/L	0.0006439	0.0006439		0.0005	0	0		0.005		129%	80	120	0%	S
Potassium	A	mg/L	0.1428	0.1428		0.125	0	0		1		114%	80	120	0%	
Selenium	A	mg/L	0.0005994	0.0005994		0.0005	0	0		0.005		120%	80	120	0%	
Silicon	A	mg/L	0.002972	0.002972		0.002	0	0		0.1		149%	80	120	0%	S
Silver	A	mg/L	0.0002105	0.0002105		0.0002	0	0		0.001		105%	80	120	0%	
Sodium	A	mg/L	0.1423	0.1423		0.125	0	0		1		114%	80	120	0%	
Strontium	A	mg/L	0.0005396	0.0005396		0.0005	0	0		0.001		108%	80	120	0%	
Thallium	A	mg/L	0.0005201	0.0005201		0.0005	0	0		0.001		104%	80	120	0%	
Thorium	A	mg/L	0.000467	0.000467		0.0005	0	0		0.05		93%	80	120	0%	
Tin	A	mg/L	0.0007119	0.0007119		0.0005	0	0		0.001		142%	80	120	0%	S
Titanium	A	mg/L	0.0005549	0.0005549		0.0005	0	0		0.001		111%	80	120	0%	
Uranium	A	mg/L	0.0005002	0.0005002		0.0005	0	0		0.001		100%	80	120	0%	
Vanadium	A	mg/L	0.0004335	0.0004335		0.0005	0	0		0.005		87%	80	120	0%	
Zinc	A	mg/L	0.001212	0.001212		0.0005	0	0		0.01		242%	80	120	0%	S
Iron, Ferrous	C	mg/L	0.01496	0.01496		0.0005	0	0		0.01	5	2992%	80	120	0%	S
Silicon as SiO2	C	mg/L	0.00636008	0.00636008		0.0428	0	0		0.214	0.9	15%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085473	1 ppb STD	ICPMS-6020B-C Cal5			3/11/2022 8:34:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.00163	0.00163		0.001	0	0		0.01		163%	80	120	0%	S
Antimony	A	mg/L	0.001085	0.001085		0.001	0	0		0.001		108%	80	120	0%	
Arsenic	A	mg/L	0.001164	0.001164		0.001	0	0		0.001		116%	80	120	0%	
Barium	A	mg/L	0.001063	0.001063		0.001	0	0		0.0003		106%	80	120	0%	
Beryllium	A	mg/L	0.001113	0.001113		0.001	0	0		0.001		111%	80	120	0%	
Boron	A	mg/L	0.0009298	0.0009298		0.001	0	0		0.1		93%	80	120	0%	
Cadmium	A	mg/L	0.001107	0.001107		0.001	0	0		0.001		111%	80	120	0%	
Calcium	A	mg/L	0.3093	0.3093		0.25	0	0		1		124%	80	120	0%	S
Cerium	A	mg/L	0.001124	0.001124		0.001	0	0		0.001		112%	80	120	0%	
Chromium	A	mg/L	0.001197	0.001197		0.001	0	0		0.001		120%	80	120	0%	
Cobalt	A	mg/L	0.001151	0.001151		0.001	0	0		0.001		115%	80	120	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085473	1 ppb STD	ICPMS-6020B-C	Cal5		3/11/2022 8:34:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Copper	A	mg/L	0.001323	0.001323		0.001	0	0		0.005		132%	80	120	0%	S
Iron	A	mg/L	0.03174	0.03174		0.025	0	0		0.01		127%	80	120	0%	S
Lanthanum	A	mg/L	0.001196	0.001196		0.001	0	0		0.001		120%	80	120	0%	
Lead	A	mg/L	0.001059	0.001059		0.001	0	0		0.001		106%	80	120	0%	
Lithium	A	mg/L	0.01427	0.01427		0.0125	0	0		1		114%	80	120	0%	
Magnesium	A	mg/L	0.308	0.308		0.25	0	0		1		123%	80	120	0%	S
Manganese	A	mg/L	0.001195	0.001195		0.001	0	0		0.001		120%	80	120	0%	
Mercury	A	mg/L	0.00002451	0.00002451		0.00002	0	0		0.001		123%	80	120	0%	S
Molybdenum	A	mg/L	0.001042	0.001042		0.001	0	0		0.001		104%	80	120	0%	
Nickel	A	mg/L	0.001274	0.001274		0.001	0	0		0.005		127%	80	120	0%	S
Potassium	A	mg/L	0.2928	0.2928		0.25	0	0		1		117%	80	120	0%	
Selenium	A	mg/L	0.001225	0.001225		0.001	0	0		0.005		123%	80	120	0%	S
Silicon	A	mg/L	0.005338	0.005338		0.004	0	0		0.1		133%	80	120	0%	S
Silver	A	mg/L	0.0004418	0.0004418		0.0004	0	0		0.001		110%	80	120	0%	
Sodium	A	mg/L	0.2979	0.2979		0.25	0	0		1		119%	80	120	0%	
Strontium	A	mg/L	0.001161	0.001161		0.001	0	0		0.001		116%	80	120	0%	
Thallium	A	mg/L	0.001073	0.001073		0.001	0	0		0.001		107%	80	120	0%	
Thorium	A	mg/L	0.001004	0.001004		0.001	0	0		0.05		100%	80	120	0%	
Tin	A	mg/L	0.001253	0.001253		0.001	0	0		0.001		125%	80	120	0%	S
Titanium	A	mg/L	0.001214	0.001214		0.001	0	0		0.001		121%	80	120	0%	S
Uranium	A	mg/L	0.001057	0.001057		0.001	0	0		0.001		106%	80	120	0%	
Vanadium	A	mg/L	0.000777	0.000777		0.001	0	0		0.005		78%	80	120	0%	S
Zinc	A	mg/L	0.00154	0.00154		0.001	0	0		0.01		154%	80	120	0%	S
Iron, Ferrous	C	mg/L	0.03174	0.03174		0.001	0	0		0.01	5	3174%	80	120	0%	S
Silicon as SiO2	C	mg/L	0.01142332	0.01142332		0.0856	0	0		0.214	0.9	13%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085474	10 ppb STD	ICPMS-6020B-C	Cal6		3/11/2022 8:41:1	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.01093	0.01093		0.01	0	0		0.01		109%	90	110	0%	
Antimony	A	mg/L	0.01008	0.01008		0.01	0	0		0.001		101%	90	110	0%	
Arsenic	A	mg/L	0.01066	0.01066		0.01	0	0		0.001		107%	90	110	0%	
Barium	A	mg/L	0.01006	0.01006		0.01	0	0		0.0003		101%	90	110	0%	
Beryllium	A	mg/L	0.01033	0.01033		0.01	0	0		0.001		103%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085474	10 ppb STD	ICPMS-6020B-C Cal6			3/11/2022 8:41:1	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Boron	A	mg/L	0.01025	0.01025		0.01	0	0		0.1		102%	90	110	0%	
Cadmium	A	mg/L	0.01047	0.01047		0.01	0	0		0.001		105%	90	110	0%	
Calcium	A	mg/L	2.807	2.807		2.5	0	0		1		112%	90	110	0%	S
Cerium	A	mg/L	0.01042	0.01042		0.01	0	0		0.001		104%	90	110	0%	
Chromium	A	mg/L	0.0107	0.0107		0.01	0	0		0.001		107%	90	110	0%	
Cobalt	A	mg/L	0.01097	0.01097		0.01	0	0		0.001		110%	90	110	0%	
Copper	A	mg/L	0.01142	0.01142		0.01	0	0		0.005		114%	90	110	0%	S
Iron	A	mg/L	0.2898	0.2898		0.25	0	0		0.01		116%	90	110	0%	S
Lanthanum	A	mg/L	0.01055	0.01055		0.01	0	0		0.001		105%	90	110	0%	
Lead	A	mg/L	0.01011	0.01011		0.01	0	0		0.001		101%	90	110	0%	
Lithium	A	mg/L	0.1313	0.1313		0.125	0	0		1		105%	90	110	0%	
Magnesium	A	mg/L	2.814	2.814		2.5	0	0		1		113%	90	110	0%	S
Manganese	A	mg/L	0.01096	0.01096		0.01	0	0		0.001		110%	90	110	0%	
Mercury	A	mg/L	0.0002005	0.0002005		0.0002	0	0		0.001		100%	90	110	0%	
Molybdenum	A	mg/L	0.01003	0.01003		0.01	0	0		0.001		100%	90	110	0%	
Nickel	A	mg/L	0.01157	0.01157		0.01	0	0		0.005		116%	90	110	0%	S
Potassium	A	mg/L	2.707	2.707		2.5	0	0		1		108%	90	110	0%	
Selenium	A	mg/L	0.01134	0.01134		0.01	0	0		0.005		113%	90	110	0%	S
Silicon	A	mg/L	0.0421	0.0421		0.04	0	0		0.1		105%	90	110	0%	
Silver	A	mg/L	0.004056	0.004056		0.004	0	0		0.001		101%	90	110	0%	
Sodium	A	mg/L	2.776	2.776		2.5	0	0		1		111%	90	110	0%	S
Strontium	A	mg/L	0.01062	0.01062		0.01	0	0		0.001		106%	90	110	0%	
Thallium	A	mg/L	0.01028	0.01028		0.01	0	0		0.001		103%	90	110	0%	
Thorium	A	mg/L	0.009884	0.009884		0.01	0	0		0.05		99%	90	110	0%	
Tin	A	mg/L	0.0105	0.0105		0.01	0	0		0.001		105%	90	110	0%	
Titanium	A	mg/L	0.01089	0.01089		0.01	0	0		0.001		109%	90	110	0%	
Uranium	A	mg/L	0.01009	0.01009		0.01	0	0		0.001		101%	90	110	0%	
Vanadium	A	mg/L	0.009645	0.009645		0.01	0	0		0.005		96%	90	110	0%	
Zinc	A	mg/L	0.01145	0.01145		0.01	0	0		0.01		115%	90	110	0%	S
Iron, Ferrous	C	mg/L	0.2898	0.2898		0.01	0	0		0.01	5	2898%	90	110	0%	S
Silicon as SiO2	C	mg/L	0.090094	0.090094		0.856	0	0		0.214	0.9	11%	90	110	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085475	50 ppb STD	ICPMS-6020B-C Cal7			3/11/2022 8:47:5	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04948	0.04948		0.05	0	0		0.01		99%	90	110	0%	
Antimony	A	mg/L	0.04885	0.04885		0.05	0	0		0.001		98%	90	110	0%	
Arsenic	A	mg/L	0.05029	0.05029		0.05	0	0		0.001		101%	90	110	0%	
Barium	A	mg/L	0.04909	0.04909		0.05	0	0		0.0003		98%	90	110	0%	
Beryllium	A	mg/L	0.04809	0.04809		0.05	0	0		0.001		96%	90	110	0%	
Boron	A	mg/L	0.04955	0.04955		0.05	0	0		0.1		99%	90	110	0%	
Cadmium	A	mg/L	0.05013	0.05013		0.05	0	0		0.001		100%	90	110	0%	
Calcium	A	mg/L	12.64	12.64		12.5	0	0		1		101%	90	110	0%	
Cerium	A	mg/L	0.05125	0.05125		0.05	0	0		0.001		102%	90	110	0%	
Chromium	A	mg/L	0.05001	0.05001		0.05	0	0		0.001		100%	90	110	0%	
Cobalt	A	mg/L	0.04913	0.04913		0.05	0	0		0.001		98%	90	110	0%	
Copper	A	mg/L	0.0524	0.0524		0.05	0	0		0.005		105%	90	110	0%	
Iron	A	mg/L	1.311	1.311		1.25	0	0		0.01		105%	90	110	0%	
Lanthanum	A	mg/L	0.051	0.051		0.05	0	0		0.001		102%	90	110	0%	
Lead	A	mg/L	0.04799	0.04799		0.05	0	0		0.001		96%	90	110	0%	
Lithium	A	mg/L	0.5993	0.5993		0.625	0	0		1		96%	90	110	0%	
Magnesium	A	mg/L	12.65	12.65		12.5	0	0		1		101%	90	110	0%	
Manganese	A	mg/L	0.05127	0.05127		0.05	0	0		0.001		103%	90	110	0%	
Mercury	A	mg/L	0.0009914	0.0009914		0.001	0	0		0.001		99%	90	110	0%	
Molybdenum	A	mg/L	0.0484	0.0484		0.05	0	0		0.001		97%	90	110	0%	
Nickel	A	mg/L	0.05235	0.05235		0.05	0	0		0.005		105%	90	110	0%	
Potassium	A	mg/L	12.5	12.5		12.5	0	0		1		100%	90	110	0%	
Selenium	A	mg/L	0.05222	0.05222		0.05	0	0		0.005		104%	90	110	0%	
Silicon	A	mg/L	0.2032	0.2032		0.2	0	0		0.1		102%	90	110	0%	
Silver	A	mg/L	0.0196	0.0196		0.02	0	0		0.001		98%	90	110	0%	
Sodium	A	mg/L	12.74	12.74		12.5	0	0		1		102%	90	110	0%	
Strontium	A	mg/L	0.04989	0.04989		0.05	0	0		0.001		100%	90	110	0%	
Thallium	A	mg/L	0.04957	0.04957		0.05	0	0		0.001		99%	90	110	0%	
Thorium	A	mg/L	0.04913	0.04913		0.05	0	0		0.05		98%	90	110	0%	
Tin	A	mg/L	0.05031	0.05031		0.05	0	0		0.001		101%	90	110	0%	
Titanium	A	mg/L	0.05046	0.05046		0.05	0	0		0.001		101%	90	110	0%	
Uranium	A	mg/L	0.04701	0.04701		0.05	0	0		0.001		94%	90	110	0%	
Vanadium	A	mg/L	0.04858	0.04858		0.05	0	0		0.005		97%	90	110	0%	
Zinc	A	mg/L	0.05187	0.05187		0.05	0	0		0.01		104%	90	110	0%	
Iron, Ferrous	C	mg/L	1.311	1.311		0.05	0	0		0.01	5	2622%	90	110	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085475	50 ppb STD	ICPMS-6020B-C Cal7			3/11/2022 8:47:5	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Silicon as SiO2	C	mg/L	0.434848	0.434848		4.28	0	0		0.214	0.9	10%	90	110	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085476	100 ppb STD	ICPMS-6020B-C Cal8			3/11/2022 8:54:3	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0999	0.0999		0.1	0	0		0.01		100%	90	110	0%	
Antimony	A	mg/L	0.1006	0.1006		0.1	0	0		0.001		101%	90	110	0%	
Arsenic	A	mg/L	0.09893	0.09893		0.1	0	0		0.001		99%	90	110	0%	
Barium	A	mg/L	0.1021	0.1021		0.1	0	0		0.0003		102%	90	110	0%	
Beryllium	A	mg/L	0.09997	0.09997		0.1	0	0		0.001		100%	90	110	0%	
Boron	A	mg/L	0.1021	0.1021		0.1	0	0		0.1		102%	90	110	0%	
Cadmium	A	mg/L	0.1042	0.1042		0.1	0	0		0.001		104%	90	110	0%	
Calcium	A	mg/L	25.09	25.09		25	0	0		1		100%	90	110	0%	
Cerium	A	mg/L	0.09933	0.09933		0.1	0	0		0.001		99%	90	110	0%	
Chromium	A	mg/L	0.09816	0.09816		0.1	0	0		0.001		98%	90	110	0%	
Cobalt	A	mg/L	0.09723	0.09723		0.1	0	0		0.001		97%	90	110	0%	
Copper	A	mg/L	0.1015	0.1015		0.1	0	0		0.005		101%	90	110	0%	
Iron	A	mg/L	2.614	2.614		2.5	0	0		0.01		105%	90	110	0%	
Lanthanum	A	mg/L	0.09944	0.09944		0.1	0	0		0.001		99%	90	110	0%	
Lead	A	mg/L	0.09991	0.09991		0.1	0	0		0.001		100%	90	110	0%	
Lithium	A	mg/L	1.25	1.25		1.25	0	0		1		100%	90	110	0%	
Magnesium	A	mg/L	24.97	24.97		25	0	0		1		100%	90	110	0%	
Manganese	A	mg/L	0.09978	0.09978		0.1	0	0		0.001		100%	90	110	0%	
Mercury	A	mg/L	0.002004	0.002004		0.002	0	0		0.001		100%	90	110	0%	
Molybdenum	A	mg/L	0.1008	0.1008		0.1	0	0		0.001		101%	90	110	0%	
Nickel	A	mg/L	0.103	0.103		0.1	0	0		0.005		103%	90	110	0%	
Potassium	A	mg/L	24.64	24.64		25	0	0		1		99%	90	110	0%	
Selenium	A	mg/L	0.1024	0.1024		0.1	0	0		0.005		102%	90	110	0%	
Silicon	A	mg/L	0.3982	0.3982		0.4	0	0		0.1		100%	90	110	0%	
Silver	A	mg/L	0.04019	0.04019		0.04	0	0		0.001		100%	90	110	0%	
Sodium	A	mg/L	24.94	24.94		25	0	0		1		100%	90	110	0%	
Strontium	A	mg/L	0.09703	0.09703		0.1	0	0		0.001		97%	90	110	0%	
Thallium	A	mg/L	0.09883	0.09883		0.1	0	0		0.001		99%	90	110	0%	
Thorium	A	mg/L	0.09769	0.09769		0.1	0	0		0.05		98%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085476	100 ppb STD	ICPMS-6020B-C Cal8			3/11/2022 8:54:3	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Tin	A	mg/L	0.09979	0.09979		0.1	0	0		0.001		100%	90	110	0%	
Titanium	A	mg/L	0.09968	0.09968		0.1	0	0		0.001		100%	90	110	0%	
Uranium	A	mg/L	0.09926	0.09926		0.1	0	0		0.001		99%	90	110	0%	
Vanadium	A	mg/L	0.0959	0.0959		0.1	0	0		0.005		96%	90	110	0%	
Zinc	A	mg/L	0.1015	0.1015		0.1	0	0		0.01		101%	90	110	0%	
Iron, Ferrous	C	mg/L	2.614	2.614		0.1	0	0		0.01	5	2614%	90	110	0%	S
Silicon as SiO2	C	mg/L	0.852148	0.852148		8.56	0	0		0.214	0.9	10%	90	110	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085477	1000 ppb STD	ICPMS-6020B-C Cal10			3/11/2022 9:01:0	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	1	1		1	0	0		0.01		100%	90	110	0%	
Antimony	A	mg/L	0.0003751	0.0003751		0	0	0		0.001		0%			0%	
Arsenic	A	mg/L	1	1		1	0	0		0.001		100%	90	110	0%	
Barium	A	mg/L	0.9998	0.9998		1	0	0		0.0003		100%	90	110	0%	
Beryllium	A	mg/L	1	1		1	0	0		0.001		100%	90	110	0%	
Boron	A	mg/L	0.9998	0.9998		1	0	0		0.1		100%	90	110	0%	
Cadmium	A	mg/L	0.9996	0.9996		1	0	0		0.001		100%	90	110	0%	
Calcium	A	mg/L	49.9	49.9		50	0	0		1		100%	90	110	0%	
Cerium	A	mg/L	0.00002551	0.00002551		0	0	0		0.001		0%			0%	
Chromium	A	mg/L	1	1		1	0	0		0.001		100%	90	110	0%	
Cobalt	A	mg/L	1	1		1	0	0		0.001		100%	90	110	0%	
Copper	A	mg/L	0.9997	0.9997		1	0	0		0.005		100%	90	110	0%	
Iron	A	mg/L	5.99	5.99		6	0	0		0.01		100%	90	110	0%	
Lanthanum	A	mg/L	9.142E-06	9.142E-06		0	0	0		0.001		0%			0%	
Lead	A	mg/L	1	1		1	0	0		0.001		100%	90	110	0%	
Lithium	A	mg/L	2.506	2.506		2.5	0	0		1		100%	90	110	0%	
Magnesium	A	mg/L	49.96	49.96		50	0	0		1		100%	90	110	0%	
Manganese	A	mg/L	0.9999	0.9999		1	0	0		0.001		100%	90		0%	
Mercury	A	mg/L	0.00001119	0.00001119		0	0	0		0.001		0%			0%	
Molybdenum	A	mg/L	0.0001402	0.0001402		0	0	0		0.001		0%			0%	
Nickel	A	mg/L	0.9996	0.9996		1	0	0		0.005		100%	90	110	0%	
Potassium	A	mg/L	50.17	50.17		50	0	0		1		100%	90	110	0%	
Selenium	A	mg/L	0.9996	0.9996		1	0	0		0.005		100%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085477	1000 ppb STD	ICPMS-6020B-C	Cal10		3/11/2022 9:01:0	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Silicon	A	mg/L	0.002447	0.002447		0	0	0		0.1		0%				0%
Silver	A	mg/L	0.3832	0.3832		0	0	0		0.001		0%				0%
Sodium	A	mg/L	49.96	49.96		50	0	0		1		100%	90	110		0%
Strontium	A	mg/L	1	1		1	0	0		0.001		100%	90	110		0%
Thallium	A	mg/L	1	1		1	0	0		0.001		100%	90	110		0%
Thorium	A	mg/L	1	1		1	0	0		0.05		100%	90	110		0%
Tin	A	mg/L	0.0003829	0.0003829		0	0	0		0.001		0%				0%
Titanium	A	mg/L	0.006431	0.006431		1	0	0		0.001		1%	90	110		0% S
Uranium	A	mg/L	1	1		1	0	0		0.001		100%	90	110		0%
Vanadium	A	mg/L	1	1		1	0	0		0.005		100%	90	110		0%
Zinc	A	mg/L	0.9997	0.9997		1	0	0		0.01		100%	90	110		0%
Iron, Ferrous	C	mg/L	5.99	5.99		0	0	0		0.01	5	0%				0%
Silicon as SiO2	C	mg/L	0.00523658	0.00523658		0	0	0		0.214	0.9	0%				0%

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085478	100 ppb Br STD	ICPMS-6020-W-	SAMP		3/11/2022 9:07:3	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.000368	0		0	0	0	0.0017836	0.001	1	0%	0	0		0%
Arsenic	A	mg/L	0.0001234	0.0001234		0	0	0	8.203E-05	0.001	1	0%	0	0		0% J
Barium	A	mg/L	0.00001958	0		0	0	0	6.762E-05	0.001	1	0%	0	0		0%
Beryllium	A	mg/L	0.00003831	0		0	0	0	8.516E-05	0.001	1	0%	0	0		0%
Cadmium	A	mg/L	0.00006793	0.00006793		0	0	0	2.308E-05	0.001	1	0%	0	0		0% J
Cerium	A	mg/L	7.649E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0		0%
Chromium	A	mg/L	0.00001368	0		0	0	0	0.0002538	0.001	1	0%	0	0		0%
Cobalt	A	mg/L	8.937E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0		0%
Copper	A	mg/L	0.00005398	0		0	0	0	0.0001748	0.001	1	0%	0	0		0%
Lanthanum	A	mg/L	1.38E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0		0%
Lead	A	mg/L	0.00004038	0.00004038		0	0	0	3.031E-05	0.001	1	0%	0	0		0% J
Manganese	A	mg/L	0.00001596	0		0	0	0	7.309E-05	0.001	1	0%	0	0		0%
Mercury	A	mg/L	9.054E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0		0%
Molybdenum	A	mg/L	0.00002204	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0		0%
Nickel	A	mg/L	0.00001575	0		0	0	0	0.0001769	0.001	1	0%	0	0		0%
Selenium	A	mg/L	0.0002577	0.0002577		0	0	0	7.174E-05	0.001	1	0%	0	0		0% J
Silicon	A	mg/L	0.003933	0.003933		0	0	0	0.0033337	0.1	0.4	0%	0	0		0% J

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085478	100 ppb Br STD	ICPMS-6020-W-	SAMP		3/11/2022 9:07:3	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Silver	A	mg/L	0.0003244	0.0003244		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	J
Strontium	A	mg/L	0.00001252	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0003494	0.0003494		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.0003002	0.0003002		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Titanium	A	mg/L	0.00029	0.00029		0	0	0	0.0001004	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	0.00002017	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Boron	B	mg/L	0.01115	0.01115		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	D
Calcium	B	mg/L	0.006012	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0.0006562	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.0006562	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.0005553	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Potassium	B	mg/L	0.7407	0.7407		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	D
Sodium	B	mg/L	0.005657	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	0.0002592	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Vanadium	B	mg/L	-0.001001	0		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	B	mg/L	0.0003433	0		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	L

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085479	QCS	ICPMS-6020-W-	ICV		3/11/2022 9:13:5	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.2463	0.2463		0.25	0	0	0.0017836	0.001	1	99%	90	110	0%	
Antimony	A	mg/L	0.04472	0.04472		0.05	0	0	6.768E-05	0.001	0.1	89%	90	110	0%	S
Arsenic	A	mg/L	0.05097	0.05097		0.05	0	0	8.203E-05	0.001	1	102%	90	110	0%	
Barium	A	mg/L	0.05012	0.05012		0.05	0	0	6.762E-05	0.001	1	100%	90	110	0%	
Beryllium	A	mg/L	0.02417	0.02417		0.025	0	0	8.516E-05	0.001	1	97%	90	110	0%	
Boron	A	mg/L	0.05428	0.05428		0.05	0	0	0.0039526	0.00561	1	109%	90	110	0%	
Cadmium	A	mg/L	0.02531	0.02531		0.025	0	0	2.308E-05	0.001	1	101%	90	110	0%	
Calcium	A	mg/L	2.649	2.649		2.5	0	0	0.2027235	0.02092	50	106%	90	110	0%	
Cerium	A	mg/L	0.05059	0.05059		0.05	0	0	0.0000222	0.001	0.1	101%	90	110	0%	
Chromium	A	mg/L	0.04928	0.04928		0.05	0	0	0.0002538	0.001	1	99%	90	110	0%	
Cobalt	A	mg/L	0.04916	0.04916		0.05	0	0	2.141E-05	0.001	1	98%	90	110	0%	
Copper	A	mg/L	0.05227	0.05227		0.05	0	0	0.0001748	0.001	1	105%	90	110	0%	
Iron	A	mg/L	0.2521	0.2521		0.25	0	0	0.0021157	0.00119	5	101%	90	110	0%	
Lanthanum	A	mg/L	0.0504	0.0504		0.05	0	0	6.805E-05	0.001	0.1	101%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085479	QCS	ICPMS-6020-W- ICV			3/11/2022 9:13:5	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Lead	A	mg/L	0.04722	0.04722		0.05	0	0	3.031E-05	0.001	1	94%	90	110	0%	
Magnesium	A	mg/L	2.617	2.617		2.5	0	0	0.0203306	0.00564	50	105%	90	110	0%	
Manganese	A	mg/L	0.2552	0.2552		0.25	0	0	7.309E-05	0.001	1	102%	90	110	0%	
Mercury	A	mg/L	0.0009378	0.0009378		0.001	0	0	3.043E-05	0.001	0.002	94%	90	110	0%	
Molybdenum	A	mg/L	0.04809	0.04809		0.05	0	0	8.113E-05	0.001	0.1	96%	90	110	0%	
Nickel	A	mg/L	0.05278	0.05278		0.05	0	0	0.0001769	0.001	1	106%	90	110	0%	
Potassium	A	mg/L	2.492	2.492		2.5	0	0	0.0215433	0.08139	50	100%	90	110	0%	
Selenium	A	mg/L	0.05198	0.05198		0.05	0	0	7.174E-05	0.001	1	104%	90	110	0%	
Silicon	A	mg/L	0.5097	0.5097		0.5	0	0	0.0033337	0.1	0.4	102%	90	110	0%	
Silver	A	mg/L	0.02485	0.02485		0.025	0	0	2.644E-05	0.001	0.04	99%	90	110	0%	
Sodium	A	mg/L	2.559	2.559		2.5	0	0	0.0451914	0.02171	50	102%	90	110	0%	
Strontium	A	mg/L	0.04961	0.04961		0.05	0	0	9.743E-05	0.001	1	99%	90	110	0%	
Thallium	A	mg/L	0.04839	0.04839		0.05	0	0	4.842E-05	0.001	1	97%	90	110	0%	
Thorium	A	mg/L	0.0483	0.0483		0.05	0	0	3.018E-05	0.001	1	97%	90	110	0%	
Tin	A	mg/L	0.04898	0.04898		0.05	0	0	0.0009928	0.00132	0.1	98%	90	110	0%	
Titanium	A	mg/L	0.04923	0.04923		0.05	0	0	0.0001004	0.001	1	98%	90	110	0%	
Uranium	A	mg/L	0.04874	0.04874		0.05	0	0	2.468E-05	0.0003	1	97%	90	110	0%	
Vanadium	A	mg/L	0.04678	0.04678		0.05	0	0	0.0018612	0.0013	1	94%	90	110	0%	
Zinc	A	mg/L	0.05285	0.05285		0.05	0	0	0.0010089	0.00273	1	106%	90	110	0%	
Iron, Ferrous	C	mg/L	0.2521	0.2521		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085480	CCV	ICPMS-6020-W- CCV			3/11/2022 9:20:0	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04969	0.04969		0.05	0	0	0.0017836	0.001	1	99%	90	110	0%	
Antimony	A	mg/L	0.04856	0.04856		0.05	0	0	6.768E-05	0.001	0.1	97%	90	110	0%	
Arsenic	A	mg/L	0.05048	0.05048		0.05	0	0	8.203E-05	0.001	1	101%	90	110	0%	
Barium	A	mg/L	0.048	0.048		0.05	0	0	6.762E-05	0.001	1	96%	90	110	0%	
Beryllium	A	mg/L	0.04917	0.04917		0.05	0	0	8.516E-05	0.001	1	98%	90	110	0%	
Boron	A	mg/L	0.05425	0.05425		0.05	0	0	0.0039526	0.00561	1	108%	90	110	0%	
Cadmium	A	mg/L	0.04993	0.04993		0.05	0	0	2.308E-05	0.001	1	100%	90	110	0%	
Calcium	A	mg/L	13.25	13.25		12.5	0	0	0.2027235	0.02092	50	106%	90	110	0%	
Cerium	A	mg/L	0.0511	0.0511		0.05	0	0	0.0000222	0.001	0.1	102%	90	110	0%	
Chromium	A	mg/L	0.0499	0.0499		0.05	0	0	0.0002538	0.001	1	100%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085480	CCV	ICPMS-6020-W-	CCV		3/11/2022 9:20:0	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Cobalt	A	mg/L	0.049	0.049		0.05	0	0	2.141E-05	0.001	1	98%	90	110	0%	
Copper	A	mg/L	0.05225	0.05225		0.05	0	0	0.0001748	0.001	1	104%	90	110	0%	
Iron	A	mg/L	1.323	1.323		1.3	0	0	0.0021157	0.00119	5	102%	90	110	0%	
Lanthanum	A	mg/L	0.05126	0.05126		0.05	0	0	6.805E-05	0.001	0.1	103%	90	110	0%	
Lead	A	mg/L	0.04806	0.04806		0.05	0	0	3.031E-05	0.001	1	96%	90	110	0%	
Magnesium	A	mg/L	12.76	12.76		12.5	0	0	0.0203306	0.00564	50	102%	90	110	0%	
Manganese	A	mg/L	0.05085	0.05085		0.05	0	0	7.309E-05	0.001	1	102%	90	110	0%	
Mercury	A	mg/L	0.0009948	0.0009948		0.001	0	0	3.043E-05	0.001	0.002	99%	90	110	0%	
Molybdenum	A	mg/L	0.04846	0.04846		0.05	0	0	8.113E-05	0.001	0.1	97%	90	110	0%	
Nickel	A	mg/L	0.05271	0.05271		0.05	0	0	0.0001769	0.001	1	105%	90	110	0%	
Potassium	A	mg/L	12.7	12.7		12.5	0	0	0.0215433	0.08139	50	102%	90	110	0%	
Selenium	A	mg/L	0.05222	0.05222		0.05	0	0	7.174E-05	0.001	1	104%	90	110	0%	
Silicon	A	mg/L	0.2101	0.2101		0.2	0	0	0.0033337	0.1	0.4	105%	90	110	0%	
Silver	A	mg/L	0.01947	0.01947		0.02	0	0	2.644E-05	0.001	0.04	97%	90	110	0%	
Sodium	A	mg/L	12.77	12.77		12.5	0	0	0.0451914	0.02171	50	102%	90	110	0%	
Strontium	A	mg/L	0.04987	0.04987		0.05	0	0	9.743E-05	0.001	1	100%	90	110	0%	
Thallium	A	mg/L	0.04771	0.04771		0.05	0	0	4.842E-05	0.001	1	95%	90	110	0%	
Thorium	A	mg/L	0.04923	0.04923		0.05	0	0	3.018E-05	0.001	1	98%	90	110	0%	
Tin	A	mg/L	0.04871	0.04871		0.05	0	0	0.0009928	0.00132	0.1	97%	90	110	0%	
Titanium	A	mg/L	0.04978	0.04978		0.05	0	0	0.0001004	0.001	1	100%	90	110	0%	
Uranium	A	mg/L	0.04707	0.04707		0.05	0	0	2.468E-05	0.0003	1	94%	90	110	0%	
Vanadium	A	mg/L	0.04834	0.04834		0.05	0	0	0.0018612	0.0013	1	97%	90	110	0%	
Zinc	A	mg/L	0.05221	0.05221		0.05	0	0	0.0010089	0.00273	1	104%	90	110	0%	
Iron, Ferrous	C	mg/L	1.323	1.323		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085481	CCB	ICPMS-6020-W-	CCB		3/11/2022 9:26:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	-3.397E-06	-3.397E-06		0	0	0	0.0017836	0.001	1	0%				0%
Antimony	A	mg/L	0.0003184	0.0003184		0	0	0	6.768E-05	0.001	0.1	0%				0%
Arsenic	A	mg/L	-0.0000139	-0.0000139		0	0	0	8.203E-05	0.001	1	0%				0%
Barium	A	mg/L	-1.376E-06	-1.376E-06		0	0	0	6.762E-05	0.001	1	0%				0%
Beryllium	A	mg/L	4.898E-06	4.898E-06		0	0	0	8.516E-05	0.001	1	0%				0%
Boron	A	mg/L	0.002962	0.002962		0	0	0	0.0039526	0.00561	1	0%				0%

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085481	CCB	ICPMS-6020-W-	CCB		3/11/2022 9:26:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Cadmium	A	mg/L	0.00001892	0.00001892		0	0	0	2.308E-05	0.001	1	0%			0%	
Calcium	A	mg/L	0.0001364	0.0001364		0	0	0	0.2027235	0.02092	50	0%			0%	
Cerium	A	mg/L	4.055E-07	4.055E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-1.826E-06	-1.826E-06		0	0	0	0.0002538	0.001	1	0%			0%	
Cobalt	A	mg/L	-6.541E-07	-6.541E-07		0	0	0	2.141E-05	0.001	1	0%			0%	
Copper	A	mg/L	0.00002429	0.00002429		0	0	0	0.0001748	0.001	1	0%			0%	
Iron	A	mg/L	0.00008821	0.00008821		0	0	0	0.0021157	0.00119	5	0%			0%	
Lanthanum	A	mg/L	-5.656E-08	-5.656E-08		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00001101	0.00001101		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	0.00007175	0.00007175		0	0	0	0.0203306	0.00564	50	0%			0%	
Manganese	A	mg/L	1.027E-06	1.027E-06		0	0	0	7.309E-05	0.001	1	0%			0%	
Mercury	A	mg/L	0.00000607	0.00000607		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.00003011	0.00003011		0	0	0	8.113E-05	0.001	0.1	0%			0%	
Nickel	A	mg/L	0.00001731	0.00001731		0	0	0	0.0001769	0.001	1	0%			0%	
Potassium	A	mg/L	0.006894	0.006894		0	0	0	0.0215433	0.08139	50	0%			0%	
Selenium	A	mg/L	0.000063	0.000063		0	0	0	7.174E-05	0.001	1	0%			0%	
Silicon	A	mg/L	0.00002953	0.00002953		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	2.671E-06	2.671E-06		0	0	0	2.644E-05	0.001	0.04	0%			0%	
Sodium	A	mg/L	0.005573	0.005573		0	0	0	0.0451914	0.02171	50	0%			0%	
Strontium	A	mg/L	-6.888E-06	-6.888E-06		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0001339	0.0001339		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00005058	0.00005058		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Tin	A	mg/L	0.00008764	0.00008764		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Titanium	A	mg/L	0.0001249	0.0001249		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00000236	0.00000236		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.001004	-0.001004		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	A	mg/L	-3.11E-06	-3.11E-06		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	
Iron, Ferrous	C	mg/L	0.00008821	0.00008821		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085482	Rinse	ICPMS-6020-W-	SAMP		3/11/2022 9:32:3	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085482	Rinse	ICPMS-6020-W-	SAMP		3/11/2022 9:32:3	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	-7.758E-06	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Arsenic	A	mg/L	-2.538E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	-6.767E-07	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-7.12E-08	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	0.00001374	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	-5.032E-08	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-9.79E-06	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-3.669E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.00002647	0		0	0	0	0.0001748	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	0.00001982	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	5.931E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	1.441E-06	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	6.208E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00000243	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-0.0000157	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.00003852	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	-0.0003844	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	1.384E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	-4.12E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00004751	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00001876	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Titanium	A	mg/L	0.00007431	0		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	7.761E-07	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Boron	B	mg/L	0.00188	0		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	L
Calcium	B	mg/L	0.0001823	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0.0000501	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.0000501	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.000124	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Potassium	B	mg/L	0.005313	0		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	L
Sodium	B	mg/L	0.00504	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	0.00002885	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Vanadium	B	mg/L	-0.001345	0		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	B	mg/L	-1.107E-06	0		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	L

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085483	LRB	ICPMS-6020-W-	MBLK		3/11/2022 9:38:5	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0003439	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Antimony	A	mg/L	0.00006601	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	4.665E-06	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	0.00000154	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	2.402E-06	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Boron	A	mg/L	0.001667	0		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	
Cadmium	A	mg/L	5.976E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Calcium	A	mg/L	0.003577	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	
Cerium	A	mg/L	8.706E-08	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00001433	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-1.263E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.00003561	0		0	0	0	0.0001748	0.001	1	0%	0	0	0%	
Iron	A	mg/L	0.0001535	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Lanthanum	A	mg/L	1.439E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	5.256E-06	0		0	0	0	3.031E-05	0.0005	1	0%	0	0	0%	
Magnesium	A	mg/L	0.000414	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	
Manganese	A	mg/L	5.234E-06	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	3.901E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	-6.388E-06	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-6.694E-06	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Potassium	A	mg/L	0.005878	0		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	
Selenium	A	mg/L	0.00003638	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	0.0007706	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	4.794E-07	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	0.005129	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	
Strontium	A	mg/L	-1.397E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00002876	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00001441	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Tin	A	mg/L	0.002562	0.002562		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Titanium	A	mg/L	0.00009835	0		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00000058	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.001191	0		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	A	mg/L	0.001029	0.001029		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	
Iron, Ferrous	C	mg/L	0.0001535	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085484	LFB	ICPMS-6020-W-	LFB-DOD		3/11/2022 9:45:0	1.03	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04986	0.0513558		0.05	0	0	0.0018371	0.001	1	103%	85	115	0%	
Antimony	A	mg/L	0.04846	0.0499138		0.05	0	0	6.971E-05	0.001	0.1	100%	85	115	0%	
Arsenic	A	mg/L	0.04861	0.0500683		0.05	0	0	8.449E-05	0.001	1	100%	85	115	0%	
Barium	A	mg/L	0.04798	0.0494194		0.05	0	0	6.965E-05	0.001	1	99%	85	115	0%	
Beryllium	A	mg/L	0.04784	0.0492752		0.05	0	0	8.771E-05	0.001	1	99%	85	115	0%	
Boron	A	mg/L	0.05152	0.0530656		0.05	0	0	0.0040712	0.0057783	1	106%	85	115	0%	
Cadmium	A	mg/L	0.04898	0.0504494		0.05	0	0	2.377E-05	0.001	1	101%	85	115	0%	
Calcium	A	mg/L	47.81	49.2443		50	0	0	0.2088052	0.0215476	50	98%	85	115	0%	
Cerium	A	mg/L	0.05073	0.0522519		0.05	0	0	2.287E-05	0.001	0.1	105%	85	115	0%	
Chromium	A	mg/L	0.04853	0.0499859		0.05	0	0	0.0002614	0.001	1	100%	85	115	0%	
Cobalt	A	mg/L	0.04839	0.0498417		0.05	0	0	2.205E-05	0.001	1	100%	85	115	0%	
Copper	A	mg/L	0.04935	0.0508305		0.05	0	0	0.0001801	0.001	1	102%	85	115	0%	
Iron	A	mg/L	4.886	5.03258		5.05	0	0	0.0021792	0.0012257	5	100%	85	115	0%	
Lanthanum	A	mg/L	0.05083	0.0523549		0.05	0	0	7.009E-05	0.001	0.1	105%	85	115	0%	
Lead	A	mg/L	0.04801	0.0494503		0.05	0	0	3.122E-05	0.001	1	99%	88	115	0%	
Magnesium	A	mg/L	48.11	49.5533		50	0	0	0.0209406	0.0058092	50	99%	85	115	0%	
Manganese	A	mg/L	0.04895	0.0504185		0.05	0	0	7.528E-05	0.001	1	101%	85	115	0%	
Mercury	A	mg/L	0.0009748	0.00100404		0.001	0	0	3.134E-05	0.001	0.002	100%	85	115	0%	
Molybdenum	A	mg/L	0.04897	0.0504391		0.05	0	0	8.356E-05	0.001	0.1	101%	85	115	0%	
Nickel	A	mg/L	0.04999	0.0514897		0.05	0	0	0.0001822	0.001	1	103%	85	115	0%	
Potassium	A	mg/L	47.44	48.8632		50	0	0	0.0221896	0.0838317	50	98%	85	115	0%	
Selenium	A	mg/L	0.05003	0.0515309		0.05	0	0	7.389E-05	0.001	1	103%	85	115	0%	
Silicon	A	mg/L	0.1941	0.199923		0.2	0	0	0.0034337	0.1	0.4	100%	85	115	0%	
Silver	A	mg/L	0.01908	0.0196524		0.02	0	0	2.723E-05	0.001	0.04	98%	85	115	0%	
Sodium	A	mg/L	47.47	48.8941		50	0	0	0.0465471	0.0223613	50	98%	85	115	0%	
Strontium	A	mg/L	0.0483	0.049749		0.05	0	0	0.0001004	0.001	1	99%	85	115	0%	
Thallium	A	mg/L	0.04807	0.0495121		0.05	0	0	4.987E-05	0.001	1	99%	85	115	0%	
Thorium	A	mg/L	0.04849	0.0499447		0.05	0	0	3.109E-05	0.001	1	100%	85	115	0%	
Tin	A	mg/L	0.05238	0.0539514		0.05	0	0	0.0010226	0.0013596	0.1	108%	85	115	0%	
Titanium	A	mg/L	0.05308	0.0546724		0.05	0	0	0.0001034	0.001	1	109%	85	115	0%	
Uranium	A	mg/L	0.0486	0.050058		0.05	0	0	2.542E-05	0.0003	1	100%	85	115	0%	
Vanadium	A	mg/L	0.048	0.04944		0.05	0	0	0.001917	0.001339	1	99%	85	115	0%	
Zinc	A	mg/L	0.05005	0.0515515		0.05	0	0	0.0010392	0.0028119	1	103%	85	115	0%	
Iron, Ferrous	C	mg/L	4.886	5.03258		0	0	0	0.0021792	0.0012257	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085485	ICSA	ICPMS-6020-W-	ICSA		3/11/2022 9:51:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	37.95	37.95		40	0	0	0.0017836	0.001	1	95%	80	120	0%	
Antimony	A	mg/L	0.0003156	0.0003156		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	0.00003381	0.00003381		0	0	0	8.203E-05	0.001	1	0%			0%	
Barium	A	mg/L	0.0001588	0.0001588		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	-1.114E-05	-1.114E-05		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	0.001532	0.001532		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	0.0000986	0.0000986		0	0	0	2.308E-05	0.001	1	0%			0%	
Calcium	A	mg/L	122.3	122.3		120	0	0	0.2027235	0.02092	50	102%	80	120	0%	
Cerium	A	mg/L	8.566E-06	8.566E-06		0	0	0	0.0000222	0.001	0.1	0%			0%	
Chromium	A	mg/L	0.001807	0.001807		0	0	0	0.0002538	0.001	1	0%			0%	
Cobalt	A	mg/L	0.0002633	0.0002633		0	0	0	2.141E-05	0.001	1	0%			0%	
Copper	A	mg/L	0.0002255	0.0002255		0	0	0	0.0001748	0.001	1	0%			0%	
Iron	A	mg/L	102.9	102.9		100	0	0	0.0021157	0.00119	5	103%	80	120	0%	
Lanthanum	A	mg/L	5.008E-06	5.008E-06		0	0	0	6.805E-05	0.001	0.1	0%			0%	
Lead	A	mg/L	0.00004637	0.00004637		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	41	41		50	0	0	0.0203306	0.00564	50	82%			0%	
Manganese	A	mg/L	0.0002943	0.0002943		0	0	0	7.309E-05	0.001	1	0%			0%	
Mercury	A	mg/L	4.701E-06	4.701E-06		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.79	0.79		0.8	0	0	8.113E-05	0.001	0.1	99%	80	120	0%	
Nickel	A	mg/L	0.0001439	0.0001439		0	0	0	0.0001769	0.001	1	0%			0%	
Potassium	A	mg/L	40.12	40.12		50	0	0	0.0215433	0.08139	50	80%			0%	
Selenium	A	mg/L	0.0005686	0.0005686		0	0	0	7.174E-05	0.001	1	0%			0%	
Silicon	A	mg/L	0.003258	0.003258		0	0	0	0.0033337	0.1	0.4	0%			0%	
Silver	A	mg/L	0.00001284	0.00001284		0	0	0	2.644E-05	0.001	0.04	0%			0%	
Sodium	A	mg/L	100.8	100.8		100	0	0	0.0451914	0.02171	50	101%			0%	
Strontium	A	mg/L	0.001009	0.001009		0	0	0	9.743E-05	0.001	1	0%			0%	
Thallium	A	mg/L	0.00004737	0.00004737		0	0	0	4.842E-05	0.001	1	0%			0%	
Thorium	A	mg/L	0.00006692	0.00006692		0	0	0	3.018E-05	0.001	1	0%			0%	
Tin	A	mg/L	0.0002335	0.0002335		0	0	0	0.0009928	0.00132	0.1	0%			0%	
Titanium	A	mg/L	0.7856	0.7856		0.8	0	0	0.0001004	0.001	1	98%			0%	
Uranium	A	mg/L	0.0000211	0.0000211		0	0	0	2.468E-05	0.0003	1	0%			0%	
Vanadium	A	mg/L	-0.002682	-0.002682		0	0	0	0.0018612	0.0013	1	0%			0%	
Zinc	A	mg/L	0.0007107	0.0007107		0	0	0	0.0010089	0.00273	1	0%			0%	
Iron, Ferrous	C	mg/L	102.9	102.9		0	0	0	0.0021157	0.00119	5	0%			0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085486	ICSAB	ICPMS-6020-W- ICSAB			3/11/2022 9:57:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	36.65	36.65		40	0	0	0.0017836	0.001	1	92%	80	120	0%	
Antimony	A	mg/L	0.0001396	0.0001396		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	0.009857	0.009857		0.01	0	0	8.203E-05	0.001	1	99%	80	120	0%	
Barium	A	mg/L	0.0001638	0.0001638		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	-1.746E-05	-1.746E-05		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	0.001002	0.001002		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	0.00952	0.00952		0.01	0	0	2.308E-05	0.001	1	95%	80	120	0%	
Calcium	A	mg/L	121.1	121.1		120	0	0	0.2027235	0.02092	50	101%	80	120	0%	
Cerium	A	mg/L	9.319E-06	9.319E-06		0	0	0	0.0000222	0.001	0.1	0%			0%	
Chromium	A	mg/L	0.02128	0.02128		0.02	0	0	0.0002538	0.001	1	106%	80	120	0%	
Cobalt	A	mg/L	0.01928	0.01928		0.02	0	0	2.141E-05	0.001	1	96%	80	120	0%	
Copper	A	mg/L	0.01978	0.01978		0.02	0	0	0.0001748	0.001	1	99%	80	120	0%	
Iron	A	mg/L	101.9	101.9		100	0	0	0.0021157	0.00119	5	102%	80	120	0%	
Lanthanum	A	mg/L	5.829E-06	5.829E-06		0	0	0	6.805E-05	0.001	0.1	0%			0%	
Lead	A	mg/L	0.00004554	0.00004554		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	40.42	40.42		40	0	0	0.0203306	0.00564	50	101%	80	120	0%	
Manganese	A	mg/L	0.01985	0.01985		0.02	0	0	7.309E-05	0.001	1	99%	80	120	0%	
Mercury	A	mg/L	5.913E-06	5.913E-06		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.7963	0.7963		0.8	0	0	8.113E-05	0.001	0.1	100%	80	120	0%	
Nickel	A	mg/L	0.02007	0.02007		0.02	0	0	0.0001769	0.001	1	100%	80	120	0%	
Potassium	A	mg/L	39.58	39.58		40	0	0	0.0215433	0.08139	50	99%	80	120	0%	
Selenium	A	mg/L	0.01098	0.01098		0.01	0	0	7.174E-05	0.001	1	110%	80	120	0%	
Silicon	A	mg/L	0.003729	0.003729		0	0	0	0.0033337	0.1	0.4	0%			0%	
Silver	A	mg/L	0.004646	0.004646		0.005	0	0	2.644E-05	0.001	0.04	93%	80	120	0%	
Sodium	A	mg/L	99.09	99.09		100	0	0	0.0451914	0.02171	50	99%	80	120	0%	
Strontium	A	mg/L	0.0009757	0.0009757		0	0	0	9.743E-05	0.001	1	0%			0%	
Thallium	A	mg/L	0.00002055	0.00002055		0	0	0	4.842E-05	0.001	1	0%			0%	
Thorium	A	mg/L	0.00002943	0.00002943		0	0	0	3.018E-05	0.001	1	0%			0%	
Tin	A	mg/L	0.0001863	0.0001863		0	0	0	0.0009928	0.00132	0.1	0%			0%	
Titanium	A	mg/L	0.7887	0.7887		0.8	0	0	0.0001004	0.001	1	99%	80	120	0%	
Uranium	A	mg/L	0.00002026	0.00002026		0	0	0	2.468E-05	0.0003	1	0%			0%	
Vanadium	A	mg/L	0.01631	0.01631		0.02	0	0	0.0018612	0.0013	1	82%	80	120	0%	
Zinc	A	mg/L	0.01052	0.01052		0.01	0	0	0.0010089	0.00273	1	105%	80	120	0%	
Iron, Ferrous	C	mg/L	101.9	101.9		0	0	0	0.0021157	0.00119	5	0%			0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085487	Rinse	ICPMS-6020-W-	SAMP		3/11/2022 10:03:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001268	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Arsenic	A	mg/L	-0.0000809	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	-1.494E-06	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.424E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	8.354E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	3.122E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-1.759E-05	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-1.606E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.00006965	0		0	0	0	0.0001748	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	-5.798E-08	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	1.535E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	-9.709E-07	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	1.713E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.0002826	0.0002826		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	-2.777E-05	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.0001216	0.0001216		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silicon	A	mg/L	-0.0004611	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	9.372E-07	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	-7.532E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00001345	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	8.102E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Titanium	A	mg/L	0.0005695	0.0005695		0	0	0	0.0001004	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	9.812E-07	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Boron	B	mg/L	0.000311	0		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	L
Calcium	B	mg/L	0.001939	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0.001326	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.001326	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.00168	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Potassium	B	mg/L	0.008378	0		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	L
Sodium	B	mg/L	0.03684	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	0.00001306	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Vanadium	B	mg/L	-0.002488	0		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	B	mg/L	-9.349E-06	0		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	L

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085488	Rinse	ICPMS-6020-W-	SAMP		3/11/2022 10:10:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001221	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Arsenic	A	mg/L	-7.851E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	1.144E-06	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-0.0000152	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	6.532E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	-5.39E-08	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-1.826E-05	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-2.96E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.00004893	0		0	0	0	0.0001748	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	-2.091E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	1.841E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	-1.466E-06	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	3.097E-07	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00006466	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-1.949E-05	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.00007396	0.00007396		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silicon	A	mg/L	-0.0004668	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	6.898E-07	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	-4.61E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00001108	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	5.906E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Titanium	A	mg/L	0.000283	0.000283		0	0	0	0.0001004	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	4.674E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Boron	B	mg/L	0.000374	0		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	L
Calcium	B	mg/L	0.001561	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0.000773	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.000773	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.001709	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Potassium	B	mg/L	0.001827	0		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	L
Sodium	B	mg/L	0.02387	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	7.961E-06	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Vanadium	B	mg/L	-0.002441	0		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	B	mg/L	7.157E-06	0		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	L

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085489	CCV	ICPMS-6020-W-	CCV		3/11/2022 10:16:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04934	0.04934		0.05	0	0	0.0017836	0.001	1	99%	90	110	0%	
Antimony	A	mg/L	0.04974	0.04974		0.05	0	0	6.768E-05	0.001	0.1	99%	90	110	0%	
Arsenic	A	mg/L	0.04987	0.04987		0.05	0	0	8.203E-05	0.001	1	100%	90	110	0%	
Barium	A	mg/L	0.04983	0.04983		0.05	0	0	6.762E-05	0.001	1	100%	90	110	0%	
Beryllium	A	mg/L	0.04576	0.04576		0.05	0	0	8.516E-05	0.001	1	92%	90	110	0%	
Boron	A	mg/L	0.04824	0.04824		0.05	0	0	0.0039526	0.00561	1	96%	90	110	0%	
Cadmium	A	mg/L	0.05118	0.05118		0.05	0	0	2.308E-05	0.001	1	102%	90	110	0%	
Calcium	A	mg/L	12.76	12.76		12.5	0	0	0.2027235	0.02092	50	102%	90	110	0%	
Cerium	A	mg/L	0.05106	0.05106		0.05	0	0	0.0000222	0.001	0.1	102%	90	110	0%	
Chromium	A	mg/L	0.04891	0.04891		0.05	0	0	0.0002538	0.001	1	98%	90	110	0%	
Cobalt	A	mg/L	0.04973	0.04973		0.05	0	0	2.141E-05	0.001	1	99%	90	110	0%	
Copper	A	mg/L	0.05163	0.05163		0.05	0	0	0.0001748	0.001	1	103%	90	110	0%	
Iron	A	mg/L	1.325	1.325		1.3	0	0	0.0021157	0.00119	5	102%	90	110	0%	
Lanthanum	A	mg/L	0.05093	0.05093		0.05	0	0	6.805E-05	0.001	0.1	102%	90	110	0%	
Lead	A	mg/L	0.04871	0.04871		0.05	0	0	3.031E-05	0.001	1	97%	90	110	0%	
Magnesium	A	mg/L	12.61	12.61		12.5	0	0	0.0203306	0.00564	50	101%	90	110	0%	
Manganese	A	mg/L	0.0503	0.0503		0.05	0	0	7.309E-05	0.001	1	101%	90	110	0%	
Mercury	A	mg/L	0.0009931	0.0009931		0.001	0	0	3.043E-05	0.001	0.002	99%	90	110	0%	
Molybdenum	A	mg/L	0.04893	0.04893		0.05	0	0	8.113E-05	0.001	0.1	98%	90	110	0%	
Nickel	A	mg/L	0.05242	0.05242		0.05	0	0	0.0001769	0.001	1	105%	90	110	0%	
Potassium	A	mg/L	12.12	12.12		12.5	0	0	0.0215433	0.08139	50	97%	90	110	0%	
Selenium	A	mg/L	0.05293	0.05293		0.05	0	0	7.174E-05	0.001	1	106%	90	110	0%	
Silicon	A	mg/L	0.2005	0.2005		0.2	0	0	0.0033337	0.1	0.4	100%	90	110	0%	
Silver	A	mg/L	0.01977	0.01977		0.02	0	0	2.644E-05	0.001	0.04	99%	90	110	0%	
Sodium	A	mg/L	12.56	12.56		12.5	0	0	0.0451914	0.02171	50	100%	90	110	0%	
Strontium	A	mg/L	0.04919	0.04919		0.05	0	0	9.743E-05	0.001	1	98%	90	110	0%	
Thallium	A	mg/L	0.0481	0.0481		0.05	0	0	4.842E-05	0.001	1	96%	90	110	0%	
Thorium	A	mg/L	0.04857	0.04857		0.05	0	0	3.018E-05	0.001	1	97%	90	110	0%	
Tin	A	mg/L	0.04985	0.04985		0.05	0	0	0.0009928	0.00132	0.1	100%	90	110	0%	
Titanium	A	mg/L	0.04855	0.04855		0.05	0	0	0.0001004	0.001	1	97%	90	110	0%	
Uranium	A	mg/L	0.04807	0.04807		0.05	0	0	2.468E-05	0.0003	1	96%	90	110	0%	
Vanadium	A	mg/L	0.04701	0.04701		0.05	0	0	0.0018612	0.0013	1	94%	90	110	0%	
Zinc	A	mg/L	0.05164	0.05164		0.05	0	0	0.0010089	0.00273	1	103%	90	110	0%	
Iron, Ferrous	C	mg/L	1.325	1.325		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085490	CCB	ICPMS-6020-W-	CCB		3/11/2022 10:22:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.00005612	0.00005612		0	0	0	0.0017836	0.001	1	0%			0%	
Antimony	A	mg/L	0.0002513	0.0002513		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	-4.837E-05	-4.837E-05		0	0	0	8.203E-05	0.001	1	0%			0%	
Barium	A	mg/L	-1.395E-06	-1.395E-06		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	-7.663E-06	-7.663E-06		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	0.0006201	0.0006201		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	9.774E-06	9.774E-06		0	0	0	2.308E-05	0.001	1	0%			0%	
Calcium	A	mg/L	-2.576E-05	-2.576E-05		0	0	0	0.2027235	0.02092	50	0%			0%	
Cerium	A	mg/L	8.623E-08	8.623E-08		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-1.216E-05	-1.216E-05		0	0	0	0.0002538	0.001	1	0%			0%	
Cobalt	A	mg/L	-2.204E-06	-2.204E-06		0	0	0	2.141E-05	0.001	1	0%			0%	
Copper	A	mg/L	0.0000352	0.0000352		0	0	0	0.0001748	0.001	1	0%			0%	
Iron	A	mg/L	0.0003864	0.0003864		0	0	0	0.0021157	0.00119	5	0%			0%	
Lanthanum	A	mg/L	-1.554E-07	-1.554E-07		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	4.711E-06	4.711E-06		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	0.0001662	0.0001662		0	0	0	0.0203306	0.00564	50	0%			0%	
Manganese	A	mg/L	-5.05E-06	-5.05E-06		0	0	0	7.309E-05	0.001	1	0%			0%	
Mercury	A	mg/L	2.042E-06	2.042E-06		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.00003895	0.00003895		0	0	0	8.113E-05	0.001	0.1	0%			0%	
Nickel	A	mg/L	-2.878E-05	-2.878E-05		0	0	0	0.0001769	0.001	1	0%			0%	
Potassium	A	mg/L	0.003747	0.003747		0	0	0	0.0215433	0.08139	50	0%			0%	
Selenium	A	mg/L	0.00007536	0.00007536		0	0	0	7.174E-05	0.001	1	0%			0%	
Silicon	A	mg/L	-0.0006493	-0.0006493		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	1.138E-06	1.138E-06		0	0	0	2.644E-05	0.001	0.04	0%			0%	
Sodium	A	mg/L	0.01484	0.01484		0	0	0	0.0451914	0.02171	50	0%			0%	
Strontium	A	mg/L	0.00003418	0.00003418		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00009383	0.00009383		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00003275	0.00003275		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Tin	A	mg/L	0.00007727	0.00007727		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Titanium	A	mg/L	0.0001259	0.0001259		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	1.696E-06	1.696E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.00126	-0.00126		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	A	mg/L	0.00001852	0.00001852		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	
Iron, Ferrous	C	mg/L	0.0003864	0.0003864		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085491	MB-164321	ICPMS-6020-W- MBLK				3/11/2022 10:28:	1	164321	3/8/2022 2:1	0	0					
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001179	0		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	
Antimony	A	mg/L	0.0000918	0		0	0	0	0.0002485	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	1.046E-07	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Barium	A	mg/L	0.00009545	0		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.362E-05	0		0	0	0	0.0001071	0.01	1	0%	0	0	0%	
Boron	A	mg/L	0.0005987	0		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	
Cadmium	A	mg/L	5.799E-06	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	
Calcium	A	mg/L	0.04308	0.04308		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	
Cerium	A	mg/L	1.112E-06	0		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00001388	0		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	
Cobalt	A	mg/L	3.475E-06	0		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.00009584	0		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	
Iron	A	mg/L	0.001688	0		0	0	0	0.007424	0.00513	5	0%	0	0	0%	
Lanthanum	A	mg/L	1.162E-06	0		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00001221	0		0	0	0	5.246E-05	0.0005	1	0%	0	0	0%	
Magnesium	A	mg/L	0.001087	0		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	
Manganese	A	mg/L	0.00002321	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.00002716	0		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	7.153E-06	0		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	
Potassium	A	mg/L	0.001805	0		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	
Selenium	A	mg/L	0.00006917	0.00006917		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	0.01238	0		0	0	0	0.0218797	0.0053212	0.4	0%	0	0	0%	
Silver	A	mg/L	-2.342E-07	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	0.01272	0		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	
Strontium	A	mg/L	0.00003064	0		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00003876	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00004207	0		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	
Tin	A	mg/L	0.0002713	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	
Titanium	A	mg/L	0.0003295	0		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	1.079E-06	0		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.001268	0		0	0	0	0.0012418	0.0021085	1	0%	0	0	0%	
Zinc	A	mg/L	0.0001456	0		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	
Silica	C	mg/L	0.0264833	0		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	0.0264833	0		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085492	MB-164435	ICPMS-6020-W-	MBLK		3/11/2022 10:35:	1	164435	3/11/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001588	0		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	
Antimony	A	mg/L	0.00005486	0		0	0	0	0.0002485	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-5.998E-05	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Barium	A	mg/L	0.00009277	0		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.148E-05	0		0	0	0	0.0001071	0.01	1	0%	0	0	0%	
Boron	A	mg/L	0.000641	0		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	
Cadmium	A	mg/L	3.679E-06	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	
Calcium	A	mg/L	0.06467	0.06467		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	
Cerium	A	mg/L	1.599E-06	0		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00003138	0		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	
Cobalt	A	mg/L	0.00003247	0		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.0001376	0		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	
Iron	A	mg/L	0.002236	0		0	0	0	0.007424	0.00513	5	0%	0	0	0%	
Lanthanum	A	mg/L	5.205E-07	0		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00003281	0		0	0	0	5.246E-05	0.0005	1	0%	0	0	0%	
Magnesium	A	mg/L	0.001213	0		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	
Manganese	A	mg/L	0.00007268	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.00003293	0		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	9.937E-06	0		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	
Potassium	A	mg/L	-0.002185	0		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	
Selenium	A	mg/L	0.00005086	0		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	0.02651	0.02651		0	0	0	0.0218797	0.0053212	0.4	0%	0	0	0%	
Silver	A	mg/L	1.017E-06	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	0.01061	0		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	
Strontium	A	mg/L	0.00004701	0		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00003523	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00004281	0		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	
Tin	A	mg/L	0.0002858	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	
Titanium	A	mg/L	0.0003965	0		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	7.656E-07	0		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.001799	0		0	0	0	0.0012418	0.0021085	1	0%	0	0	0%	
Zinc	A	mg/L	0.0001162	0		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	
Silica	C	mg/L	0.05671019	0.05671019		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	0.05671019	0.05671019		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085493	LCS4-164321	ICPMS-6020-W-	LCS4-DOD		3/11/2022 10:41:	1	164321	3/8/2022 2:1	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.4502	0.4502		0.5	0	0	0.0029215	0.0031975	1	90%	80	120	0%	
Antimony	A	mg/L	0.09571	0.09571		0.1	0	0	0.0002485	0.001	0.1	96%	80	120	0%	
Arsenic	A	mg/L	0.0961	0.0961		0.1	0	0	0.0002595	0.001	1	96%	80	120	0%	
Barium	A	mg/L	0.08856	0.08856		0.1	0	0	0.0001041	0.001	1	89%	80	120	0%	
Beryllium	A	mg/L	0.04178	0.04178		0.05	0	0	0.0001071	0.01	1	84%	80	120	0%	
Boron	A	mg/L	0.08881	0.08881		0.1	0	0	0.0030301	0.01467	1	89%	80	120	0%	
Cadmium	A	mg/L	0.05056	0.05056		0.05	0	0	0.0000141	0.005	1	101%	80	120	0%	
Calcium	A	mg/L	4.92	4.92		5	0	0	0.0372936	0.1103481	50	98%	80	120	0%	
Cerium	A	mg/L	0.1047	0.1047		0.1	0	0	0.0000087	0.001	0.1	105%	80	120	0%	
Chromium	A	mg/L	0.09823	0.09823		0.1	0	0	0.0005265	0.0015375	1	98%	80	120	0%	
Cobalt	A	mg/L	0.09746	0.09746		0.1	0	0	8.402E-05	0.001	1	97%	80	120	0%	
Copper	A	mg/L	0.1045	0.1045		0.1	0	0	0.0005744	0.00198	1	104%	80	120	0%	
Iron	A	mg/L	0.5029	0.5029		0.5	0	0	0.007424	0.00513	5	101%	80	120	0%	
Lanthanum	A	mg/L	0.1044	0.1044		0.1	0	0	1.105E-05	0.001	0.1	104%	80	120	0%	
Lead	A	mg/L	0.09498	0.09498		0.1	0	0	5.246E-05	0.001	1	95%	88	115	0%	
Magnesium	A	mg/L	5.01	5.01		5	0	0	0.0686349	0.0081522	50	100%	80	120	0%	
Manganese	A	mg/L	0.4933	0.4933		0.5	0	0	0.0002595	0.001	1	99%	80	120	0%	
Molybdenum	A	mg/L	0.09168	0.09168		0.1	0	0	0.0000966	0.001	0.1	92%	80	120	0%	
Nickel	A	mg/L	0.1044	0.1044		0.1	0	0	0.0002388	0.0024200	1	104%	80	120	0%	
Potassium	A	mg/L	4.768	4.768		5	0	0	0.0289412	0.0261205	50	95%	80	120	0%	
Selenium	A	mg/L	0.09844	0.09844		0.1	0	0	6.251E-05	0.001	1	98%	80	120	0%	
Silicon	A	mg/L	0.9607	0.9607		1	0	0	0.0218797	0.0053212	0.4	96%	80	120	0%	
Silver	A	mg/L	0.009228	0.009228		0.01	0	0	2.318E-05	0.001	0.04	92%	80	120	0%	
Sodium	A	mg/L	4.981	4.981		5	0	0	0.0721517	0.7330269	50	100%	80	120	0%	
Strontium	A	mg/L	0.1006	0.1006		0.1	0	0	7.178E-05	0.001	1	101%	80	120	0%	
Thallium	A	mg/L	0.09867	0.09867		0.1	0	0	0.0001114	0.001	1	99%	80	120	0%	
Thorium	A	mg/L	0.09584	0.09584		0.1	0	0	5.898E-05	0.00415	1	96%	80	120	0%	
Tin	A	mg/L	0.09344	0.09344		0.1	0	0	0.0018932	0.0011175	0.1	93%	80	120	0%	
Titanium	A	mg/L	0.0911	0.0911		0.1	0	0	0.0004924	0.001	1	91%	80	120	0%	
Uranium	A	mg/L	0.09454	0.09454		0.1	0	0	1.084E-05	0.0003	1	95%	80	120	0%	
Vanadium	A	mg/L	0.08132	0.08132		0.1	0	0	0.0012418	0.0021085	1	81%	80	120	0%	
Zinc	A	mg/L	0.1	0.1		0.1	0	0	0.0011617	0.0065544	1	100%	80	120	0%	
Silica	C	mg/L	2.05512944	2.05512944		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	2.05512944	2.05512944		2.14	0	0	0.0468049	0.0113831	5	96%	80	120	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085494	LCS4-164435	ICPMS-6020-W-	LCS4-DOD		3/11/2022 10:47:	1	164435	3/11/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.4347	0.4347		0.5	0	0	0.0029215	0.0031975	1	87%	80	120	0%	
Antimony	A	mg/L	0.09765	0.09765		0.1	0	0	0.0002485	0.001	0.1	98%	80	120	0%	
Arsenic	A	mg/L	0.09293	0.09293		0.1	0	0	0.0002595	0.001	1	93%	80	120	0%	
Barium	A	mg/L	0.08825	0.08825		0.1	0	0	0.0001041	0.001	1	88%	80	120	0%	
Beryllium	A	mg/L	0.03901	0.03901		0.05	0	0	0.0001071	0.01	1	78%	80	120	0%	S
Boron	A	mg/L	0.0883	0.0883		0.1	0	0	0.0030301	0.01467	1	88%	80	120	0%	
Cadmium	A	mg/L	0.04973	0.04973		0.05	0	0	0.0000141	0.005	1	99%	80	120	0%	
Calcium	A	mg/L	4.851	4.851		5	0	0	0.0372936	0.1103481	50	97%	80	120	0%	
Cerium	A	mg/L	0.1033	0.1033		0.1	0	0	0.0000087	0.001	0.1	103%	80	120	0%	
Chromium	A	mg/L	0.09758	0.09758		0.1	0	0	0.0005265	0.0015375	1	98%	80	120	0%	
Cobalt	A	mg/L	0.09496	0.09496		0.1	0	0	8.402E-05	0.001	1	95%	80	120	0%	
Copper	A	mg/L	0.1124	0.1124		0.1	0	0	0.0005744	0.00198	1	112%	80	120	0%	
Iron	A	mg/L	0.5016	0.5016		0.5	0	0	0.007424	0.00513	5	100%	80	120	0%	
Lanthanum	A	mg/L	0.1028	0.1028		0.1	0	0	1.105E-05	0.001	0.1	103%	80	120	0%	
Lead	A	mg/L	0.09264	0.09264		0.1	0	0	5.246E-05	0.001	1	93%	88	115	0%	
Magnesium	A	mg/L	4.93	4.93		5	0	0	0.0686349	0.0081522	50	99%	80	120	0%	
Manganese	A	mg/L	0.4904	0.4904		0.5	0	0	0.0002595	0.001	1	98%	80	120	0%	
Molybdenum	A	mg/L	0.09604	0.09604		0.1	0	0	0.0000966	0.001	0.1	96%	80	120	0%	
Nickel	A	mg/L	0.1025	0.1025		0.1	0	0	0.0002388	0.0024200	1	102%	80	120	0%	
Potassium	A	mg/L	4.609	4.609		5	0	0	0.0289412	0.0261205	50	92%	80	120	0%	
Selenium	A	mg/L	0.09489	0.09489		0.1	0	0	6.251E-05	0.001	1	95%	80	120	0%	
Silicon	A	mg/L	0.989	0.989		1	0	0	0.0218797	0.0053212	0.4	99%	80	120	0%	
Silver	A	mg/L	0.008996	0.008996		0.01	0	0	2.318E-05	0.001	0.04	90%	80	120	0%	
Sodium	A	mg/L	4.882	4.882		5	0	0	0.0721517	0.7330269	50	98%	80	120	0%	
Strontium	A	mg/L	0.09862	0.09862		0.1	0	0	7.178E-05	0.001	1	99%	80	120	0%	
Thallium	A	mg/L	0.09783	0.09783		0.1	0	0	0.0001114	0.001	1	98%	80	120	0%	
Thorium	A	mg/L	0.0971	0.0971		0.1	0	0	5.898E-05	0.00415	1	97%	80	120	0%	
Tin	A	mg/L	0.1026	0.1026		0.1	0	0	0.0018932	0.0011175	0.1	103%	80	120	0%	
Titanium	A	mg/L	0.09557	0.09557		0.1	0	0	0.0004924	0.001	1	96%	80	120	0%	
Uranium	A	mg/L	0.09522	0.09522		0.1	0	0	1.084E-05	0.0003	1	95%	80	120	0%	
Vanadium	A	mg/L	0.0935	0.0935		0.1	0	0	0.0012418	0.0021085	1	93%	80	120	0%	
Zinc	A	mg/L	0.09648	0.09648		0.1	0	0	0.0011617	0.0065544	1	96%	80	120	0%	
Silica	C	mg/L	2.1156688	2.1156688		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	2.1156688	2.1156688		2.14	0	0	0.0468049	0.0113831	5	99%	80	120	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085495	Rinse	ICPMS-6020-W-	SAMP		3/11/2022 10:53:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.00004246	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Arsenic	A	mg/L	-5.555E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	6.948E-07	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-0.0000126	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Boron	A	mg/L	0.0003264	0		0	0	0	0.0039526	0.0036397	1	0%	0	0	0%	L
Cadmium	A	mg/L	6.138E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Calcium	A	mg/L	0.001006	0		0	0	0	0.2027235	0.0254163	50	0%	0	0	0%	L
Cerium	A	mg/L	4.897E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-1.054E-05	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-1.983E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.0000572	0		0	0	0	0.0001748	0.001	1	0%	0	0	0%	
Iron	A	mg/L	0.0002124	0		0	0	0	0.0021157	0.0021231	5	0%	0	0	0%	L
Lanthanum	A	mg/L	2.884E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	7.918E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Magnesium	A	mg/L	0.0001536	0		0	0	0	0.0203306	0.0084694	50	0%	0	0	0%	L
Manganese	A	mg/L	0.00001251	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	1.534E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00001453	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-1.558E-05	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Potassium	A	mg/L	-0.005153	0		0	0	0	0.0215433	0.0951865	50	0%	0	0	0%	L
Selenium	A	mg/L	0.00004005	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silver	A	mg/L	2.481E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	0.008651	0		0	0	0	0.0451914	0.0321039	50	0%	0	0	0%	L
Strontium	A	mg/L	-6.23E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0001269	0.0001269		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00005279	0.00005279		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Tin	A	mg/L	0.00004439	0		0	0	0	0.0009928	0.0021596	0.1	0%	0	0	0%	L
Titanium	A	mg/L	0.00007427	0		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.0000022	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.001666	0		0	0	0	0.0018612	0.004194	1	0%	0	0	0%	L
Zinc	A	mg/L	0.0003301	0		0	0	0	0.0010089	0.001	1	0%	0	0	0%	
Lithium	B	mg/L	0.0004337	0		0	0	0	0.0017415	0.05	1	0%	0	0	0%	L
Iron, Ferrous	C	mg/L	0.0002124	0		0	0	0	0.0021157	0.0021231	5	0%	0	0	0%	L

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085496	B22030502-001	ICPMS-6020-W-	SAMP		3/11/2022 11:00:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001718	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	U
Arsenic	A	mg/L	0.001195	0.001195		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	0.0644	0.0644		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.473E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	U
Cadmium	A	mg/L	0.00001787	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	2.234E-06	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.01005	0.01005		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0.0007758	0.0007758		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Copper	A	mg/L	0.0007351	0.0007351		0	0	0	0.0001748	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	1.798E-06	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00005354	0.00005354		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.001654	0.001654		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	0.00003304	0.00003304		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	J
Molybdenum	A	mg/L	0.0009582	0.0009582		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.05384	0.05384		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.00494	0.00494		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silver	A	mg/L	0.00001659	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Thallium	A	mg/L	0.00006602	0.00006602		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00002261	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.003379	0.003379		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00008315	0.00008315		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	J
Boron	B	mg/L	0.04404	0.04404		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	D
Iron	B	mg/L	0.009818	0.009818		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.009818	0.009818		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Potassium	B	mg/L	7.238	7.238		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	D
Tin	B	mg/L	-2.061E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.001655	0.001655		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	JL

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085497	B22030502-001	ICPMS-6020-W-	SD		3/11/2022 11:06:	5	R376031		0	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0009005	0		0	0	0	0.0089181	0.0043	1	0%				
Antimony	A	mg/L	0.0001622	0.000811		0	0	0.0002778	0.0003384	0.0021	0.1	0%				N
Arsenic	A	mg/L	0.0002976	0.001488		0	0	0.001195	0.0004102	0.001	1	0%				N

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085497	B22030502-001	ICPMS-6020-W-	SD		3/11/2022 11:06:	5	R376031			0	2E+07					
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Barium	A	mg/L	0.01324	0.0662		0	0	0.0644	0.0003381	0.001	1	0%			3%	
Beryllium	A	mg/L	-0.0000183	0		0	0	0	0.0004258	0.001	1	0%				
Boron	A	mg/L	0.01009	0.05045		0	0	0.04404	0.0197631	0.02805	1	0%				N
Cadmium	A	mg/L	3.447E-06	0		0	0	0	0.0001154	0.001	1	0%				
Calcium	A	mg/L	30.9	154.5		0	0	149.4	1.0136175	0.1046	50	0%			3%	
Cerium	A	mg/L	8.047E-07	0		0	0	0	0.000111	0.001	0.1	0%				
Chromium	A	mg/L	0.002059	0.010295		0	0	0.01005	0.001269	0.001	1	0%				N
Cobalt	A	mg/L	0.0001707	0.0008535		0	0	0.0007758	0.0001071	0.001	1	0%				N
Copper	A	mg/L	0.0002813	0.0014065		0	0	0.0007351	0.0008742	0.00135	1	0%				N
Iron	A	mg/L	0.005036	0.02518		0	0	0.009818	0.0105787	0.00595	5	0%				N
Lanthanum	A	mg/L	1.829E-06	0		0	0	0	0.0003403	0.001	0.1	0%				
Lead	A	mg/L	0.00001983	0		0	0	5.354E-05	0.0001516	0.001	1	0%				
Magnesium	A	mg/L	50.76	253.8		0	0	246.8	0.1016532	0.0282	50	0%			3%	
Manganese	A	mg/L	0.0003646	0.001823		0	0	0.001654	0.0003655	0.001	1	0%				N
Mercury	A	mg/L	5.596E-06	0		0	0	3.304E-05	0.0001522	0.001	0.002	0%				
Molybdenum	A	mg/L	0.0002323	0.0011615		0	0	0.0009582	0.0004057	0.001	0.1	0%				N
Nickel	A	mg/L	0.01109	0.05545		0	0	0.05384	0.0008844	0.00315	1	0%			3%	
Potassium	A	mg/L	1.405	7.025		0	0	7.238	0.1077164	0.40695	50	0%			3%	
Selenium	A	mg/L	0.0009504	0.004752		0	0	0.00494	0.0003587	0.00165	1	0%			4%	
Silicon	A	mg/L	5.433	27.165		0	0	26.05	0.0166685	0.1	0.4	0%			4%	
Silver	A	mg/L	2.548E-06	0		0	0	0	0.0001322	0.001	0.04	0%				
Sodium	A	mg/L	76.77	383.85		0	0	381.6	0.225957	0.10855	50	0%			1%	
Strontium	A	mg/L	0.4098	2.049		0	0	2.054	0.0004872	0.001	1	0%			0%	
Thallium	A	mg/L	0.00002058	0		0	0	6.602E-05	0.0002421	0.001	1	0%				
Thorium	A	mg/L	0.00001343	0		0	0	0	0.0001509	0.00305	1	0%				
Tin	A	mg/L	0.002	0.01		0	0	0	0.0049642	0.0066	0.1	0%				N
Titanium	A	mg/L	0.000769	0.003845		0	0	0.003379	0.000502	0.001	1	0%				N
Uranium	A	mg/L	0.00001615	0		0	0	8.315E-05	0.0001234	0.0003	1	0%				
Vanadium	A	mg/L	0.001586	0		0	0	0.008184	0.0093058	0.0065	1	0%				
Zinc	A	mg/L	0.001195	0.005975		0	0	0.001655	0.0050446	0.01365	1	0%				N
Iron, Ferrous	C	mg/L	0.005036	0.02518		0	0	0.009818	0.0105787	0.00595	5	0%				N

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085498	B22030502-001	ICPMS-6020-W-	MS-DOD		3/11/2022 11:12:	1.03	R376031		2E+07	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04572	0.0470916		0.05	0	0	0.0018371	0.001	1	94%	75	125	0%	
Antimony	A	mg/L	0.04685	0.0482555		0.05	0.0002778	0	6.971E-05	0.001	0.1	96%	75	125	0%	
Arsenic	A	mg/L	0.05045	0.0519635		0.05	0.001195	0	8.449E-05	0.001	1	102%	75	125	0%	
Barium	A	mg/L	0.1163	0.119789		0.05	0.0644	0	6.965E-05	0.001	1	111%	75	125	0%	
Beryllium	A	mg/L	0.04054	0.0417562		0.05	0	0	8.771E-05	0.001	1	84%	75	125	0%	
Boron	A	mg/L	0.08843	0.0910829		0.05	0.04404	0	0.0040712	0.0057783	1	94%	75	125	0%	
Cadmium	A	mg/L	0.0462	0.047586		0.05	0	0	2.377E-05	0.001	1	95%	75	125	0%	
Calcium	A	mg/L	186.2	191.786		50	149.4	0	0.2088052	0.0215476	50	85%	75	125	0%	
Cerium	A	mg/L	0.05081	0.0523343		0.05	0	0	2.287E-05	0.001	0.1	105%	75	125	0%	
Chromium	A	mg/L	0.05673	0.0584319		0.05	0.01005	0	0.0002614	0.001	1	97%	75	125	0%	
Cobalt	A	mg/L	0.04739	0.0488117		0.05	0.0007758	0	2.205E-05	0.001	1	96%	75	125	0%	
Copper	A	mg/L	0.04658	0.0479774		0.05	0.0007351	0	0.0001801	0.001	1	94%	75	125	0%	
Iron	A	mg/L	4.611	4.74933		5.05	0.009818	0	0.0021792	0.0012257	5	94%	75	125	0%	
Lanthanum	A	mg/L	0.0517	0.053251		0.05	0	0	7.009E-05	0.001	0.1	107%	75	125	0%	
Lead	A	mg/L	0.04912	0.0505936		0.05	5.354E-05	0	3.122E-05	0.001	1	101%	88	115	0%	
Magnesium	A	mg/L	281.2	289.636		50	246.8	0	0.0209406	0.0058092	50		75	125	0%	A
Manganese	A	mg/L	0.0491	0.050573		0.05	0.001654	0	7.528E-05	0.001	1	98%	75	125	0%	
Mercury	A	mg/L	0.001032	0.00106296		0.001	3.304E-05	0	3.134E-05	0.001	0.002	103%	75	125	0%	
Molybdenum	A	mg/L	0.04948	0.0509644		0.05	0.0009582	0	8.356E-05	0.001	0.1	100%	75	125	0%	
Nickel	A	mg/L	0.1002	0.103206		0.05	0.05384	0	0.0001822	0.001	1	99%	75	125	0%	
Potassium	A	mg/L	52.77	54.3531		50	7.238	0	0.0221896	0.0838317	50	94%	75	125	0%	
Selenium	A	mg/L	0.0542	0.055826		0.05	0.00494	0	7.389E-05	0.001	1	102%	75	125	0%	
Silicon	A	mg/L	25.35	26.1105		0.2	26.05	0	0.0034337	0.1	0.4		75	125	0%	A
Silver	A	mg/L	0.01805	0.0185915		0.02	0	0	2.723E-05	0.001	0.04	93%	75	125	0%	
Sodium	A	mg/L	409.2	421.476		50	381.6	0	0.0465471	0.0223613	50		75	125	0%	A
Strontium	A	mg/L	2.044	2.10532		0.05	2.054	0	0.0001004	0.001	1		75	125	0%	A
Thallium	A	mg/L	0.04988	0.0513764		0.05	6.602E-05	0	4.987E-05	0.001	1	103%	75	125	0%	
Thorium	A	mg/L	0.05106	0.0525918		0.05	0	0	3.109E-05	0.001	1	105%	75	125	0%	
Tin	A	mg/L	0.04738	0.0488014		0.05	0	0	0.0010226	0.0013596	0.1	98%	75	125	0%	
Titanium	A	mg/L	0.05637	0.0580611		0.05	0.003379	0	0.0001034	0.001	1	109%	75	125	0%	
Uranium	A	mg/L	0.05096	0.0524888		0.05	8.315E-05	0	2.542E-05	0.0003	1	105%	75	125	0%	
Vanadium	A	mg/L	0.05748	0.0592044		0.05	0.008184	0	0.001917	0.001339	1	102%	75	125	0%	
Zinc	A	mg/L	0.04655	0.0479465		0.05	0.001655	0	0.0010392	0.0028119	1	93%	75	125	0%	
Iron, Ferrous	C	mg/L	4.611	4.74933		0	0.009818	0	0.0021792	0.0012257	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085499	B22030502-001	ICPMS-6020-W-	MSD-DOD		3/11/2022 11:18:	1.03	R376031		2E+07	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.045	0.04635		0.05	0	0.0470916	0.0018371	0.001	1	93%	75	125	2%	
Antimony	A	mg/L	0.04724	0.0486572		0.05	0.0002778	0.0482555	6.971E-05	0.001	0.1	97%	75	125	1%	
Arsenic	A	mg/L	0.05064	0.0521592		0.05	0.001195	0.0519635	8.449E-05	0.001	1	102%	75	125	0%	
Barium	A	mg/L	0.1153	0.118759		0.05	0.0644	0.119789	6.965E-05	0.001	1	109%	75	125	1%	
Beryllium	A	mg/L	0.04066	0.0418798		0.05	0	0.0417562	8.771E-05	0.001	1	84%	75	125	0%	
Boron	A	mg/L	0.08585	0.0884255		0.05	0.04404	0.0910829	0.0040712	0.0057783	1	89%	75	125	3%	
Cadmium	A	mg/L	0.04586	0.0472358		0.05	0	0.047586	2.377E-05	0.001	1	94%	75	125	1%	
Calcium	A	mg/L	192.4	198.172		50	149.4	191.786	0.2088052	0.0215476	50	98%	75	125	3%	
Cerium	A	mg/L	0.05084	0.0523652		0.05	0	0.0523343	2.287E-05	0.001	0.1	105%	75	125	0%	
Chromium	A	mg/L	0.05686	0.0585658		0.05	0.01005	0.0584319	0.0002614	0.001	1	97%	75	125	0%	
Cobalt	A	mg/L	0.04692	0.0483276		0.05	0.0007758	0.0488117	2.205E-05	0.001	1	95%	75	125	1%	
Copper	A	mg/L	0.04699	0.0483997		0.05	0.0007351	0.0479774	0.0001801	0.001	1	95%	75	125	1%	
Iron	A	mg/L	4.782	4.92546		5.05	0.009818	4.74933	0.0021792	0.0012257	5	97%	75	125	4%	
Lanthanum	A	mg/L	0.05146	0.0530038		0.05	0	0.053251	7.009E-05	0.001	0.1	106%	75	125	0%	
Lead	A	mg/L	0.0482	0.049646		0.05	5.354E-05	0.0505936	3.122E-05	0.001	1	99%	88	115	2%	
Magnesium	A	mg/L	276	284.28		50	246.8	289.636	0.0209406	0.0058092	50		75	125	2%	A
Manganese	A	mg/L	0.04953	0.0510159		0.05	0.001654	0.050573	7.528E-05	0.001	1	99%	75	125	1%	
Mercury	A	mg/L	0.0009998	0.00102979		0.001	3.304E-05	0.001063	3.134E-05	0.001	0.002	100%	75	125	3%	
Molybdenum	A	mg/L	0.04937	0.0508511		0.05	0.0009582	0.0509644	8.356E-05	0.001	0.1	100%	75	125	0%	
Nickel	A	mg/L	0.09824	0.1011872		0.05	0.05384	0.103206	0.0001822	0.001	1	95%	75	125	2%	
Potassium	A	mg/L	54.56	56.1968		50	7.238	54.3531	0.0221896	0.0838317	50	98%	75	125	3%	
Selenium	A	mg/L	0.05588	0.0575564		0.05	0.00494	0.055826	7.389E-05	0.001	1	105%	75	125	3%	
Silicon	A	mg/L	25.69	26.4607		0.2	26.05	26.1105	0.0034337	0.1	0.4		75	125	1%	A
Silver	A	mg/L	0.01793	0.0184679		0.02	0	0.0185915	2.723E-05	0.001	0.04	92%	75	125	1%	
Sodium	A	mg/L	402.3	414.369		50	381.6	421.476	0.0465471	0.0223613	50		75	125	2%	A
Strontium	A	mg/L	2.03	2.0909		0.05	2.054	2.10532	0.0001004	0.001	1		75	125	1%	A
Thallium	A	mg/L	0.04761	0.0490383		0.05	6.602E-05	0.0513764	4.987E-05	0.001	1	98%	75	125	5%	
Thorium	A	mg/L	0.05087	0.0523961		0.05	0	0.0525918	3.109E-05	0.001	1	105%	75	125	0%	
Tin	A	mg/L	0.04734	0.0487602		0.05	0	0.0488014	0.0010226	0.0013596	0.1	98%	75	125	0%	
Titanium	A	mg/L	0.05613	0.0578139		0.05	0.003379	0.0580611	0.0001034	0.001	1	109%	75	125	0%	
Uranium	A	mg/L	0.04858	0.0500374		0.05	8.315E-05	0.0524888	2.542E-05	0.0003	1	100%	75	125	5%	
Vanadium	A	mg/L	0.05789	0.0596267		0.05	0.008184	0.0592044	0.001917	0.001339	1	103%	75	125	1%	
Zinc	A	mg/L	0.04626	0.0476478		0.05	0.001655	0.0479465	0.0010392	0.0028119	1	92%	75	125	1%	
Iron, Ferrous	C	mg/L	4.782	4.92546		0	0.009818	4.74933	0.0021792	0.0012257	5	0%	0	0	4%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085500	Rinse	ICPMS-6020-W-	SAMP		3/11/2022 11:25:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.00005465	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Arsenic	A	mg/L	0.00008865	0.00008865		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	J
Barium	A	mg/L	1.248E-06	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.605E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Boron	A	mg/L	0.001236	0		0	0	0	0.0039526	0.0036397	1	0%	0	0	0%	L
Cadmium	A	mg/L	0.00001002	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Calcium	A	mg/L	0.004143	0		0	0	0	0.2027235	0.0254163	50	0%	0	0	0%	L
Cerium	A	mg/L	3.102E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00002695	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	2.059E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.0002291	0.0002291		0	0	0	0.0001748	0.001	1	0%	0	0	0%	J
Iron	A	mg/L	0.0006317	0		0	0	0	0.0021157	0.0021231	5	0%	0	0	0%	L
Lanthanum	A	mg/L	1.396E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	7.301E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Magnesium	A	mg/L	0.007915	0		0	0	0	0.0203306	0.0084694	50	0%	0	0	0%	L
Manganese	A	mg/L	0.00001531	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	4.773E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00005882	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-0.0000198	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Potassium	A	mg/L	0.01388	0		0	0	0	0.0215433	0.0951865	50	0%	0	0	0%	L
Selenium	A	mg/L	0.00008213	0.00008213		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	1.904E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	0.08981	0.08981		0	0	0	0.0451914	0.0321039	50	0%	0	0	0%	D
Strontium	A	mg/L	0.00000495	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00006115	0.00006115		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00004141	0.00004141		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Tin	A	mg/L	0.0002374	0		0	0	0	0.0009928	0.0021596	0.1	0%	0	0	0%	L
Titanium	A	mg/L	0.0002571	0.0002571		0	0	0	0.0001004	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	3.328E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	0.003004	0.003004		0	0	0	0.0018612	0.004194	1	0%	0	0	0%	JL
Zinc	A	mg/L	0.0002973	0		0	0	0	0.0010089	0.001	1	0%	0	0	0%	
Lithium	B	mg/L	0.003635	0.003635		0	0	0	0.0017415	0.05	1	0%	0	0	0%	JL
Iron, Ferrous	C	mg/L	0.0006317	0		0	0	0	0.0021157	0.0021231	5	0%	0	0	0%	L

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085501	B22030502-001	ICPMS-6020-W-	SAMP		3/11/2022 11:31:	1	164321	3/8/2022 2:1	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	0.00163	0.00163		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Barium	A	mg/L	0.07057	0.07057		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	0.0001766	0.0001766		0	0	0	0.0001071	0.01	1	0%	0	0	0%	J
Cadmium	A	mg/L	0.00002445	0.00002445		0	0	0	0.0000141	0.005	1	0%	0	0	0%	J
Cerium	A	mg/L	6.444E-06	0		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	U
Cobalt	A	mg/L	0.00103	0.00103		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	5.186E-06	0		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.0001714	0.0001714		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.001774	0.001774		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.001242	0.001242		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	
Selenium	A	mg/L	0.004564	0.004564		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	
Silver	A	mg/L	0.00001278	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Thallium	A	mg/L	0.00003353	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.003112	0.003112		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00009134	0.00009134		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	J
Aluminum	B	mg/L	0.003586	0.003586		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	UD
Boron	B	mg/L	0.04823	0.04823		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	D
Chromium	B	mg/L	0.0132	0.0132		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	D
Copper	B	mg/L	0.04083	0.04083		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	D
Iron	B	mg/L	0.06439	0.06439		0	0	0	0.007424	0.00513	5	0%	0	0	0%	D
Nickel	B	mg/L	0.05518	0.05518		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	D
Potassium	B	mg/L	7.417	7.417		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	D
Thorium	B	mg/L	0.0000599	0.0000599		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	JL
Tin	B	mg/L	0.0003671	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.001352	0.001352		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	JL

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085502	B22030502-001	ICPMS-6020-W-	SD		3/11/2022 11:37:	5	164321	3/8/2022 2:1	0	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001831	0		0	0	0.003586	0.0146074	0.0159875	1	0%	0	0		
Antimony	A	mg/L	0.0002153	0		0	0	0.0005303	0.0012426	0.0049	0.1	0%	0	0		
Arsenic	A	mg/L	0.0004238	0.002119		0	0	0.00163	0.0012977	0.0013383	1	0%	0	0		N
Barium	A	mg/L	0.01333	0.06665		0	0	0.07057	0.0005204	0.0012039	1	0%	0	0	6%	
Beryllium	A	mg/L	-2.006E-05	0		0	0	0.0001766	0.0005353	0.01	1	0%	0	0		

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085502	B22030502-001	ICPMS-6020-W- SD			3/11/2022 11:37:	5	164321	3/8/2022 2:1	0	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Boron	A	mg/L	0.01023	0.05115		0	0	0.04823	0.0151506	0.07335	1	0%	0	0		N
Cadmium	A	mg/L	-9.28E-07	0		0	0	2.445E-05	0.0000705	0.005	1	0%	0	0		
Calcium	A	mg/L	32.66	163.3		0	0	152.8	0.1864681	0.5517403	50	0%	0	0	7%	
Cerium	A	mg/L	1.859E-06	0		0	0	0	0.0000435	0.001	0.1	0%	0	0		
Chromium	A	mg/L	0.002595	0.012975		0	0	0.0132	0.0026324	0.0076875	1	0%	0	0		N
Cobalt	A	mg/L	0.0001857	0.0009285		0	0	0.00103	0.0004201	0.001	1	0%	0	0		N
Copper	A	mg/L	0.008513	0.042565		0	0	0.04083	0.0028718	0.0099	1	0%	0	0	4%	
Iron	A	mg/L	0.01385	0.06925		0	0	0.06439	0.0371198	0.02565	5	0%	0	0		N
Lanthanum	A	mg/L	1.099E-06	0		0	0	0	5.525E-05	0.001	0.1	0%	0	0		
Lead	A	mg/L	0.00003495	0		0	0	0.0001714	0.0002623	0.001	1	0%	0	0		
Magnesium	A	mg/L	50.17	250.85		0	0	247.1	0.3431747	0.0407608	50	0%	0	0	2%	
Manganese	A	mg/L	0.0003574	0.001787		0	0	0.001774	0.0012975	0.0010695	1	0%	0	0		N
Molybdenum	A	mg/L	0.000334	0.00167		0	0	0.001242	0.000483	0.001	0.1	0%	0	0		N
Nickel	A	mg/L	0.01116	0.0558		0	0	0.05518	0.0011941	0.0121000	1	0%	0	0	1%	
Potassium	A	mg/L	1.422	7.11		0	0	7.417	0.1447062	0.1306027	50	0%	0	0	4%	
Selenium	A	mg/L	0.0009725	0.0048625		0	0	0.004564	0.0003126	0.0029274	1	0%	0	0	6%	
Silicon	A	mg/L	4.563	22.815		0	0	19.76	0.1093983	0.026606	0.4	0%	0	0	14%	R
Silver	A	mg/L	0.00000254	0		0	0	0	0.0001159	0.001	0.04	0%	0	0		
Sodium	A	mg/L	75.49	377.45		0	0	374	0.3607583	3.6651346	50	0%	0	0	1%	
Strontium	A	mg/L	0.4248	2.124		0	0	2.123	0.0003589	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00002484	0		0	0	0	0.0005569	0.001	1	0%	0	0		
Thorium	A	mg/L	0.00001387	0		0	0	0.0000599	0.0002949	0.02075	1	0%	0	0		
Tin	A	mg/L	0.002039	0.010195		0	0	0	0.0094659	0.0055874	0.1	0%	0	0		N
Titanium	A	mg/L	0.0006642	0.003321		0	0	0.003112	0.0024621	0.001	1	0%	0	0		N
Uranium	A	mg/L	0.00001592	0.0000796		0	0	9.134E-05	0.0000542	0.0004224	1	0%	0	0		N
Vanadium	A	mg/L	0.002414	0.01207		0	0	0.01105	0.0062091	0.0105423	1	0%	0	0		N
Zinc	A	mg/L	0.001073	0		0	0	0.001352	0.0058087	0.0327721	1	0%	0	0		
Silica	C	mg/L	9.7611696	48.805848		0	0	0	0.2340247	0.0569155	5	0%	0	0		N
Silicon as SiO2	C	mg/L	9.7611696	48.805848		0	0	0	0.2340247	0.0569155	5	0%	0	0		N

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085503	CCV	ICPMS-6020-W- CCV			3/11/2022 11:43:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085503	CCV	ICPMS-6020-W-	CCV		3/11/2022 11:43:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04947	0.04947		0.05	0	0	0.0017836	0.001	1	99%	90	110	0%	
Antimony	A	mg/L	0.04696	0.04696		0.05	0	0	6.768E-05	0.001	0.1	94%	90	110	0%	
Arsenic	A	mg/L	0.04903	0.04903		0.05	0	0	8.203E-05	0.001	1	98%	90	110	0%	
Barium	A	mg/L	0.04739	0.04739		0.05	0	0	6.762E-05	0.001	1	95%	90	110	0%	
Beryllium	A	mg/L	0.04788	0.04788		0.05	0	0	8.516E-05	0.001	1	96%	90	110	0%	
Boron	A	mg/L	0.04865	0.04865		0.05	0	0	0.0039526	0.00561	1	97%	90	110	0%	
Cadmium	A	mg/L	0.04822	0.04822		0.05	0	0	2.308E-05	0.001	1	96%	90	110	0%	
Calcium	A	mg/L	13.62	13.62		12.5	0	0	0.2027235	0.02092	50	109%	90	110	0%	
Cerium	A	mg/L	0.04991	0.04991		0.05	0	0	0.0000222	0.001	0.1	100%	90	110	0%	
Chromium	A	mg/L	0.04817	0.04817		0.05	0	0	0.0002538	0.001	1	96%	90	110	0%	
Cobalt	A	mg/L	0.04895	0.04895		0.05	0	0	2.141E-05	0.001	1	98%	90	110	0%	
Copper	A	mg/L	0.04988	0.04988		0.05	0	0	0.0001748	0.001	1	100%	90	110	0%	
Iron	A	mg/L	1.348	1.348		1.3	0	0	0.0021157	0.00119	5	104%	90	110	0%	
Lanthanum	A	mg/L	0.05014	0.05014		0.05	0	0	6.805E-05	0.001	0.1	100%	90	110	0%	
Lead	A	mg/L	0.04778	0.04778		0.05	0	0	3.031E-05	0.001	1	96%	90	110	0%	
Magnesium	A	mg/L	12.54	12.54		12.5	0	0	0.0203306	0.00564	50	100%	90	110	0%	
Manganese	A	mg/L	0.04945	0.04945		0.05	0	0	7.309E-05	0.001	1	99%	90	110	0%	
Mercury	A	mg/L	0.0009617	0.0009617		0.001	0	0	3.043E-05	0.001	0.002	96%	90	110	0%	
Molybdenum	A	mg/L	0.04746	0.04746		0.05	0	0	8.113E-05	0.001	0.1	95%	90	110	0%	
Nickel	A	mg/L	0.05091	0.05091		0.05	0	0	0.0001769	0.001	1	102%	90	110	0%	
Potassium	A	mg/L	12.43	12.43		12.5	0	0	0.0215433	0.08139	50	99%	90	110	0%	
Selenium	A	mg/L	0.0519	0.0519		0.05	0	0	7.174E-05	0.001	1	104%	90	110	0%	
Silicon	A	mg/L	0.2909	0.2909		0.2	0	0	0.0033337	0.1	0.4	145%	90	110	0%	S
Silver	A	mg/L	0.01902	0.01902		0.02	0	0	2.644E-05	0.001	0.04	95%	90	110	0%	
Sodium	A	mg/L	12.41	12.41		12.5	0	0	0.0451914	0.02171	50	99%	90	110	0%	
Strontium	A	mg/L	0.04879	0.04879		0.05	0	0	9.743E-05	0.001	1	98%	90	110	0%	
Thallium	A	mg/L	0.04732	0.04732		0.05	0	0	4.842E-05	0.001	1	95%	90	110	0%	
Thorium	A	mg/L	0.04794	0.04794		0.05	0	0	3.018E-05	0.001	1	96%	90	110	0%	
Tin	A	mg/L	0.04738	0.04738		0.05	0	0	0.0009928	0.00132	0.1	95%	90	110	0%	
Titanium	A	mg/L	0.04903	0.04903		0.05	0	0	0.0001004	0.001	1	98%	90	110	0%	
Uranium	A	mg/L	0.04659	0.04659		0.05	0	0	2.468E-05	0.0003	1	93%	90	110	0%	
Vanadium	A	mg/L	0.05	0.05		0.05	0	0	0.0018612	0.0013	1	100%	90	110	0%	
Zinc	A	mg/L	0.04906	0.04906		0.05	0	0	0.0010089	0.00273	1	98%	90	110	0%	
Iron, Ferrous	C	mg/L	1.348	1.348		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085504	CCB	ICPMS-6020-W-	CCB		3/11/2022 11:49:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0008381	0.0008381		0	0	0	0.0017836	0.001	1	0%				0%
Antimony	A	mg/L	0.0003128	0.0003128		0	0	0	6.768E-05	0.001	0.1	0%				0%
Arsenic	A	mg/L	0.00007401	0.00007401		0	0	0	8.203E-05	0.001	1	0%				0%
Barium	A	mg/L	-2.819E-06	-2.819E-06		0	0	0	6.762E-05	0.001	1	0%				0%
Beryllium	A	mg/L	-1.648E-05	-1.648E-05		0	0	0	8.516E-05	0.001	1	0%				0%
Boron	A	mg/L	0.0005134	0.0005134		0	0	0	0.0039526	0.00561	1	0%				0%
Cadmium	A	mg/L	8.282E-06	8.282E-06		0	0	0	2.308E-05	0.001	1	0%				0%
Calcium	A	mg/L	0.00114	0.00114		0	0	0	0.2027235	0.02092	50	0%				0%
Cerium	A	mg/L	5.496E-07	5.496E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0		0%
Chromium	A	mg/L	0.00001177	0.00001177		0	0	0	0.0002538	0.001	1	0%				0%
Cobalt	A	mg/L	-3.008E-06	-3.008E-06		0	0	0	2.141E-05	0.001	1	0%				0%
Copper	A	mg/L	0.0002202	0.0002202		0	0	0	0.0001748	0.001	1	0%				0%
Iron	A	mg/L	0.0003581	0.0003581		0	0	0	0.0021157	0.00119	5	0%				0%
Lanthanum	A	mg/L	6.251E-06	6.251E-06		0	0	0	6.805E-05	0.001	0.1	0%	0	0		0%
Lead	A	mg/L	5.325E-06	5.325E-06		0	0	0	3.031E-05	0.001	1	0%				0%
Magnesium	A	mg/L	0.003757	0.003757		0	0	0	0.0203306	0.00564	50	0%				0%
Manganese	A	mg/L	7.099E-06	7.099E-06		0	0	0	7.309E-05	0.001	1	0%				0%
Mercury	A	mg/L	3.323E-06	3.323E-06		0	0	0	3.043E-05	0.001	0.002	0%				0%
Molybdenum	A	mg/L	0.00002202	0.00002202		0	0	0	8.113E-05	0.001	0.1	0%				0%
Nickel	A	mg/L	-0.0000328	-0.0000328		0	0	0	0.0001769	0.001	1	0%				0%
Potassium	A	mg/L	0.01167	0.01167		0	0	0	0.0215433	0.08139	50	0%				0%
Selenium	A	mg/L	0.00004416	0.00004416		0	0	0	7.174E-05	0.001	1	0%				0%
Silicon	A	mg/L	0.04196	0.04196		0	0	0	0.0033337	0.1	0.4	0%	0	0		0%
Silver	A	mg/L	8.715E-07	8.715E-07		0	0	0	2.644E-05	0.001	0.04	0%				0%
Sodium	A	mg/L	0.05722	0.05722		0	0	0	0.0451914	0.02171	50	0%				0%
Strontium	A	mg/L	-5.711E-06	-5.711E-06		0	0	0	9.743E-05	0.001	1	0%	0	0		0%
Thallium	A	mg/L	0.00008946	0.00008946		0	0	0	4.842E-05	0.001	1	0%	0	0		0%
Thorium	A	mg/L	0.00003613	0.00003613		0	0	0	3.018E-05	0.001	1	0%	0	0		0%
Tin	A	mg/L	0.00008896	0.00008896		0	0	0	0.0009928	0.00132	0.1	0%	0	0		0%
Titanium	A	mg/L	0.00005698	0.00005698		0	0	0	0.0001004	0.001	1	0%	0	0		0%
Uranium	A	mg/L	1.499E-06	1.499E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0		0%
Vanadium	A	mg/L	0.004152	0.004152		0	0	0	0.0018612	0.0013	1	0%	0	0		0%
Zinc	A	mg/L	0.00002347	0.00002347		0	0	0	0.0010089	0.00273	1	0%	0	0		0%
Iron, Ferrous	C	mg/L	0.0003581	0.0003581		0	0	0	0.0021157	0.00119	5	0%	0	0		0%

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085505	B22030502-001	ICPMS-6020-W-	PDS1-DOD		3/11/2022 11:56:	1.03	164321	3/8/2022 2:1	2E+07	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04632	0.0477096		0.0515	0.003586	0	0.0030091	0.0032934	1	86%	75	125	0%	
Antimony	A	mg/L	0.04477	0.0461131		0.0515	0.0005303	0	0.000256	0.0010094	0.1	89%	75	125	0%	
Arsenic	A	mg/L	0.05016	0.0516648		0.0515	0.00163	0	0.0002673	0.001	1	97%	75	125	0%	
Barium	A	mg/L	0.1123	0.115669		0.0515	0.07057	0	0.0001072	0.001	1	88%	75	125	0%	
Beryllium	A	mg/L	0.03968	0.0408704		0.0515	0.0001766	0	0.0001103	0.01	1	79%	75	125	0%	
Boron	A	mg/L	0.0868	0.089404		0.0515	0.04823	0	0.0031210	0.0151101	1	80%	75	125	0%	
Cadmium	A	mg/L	0.04673	0.0481319		0.0515	2.445E-05	0	1.452E-05	0.005	1	93%	75	125	0%	
Calcium	A	mg/L	192.5	198.275		51.5	152.8	0	0.0384124	0.1136585	50	88%	75	125	0%	
Cerium	A	mg/L	0.0507	0.052221		0.0515	0	0	8.961E-06	0.001	0.1	101%	75	125	0%	
Chromium	A	mg/L	0.05959	0.0613777		0.0515	0.0132	0	0.0005423	0.0015836	1	94%	75	125	0%	
Cobalt	A	mg/L	0.04369	0.0450007		0.0515	0.00103	0	8.654E-05	0.001	1	85%	75	125	0%	
Copper	A	mg/L	0.0854	0.087962		0.0515	0.04083	0	0.0005916	0.0020394	1	92%	75	125	0%	
Iron	A	mg/L	4.884	5.03052		5.15	0.06439	0	0.0076467	0.0052839	5	96%	75	125	0%	
Lanthanum	A	mg/L	0.05121	0.0527463		0.0515	0	0	1.138E-05	0.001	0.1	102%	75	125	0%	
Lead	A	mg/L	0.04756	0.0489868		0.0515	0.0001714	0	5.403E-05	0.001	1	95%	80	120	0%	
Magnesium	A	mg/L	279.4	287.782		51.5	247.1	0	0.070694	0.0083967	50		75	125	0%	A
Manganese	A	mg/L	0.0501	0.051603		0.0515	0.001774	0	0.0002673	0.001	1	97%	75	125	0%	
Molybdenum	A	mg/L	0.04872	0.0501816		0.0515	0.001242	0	9.95E-05	0.001	0.1	95%	75	125	0%	
Nickel	A	mg/L	0.1008	0.103824		0.0515	0.05518	0	0.000246	0.0024926	1	94%	75	125	0%	
Potassium	A	mg/L	53.89	55.5067		51.5	7.417	0	0.0298095	0.0269042	50	93%	75	125	0%	
Selenium	A	mg/L	0.05159	0.0531377		0.0515	0.004564	0	6.439E-05	0.001	1	94%	75	125	0%	
Silicon	A	mg/L	21.69	22.3407		0.206	19.76	0	0.0225360	0.0054808	0.4		75	125	0%	A
Silver	A	mg/L	0.01744	0.0179632		0.0206	0	0	2.388E-05	0.001	0.04	87%	75	125	0%	
Sodium	A	mg/L	408.9	421.167		51.5	374	0	0.0743162	0.7550177	50		75	125	0%	A
Strontium	A	mg/L	2.102	2.16506		0.0515	2.123	0	7.393E-05	0.001	1		75	125	0%	A
Thallium	A	mg/L	0.0498	0.051294		0.0515	0	0	0.0001147	0.001	1	100%	75	125	0%	
Thorium	A	mg/L	0.05137	0.0529111		0.0515	0.0000599	0	6.075E-05	0.0042745	1	103%	75	125	0%	
Tin	A	mg/L	0.04763	0.0490589		0.0515	0	0	0.00195	0.001151	0.1	95%	75	125	0%	
Titanium	A	mg/L	0.05216	0.0537248		0.0515	0.003112	0	0.0005072	0.001	1	98%	75	125	0%	
Uranium	A	mg/L	0.04904	0.0505112		0.0515	9.134E-05	0	1.117E-05	0.0003	1	98%	75	125	0%	
Vanadium	A	mg/L	0.05978	0.0615734		0.0515	0.01105	0	0.0012791	0.0021717	1	98%	75	125	0%	
Zinc	A	mg/L	0.04541	0.0467723		0.0515	0.001352	0	0.0011966	0.0067511	1	88%	75	125	0%	
Silica	C	mg/L	46.399248	47.7912254		0	0	0	0.0482091	0.0117246	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	46.399248	47.7912254		0.0515	0	0	0.0482091	0.0117246	5	92798%	75	125	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085506	B22030502-001	ICPMS-6020-W-	MS4-DOD		3/12/2022 12:02:	1	164321	3/8/2022 2:1	2E+07	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.4537	0.4537		0.5	0.003586	0	0.0029215	0.0031975	1	90%	75	125	0%	
Antimony	A	mg/L	0.1012	0.1012		0.1	0.0005303	0	0.0002485	0.001	0.1	101%	75	125	0%	
Arsenic	A	mg/L	0.09951	0.09951		0.1	0.00163	0	0.0002595	0.001	1	98%	75	125	0%	
Barium	A	mg/L	0.1659	0.1659		0.1	0.07057	0	0.0001041	0.001	1	95%	75	125	0%	
Beryllium	A	mg/L	0.04178	0.04178		0.05	0.0001766	0	0.0001071	0.01	1	83%	75	125	0%	
Boron	A	mg/L	0.1324	0.1324		0.1	0.04823	0	0.0030301	0.01467	1	84%	75	125	0%	
Cadmium	A	mg/L	0.04734	0.04734		0.05	2.445E-05	0	0.0000141	0.005	1	95%	75	125	0%	
Calcium	A	mg/L	155.3	155.3		5	152.8	0	0.0372936	0.1103481	50		75	125	0%	A
Cerium	A	mg/L	0.1011	0.1011		0.1	0	0	0.0000087	0.001	0.1	101%	75	125	0%	
Chromium	A	mg/L	0.1093	0.1093		0.1	0.0132	0	0.0005265	0.0015375	1	96%	75	125	0%	
Cobalt	A	mg/L	0.09295	0.09295		0.1	0.00103	0	8.402E-05	0.001	1	92%	75	125	0%	
Copper	A	mg/L	0.09406	0.09406		0.1	0.04083	0	0.0005744	0.00198	1	53%	75	125	0%	S
Iron	A	mg/L	0.5613	0.5613		0.5	0.06439	0	0.007424	0.00513	5	99%	75	125	0%	
Lanthanum	A	mg/L	0.1036	0.1036		0.1	0	0	1.105E-05	0.001	0.1	104%	75	125	0%	
Lead	A	mg/L	0.09926	0.09926		0.1	0.0001714	0	5.246E-05	0.001	1	99%	88	115	0%	
Magnesium	A	mg/L	242.8	242.8		5	247.1	0	0.0686349	0.0081522	50		75	125	0%	A
Manganese	A	mg/L	0.4951	0.4951		0.5	0.001774	0	0.0002595	0.001	1	99%	75	125	0%	
Molybdenum	A	mg/L	0.1024	0.1024		0.1	0.001242	0	0.0000966	0.001	0.1	101%	75	125	0%	
Nickel	A	mg/L	0.1489	0.1489		0.1	0.05518	0	0.0002388	0.0024200	1	94%	75	125	0%	
Potassium	A	mg/L	12.13	12.13		5	7.417	0	0.0289412	0.0261205	50	94%	75	125	0%	
Selenium	A	mg/L	0.1021	0.1021		0.1	0.004564	0	6.251E-05	0.001	1	98%	75	125	0%	
Silicon	A	mg/L	24.31	24.31		1	19.76	0	0.0218797	0.0053212	0.4		75	125	0%	A
Silver	A	mg/L	0.009057	0.009057		0.01	0	0	2.318E-05	0.001	0.04	91%	75	125	0%	
Sodium	A	mg/L	371.6	371.6		5	374	0	0.0721517	0.7330269	50		75	125	0%	A
Strontium	A	mg/L	2.257	2.257		0.1	2.123	0	7.178E-05	0.001	1		75	125	0%	A
Thallium	A	mg/L	0.1005	0.1005		0.1	0	0	0.0001114	0.001	1	100%	75	125	0%	
Thorium	A	mg/L	0.1031	0.1031		0.1	0.0000599	0	5.898E-05	0.00415	1	103%	75	125	0%	
Tin	A	mg/L	0.1033	0.1033		0.1	0	0	0.0018932	0.0011175	0.1	103%	75	125	0%	
Titanium	A	mg/L	0.1002	0.1002		0.1	0.003112	0	0.0004924	0.001	1	97%	75	125	0%	
Uranium	A	mg/L	0.1028	0.1028		0.1	9.134E-05	0	1.084E-05	0.0003	1	103%	75	125	0%	
Vanadium	A	mg/L	0.1093	0.1093		0.1	0.01105	0	0.0012418	0.0021085	1	98%	75	125	0%	
Zinc	A	mg/L	0.09045	0.09045		0.1	0.001352	0	0.0011617	0.0065544	1	89%	75	125	0%	
Silica	C	mg/L	52.003952	52.003952		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	52.003952	52.003952		2.14	0	0	0.0468049	0.0113831	5	2430%	75	125	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085507	B22030502-001	ICPMS-6020-W-	MSD4-DOD		3/12/2022 12:08:	1	164321	3/8/2022 2:1	2E+07	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.4436	0.4436		0.5	0.003586	0.4537	0.0029215	0.0031975	1	88%	75	125	2%	
Antimony	A	mg/L	0.09781	0.09781		0.1	0.0005303	0.1012	0.0002485	0.001	0.1	97%	75	125	3%	
Arsenic	A	mg/L	0.09935	0.09935		0.1	0.00163	0.09951	0.0002595	0.001	1	98%	75	125	0%	
Barium	A	mg/L	0.1582	0.1582		0.1	0.07057	0.1659	0.0001041	0.001	1	88%	75	125	5%	
Beryllium	A	mg/L	0.0404	0.0404		0.05	0.0001766	0.04178	0.0001071	0.01	1	80%	75	125	3%	
Boron	A	mg/L	0.1262	0.1262		0.1	0.04823	0.1324	0.0030301	0.01467	1	78%	75	125	5%	
Cadmium	A	mg/L	0.04789	0.04789		0.05	2.445E-05	0.04734	0.0000141	0.005	1	96%	75	125	1%	
Calcium	A	mg/L	158.1	158.1		5	152.8	155.3	0.0372936	0.1103481	50		75	125	2%	A
Cerium	A	mg/L	0.1033	0.1033		0.1	0	0.1011	0.0000087	0.001	0.1	103%	75	125	2%	
Chromium	A	mg/L	0.1073	0.1073		0.1	0.0132	0.1093	0.0005265	0.0015375	1	94%	75	125	2%	
Cobalt	A	mg/L	0.08855	0.08855		0.1	0.00103	0.09295	8.402E-05	0.001	1	88%	75	125	5%	
Copper	A	mg/L	0.1965	0.1965		0.1	0.04083	0.09406	0.0005744	0.00198	1	156%	75	125	71%	SR
Iron	A	mg/L	0.5748	0.5748		0.5	0.06439	0.5613	0.007424	0.00513	5	102%	75	125	2%	
Lanthanum	A	mg/L	0.1046	0.1046		0.1	0	0.1036	1.105E-05	0.001	0.1	105%	75	125	1%	
Lead	A	mg/L	0.09652	0.09652		0.1	0.0001714	0.09926	5.246E-05	0.001	1	96%	88	115	3%	
Magnesium	A	mg/L	246.1	246.1		5	247.1	242.8	0.0686349	0.0081522	50		75	125	1%	A
Manganese	A	mg/L	0.4932	0.4932		0.5	0.001774	0.4951	0.0002595	0.001	1	98%	75	125	0%	
Molybdenum	A	mg/L	0.09777	0.09777		0.1	0.001242	0.1024	0.0000966	0.001	0.1	97%	75	125	5%	
Nickel	A	mg/L	0.1478	0.1478		0.1	0.05518	0.1489	0.0002388	0.0024200	1	93%	75	125	1%	
Potassium	A	mg/L	11.96	11.96		5	7.417	12.13	0.0289412	0.0261205	50	91%	75	125	1%	
Selenium	A	mg/L	0.1028	0.1028		0.1	0.004564	0.1021	6.251E-05	0.001	1	98%	75	125	1%	
Silicon	A	mg/L	24.48	24.48		1	19.76	24.31	0.0218797	0.0053212	0.4		75	125	1%	A
Silver	A	mg/L	0.008872	0.008872		0.01	0	0.009057	2.318E-05	0.001	0.04	89%	75	125	2%	
Sodium	A	mg/L	375	375		5	374	371.6	0.0721517	0.7330269	50		75	125	1%	A
Strontium	A	mg/L	2.209	2.209		0.1	2.123	2.257	7.178E-05	0.001	1		75	125	2%	A
Thallium	A	mg/L	0.1005	0.1005		0.1	0	0.1005	0.0001114	0.001	1	100%	75	125	0%	
Thorium	A	mg/L	0.1037	0.1037		0.1	0.0000599	0.1031	5.898E-05	0.00415	1	104%	75	125	1%	
Tin	A	mg/L	0.09937	0.09937		0.1	0	0.1033	0.0018932	0.0011175	0.1	99%	75	125	4%	
Titanium	A	mg/L	0.09638	0.09638		0.1	0.003112	0.1002	0.0004924	0.001	1	93%	75	125	4%	
Uranium	A	mg/L	0.0992	0.0992		0.1	9.134E-05	0.1028	1.084E-05	0.0003	1	99%	75	125	4%	
Vanadium	A	mg/L	0.1071	0.1071		0.1	0.01105	0.1093	0.0012418	0.0021085	1	96%	75	125	2%	
Zinc	A	mg/L	0.09079	0.09079		0.1	0.001352	0.09045	0.0011617	0.0065544	1	89%	75	125	0%	
Silica	C	mg/L	52.367616	52.367616		0	0	52.003952	0.0468049	0.0113831	5	0%	0	0	1%	
Silicon as SiO2	C	mg/L	52.367616	52.367616		2.14	0	52.003952	0.0468049	0.0113831	5	2447%	75	125	1%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085508	Rinse	ICPMS-6020-W-	SAMP		3/12/2022 12:14:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.00001593	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Arsenic	A	mg/L	0.0001092	0.0001092		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	J
Barium	A	mg/L	4.083E-07	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.113E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Boron	A	mg/L	0.0009515	0		0	0	0	0.0039526	0.0036397	1	0%	0	0	0%	L
Cadmium	A	mg/L	7.601E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Calcium	A	mg/L	0.003556	0		0	0	0	0.2027235	0.0254163	50	0%	0	0	0%	L
Cerium	A	mg/L	1.059E-06	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00001919	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	1.069E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.0005932	0.0005932		0	0	0	0.0001748	0.001	1	0%	0	0	0%	J
Iron	A	mg/L	0.001844	0		0	0	0	0.0021157	0.0021231	5	0%	0	0	0%	L
Lanthanum	A	mg/L	3.526E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00001027	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Magnesium	A	mg/L	0.01138	0		0	0	0	0.0203306	0.0084694	50	0%	0	0	0%	L
Manganese	A	mg/L	0.00001247	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	0.00000147	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00002048	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-0.0000222	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Potassium	A	mg/L	0.01208	0		0	0	0	0.0215433	0.0951865	50	0%	0	0	0%	L
Selenium	A	mg/L	0.0000717	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silver	A	mg/L	1.127E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	0.09953	0.09953		0	0	0	0.0451914	0.0321039	50	0%	0	0	0%	D
Strontium	A	mg/L	9.036E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0002184	0.0002184		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00005118	0.00005118		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Tin	A	mg/L	0.00006635	0		0	0	0	0.0009928	0.0021596	0.1	0%	0	0	0%	L
Titanium	A	mg/L	0.0001155	0.0001155		0	0	0	0.0001004	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	2.541E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	0.002455	0.002455		0	0	0	0.0018612	0.004194	1	0%	0	0	0%	JL
Zinc	A	mg/L	0.0003091	0		0	0	0	0.0010089	0.001	1	0%	0	0	0%	
Iron, Ferrous	C	mg/L	0.001844	0		0	0	0	0.0021157	0.0021231	5	0%	0	0	0%	L

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085509	B22030502-006	ICPMS-6020-W-	SAMP		3/12/2022 12:21:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001683	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	U
Arsenic	A	mg/L	-5.318E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.002919	0.002919		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.864E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	U
Cadmium	A	mg/L	8.239E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	1.232E-06	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.00184	0.00184		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0.0001166	0.0001166		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Copper	A	mg/L	0.00037	0.00037		0	0	0	0.0001748	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	5.784E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00001347	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.001915	0.001915		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	2.851E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	U
Molybdenum	A	mg/L	0.0004887	0.0004887		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.01044	0.01044		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.0002221	0.0002221		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	1.567E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.06387	0.06387		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00008733	0.00008733		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00001396	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002784	0.002784		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	9.068E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	U
Boron	B	mg/L	0.06041	0.06041		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	D
Calcium	B	mg/L	10.27	10.27		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.005094	0.005094		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.005094	0.005094		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	10.56	10.56		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Potassium	B	mg/L	1.933	1.933		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	D
Sodium	B	mg/L	36.32	36.32		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	-2.931E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.01502	0.01502		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085510	B22030502-006	ICPMS-6020-W-	SAMP		3/12/2022 12:27:	1	164321	3/8/2022 2:1	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	0.0002276	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.002778	0.002778		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.301E-05	0		0	0	0	0.0001071	0.01	1	0%	0	0	0%	U
Cadmium	A	mg/L	5.214E-06	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	0.00000347	0		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	U
Cobalt	A	mg/L	0.0001563	0.0001563		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	0.00000199	0		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00002294	0		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.002974	0.002974		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.0007538	0.0007538		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	J
Selenium	A	mg/L	0.0002232	0.0002232		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	2.591E-06	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.0645	0.0645		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00004941	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002479	0.002479		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00001085	0.00001085		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	J
Aluminum	B	mg/L	0.003238	0.003238		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	UD
Boron	B	mg/L	0.06238	0.06238		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	D
Calcium	B	mg/L	10.12	10.12		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	D
Chromium	B	mg/L	0.002308	0.002308		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	D
Copper	B	mg/L	0.000835	0.000835		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	JL
Iron	B	mg/L	0.0187	0.0187		0	0	0	0.007424	0.00513	5	0%	0	0	0%	UD
Magnesium	B	mg/L	10.67	10.67		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.01386	0.01386		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	D
Potassium	B	mg/L	1.869	1.869		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	D
Sodium	B	mg/L	36.54	36.54		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	D
Thorium	B	mg/L	0.00004978	0		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	UL
Tin	B	mg/L	0.0001675	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.01074	0.01074		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085511	B22030502-011	ICPMS-6020-W-	SAMP		3/12/2022 12:33:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085511	B22030502-011	ICPMS-6020-W-	SAMP		3/12/2022 12:33:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0003697	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	U
Arsenic	A	mg/L	-0.0001346	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.002555	0.002555		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-5.366E-06	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	U
Cadmium	A	mg/L	4.174E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	4.776E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.00001774	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	U
Cobalt	A	mg/L	0.00004246	0.00004246		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Copper	A	mg/L	0.0001651	0		0	0	0	0.0001748	0.001	1	0%	0	0	0%	U
Lanthanum	A	mg/L	2.163E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	7.797E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.06882	0.06882		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	1.811E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	U
Molybdenum	A	mg/L	0.00004998	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	U
Nickel	A	mg/L	0.000224	0.000224		0	0	0	0.0001769	0.001	1	0%	0	0	0%	J
Selenium	A	mg/L	0.0001803	0.0001803		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	0.00000245	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.1092	0.1092		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00002525	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	U
Thorium	A	mg/L	7.206E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002954	0.002954		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	7.558E-07	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	U
Boron	B	mg/L	0.04385	0.04385		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	D
Calcium	B	mg/L	12.71	12.71		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	3.861	3.861		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	3.861	3.861		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	14.81	14.81		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Potassium	B	mg/L	0.5718	0.5718		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	D
Sodium	B	mg/L	48.98	48.98		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	-4.726E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Vanadium	B	mg/L	-0.001208	0		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	U
Zinc	B	mg/L	0.0006625	0		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	UL

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085512	B22030502-011	ICPMS-6020-W-	SAMP		3/12/2022 12:39:	1	164321	3/8/2022 2:1	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	0.0002235	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.002735	0.002735		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-0.000017	0		0	0	0	0.0001071	0.01	1	0%	0	0	0%	U
Cadmium	A	mg/L	2.778E-06	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	2.111E-06	0		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	U
Cobalt	A	mg/L	0.00006155	0		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	U
Lanthanum	A	mg/L	0.00000149	0		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.0000194	0		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.06922	0.06922		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.00007285	0		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	U
Selenium	A	mg/L	0.0001954	0.0001954		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	3.819E-06	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.1134	0.1134		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00002452	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002842	0.002842		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	9.722E-07	0		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	U
Aluminum	B	mg/L	0.001884	0		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	UL
Boron	B	mg/L	0.04368	0.04368		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	D
Calcium	B	mg/L	12.84	12.84		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	D
Chromium	B	mg/L	0.0003229	0		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	UL
Copper	B	mg/L	0.0008154	0.0008154		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	JL
Magnesium	B	mg/L	15.01	15.01		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.0003477	0.0003477		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Potassium	B	mg/L	0.5667	0.5667		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	D
Sodium	B	mg/L	49.26	49.26		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	D
Thorium	B	mg/L	0.0000269	0		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	UL
Tin	B	mg/L	0.0002429	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.0008423	0		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	UL

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085513	B22030502-016	ICPMS-6020-W-	SAMP		3/12/2022 12:46:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085513	B22030502-016	ICPMS-6020-W-	SAMP		3/12/2022 12:46:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.007893	0.007893		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Arsenic	A	mg/L	-4.787E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.005226	0.005226		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-2.369E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	U
Cadmium	A	mg/L	4.713E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	9.387E-06	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.002141	0.002141		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0.00004018	0.00004018		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Copper	A	mg/L	0.001671	0.001671		0	0	0	0.0001748	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	3.557E-06	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00005733	0.00005733		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.0005372	0.0005372		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	J
Mercury	A	mg/L	7.578E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	U
Molybdenum	A	mg/L	0.0001708	0.0001708		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.0005258	0.0005258		0	0	0	0.0001769	0.001	1	0%	0	0	0%	J
Selenium	A	mg/L	0.0002031	0.0002031		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	6.456E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.07547	0.07547		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00001568	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	U
Thorium	A	mg/L	0.00001211	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002439	0.002439		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00001486	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	U
Boron	B	mg/L	0.04783	0.04783		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	D
Calcium	B	mg/L	12.41	12.41		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.008537	0.008537		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.008537	0.008537		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	11.27	11.27		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Potassium	B	mg/L	2.083	2.083		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	D
Sodium	B	mg/L	35.19	35.19		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	0.00001043	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.02884	0.02884		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085514	B22030502-016	ICPMS-6020-W-	SAMP		3/12/2022 12:52:	1	164321	3/8/2022 2:1	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	0.0002479	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.01123	0.01123		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.956E-05	0		0	0	0	0.0001071	0.01	1	0%	0	0	0%	U
Cadmium	A	mg/L	2.885E-06	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	0.00009047	0.00009047		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	J
Cobalt	A	mg/L	0.0001124	0.0001124		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	0.00003651	0.00003651		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	J
Lead	A	mg/L	0.0003009	0.0003009		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.002955	0.002955		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.0002854	0.0002854		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	J
Selenium	A	mg/L	0.0002409	0.0002409		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	0.00004293	0.00004293		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	J
Strontium	A	mg/L	0.07816	0.07816		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00001765	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.006305	0.006305		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00001702	0.00001702		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	J
Aluminum	B	mg/L	0.07039	0.07039		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	D
Boron	B	mg/L	0.04973	0.04973		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	D
Calcium	B	mg/L	12.5	12.5		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	D
Chromium	B	mg/L	0.002996	0.002996		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	D
Copper	B	mg/L	0.003436	0.003436		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	D
Iron	B	mg/L	0.1346	0.1346		0	0	0	0.007424	0.00513	5	0%	0	0	0%	D
Magnesium	B	mg/L	11.23	11.23		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.001129	0.001129		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Potassium	B	mg/L	2.056	2.056		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	D
Sodium	B	mg/L	35.16	35.16		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	D
Thorium	B	mg/L	0.00002162	0		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	UL
Tin	B	mg/L	0.00173	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.06911	0.06911		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085515	B22030502-021	ICPMS-6020-W-	SAMP		3/12/2022 12:58:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085515	B22030502-021	ICPMS-6020-W-	SAMP		3/12/2022 12:58:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.002385	0.002385		0	0	0	0.0017836	0.001	1	0%	0	0	0%	U
Arsenic	A	mg/L	-0.0000872	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.003768	0.003768		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-2.395E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	U
Cadmium	A	mg/L	5.472E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	5.084E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.001995	0.001995		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0.0000253	0.0000253		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Copper	A	mg/L	0.0004237	0.0004237		0	0	0	0.0001748	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	5.75E-08	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.0000269	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.0003765	0.0003765		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	J
Mercury	A	mg/L	7.985E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	U
Molybdenum	A	mg/L	0.0001341	0.0001341		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.000139	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	U
Selenium	A	mg/L	0.0002154	0.0002154		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	6.548E-07	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.05824	0.05824		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	9.763E-06	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	U
Thorium	A	mg/L	4.389E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002523	0.002523		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00008156	0.00008156		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	J
Boron	B	mg/L	0.04466	0.04466		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	D
Calcium	B	mg/L	10.01	10.01		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.005718	0.005718		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.005718	0.005718		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	9.417	9.417		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Potassium	B	mg/L	1.778	1.778		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	D
Sodium	B	mg/L	31.81	31.81		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	0.00009918	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.01504	0.01504		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085516	CCV	ICPMS-6020-W-	CCV		3/12/2022 1:04:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04854	0.04854		0.05	0	0	0.0017836	0.001	1	97%	90	110	0%	
Antimony	A	mg/L	0.04734	0.04734		0.05	0	0	6.768E-05	0.001	0.1	95%	90	110	0%	
Arsenic	A	mg/L	0.04889	0.04889		0.05	0	0	8.203E-05	0.001	1	98%	90	110	0%	
Barium	A	mg/L	0.04784	0.04784		0.05	0	0	6.762E-05	0.001	1	96%	90	110	0%	
Beryllium	A	mg/L	0.04622	0.04622		0.05	0	0	8.516E-05	0.001	1	92%	90	110	0%	
Boron	A	mg/L	0.04797	0.04797		0.05	0	0	0.0039526	0.00561	1	96%	90	110	0%	
Cadmium	A	mg/L	0.04839	0.04839		0.05	0	0	2.308E-05	0.001	1	97%	90	110	0%	
Calcium	A	mg/L	13.21	13.21		12.5	0	0	0.2027235	0.02092	50	106%	90	110	0%	
Cerium	A	mg/L	0.04962	0.04962		0.05	0	0	0.0000222	0.001	0.1	99%	90	110	0%	
Chromium	A	mg/L	0.04708	0.04708		0.05	0	0	0.0002538	0.001	1	94%	90	110	0%	
Cobalt	A	mg/L	0.04684	0.04684		0.05	0	0	2.141E-05	0.001	1	94%	90	110	0%	
Copper	A	mg/L	0.04932	0.04932		0.05	0	0	0.0001748	0.001	1	99%	90	110	0%	
Iron	A	mg/L	1.324	1.324		1.3	0	0	0.0021157	0.00119	5	102%	90	110	0%	
Lanthanum	A	mg/L	0.05024	0.05024		0.05	0	0	6.805E-05	0.001	0.1	100%	90	110	0%	
Lead	A	mg/L	0.04729	0.04729		0.05	0	0	3.031E-05	0.001	1	95%	90	110	0%	
Magnesium	A	mg/L	12.2	12.2		12.5	0	0	0.0203306	0.00564	50	98%	90	110	0%	
Manganese	A	mg/L	0.04842	0.04842		0.05	0	0	7.309E-05	0.001	1	97%	90	110	0%	
Mercury	A	mg/L	0.0009672	0.0009672		0.001	0	0	3.043E-05	0.001	0.002	97%	90	110	0%	
Molybdenum	A	mg/L	0.04718	0.04718		0.05	0	0	8.113E-05	0.001	0.1	94%	90	110	0%	
Nickel	A	mg/L	0.04962	0.04962		0.05	0	0	0.0001769	0.001	1	99%	90	110	0%	
Potassium	A	mg/L	12.01	12.01		12.5	0	0	0.0215433	0.08139	50	96%	90	110	0%	
Selenium	A	mg/L	0.05176	0.05176		0.05	0	0	7.174E-05	0.001	1	104%	90	110	0%	
Silicon	A	mg/L	0.2724	0.2724		0.2	0	0	0.0033337	0.1	0.4	136%	90	110	0%	S
Silver	A	mg/L	0.01895	0.01895		0.02	0	0	2.644E-05	0.001	0.04	95%	90	110	0%	
Sodium	A	mg/L	12.13	12.13		12.5	0	0	0.0451914	0.02171	50	97%	90	110	0%	
Strontium	A	mg/L	0.04887	0.04887		0.05	0	0	9.743E-05	0.001	1	98%	90	110	0%	
Thallium	A	mg/L	0.04642	0.04642		0.05	0	0	4.842E-05	0.001	1	93%	90	110	0%	
Thorium	A	mg/L	0.0476	0.0476		0.05	0	0	3.018E-05	0.001	1	95%	90	110	0%	
Tin	A	mg/L	0.04763	0.04763		0.05	0	0	0.0009928	0.00132	0.1	95%	90	110	0%	
Titanium	A	mg/L	0.04668	0.04668		0.05	0	0	0.0001004	0.001	1	93%	90	110	0%	
Uranium	A	mg/L	0.04649	0.04649		0.05	0	0	2.468E-05	0.0003	1	93%	90	110	0%	
Vanadium	A	mg/L	0.04945	0.04945		0.05	0	0	0.0018612	0.0013	1	99%	90	110	0%	
Zinc	A	mg/L	0.04904	0.04904		0.05	0	0	0.0010089	0.00273	1	98%	90	110	0%	
Iron, Ferrous	C	mg/L	1.324	1.324		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085517	CCB	ICPMS-6020-W-	CCB		3/12/2022 1:11:0	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	-1.869E-05	-1.869E-05		0	0	0	0.0017836	0.001	1	0%				0%
Antimony	A	mg/L	0.0002858	0.0002858		0	0	0	6.768E-05	0.001	0.1	0%				0%
Arsenic	A	mg/L	0.00004311	0.00004311		0	0	0	8.203E-05	0.001	1	0%				0%
Barium	A	mg/L	0.0002207	0.0002207		0	0	0	6.762E-05	0.001	1	0%				0%
Beryllium	A	mg/L	-6.685E-06	-6.685E-06		0	0	0	8.516E-05	0.001	1	0%				0%
Boron	A	mg/L	0.0007501	0.0007501		0	0	0	0.0039526	0.00561	1	0%				0%
Cadmium	A	mg/L	5.502E-06	5.502E-06		0	0	0	2.308E-05	0.001	1	0%				0%
Calcium	A	mg/L	0.0006307	0.0006307		0	0	0	0.2027235	0.02092	50	0%				0%
Cerium	A	mg/L	2.592E-07	2.592E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0		0%
Chromium	A	mg/L	2.584E-06	2.584E-06		0	0	0	0.0002538	0.001	1	0%				0%
Cobalt	A	mg/L	-1.082E-06	-1.082E-06		0	0	0	2.141E-05	0.001	1	0%				0%
Copper	A	mg/L	0.0001932	0.0001932		0	0	0	0.0001748	0.001	1	0%				0%
Iron	A	mg/L	0.00008752	0.00008752		0	0	0	0.0021157	0.00119	5	0%				0%
Lanthanum	A	mg/L	1.844E-07	1.844E-07		0	0	0	6.805E-05	0.001	0.1	0%	0	0		0%
Lead	A	mg/L	2.607E-06	2.607E-06		0	0	0	3.031E-05	0.001	1	0%				0%
Magnesium	A	mg/L	0.007495	0.007495		0	0	0	0.0203306	0.00564	50	0%				0%
Manganese	A	mg/L	2.211E-06	2.211E-06		0	0	0	7.309E-05	0.001	1	0%				0%
Mercury	A	mg/L	1.146E-06	1.146E-06		0	0	0	3.043E-05	0.001	0.002	0%				0%
Molybdenum	A	mg/L	0.00001631	0.00001631		0	0	0	8.113E-05	0.001	0.1	0%				0%
Nickel	A	mg/L	-2.599E-05	-2.599E-05		0	0	0	0.0001769	0.001	1	0%				0%
Potassium	A	mg/L	0.006149	0.006149		0	0	0	0.0215433	0.08139	50	0%				0%
Selenium	A	mg/L	0.00001389	0.00001389		0	0	0	7.174E-05	0.001	1	0%				0%
Silicon	A	mg/L	0.05605	0.05605		0	0	0	0.0033337	0.1	0.4	0%	0	0		0%
Silver	A	mg/L	6.663E-07	6.663E-07		0	0	0	2.644E-05	0.001	0.04	0%				0%
Sodium	A	mg/L	0.05513	0.05513		0	0	0	0.0451914	0.02171	50	0%				0%
Strontium	A	mg/L	-1.172E-05	-1.172E-05		0	0	0	9.743E-05	0.001	1	0%	0	0		0%
Thallium	A	mg/L	0.00007933	0.00007933		0	0	0	4.842E-05	0.001	1	0%	0	0		0%
Thorium	A	mg/L	0.00003437	0.00003437		0	0	0	3.018E-05	0.001	1	0%	0	0		0%
Tin	A	mg/L	0.00008054	0.00008054		0	0	0	0.0009928	0.00132	0.1	0%	0	0		0%
Titanium	A	mg/L	0.00005676	0.00005676		0	0	0	0.0001004	0.001	1	0%	0	0		0%
Uranium	A	mg/L	1.821E-06	1.821E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0		0%
Vanadium	A	mg/L	0.00513	0.00513		0	0	0	0.0018612	0.0013	1	0%	0	0		0%
Zinc	A	mg/L	-8.294E-07	-8.294E-07		0	0	0	0.0010089	0.00273	1	0%	0	0		0%
Iron, Ferrous	C	mg/L	0.00008752	0.00008752		0	0	0	0.0021157	0.00119	5	0%	0	0		0%

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085518	B22030502-021	ICPMS-6020-W-	SAMP		3/12/2022 1:17:1	1	164321	3/8/2022 2:1	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	0.0002184	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.004167	0.004167		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.854E-05	0		0	0	0	0.0001071	0.01	1	0%	0	0	0%	U
Cadmium	A	mg/L	5.232E-07	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	0.000037	0.000037		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	J
Cobalt	A	mg/L	0.00004956	0		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	U
Lanthanum	A	mg/L	0.00001896	0.00001896		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	J
Lead	A	mg/L	0.0001234	0.0001234		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.001021	0.001021		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.000175	0.000175		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	J
Selenium	A	mg/L	0.0002129	0.0002129		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	0.00001462	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.06103	0.06103		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00003404	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002185	0.002185		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00001689	0.00001689		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	J
Aluminum	B	mg/L	0.01849	0.01849		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	D
Boron	B	mg/L	0.0433	0.0433		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	D
Calcium	B	mg/L	10.11	10.11		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	D
Chromium	B	mg/L	0.002516	0.002516		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	D
Copper	B	mg/L	0.0007011	0.0007011		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	JL
Iron	B	mg/L	0.09688	0.09688		0	0	0	0.007424	0.00513	5	0%	0	0	0%	D
Magnesium	B	mg/L	9.468	9.468		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.0004239	0.0004239		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Potassium	B	mg/L	1.746	1.746		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	D
Sodium	B	mg/L	32.03	32.03		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	D
Thorium	B	mg/L	0.00004224	0		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	UL
Tin	B	mg/L	0.0005727	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.02322	0.02322		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085519	B22030502-026	ICPMS-6020-W-	SAMP		3/12/2022 1:23:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085519	B22030502-026	ICPMS-6020-W-	SAMP		3/12/2022 1:23:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.000974	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	U
Arsenic	A	mg/L	0.00001517	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.002262	0.002262		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.971E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	U
Cadmium	A	mg/L	7.252E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	7.774E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	2.257E-06	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	U
Cobalt	A	mg/L	0.0001662	0.0001662		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Copper	A	mg/L	0.0001543	0		0	0	0	0.0001748	0.001	1	0%	0	0	0%	U
Lanthanum	A	mg/L	2.285E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	8.432E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.3418	0.3418		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	0.00005598	0.00005598		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	J
Molybdenum	A	mg/L	0.005527	0.005527		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	0.000186	0.000186		0	0	0	0.0001769	0.001	1	0%	0	0	0%	J
Selenium	A	mg/L	0.00001106	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	U
Silver	A	mg/L	-4.058E-07	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.1417	0.1417		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00001824	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	U
Thorium	A	mg/L	3.146E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002084	0.002084		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00001644	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	U
Boron	B	mg/L	0.03973	0.03973		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	D
Calcium	B	mg/L	18.35	18.35		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.1336	0.1336		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.1336	0.1336		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	17.79	17.79		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Potassium	B	mg/L	1.279	1.279		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	D
Sodium	B	mg/L	38.06	38.06		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	-3.355E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.006141	0.006141		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085520	B22030502-026	ICPMS-6020-W-	SAMP		3/12/2022 1:29:4	1	164321	3/8/2022 2:1	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	0.0003254	0.0003254		0	0	0	0.0002595	0.001	1	0%	0	0	0%	J
Barium	A	mg/L	0.002277	0.002277		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.568E-05	0		0	0	0	0.0001071	0.01	1	0%	0	0	0%	U
Cadmium	A	mg/L	0.00000655	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	3.489E-06	0		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	U
Cobalt	A	mg/L	0.0001813	0.0001813		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	2.367E-06	0		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00001693	0		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.3528	0.3528		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.005989	0.005989		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	
Selenium	A	mg/L	0.00003668	0		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	U
Silver	A	mg/L	7.265E-07	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.1492	0.1492		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00001542	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002008	0.002008		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	5.806E-06	0		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	U
Aluminum	B	mg/L	0.001868	0		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	UL
Boron	B	mg/L	0.04058	0.04058		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	D
Calcium	B	mg/L	18.43	18.43		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	D
Chromium	B	mg/L	0.0001776	0		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	UL
Copper	B	mg/L	0.0004496	0		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	UL
Iron	B	mg/L	0.1395	0.1395		0	0	0	0.007424	0.00513	5	0%	0	0	0%	D
Magnesium	B	mg/L	17.97	17.97		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.0003299	0.0003299		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Potassium	B	mg/L	1.269	1.269		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	D
Sodium	B	mg/L	38.34	38.34		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	D
Thorium	B	mg/L	0.0000209	0		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	UL
Tin	B	mg/L	0.0001809	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.007431	0.007431		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085521	B22030502-031	ICPMS-6020-W-	SAMP		3/12/2022 1:35:5	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085521	B22030502-031	ICPMS-6020-W-	SAMP		3/12/2022 1:35:5	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.01147	0.01147		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Arsenic	A	mg/L	-1.106E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.004956	0.004956		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-2.116E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	U
Cadmium	A	mg/L	4.279E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	7.925E-06	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.002336	0.002336		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0.00005006	0.00005006		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Copper	A	mg/L	0.001032	0.001032		0	0	0	0.0001748	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	0.0000034	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00002683	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.0002729	0.0002729		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	J
Mercury	A	mg/L	3.296E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	U
Molybdenum	A	mg/L	0.0002015	0.0002015		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.0005781	0.0005781		0	0	0	0.0001769	0.001	1	0%	0	0	0%	J
Selenium	A	mg/L	0.0001496	0.0001496		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	2.556E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.06924	0.06924		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00001038	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	U
Thorium	A	mg/L	1.298E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.00299	0.00299		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00002086	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	U
Boron	B	mg/L	0.04054	0.04054		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	D
Calcium	B	mg/L	11.25	11.25		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.009945	0.009945		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.009945	0.009945		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	9.337	9.337		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Potassium	B	mg/L	4.785	4.785		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	D
Sodium	B	mg/L	33.03	33.03		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	0.0004178	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.01513	0.01513		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085522	B22030502-031	ICPMS-6020-W-	SAMP		3/12/2022 1:42:1	1	164321	3/8/2022 2:1	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	0.0002206	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.007778	0.007778		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.927E-05	0		0	0	0	0.0001071	0.01	1	0%	0	0	0%	U
Cadmium	A	mg/L	0.00000343	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	0.00004614	0.00004614		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	J
Cobalt	A	mg/L	0.00009884	0.00009884		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	0.00002095	0.00002095		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	J
Lead	A	mg/L	0.000101	0.000101		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.001159	0.001159		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.0002768	0.0002768		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	J
Selenium	A	mg/L	0.0001635	0.0001635		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	0.00001066	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.0774	0.0774		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00001106	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.004522	0.004522		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00002174	0.00002174		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	J
Aluminum	B	mg/L	0.03501	0.03501		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	D
Boron	B	mg/L	0.04094	0.04094		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	D
Calcium	B	mg/L	11.2	11.2		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	D
Chromium	B	mg/L	0.002933	0.002933		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	D
Copper	B	mg/L	0.001804	0.001804		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	JL
Iron	B	mg/L	0.07342	0.07342		0	0	0	0.007424	0.00513	5	0%	0	0	0%	D
Magnesium	B	mg/L	9.247	9.247		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.0009858	0.0009858		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Potassium	B	mg/L	5.408	5.408		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	D
Sodium	B	mg/L	33.36	33.36		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	D
Thorium	B	mg/L	0.00001445	0		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	UL
Tin	B	mg/L	0.001864	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.06174	0.06174		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085523	B22030586-001	ICPMS-6020-W-	SAMP		3/12/2022 1:48:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085523	B22030586-001	ICPMS-6020-W-	SAMP		3/12/2022 1:48:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.002745	0.002745		0	0	0	0.0017836	0.001	1	0%	0	0	0%	U
Arsenic	A	mg/L	0.0003854	0.0003854		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	J
Barium	A	mg/L	0.01218	0.01218		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-2.458E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	U
Cadmium	A	mg/L	8.177E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	2.769E-06	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.0005392	0.0005392		0	0	0	0.0002538	0.001	1	0%	0	0	0%	J
Cobalt	A	mg/L	0.0001503	0.0001503		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Copper	A	mg/L	0.0009336	0.0009336		0	0	0	0.0001748	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	1.298E-06	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00009716	0.00009716		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.001842	0.001842		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	0.0004601	0.0004601		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	J
Molybdenum	A	mg/L	0.0008655	0.0008655		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.0007168	0.0007168		0	0	0	0.0001769	0.001	1	0%	0	0	0%	J
Selenium	A	mg/L	0.0004562	0.0004562		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	0.00001114	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.2915	0.2915		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	5.381E-06	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	U
Thorium	A	mg/L	3.527E-07	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002675	0.002675		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00004865	0.00004865		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	J
Boron	B	mg/L	0.06946	0.06946		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	D
Calcium	B	mg/L	39.16	39.16		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.01558	0.01558		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.01558	0.01558		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	38.19	38.19		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Potassium	B	mg/L	2.498	2.498		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	D
Tin	B	mg/L	-0.0000348	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.004234	0.004234		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085524	B22030586-001	ICPMS-6020-W-	SAMP		3/12/2022 1:54:3	1	164435	3/11/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085524	B22030586-001	ICPMS-6020-W-	SAMP		3/12/2022 1:54:3	1	164435	3/11/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	0.0006914	0.0006914		0	0	0	0.0002595	0.001	1	0%	0	0	0%	J
Barium	A	mg/L	0.01268	0.01268		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.404E-05	0		0	0	0	0.0001071	0.01	1	0%	0	0	0%	U
Cadmium	A	mg/L	0.00001601	0.00001601		0	0	0	0.0000141	0.005	1	0%	0	0	0%	J
Cerium	A	mg/L	0.00001603	0.00001603		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	J
Cobalt	A	mg/L	0.0001996	0.0001996		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	0.00001871	0.00001871		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	J
Lead	A	mg/L	0.0002354	0.0002354		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.001977	0.001977		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.0009859	0.0009859		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	J
Selenium	A	mg/L	0.0004665	0.0004665		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	0.0000225	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.2941	0.2941		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00002215	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.003256	0.003256		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00005579	0.00005579		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	J
Aluminum	B	mg/L	0.008018	0.008018		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	D
Boron	B	mg/L	0.07191	0.07191		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	D
Calcium	B	mg/L	39.56	39.56		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	D
Chromium	B	mg/L	0.0008052	0.0008052		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	JL
Copper	B	mg/L	0.0008719	0.0008719		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	JL
Iron	B	mg/L	0.0489	0.0489		0	0	0	0.007424	0.00513	5	0%	0	0	0%	D
Magnesium	B	mg/L	38.67	38.67		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.0005281	0.0005281		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Potassium	B	mg/L	2.433	2.433		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	D
Thorium	B	mg/L	0.00003059	0		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	UL
Tin	B	mg/L	0.0003034	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.001723	0.001723		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	JL

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085525	B22030586-001	ICPMS-6020-W-	SD		3/12/2022 2:00:5	5	164435	3/11/2022 8:	0	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085525	B22030586-001	ICPMS-6020-W-	SD		3/12/2022 2:00:5	5	164435	3/11/2022 8:	0	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.002944	0.01472		0	0	0.008018	0.0146074	0.0159875	1	0%	0	0		N
Antimony	A	mg/L	0.00003616	0		0	0	0	0.0012426	0.0049	0.1	0%	0	0		
Arsenic	A	mg/L	0.0001919	0		0	0	0.0006914	0.0012977	0.0013383	1	0%	0	0		
Barium	A	mg/L	0.002487	0.012435		0	0	0.01268	0.0005204	0.0012039	1	0%	0	0	2%	
Beryllium	A	mg/L	-0.0000229	0		0	0	0	0.0005353	0.01	1	0%	0	0		
Boron	A	mg/L	0.01491	0.07455		0	0	0.07191	0.0151506	0.07335	1	0%	0	0		N
Cadmium	A	mg/L	-1.621E-06	0		0	0	1.601E-05	0.0000705	0.005	1	0%	0	0		
Calcium	A	mg/L	7.882	39.41		0	0	39.56	0.1864681	0.5517403	50	0%	0	0	0%	
Cerium	A	mg/L	0.00000341	0		0	0	1.603E-05	0.0000435	0.001	0.1	0%	0	0		
Chromium	A	mg/L	0.000208	0		0	0	0.0008052	0.0026324	0.0076875	1	0%	0	0		
Cobalt	A	mg/L	0.00003435	0		0	0	0.0001996	0.0004201	0.001	1	0%	0	0		
Copper	A	mg/L	0.0003269	0		0	0	0.0008719	0.0028718	0.0099	1	0%	0	0		
Iron	A	mg/L	0.009628	0.04814		0	0	0.0489	0.0371198	0.02565	5	0%	0	0		N
Lanthanum	A	mg/L	2.527E-06	0		0	0	1.871E-05	5.525E-05	0.001	0.1	0%	0	0		
Lead	A	mg/L	0.00004786	0		0	0	0.0002354	0.0002623	0.001	1	0%	0	0		
Magnesium	A	mg/L	7.9	39.5		0	0	38.67	0.3431747	0.0407608	50	0%	0	0	2%	
Manganese	A	mg/L	0.0003903	0.0019515		0	0	0.001977	0.0012975	0.0010695	1	0%	0	0		N
Molybdenum	A	mg/L	0.0005666	0.002833		0	0	0.0009859	0.000483	0.001	0.1	0%	0	0		N
Nickel	A	mg/L	0.0001301	0		0	0	0.0005281	0.0011941	0.0121000	1	0%	0	0		
Potassium	A	mg/L	0.485	2.425		0	0	2.433	0.1447062	0.1306027	50	0%	0	0	0%	
Selenium	A	mg/L	0.0001074	0.000537		0	0	0.0004665	0.0003126	0.0029274	1	0%	0	0		N
Silicon	A	mg/L	4.185	20.925		0	0	20.11	0.1093983	0.026606	0.4	0%	0	0	4%	
Silver	A	mg/L	4.527E-06	0		0	0	0	0.0001159	0.001	0.04	0%	0	0		
Sodium	A	mg/L	18.8	94		0	0	93.18	0.3607583	3.6651346	50	0%	0	0	1%	
Strontium	A	mg/L	0.05747	0.28735		0	0	0.2941	0.0003589	0.001	1	0%	0	0	2%	
Thallium	A	mg/L	8.563E-06	0		0	0	0	0.0005569	0.001	1	0%	0	0		
Thorium	A	mg/L	4.918E-06	0		0	0	0	0.0002949	0.02075	1	0%	0	0		
Tin	A	mg/L	0.001959	0.009795		0	0	0	0.0094659	0.0055874	0.1	0%	0	0		N
Titanium	A	mg/L	0.0005681	0.0028405		0	0	0.003256	0.0024621	0.001	1	0%	0	0		N
Uranium	A	mg/L	0.0000108	0		0	0	5.579E-05	0.0000542	0.0004224	1	0%	0	0		
Vanadium	A	mg/L	0.005462	0.02731		0	0	0.01893	0.0062091	0.0105423	1	0%	0	0		N
Zinc	A	mg/L	0.001162	0.00581		0	0	0.001723	0.0058087	0.0327721	1	0%	0	0		N
Silica	C	mg/L	8.952552	44.76276		0	0	0	0.2340247	0.0569155	5	0%	0	0		N
Silicon as SiO2	C	mg/L	8.952552	44.76276		0	0	0	0.2340247	0.0569155	5	0%	0	0		N

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085526	B22030586-001	ICPMS-6020-W-	PDS1-DOD		3/12/2022 2:07:0	1.03	164435	3/11/2022 8:	2E+07	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.05158	0.0531274		0.0515	0.008018	0	0.0030091	0.0032934	1	88%	75	125	0%	
Antimony	A	mg/L	0.04537	0.0467311		0.0515	0	0	0.000256	0.0010094	0.1	91%	75	125	0%	
Arsenic	A	mg/L	0.04806	0.0495018		0.0515	0.0006914	0	0.0002673	0.001	1	95%	75	125	0%	
Barium	A	mg/L	0.05926	0.0610378		0.0515	0.01268	0	0.0001072	0.001	1	94%	75	125	0%	
Beryllium	A	mg/L	0.04096	0.0421888		0.0515	0	0	0.0001103	0.01	1	82%	75	125	0%	
Boron	A	mg/L	0.1157	0.119171		0.0515	0.07191	0	0.0031210	0.0151101	1	92%	75	125	0%	
Cadmium	A	mg/L	0.04808	0.0495224		0.0515	1.601E-05	0	1.452E-05	0.005	1	96%	75	125	0%	
Calcium	A	mg/L	83.78	86.2934		51.5	39.56	0	0.0384124	0.1136585	50	91%	75	125	0%	
Cerium	A	mg/L	0.05098	0.0525094		0.0515	1.603E-05	0	8.961E-06	0.001	0.1	102%	75	125	0%	
Chromium	A	mg/L	0.04733	0.0487499		0.0515	0.0008052	0	0.0005423	0.0015836	1	93%	75	125	0%	
Cobalt	A	mg/L	0.04356	0.0448668		0.0515	0.0001996	0	8.654E-05	0.001	1	87%	75	125	0%	
Copper	A	mg/L	0.04792	0.0493576		0.0515	0.0008719	0	0.0005916	0.0020394	1	94%	75	125	0%	
Iron	A	mg/L	4.845	4.99035		5.15	0.0489	0	0.0076467	0.0052839	5	96%	75	125	0%	
Lanthanum	A	mg/L	0.05163	0.0531789		0.0515	1.871E-05	0	1.138E-05	0.001	0.1	103%	75	125	0%	
Lead	A	mg/L	0.04739	0.0488117		0.0515	0.0002354	0	5.403E-05	0.001	1	94%	80	120	0%	
Magnesium	A	mg/L	82.66	85.1398		51.5	38.67	0	0.070694	0.0083967	50	90%	75	125	0%	
Manganese	A	mg/L	0.04986	0.0513558		0.0515	0.001977	0	0.0002673	0.001	1	96%	75	125	0%	
Molybdenum	A	mg/L	0.04754	0.0489662		0.0515	0.0009859	0	9.95E-05	0.001	0.1	93%	75	125	0%	
Nickel	A	mg/L	0.04766	0.0490898		0.0515	0.0005281	0	0.000246	0.0024926	1	94%	75	125	0%	
Potassium	A	mg/L	46.27	47.6581		51.5	2.433	0	0.0298095	0.0269042	50	88%	75	125	0%	
Selenium	A	mg/L	0.04779	0.0492237		0.0515	0.0004665	0	6.439E-05	0.001	1	95%	75	125	0%	
Silicon	A	mg/L	20.48	21.0944		0.206	20.11	0	0.0225360	0.0054808	0.4		75	125	0%	A
Silver	A	mg/L	0.01782	0.0183546		0.0206	0	0	2.388E-05	0.001	0.04	89%	75	125	0%	
Sodium	A	mg/L	135	139.05		51.5	93.18	0	0.0743162	0.7550177	50	89%	75	125	0%	
Strontium	A	mg/L	0.3405	0.350715		0.0515	0.2941	0	7.393E-05	0.001	1		75	125	0%	A
Thallium	A	mg/L	0.04954	0.0510262		0.0515	0	0	0.0001147	0.001	1	99%	75	125	0%	
Thorium	A	mg/L	0.05028	0.0517884		0.0515	0	0	6.075E-05	0.0042745	1	101%	75	125	0%	
Tin	A	mg/L	0.04958	0.0510674		0.0515	0	0	0.00195	0.001151	0.1	99%	75	125	0%	
Titanium	A	mg/L	0.05199	0.0535497		0.0515	0.003256	0	0.0005072	0.001	1	98%	75	125	0%	
Uranium	A	mg/L	0.04848	0.0499344		0.0515	5.579E-05	0	1.117E-05	0.0003	1	97%	75	125	0%	
Vanadium	A	mg/L	0.06621	0.0681963		0.0515	0.01893	0	0.0012791	0.0021717	1	96%	75	125	0%	
Zinc	A	mg/L	0.04637	0.0477611		0.0515	0.001723	0	0.0011966	0.0067511	1	89%	75	125	0%	
Silica	C	mg/L	43.810816	45.1251405		0	0	0	0.0482091	0.0117246	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	43.810816	45.1251405		0.0515	0	0	0.0482091	0.0117246	5	87622%	75	125	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085527	B22030586-001	ICPMS-6020-W-	MS4-DOD		3/12/2022 2:13:2	1	164435	3/11/2022 8:	2E+07	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.4532	0.4532		0.5	0.008018	0	0.0029215	0.0031975	1	89%	75	125	0%	
Antimony	A	mg/L	0.09451	0.09451		0.1	0	0	0.0002485	0.001	0.1	95%	75	125	0%	
Arsenic	A	mg/L	0.09298	0.09298		0.1	0.0006914	0	0.0002595	0.001	1	92%	75	125	0%	
Barium	A	mg/L	0.1018	0.1018		0.1	0.01268	0	0.0001041	0.001	1	89%	75	125	0%	
Beryllium	A	mg/L	0.04187	0.04187		0.05	0	0	0.0001071	0.01	1	84%	75	125	0%	
Boron	A	mg/L	0.1595	0.1595		0.1	0.07191	0	0.0030301	0.01467	1	88%	75	125	0%	
Cadmium	A	mg/L	0.04809	0.04809		0.05	1.601E-05	0	0.0000141	0.005	1	96%	75	125	0%	
Calcium	A	mg/L	42.96	42.96		5	39.56	0	0.0372936	0.1103481	50		75	125	0%	A
Cerium	A	mg/L	0.1011	0.1011		0.1	1.603E-05	0	0.0000087	0.001	0.1	101%	75	125	0%	
Chromium	A	mg/L	0.09226	0.09226		0.1	0.0008052	0	0.0005265	0.0015375	1	91%	75	125	0%	
Cobalt	A	mg/L	0.08817	0.08817		0.1	0.0001996	0	8.402E-05	0.001	1	88%	75	125	0%	
Copper	A	mg/L	0.09378	0.09378		0.1	0.0008719	0	0.0005744	0.00198	1	93%	75	125	0%	
Iron	A	mg/L	0.5423	0.5423		0.5	0.0489	0	0.007424	0.00513	5	99%	75	125	0%	
Lanthanum	A	mg/L	0.1016	0.1016		0.1	1.871E-05	0	1.105E-05	0.001	0.1	102%	75	125	0%	
Lead	A	mg/L	0.09596	0.09596		0.1	0.0002354	0	5.246E-05	0.001	1	96%	88	115	0%	
Magnesium	A	mg/L	41.95	41.95		5	38.67	0	0.0686349	0.0081522	50		75	125	0%	A
Manganese	A	mg/L	0.4726	0.4726		0.5	0.001977	0	0.0002595	0.001	1	94%	75	125	0%	
Molybdenum	A	mg/L	0.09595	0.09595		0.1	0.0009859	0	0.0000966	0.001	0.1	95%	75	125	0%	
Nickel	A	mg/L	0.09568	0.09568		0.1	0.0005281	0	0.0002388	0.0024200	1	95%	75	125	0%	
Potassium	A	mg/L	6.914	6.914		5	2.433	0	0.0289412	0.0261205	50	90%	75	125	0%	
Selenium	A	mg/L	0.09474	0.09474		0.1	0.0004665	0	6.251E-05	0.001	1	94%	75	125	0%	
Silicon	A	mg/L	21.57	21.57		1	20.11	0	0.0218797	0.0053212	0.4		75	125	0%	A
Silver	A	mg/L	0.00902	0.00902		0.01	0	0	2.318E-05	0.001	0.04	90%	75	125	0%	
Sodium	A	mg/L	93.88	93.88		5	93.18	0	0.0721517	0.7330269	50		75	125	0%	A
Strontium	A	mg/L	0.3956	0.3956		0.1	0.2941	0	7.178E-05	0.001	1	101%	75	125	0%	
Thallium	A	mg/L	0.09828	0.09828		0.1	0	0	0.0001114	0.001	1	98%	75	125	0%	
Thorium	A	mg/L	0.098	0.098		0.1	0	0	5.898E-05	0.00415	1	98%	75	125	0%	
Tin	A	mg/L	0.09812	0.09812		0.1	0	0	0.0018932	0.0011175	0.1	98%	75	125	0%	
Titanium	A	mg/L	0.09407	0.09407		0.1	0.003256	0	0.0004924	0.001	1	91%	75	125	0%	
Uranium	A	mg/L	0.09743	0.09743		0.1	5.579E-05	0	1.084E-05	0.0003	1	97%	75	125	0%	
Vanadium	A	mg/L	0.11	0.11		0.1	0.01893	0	0.0012418	0.0021085	1	91%	75	125	0%	
Zinc	A	mg/L	0.09049	0.09049		0.1	0.001723	0	0.0011617	0.0065544	1	89%	75	125	0%	
Silica	C	mg/L	46.142544	46.142544		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	46.142544	46.142544		2.14	0	0	0.0468049	0.0113831	5	2156%	75	125	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085528	CCV	ICPMS-6020-W-	CCV		3/12/2022 2:19:3	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04855	0.04855		0.05	0	0	0.0017836	0.001	1	97%	90	110	0%	
Antimony	A	mg/L	0.04816	0.04816		0.05	0	0	6.768E-05	0.001	0.1	96%	90	110	0%	
Arsenic	A	mg/L	0.04884	0.04884		0.05	0	0	8.203E-05	0.001	1	98%	90	110	0%	
Barium	A	mg/L	0.04745	0.04745		0.05	0	0	6.762E-05	0.001	1	95%	90	110	0%	
Beryllium	A	mg/L	0.04616	0.04616		0.05	0	0	8.516E-05	0.001	1	92%	90	110	0%	
Boron	A	mg/L	0.04784	0.04784		0.05	0	0	0.0039526	0.00561	1	96%	90	110	0%	
Cadmium	A	mg/L	0.04866	0.04866		0.05	0	0	2.308E-05	0.001	1	97%	90	110	0%	
Calcium	A	mg/L	13.12	13.12		12.5	0	0	0.2027235	0.02092	50	105%	90	110	0%	
Cerium	A	mg/L	0.05019	0.05019		0.05	0	0	0.0000222	0.001	0.1	100%	90	110	0%	
Chromium	A	mg/L	0.04613	0.04613		0.05	0	0	0.0002538	0.001	1	92%	90	110	0%	
Cobalt	A	mg/L	0.0462	0.0462		0.05	0	0	2.141E-05	0.001	1	92%	90	110	0%	
Copper	A	mg/L	0.04879	0.04879		0.05	0	0	0.0001748	0.001	1	98%	90	110	0%	
Iron	A	mg/L	1.312	1.312		1.3	0	0	0.0021157	0.00119	5	101%	90	110	0%	
Lanthanum	A	mg/L	0.05086	0.05086		0.05	0	0	6.805E-05	0.001	0.1	102%	90	110	0%	
Lead	A	mg/L	0.0477	0.0477		0.05	0	0	3.031E-05	0.001	1	95%	90	110	0%	
Magnesium	A	mg/L	12.33	12.33		12.5	0	0	0.0203306	0.00564	50	99%	90	110	0%	
Manganese	A	mg/L	0.04785	0.04785		0.05	0	0	7.309E-05	0.001	1	96%	90	110	0%	
Mercury	A	mg/L	0.0009426	0.0009426		0.001	0	0	3.043E-05	0.001	0.002	94%	90	110	0%	
Molybdenum	A	mg/L	0.04703	0.04703		0.05	0	0	8.113E-05	0.001	0.1	94%	90	110	0%	
Nickel	A	mg/L	0.04852	0.04852		0.05	0	0	0.0001769	0.001	1	97%	90	110	0%	
Potassium	A	mg/L	11.77	11.77		12.5	0	0	0.0215433	0.08139	50	94%	90	110	0%	
Selenium	A	mg/L	0.05097	0.05097		0.05	0	0	7.174E-05	0.001	1	102%	90	110	0%	
Silicon	A	mg/L	0.4585	0.4585		0.2	0	0	0.0033337	0.1	0.4	229%	90	110	0%	S
Silver	A	mg/L	0.01893	0.01893		0.02	0	0	2.644E-05	0.001	0.04	95%	90	110	0%	
Sodium	A	mg/L	12.21	12.21		12.5	0	0	0.0451914	0.02171	50	98%	90	110	0%	
Strontium	A	mg/L	0.04883	0.04883		0.05	0	0	9.743E-05	0.001	1	98%	90	110	0%	
Thallium	A	mg/L	0.04699	0.04699		0.05	0	0	4.842E-05	0.001	1	94%	90	110	0%	
Thorium	A	mg/L	0.04779	0.04779		0.05	0	0	3.018E-05	0.001	1	96%	90	110	0%	
Tin	A	mg/L	0.04832	0.04832		0.05	0	0	0.0009928	0.00132	0.1	97%	90	110	0%	
Titanium	A	mg/L	0.04694	0.04694		0.05	0	0	0.0001004	0.001	1	94%	90	110	0%	
Uranium	A	mg/L	0.04643	0.04643		0.05	0	0	2.468E-05	0.0003	1	93%	90	110	0%	
Vanadium	A	mg/L	0.04879	0.04879		0.05	0	0	0.0018612	0.0013	1	98%	90	110	0%	
Zinc	A	mg/L	0.04879	0.04879		0.05	0	0	0.0010089	0.00273	1	98%	90	110	0%	
Iron, Ferrous	C	mg/L	1.312	1.312		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085529	CCB	ICPMS-6020-W-	CCB		3/12/2022 2:25:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	-9.263E-06	-9.263E-06		0	0	0	0.0017836	0.001	1	0%				0%
Antimony	A	mg/L	0.000457	0.000457		0	0	0	6.768E-05	0.001	0.1	0%				0%
Arsenic	A	mg/L	0.00005773	0.00005773		0	0	0	8.203E-05	0.001	1	0%				0%
Barium	A	mg/L	6.038E-08	6.038E-08		0	0	0	6.762E-05	0.001	1	0%				0%
Beryllium	A	mg/L	-1.254E-05	-1.254E-05		0	0	0	8.516E-05	0.001	1	0%				0%
Boron	A	mg/L	0.001006	0.001006		0	0	0	0.0039526	0.00561	1	0%				0%
Cadmium	A	mg/L	0.00000582	0.00000582		0	0	0	2.308E-05	0.001	1	0%				0%
Calcium	A	mg/L	0.0009739	0.0009739		0	0	0	0.2027235	0.02092	50	0%				0%
Cerium	A	mg/L	0.00000209	0.00000209		0	0	0	0.0000222	0.001	0.1	0%	0	0		0%
Chromium	A	mg/L	0.00001017	0.00001017		0	0	0	0.0002538	0.001	1	0%				0%
Cobalt	A	mg/L	1.675E-08	1.675E-08		0	0	0	2.141E-05	0.001	1	0%				0%
Copper	A	mg/L	0.0001737	0.0001737		0	0	0	0.0001748	0.001	1	0%				0%
Iron	A	mg/L	-0.0002143	-0.0002143		0	0	0	0.0021157	0.00119	5	0%				0%
Lanthanum	A	mg/L	0.00004984	0.00004984		0	0	0	6.805E-05	0.001	0.1	0%	0	0		0%
Lead	A	mg/L	5.712E-06	5.712E-06		0	0	0	3.031E-05	0.001	1	0%				0%
Magnesium	A	mg/L	0.005521	0.005521		0	0	0	0.0203306	0.00564	50	0%				0%
Manganese	A	mg/L	6.03E-08	6.03E-08		0	0	0	7.309E-05	0.001	1	0%				0%
Mercury	A	mg/L	2.711E-06	2.711E-06		0	0	0	3.043E-05	0.001	0.002	0%				0%
Molybdenum	A	mg/L	0.00001429	0.00001429		0	0	0	8.113E-05	0.001	0.1	0%				0%
Nickel	A	mg/L	-3.432E-05	-3.432E-05		0	0	0	0.0001769	0.001	1	0%				0%
Potassium	A	mg/L	0.005801	0.005801		0	0	0	0.0215433	0.08139	50	0%				0%
Selenium	A	mg/L	0.00002673	0.00002673		0	0	0	7.174E-05	0.001	1	0%				0%
Silicon	A	mg/L	0.1364	0.1364		0	0	0	0.0033337	0.1	0.4	0%	0	0		0%
Silver	A	mg/L	1.227E-06	1.227E-06		0	0	0	2.644E-05	0.001	0.04	0%				0%
Sodium	A	mg/L	0.0794	0.0794		0	0	0	0.0451914	0.02171	50	0%				0%
Strontium	A	mg/L	-0.000011	-0.000011		0	0	0	9.743E-05	0.001	1	0%	0	0		0%
Thallium	A	mg/L	0.0001044	0.0001044		0	0	0	4.842E-05	0.001	1	0%	0	0		0%
Thorium	A	mg/L	0.00004572	0.00004572		0	0	0	3.018E-05	0.001	1	0%	0	0		0%
Tin	A	mg/L	0.00008918	0.00008918		0	0	0	0.0009928	0.00132	0.1	0%	0	0		0%
Titanium	A	mg/L	0.0001426	0.0001426		0	0	0	0.0001004	0.001	1	0%	0	0		0%
Uranium	A	mg/L	3.191E-06	3.191E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0		0%
Vanadium	A	mg/L	0.004371	0.004371		0	0	0	0.0018612	0.0013	1	0%	0	0		0%
Zinc	A	mg/L	-7.762E-06	-7.762E-06		0	0	0	0.0010089	0.00273	1	0%	0	0		0%
Iron, Ferrous	C	mg/L	-0.0002143	-0.0002143		0	0	0	0.0021157	0.00119	5	0%	0	0		0%

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085530	B22030586-001	ICPMS-6020-W-	MSD4-DOD		3/12/2022 2:32:0	1	164435	3/11/2022 8:	2E+07	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.4483	0.4483		0.5	0.008018	0.4532	0.0029215	0.0031975	1	88%	75	125	1%	
Antimony	A	mg/L	0.09462	0.09462		0.1	0	0.09451	0.0002485	0.001	0.1	95%	75	125	0%	
Arsenic	A	mg/L	0.09509	0.09509		0.1	0.0006914	0.09298	0.0002595	0.001	1	94%	75	125	2%	
Barium	A	mg/L	0.09949	0.09949		0.1	0.01268	0.1018	0.0001041	0.001	1	87%	75	125	2%	
Beryllium	A	mg/L	0.04183	0.04183		0.05	0	0.04187	0.0001071	0.01	1	84%	75	125	0%	
Boron	A	mg/L	0.1594	0.1594		0.1	0.07191	0.1595	0.0030301	0.01467	1	87%	75	125	0%	
Cadmium	A	mg/L	0.04845	0.04845		0.05	1.601E-05	0.04809	0.0000141	0.005	1	97%	75	125	1%	
Calcium	A	mg/L	43.32	43.32		5	39.56	42.96	0.0372936	0.1103481	50		75	125	1%	A
Cerium	A	mg/L	0.1009	0.1009		0.1	1.603E-05	0.1011	0.0000087	0.001	0.1	101%	75	125	0%	
Chromium	A	mg/L	0.09406	0.09406		0.1	0.0008052	0.09226	0.0005265	0.0015375	1	93%	75	125	2%	
Cobalt	A	mg/L	0.08939	0.08939		0.1	0.0001996	0.08817	8.402E-05	0.001	1	89%	75	125	1%	
Copper	A	mg/L	0.09469	0.09469		0.1	0.0008719	0.09378	0.0005744	0.00198	1	94%	75	125	1%	
Iron	A	mg/L	0.5525	0.5525		0.5	0.0489	0.5423	0.007424	0.00513	5	101%	75	125	2%	
Lanthanum	A	mg/L	0.1023	0.1023		0.1	1.871E-05	0.1016	1.105E-05	0.001	0.1	102%	75	125	1%	
Lead	A	mg/L	0.0941	0.0941		0.1	0.0002354	0.09596	5.246E-05	0.001	1	94%	88	115	2%	
Magnesium	A	mg/L	41.93	41.93		5	38.67	41.95	0.0686349	0.0081522	50		75	125	0%	A
Manganese	A	mg/L	0.4764	0.4764		0.5	0.001977	0.4726	0.0002595	0.001	1	95%	75	125	1%	
Molybdenum	A	mg/L	0.09512	0.09512		0.1	0.0009859	0.09595	0.0000966	0.001	0.1	94%	75	125	1%	
Nickel	A	mg/L	0.09654	0.09654		0.1	0.0005281	0.09568	0.0002388	0.0024200	1	96%	75	125	1%	
Potassium	A	mg/L	6.982	6.982		5	2.433	6.914	0.0289412	0.0261205	50	91%	75	125	1%	
Selenium	A	mg/L	0.09562	0.09562		0.1	0.0004665	0.09474	6.251E-05	0.001	1	95%	75	125	1%	
Silicon	A	mg/L	21.89	21.89		1	20.11	21.57	0.0218797	0.0053212	0.4		75	125	1%	A
Silver	A	mg/L	0.008856	0.008856		0.01	0	0.00902	2.318E-05	0.001	0.04	89%	75	125	2%	
Sodium	A	mg/L	93.98	93.98		5	93.18	93.88	0.0721517	0.7330269	50		75	125	0%	A
Strontium	A	mg/L	0.3989	0.3989		0.1	0.2941	0.3956	7.178E-05	0.001	1	105%	75	125	1%	
Thallium	A	mg/L	0.09863	0.09863		0.1	0	0.09828	0.0001114	0.001	1	99%	75	125	0%	
Thorium	A	mg/L	0.09837	0.09837		0.1	0	0.098	5.898E-05	0.00415	1	98%	75	125	0%	
Tin	A	mg/L	0.09957	0.09957		0.1	0	0.09812	0.0018932	0.0011175	0.1	100%	75	125	1%	
Titanium	A	mg/L	0.09398	0.09398		0.1	0.003256	0.09407	0.0004924	0.001	1	91%	75	125	0%	
Uranium	A	mg/L	0.0966	0.0966		0.1	5.579E-05	0.09743	1.084E-05	0.0003	1	97%	75	125	1%	
Vanadium	A	mg/L	0.1125	0.1125		0.1	0.01893	0.11	0.0012418	0.0021085	1	94%	75	125	2%	
Zinc	A	mg/L	0.09179	0.09179		0.1	0.001723	0.09049	0.0011617	0.0065544	1	90%	75	125	1%	
Silica	C	mg/L	46.827088	46.827088		0	0	46.142544	0.0468049	0.0113831	5	0%	0	0	1%	
Silicon as SiO2	C	mg/L	46.827088	46.827088		2.14	0	46.142544	0.0468049	0.0113831	5	2188%	75	125	1%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085531	Rinse	ICPMS-6020-W-	SAMP		3/12/2022 2:38:1	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.00001174	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Arsenic	A	mg/L	0.0000458	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	1.341E-06	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.166E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Boron	A	mg/L	0.001009	0		0	0	0	0.0039526	0.0036397	1	0%	0	0	0%	L
Cadmium	A	mg/L	7.819E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Calcium	A	mg/L	0.002076	0		0	0	0	0.2027235	0.0254163	50	0%	0	0	0%	L
Cerium	A	mg/L	7.542E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	9.727E-06	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	2.134E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.0001706	0		0	0	0	0.0001748	0.001	1	0%	0	0	0%	
Iron	A	mg/L	-0.0002472	0		0	0	0	0.0021157	0.0021231	5	0%	0	0	0%	L
Lanthanum	A	mg/L	3.883E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	6.406E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Magnesium	A	mg/L	0.005343	0		0	0	0	0.0203306	0.0084694	50	0%	0	0	0%	L
Manganese	A	mg/L	0.00000906	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	2.138E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	7.654E-06	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-2.936E-05	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Potassium	A	mg/L	0.003482	0		0	0	0	0.0215433	0.0951865	50	0%	0	0	0%	L
Selenium	A	mg/L	0.00002229	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silver	A	mg/L	5.392E-07	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	0.05833	0.05833		0	0	0	0.0451914	0.0321039	50	0%	0	0	0%	D
Strontium	A	mg/L	-1.374E-05	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0001083	0.0001083		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00005141	0.00005141		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Tin	A	mg/L	0.00004526	0		0	0	0	0.0009928	0.0021596	0.1	0%	0	0	0%	L
Titanium	A	mg/L	0.0001121	0.0001121		0	0	0	0.0001004	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	1.877E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	0.002535	0.002535		0	0	0	0.0018612	0.004194	1	0%	0	0	0%	JL
Zinc	A	mg/L	0.0003173	0		0	0	0	0.0010089	0.001	1	0%	0	0	0%	
Lithium	B	mg/L	0.000755	0		0	0	0	0.0017415	0.05	1	0%	0	0	0%	L
Iron, Ferrous	C	mg/L	-0.0002472	0		0	0	0	0.0021157	0.0021231	5	0%	0	0	0%	L

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085532	B22030586-007	ICPMS-6020-W-	SAMP		3/12/2022 2:44:3	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001269	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	U
Arsenic	A	mg/L	-6.342E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.002908	0.002908		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.857E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	U
Cadmium	A	mg/L	4.081E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	5.719E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.001828	0.001828		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0.0001064	0.0001064		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Copper	A	mg/L	0.0002625	0.0002625		0	0	0	0.0001748	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	4.137E-08	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Manganese	A	mg/L	0.001084	0.001084		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	6.012E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	U
Molybdenum	A	mg/L	0.0003896	0.0003896		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.008876	0.008876		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.0001916	0.0001916		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	1.119E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.06105	0.06105		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00004099	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	U
Thorium	A	mg/L	0.00001266	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002481	0.002481		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	8.481E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	U
Boron	B	mg/L	0.05892	0.05892		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	D
Calcium	B	mg/L	9.785	9.785		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.0024	0.0024		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	U
Iron, Ferrous	B	mg/L	0.0024	0.0024		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	U
Lead	B	mg/L	0.00001245	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	U
Magnesium	B	mg/L	10.54	10.54		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Potassium	B	mg/L	1.866	1.866		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	D
Sodium	B	mg/L	36.61	36.61		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	-3.793E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.00807	0.00807		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085533	CCV	ICPMS-6020-W- CCV			3/12/2022 2:50:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04815	0.04815		0.05	0	0	0.0017836	0.001	1	96%	90	110	0%	
Antimony	A	mg/L	0.04679	0.04679		0.05	0	0	6.768E-05	0.001	0.1	94%	90	110	0%	
Arsenic	A	mg/L	0.04855	0.04855		0.05	0	0	8.203E-05	0.001	1	97%	90	110	0%	
Barium	A	mg/L	0.04739	0.04739		0.05	0	0	6.762E-05	0.001	1	95%	90	110	0%	
Beryllium	A	mg/L	0.04565	0.04565		0.05	0	0	8.516E-05	0.001	1	91%	90	110	0%	
Boron	A	mg/L	0.04766	0.04766		0.05	0	0	0.0039526	0.00561	1	95%	90	110	0%	
Cadmium	A	mg/L	0.0479	0.0479		0.05	0	0	2.308E-05	0.001	1	96%	90	110	0%	
Calcium	A	mg/L	13.02	13.02		12.5	0	0	0.2027235	0.02092	50	104%	90	110	0%	
Cerium	A	mg/L	0.05009	0.05009		0.05	0	0	0.0000222	0.001	0.1	100%	90	110	0%	
Chromium	A	mg/L	0.0468	0.0468		0.05	0	0	0.0002538	0.001	1	94%	90	110	0%	
Cobalt	A	mg/L	0.04651	0.04651		0.05	0	0	2.141E-05	0.001	1	93%	90	110	0%	
Copper	A	mg/L	0.04873	0.04873		0.05	0	0	0.0001748	0.001	1	97%	90	110	0%	
Iron	A	mg/L	1.311	1.311		1.3	0	0	0.0021157	0.00119	5	101%	90	110	0%	
Lanthanum	A	mg/L	0.05015	0.05015		0.05	0	0	6.805E-05	0.001	0.1	100%	90	110	0%	
Lead	A	mg/L	0.04697	0.04697		0.05	0	0	3.031E-05	0.001	1	94%	90	110	0%	
Magnesium	A	mg/L	12.4	12.4		12.5	0	0	0.0203306	0.00564	50	99%	90	110	0%	
Manganese	A	mg/L	0.04788	0.04788		0.05	0	0	7.309E-05	0.001	1	96%	90	110	0%	
Mercury	A	mg/L	0.0009622	0.0009622		0.001	0	0	3.043E-05	0.001	0.002	96%	90	110	0%	
Molybdenum	A	mg/L	0.04613	0.04613		0.05	0	0	8.113E-05	0.001	0.1	92%	90	110	0%	
Nickel	A	mg/L	0.04881	0.04881		0.05	0	0	0.0001769	0.001	1	98%	90	110	0%	
Potassium	A	mg/L	11.79	11.79		12.5	0	0	0.0215433	0.08139	50	94%	90	110	0%	
Selenium	A	mg/L	0.05121	0.05121		0.05	0	0	7.174E-05	0.001	1	102%	90	110	0%	
Silicon	A	mg/L	0.2783	0.2783		0.2	0	0	0.0033337	0.1	0.4	139%	90	110	0%	S
Silver	A	mg/L	0.01861	0.01861		0.02	0	0	2.644E-05	0.001	0.04	93%	90	110	0%	
Sodium	A	mg/L	12.31	12.31		12.5	0	0	0.0451914	0.02171	50	98%	90	110	0%	
Strontium	A	mg/L	0.04874	0.04874		0.05	0	0	9.743E-05	0.001	1	97%	90	110	0%	
Thallium	A	mg/L	0.0466	0.0466		0.05	0	0	4.842E-05	0.001	1	93%	90	110	0%	
Thorium	A	mg/L	0.04723	0.04723		0.05	0	0	3.018E-05	0.001	1	94%	90	110	0%	
Tin	A	mg/L	0.04718	0.04718		0.05	0	0	0.0009928	0.00132	0.1	94%	90	110	0%	
Titanium	A	mg/L	0.04686	0.04686		0.05	0	0	0.0001004	0.001	1	94%	90	110	0%	
Uranium	A	mg/L	0.04674	0.04674		0.05	0	0	2.468E-05	0.0003	1	93%	90	110	0%	
Vanadium	A	mg/L	0.04851	0.04851		0.05	0	0	0.0018612	0.0013	1	97%	90	110	0%	
Zinc	A	mg/L	0.04893	0.04893		0.05	0	0	0.0010089	0.00273	1	98%	90	110	0%	
Iron, Ferrous	C	mg/L	1.311	1.311		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085534	CCB	ICPMS-6020-W-	CCB		3/12/2022 2:57:0	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	-1.594E-05	-1.594E-05		0	0	0	0.0017836	0.001	1	0%			0%	
Antimony	A	mg/L	0.000363	0.000363		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	0.00005704	0.00005704		0	0	0	8.203E-05	0.001	1	0%			0%	
Barium	A	mg/L	-1.284E-06	-1.284E-06		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	-1.165E-05	-1.165E-05		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	0.0009064	0.0009064		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	6.998E-06	6.998E-06		0	0	0	2.308E-05	0.001	1	0%			0%	
Calcium	A	mg/L	0.001034	0.001034		0	0	0	0.2027235	0.02092	50	0%			0%	
Cerium	A	mg/L	4.428E-07	4.428E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	7.747E-06	7.747E-06		0	0	0	0.0002538	0.001	1	0%			0%	
Cobalt	A	mg/L	-2.558E-06	-2.558E-06		0	0	0	2.141E-05	0.001	1	0%			0%	
Copper	A	mg/L	0.0001547	0.0001547		0	0	0	0.0001748	0.001	1	0%			0%	
Iron	A	mg/L	-0.0002125	-0.0002125		0	0	0	0.0021157	0.00119	5	0%			0%	
Lanthanum	A	mg/L	4.719E-06	4.719E-06		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	4.459E-06	4.459E-06		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	0.003853	0.003853		0	0	0	0.0203306	0.00564	50	0%			0%	
Manganese	A	mg/L	8.592E-07	8.592E-07		0	0	0	7.309E-05	0.001	1	0%			0%	
Mercury	A	mg/L	3.985E-06	3.985E-06		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.00001411	0.00001411		0	0	0	8.113E-05	0.001	0.1	0%			0%	
Nickel	A	mg/L	-3.151E-05	-3.151E-05		0	0	0	0.0001769	0.001	1	0%			0%	
Potassium	A	mg/L	0.006223	0.006223		0	0	0	0.0215433	0.08139	50	0%			0%	
Selenium	A	mg/L	0.00002129	0.00002129		0	0	0	7.174E-05	0.001	1	0%			0%	
Silicon	A	mg/L	0.0656	0.0656		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	6.735E-07	6.735E-07		0	0	0	2.644E-05	0.001	0.04	0%			0%	
Sodium	A	mg/L	0.05523	0.05523		0	0	0	0.0451914	0.02171	50	0%			0%	
Strontium	A	mg/L	-1.591E-05	-1.591E-05		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00008753	0.00008753		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00004314	0.00004314		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Tin	A	mg/L	0.00009978	0.00009978		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Titanium	A	mg/L	0.0001084	0.0001084		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	5.562E-06	5.562E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	0.004718	0.004718		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	A	mg/L	4.677E-07	4.677E-07		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	
Iron, Ferrous	C	mg/L	-0.0002125	-0.0002125		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085535	CCV	ICPMS-6020-W-	CCV		3/12/2022 12:24:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04727	0.04727		0.05	0	0	0.0017836	0.001	1	95%	90	110	0%	
Antimony	A	mg/L	0.04681	0.04681		0.05	0	0	6.768E-05	0.001	0.1	94%	90	110	0%	
Arsenic	A	mg/L	0.04609	0.04609		0.05	0	0	8.203E-05	0.001	1	92%	90	110	0%	
Barium	A	mg/L	0.04616	0.04616		0.05	0	0	6.762E-05	0.001	1	92%	90	110	0%	
Beryllium	A	mg/L	0.04665	0.04665		0.05	0	0	8.516E-05	0.001	1	93%	90	110	0%	
Boron	A	mg/L	0.0477	0.0477		0.05	0	0	0.0039526	0.00561	1	95%	90	110	0%	
Cadmium	A	mg/L	0.04677	0.04677		0.05	0	0	2.308E-05	0.001	1	94%	90	110	0%	
Calcium	A	mg/L	12.7	12.7		12.5	0	0	0.2027235	0.02092	50	102%	90	110	0%	
Cerium	A	mg/L	0.04946	0.04946		0.05	0	0	0.0000222	0.001	0.1	99%	90	110	0%	
Chromium	A	mg/L	0.04349	0.04349		0.05	0	0	0.0002538	0.001	1	87%	90	110	0%	S
Cobalt	A	mg/L	0.04323	0.04323		0.05	0	0	2.141E-05	0.001	1	86%	90	110	0%	S
Copper	A	mg/L	0.04674	0.04674		0.05	0	0	0.0001748	0.001	1	93%	90	110	0%	
Iron	A	mg/L	1.248	1.248		1.3	0	0	0.0021157	0.00119	5	96%	90	110	0%	
Lanthanum	A	mg/L	0.04957	0.04957		0.05	0	0	6.805E-05	0.001	0.1	99%	90	110	0%	
Lead	A	mg/L	0.04572	0.04572		0.05	0	0	3.031E-05	0.001	1	91%	90	110	0%	
Magnesium	A	mg/L	11.66	11.66		12.5	0	0	0.0203306	0.00564	50	93%	90	110	0%	
Manganese	A	mg/L	0.04493	0.04493		0.05	0	0	7.309E-05	0.001	1	90%	90	110	0%	
Mercury	A	mg/L	0.000896	0.000896		0.001	0	0	3.043E-05	0.001	0.002	90%	90	110	0%	
Molybdenum	A	mg/L	0.04555	0.04555		0.05	0	0	8.113E-05	0.001	0.1	91%	90	110	0%	
Nickel	A	mg/L	0.04714	0.04714		0.05	0	0	0.0001769	0.001	1	94%	90	110	0%	
Potassium	A	mg/L	10.62	10.62		12.5	0	0	0.0215433	0.08139	50	85%	90	110	0%	S
Selenium	A	mg/L	0.04946	0.04946		0.05	0	0	7.174E-05	0.001	1	99%	90	110	0%	
Silicon	A	mg/L	0.1966	0.1966		0.2	0	0	0.0033337	0.1	0.4	98%	90	110	0%	
Silver	A	mg/L	0.0181	0.0181		0.02	0	0	2.644E-05	0.001	0.04	91%	90	110	0%	
Sodium	A	mg/L	11.6	11.6		12.5	0	0	0.0451914	0.02171	50	93%	90	110	0%	
Strontium	A	mg/L	0.04763	0.04763		0.05	0	0	9.743E-05	0.001	1	95%	90	110	0%	
Thallium	A	mg/L	0.0454	0.0454		0.05	0	0	4.842E-05	0.001	1	91%	90	110	0%	
Thorium	A	mg/L	0.04557	0.04557		0.05	0	0	3.018E-05	0.001	1	91%	90	110	0%	
Tin	A	mg/L	0.04671	0.04671		0.05	0	0	0.0009928	0.00132	0.1	93%	90	110	0%	
Titanium	A	mg/L	0.04416	0.04416		0.05	0	0	0.0001004	0.001	1	88%	90	110	0%	S
Uranium	A	mg/L	0.04541	0.04541		0.05	0	0	2.468E-05	0.0003	1	91%	90	110	0%	
Vanadium	A	mg/L	0.04201	0.04201		0.05	0	0	0.0018612	0.0013	1	84%	90	110	0%	S
Zinc	A	mg/L	0.04669	0.04669		0.05	0	0	0.0010089	0.00273	1	93%	90	110	0%	
Iron, Ferrous	C	mg/L	1.248	1.248		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085536	CCB	ICPMS-6020-W-	CCB		3/12/2022 12:30:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	-6.568E-06	-6.568E-06		0	0	0	0.0017836	0.001	1	0%				0%
Antimony	A	mg/L	0.0001421	0.0001421		0	0	0	6.768E-05	0.001	0.1	0%				0%
Arsenic	A	mg/L	-1.959E-05	-1.959E-05		0	0	0	8.203E-05	0.001	1	0%				0%
Barium	A	mg/L	2.583E-06	2.583E-06		0	0	0	6.762E-05	0.001	1	0%				0%
Beryllium	A	mg/L	0.00001618	0.00001618		0	0	0	8.516E-05	0.001	1	0%				0%
Boron	A	mg/L	0.0005982	0.0005982		0	0	0	0.0039526	0.00561	1	0%				0%
Cadmium	A	mg/L	0.00001668	0.00001668		0	0	0	2.308E-05	0.001	1	0%				0%
Calcium	A	mg/L	0.001893	0.001893		0	0	0	0.2027235	0.02092	50	0%				0%
Cerium	A	mg/L	5.787E-07	5.787E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0		0%
Chromium	A	mg/L	-3.815E-07	-3.815E-07		0	0	0	0.0002538	0.001	1	0%				0%
Cobalt	A	mg/L	1.883E-06	1.883E-06		0	0	0	2.141E-05	0.001	1	0%				0%
Copper	A	mg/L	0.0001424	0.0001424		0	0	0	0.0001748	0.001	1	0%				0%
Iron	A	mg/L	0.0002872	0.0002872		0	0	0	0.0021157	0.00119	5	0%				0%
Lanthanum	A	mg/L	-6.864E-08	-6.864E-08		0	0	0	6.805E-05	0.001	0.1	0%	0	0		0%
Lead	A	mg/L	0.00001944	0.00001944		0	0	0	3.031E-05	0.001	1	0%				0%
Magnesium	A	mg/L	0.004654	0.004654		0	0	0	0.0203306	0.00564	50	0%				0%
Manganese	A	mg/L	0.00001306	0.00001306		0	0	0	7.309E-05	0.001	1	0%				0%
Mercury	A	mg/L	2.946E-06	2.946E-06		0	0	0	3.043E-05	0.001	0.002	0%				0%
Molybdenum	A	mg/L	0.00001819	0.00001819		0	0	0	8.113E-05	0.001	0.1	0%				0%
Nickel	A	mg/L	0.000351	0.000351		0	0	0	0.0001769	0.001	1	0%				0%
Potassium	A	mg/L	-0.008534	-0.008534		0	0	0	0.0215433	0.08139	50	0%				0%
Selenium	A	mg/L	0.00003261	0.00003261		0	0	0	7.174E-05	0.001	1	0%				0%
Silicon	A	mg/L	0.001984	0.001984		0	0	0	0.0033337	0.1	0.4	0%	0	0		0%
Silver	A	mg/L	2.354E-06	2.354E-06		0	0	0	2.644E-05	0.001	0.04	0%				0%
Sodium	A	mg/L	0.01664	0.01664		0	0	0	0.0451914	0.02171	50	0%				0%
Strontium	A	mg/L	-1.019E-05	-1.019E-05		0	0	0	9.743E-05	0.001	1	0%	0	0		0%
Thallium	A	mg/L	0.0001134	0.0001134		0	0	0	4.842E-05	0.001	1	0%	0	0		0%
Thorium	A	mg/L	0.0001813	0.0001813		0	0	0	3.018E-05	0.001	1	0%	0	0		0%
Tin	A	mg/L	0.0001221	0.0001221		0	0	0	0.0009928	0.00132	0.1	0%	0	0		0%
Titanium	A	mg/L	0.000182	0.000182		0	0	0	0.0001004	0.001	1	0%	0	0		0%
Uranium	A	mg/L	2.548E-06	2.548E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0		0%
Vanadium	A	mg/L	-0.001339	-0.001339		0	0	0	0.0018612	0.0013	1	0%	0	0		0%
Zinc	A	mg/L	-1.525E-05	-1.525E-05		0	0	0	0.0010089	0.00273	1	0%	0	0		0%
Iron, Ferrous	C	mg/L	0.0002872	0.0002872		0	0	0	0.0021157	0.00119	5	0%	0	0		0%

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085537	ICSA	ICPMS-6020-W-	ICSA		3/12/2022 12:36:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	37.55	37.55		40	0	0	0.0017836	0.001	1	94%	80	120	0%	
Antimony	A	mg/L	0.0001236	0.0001236		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	0.00004489	0.00004489		0	0	0	8.203E-05	0.001	1	0%			0%	
Barium	A	mg/L	0.000164	0.000164		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	-5.098E-06	-5.098E-06		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	0.00028	0.00028		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	0.0001016	0.0001016		0	0	0	2.308E-05	0.001	1	0%			0%	
Calcium	A	mg/L	122.7	122.7		120	0	0	0.2027235	0.02092	50	102%	80	120	0%	
Cerium	A	mg/L	9.169E-06	9.169E-06		0	0	0	0.0000222	0.001	0.1	0%			0%	
Chromium	A	mg/L	0.001733	0.001733		0	0	0	0.0002538	0.001	1	0%			0%	
Cobalt	A	mg/L	0.0002609	0.0002609		0	0	0	2.141E-05	0.001	1	0%			0%	
Copper	A	mg/L	0.0003299	0.0003299		0	0	0	0.0001748	0.001	1	0%			0%	
Iron	A	mg/L	104.2	104.2		100	0	0	0.0021157	0.00119	5	104%	80	120	0%	
Lanthanum	A	mg/L	5.351E-06	5.351E-06		0	0	0	6.805E-05	0.001	0.1	0%			0%	
Lead	A	mg/L	0.00005066	0.00005066		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	40.11	40.11		50	0	0	0.0203306	0.00564	50	80%			0%	
Manganese	A	mg/L	0.0003219	0.0003219		0	0	0	7.309E-05	0.001	1	0%			0%	
Mercury	A	mg/L	3.596E-06	3.596E-06		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.7926	0.7926		0.8	0	0	8.113E-05	0.001	0.1	99%	80	120	0%	
Nickel	A	mg/L	0.0003113	0.0003113		0	0	0	0.0001769	0.001	1	0%			0%	
Potassium	A	mg/L	36.8	36.8		50	0	0	0.0215433	0.08139	50	74%			0%	
Selenium	A	mg/L	0.0008181	0.0008181		0	0	0	7.174E-05	0.001	1	0%			0%	
Silicon	A	mg/L	0.00542	0.00542		0	0	0	0.0033337	0.1	0.4	0%			0%	
Silver	A	mg/L	0.00001153	0.00001153		0	0	0	2.644E-05	0.001	0.04	0%			0%	
Sodium	A	mg/L	97.76	97.76		100	0	0	0.0451914	0.02171	50	98%			0%	
Strontium	A	mg/L	0.001036	0.001036		0	0	0	9.743E-05	0.001	1	0%			0%	
Thallium	A	mg/L	0.00003528	0.00003528		0	0	0	4.842E-05	0.001	1	0%			0%	
Thorium	A	mg/L	0.0001357	0.0001357		0	0	0	3.018E-05	0.001	1	0%			0%	
Tin	A	mg/L	0.000251	0.000251		0	0	0	0.0009928	0.00132	0.1	0%			0%	
Titanium	A	mg/L	0.769	0.769		0.8	0	0	0.0001004	0.001	1	96%			0%	
Uranium	A	mg/L	0.00002071	0.00002071		0	0	0	2.468E-05	0.0003	1	0%			0%	
Vanadium	A	mg/L	-0.002407	-0.002407		0	0	0	0.0018612	0.0013	1	0%			0%	
Zinc	A	mg/L	0.0008174	0.0008174		0	0	0	0.0010089	0.00273	1	0%			0%	
Iron, Ferrous	C	mg/L	104.2	104.2		0	0	0	0.0021157	0.00119	5	0%			0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085538	ICSAB	ICPMS-6020-W-	ICSAB		3/12/2022 12:43:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	37.08	37.08		40	0	0	0.0017836	0.001	1	93%	80	120	0%	
Antimony	A	mg/L	0.0001008	0.0001008		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	0.009982	0.009982		0.01	0	0	8.203E-05	0.001	1	100%	80	120	0%	
Barium	A	mg/L	0.0001625	0.0001625		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	-8.414E-06	-8.414E-06		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	0.00001645	0.00001645		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	0.009438	0.009438		0.01	0	0	2.308E-05	0.001	1	94%	80	120	0%	
Calcium	A	mg/L	121.6	121.6		120	0	0	0.2027235	0.02092	50	101%	80	120	0%	
Cerium	A	mg/L	8.411E-06	8.411E-06		0	0	0	0.0000222	0.001	0.1	0%			0%	
Chromium	A	mg/L	0.01996	0.01996		0.02	0	0	0.0002538	0.001	1	100%	80	120	0%	
Cobalt	A	mg/L	0.01841	0.01841		0.02	0	0	2.141E-05	0.001	1	92%	80	120	0%	
Copper	A	mg/L	0.01938	0.01938		0.02	0	0	0.0001748	0.001	1	97%	80	120	0%	
Iron	A	mg/L	101.7	101.7		100	0	0	0.0021157	0.00119	5	102%	80	120	0%	
Lanthanum	A	mg/L	0.00000603	0.00000603		0	0	0	6.805E-05	0.001	0.1	0%			0%	
Lead	A	mg/L	0.00004851	0.00004851		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	39.39	39.39		40	0	0	0.0203306	0.00564	50	98%	80	120	0%	
Manganese	A	mg/L	0.01913	0.01913		0.02	0	0	7.309E-05	0.001	1	96%	80	120	0%	
Mercury	A	mg/L	1.671E-06	1.671E-06		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.7711	0.7711		0.8	0	0	8.113E-05	0.001	0.1	96%	80	120	0%	
Nickel	A	mg/L	0.01966	0.01966		0.02	0	0	0.0001769	0.001	1	98%	80	120	0%	
Potassium	A	mg/L	35.83	35.83		40	0	0	0.0215433	0.08139	50	90%	80	120	0%	
Selenium	A	mg/L	0.01122	0.01122		0.01	0	0	7.174E-05	0.001	1	112%	80	120	0%	
Silicon	A	mg/L	0.005469	0.005469		0	0	0	0.0033337	0.1	0.4	0%			0%	
Silver	A	mg/L	0.004556	0.004556		0.005	0	0	2.644E-05	0.001	0.04	91%	80	120	0%	
Sodium	A	mg/L	96.64	96.64		100	0	0	0.0451914	0.02171	50	97%	80	120	0%	
Strontium	A	mg/L	0.001041	0.001041		0	0	0	9.743E-05	0.001	1	0%			0%	
Thallium	A	mg/L	0.00002297	0.00002297		0	0	0	4.842E-05	0.001	1	0%			0%	
Thorium	A	mg/L	0.00007179	0.00007179		0	0	0	3.018E-05	0.001	1	0%			0%	
Tin	A	mg/L	0.0002003	0.0002003		0	0	0	0.0009928	0.00132	0.1	0%			0%	
Titanium	A	mg/L	0.7526	0.7526		0.8	0	0	0.0001004	0.001	1	94%	80	120	0%	
Uranium	A	mg/L	0.00002019	0.00002019		0	0	0	2.468E-05	0.0003	1	0%			0%	
Vanadium	A	mg/L	0.01598	0.01598		0.02	0	0	0.0018612	0.0013	1	80%	80	120	0%	
Zinc	A	mg/L	0.01009	0.01009		0.01	0	0	0.0010089	0.00273	1	101%	80	120	0%	
Iron, Ferrous	C	mg/L	101.7	101.7		0	0	0	0.0021157	0.00119	5	0%			0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085539	Rinse	ICPMS-6020-W-	SAMP		3/12/2022 12:49:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	-6.629E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	-3.877E-06	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	5.055E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	0.0000149	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Copper	A	mg/L	0.0002139	0.0002139		0	0	0	0.0001748	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	3.943E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00000547	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.000302	0.000302		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.0001245	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.00002767	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	0.001797	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	7.768E-07	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	-4.352E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0000185	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00002835	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	2.006E-07	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Calcium	B	mg/L	0.00235	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0.003593	0.003593		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.003593	0.003593		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.002621	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Sodium	B	mg/L	0.04449	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	0.00001416	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	-1.436E-06	0		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	L

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085540	CCV	ICPMS-6020-W-	CCV		3/12/2022 12:55:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04452	0.04452		0.05	0	0	0.0017836	0.001	1	89%	90	110	0%	S
Antimony	A	mg/L	0.04635	0.04635		0.05	0	0	6.768E-05	0.001	0.1	93%	90	110	0%	
Arsenic	A	mg/L	0.04622	0.04622		0.05	0	0	8.203E-05	0.001	1	92%	90	110	0%	
Barium	A	mg/L	0.04656	0.04656		0.05	0	0	6.762E-05	0.001	1	93%	90	110	0%	
Beryllium	A	mg/L	0.03976	0.03976		0.05	0	0	8.516E-05	0.001	1	80%	90	110	0%	S
Boron	A	mg/L	0.04044	0.04044		0.05	0	0	0.0039526	0.00561	1	81%	90	110	0%	S
Cadmium	A	mg/L	0.04629	0.04629		0.05	0	0	2.308E-05	0.001	1	93%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085540	CCV	ICPMS-6020-W- CCV			3/12/2022 12:55:	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Calcium	A	mg/L	11.84	11.84		12.5	0	0	0.2027235	0.02092	50	95%	90	110	0%	
Cerium	A	mg/L	0.04895	0.04895		0.05	0	0	0.0000222	0.001	0.1	98%	90	110	0%	
Chromium	A	mg/L	0.04282	0.04282		0.05	0	0	0.0002538	0.001	1	86%	90	110	0%	S
Cobalt	A	mg/L	0.04325	0.04325		0.05	0	0	2.141E-05	0.001	1	86%	90	110	0%	S
Copper	A	mg/L	0.04665	0.04665		0.05	0	0	0.0001748	0.001	1	93%	90	110	0%	
Iron	A	mg/L	1.231	1.231		1.3	0	0	0.0021157	0.00119	5	95%	90	110	0%	
Lanthanum	A	mg/L	0.04961	0.04961		0.05	0	0	6.805E-05	0.001	0.1	99%	90	110	0%	
Lead	A	mg/L	0.04551	0.04551		0.05	0	0	3.031E-05	0.001	1	91%	90	110	0%	
Magnesium	A	mg/L	11.56	11.56		12.5	0	0	0.0203306	0.00564	50	92%	90	110	0%	
Manganese	A	mg/L	0.04411	0.04411		0.05	0	0	7.309E-05	0.001	1	88%	90	110	0%	S
Mercury	A	mg/L	0.0008849	0.0008849		0.001	0	0	3.043E-05	0.001	0.002	88%	90	110	0%	S
Molybdenum	A	mg/L	0.04485	0.04485		0.05	0	0	8.113E-05	0.001	0.1	90%	90	110	0%	
Nickel	A	mg/L	0.04601	0.04601		0.05	0	0	0.0001769	0.001	1	92%	90	110	0%	
Potassium	A	mg/L	10.43	10.43		12.5	0	0	0.0215433	0.08139	50	83%	90	110	0%	S
Selenium	A	mg/L	0.05001	0.05001		0.05	0	0	7.174E-05	0.001	1	100%	90	110	0%	
Silicon	A	mg/L	0.1856	0.1856		0.2	0	0	0.0033337	0.1	0.4	93%	90	110	0%	
Silver	A	mg/L	0.01813	0.01813		0.02	0	0	2.644E-05	0.001	0.04	91%	90	110	0%	
Sodium	A	mg/L	11.41	11.41		12.5	0	0	0.0451914	0.02171	50	91%	90	110	0%	
Strontium	A	mg/L	0.04742	0.04742		0.05	0	0	9.743E-05	0.001	1	95%	90	110	0%	
Thallium	A	mg/L	0.0456	0.0456		0.05	0	0	4.842E-05	0.001	1	91%	90	110	0%	
Thorium	A	mg/L	0.045	0.045		0.05	0	0	3.018E-05	0.001	1	90%	90	110	0%	
Tin	A	mg/L	0.04606	0.04606		0.05	0	0	0.0009928	0.00132	0.1	92%	90	110	0%	
Titanium	A	mg/L	0.04363	0.04363		0.05	0	0	0.0001004	0.001	1	87%	90	110	0%	S
Uranium	A	mg/L	0.04512	0.04512		0.05	0	0	2.468E-05	0.0003	1	90%	90	110	0%	
Vanadium	A	mg/L	0.04137	0.04137		0.05	0	0	0.0018612	0.0013	1	83%	90	110	0%	S
Zinc	A	mg/L	0.04683	0.04683		0.05	0	0	0.0010089	0.00273	1	94%	90	110	0%	
Iron, Ferrous	C	mg/L	1.231	1.231		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085541	CCB	ICPMS-6020-W- CCB			3/12/2022 1:01:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.00001874	0.00001874		0	0	0	0.0017836	0.001	1	0%			0%	
Antimony	A	mg/L	0.0001391	0.0001391		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	-4.673E-05	-4.673E-05		0	0	0	8.203E-05	0.001	1	0%			0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085541	CCB	ICPMS-6020-W-	CCB		3/12/2022 1:01:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Barium	A	mg/L	-1.136E-06	-1.136E-06		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	-1.451E-06	-1.451E-06		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	0.00006838	0.00006838		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	8.453E-06	8.453E-06		0	0	0	2.308E-05	0.001	1	0%			0%	
Calcium	A	mg/L	0.001288	0.001288		0	0	0	0.2027235	0.02092	50	0%			0%	
Cerium	A	mg/L	6.905E-08	6.905E-08		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-2.125E-05	-2.125E-05		0	0	0	0.0002538	0.001	1	0%			0%	
Cobalt	A	mg/L	-1.958E-06	-1.958E-06		0	0	0	2.141E-05	0.001	1	0%			0%	
Copper	A	mg/L	0.0001516	0.0001516		0	0	0	0.0001748	0.001	1	0%			0%	
Iron	A	mg/L	0.001277	0.001277		0	0	0	0.0021157	0.00119	5	0%			0%	
Lanthanum	A	mg/L	1.009E-07	1.009E-07		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	4.877E-06	4.877E-06		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	0.003502	0.003502		0	0	0	0.0203306	0.00564	50	0%			0%	
Manganese	A	mg/L	-5.332E-06	-5.332E-06		0	0	0	7.309E-05	0.001	1	0%			0%	
Mercury	A	mg/L	0.0000038	0.0000038		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.00004967	0.00004967		0	0	0	8.113E-05	0.001	0.1	0%			0%	
Nickel	A	mg/L	0.00007566	0.00007566		0	0	0	0.0001769	0.001	1	0%			0%	
Potassium	A	mg/L	-0.005432	-0.005432		0	0	0	0.0215433	0.08139	50	0%			0%	
Selenium	A	mg/L	0.00003921	0.00003921		0	0	0	7.174E-05	0.001	1	0%			0%	
Silicon	A	mg/L	0.002044	0.002044		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	7.966E-07	7.966E-07		0	0	0	2.644E-05	0.001	0.04	0%			0%	
Sodium	A	mg/L	0.0352	0.0352		0	0	0	0.0451914	0.02171	50	0%			0%	
Strontium	A	mg/L	8.947E-06	8.947E-06		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00009355	0.00009355		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.0001454	0.0001454		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Tin	A	mg/L	0.00009883	0.00009883		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Titanium	A	mg/L	0.0002678	0.0002678		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	2.001E-06	2.001E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.001367	-0.001367		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	A	mg/L	-4.047E-06	-4.047E-06		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	
Iron, Ferrous	C	mg/L	0.001277	0.001277		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085542	B22030586-007	ICPMS-6020-W-	SAMP		3/12/2022 1:07:5	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	-6.225E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.002943	0.002943		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	5.927E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	3.776E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Copper	A	mg/L	0.0003128	0.0003128		0	0	0	0.0001748	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	3.766E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00001212	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	U
Nickel	A	mg/L	0.008799	0.008799		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.0001958	0.0001958		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	5.896E-07	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.06264	0.06264		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00004337	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	U
Thorium	A	mg/L	0.00003346	0.00003346		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	0.00000838	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	U
Calcium	B	mg/L	9.179	9.179		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.003594	0.003594		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	U
Iron, Ferrous	B	mg/L	0.003594	0.003594		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	U
Magnesium	B	mg/L	10.16	10.16		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Sodium	B	mg/L	34.93	34.93		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	-1.806E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.008101	0.008101		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085543	B22030586-007	ICPMS-6020-W-	SAMP		3/12/2022 1:14:1	1	164435	3/11/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Arsenic	A	mg/L	0.0001463	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.002876	0.002876		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	1.799E-06	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	3.441E-06	0		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	U
Lanthanum	A	mg/L	2.054E-06	0		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00002644	0		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	U
Selenium	A	mg/L	0.0001945	0.0001945		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	3.391E-06	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.06594	0.06594		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085543	B22030586-007	ICPMS-6020-W-	SAMP		3/12/2022 1:14:1	1	164435	3/11/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Thallium	A	mg/L	0.00004628	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Uranium	A	mg/L	0.00001165	0.00001165		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	J
Calcium	B	mg/L	9.252	9.252		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	D
Copper	B	mg/L	0.0006148	0.0006148		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	JL
Iron	B	mg/L	0.01408	0.01408		0	0	0	0.007424	0.00513	5	0%	0	0	0%	UD
Magnesium	B	mg/L	9.514	9.514		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.01474	0.01474		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	D
Sodium	B	mg/L	33.03	33.03		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	D
Thorium	B	mg/L	0.0006674	0.0006674		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	JL
Tin	B	mg/L	0.0007504	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.009806	0.009806		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	D

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085544	CCV	ICPMS-6020-W-	CCV		3/12/2022 1:20:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04399	0.04399		0.05	0	0	0.0017836	0.001	1	88%	90	110	0%	S
Antimony	A	mg/L	0.04704	0.04704		0.05	0	0	6.768E-05	0.001	0.1	94%	90	110	0%	
Arsenic	A	mg/L	0.04727	0.04727		0.05	0	0	8.203E-05	0.001	1	95%	90	110	0%	
Barium	A	mg/L	0.04698	0.04698		0.05	0	0	6.762E-05	0.001	1	94%	90	110	0%	
Beryllium	A	mg/L	0.03873	0.03873		0.05	0	0	8.516E-05	0.001	1	77%	90	110	0%	S
Boron	A	mg/L	0.04021	0.04021		0.05	0	0	0.0039526	0.00561	1	80%	90	110	0%	S
Cadmium	A	mg/L	0.04663	0.04663		0.05	0	0	2.308E-05	0.001	1	93%	90	110	0%	
Calcium	A	mg/L	11.8	11.8		12.5	0	0	0.2027235	0.02092	50	94%	90	110	0%	
Cerium	A	mg/L	0.04962	0.04962		0.05	0	0	0.0000222	0.001	0.1	99%	90	110	0%	
Chromium	A	mg/L	0.04451	0.04451		0.05	0	0	0.0002538	0.001	1	89%	90	110	0%	S
Cobalt	A	mg/L	0.04351	0.04351		0.05	0	0	2.141E-05	0.001	1	87%	90	110	0%	S
Copper	A	mg/L	0.04782	0.04782		0.05	0	0	0.0001748	0.001	1	96%	90	110	0%	
Iron	A	mg/L	1.22	1.22		1.3	0	0	0.0021157	0.00119	5	94%	90	110	0%	
Lanthanum	A	mg/L	0.04963	0.04963		0.05	0	0	6.805E-05	0.001	0.1	99%	90	110	0%	
Lead	A	mg/L	0.04606	0.04606		0.05	0	0	3.031E-05	0.001	1	92%	90	110	0%	
Magnesium	A	mg/L	11.58	11.58		12.5	0	0	0.0203306	0.00564	50	93%	90	110	0%	
Manganese	A	mg/L	0.04536	0.04536		0.05	0	0	7.309E-05	0.001	1	91%	90	110	0%	
Mercury	A	mg/L	0.0009273	0.0009273		0.001	0	0	3.043E-05	0.001	0.002	93%	90	110	0%	
Molybdenum	A	mg/L	0.04474	0.04474		0.05	0	0	8.113E-05	0.001	0.1	89%	90	110	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085544	CCV	ICPMS-6020-W- CCV			3/12/2022 1:20:2	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Nickel	A	mg/L	0.04769	0.04769		0.05	0	0	0.0001769	0.001	1	95%	90	110	0%	
Potassium	A	mg/L	10.52	10.52		12.5	0	0	0.0215433	0.08139	50	84%	90	110	0%	S
Selenium	A	mg/L	0.04944	0.04944		0.05	0	0	7.174E-05	0.001	1	99%	90	110	0%	
Silicon	A	mg/L	0.2437	0.2437		0.2	0	0	0.0033337	0.1	0.4	122%	90	110	0%	S
Silver	A	mg/L	0.01813	0.01813		0.02	0	0	2.644E-05	0.001	0.04	91%	90	110	0%	
Sodium	A	mg/L	11.61	11.61		12.5	0	0	0.0451914	0.02171	50	93%	90	110	0%	
Strontium	A	mg/L	0.04857	0.04857		0.05	0	0	9.743E-05	0.001	1	97%	90	110	0%	
Thallium	A	mg/L	0.0456	0.0456		0.05	0	0	4.842E-05	0.001	1	91%	90	110	0%	
Thorium	A	mg/L	0.0458	0.0458		0.05	0	0	3.018E-05	0.001	1	92%	90	110	0%	
Tin	A	mg/L	0.04688	0.04688		0.05	0	0	0.0009928	0.00132	0.1	94%	90	110	0%	
Titanium	A	mg/L	0.04378	0.04378		0.05	0	0	0.0001004	0.001	1	88%	90	110	0%	S
Uranium	A	mg/L	0.04584	0.04584		0.05	0	0	2.468E-05	0.0003	1	92%	90	110	0%	
Vanadium	A	mg/L	0.04399	0.04399		0.05	0	0	0.0018612	0.0013	1	88%	90	110	0%	S
Zinc	A	mg/L	0.04784	0.04784		0.05	0	0	0.0010089	0.00273	1	96%	90	110	0%	
Iron, Ferrous	C	mg/L	1.22	1.22		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085545	CCB	ICPMS-6020-W- CCB			3/12/2022 1:26:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.00000386	0.00000386		0	0	0	0.0017836	0.001	1	0%			0%	
Antimony	A	mg/L	0.0001491	0.0001491		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	-1.234E-05	-1.234E-05		0	0	0	8.203E-05	0.001	1	0%			0%	
Barium	A	mg/L	7.841E-08	7.841E-08		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	-2.794E-06	-2.794E-06		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	0.0004401	0.0004401		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	6.689E-06	6.689E-06		0	0	0	2.308E-05	0.001	1	0%			0%	
Calcium	A	mg/L	0.001088	0.001088		0	0	0	0.2027235	0.02092	50	0%			0%	
Cerium	A	mg/L	2.257E-07	2.257E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-4.615E-06	-4.615E-06		0	0	0	0.0002538	0.001	1	0%			0%	
Cobalt	A	mg/L	-9.967E-07	-9.967E-07		0	0	0	2.141E-05	0.001	1	0%			0%	
Copper	A	mg/L	0.0001141	0.0001141		0	0	0	0.0001748	0.001	1	0%			0%	
Iron	A	mg/L	0.0003532	0.0003532		0	0	0	0.0021157	0.00119	5	0%			0%	
Lanthanum	A	mg/L	-8.102E-08	-8.102E-08		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	5.009E-06	5.009E-06		0	0	0	3.031E-05	0.001	1	0%			0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15085545	CCB	ICPMS-6020-W-	CCB		3/12/2022 1:26:4	1	R376031		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Magnesium	A	mg/L	0.005026	0.005026		0	0	0	0.0203306	0.00564	50	0%			0%	
Manganese	A	mg/L	1.395E-06	1.395E-06		0	0	0	7.309E-05	0.001	1	0%			0%	
Mercury	A	mg/L	3.948E-06	3.948E-06		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.0000234	0.0000234		0	0	0	8.113E-05	0.001	0.1	0%			0%	
Nickel	A	mg/L	0.00003949	0.00003949		0	0	0	0.0001769	0.001	1	0%			0%	
Potassium	A	mg/L	-0.00691	-0.00691		0	0	0	0.0215433	0.08139	50	0%			0%	
Selenium	A	mg/L	0.00002894	0.00002894		0	0	0	7.174E-05	0.001	1	0%			0%	
Silicon	A	mg/L	0.03276	0.03276		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	9.008E-07	9.008E-07		0	0	0	2.644E-05	0.001	0.04	0%			0%	
Sodium	A	mg/L	0.03229	0.03229		0	0	0	0.0451914	0.02171	50	0%			0%	
Strontium	A	mg/L	0.00000935	0.00000935		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00009312	0.00009312		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.0001523	0.0001523		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Tin	A	mg/L	0.0001203	0.0001203		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Titanium	A	mg/L	0.0001315	0.0001315		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	2.219E-06	2.219E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	0.002287	0.002287		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	A	mg/L	-1.479E-05	-1.479E-05		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	
Iron, Ferrous	C	mg/L	0.0003532	0.0003532		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	

Batch Summary Report

Batch Folder: D:\Agilent\ICPMH1\DATA\220311ADoDb.b\

 Analysis File: 220311ADoDb.batch.bin

 Tune Step: #1 No Gas

 #2 H2

 #3 He

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
1		2022-03-11 19:55:13	018BLKV.d	Rinse	BlkVrfy		1.0000
2		2022-03-11 20:01:28	019CALB.d	BLANK	CalBlk	1	1.0000
3		2022-03-11 20:08:07	020CALs.d	0.025 ppb STD	CalStd	2	1.0000
4		2022-03-11 20:14:46	021CALs.d	0.05 ppb STD	CalStd	3	1.0000
5		2022-03-11 20:21:25	022CALs.d	0.10 ppb STD	CalStd	4	1.0000
6		2022-03-11 20:28:03	023CALs.d	0.5 ppb STD	CalStd	5	1.0000
7		2022-03-11 20:34:42	024CALs.d	1 ppb STD	CalStd	6	1.0000
8		2022-03-11 20:41:19	025CALs.d	10 ppb STD	CalStd	7	1.0000
9		2022-03-11 20:47:56	026CALs.d	50 ppb STD	CalStd	8	1.0000
10		2022-03-11 20:54:33	027CALs.d	100 ppb STD	CalStd	9	1.0000
11		2022-03-11 21:01:04	028CALs.d	1000 ppb STD	CalStd	10	1.0000
12		2022-03-11 21:07:30	029CALs.d	100 ppb Br STD	CalStd	11	1.0000
13		2022-03-11 21:13:54	030_QC1.d	QCS	QC1		1.0000
14		2022-03-11 21:20:08	031_CCV.d	CCV	CCV		1.0000
15		2022-03-11 21:26:23	032_CCB.d	CCB	CCB		1.0000
16		2022-03-11 21:32:37	033BLKV.d	Rinse	BlkVrfy		1.0000
17		2022-03-11 21:38:52	034MBLK.d	LRB	MBLK		1.0000
18		2022-03-11 21:45:07	035_LFB.d	LFB	LFB		1.0300
19		2022-03-11 21:51:23	036ICSA.d	ICSA	ICSA		1.0000
20		2022-03-11 21:57:40	037ICSAB.d	ICSAB	ICSAB		1.0000
21		2022-03-11 22:03:56	038BLKV.d	Rinse	BlkVrfy		1.0000
22		2022-03-11 22:10:09	039BLKV.d	Rinse	BlkVrfy		1.0000
23		2022-03-11 22:16:23	040_CCV.d	CCV	CCV		1.0000
24		2022-03-11 22:22:38	041_CCB.d	CCB	CCB		1.0000
25		2022-03-11 22:28:53	042ARef.d	MB-164321	AllRef		1.0000

Batch Summary Report

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
26		2022-03-11 22:35:07	043ARef.d	MB-164435	AllRef		1.0000
27		2022-03-11 22:41:21	044LCS4.d	LCS4-164321	LCS4		1.0000
28		2022-03-11 22:47:35	045LCS4.d	LCS4-164435	LCS4		1.0000
29		2022-03-11 22:53:48	046BLKV.d	Rinse	BlkVrfy		1.0000
30		2022-03-11 23:00:02	047ARef.d	B22030502-001A	AllRef		1.0000
31		2022-03-11 23:06:18	048SMPL.d	B22030502-001ADIL	Sample		5.0000
32		2022-03-11 23:12:31	049MS.d	B22030502-001AMS	MS		1.0300
33		2022-03-11 23:18:46	050MSD.d	B22030502-001AMSD	MSD		1.0300
34		2022-03-11 23:25:00	051BLKV.d	Rinse	BlkVrfy		1.0000
35		2022-03-11 23:31:15	052ARef.d	B22030502-001B	AllRef		1.0000
36		2022-03-11 23:37:29	053SMPL.d	B22030502-001BDIL	Sample		5.0000
37		2022-03-11 23:43:43	054_CCV.d	CCV	CCV		1.0000
38		2022-03-11 23:49:58	055_CCB.d	CCB	CCB		1.0000
39		2022-03-11 23:56:12	056ARef.d	B22030502-001BPDS1	AllRef		1.0300
40		2022-03-12 00:02:28	057MS4.d	B22030502-001BMS4	MS4		1.0000
41		2022-03-12 00:08:42	058MSD4.d	B22030502-001BMSD4	MSD4		1.0000
42		2022-03-12 00:14:56	059BLKV.d	Rinse	BlkVrfy		1.0000
43		2022-03-12 00:21:10	060SMPL.d	B22030502-006A	Sample		1.0000
44		2022-03-12 00:27:25	061SMPL.d	B22030502-006B	Sample		1.0000
45		2022-03-12 00:33:39	062SMPL.d	B22030502-011A	Sample		1.0000
46		2022-03-12 00:39:53	063SMPL.d	B22030502-011B	Sample		1.0000
47		2022-03-12 00:46:06	064SMPL.d	B22030502-016A	Sample		1.0000
48		2022-03-12 00:52:20	065SMPL.d	B22030502-016B	Sample		1.0000
49		2022-03-12 00:58:34	066SMPL.d	B22030502-021A	Sample		1.0000
50		2022-03-12 01:04:47	067_CCV.d	CCV	CCV		1.0000
51		2022-03-12 01:11:01	068_CCB.d	CCB	CCB		1.0000
52		2022-03-12 01:17:16	069SMPL.d	B22030502-021B	Sample		1.0000
53		2022-03-12 01:23:29	070SMPL.d	B22030502-026A	Sample		1.0000
54		2022-03-12 01:29:43	071SMPL.d	B22030502-026B	Sample		1.0000
55		2022-03-12 01:35:58	072SMPL.d	B22030502-031A	Sample		1.0000
56		2022-03-12 01:42:11	073SMPL.d	B22030502-031B	Sample		1.0000
57		2022-03-12 01:48:25	074SMPL.d	B22030586-001A	Sample		1.0000

Batch Summary Report

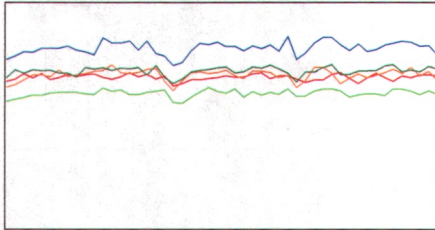
	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
58		2022-03-12 01:54:38	075ARef.d	B22030586-001B	AllRef		1.0000
59		2022-03-12 02:00:53	076SMPL.d	B22030586-001BDIL	Sample		5.0000
60		2022-03-12 02:07:06	077ARef.d	B22030586-001BPDS1	AllRef		1.0300
61		2022-03-12 02:13:21	078MS4.d	B22030586-001BMS4	MS4		1.0000
62		2022-03-12 02:19:34	079_CCV.d	CCV	CCV		1.0000
63		2022-03-12 02:25:49	080_CCB.d	CCB	CCB		1.0000
64		2022-03-12 02:32:04	081MSD4.d	B22030586-001BMSD4	MSD4		1.0000
65		2022-03-12 02:38:18	082BLKV.d	Rinse	BlkVrfy		1.0000
66		2022-03-12 02:44:32	083SMPL.d	B22030586-007A	Sample		1.0000
67		2022-03-12 02:50:45	084_CCV.d	CCV	CCV		1.0000
68		2022-03-12 02:57:00	085_CCB.d	CCB	CCB		1.0000
69		2022-03-12 12:24:15	086_CCV.d	CCV	CCV		1.0000
70		2022-03-12 12:30:29	087_CCB.d	CCB	CCB		1.0000
71		2022-03-12 12:36:43	088ICSA.d	ICSA	ICSA		1.0000
72		2022-03-12 12:43:01	089ICSB.d	ICSAB	ICSAB		1.0000
73		2022-03-12 12:49:17	090BLKV.d	Rinse	BlkVrfy		1.0000
74		2022-03-12 12:55:31	091_CCV.d	CCV	CCV		1.0000
75		2022-03-12 13:01:45	092_CCB.d	CCB	CCB		1.0000
76		2022-03-12 13:07:59	093SMPL.d	B22030586-007A	Sample		1.0000
77		2022-03-12 13:14:12	094SMPL.d	B22030586-007B	Sample		1.0000
78		2022-03-12 13:20:26	095_CCV.d	CCV	CCV		1.0000
79		2022-03-12 13:26:40	096_CCB.d	CCB	CCB		1.0000

Tune Report

Operator Name elim
 Acq/Data Batch D:\Agilent\ICPMH\1\DATA\220311ADoD.b
 Acq. Date-Time 2022-03-11 13:15:19
 Report Comment ICPMS207-B JPV
 Instrument Name G8403A JP17281923

[No Gas]

Sensitivity



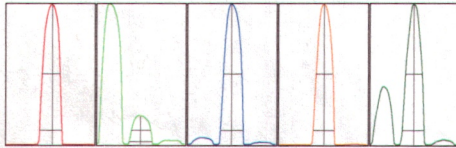
Mass	Range	Count	RSD%	Background
9	500000	336092	2.016	0.600
24	100000	59867	2.718	1.500
59	100000	80157	3.579	1.400
115	100000	68293	3.627	1.300
208	50000	35014	2.686	3.300

Sampling Period [sec] 0.514
 Integration Time [sec] 0.1

Oxide/Doubly Charged Ratio

Oxide 156 / 140 0.971 %
 Doubly Charged 70 / 140 0.865 %

Resolution/Axis



Mass	Peak Height	Axis	W-50%	W-10%
9	348383.66	9.10	0.62	0.766
24	60280.08	24.00	0.64	0.766
59	80437.03	59.00	0.61	0.760
115	68833.51	115.05	0.55	0.712
208	34621.62	208.00	0.56	0.729

Integration Time [sec] 0.1
 Acquisition Time [sec] 37.4
 Y Axis Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.91 L/min	Dilution Gas	0.18 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.00 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

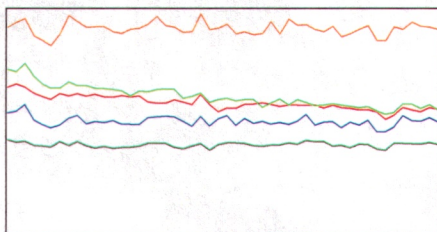
Extract 1	0.0 V	Omega Lens	10.4 V	Deflect	15.0 V
Extract 2	-175.0 V	Cell Entrance	-30 V	Plate Bias	-35 V

Tune Report

Omega Bias	-65 V	Cell Exit	-50 V	
Cell Parameters				
Use Gas	No	3rd Gas Flow	---	Energy Discrimination 5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V	
H2 Flow	0.0 mL/min	OctP RF	150 V	
QP Parameters				
Mass Gain	125	Axis Gain	0.9988	QP Bias -3.0 V
Mass Offset	126	Axis Offset	0.14	
Hardware Settings				
Torch				
Torch H	-1.3 mm	Torch V	-0.4 mm	
EM				
Discriminator	5.4 mV	Analog HV	2352 V	Pulse HV 1825 V

[H2]

Sensitivity



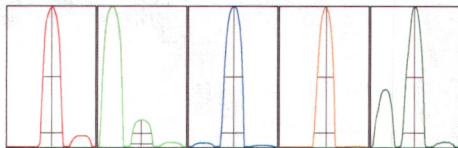
Mass	Range	Count	RSD%	Background
9	50000	29367	5.576	0.400
24	20000	12283	8.148	0.600
59	50000	25155	4.445	0.000
115	50000	45756	3.198	0.000
208	50000	19961	2.826	0.000

Sampling Period [sec] 0.514
 Integration Time [sec] 0.1

Oxide/Doubly Charged Ratio

Oxide ---
 Doubly Charged 70 / 140 0.770 %

Resolution/Axis



Mass	Peak Height	Axis	W-50%	W-10%
9	28139.74	9.05	0.62	0.758
24	11083.60	24.00	0.64	0.737
59	24903.80	59.05	0.61	0.755
115	47096.13	115.10	0.54	0.703
208	19902.60	208.00	0.56	0.732

Integration Time [sec] 0.1
 Acquisition Time [sec] 37.4
 Y Axis Linear

Tune Parameters

Plasma Parameters

Tune Report

Plasma Mode	---	Nebulizer Gas	0.91 L/min	Dilution Gas	0.18 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.00 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	10.6 V	Deflect	2.8 V
Extract 2	-165.0 V	Cell Entrance	-30 V	Plate Bias	-80 V
Omega Bias	-70 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-18.0 V		
H2 Flow	3.8 mL/min	OctP RF	180 V		

QP Parameters

Mass Gain	125	Axis Gain	0.9988	QP Bias	-13.0 V
Mass Offset	126	Axis Offset	0.14		

Hardware Settings

Torch

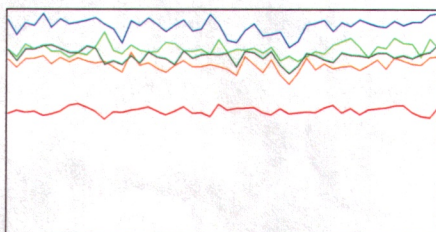
Torch H	-1.3 mm	Torch V	-0.4 mm
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EM

Discriminator	5.4 mV	Analog HV	2352 V	Pulse HV	1825 V
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[He]

Sensitivity



Mass	Range	Count	RSD%	Background
9	5000	2773	2.874	0.600
24	2000	1652	3.303	0.500
59	20000	18602	3.720	0.100
115	20000	15187	3.538	0.300
208	20000	15981	3.432	0.300

Sampling Period [sec] 0.514

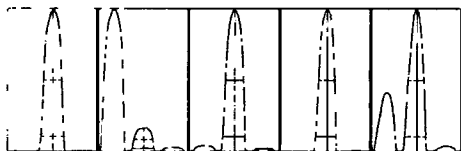
Integration Time [sec] 0.1

Oxide/Doubly Charged Ratio

Oxide	---
Doubly Charged	70 / 140 0.903 %

Resolution/Axis

Tune Report



Mass	Peak Height	Axis	W-50%	W-10%
9	2812.95	9.05	0.61	0.768
24	1597.65	24.05	0.64	0.734
59	18713.03	59.05	0.60	0.747
115	15366.13	115.10	0.53	0.684
208	15490.17	208.05	0.52	0.705

Integration Time [sec] 0.1
 Acquisition Time [sec] 37.4
 Y Axis Linear

Tune Parameters

Plasma Parameters

Plasma Mode	—	Nebulizer Gas	0.91 L/min	Dilution Gas	0.18 L/min
RF Power	1600 W	Option Gas	—	Auxiliary Gas	0.90 L/min
RF Matching	1.00 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	10.8 V	Deflect	-0.4 V
Extract 2	-175.0 V	Cell Entrance	-30 V	Plate Bias	-80 V
Omega Bias	-70 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	—	Energy Discrimination	5.0 V
He Flow	4.0 mL/min	OctP Bias	-18.0 V		
H2 Flow	0.0 mL/min	OctP RF	190 V		

QP Parameters

Mass Gain	125	Axis Gain	0.9988	QP Bias	-13.0 V
Mass Offset	126	Axis Offset	0.14		

Hardware Settings

Torch

Torch H	-1.3 mm	Torch V	-0.4 mm
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EM

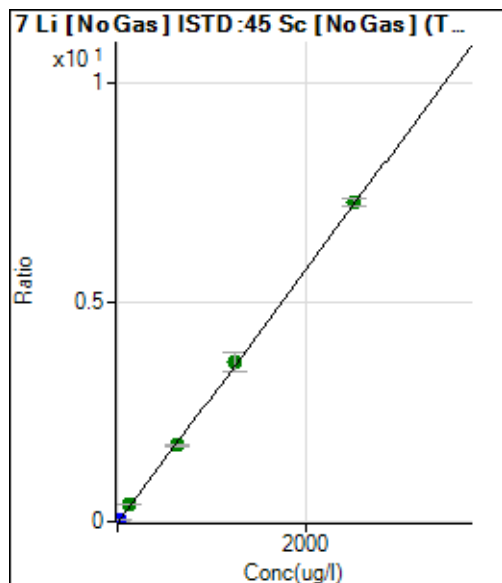
Discriminator	5.4 mV	Analog HV	2352 V	Pulse HV	1825 V
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Calibration for 030_QC1.d

Batch Folder: D:\Agilent\ICPMH\1\DATA\220311ADoDb.b\
 Analysis File: 220311ADoDb.batch.bin
 DA Date-Time: 2022-03-11 21:16:52
 Calibration Title:
 Calibration Method: External Calibration
 VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	019CALB.d	BLANK	2022-03-11 20:01:28
2	020CAL.S.d	0.025 ppb STD	2022-03-11 20:08:07
3	021CAL.S.d	0.05 ppb STD	2022-03-11 20:14:46
4	022CAL.S.d	0.10 ppb STD	2022-03-11 20:21:25
5	023CAL.S.d	0.5 ppb STD	2022-03-11 20:28:03
6	024CAL.S.d	1 ppb STD	2022-03-11 20:34:42
7	025CAL.S.d	10 ppb STD	2022-03-11 20:41:19
8	026CAL.S.d	50 ppb STD	2022-03-11 20:47:56
9	027CAL.S.d	100 ppb STD	2022-03-11 20:54:33
10	028CAL.S.d	1000 ppb STD	2022-03-11 21:01:04
11	029CAL.S.d	100 ppb Br STD	2022-03-11 21:07:30

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	10844.88	0.0019	P	1.0	
2	<input type="checkbox"/>	0.313	0.313	16165.05	0.0028	P	3.9	0.1
3	<input type="checkbox"/>	0.625	0.749	23154.85	0.0041	P	13.5	19.9
4	<input type="checkbox"/>	1.250	1.463	34839.06	0.0061	P	1.0	17.0
5	<input type="checkbox"/>	6.250	6.780	125213.11	0.0216	P	0.9	8.5
6	<input type="checkbox"/>	12.500	14.273	254398.73	0.0434	P	2.7	14.2
7	<input type="checkbox"/>	125.000	131.265	2266354.51	0.3834	A	4.0	5.0
8	<input type="checkbox"/>	625.000	599.300	10059931.58	1.7437	A	1.5	-4.1
9	<input type="checkbox"/>	1250.000	1250.362	20278162.30	3.6359	A	11.7	0.0
10	<input type="checkbox"/>	2500.000	2505.920	40321655.40	7.2851	A	2.9	0.2
11	<input type="checkbox"/>			66027.24	0.0116	P	3.1	

$$y = 0.0029 * x + 0.0019$$

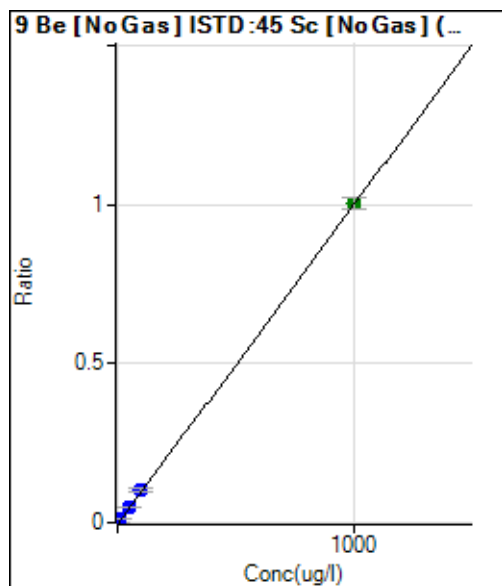
$$R = 0.9999$$

$$DL = 0.01979 \text{ ug/l}$$

$$BEC = 0.6485 \text{ ug/l}$$

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	201.96	0.0000	P	2.9	
2	<input type="checkbox"/>	0.025	0.026	356.93	0.0001	P	7.6	5.6
3	<input type="checkbox"/>	0.050	0.063	554.58	0.0001	P	26.3	25.9
4	<input type="checkbox"/>	0.100	0.111	833.52	0.0001	P	4.7	11.1
5	<input type="checkbox"/>	0.500	0.517	3216.70	0.0006	P	1.7	3.4
6	<input type="checkbox"/>	1.000	1.113	6764.16	0.0012	P	1.8	11.3
7	<input type="checkbox"/>	10.000	10.327	61536.06	0.0104	P	4.6	3.3
8	<input type="checkbox"/>	50.000	48.093	278989.14	0.0484	P	1.8	-3.8
9	<input type="checkbox"/>	100.000	99.967	559988.13	0.1005	P	12.7	0.0
10	<input type="checkbox"/>	1000.000	1000.095	5560713.26	1.0049	A	3.7	0.0
11	<input type="checkbox"/>			418.92	0.0001	P	12.9	

$$y = 0.0010 * x + 3.5103E-005$$

$$R = 1.0000$$

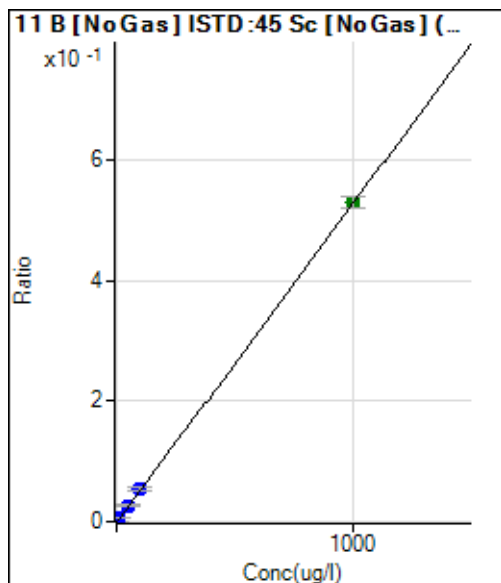
$$DL = 0.002996 \text{ ug/l}$$

$$BEC = 0.03494 \text{ ug/l}$$

Weight: 1/y

Min Conc: <None>

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	4501.15	0.0008	P	2.9	
2	<input type="checkbox"/>			4434.44	0.0008	P	3.6	
3	<input type="checkbox"/>	0.050	-0.111	4126.23	0.0007	P	13.2	-321.6
4	<input type="checkbox"/>	0.100	-0.039	4326.36	0.0008	P	1.7	-138.7
5	<input type="checkbox"/>	0.500	0.294	5442.50	0.0009	P	1.8	-41.1
6	<input type="checkbox"/>	1.000	0.930	7480.86	0.0013	P	6.2	-7.0
7	<input type="checkbox"/>	10.000	10.249	36749.77	0.0062	P	5.2	2.5
8	<input type="checkbox"/>	50.000	49.554	156147.88	0.0271	P	2.6	-0.9
9	<input type="checkbox"/>	100.000	102.100	306249.69	0.0549	P	12.3	2.1
10	<input type="checkbox"/>	1000.000	999.810	2939160.62	0.5311	A	3.2	0.0
11	<input type="checkbox"/>			37995.49	0.0067	P	8.5	

$y = 5.3039E-004 * x + 7.8236E-004$

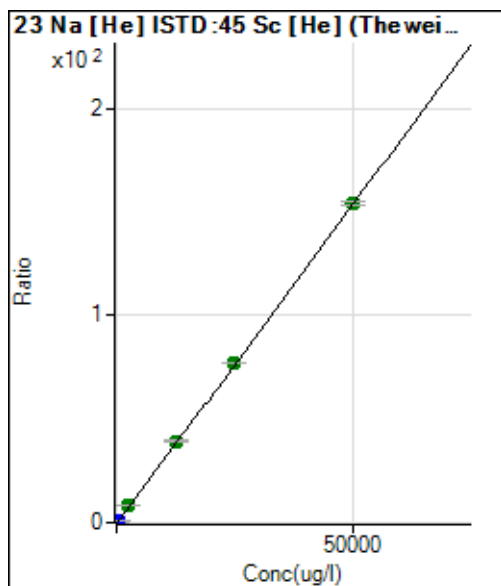
R = 1.0000

DL = 0.127 ug/l

BEC = 1.475 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	44894.40	0.1403	P	1.4	
2	<input type="checkbox"/>	6.250	17.628	62039.38	0.1947	P	1.3	182.1
3	<input type="checkbox"/>	12.500	19.057	63671.71	0.1991	P	1.4	52.5
4	<input type="checkbox"/>	25.000	32.392	75595.29	0.2403	P	15.1	29.6
5	<input type="checkbox"/>	125.000	142.286	187277.91	0.5795	P	0.5	13.8
6	<input type="checkbox"/>	250.000	297.867	345738.82	1.0597	P	0.4	19.1
7	<input type="checkbox"/>	2500.000	2776.132	2893451.03	8.7089	A	0.6	11.0
8	<input type="checkbox"/>	12500.00	12736.10	13097344.53	39.4506	A	1.5	1.9
9	<input type="checkbox"/>	25000.00	24942.27	25602550.45	77.1253	A	0.8	-0.2
10	<input type="checkbox"/>	50000.00	49955.74	50081917.59	154.330	A	1.1	-0.1
11	<input type="checkbox"/>			51162.13	0.1578	P	1.0	

$y = 0.0031 * x + 0.1403$

R = 1.0000

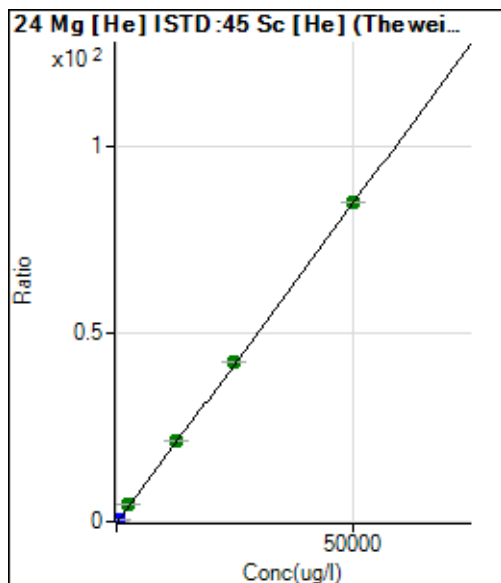
DL = 1.974 ug/l

BEC = 45.45 ug/l

Weight: 1/y

Min Conc: <None>

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	219.57	0.0007	P	12.9	
2	<input type="checkbox"/>	6.250	7.701	4395.27	0.0138	P	9.1	23.2
3	<input type="checkbox"/>	12.500	16.281	9088.12	0.0284	P	5.0	30.2
4	<input type="checkbox"/>	25.000	32.405	17588.75	0.0559	P	14.7	29.6
5	<input type="checkbox"/>	125.000	144.672	79832.70	0.2470	P	0.5	15.7
6	<input type="checkbox"/>	250.000	307.951	171287.36	0.5250	P	1.4	23.2
7	<input type="checkbox"/>	2500.000	2814.284	1592280.35	4.7925	A	0.7	12.6
8	<input type="checkbox"/>	12500.00	12652.90	7152971.07	21.5446	A	0.9	1.2
9	<input type="checkbox"/>	25000.00	24969.37	14113274.75	42.5156	A	0.5	-0.1
10	<input type="checkbox"/>	50000.00	49961.02	27605619.27	85.0684	A	0.4	-0.1
11	<input type="checkbox"/>			528.97	0.0016	P	24.6	

$$y = 0.0017 * x + 6.8561E-004$$

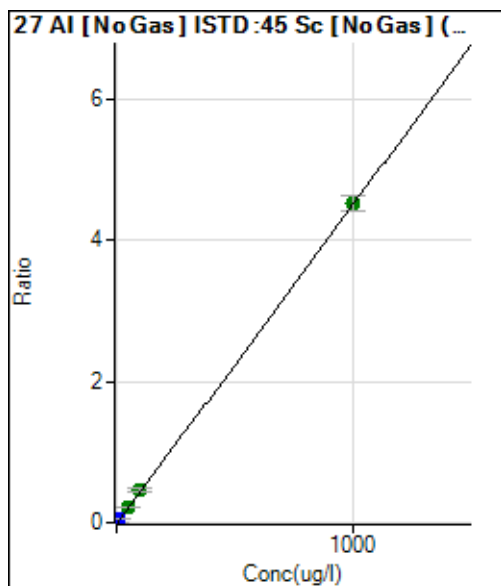
R = 1.0000

DL = 0.1553 ug/l

BEC = 0.4027 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	5618.88	0.0010	P	4.3	
2	<input type="checkbox"/>			18564.86	0.0032	P	2.7	
3	<input type="checkbox"/>	0.050	0.477	17882.96	0.0031	P	13.3	854.6
4	<input type="checkbox"/>	0.100	0.530	19156.91	0.0034	P	3.6	430.2
5	<input type="checkbox"/>	0.500	0.956	30748.21	0.0053	P	1.3	91.2
6	<input type="checkbox"/>	1.000	1.630	48992.92	0.0084	P	7.0	63.0
7	<input type="checkbox"/>	10.000	10.928	297954.70	0.0504	P	5.4	9.3
8	<input type="checkbox"/>	50.000	49.476	1297170.24	0.2248	A	0.5	-1.0
9	<input type="checkbox"/>	100.000	99.902	2525610.66	0.4530	A	12.1	-0.1
10	<input type="checkbox"/>	1000.000	1000.026	25037904.35	4.5257	A	4.4	0.0
11	<input type="checkbox"/>			15012.15	0.0026	P	0.6	

$$y = 0.0045 * x + 9.7682E-004$$

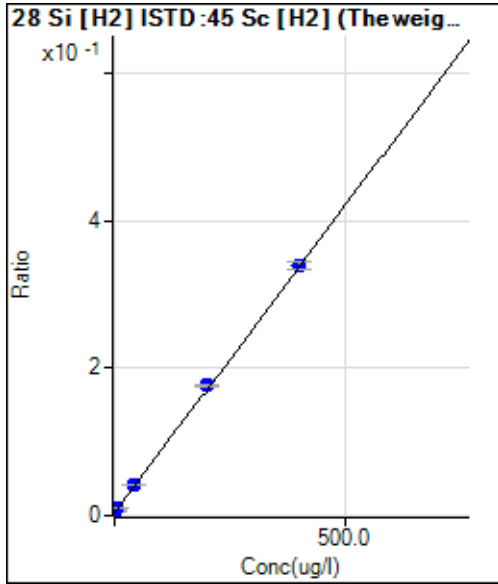
R = 1.0000

DL = 0.0279 ug/l

BEC = 0.2159 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	15466.87	0.0064	P	1.6	
2	<input type="checkbox"/>			17083.34	0.0070	P	2.1	
3	<input type="checkbox"/>	0.200	0.625	16655.27	0.0069	P	1.0	212.5
4	<input type="checkbox"/>	0.400	1.271	18006.75	0.0075	P	3.2	217.7
5	<input type="checkbox"/>	2.000	2.972	21588.50	0.0089	P	3.0	48.6
6	<input type="checkbox"/>	4.000	5.338	26429.88	0.0109	P	1.2	33.4
7	<input type="checkbox"/>	40.000	42.100	104200.30	0.0416	P	2.5	5.2
8	<input type="checkbox"/>	200.000	203.227	426235.99	0.1765	P	2.3	1.6
9	<input type="checkbox"/>	400.000	398.157	814237.27	0.3396	P	2.8	-0.5
10	<input type="checkbox"/>			19808.35	0.0084	P	2.0	
11	<input type="checkbox"/>			23684.28	0.0097	P	3.2	

$y = 8.3685E-004 * x + 0.0064$

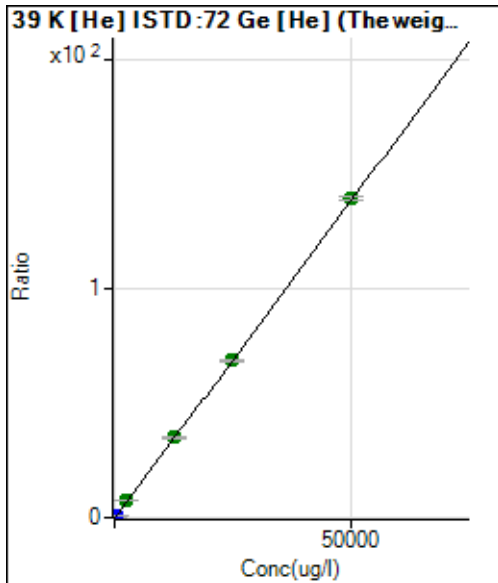
R = 1.0000

DL = 0.3567 ug/l

BEC = 7.641 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	65169.86	0.3471	P	2.0	
2	<input type="checkbox"/>	6.250	9.193	69206.73	0.3726	P	1.7	47.1
3	<input type="checkbox"/>	12.500	19.422	74284.21	0.4011	P	0.8	55.4
4	<input type="checkbox"/>	25.000	33.053	81967.53	0.4389	P	9.9	32.2
5	<input type="checkbox"/>	125.000	142.834	139295.41	0.7437	P	0.6	14.3
6	<input type="checkbox"/>	250.000	292.838	221951.65	1.1603	P	0.9	17.1
7	<input type="checkbox"/>	2500.000	2706.548	1530076.32	7.8628	A	1.3	8.3
8	<input type="checkbox"/>	12500.00	12496.25	6806255.52	35.0472	A	1.5	0.0
9	<input type="checkbox"/>	25000.00	24637.63	13387654.80	68.7618	A	1.3	-1.4
10	<input type="checkbox"/>	50000.00	50171.52	26122509.33	139.665	A	1.6	0.3
11	<input type="checkbox"/>			460070.35	2.4039	P	2.3	

$y = 0.0028 * x + 0.3471$

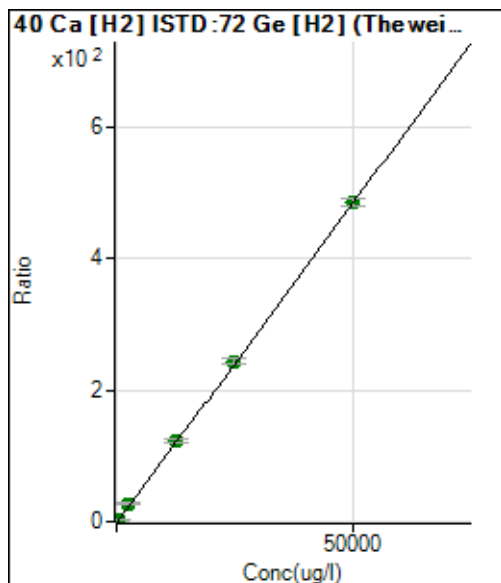
R = 1.0000

DL = 7.534 ug/l

BEC = 125 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	44926.21	0.0601	P	4.5	
2	<input type="checkbox"/>	6.250	14.683	150950.69	0.2031	P	20.5	134.9
3	<input type="checkbox"/>	12.500	19.845	190746.71	0.2534	P	1.4	58.8
4	<input type="checkbox"/>	25.000	36.294	305639.18	0.4136	P	5.4	45.2
5	<input type="checkbox"/>	125.000	149.975	1164469.76	1.5206	M	3.9	20.0
6	<input type="checkbox"/>	250.000	309.305	2338635.51	3.0722	A	5.5	23.7
7	<input type="checkbox"/>	2500.000	2807.241	21504774.85	27.3974	A	7.1	12.3
8	<input type="checkbox"/>	12500.00	12640.39	95304694.67	123.153	A	2.8	1.1
9	<input type="checkbox"/>	25000.00	25093.00	187512480.8	244.418	A	3.2	0.4
10	<input type="checkbox"/>	50000.00	49902.67	362347361.2	486.017	A	2.6	-0.2
11	<input type="checkbox"/>			89816.51	0.1187	P	3.4	

$y = 0.0097 * x + 0.0601$

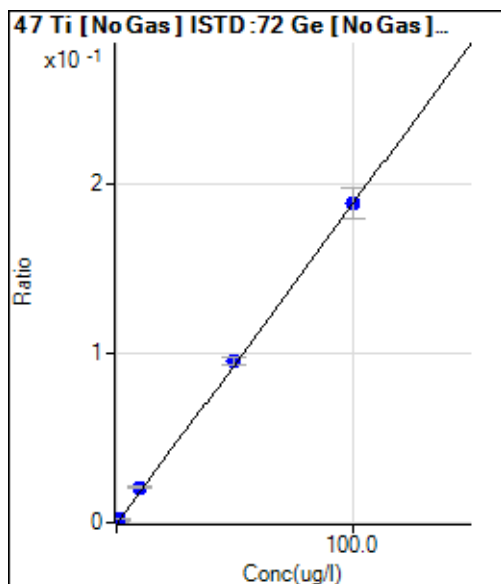
R = 1.0000

DL = 0.8409 ug/l

BEC = 6.176 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	180.18	0.0001	P	31.7	
2	<input type="checkbox"/>	0.025	0.072	363.71	0.0003	P	8.2	187.7
3	<input type="checkbox"/>	0.050	0.094	423.76	0.0003	P	21.6	87.1
4	<input type="checkbox"/>	0.100	0.145	547.23	0.0004	P	5.0	45.1
5	<input type="checkbox"/>	0.500	0.555	1601.70	0.0012	P	8.3	11.0
6	<input type="checkbox"/>	1.000	1.214	3302.03	0.0024	P	1.1	21.4
7	<input type="checkbox"/>	10.000	10.895	28236.99	0.0208	P	3.0	8.9
8	<input type="checkbox"/>	50.000	50.464	129304.07	0.0958	P	4.4	0.9
9	<input type="checkbox"/>	100.000	99.676	256806.45	0.1890	P	9.4	-0.3
10	<input type="checkbox"/>			15836.20	0.0123	P	4.0	
11	<input type="checkbox"/>			917.62	0.0007	P	16.8	

$y = 0.0019 * x + 1.3608E-004$

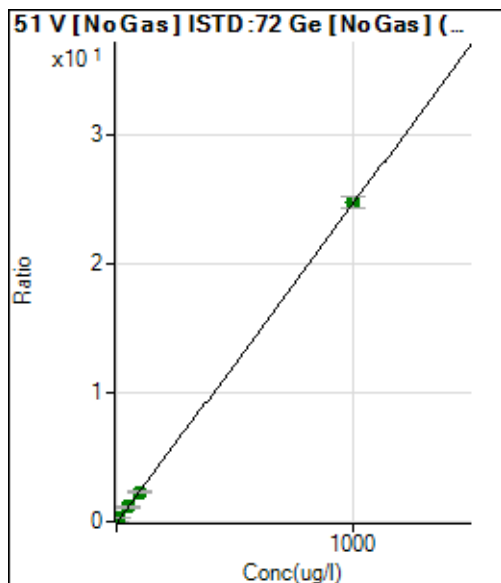
R = 1.0000

DL = 0.06839 ug/l

BEC = 0.07181 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	-18925.67	-0.0143	A	-176.	
2	<input type="checkbox"/>	0.025	-0.277	-28041.50	-0.0211	A	-124.	-1206.
3	<input type="checkbox"/>	0.050	-0.255	-29251.43	-0.0206	A	-121.	-610.5
4	<input type="checkbox"/>	0.100	-0.718	-42552.32	-0.0321	A	-55.3	-818.2
5	<input type="checkbox"/>	0.500	-0.496	-35756.74	-0.0266	A	-41.5	-199.2
6	<input type="checkbox"/>	1.000	-0.238	-27444.14	-0.0202	A	-61.1	-123.8
7	<input type="checkbox"/>	10.000	9.638	304629.50	0.2242	A	8.0	-3.6
8	<input type="checkbox"/>	50.000	45.568	1501805.70	1.1133	A	7.4	-8.9
9	<input type="checkbox"/>	100.000	91.526	3060863.51	2.2506	A	7.5	-8.5
10	<input type="checkbox"/>	1000.000	1001.074	31808362.39	24.7581	A	3.9	0.1
11	<input type="checkbox"/>			-44165.21	-0.0325	A	-75.6	

$y = 0.0247 * x - 0.0143$

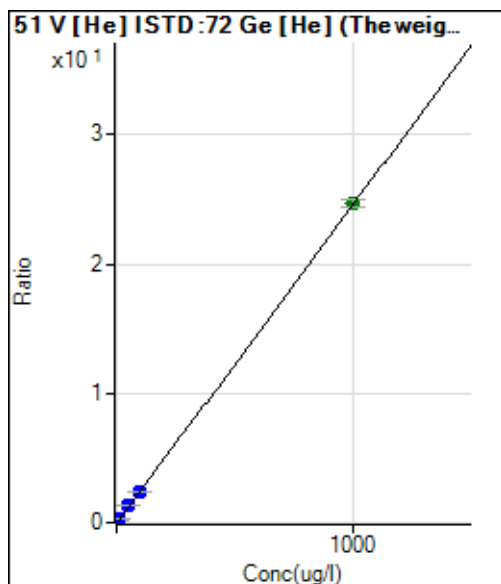
R = 1.0000

DL = 3.059 ug/l

BEC = -0.5776 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	15260.20	0.0813	P	4.9	
2	<input type="checkbox"/>	0.025	0.141	15745.16	0.0848	P	0.7	463.9
3	<input type="checkbox"/>	0.050	0.281	16339.13	0.0882	P	3.2	461.2
4	<input type="checkbox"/>	0.100	0.383	16937.54	0.0907	P	10.5	283.0
5	<input type="checkbox"/>	0.500	0.434	17225.67	0.0920	P	0.9	-13.3
6	<input type="checkbox"/>	1.000	0.777	19209.20	0.1004	P	1.7	-22.3
7	<input type="checkbox"/>	10.000	9.645	61985.12	0.3185	P	1.1	-3.6
8	<input type="checkbox"/>	50.000	48.575	247827.41	1.2761	P	0.9	-2.8
9	<input type="checkbox"/>	100.000	95.899	475088.22	2.4401	P	0.5	-4.1
10	<input type="checkbox"/>	1000.000	1000.485	4617148.30	24.6896	A	2.9	0.0
11	<input type="checkbox"/>			10850.69	0.0567	P	2.8	

$y = 0.0246 * x + 0.0813$

R = 1.0000

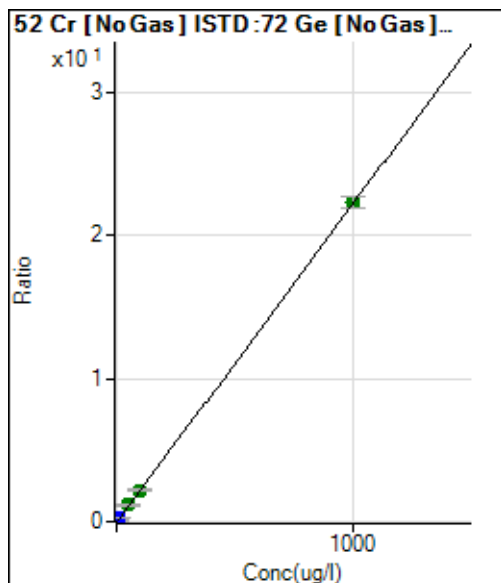
DL = 0.4842 ug/l

BEC = 3.306 ug/l

Weight: 1/y

Min Conc: <None>

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	68265.49	0.0514	P	0.9	
2	<input type="checkbox"/>	0.025	0.168	73724.60	0.0552	P	1.6	573.1
3	<input type="checkbox"/>	0.050	0.113	73333.09	0.0539	P	10.1	125.6
4	<input type="checkbox"/>	0.100	0.304	77469.55	0.0582	P	3.1	204.3
5	<input type="checkbox"/>	0.500	0.578	86745.22	0.0643	P	1.1	15.7
6	<input type="checkbox"/>	1.000	1.186	105493.59	0.0778	P	1.6	18.6
7	<input type="checkbox"/>	10.000	10.367	383687.19	0.2824	P	2.5	3.7
8	<input type="checkbox"/>	50.000	49.262	1551088.55	1.1488	A	3.5	-1.5
9	<input type="checkbox"/>	100.000	96.618	2994120.25	2.2037	A	9.4	-3.4
10	<input type="checkbox"/>	1000.000	1000.371	28700302.64	22.3362	A	3.3	0.0
11	<input type="checkbox"/>			68797.08	0.0513	P	3.0	

$$y = 0.0223 * x + 0.0514$$

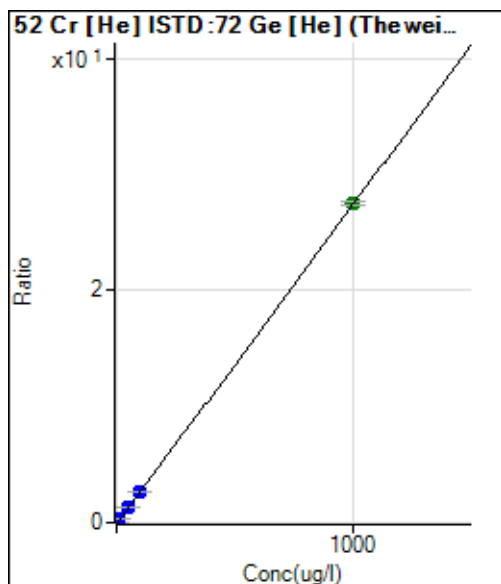
$$R = 1.0000$$

$$DL = 0.06535 \text{ ug/l}$$

$$BEC = 2.309 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	372.23	0.0020	P	16.5	
2	<input type="checkbox"/>	0.025	0.038	560.02	0.0030	P	6.5	50.3
3	<input type="checkbox"/>	0.050	0.081	778.92	0.0042	P	7.3	61.7
4	<input type="checkbox"/>	0.100	0.119	983.37	0.0053	P	7.6	18.9
5	<input type="checkbox"/>	0.500	0.584	3383.74	0.0181	P	2.6	16.8
6	<input type="checkbox"/>	1.000	1.197	6683.77	0.0349	P	0.2	19.7
7	<input type="checkbox"/>	10.000	10.703	57751.56	0.2968	P	0.5	7.0
8	<input type="checkbox"/>	50.000	50.009	267869.07	1.3793	P	1.3	0.0
9	<input type="checkbox"/>	100.000	98.161	526773.02	2.7055	P	1.4	-1.8
10	<input type="checkbox"/>	1000.000	1000.176	5152215.86	27.5489	A	1.7	0.0
11	<input type="checkbox"/>			451.12	0.0024	P	10.4	

$$y = 0.0275 * x + 0.0020$$

$$R = 1.0000$$

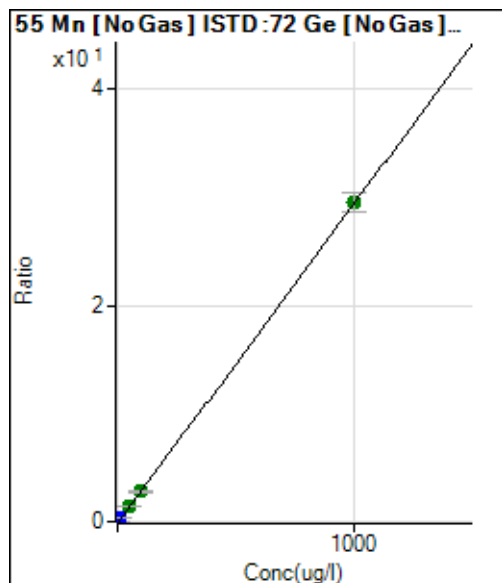
$$DL = 0.03552 \text{ ug/l}$$

$$BEC = 0.07188 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	6235.65	0.0047	P	1.2	
2	<input type="checkbox"/>	0.025	0.069	9011.60	0.0067	P	2.6	177.3
3	<input type="checkbox"/>	0.050	0.091	10046.85	0.0074	P	11.2	82.9
4	<input type="checkbox"/>	0.100	0.135	11531.71	0.0087	P	3.4	34.6
5	<input type="checkbox"/>	0.500	0.568	28934.51	0.0215	P	0.6	13.6
6	<input type="checkbox"/>	1.000	1.178	53440.66	0.0394	P	3.4	17.8
7	<input type="checkbox"/>	10.000	10.749	437184.71	0.3217	P	2.4	7.5
8	<input type="checkbox"/>	50.000	48.719	1945603.21	1.4416	A	5.3	-2.6
9	<input type="checkbox"/>	100.000	94.992	3816248.74	2.8064	A	7.9	-5.0
10	<input type="checkbox"/>	1000.000	1000.557	37900807.28	29.5152	A	5.9	0.1
11	<input type="checkbox"/>			9414.40	0.0070	P	6.3	

$$y = 0.0295 * x + 0.0047$$

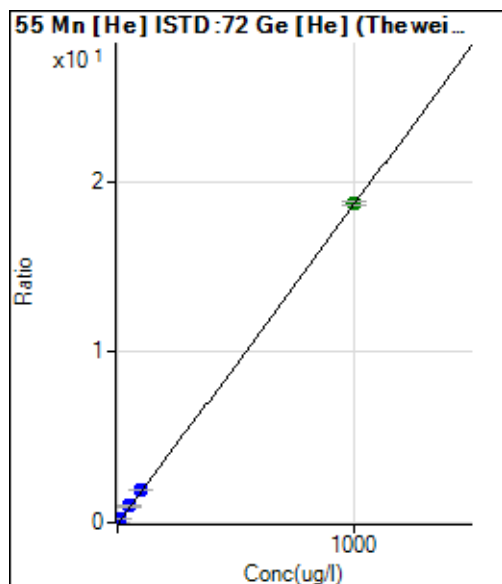
$$R = 1.0000$$

$$DL = 0.005847 \text{ ug/l}$$

$$BEC = 0.1593 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	115.31	0.0006	P	14.7	
2	<input type="checkbox"/>	0.025	0.062	330.27	0.0018	P	4.2	148.8
3	<input type="checkbox"/>	0.050	0.093	435.59	0.0024	P	2.1	85.7
4	<input type="checkbox"/>	0.100	0.157	663.21	0.0036	P	11.2	57.1
5	<input type="checkbox"/>	0.500	0.612	2260.72	0.0121	P	2.9	22.4
6	<input type="checkbox"/>	1.000	1.195	4395.45	0.0230	P	1.2	19.5
7	<input type="checkbox"/>	10.000	10.959	40032.17	0.2057	P	1.3	9.6
8	<input type="checkbox"/>	50.000	51.270	186440.06	0.9601	P	1.9	2.5
9	<input type="checkbox"/>	100.000	99.778	363685.38	1.8679	P	0.4	-0.2
10	<input type="checkbox"/>	1000.000	999.949	3500209.84	18.7139	A	1.4	0.0
11	<input type="checkbox"/>			174.97	0.0009	P	7.4	

$$y = 0.0187 * x + 6.1447E-004$$

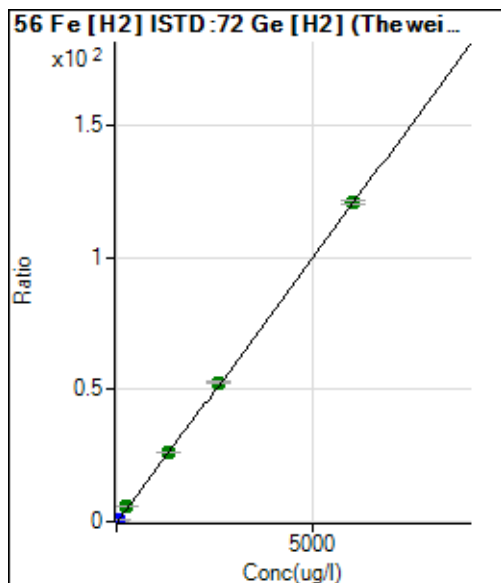
$$R = 1.0000$$

$$DL = 0.01444 \text{ ug/l}$$

$$BEC = 0.03283 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	11255.67	0.0151	P	3.4	
2	<input type="checkbox"/>	0.650	0.927	25171.89	0.0338	P	3.6	42.6
3	<input type="checkbox"/>	1.300	1.707	37284.63	0.0495	P	0.4	31.3
4	<input type="checkbox"/>	2.600	3.382	61576.92	0.0834	P	1.4	30.1
5	<input type="checkbox"/>	13.000	14.962	242762.66	0.3172	P	0.4	15.1
6	<input type="checkbox"/>	26.000	31.737	499039.03	0.6559	P	1.4	22.1
7	<input type="checkbox"/>	260.000	289.793	4602383.31	5.8661	A	1.9	11.5
8	<input type="checkbox"/>	1300.000	1311.324	20489438.30	26.4913	A	0.1	0.9
9	<input type="checkbox"/>	2600.000	2613.837	40481543.03	52.7897	A	0.5	0.5
10	<input type="checkbox"/>	6000.000	5990.230	90163292.62	120.960	A	0.7	-0.2
11	<input type="checkbox"/>			21422.13	0.0283	P	0.5	

$y = 0.0202 * x + 0.0151$

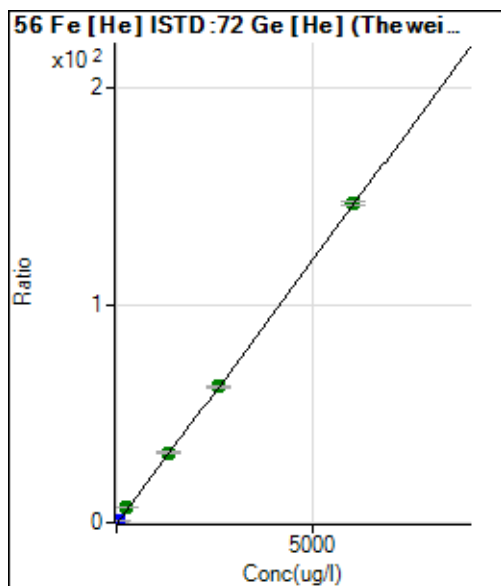
R = 1.0000

DL = 0.07676 ug/l

BEC = 0.7465 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	5808.67	0.0309	P	1.4	
2	<input type="checkbox"/>	0.650	0.887	9771.44	0.0526	P	1.3	36.5
3	<input type="checkbox"/>	1.300	1.741	13611.70	0.0735	P	2.6	33.9
4	<input type="checkbox"/>	2.600	3.310	20870.91	0.1119	P	11.2	27.3
5	<input type="checkbox"/>	13.000	15.061	74745.55	0.3991	P	0.7	15.9
6	<input type="checkbox"/>	26.000	31.231	151961.79	0.7944	P	1.1	20.1
7	<input type="checkbox"/>	260.000	289.681	1384080.00	7.1126	A	1.9	11.4
8	<input type="checkbox"/>	1300.000	1317.458	6260350.70	32.2381	A	1.9	1.3
9	<input type="checkbox"/>	2600.000	2559.720	12189452.67	62.6071	A	1.1	-1.5
10	<input type="checkbox"/>	6000.000	6012.359	27495258.66	147.011	A	1.4	0.2
11	<input type="checkbox"/>			8821.55	0.0461	P	2.8	

$y = 0.0244 * x + 0.0309$

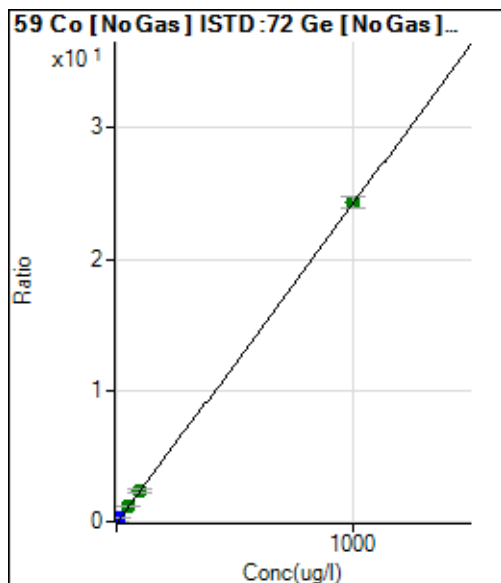
R = 1.0000

DL = 0.05401 ug/l

BEC = 1.265 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	339.33	0.0003	P	14.3	
2	<input type="checkbox"/>	0.025	0.024	1127.81	0.0008	P	6.0	-3.2
3	<input type="checkbox"/>	0.050	0.060	2325.57	0.0017	P	9.3	19.3
4	<input type="checkbox"/>	0.100	0.114	4035.92	0.0030	P	6.7	14.1
5	<input type="checkbox"/>	0.500	0.550	18398.48	0.0136	P	2.6	10.1
6	<input type="checkbox"/>	1.000	1.151	38277.43	0.0282	P	1.8	15.1
7	<input type="checkbox"/>	10.000	10.969	362759.72	0.2670	P	4.0	9.7
8	<input type="checkbox"/>	50.000	49.132	1613311.48	1.1952	A	4.7	-1.7
9	<input type="checkbox"/>	100.000	97.229	3213545.57	2.3649	A	9.0	-2.8
10	<input type="checkbox"/>	1000.000	1000.311	31261833.39	24.3280	A	3.2	0.0
11	<input type="checkbox"/>			632.10	0.0005	P	19.0	

$$y = 0.0243 * x + 2.5600E-004$$

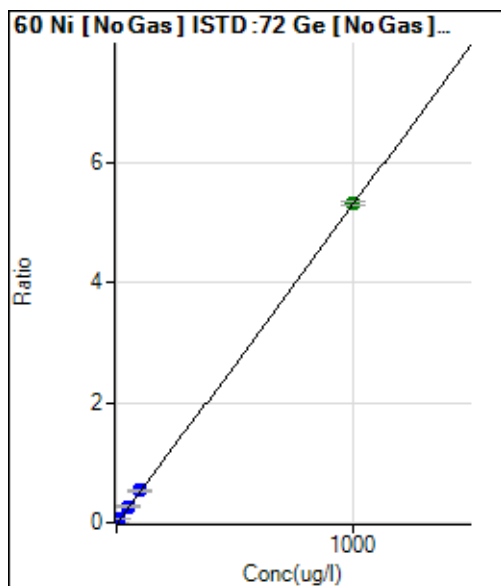
R = 1.0000

DL = 0.004503 ug/l

BEC = 0.01053 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	525.63	0.0004	P	14.0	
2	<input type="checkbox"/>	0.025	0.070	1024.68	0.0008	P	6.1	178.1
3	<input type="checkbox"/>	0.050	0.081	1124.48	0.0008	P	11.3	61.9
4	<input type="checkbox"/>	0.100	0.128	1437.22	0.0011	P	5.8	28.5
5	<input type="checkbox"/>	0.500	0.579	4688.12	0.0035	P	9.9	15.7
6	<input type="checkbox"/>	1.000	1.185	9088.16	0.0067	P	5.0	18.5
7	<input type="checkbox"/>	10.000	11.246	81882.18	0.0603	P	4.1	12.5
8	<input type="checkbox"/>	50.000	50.633	364556.47	0.2700	P	2.8	1.3
9	<input type="checkbox"/>	100.000	100.198	725279.03	0.5338	P	9.4	0.2
10	<input type="checkbox"/>	1000.000	999.936	6845011.40	5.3240	A	1.1	0.0
11	<input type="checkbox"/>			818.40	0.0006	P	8.9	

$$y = 0.0053 * x + 3.9646E-004$$

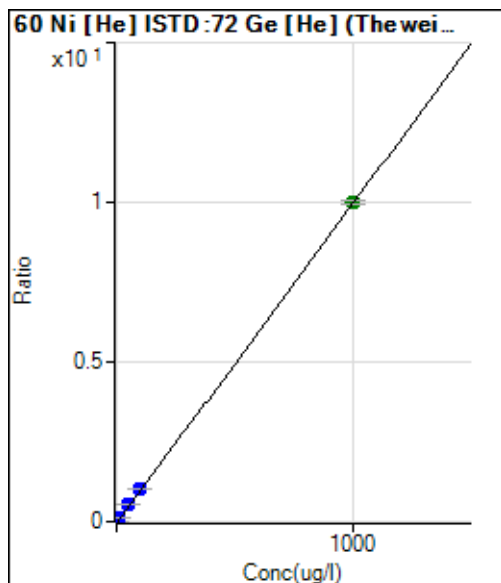
R = 1.0000

DL = 0.03128 ug/l

BEC = 0.07447 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	106.67	0.0006	P	18.0	
2	<input type="checkbox"/>	0.025	0.071	237.78	0.0013	P	10.8	184.6
3	<input type="checkbox"/>	0.050	0.104	298.89	0.0016	P	2.2	108.9
4	<input type="checkbox"/>	0.100	0.154	393.34	0.0021	P	12.2	54.0
5	<input type="checkbox"/>	0.500	0.644	1313.40	0.0070	P	2.2	28.8
6	<input type="checkbox"/>	1.000	1.274	2546.91	0.0133	P	4.6	27.4
7	<input type="checkbox"/>	10.000	11.568	22637.53	0.1163	P	1.3	15.7
8	<input type="checkbox"/>	50.000	52.352	101838.12	0.5244	P	1.5	4.7
9	<input type="checkbox"/>	100.000	102.984	200748.63	1.0310	P	0.5	3.0
10	<input type="checkbox"/>	1000.000	999.568	1870695.30	10.0023	A	1.6	0.0
11	<input type="checkbox"/>			138.89	0.0007	P	11.9	

$$y = 0.0100 * x + 5.6859E-004$$

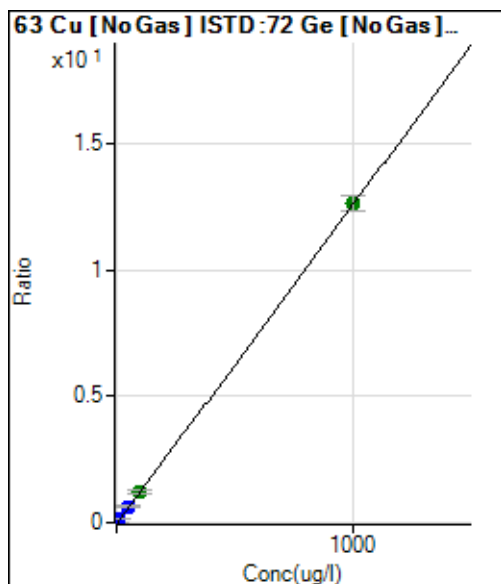
$$R = 1.0000$$

$$DL = 0.03067 \text{ ug/l}$$

$$BEC = 0.05682 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	3363.08	0.0025	P	4.3	
2	<input type="checkbox"/>	0.025	0.119	5388.50	0.0040	P	2.9	374.2
3	<input type="checkbox"/>	0.050	0.117	5469.23	0.0040	P	8.7	134.5
4	<input type="checkbox"/>	0.100	0.188	6533.42	0.0049	P	0.9	87.8
5	<input type="checkbox"/>	0.500	0.637	14277.35	0.0106	P	0.8	27.3
6	<input type="checkbox"/>	1.000	1.261	25037.42	0.0185	P	2.2	26.1
7	<input type="checkbox"/>	10.000	11.260	196904.35	0.1449	P	3.0	12.6
8	<input type="checkbox"/>	50.000	50.927	873025.45	0.6465	P	2.7	1.9
9	<input type="checkbox"/>	100.000	97.744	1682323.33	1.2385	A	9.6	-2.3
10	<input type="checkbox"/>	1000.000	1000.166	16248381.81	12.6493	A	4.6	0.0
11	<input type="checkbox"/>			8989.71	0.0067	P	7.8	

$$y = 0.0126 * x + 0.0025$$

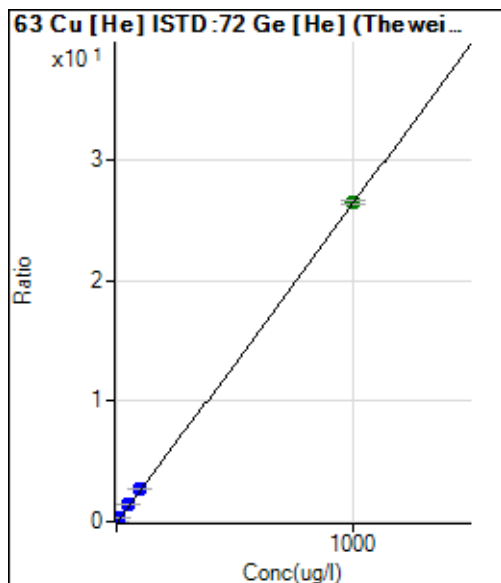
$$R = 1.0000$$

$$DL = 0.02588 \text{ ug/l}$$

$$BEC = 0.2004 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	298.61	0.0016	P	9.5	
2	<input type="checkbox"/>	0.025	0.115	862.86	0.0046	P	2.2	360.8
3	<input type="checkbox"/>	0.050	0.133	948.51	0.0051	P	2.4	166.2
4	<input type="checkbox"/>	0.100	0.195	1266.47	0.0068	P	8.0	95.2
5	<input type="checkbox"/>	0.500	0.664	3596.39	0.0192	P	3.3	32.8
6	<input type="checkbox"/>	1.000	1.323	7016.28	0.0367	P	0.7	32.3
7	<input type="checkbox"/>	10.000	11.421	59247.67	0.3045	P	1.0	14.2
8	<input type="checkbox"/>	50.000	52.400	270154.46	1.3911	P	1.5	4.8
9	<input type="checkbox"/>	100.000	101.485	524298.89	2.6928	P	0.2	1.5
10	<input type="checkbox"/>	1000.000	999.717	4958542.58	26.5125	A	1.4	0.0
11	<input type="checkbox"/>			578.57	0.0030	P	1.3	

$$y = 0.0265 * x + 0.0016$$

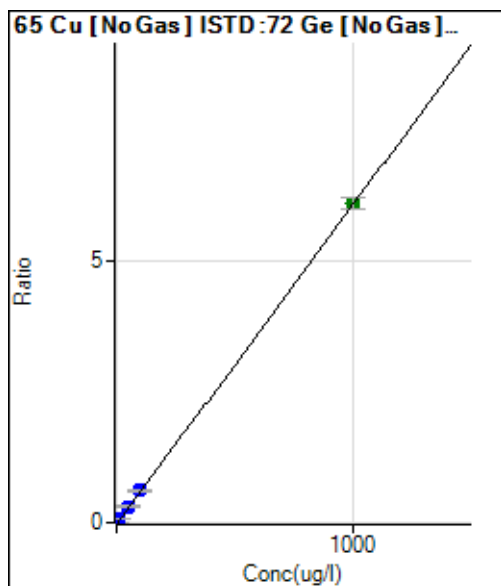
$$R = 1.0000$$

$$DL = 0.01712 \text{ ug/l}$$

$$BEC = 0.06 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	527.56	0.0004	P	1.5	
2	<input type="checkbox"/>	0.025	0.104	1379.95	0.0010	P	1.9	317.4
3	<input type="checkbox"/>	0.050	0.117	1511.36	0.0011	P	10.1	134.7
4	<input type="checkbox"/>	0.100	0.174	1941.58	0.0015	P	5.2	74.4
5	<input type="checkbox"/>	0.500	0.629	5699.41	0.0042	P	3.1	25.8
6	<input type="checkbox"/>	1.000	1.235	10723.57	0.0079	P	2.1	23.5
7	<input type="checkbox"/>	10.000	11.162	92867.03	0.0683	P	3.0	11.6
8	<input type="checkbox"/>	50.000	50.754	417739.38	0.3094	P	3.1	1.5
9	<input type="checkbox"/>	100.000	99.750	825398.81	0.6076	P	9.5	-0.2
10	<input type="checkbox"/>	1000.000	999.975	7821000.80	6.0876	A	3.9	0.0
11	<input type="checkbox"/>			993.77	0.0007	P	4.9	

$$y = 0.0061 * x + 3.9744E-004$$

$$R = 1.0000$$

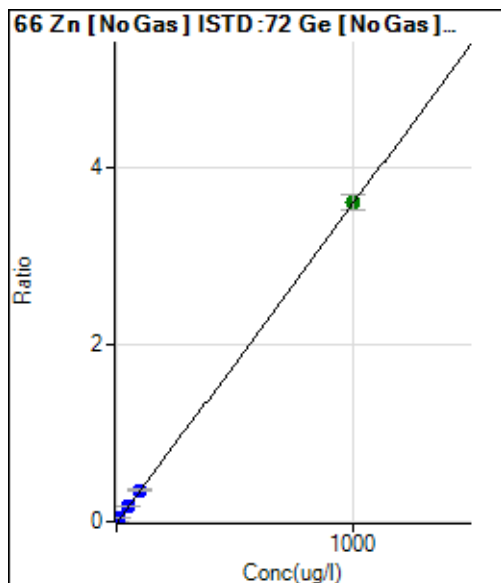
$$DL = 0.002949 \text{ ug/l}$$

$$BEC = 0.06529 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	529.62	0.0004	P	17.4	
2	<input type="checkbox"/>			4069.76	0.0030	P	6.7	
3	<input type="checkbox"/>	0.050	0.397	2478.96	0.0018	P	12.7	693.1
4	<input type="checkbox"/>	0.100	0.453	2698.51	0.0020	P	5.8	352.8
5	<input type="checkbox"/>	0.500	1.074	5752.91	0.0043	P	2.8	114.9
6	<input type="checkbox"/>	1.000	1.508	7892.82	0.0058	P	5.4	50.8
7	<input type="checkbox"/>	10.000	11.194	55276.04	0.0407	P	2.9	11.9
8	<input type="checkbox"/>	50.000	49.759	242292.18	0.1795	P	3.5	-0.5
9	<input type="checkbox"/>	100.000	99.083	484734.30	0.3569	P	10.1	-0.9
10	<input type="checkbox"/>	1000.000	1000.091	4622926.07	3.5991	A	4.8	0.0
11	<input type="checkbox"/>			2230.73	0.0017	P	4.2	

$$y = 0.0036 * x + 3.9923E-004$$

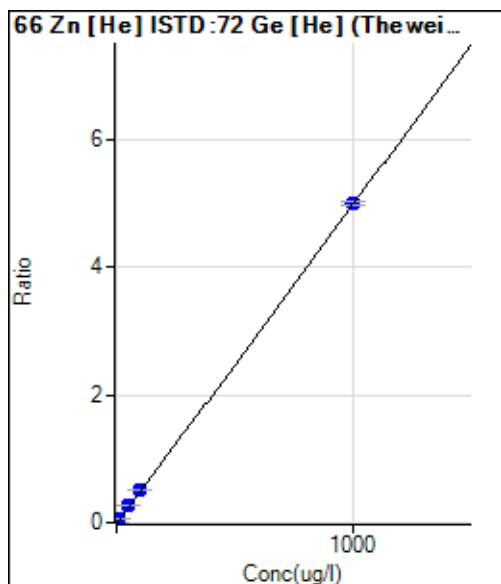
$$R = 1.0000$$

$$DL = 0.05778 \text{ ug/l}$$

$$BEC = 0.1109 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	96.67	0.0005	P	32.0	
2	<input type="checkbox"/>			865.59	0.0047	P	4.6	
3	<input type="checkbox"/>	0.050	0.450	512.23	0.0028	P	9.4	799.3
4	<input type="checkbox"/>	0.100	0.468	535.57	0.0029	P	13.1	368.1
5	<input type="checkbox"/>	0.500	1.212	1232.28	0.0066	P	10.3	142.4
6	<input type="checkbox"/>	1.000	1.540	1573.43	0.0082	P	3.8	54.0
7	<input type="checkbox"/>	10.000	11.453	11255.52	0.0578	P	1.2	14.5
8	<input type="checkbox"/>	50.000	51.871	50521.78	0.2601	P	1.2	3.7
9	<input type="checkbox"/>	100.000	101.477	98991.22	0.5084	P	1.2	1.5
10	<input type="checkbox"/>	1000.000	999.743	935988.62	5.0044	P	1.3	0.0
11	<input type="checkbox"/>			427.79	0.0022	P	2.9	

$$y = 0.0050 * x + 5.1563E-004$$

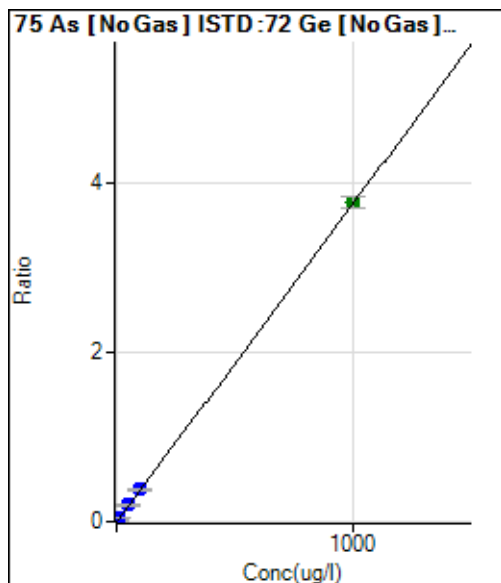
$$R = 1.0000$$

$$DL = 0.09876 \text{ ug/l}$$

$$BEC = 0.103 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	14612.13	0.0110	P	22.7	
2	<input type="checkbox"/>	0.025	-0.630	11556.34	0.0087	P	6.9	-2620.
3	<input type="checkbox"/>	0.050	-0.343	13192.05	0.0097	P	41.3	-785.4
4	<input type="checkbox"/>	0.100	-0.109	14134.62	0.0106	P	24.9	-208.8
5	<input type="checkbox"/>	0.500	0.085	15292.79	0.0113	P	8.7	-83.0
6	<input type="checkbox"/>	1.000	0.845	19232.21	0.0142	P	11.9	-15.5
7	<input type="checkbox"/>	10.000	10.060	66451.90	0.0489	P	2.9	0.6
8	<input type="checkbox"/>	50.000	48.894	263465.79	0.1951	P	3.4	-2.2
9	<input type="checkbox"/>	100.000	97.674	514599.59	0.3788	P	9.5	-2.3
10	<input type="checkbox"/>	1000.000	1000.288	4853176.43	3.7776	A	4.0	0.0
11	<input type="checkbox"/>			15134.50	0.0113	P	7.4	

$$y = 0.0038 * x + 0.0110$$

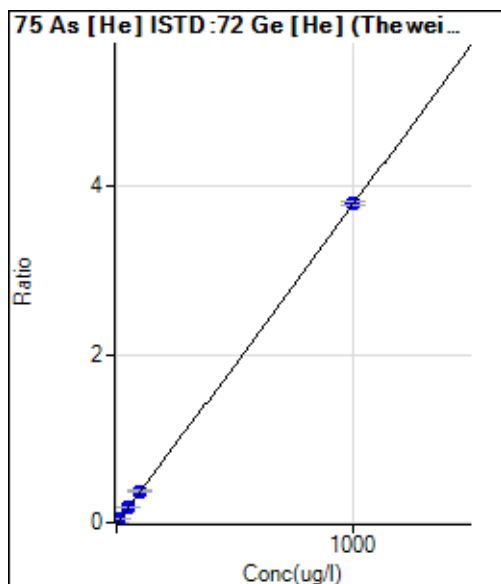
$$R = 1.0000$$

$$DL = 1.996 \text{ ug/l}$$

$$BEC = 2.928 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	151.93	0.0008	P	7.6	
2	<input type="checkbox"/>	0.025	0.048	184.33	0.0010	P	2.5	92.3
3	<input type="checkbox"/>	0.050	0.068	198.13	0.0011	P	2.1	36.7
4	<input type="checkbox"/>	0.100	0.128	241.93	0.0013	P	11.1	28.1
5	<input type="checkbox"/>	0.500	0.552	544.93	0.0029	P	3.3	10.5
6	<input type="checkbox"/>	1.000	1.164	1001.61	0.0052	P	0.5	16.4
7	<input type="checkbox"/>	10.000	10.665	8046.86	0.0414	P	1.1	6.6
8	<input type="checkbox"/>	50.000	50.290	37283.94	0.1920	P	1.5	0.6
9	<input type="checkbox"/>	100.000	98.934	73384.53	0.3769	P	0.9	-1.1
10	<input type="checkbox"/>	1000.000	1000.085	711238.93	3.8027	P	0.9	0.0
11	<input type="checkbox"/>			244.80	0.0013	P	4.8	

$$y = 0.0038 * x + 8.0977E-004$$

$$R = 1.0000$$

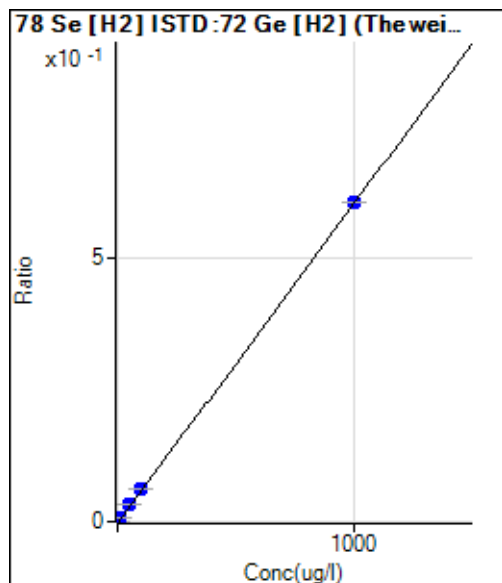
$$DL = 0.04879 \text{ ug/l}$$

$$BEC = 0.213 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	11.67	0.0000	P	4.9	
2	<input type="checkbox"/>	0.025	0.031	25.56	0.0000	P	4.2	23.6
3	<input type="checkbox"/>	0.050	0.062	39.89	0.0001	P	5.2	23.7
4	<input type="checkbox"/>	0.100	0.132	70.45	0.0001	P	10.9	31.7
5	<input type="checkbox"/>	0.500	0.599	289.23	0.0004	P	5.6	19.9
6	<input type="checkbox"/>	1.000	1.225	575.46	0.0008	P	3.3	22.5
7	<input type="checkbox"/>	10.000	11.338	5388.89	0.0069	P	0.5	13.4
8	<input type="checkbox"/>	50.000	52.216	24421.59	0.0316	P	0.9	4.4
9	<input type="checkbox"/>	100.000	102.408	47474.80	0.0619	P	1.2	2.4
10	<input type="checkbox"/>	1000.000	999.635	450452.83	0.6043	P	0.3	0.0
11	<input type="checkbox"/>			129.67	0.0002	P	7.1	

$$y = 6.0451E-004 * x + 1.5626E-005$$

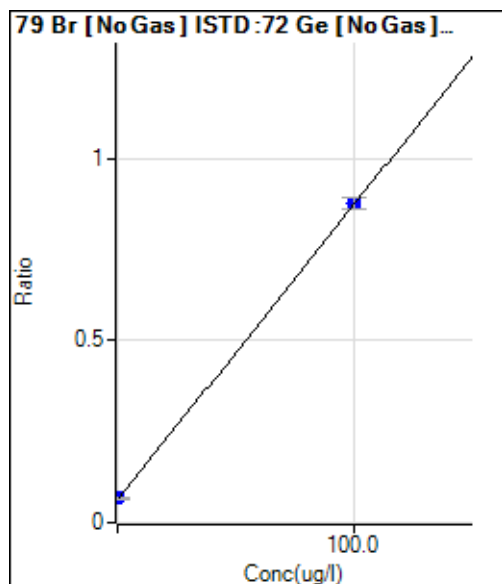
$$R = 1.0000$$

$$DL = 0.003766 \text{ ug/l}$$

$$BEC = 0.02585 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	89556.36	0.0675	P	8.4	
2	<input type="checkbox"/>			137851.99	0.1032	P	2.7	
3	<input type="checkbox"/>			126572.13	0.0930	P	7.7	
4	<input type="checkbox"/>			141212.00	0.1061	P	2.8	
5	<input type="checkbox"/>			132992.69	0.0986	P	1.1	
6	<input type="checkbox"/>			128174.07	0.0946	P	2.2	
7	<input type="checkbox"/>			130637.20	0.0961	P	2.3	
8	<input type="checkbox"/>			106279.54	0.0788	P	11.2	
9	<input type="checkbox"/>			144225.83	0.1061	P	9.5	
10	<input type="checkbox"/>			149019.78	0.1161	P	6.1	
11	<input type="checkbox"/>	100.000	100.000	1175152.38	0.8765	P	3.1	0.0

$$y = 0.0081 * x + 0.0675$$

$$R = 1.0000$$

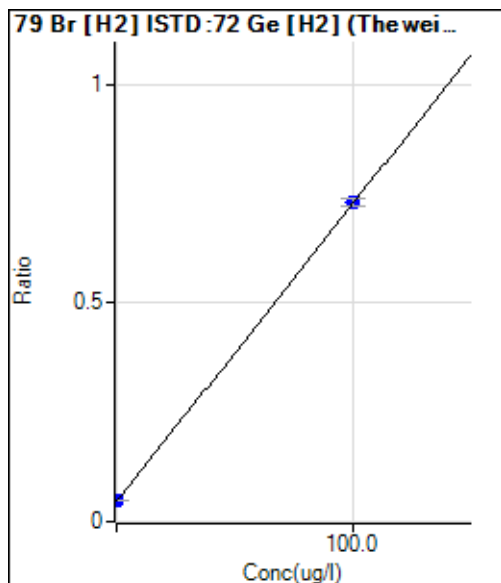
$$DL = 2.115 \text{ ug/l}$$

$$BEC = 8.342 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	37073.92	0.0496	P	3.8	
2	<input type="checkbox"/>			61669.02	0.0827	P	1.6	
3	<input type="checkbox"/>			56825.54	0.0755	P	2.4	
4	<input type="checkbox"/>			64428.28	0.0872	P	0.7	
5	<input type="checkbox"/>			60168.89	0.0786	P	2.3	
6	<input type="checkbox"/>			55248.86	0.0726	P	3.1	
7	<input type="checkbox"/>			58458.57	0.0745	P	3.7	
8	<input type="checkbox"/>			42921.94	0.0555	P	1.8	
9	<input type="checkbox"/>			64077.52	0.0836	P	0.6	
10	<input type="checkbox"/>			69528.39	0.0933	P	3.4	
11	<input type="checkbox"/>	100.000	100.000	552961.07	0.7308	P	2.7	0.0

$$y = 0.0068 * x + 0.0496$$

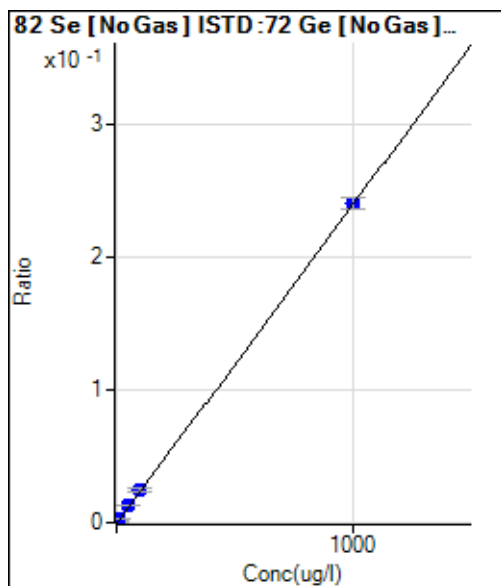
$$R = 1.0000$$

$$DL = 0.8226 \text{ ug/l}$$

$$BEC = 7.289 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	679.14	0.0005	P	20.6	
2	<input type="checkbox"/>	0.025	0.392	810.09	0.0006	P	13.9	1469.5
3	<input type="checkbox"/>	0.050	0.457	848.49	0.0006	P	10.3	814.0
4	<input type="checkbox"/>	0.100	0.985	997.98	0.0007	P	7.8	885.4
5	<input type="checkbox"/>	0.500	0.672	909.57	0.0007	P	7.4	34.5
6	<input type="checkbox"/>	1.000	1.044	1035.18	0.0008	P	5.2	4.4
7	<input type="checkbox"/>	10.000	11.314	4392.70	0.0032	P	1.8	13.1
8	<input type="checkbox"/>	50.000	51.712	17468.95	0.0129	P	4.9	3.4
9	<input type="checkbox"/>	100.000	101.616	33858.79	0.0249	P	10.4	1.6
10	<input type="checkbox"/>	1000.000	999.739	309403.23	0.2408	P	3.6	0.0
11	<input type="checkbox"/>			1827.15	0.0014	P	10.8	

$$y = 2.4036E-004 * x + 5.1267E-004$$

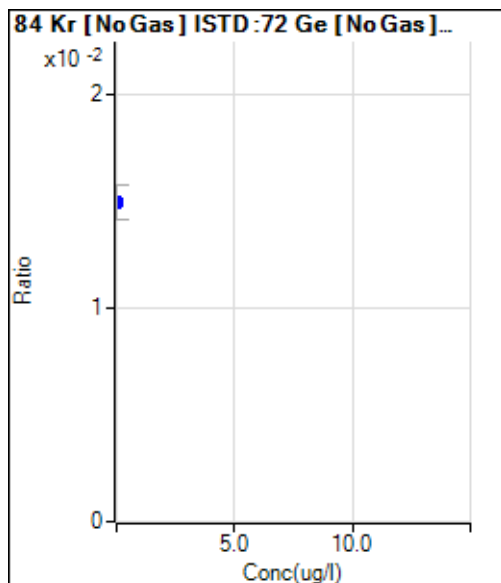
$$R = 1.0000$$

$$DL = 1.32 \text{ ug/l}$$

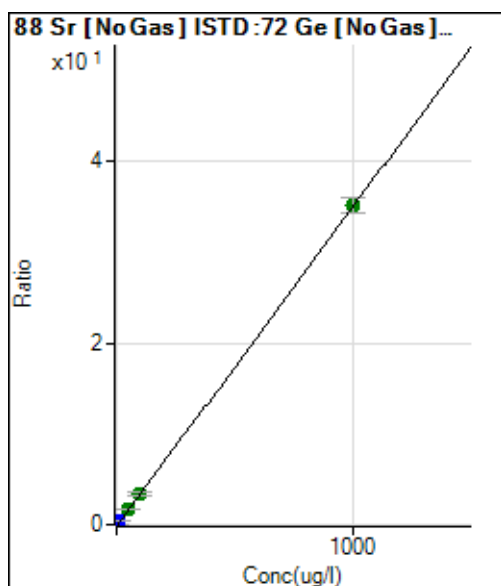
$$BEC = 2.133 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000		19824.38	0.0150	P	11.0	
2	<input type="checkbox"/>			19777.80	0.0148	P	5.1	
3	<input type="checkbox"/>			20090.98	0.0148	P	19.0	
4	<input type="checkbox"/>			20843.76	0.0157	P	4.6	
5	<input type="checkbox"/>			20137.62	0.0149	P	7.8	
6	<input type="checkbox"/>			20397.36	0.0151	P	7.0	
7	<input type="checkbox"/>			23855.91	0.0175	P	6.7	
8	<input type="checkbox"/>			34979.64	0.0259	P	4.9	
9	<input type="checkbox"/>			51152.32	0.0376	P	6.2	
10	<input type="checkbox"/>			302929.36	0.2358	P	3.7	
11	<input type="checkbox"/>			20384.04	0.0152	P	5.8	



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	811.76	0.0006	P	21.2	
2	<input type="checkbox"/>	0.025	0.029	2162.56	0.0016	P	7.4	14.4
3	<input type="checkbox"/>	0.050	0.060	3719.79	0.0027	P	7.2	20.5
4	<input type="checkbox"/>	0.100	0.123	6578.47	0.0049	P	0.6	23.1
5	<input type="checkbox"/>	0.500	0.543	26611.91	0.0197	P	3.6	8.7
6	<input type="checkbox"/>	1.000	1.138	55106.34	0.0407	P	1.5	13.8
7	<input type="checkbox"/>	10.000	10.701	512592.44	0.3773	P	3.0	7.0
8	<input type="checkbox"/>	50.000	49.081	2334164.31	1.7281	A	2.1	-1.8
9	<input type="checkbox"/>	100.000	97.020	4639559.85	3.4154	A	9.6	-3.0
10	<input type="checkbox"/>	1000.000	1000.337	45231671.57	35.2095	A	4.3	0.0
11	<input type="checkbox"/>			1507.10	0.0011	P	11.5	

$$y = 0.0352 * x + 6.1070E-004$$

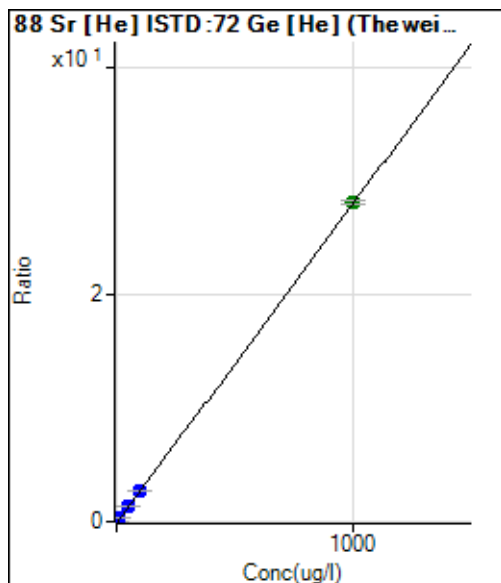
$$R = 1.0000$$

$$DL = 0.01103 \text{ ug/l}$$

$$BEC = 0.01735 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	348.90	0.0019	P	15.3	
2	<input type="checkbox"/>	0.025	0.030	501.13	0.0027	P	10.2	19.7
3	<input type="checkbox"/>	0.050	0.073	725.61	0.0039	P	15.8	46.4
4	<input type="checkbox"/>	0.100	0.111	930.04	0.0050	P	11.0	11.1
5	<input type="checkbox"/>	0.500	0.540	3191.48	0.0170	P	4.2	7.9
6	<input type="checkbox"/>	1.000	1.161	6607.11	0.0345	P	2.2	16.1
7	<input type="checkbox"/>	10.000	10.617	58507.55	0.3007	P	0.8	6.2
8	<input type="checkbox"/>	50.000	49.891	273042.09	1.4060	P	1.0	-0.2
9	<input type="checkbox"/>	100.000	97.026	532033.96	2.7325	P	0.4	-3.0
10	<input type="checkbox"/>	1000.000	1000.296	5265926.69	28.1538	A	1.2	0.0
11	<input type="checkbox"/>			422.23	0.0022	P	8.9	

$$y = 0.0281 * x + 0.0019$$

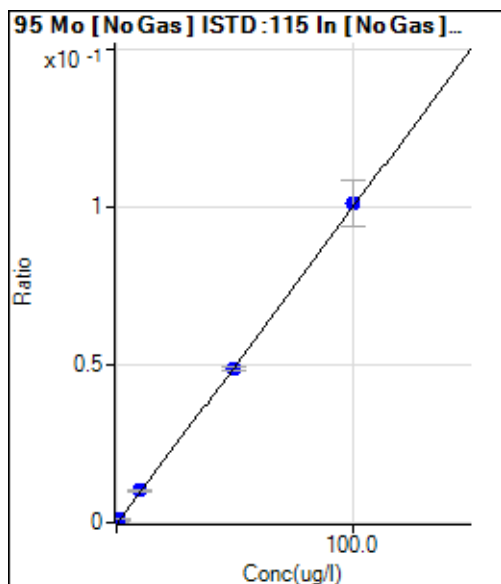
$$R = 1.0000$$

$$DL = 0.0303 \text{ ug/l}$$

$$BEC = 0.06593 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	175.56	0.0000	P	49.2	
2	<input type="checkbox"/>	0.025	0.022	392.23	0.0000	P	6.8	-13.5
3	<input type="checkbox"/>	0.050	0.055	696.69	0.0001	P	11.4	9.3
4	<input type="checkbox"/>	0.100	0.105	1197.84	0.0001	P	1.7	5.4
5	<input type="checkbox"/>	0.500	0.497	5057.59	0.0005	P	1.8	-0.5
6	<input type="checkbox"/>	1.000	1.042	10454.99	0.0011	P	5.2	4.2
7	<input type="checkbox"/>	10.000	10.026	100227.49	0.0101	P	1.7	0.3
8	<input type="checkbox"/>	50.000	48.395	465508.80	0.0486	P	2.9	-3.2
9	<input type="checkbox"/>	100.000	100.799	926842.71	0.1012	P	14.7	0.8
10	<input type="checkbox"/>			1431.19	0.0002	P	10.1	
11	<input type="checkbox"/>			387.79	0.0000	P	16.2	

$$y = 0.0010 * x + 1.8698E-005$$

$$R = 0.9998$$

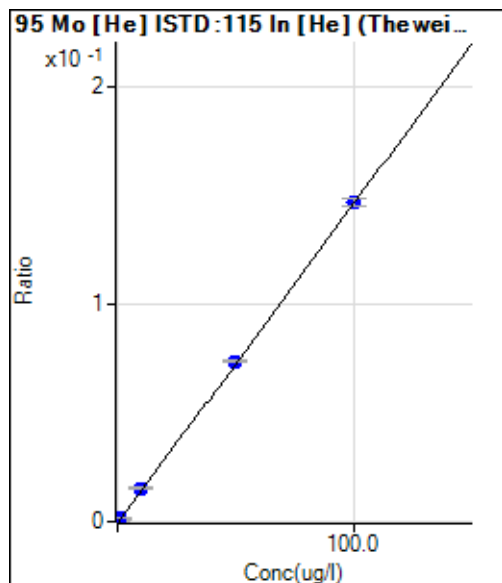
$$DL = 0.02751 \text{ ug/l}$$

$$BEC = 0.01862 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	91.11	0.0000	P	42.5	
2	<input type="checkbox"/>	0.025	0.020	152.22	0.0001	P	16.1	-20.4
3	<input type="checkbox"/>	0.050	0.052	253.34	0.0001	P	28.9	4.0
4	<input type="checkbox"/>	0.100	0.114	435.56	0.0002	P	14.9	13.9
5	<input type="checkbox"/>	0.500	0.511	1689.00	0.0008	P	5.5	2.3
6	<input type="checkbox"/>	1.000	1.107	3606.04	0.0017	P	1.9	10.7
7	<input type="checkbox"/>	10.000	10.409	33440.22	0.0153	P	2.0	4.1
8	<input type="checkbox"/>	50.000	50.166	156348.49	0.0737	P	0.8	0.3
9	<input type="checkbox"/>	100.000	99.875	307416.55	0.1468	P	2.4	-0.1
10	<input type="checkbox"/>			298.90	0.0001	P	9.4	
11	<input type="checkbox"/>			103.33	0.0000	P	12.2	

$$y = 0.0015 * x + 4.3291E-005$$

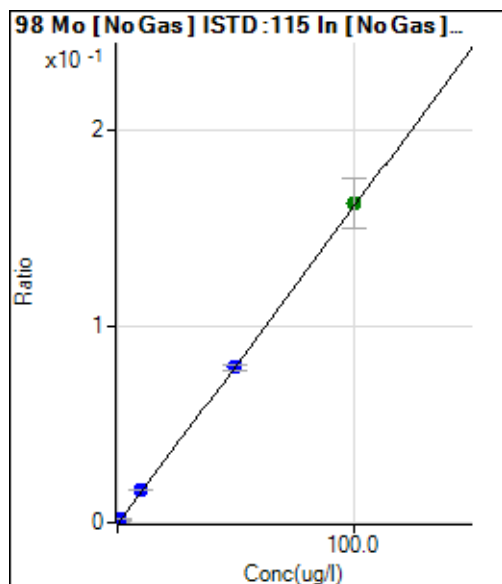
$$R = 1.0000$$

$$DL = 0.0376 \text{ ug/l}$$

$$BEC = 0.02947 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	258.48	0.0000	P	48.4	
2	<input type="checkbox"/>	0.025	0.022	605.58	0.0001	P	14.6	-13.7
3	<input type="checkbox"/>	0.050	0.058	1136.03	0.0001	P	23.2	15.6
4	<input type="checkbox"/>	0.100	0.103	1873.41	0.0002	P	5.2	3.3
5	<input type="checkbox"/>	0.500	0.511	8331.58	0.0009	P	1.5	2.2
6	<input type="checkbox"/>	1.000	1.068	17226.86	0.0018	P	3.6	6.8
7	<input type="checkbox"/>	10.000	10.162	163577.89	0.0165	P	1.6	1.6
8	<input type="checkbox"/>	50.000	48.785	755835.33	0.0789	P	3.0	-2.4
9	<input type="checkbox"/>	100.000	100.591	1487674.14	0.1627	A	16.2	0.6
10	<input type="checkbox"/>			1836.41	0.0002	P	16.8	
11	<input type="checkbox"/>			445.01	0.0000	P	13.9	

$$y = 0.0016 * x + 2.7515E-005$$

$$R = 0.9999$$

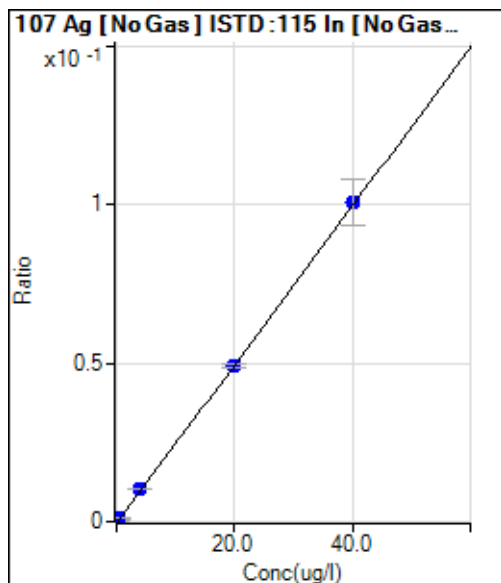
$$DL = 0.02468 \text{ ug/l}$$

$$BEC = 0.01701 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	52.02	0.0000	P	18.8	
2	<input type="checkbox"/>	0.010	0.010	298.79	0.0000	P	11.6	1.0
3	<input type="checkbox"/>	0.020	0.022	582.92	0.0001	P	12.5	12.0
4	<input type="checkbox"/>	0.040	0.044	1112.49	0.0001	P	2.1	9.7
5	<input type="checkbox"/>	0.200	0.210	5206.39	0.0005	P	2.1	5.2
6	<input type="checkbox"/>	0.400	0.442	10931.94	0.0011	P	5.2	10.5
7	<input type="checkbox"/>	4.000	4.056	101157.98	0.0102	P	0.6	1.4
8	<input type="checkbox"/>	20.000	19.598	470866.54	0.0492	P	2.7	-2.0
9	<input type="checkbox"/>	40.000	40.195	923040.51	0.1008	P	14.9	0.5
10	<input type="checkbox"/>			8641620.03	0.9614	A	6.6	
11	<input type="checkbox"/>			7804.63	0.0008	P	3.9	

$$y = 0.0025 * x + 5.4708E-006$$

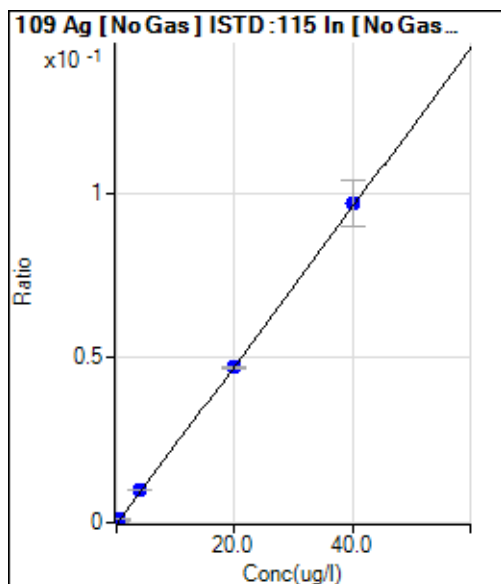
$$R = 0.9999$$

$$DL = 0.001233 \text{ ug/l}$$

$$BEC = 0.002181 \text{ ug/l}$$

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	56.69	0.0000	P	4.0	
2	<input type="checkbox"/>	0.010	0.010	295.46	0.0000	P	9.3	1.4
3	<input type="checkbox"/>	0.020	0.024	597.59	0.0001	P	13.0	18.6
4	<input type="checkbox"/>	0.040	0.046	1127.17	0.0001	P	6.8	15.2
5	<input type="checkbox"/>	0.200	0.209	4989.56	0.0005	P	3.4	4.7
6	<input type="checkbox"/>	0.400	0.440	10468.08	0.0011	P	5.2	9.9
7	<input type="checkbox"/>	4.000	4.117	98736.07	0.0099	P	2.0	2.9
8	<input type="checkbox"/>	20.000	19.545	451631.23	0.0472	P	1.1	-2.3
9	<input type="checkbox"/>	40.000	40.215	888049.99	0.0970	P	15.0	0.5
10	<input type="checkbox"/>			7340356.47	0.8177	A	9.5	
11	<input type="checkbox"/>			7640.48	0.0008	P	5.8	

$$y = 0.0024 * x + 5.9824E-006$$

$$R = 0.9999$$

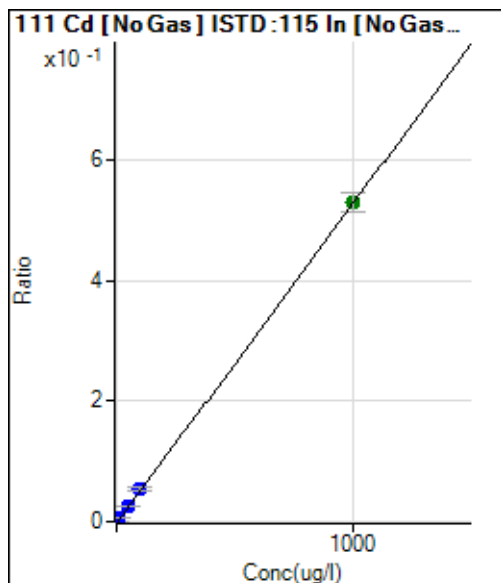
$$DL = 0.0002975 \text{ ug/l}$$

$$BEC = 0.00248 \text{ ug/l}$$

Weight: 1/y

Min Conc: <None>

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	-3.31	0.0000	P	-353.	
2	<input type="checkbox"/>	0.025	0.031	156.77	0.0000	P	2.2	24.4
3	<input type="checkbox"/>	0.050	0.064	317.86	0.0000	P	10.8	27.9
4	<input type="checkbox"/>	0.100	0.115	584.55	0.0001	P	5.7	15.3
5	<input type="checkbox"/>	0.500	0.526	2719.26	0.0003	P	0.7	5.3
6	<input type="checkbox"/>	1.000	1.106	5755.14	0.0006	P	2.9	10.6
7	<input type="checkbox"/>	10.000	10.339	54431.35	0.0055	P	1.6	3.4
8	<input type="checkbox"/>	50.000	49.369	250502.43	0.0262	P	2.8	-1.3
9	<input type="checkbox"/>	100.000	101.982	494442.12	0.0540	P	15.4	2.0
10	<input type="checkbox"/>	1000.000	999.830	4762893.74	0.5298	A	6.0	0.0
11	<input type="checkbox"/>			360.07	0.0000	P	14.9	

$$y = 5.2992E-004 * x - 3.4325E-007$$

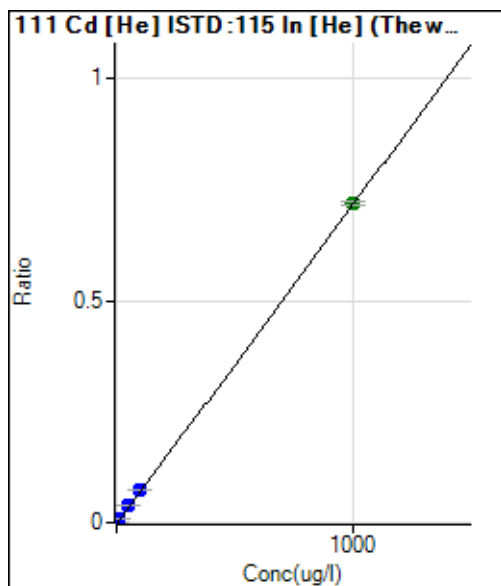
$$R = 1.0000$$

$$DL = 0.006862 \text{ ug/l}$$

$$BEC = -0.0006477 \text{ ug/l}$$

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	2.00	0.0000	P	0.9	
2	<input type="checkbox"/>	0.025	0.028	44.22	0.0000	P	0.6	11.6
3	<input type="checkbox"/>	0.050	0.060	93.89	0.0000	P	4.9	20.6
4	<input type="checkbox"/>	0.100	0.122	183.67	0.0001	P	15.9	22.4
5	<input type="checkbox"/>	0.500	0.550	844.80	0.0004	P	2.1	10.1
6	<input type="checkbox"/>	1.000	1.190	1854.79	0.0009	P	0.8	19.0
7	<input type="checkbox"/>	10.000	10.973	17240.78	0.0079	P	2.0	9.7
8	<input type="checkbox"/>	50.000	51.913	79296.14	0.0374	P	0.2	3.8
9	<input type="checkbox"/>	100.000	102.454	154616.14	0.0738	P	1.1	2.5
10	<input type="checkbox"/>	1000.000	999.649	1456115.68	0.7201	A	1.5	0.0
11	<input type="checkbox"/>			83.67	0.0000	P	7.3	

$$y = 7.2038E-004 * x + 9.4793E-007$$

$$R = 1.0000$$

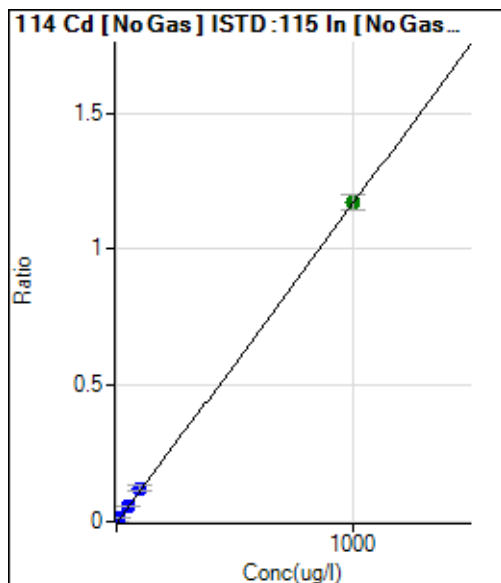
$$DL = 3.587E-05 \text{ ug/l}$$

$$BEC = 0.001316 \text{ ug/l}$$

Weight: 1/y

Min Conc: <None>

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	-6.37	0.0000	P	-221.	
2	<input type="checkbox"/>	0.025	0.030	334.12	0.0000	P	4.3	19.5
3	<input type="checkbox"/>	0.050	0.062	677.70	0.0001	P	11.7	23.1
4	<input type="checkbox"/>	0.100	0.116	1298.64	0.0001	P	2.0	15.6
5	<input type="checkbox"/>	0.500	0.527	6029.05	0.0006	P	1.7	5.4
6	<input type="checkbox"/>	1.000	1.107	12754.03	0.0013	P	2.6	10.7
7	<input type="checkbox"/>	10.000	10.470	122070.01	0.0123	P	2.1	4.7
8	<input type="checkbox"/>	50.000	50.134	563389.94	0.0588	P	1.9	0.3
9	<input type="checkbox"/>	100.000	104.190	1118549.84	0.1223	P	15.5	4.2
10	<input type="checkbox"/>	1000.000	999.569	10549355.89	1.1731	A	5.0	0.0
11	<input type="checkbox"/>			750.22	0.0001	P	19.2	

$$y = 0.0012 * x - 6.6467E-007$$

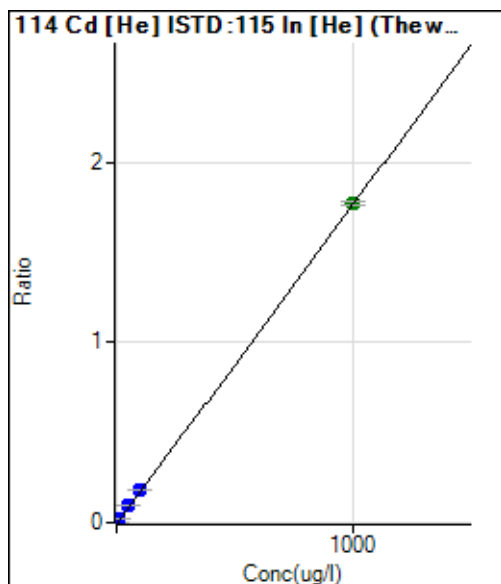
$$R = 1.0000$$

$$DL = 0.003764 \text{ ug/l}$$

$$BEC = -0.0005664 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	3.73	0.0000	P	24.8	
2	<input type="checkbox"/>	0.025	0.030	116.84	0.0001	P	2.9	21.5
3	<input type="checkbox"/>	0.050	0.061	233.35	0.0001	P	1.8	22.4
4	<input type="checkbox"/>	0.100	0.120	442.65	0.0002	P	15.0	20.0
5	<input type="checkbox"/>	0.500	0.550	2074.52	0.0010	P	1.0	9.9
6	<input type="checkbox"/>	1.000	1.164	4461.61	0.0021	P	0.6	16.4
7	<input type="checkbox"/>	10.000	10.872	42032.63	0.0193	P	2.1	8.7
8	<input type="checkbox"/>	50.000	51.587	193912.83	0.0915	P	0.7	3.2
9	<input type="checkbox"/>	100.000	102.230	379654.73	0.1812	P	1.2	2.2
10	<input type="checkbox"/>	1000.000	999.689	3583505.26	1.7722	A	1.4	0.0
11	<input type="checkbox"/>			197.22	0.0001	P	4.9	

$$y = 0.0018 * x + 1.7698E-006$$

$$R = 1.0000$$

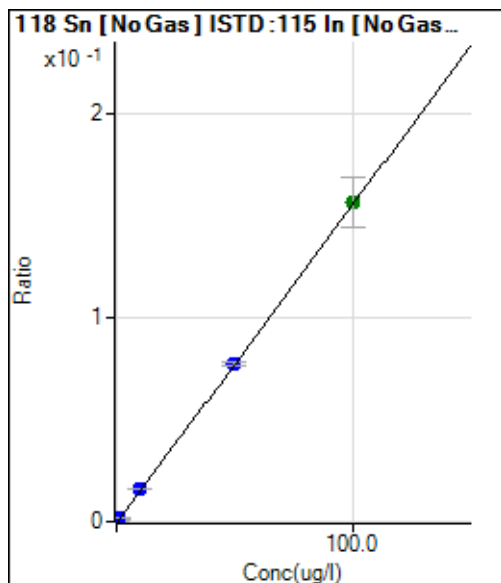
$$DL = 0.0007434 \text{ ug/l}$$

$$BEC = 0.0009983 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	1071.25	0.0001	P	6.0	
2	<input type="checkbox"/>	0.025	0.230	4595.00	0.0005	P	4.4	820.9
3	<input type="checkbox"/>	0.050	0.200	4009.32	0.0004	P	17.1	299.3
4	<input type="checkbox"/>	0.100	0.220	4398.66	0.0005	P	0.4	120.0
5	<input type="checkbox"/>	0.500	0.684	11541.86	0.0012	P	2.6	36.8
6	<input type="checkbox"/>	1.000	1.206	19631.40	0.0020	P	5.3	20.6
7	<input type="checkbox"/>	10.000	10.166	159120.60	0.0160	P	4.1	1.7
8	<input type="checkbox"/>	50.000	49.505	742725.06	0.0776	P	1.7	-1.0
9	<input type="checkbox"/>	100.000	100.227	1434984.60	0.1569	A	15.8	0.2
10	<input type="checkbox"/>			6555.21	0.0007	P	13.7	
11	<input type="checkbox"/>			4934.43	0.0005	P	8.3	

$$y = 0.0016 * x + 1.1291E-004$$

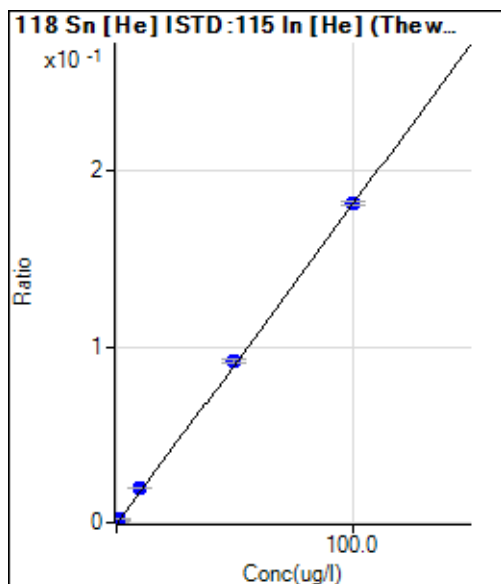
$$R = 1.0000$$

$$DL = 0.01304 \text{ ug/l}$$

$$BEC = 0.07218 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	261.12	0.0001	P	9.7	
2	<input type="checkbox"/>	0.025	0.251	1220.06	0.0006	P	4.0	904.8
3	<input type="checkbox"/>	0.050	0.189	991.15	0.0005	P	4.8	279.0
4	<input type="checkbox"/>	0.100	0.254	1218.95	0.0006	P	7.5	154.4
5	<input type="checkbox"/>	0.500	0.712	3015.89	0.0014	P	4.4	42.4
6	<input type="checkbox"/>	1.000	1.253	5194.32	0.0024	P	1.8	25.3
7	<input type="checkbox"/>	10.000	10.504	41951.24	0.0192	P	0.8	5.0
8	<input type="checkbox"/>	50.000	50.311	194343.66	0.0917	P	2.2	0.6
9	<input type="checkbox"/>	100.000	99.790	380602.30	0.1817	P	0.8	-0.2
10	<input type="checkbox"/>			1659.00	0.0008	P	4.3	
11	<input type="checkbox"/>			1263.40	0.0006	P	0.9	

$$y = 0.0018 * x + 1.2371E-004$$

$$R = 1.0000$$

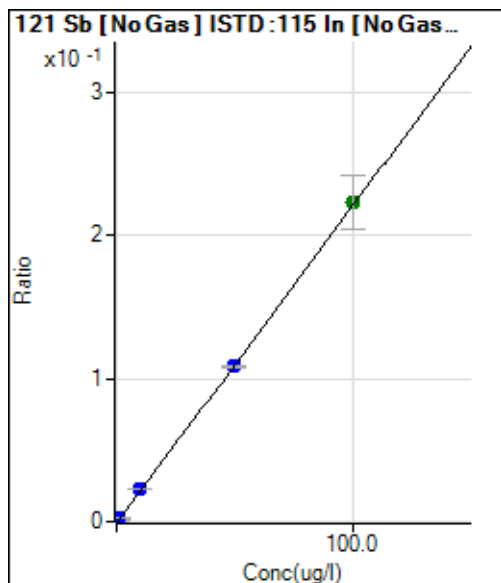
$$DL = 0.0198 \text{ ug/l}$$

$$BEC = 0.068 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	145.35	0.0000	P	6.6	
2	<input type="checkbox"/>	0.025	0.047	1155.83	0.0001	P	5.7	86.9
3	<input type="checkbox"/>	0.050	0.069	1583.92	0.0002	P	14.2	37.3
4	<input type="checkbox"/>	0.100	0.122	2764.22	0.0003	P	1.4	22.5
5	<input type="checkbox"/>	0.500	0.520	11414.76	0.0012	P	0.9	4.0
6	<input type="checkbox"/>	1.000	1.085	23785.72	0.0024	P	4.9	8.5
7	<input type="checkbox"/>	10.000	10.084	222594.25	0.0224	P	1.7	0.8
8	<input type="checkbox"/>	50.000	48.845	1038626.03	0.1085	P	1.9	-2.3
9	<input type="checkbox"/>	100.000	100.568	2041216.47	0.2233	A	16.4	0.6
10	<input type="checkbox"/>			7599.82	0.0008	P	14.1	
11	<input type="checkbox"/>			2240.74	0.0002	P	2.1	

$$y = 0.0022 * x + 1.5314E-005$$

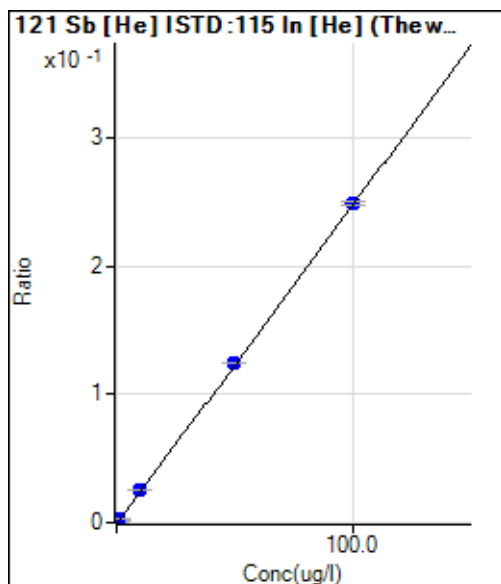
$$R = 0.9999$$

$$DL = 0.001356 \text{ ug/l}$$

$$BEC = 0.006898 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	45.67	0.0000	P	17.4	
2	<input type="checkbox"/>	0.025	0.049	299.37	0.0001	P	10.8	94.5
3	<input type="checkbox"/>	0.050	0.072	422.05	0.0002	P	2.9	43.0
4	<input type="checkbox"/>	0.100	0.130	708.09	0.0003	P	19.4	29.7
5	<input type="checkbox"/>	0.500	0.539	2895.92	0.0014	P	2.4	7.8
6	<input type="checkbox"/>	1.000	1.113	6028.90	0.0028	P	0.4	11.3
7	<input type="checkbox"/>	10.000	10.401	56458.14	0.0259	P	1.2	4.0
8	<input type="checkbox"/>	50.000	49.826	262779.06	0.1239	P	0.4	-0.3
9	<input type="checkbox"/>	100.000	100.046	521259.23	0.2488	P	1.3	0.0
10	<input type="checkbox"/>			1500.90	0.0007	P	2.4	
11	<input type="checkbox"/>			552.40	0.0003	P	3.3	

$$y = 0.0025 * x + 2.1656E-005$$

$$R = 1.0000$$

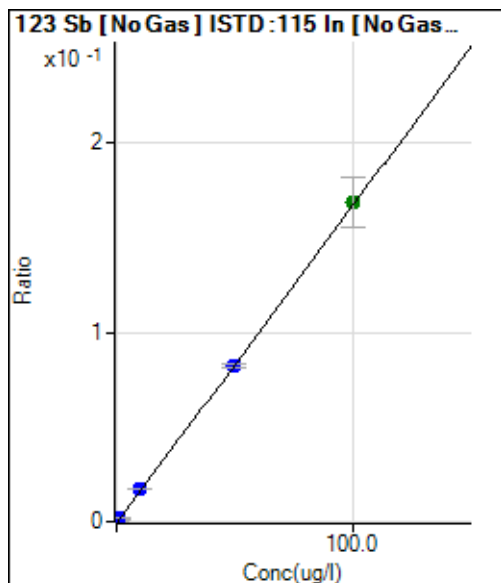
$$DL = 0.004551 \text{ ug/l}$$

$$BEC = 0.008708 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	106.34	0.0000	P	14.2	
2	<input type="checkbox"/>	0.025	0.045	839.44	0.0001	P	2.9	79.1
3	<input type="checkbox"/>	0.050	0.069	1208.17	0.0001	P	13.6	39.0
4	<input type="checkbox"/>	0.100	0.121	2064.03	0.0002	P	2.5	21.1
5	<input type="checkbox"/>	0.500	0.523	8675.55	0.0009	P	1.3	4.6
6	<input type="checkbox"/>	1.000	1.080	17905.51	0.0018	P	4.3	8.0
7	<input type="checkbox"/>	10.000	10.148	169370.13	0.0170	P	2.9	1.5
8	<input type="checkbox"/>	50.000	48.897	786079.76	0.0821	P	2.7	-2.2
9	<input type="checkbox"/>	100.000	100.536	1544231.75	0.1688	A	15.3	0.5
10	<input type="checkbox"/>			6096.61	0.0007	P	12.3	
11	<input type="checkbox"/>			1679.94	0.0002	P	12.4	

$y = 0.0017 * x + 1.1236E-005$

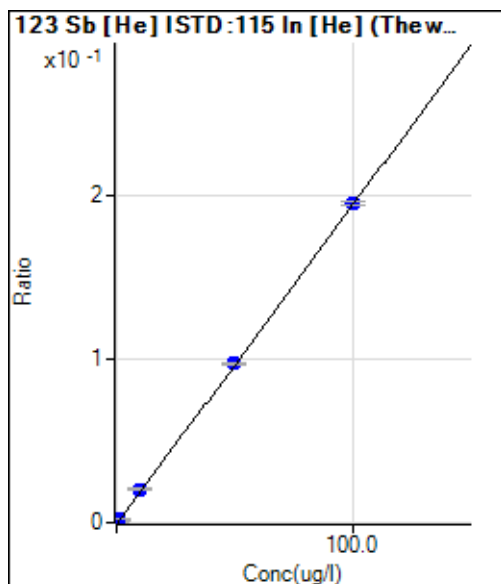
R = 0.9999

DL = 0.002852 ug/l

BEC = 0.006693 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	33.67	0.0000	P	26.3	
2	<input type="checkbox"/>	0.025	0.053	249.70	0.0001	P	8.4	110.9
3	<input type="checkbox"/>	0.050	0.071	326.04	0.0002	P	5.4	41.5
4	<input type="checkbox"/>	0.100	0.130	560.73	0.0003	P	10.9	30.3
5	<input type="checkbox"/>	0.500	0.548	2307.76	0.0011	P	1.3	9.7
6	<input type="checkbox"/>	1.000	1.123	4767.96	0.0022	P	2.4	12.3
7	<input type="checkbox"/>	10.000	10.460	44543.64	0.0204	P	2.1	4.6
8	<input type="checkbox"/>	50.000	49.898	206487.25	0.0974	P	0.9	-0.2
9	<input type="checkbox"/>	100.000	100.004	408848.14	0.1952	P	0.8	0.0
10	<input type="checkbox"/>			1191.17	0.0006	P	6.7	
11	<input type="checkbox"/>			427.72	0.0002	P	1.0	

$y = 0.0020 * x + 1.5972E-005$

R = 1.0000

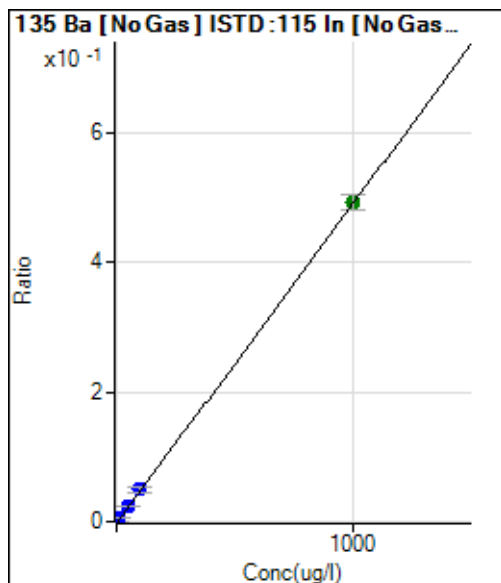
DL = 0.006466 ug/l

BEC = 0.008185 ug/l

Weight: 1/y

Min Conc: <None>

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	33.27	0.0000	P	33.2	
2	<input type="checkbox"/>	0.025	0.031	182.97	0.0000	P	33.9	25.1
3	<input type="checkbox"/>	0.050	0.055	282.78	0.0000	P	39.0	9.7
4	<input type="checkbox"/>	0.100	0.118	592.17	0.0001	P	10.5	17.8
5	<input type="checkbox"/>	0.500	0.480	2345.56	0.0002	P	7.2	-3.9
6	<input type="checkbox"/>	1.000	1.065	5180.71	0.0005	P	13.2	6.5
7	<input type="checkbox"/>	10.000	10.040	49242.83	0.0050	P	2.8	0.4
8	<input type="checkbox"/>	50.000	48.853	230812.85	0.0241	P	1.2	-2.3
9	<input type="checkbox"/>	100.000	100.588	453626.35	0.0496	P	16.3	0.6
10	<input type="checkbox"/>	1000.000	999.998	4436043.91	0.4933	A	5.1	0.0
11	<input type="checkbox"/>			172.99	0.0000	P	27.2	

$$y = 4.9330E-004 * x + 3.4936E-006$$

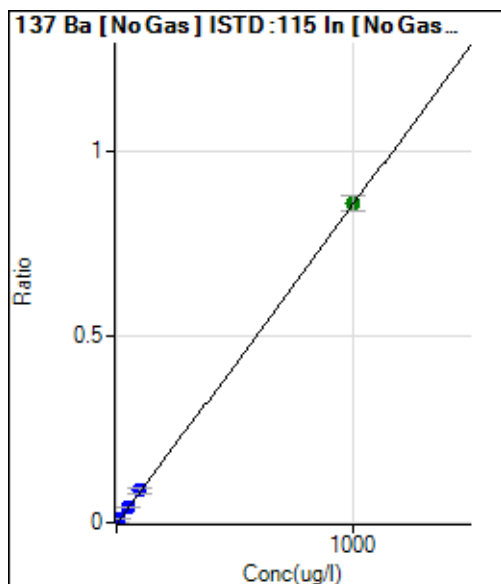
R = 1.0000

DL = 0.007062 ug/l

BEC = 0.007082 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	53.23	0.0000	P	62.5	
2	<input type="checkbox"/>	0.025	0.029	299.41	0.0000	P	5.7	17.2
3	<input type="checkbox"/>	0.050	0.057	512.33	0.0001	P	29.0	14.2
4	<input type="checkbox"/>	0.100	0.115	1004.72	0.0001	P	8.2	15.0
5	<input type="checkbox"/>	0.500	0.486	4129.10	0.0004	P	5.5	-2.7
6	<input type="checkbox"/>	1.000	1.063	9011.74	0.0009	P	4.7	6.3
7	<input type="checkbox"/>	10.000	10.055	85813.69	0.0086	P	1.9	0.6
8	<input type="checkbox"/>	50.000	49.087	403602.89	0.0421	P	0.5	-1.8
9	<input type="checkbox"/>	100.000	102.123	800629.32	0.0877	P	17.4	2.1
10	<input type="checkbox"/>	1000.000	999.833	7717953.36	0.8583	A	5.1	0.0
11	<input type="checkbox"/>			212.91	0.0000	P	23.3	

$$y = 8.5842E-004 * x + 5.6555E-006$$

R = 1.0000

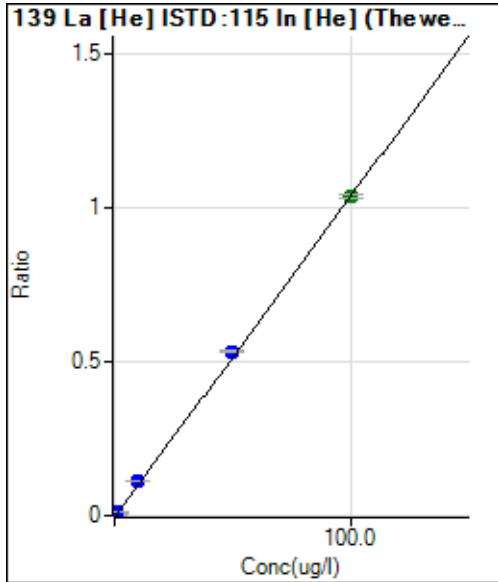
DL = 0.01235 ug/l

BEC = 0.006588 ug/l

Weight: 1/y

Min Conc: <None>

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	12.22	0.0000	P	41.0	
2	<input type="checkbox"/>	0.025	0.026	590.01	0.0003	P	5.9	5.3
3	<input type="checkbox"/>	0.050	0.059	1318.96	0.0006	P	2.9	18.2
4	<input type="checkbox"/>	0.100	0.120	2586.93	0.0013	P	17.8	19.7
5	<input type="checkbox"/>	0.500	0.535	11899.60	0.0056	P	3.1	7.1
6	<input type="checkbox"/>	1.000	1.196	27006.42	0.0125	P	12.5	19.6
7	<input type="checkbox"/>	10.000	10.545	240286.64	0.1102	P	1.2	5.5
8	<input type="checkbox"/>	50.000	51.001	1129756.12	0.5328	P	1.2	2.0
9	<input type="checkbox"/>	100.000	99.443	2176488.37	1.0389	A	1.6	-0.6
10	<input type="checkbox"/>			204.45	0.0001	P	15.8	
11	<input type="checkbox"/>			15.55	0.0000	P	23.9	

$$y = 0.0104 * x + 5.7789E-006$$

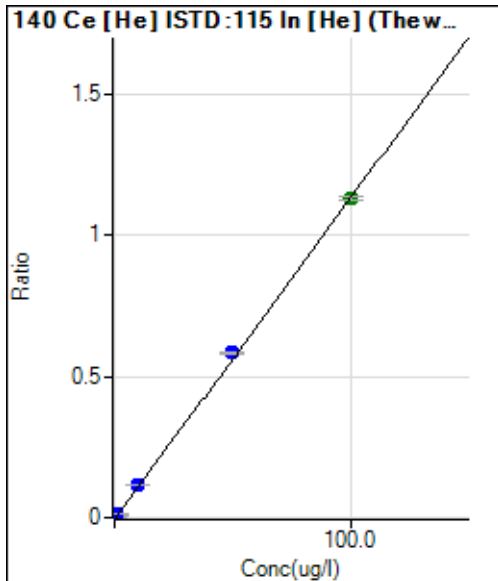
$$R = 0.9999$$

$$DL = 0.0006796 \text{ ug/l}$$

$$BEC = 0.0005531 \text{ ug/l}$$

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	8.89	0.0000	P	20.9	
2	<input type="checkbox"/>	0.025	0.026	635.58	0.0003	P	8.8	4.6
3	<input type="checkbox"/>	0.050	0.058	1414.53	0.0007	P	3.6	16.5
4	<input type="checkbox"/>	0.100	0.124	2913.66	0.0014	P	16.4	23.6
5	<input type="checkbox"/>	0.500	0.523	12692.51	0.0060	P	2.6	4.7
6	<input type="checkbox"/>	1.000	1.124	27698.75	0.0128	P	1.9	12.4
7	<input type="checkbox"/>	10.000	10.419	259102.34	0.1188	P	1.0	4.2
8	<input type="checkbox"/>	50.000	51.251	1239102.51	0.5844	P	0.6	2.5
9	<input type="checkbox"/>	100.000	99.331	2372713.44	1.1326	A	1.6	-0.7
10	<input type="checkbox"/>			596.68	0.0003	P	3.1	
11	<input type="checkbox"/>			27.78	0.0000	P	28.6	

$$y = 0.0114 * x + 4.2085E-006$$

$$R = 0.9999$$

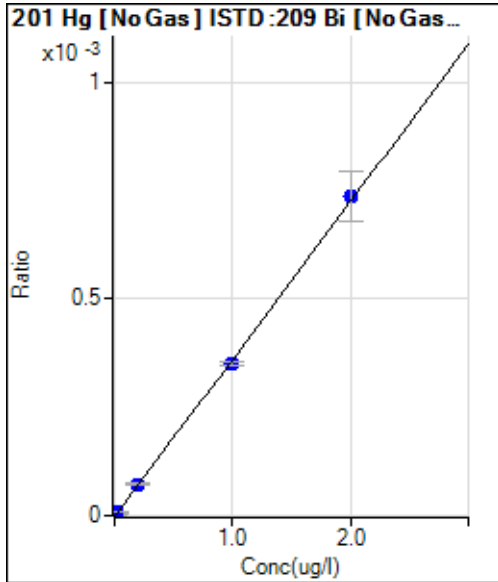
$$DL = 0.0002316 \text{ ug/l}$$

$$BEC = 0.0003691 \text{ ug/l}$$

Weight: 1/y

Min Conc: <None>

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	12.33	0.0000	P	19.5	
2	<input type="checkbox"/>			15.33	0.0000	P	26.7	
3	<input type="checkbox"/>	0.001	0.001	16.33	0.0000	P	34.6	34.7
4	<input type="checkbox"/>	0.002	0.002	18.00	0.0000	P	19.2	-9.4
5	<input type="checkbox"/>	0.010	0.009	41.66	0.0000	P	3.6	-5.9
6	<input type="checkbox"/>	0.020	0.021	77.98	0.0000	P	8.3	3.9
7	<input type="checkbox"/>	0.200	0.194	619.56	0.0001	P	3.8	-2.9
8	<input type="checkbox"/>	1.000	0.961	2906.07	0.0004	P	2.5	-3.9
9	<input type="checkbox"/>	2.000	2.020	5757.43	0.0007	P	16.1	1.0
10	<input type="checkbox"/>			40.99	0.0000	P	17.7	
11	<input type="checkbox"/>			29.32	0.0000	P	5.0	

$$y = 3.6414E-004 * x + 1.4877E-006$$

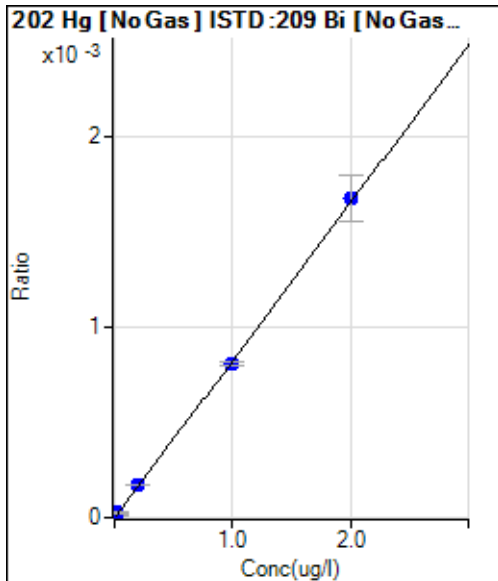
R = 0.9998

DL = 0.002387 ug/l

BEC = 0.004085 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	59.32	0.0000	P	15.1	
2	<input type="checkbox"/>			61.66	0.0000	P	15.2	
3	<input type="checkbox"/>	0.001	0.001	64.65	0.0000	P	15.3	-43.5
4	<input type="checkbox"/>	0.002	0.002	70.65	0.0000	P	19.4	-24.4
5	<input type="checkbox"/>	0.010	0.008	119.98	0.0000	P	11.8	-16.6
6	<input type="checkbox"/>	0.020	0.023	224.96	0.0000	P	11.1	13.9
7	<input type="checkbox"/>	0.200	0.198	1472.13	0.0002	P	4.3	-1.0
8	<input type="checkbox"/>	1.000	0.969	6710.35	0.0008	P	1.7	-3.1
9	<input type="checkbox"/>	2.000	2.016	13142.83	0.0017	P	15.0	0.8
10	<input type="checkbox"/>			112.98	0.0000	P	7.6	
11	<input type="checkbox"/>			105.65	0.0000	P	18.5	

$$y = 8.3025E-004 * x + 7.1968E-006$$

R = 0.9998

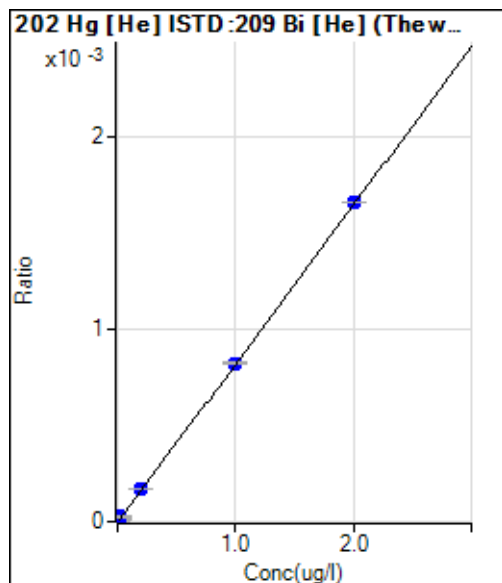
DL = 0.003924 ug/l

BEC = 0.008668 ug/l

Weight: 1/y

Min Conc: <None>

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	18.33	0.0000	P	14.6	
2	<input type="checkbox"/>			23.00	0.0000	P	36.6	
3	<input type="checkbox"/>	0.001	0.001	22.67	0.0000	P	9.0	48.9
4	<input type="checkbox"/>	0.002	0.002	23.33	0.0000	P	23.6	-7.4
5	<input type="checkbox"/>	0.010	0.008	43.66	0.0000	P	12.7	-15.2
6	<input type="checkbox"/>	0.020	0.025	93.65	0.0000	P	15.9	22.5
7	<input type="checkbox"/>	0.200	0.201	632.89	0.0002	P	3.4	0.3
8	<input type="checkbox"/>	1.000	0.991	2949.41	0.0008	P	1.9	-0.9
9	<input type="checkbox"/>	2.000	2.004	5714.08	0.0017	P	0.4	0.2
10	<input type="checkbox"/>			47.32	0.0000	P	30.0	
11	<input type="checkbox"/>			45.99	0.0000	P	7.0	

$$y = 8.2442E-004 * x + 5.0718E-006$$

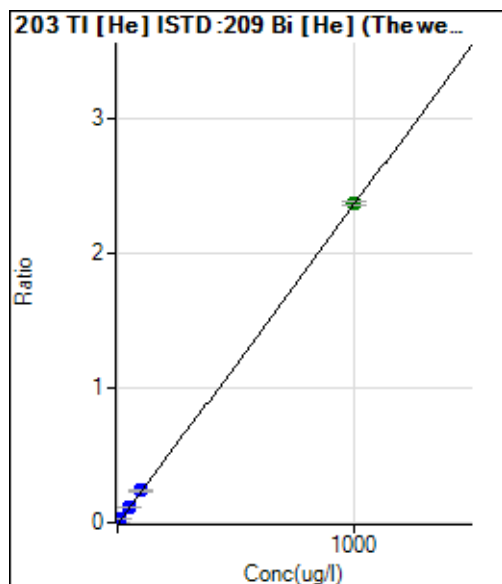
R = 1.0000

DL = 0.002699 ug/l

BEC = 0.006152 ug/l

Weight: 1/y

Min Conc: <None>



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	52.69	0.0000	P	7.3	
2	<input type="checkbox"/>	0.025	0.029	304.79	0.0001	P	10.9	16.1
3	<input type="checkbox"/>	0.050	0.058	549.57	0.0002	P	4.4	16.4
4	<input type="checkbox"/>	0.100	0.116	1027.79	0.0003	P	14.6	15.7
5	<input type="checkbox"/>	0.500	0.524	4551.94	0.0013	P	1.5	4.7
6	<input type="checkbox"/>	1.000	1.092	9660.05	0.0026	P	1.8	9.2
7	<input type="checkbox"/>	10.000	10.275	90673.07	0.0244	P	2.4	2.7
8	<input type="checkbox"/>	50.000	49.128	418416.82	0.1167	P	1.3	-1.7
9	<input type="checkbox"/>	100.000	99.612	815343.75	0.2365	P	1.0	-0.4
10	<input type="checkbox"/>	1000.000	1000.080	7859402.41	2.3745	A	1.1	0.0
11	<input type="checkbox"/>			3771.39	0.0010	P	2.8	

$$y = 0.0024 * x + 1.4603E-005$$

R = 1.0000

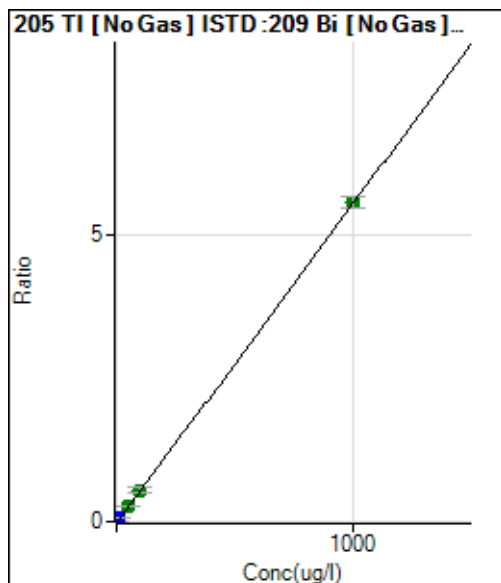
DL = 0.001342 ug/l

BEC = 0.006151 ug/l

Weight: 1/y

Min Conc: <None>

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	347.79	0.0000	P	5.3	
2	<input type="checkbox"/>	0.025	0.026	1586.77	0.0002	P	3.4	5.0
3	<input type="checkbox"/>	0.050	0.058	3041.48	0.0004	P	13.3	15.5
4	<input type="checkbox"/>	0.100	0.117	5824.63	0.0007	P	1.4	17.0
5	<input type="checkbox"/>	0.500	0.517	24839.87	0.0029	P	0.8	3.5
6	<input type="checkbox"/>	1.000	1.068	51668.67	0.0060	P	0.7	6.8
7	<input type="checkbox"/>	10.000	10.258	491783.04	0.0573	P	2.3	2.6
8	<input type="checkbox"/>	50.000	47.412	2189898.66	0.2647	A	0.9	-5.2
9	<input type="checkbox"/>	100.000	99.172	4329750.59	0.5537	A	14.9	-0.8
10	<input type="checkbox"/>	1000.000	1000.210	42014479.65	5.5843	A	4.2	0.0
11	<input type="checkbox"/>			16632.86	0.0020	P	14.7	

$$y = 0.0056 * x + 4.2268E-005$$

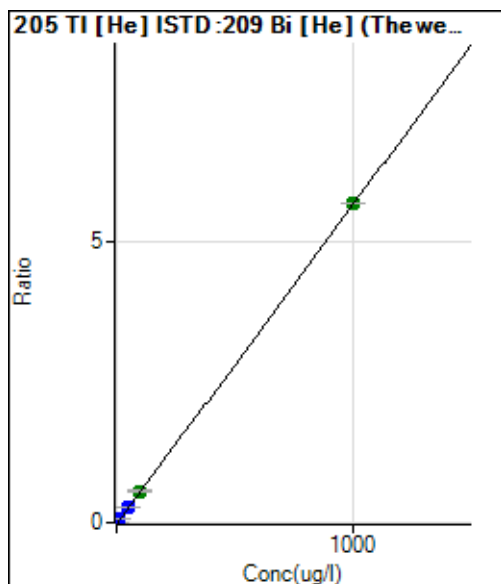
$$R = 1.0000$$

$$DL = 0.001205 \text{ ug/l}$$

$$BEC = 0.007571 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	142.72	0.0000	P	4.2	
2	<input type="checkbox"/>	0.025	0.028	717.64	0.0002	P	7.5	10.5
3	<input type="checkbox"/>	0.050	0.058	1323.93	0.0004	P	2.9	15.5
4	<input type="checkbox"/>	0.100	0.115	2468.56	0.0007	P	9.8	14.8
5	<input type="checkbox"/>	0.500	0.520	10850.10	0.0030	P	2.0	4.0
6	<input type="checkbox"/>	1.000	1.073	22777.23	0.0061	P	0.1	7.3
7	<input type="checkbox"/>	10.000	10.278	217345.80	0.0585	P	1.7	2.8
8	<input type="checkbox"/>	50.000	49.571	1011644.39	0.2820	P	0.5	-0.9
9	<input type="checkbox"/>	100.000	98.826	1938032.50	0.5622	A	1.5	-1.2
10	<input type="checkbox"/>	1000.000	1000.136	18831689.74	5.6894	A	0.4	0.0
11	<input type="checkbox"/>			9143.48	0.0025	P	2.4	

$$y = 0.0057 * x + 3.9515E-005$$

$$R = 1.0000$$

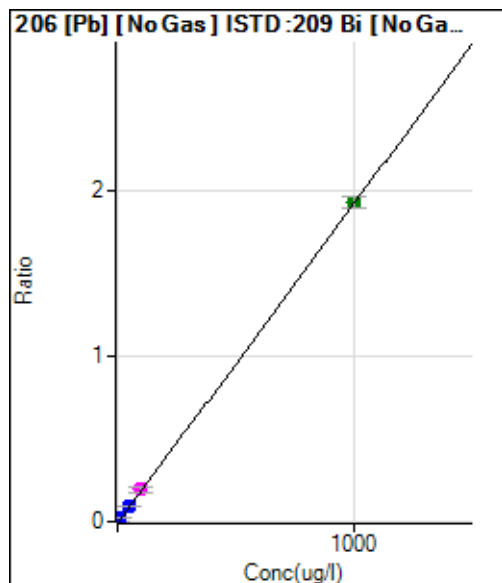
$$DL = 0.0008798 \text{ ug/l}$$

$$BEC = 0.006946 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	153.34	0.0000	P	13.0	
2	<input type="checkbox"/>	0.025	0.034	702.24	0.0001	P	4.1	34.4
3	<input type="checkbox"/>	0.050	0.057	1082.27	0.0001	P	8.9	14.7
4	<input type="checkbox"/>	0.100	0.111	1947.94	0.0002	P	2.8	10.8
5	<input type="checkbox"/>	0.500	0.511	8518.33	0.0010	P	1.7	2.2
6	<input type="checkbox"/>	1.000	1.074	17996.62	0.0021	P	0.7	7.4
7	<input type="checkbox"/>	10.000	10.178	168723.82	0.0197	P	1.6	1.8
8	<input type="checkbox"/>	50.000	48.571	775633.64	0.0938	P	1.0	-2.9
9	<input type="checkbox"/>	100.000	100.837	1520972.20	0.1947	M	15.7	0.8
10	<input type="checkbox"/>	1000.000	999.986	14524482.56	1.9302	A	3.4	0.0
11	<input type="checkbox"/>			800.03	0.0001	P	12.8	

$$y = 0.0019 * x + 1.8674E-005$$

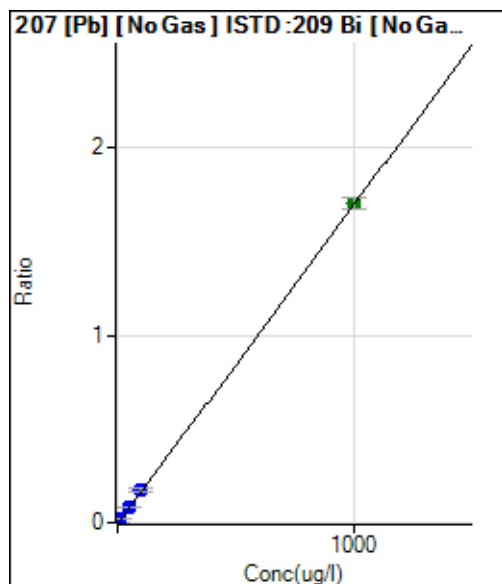
$$R = 1.0000$$

$$DL = 0.003767 \text{ ug/l}$$

$$BEC = 0.009675 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	125.56	0.0000	P	16.3	
2	<input type="checkbox"/>	0.025	0.035	634.47	0.0001	P	9.2	41.2
3	<input type="checkbox"/>	0.050	0.057	935.60	0.0001	P	14.5	13.6
4	<input type="checkbox"/>	0.100	0.113	1739.02	0.0002	P	4.6	12.8
5	<input type="checkbox"/>	0.500	0.499	7342.07	0.0009	P	2.0	-0.1
6	<input type="checkbox"/>	1.000	1.056	15631.42	0.0018	P	1.0	5.6
7	<input type="checkbox"/>	10.000	10.033	146896.20	0.0171	P	1.2	0.3
8	<input type="checkbox"/>	50.000	48.083	678152.70	0.0820	P	0.7	-3.8
9	<input type="checkbox"/>	100.000	101.020	1346944.30	0.1722	P	14.7	1.0
10	<input type="checkbox"/>	1000.000	999.994	12827022.45	1.7048	A	4.1	0.0
11	<input type="checkbox"/>			728.92	0.0001	P	15.3	

$$y = 0.0017 * x + 1.5229E-005$$

$$R = 1.0000$$

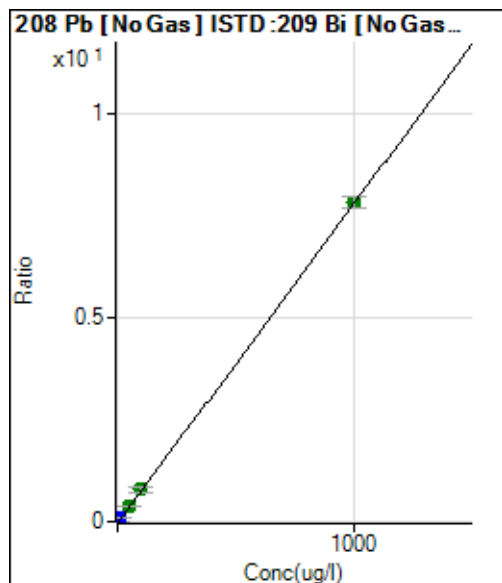
$$DL = 0.00436 \text{ ug/l}$$

$$BEC = 0.008933 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	620.01	0.0001	P	3.8	
2	<input type="checkbox"/>	0.025	0.033	2774.58	0.0003	P	2.8	30.4
3	<input type="checkbox"/>	0.050	0.056	4316.97	0.0005	P	9.4	12.8
4	<input type="checkbox"/>	0.100	0.112	7949.89	0.0009	P	2.8	11.9
5	<input type="checkbox"/>	0.500	0.506	34164.13	0.0040	P	2.7	1.3
6	<input type="checkbox"/>	1.000	1.059	71882.99	0.0084	P	0.8	5.9
7	<input type="checkbox"/>	10.000	10.105	678127.53	0.0790	P	1.7	1.1
8	<input type="checkbox"/>	50.000	47.986	3101497.20	0.3750	A	1.1	-4.0
9	<input type="checkbox"/>	100.000	99.915	6104873.54	0.7807	A	14.8	-0.1
10	<input type="checkbox"/>	1000.000	1000.108	58802865.37	7.8136	A	3.0	0.0
11	<input type="checkbox"/>			3251.29	0.0004	P	10.8	

$$y = 0.0078 * x + 7.5263E-005$$

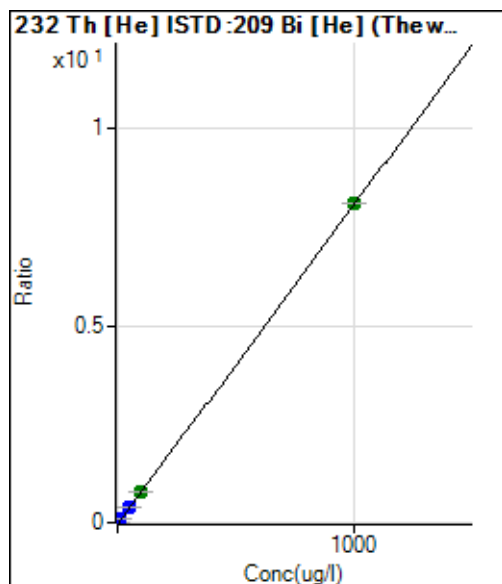
$$R = 1.0000$$

$$DL = 0.001102 \text{ ug/l}$$

$$BEC = 0.009633 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	108.71	0.0000	P	12.7	
2	<input type="checkbox"/>	0.025	0.019	660.29	0.0002	P	5.1	-25.6
3	<input type="checkbox"/>	0.050	0.044	1391.31	0.0004	P	3.6	-12.0
4	<input type="checkbox"/>	0.100	0.088	2651.34	0.0007	P	13.9	-11.7
5	<input type="checkbox"/>	0.500	0.467	13814.82	0.0038	P	1.6	-6.6
6	<input type="checkbox"/>	1.000	1.004	30275.57	0.0082	P	0.8	0.4
7	<input type="checkbox"/>	10.000	9.884	297807.25	0.0802	P	1.5	-1.2
8	<input type="checkbox"/>	50.000	49.132	1428917.68	0.3984	P	1.4	-1.7
9	<input type="checkbox"/>	100.000	97.692	2730624.94	0.7921	A	0.9	-2.3
10	<input type="checkbox"/>	1000.000	1000.275	26844294.10	8.1102	A	0.3	0.0
11	<input type="checkbox"/>			9051.67	0.0025	P	10.0	

$$y = 0.0081 * x + 3.0101E-005$$

$$R = 1.0000$$

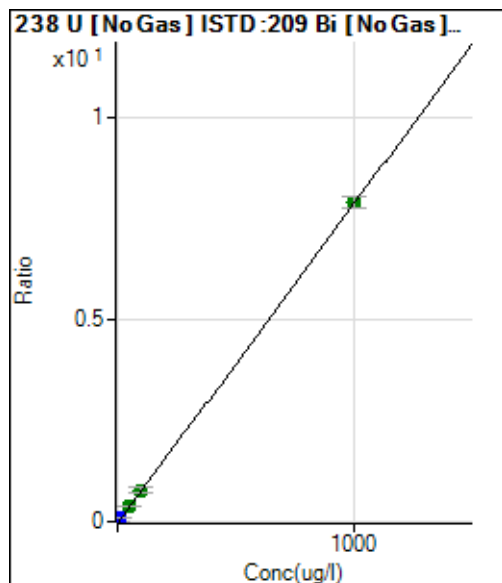
$$DL = 0.001414 \text{ ug/l}$$

$$BEC = 0.003713 \text{ ug/l}$$

$$\text{Weight: } 1/y$$

$$\text{Min Conc: } <\text{None}>$$

Calibration for 030_QC1.d



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	8.00	0.0000	P	16.8	
2	<input type="checkbox"/>	0.025	0.025	1680.11	0.0002	P	0.9	0.4
3	<input type="checkbox"/>	0.050	0.056	3708.12	0.0004	P	11.5	11.8
4	<input type="checkbox"/>	0.100	0.107	7114.85	0.0008	P	1.0	7.1
5	<input type="checkbox"/>	0.500	0.500	33577.93	0.0040	P	2.2	0.0
6	<input type="checkbox"/>	1.000	1.057	72047.58	0.0084	P	0.7	5.7
7	<input type="checkbox"/>	10.000	10.090	685761.09	0.0799	P	1.2	0.9
8	<input type="checkbox"/>	50.000	47.014	3080099.53	0.3724	A	0.8	-6.0
9	<input type="checkbox"/>	100.000	99.256	6145576.14	0.7862	A	15.2	-0.7
10	<input type="checkbox"/>	1000.000	1000.223	59601996.96	7.9222	A	4.1	0.0
11	<input type="checkbox"/>			1335.16	0.0002	P	24.8	

$$y = 0.0079 * x + 9.7522E-007$$

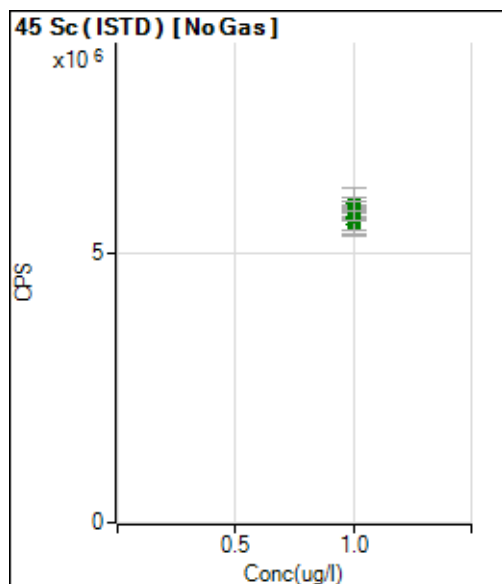
$$R = 1.0000$$

$$DL = 6.188E-05 \text{ ug/l}$$

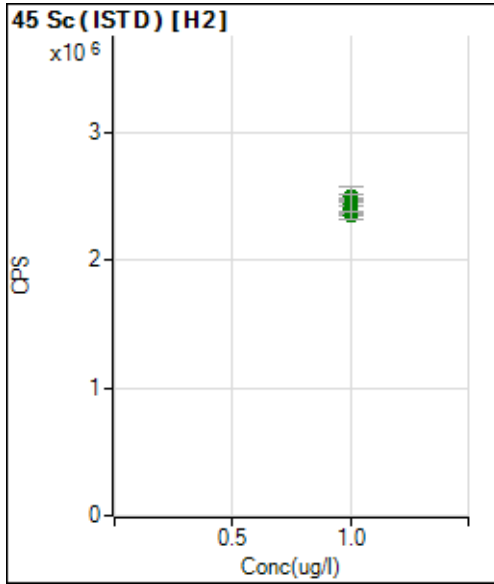
$$BEC = 0.0001231 \text{ ug/l}$$

Weight: 1/y

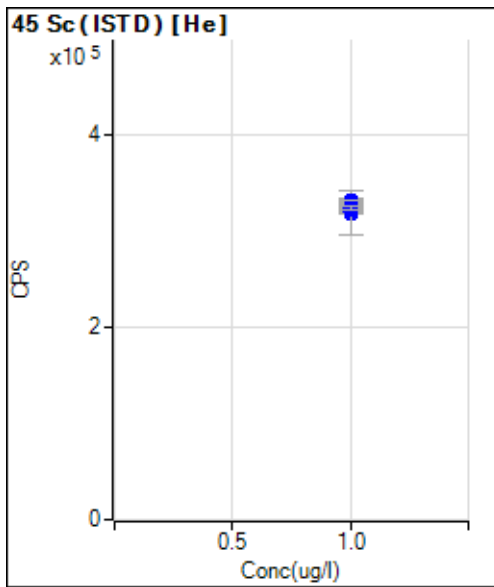
Min Conc: <None>



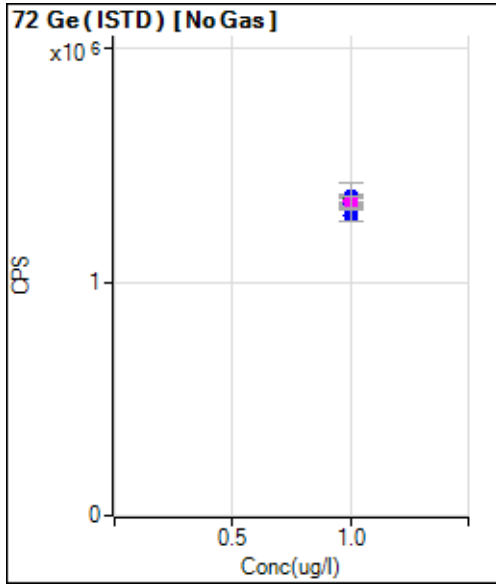
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		5753853.43		A	1.0	
2	<input type="checkbox"/>	1.000		5787787.28		A	1.1	
3	<input type="checkbox"/>	1.000		5774312.93		A	14.6	
4	<input type="checkbox"/>	1.000		5677489.65		A	2.1	
5	<input type="checkbox"/>	1.000		5799446.93		A	0.3	
6	<input type="checkbox"/>	1.000		5867212.91		A	1.0	
7	<input type="checkbox"/>	1.000		5916763.14		A	3.5	
8	<input type="checkbox"/>	1.000		5769540.60		A	0.4	
9	<input type="checkbox"/>	1.000		5626081.73		A	11.1	
10	<input type="checkbox"/>	1.000		5539359.13		A	4.2	
11	<input type="checkbox"/>	1.000		5682133.90		A	2.8	



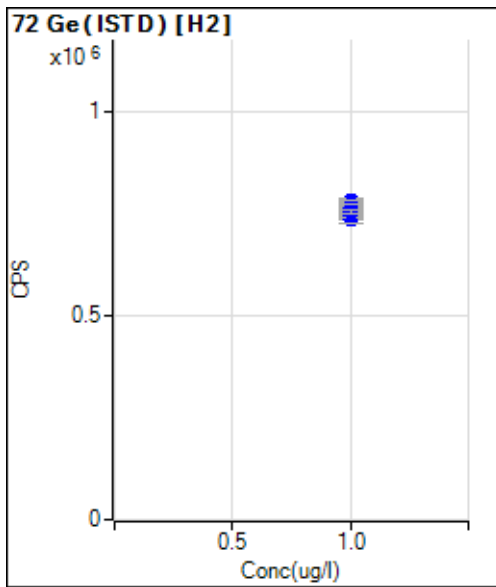
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		2418381.01		A	4.2	
2	<input type="checkbox"/>	1.000		2430256.09		A	4.2	
3	<input type="checkbox"/>	1.000		2407360.93		A	4.6	
4	<input type="checkbox"/>	1.000		2412200.14		A	4.7	
5	<input type="checkbox"/>	1.000		2430976.94		A	4.2	
6	<input type="checkbox"/>	1.000		2432576.70		A	4.9	
7	<input type="checkbox"/>	1.000		2501714.19		A	5.7	
8	<input type="checkbox"/>	1.000		2414017.72		A	4.1	
9	<input type="checkbox"/>	1.000		2396510.11		A	2.8	
10	<input type="checkbox"/>	1.000		2346563.86		A	2.6	
11	<input type="checkbox"/>	1.000		2442487.52		A	5.5	



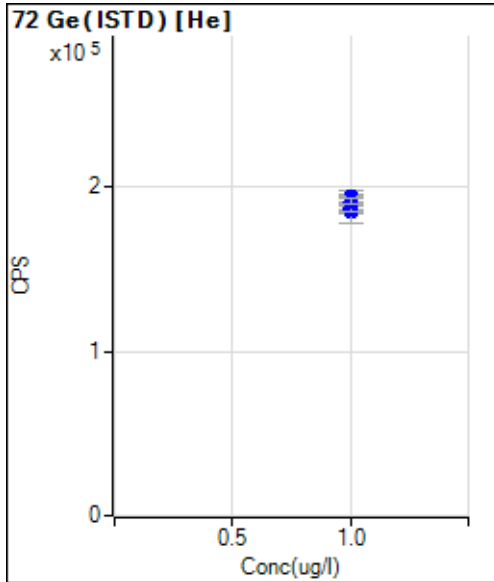
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		320029.59		P	1.4	
2	<input type="checkbox"/>	1.000		318641.98		P	0.8	
3	<input type="checkbox"/>	1.000		319804.22		P	1.2	
4	<input type="checkbox"/>	1.000		319336.29		P	14.8	
5	<input type="checkbox"/>	1.000		323194.36		P	0.6	
6	<input type="checkbox"/>	1.000		326266.07		P	0.9	
7	<input type="checkbox"/>	1.000		332252.96		P	1.1	
8	<input type="checkbox"/>	1.000		332035.61		P	1.3	
9	<input type="checkbox"/>	1.000		331959.20		P	0.4	
10	<input type="checkbox"/>	1.000		324520.78		P	1.7	
11	<input type="checkbox"/>	1.000		324320.93		P	1.0	



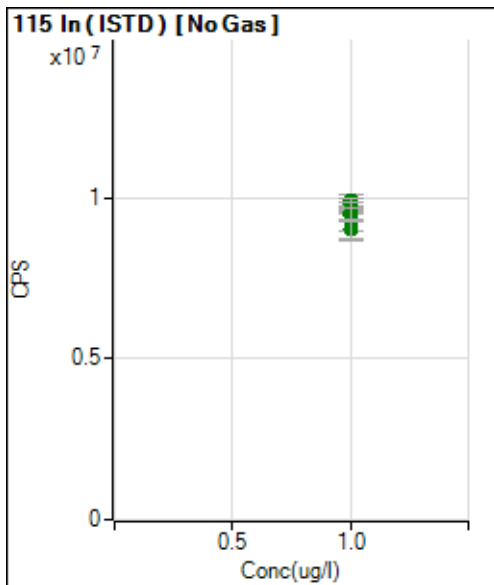
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		1327208.18		M	1.4	
2	<input type="checkbox"/>	1.000		1336197.95		M	1.3	
3	<input type="checkbox"/>	1.000		1367653.67		M	9.0	
4	<input type="checkbox"/>	1.000		1331053.49		P	1.6	
5	<input type="checkbox"/>	1.000		1348852.11		M	1.1	
6	<input type="checkbox"/>	1.000		1355223.84		M	1.6	
7	<input type="checkbox"/>	1.000		1359264.94		A	1.9	
8	<input type="checkbox"/>	1.000		1351263.99		M	3.5	
9	<input type="checkbox"/>	1.000		1366013.33		P	8.7	
10	<input type="checkbox"/>	1.000		1285972.19		P	3.7	
11	<input type="checkbox"/>	1.000		1341735.64		M	4.1	



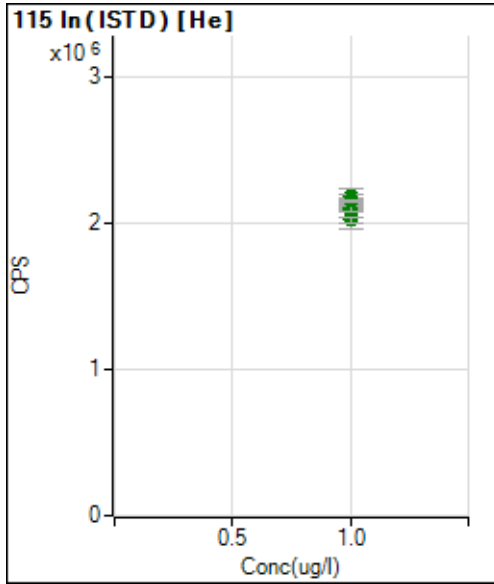
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		746647.08		P	1.5	
2	<input type="checkbox"/>	1.000		745483.87		P	2.8	
3	<input type="checkbox"/>	1.000		752635.55		P	2.1	
4	<input type="checkbox"/>	1.000		738653.59		P	2.6	
5	<input type="checkbox"/>	1.000		765428.21		P	1.9	
6	<input type="checkbox"/>	1.000		760929.55		P	1.8	
7	<input type="checkbox"/>	1.000		784431.95		P	1.4	
8	<input type="checkbox"/>	1.000		773425.20		P	3.1	
9	<input type="checkbox"/>	1.000		766834.34		P	2.6	
10	<input type="checkbox"/>	1.000		745419.52		P	1.0	
11	<input type="checkbox"/>	1.000		756432.79		P	1.7	



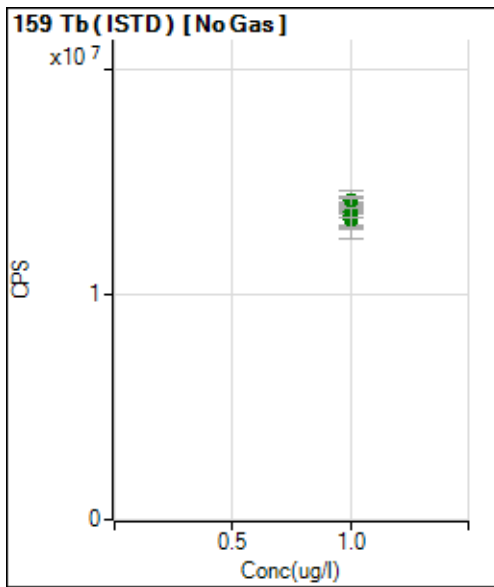
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		187772.40		P	1.6	
2	<input type="checkbox"/>	1.000		185723.59		P	0.4	
3	<input type="checkbox"/>	1.000		185222.91		P	0.7	
4	<input type="checkbox"/>	1.000		188038.00		P	10.4	
5	<input type="checkbox"/>	1.000		187290.50		P	1.3	
6	<input type="checkbox"/>	1.000		191294.62		P	0.5	
7	<input type="checkbox"/>	1.000		194605.30		P	0.9	
8	<input type="checkbox"/>	1.000		194219.89		P	1.2	
9	<input type="checkbox"/>	1.000		194705.07		P	0.5	
10	<input type="checkbox"/>	1.000		187053.63		P	1.7	
11	<input type="checkbox"/>	1.000		191440.99		P	1.8	



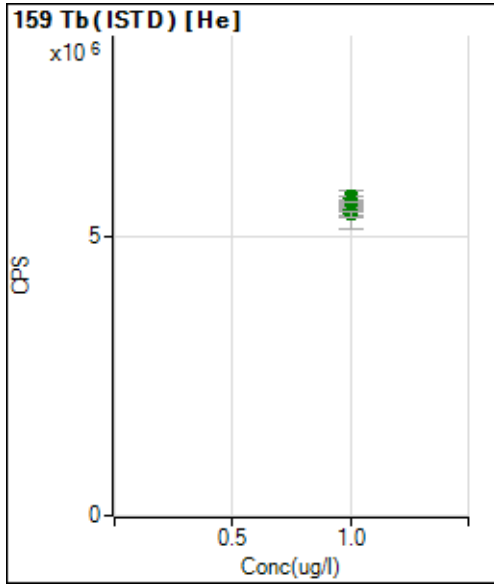
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		9482235.48		A	3.0	
2	<input type="checkbox"/>	1.000		9721660.24		A	3.4	
3	<input type="checkbox"/>	1.000		9550514.63		A	12.0	
4	<input type="checkbox"/>	1.000		9622859.33		A	1.2	
5	<input type="checkbox"/>	1.000		9759134.24		A	0.5	
6	<input type="checkbox"/>	1.000		9826855.56		A	3.9	
7	<input type="checkbox"/>	1.000		9936020.01		A	1.0	
8	<input type="checkbox"/>	1.000		9576936.61		A	1.0	
9	<input type="checkbox"/>	1.000		9274421.66		A	13.2	
10	<input type="checkbox"/>	1.000		9010413.37		A	5.8	
11	<input type="checkbox"/>	1.000		9532602.70		A	3.6	



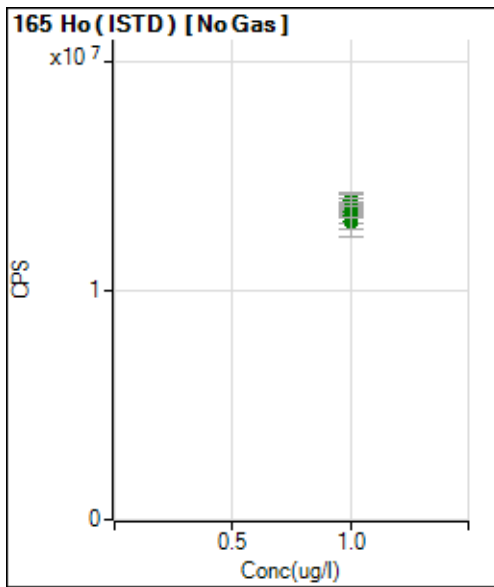
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		2109967.30		A	0.9	
2	<input type="checkbox"/>	1.000		2100395.41		A	0.9	
3	<input type="checkbox"/>	1.000		2115895.02		A	0.4	
4	<input type="checkbox"/>	1.000		2090924.93		A	13.3	
5	<input type="checkbox"/>	1.000		2125327.46		A	0.6	
6	<input type="checkbox"/>	1.000		2160516.72		A	0.3	
7	<input type="checkbox"/>	1.000		2181185.88		A	1.7	
8	<input type="checkbox"/>	1.000		2120362.79		A	0.4	
9	<input type="checkbox"/>	1.000		2095080.23		A	1.4	
10	<input type="checkbox"/>	1.000		2022434.19		A	2.0	
11	<input type="checkbox"/>	1.000		2151246.89		A	0.9	



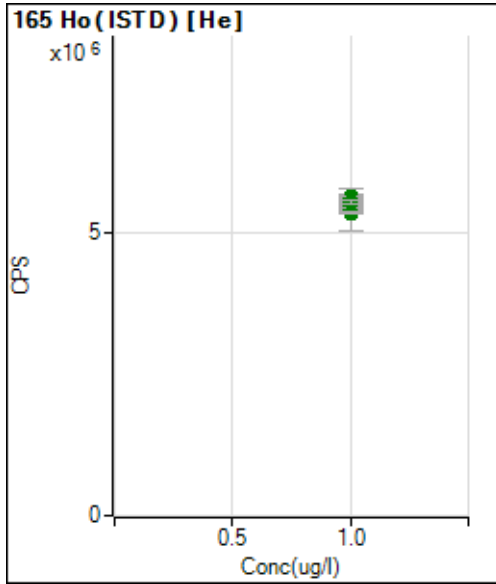
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		13413760.99		A	4.6	
2	<input type="checkbox"/>	1.000		13774502.77		A	0.9	
3	<input type="checkbox"/>	1.000		13767072.53		A	12.4	
4	<input type="checkbox"/>	1.000		13494164.73		A	1.1	
5	<input type="checkbox"/>	1.000		13718420.96		A	1.1	
6	<input type="checkbox"/>	1.000		14017996.88		A	1.0	
7	<input type="checkbox"/>	1.000		14198093.01		A	2.5	
8	<input type="checkbox"/>	1.000		13855851.51		A	1.0	
9	<input type="checkbox"/>	1.000		13375314.95		A	12.9	
10	<input type="checkbox"/>	1.000		13317482.95		A	4.7	
11	<input type="checkbox"/>	1.000		13642991.26		A	3.1	



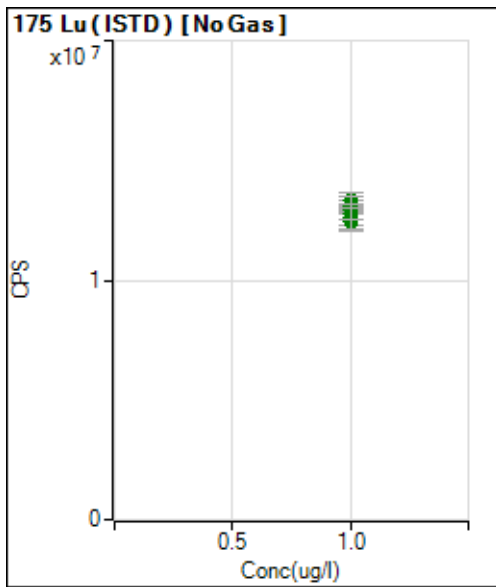
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		5483962.88		A	1.2	
2	<input type="checkbox"/>	1.000		5475989.02		A	0.5	
3	<input type="checkbox"/>	1.000		5421352.31		A	1.1	
4	<input type="checkbox"/>	1.000		5491392.61		A	12.9	
5	<input type="checkbox"/>	1.000		5602020.94		A	1.2	
6	<input type="checkbox"/>	1.000		5739100.72		A	0.3	
7	<input type="checkbox"/>	1.000		5707076.56		A	1.6	
8	<input type="checkbox"/>	1.000		5635582.94		A	1.4	
9	<input type="checkbox"/>	1.000		5485541.70		A	1.1	
10	<input type="checkbox"/>	1.000		5413347.32		A	1.7	
11	<input type="checkbox"/>	1.000		5637076.25		A	0.4	



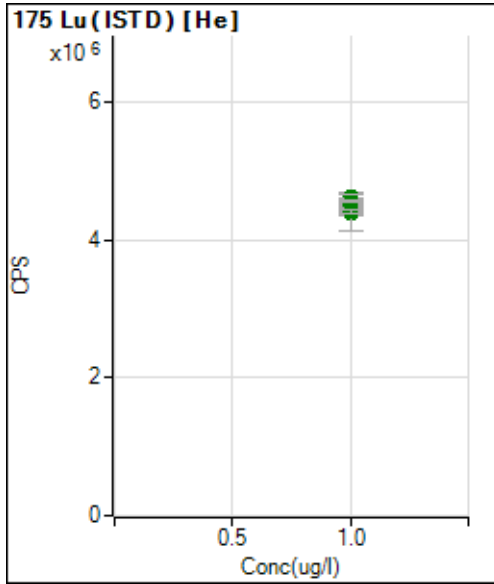
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		13295141.03		A	4.7	
2	<input type="checkbox"/>	1.000		13385410.67		A	1.7	
3	<input type="checkbox"/>	1.000		13476044.11		A	11.8	
4	<input type="checkbox"/>	1.000		13387993.56		A	1.5	
5	<input type="checkbox"/>	1.000		13569835.61		A	1.6	
6	<input type="checkbox"/>	1.000		13698059.77		A	1.1	
7	<input type="checkbox"/>	1.000		13963057.98		A	1.8	
8	<input type="checkbox"/>	1.000		13560631.30		A	0.7	
9	<input type="checkbox"/>	1.000		13283777.06		A	13.7	
10	<input type="checkbox"/>	1.000		13031286.04		A	5.0	
11	<input type="checkbox"/>	1.000		13487024.99		A	3.6	



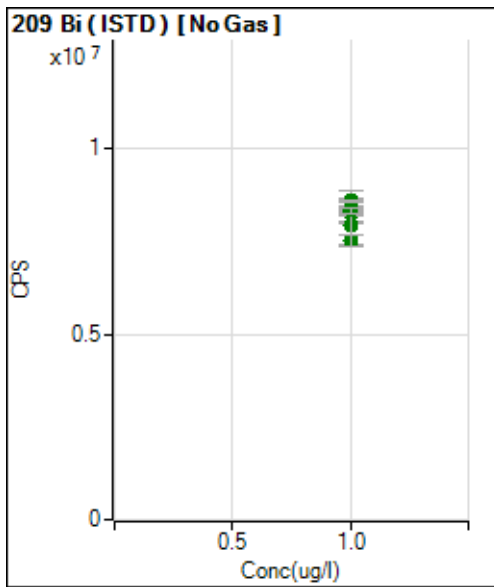
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		5456456.47		A	1.1	
2	<input type="checkbox"/>	1.000		5430692.01		A	0.9	
3	<input type="checkbox"/>	1.000		5410520.59		A	0.2	
4	<input type="checkbox"/>	1.000		5422120.58		A	13.8	
5	<input type="checkbox"/>	1.000		5557083.50		A	0.1	
6	<input type="checkbox"/>	1.000		5660852.53		A	1.1	
7	<input type="checkbox"/>	1.000		5633783.43		A	1.2	
8	<input type="checkbox"/>	1.000		5494997.67		A	0.6	
9	<input type="checkbox"/>	1.000		5479093.43		A	1.1	
10	<input type="checkbox"/>	1.000		5357602.62		A	0.7	
11	<input type="checkbox"/>	1.000		5553620.35		A	1.3	



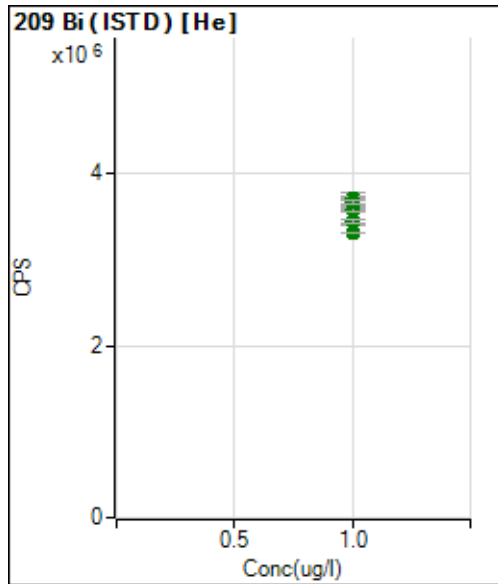
	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		12671029.02		A	5.7	
2	<input type="checkbox"/>	1.000		12910409.85		A	1.3	
3	<input type="checkbox"/>	1.000		12940613.60		A	11.9	
4	<input type="checkbox"/>	1.000		12863492.83		A	0.5	
5	<input type="checkbox"/>	1.000		12990675.53		A	1.2	
6	<input type="checkbox"/>	1.000		13226649.10		A	1.8	
7	<input type="checkbox"/>	1.000		13358764.23		A	1.9	
8	<input type="checkbox"/>	1.000		13102933.41		A	1.4	
9	<input type="checkbox"/>	1.000		12875642.06		A	13.0	
10	<input type="checkbox"/>	1.000		12478162.83		A	5.9	
11	<input type="checkbox"/>	1.000		12804432.10		A	3.7	



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		4421769.89		A	1.2	
2	<input type="checkbox"/>	1.000		4393646.10		A	1.3	
3	<input type="checkbox"/>	1.000		4420743.45		A	1.1	
4	<input type="checkbox"/>	1.000		4413883.78		A	13.0	
5	<input type="checkbox"/>	1.000		4518926.99		A	0.8	
6	<input type="checkbox"/>	1.000		4567764.58		A	0.7	
7	<input type="checkbox"/>	1.000		4633261.33		A	1.6	
8	<input type="checkbox"/>	1.000		4486590.34		A	1.3	
9	<input type="checkbox"/>	1.000		4508218.06		A	1.9	
10	<input type="checkbox"/>	1.000		4414896.77		A	1.2	
11	<input type="checkbox"/>	1.000		4557104.08		A	0.6	



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		8241406.70		A	4.6	
2	<input type="checkbox"/>	1.000		8406887.37		A	1.1	
3	<input type="checkbox"/>	1.000		8417264.45		A	10.1	
4	<input type="checkbox"/>	1.000		8375705.87		A	1.6	
5	<input type="checkbox"/>	1.000		8477029.60		A	3.0	
6	<input type="checkbox"/>	1.000		8606727.78		A	1.1	
7	<input type="checkbox"/>	1.000		8580857.52		A	0.7	
8	<input type="checkbox"/>	1.000		8271902.84		A	1.5	
9	<input type="checkbox"/>	1.000		7923331.57		A	13.3	
10	<input type="checkbox"/>	1.000		7531723.05		A	4.1	
11	<input type="checkbox"/>	1.000		8331026.74		A	1.8	



	Rj ct	Conc.	Calc Conc.	CPS	Ratio	Det .	RSD	%RE
1	<input type="checkbox"/>	1.000		3610393.17		A	1.5	
2	<input type="checkbox"/>	1.000		3646583.63		A	2.1	
3	<input type="checkbox"/>	1.000		3598136.69		A	0.9	
4	<input type="checkbox"/>	1.000		3589670.77		A	10.8	
5	<input type="checkbox"/>	1.000		3619387.95		A	0.5	
6	<input type="checkbox"/>	1.000		3706330.98		A	0.4	
7	<input type="checkbox"/>	1.000		3715304.27		A	1.4	
8	<input type="checkbox"/>	1.000		3587175.01		A	1.6	
9	<input type="checkbox"/>	1.000		3447515.72		A	1.3	
10	<input type="checkbox"/>	1.000		3309932.36		A	0.1	
11	<input type="checkbox"/>	1.000		3670536.82		A	1.4	

ICPMS207-B Analytical Data

Sample Name Rinse
File Name 018BLKV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 19:55:13
Sample Type BlkVrfy
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas		ug/l	11034.43
Be	9	45	1	No Gas		ug/l	191.30
B	11	45	1	No Gas		ug/l	4697.95
Na	23	45	3	He		ug/l	44192.43
Mg	24	45	3	He		ug/l	179.65
Al	27	45	1	No Gas		ug/l	5273.18
Si	28	45	2	H2		ug/l	15650.51
K	39	72	3	He		ug/l	65729.91
Ca	40	72	2	H2		ug/l	46084.15
Ti	47	72	1	No Gas		ug/l	171.84
V	51	72	1	No Gas		ug/l	-7896.62
V	51	72	3	He		ug/l	14602.87
Cr	52	72	1	No Gas		ug/l	66888.82
Cr	52	72	3	He		ug/l	397.78
Mn	55	72	1	No Gas		ug/l	6182.38
Mn	55	72	3	He		ug/l	111.65
Fe	56	72	2	H2		ug/l	11521.13
Fe	56	72	3	He		ug/l	5790.32
Co	59	72	1	No Gas		ug/l	339.33
Ni	60	72	1	No Gas		ug/l	558.91
Ni	60	72	3	He		ug/l	114.44
Cu	63	72	1	No Gas		ug/l	3289.69
Cu	63	72	3	He		ug/l	288.61
Cu	65	72	1	No Gas		ug/l	478.20
Zn	66	72	1	No Gas		ug/l	443.03
Zn	66	72	3	He		ug/l	97.78
As	75	72	1	No Gas		ug/l	14181.13
As	75	72	3	He		ug/l	145.60
Se	78	72	2	H2		ug/l	14.89
Br	79	72	1	No Gas		ug/l	92161.56
Br	79	72	2	H2		ug/l	38174.59
Se	82	72	1	No Gas		ug/l	683.81
Kr	84	72	1	No Gas		ug/l	19318.06
Sr	88	72	1	No Gas		ug/l	811.75
Sr	88	72	3	He		ug/l	330.01
Mo	95	115	1	No Gas		ug/l	154.45
Mo	95	115	3	He		ug/l	111.11
Mo	98	115	1	No Gas		ug/l	248.07
Ag	107	115	1	No Gas		ug/l	64.70
Ag	109	115	1	No Gas		ug/l	42.02
Cd	111	115	1	No Gas		ug/l	3.39

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He		ug/l	2.67
Cd	114	115	1	No Gas		ug/l	10.56
Cd	114	115	3	He		ug/l	6.73
Sn	118	115	1	No Gas		ug/l	981.43
Sn	118	115	3	He		ug/l	244.45
Sb	121	115	1	No Gas		ug/l	139.68
Sb	121	115	3	He		ug/l	51.67
Sb	123	115	1	No Gas		ug/l	103.01
Sb	123	115	3	He		ug/l	34.67
Ba	135	115	1	No Gas		ug/l	26.61
Ba	137	115	1	No Gas		ug/l	63.21
La	139	115	3	He		ug/l	8.89
Ce	140	115	3	He		ug/l	4.44
Hg	201	209	1	No Gas		ug/l	11.00
Hg	202	209	1	No Gas		ug/l	62.99
Hg	202	209	3	He		ug/l	16.33
Tl	203	209	3	He		ug/l	64.03
Tl	205	209	1	No Gas		ug/l	344.45
Tl	205	209	3	He		ug/l	148.73
[Pb]	206	209	1	No Gas		ug/l	164.45
[Pb]	207	209	1	No Gas		ug/l	145.56
Pb	208	209	1	No Gas		ug/l	676.68
Th	232	209	3	He		ug/l	112.71
U	238	209	1	No Gas		ug/l	10.00

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5449834.95	43.8
Sc	45	2	H2	2470998.68	48.2
Sc	45	3	He	322589.93	119.8
Ge	72	1	No Gas	1283787.70	47.8
Ge	72	2	H2	757103.16	47.6
Ge	72	3	He	188512.30	109.9
In	115	1	No Gas	9106794.87	48.9
In	115	3	He	2117253.87	127.0
Tb	159	1	No Gas	12683419.22	47.2
Tb	159	3	He	5499367.92	78.8
Ho	165	1	No Gas	12548775.10	47.4
Ho	165	3	He	5396409.24	76.8
Lu	175	1	No Gas	12053626.33	47.5
Lu	175	3	He	4413473.84	89.5
Bi	209	1	No Gas	7978219.46	48.5
Bi	209	3	He	3626851.63	72.0

ICPMS207-B Analytical Data

Sample Name BLANK
File Name 019CALB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 20:01:28
Sample Type CalBK
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.000	ug/l	10844.88
Be	9	45	1	No Gas	0.000	ug/l	201.96
B	11	45	1	No Gas	0.000	ug/l	4501.15
Na	23	45	3	He	0.000	ug/l	44894.40
Mg	24	45	3	He	0.000	ug/l	219.57
Al	27	45	1	No Gas	0.000	ug/l	5618.88
Si	28	45	2	H2	0.000	ug/l	15466.87
K	39	72	3	He	0.000	ug/l	65169.86
Ca	40	72	2	H2	0.000	ug/l	44926.21
Ti	47	72	1	No Gas	0.000	ug/l	180.18
V	51	72	1	No Gas	0.000	ug/l	-18925.67
V	51	72	3	He	0.000	ug/l	15260.20
Cr	52	72	1	No Gas	0.000	ug/l	68265.49
Cr	52	72	3	He	0.000	ug/l	372.23
Mn	55	72	1	No Gas	0.000	ug/l	6235.65
Mn	55	72	3	He	0.000	ug/l	115.31
Fe	56	72	2	H2	0.000	ug/l	11255.67
Fe	56	72	3	He	0.000	ug/l	5808.67
Co	59	72	1	No Gas	0.000	ug/l	339.33
Ni	60	72	1	No Gas	0.000	ug/l	525.63
Ni	60	72	3	He	0.000	ug/l	106.67
Cu	63	72	1	No Gas	0.000	ug/l	3363.08
Cu	63	72	3	He	0.000	ug/l	298.61
Cu	65	72	1	No Gas	0.000	ug/l	527.56
Zn	66	72	1	No Gas	0.000	ug/l	529.62
Zn	66	72	3	He	0.000	ug/l	96.67
As	75	72	1	No Gas	0.000	ug/l	14612.13
As	75	72	3	He	0.000	ug/l	151.93
Se	78	72	2	H2	0.000	ug/l	11.67
Br	79	72	1	No Gas	0.000	ug/l	89556.36
Br	79	72	2	H2	0.000	ug/l	37073.92
Se	82	72	1	No Gas	0.000	ug/l	679.14
Kr	84	72	1	No Gas		ug/l	19824.38
Sr	88	72	1	No Gas	0.000	ug/l	811.76
Sr	88	72	3	He	0.000	ug/l	348.90
Mo	95	115	1	No Gas	0.000	ug/l	175.56
Mo	95	115	3	He	0.000	ug/l	91.11
Mo	98	115	1	No Gas	0.000	ug/l	258.48
Ag	107	115	1	No Gas	0.000	ug/l	52.02
Ag	109	115	1	No Gas	0.000	ug/l	56.69
Cd	111	115	1	No Gas	0.000	ug/l	-3.31

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.000	ug/l	2.00
Cd	114	115	1	No Gas	0.000	ug/l	-6.37
Cd	114	115	3	He	0.000	ug/l	3.73
Sn	118	115	1	No Gas	0.000	ug/l	1071.25
Sn	118	115	3	He	0.000	ug/l	261.12
Sb	121	115	1	No Gas	0.000	ug/l	145.35
Sb	121	115	3	He	0.000	ug/l	45.67
Sb	123	115	1	No Gas	0.000	ug/l	106.34
Sb	123	115	3	He	0.000	ug/l	33.67
Ba	135	115	1	No Gas	0.000	ug/l	33.27
Ba	137	115	1	No Gas	0.000	ug/l	53.23
La	139	115	3	He	0.000	ug/l	12.22
Ce	140	115	3	He	0.000	ug/l	8.89
Hg	201	209	1	No Gas	0.000	ug/l	12.33
Hg	202	209	1	No Gas	0.000	ug/l	59.32
Hg	202	209	3	He	0.000	ug/l	18.33
Tl	203	209	3	He	0.000	ug/l	52.69
Tl	205	209	1	No Gas	0.000	ug/l	347.79
Tl	205	209	3	He	0.000	ug/l	142.72
[Pb]	206	209	1	No Gas	0.000	ug/l	153.34
[Pb]	207	209	1	No Gas	0.000	ug/l	125.56
Pb	208	209	1	No Gas	0.000	ug/l	620.01
Th	232	209	3	He	0.000	ug/l	108.71
U	238	209	1	No Gas	0.000	ug/l	8.00

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5753853.43	100.0
Sc	45	2	H2	2418381.01	100.0
Sc	45	3	He	320029.59	100.0
Ge	72	1	No Gas	1327208.18	100.0
Ge	72	2	H2	746647.08	100.0
Ge	72	3	He	187772.40	100.0
In	115	1	No Gas	9482235.48	100.0
In	115	3	He	2109967.30	100.0
Tb	159	1	No Gas	13413760.99	100.0
Tb	159	3	He	5483962.88	100.0
Ho	165	1	No Gas	13295141.03	100.0
Ho	165	3	He	5456456.47	100.0
Lu	175	1	No Gas	12671029.02	100.0
Lu	175	3	He	4421769.89	100.0
Bi	209	1	No Gas	8241406.70	100.0
Bi	209	3	He	3610393.17	100.0

ICPMS207-B Analytical Data

Sample Name 0.025 ppb STD
File Name 020CAL5.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 20:08:07
Sample Type CalStd
Total Dilution 1.0000
Comment ICPMS-6020B-Cal
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.313	ug/l	16165.05
Be	9	45	1	No Gas	0.026	ug/l	356.93
B	11	45	1	No Gas	-0.030	ug/l	4434.44
Na	23	45	3	He	17.628	ug/l	62039.38
Mg	24	45	3	He	7.701	ug/l	4395.27
Al	27	45	1	No Gas	0.493	ug/l	18564.86
Si	28	45	2	H2	0.754	ug/l	17083.34
K	39	72	3	He	9.193	ug/l	69206.73
Ca	40	72	2	H2	14.683	ug/l	150950.69
Ti	47	72	1	No Gas	0.072	ug/l	363.71
V	51	72	1	No Gas	-0.277	ug/l	-28041.50
V	51	72	3	He	0.141	ug/l	15745.16
Cr	52	72	1	No Gas	0.168	ug/l	73724.60
Cr	52	72	3	He	0.038	ug/l	560.02
Mn	55	72	1	No Gas	0.069	ug/l	9011.60
Mn	55	72	3	He	0.062	ug/l	330.27
Fe	56	72	2	H2	0.927	ug/l	25171.89
Fe	56	72	3	He	0.887	ug/l	9771.44
Co	59	72	1	No Gas	0.024	ug/l	1127.81
Ni	60	72	1	No Gas	0.070	ug/l	1024.68
Ni	60	72	3	He	0.071	ug/l	237.78
Cu	63	72	1	No Gas	0.119	ug/l	5388.50
Cu	63	72	3	He	0.115	ug/l	862.86
Cu	65	72	1	No Gas	0.104	ug/l	1379.95
Zn	66	72	1	No Gas	0.736	ug/l	4069.76
Zn	66	72	3	He	0.828	ug/l	865.59
As	75	72	1	No Gas	-0.630	ug/l	11556.34
As	75	72	3	He	0.048	ug/l	184.33
Se	78	72	2	H2	0.031	ug/l	25.56
Br	79	72	1	No Gas	4.411	ug/l	137851.99
Br	79	72	2	H2	4.852	ug/l	61669.02
Se	82	72	1	No Gas	0.392	ug/l	810.09
Kr	84	72	1	No Gas		ug/l	19777.80
Sr	88	72	1	No Gas	0.029	ug/l	2162.56
Sr	88	72	3	He	0.030	ug/l	501.13
Mo	95	115	1	No Gas	0.022	ug/l	392.23
Mo	95	115	3	He	0.020	ug/l	152.22
Mo	98	115	1	No Gas	0.022	ug/l	605.58
Ag	107	115	1	No Gas	0.010	ug/l	298.79
Ag	109	115	1	No Gas	0.010	ug/l	295.46
Cd	111	115	1	No Gas	0.031	ug/l	156.77

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.028	ug/l	44.22
Cd	114	115	1	No Gas	0.030	ug/l	334.12
Cd	114	115	3	He	0.030	ug/l	116.84
Sn	118	115	1	No Gas	0.230	ug/l	4595.00
Sn	118	115	3	He	0.251	ug/l	1220.06
Sb	121	115	1	No Gas	0.047	ug/l	1155.83
Sb	121	115	3	He	0.049	ug/l	299.37
Sb	123	115	1	No Gas	0.045	ug/l	839.44
Sb	123	115	3	He	0.053	ug/l	249.70
Ba	135	115	1	No Gas	0.031	ug/l	182.97
Ba	137	115	1	No Gas	0.029	ug/l	299.41
La	139	115	3	He	0.026	ug/l	590.01
Ce	140	115	3	He	0.026	ug/l	635.58
Hg	201	209	1	No Gas	0.001	ug/l	15.33
Hg	202	209	1	No Gas	0.000	ug/l	61.66
Hg	202	209	3	He	0.001	ug/l	23.00
Tl	203	209	3	He	0.029	ug/l	304.79
Tl	205	209	1	No Gas	0.026	ug/l	1586.77
Tl	205	209	3	He	0.028	ug/l	717.64
[Pb]	206	209	1	No Gas	0.034	ug/l	702.24
[Pb]	207	209	1	No Gas	0.035	ug/l	634.47
Pb	208	209	1	No Gas	0.033	ug/l	2774.58
Th	232	209	3	He	0.019	ug/l	660.29
U	238	209	1	No Gas	0.025	ug/l	1680.11

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5787787.28	100.6
Sc	45	2	H2	2430256.09	100.5
Sc	45	3	He	318641.98	99.6
Ge	72	1	No Gas	1336197.95	100.7
Ge	72	2	H2	745483.87	99.8
Ge	72	3	He	185723.59	98.9
In	115	1	No Gas	9721660.24	102.5
In	115	3	He	2100395.41	99.5
Tb	159	1	No Gas	13774502.77	102.7
Tb	159	3	He	5475989.02	99.9
Ho	165	1	No Gas	13385410.67	100.7
Ho	165	3	He	5430692.01	99.5
Lu	175	1	No Gas	12910409.85	101.9
Lu	175	3	He	4393646.10	99.4
Bi	209	1	No Gas	8406887.37	102.0
Bi	209	3	He	3646583.63	101.0

ICPMS207-B Analytical Data

Sample Name 0.05 ppb STD
File Name 021CAL5.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 20:14:46
Sample Type CalStd
Total Dilution 1.0000
Comment ICPMS-6020B-Cal
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.749	ug/l	23154.85
Be	9	45	1	No Gas	0.063	ug/l	554.58
B	11	45	1	No Gas	-0.111	ug/l	4126.23
Na	23	45	3	He	19.057	ug/l	63671.71
Mg	24	45	3	He	16.281	ug/l	9088.12
Al	27	45	1	No Gas	0.477	ug/l	17882.96
Si	28	45	2	H2	0.625	ug/l	16655.27
K	39	72	3	He	19.422	ug/l	74284.21
Ca	40	72	2	H2	19.845	ug/l	190746.71
Ti	47	72	1	No Gas	0.094	ug/l	423.76
V	51	72	1	No Gas	-0.255	ug/l	-29251.43
V	51	72	3	He	0.281	ug/l	16339.13
Cr	52	72	1	No Gas	0.113	ug/l	73333.09
Cr	52	72	3	He	0.081	ug/l	778.92
Mn	55	72	1	No Gas	0.091	ug/l	10046.85
Mn	55	72	3	He	0.093	ug/l	435.59
Fe	56	72	2	H2	1.707	ug/l	37284.63
Fe	56	72	3	He	1.741	ug/l	13611.70
Co	59	72	1	No Gas	0.060	ug/l	2325.57
Ni	60	72	1	No Gas	0.081	ug/l	1124.48
Ni	60	72	3	He	0.104	ug/l	298.89
Cu	63	72	1	No Gas	0.117	ug/l	5469.23
Cu	63	72	3	He	0.133	ug/l	948.51
Cu	65	72	1	No Gas	0.117	ug/l	1511.36
Zn	66	72	1	No Gas	0.397	ug/l	2478.96
Zn	66	72	3	He	0.450	ug/l	512.23
As	75	72	1	No Gas	-0.343	ug/l	13192.05
As	75	72	3	He	0.068	ug/l	198.13
Se	78	72	2	H2	0.062	ug/l	39.89
Br	79	72	1	No Gas	3.148	ug/l	126572.13
Br	79	72	2	H2	3.792	ug/l	56825.54
Se	82	72	1	No Gas	0.457	ug/l	848.49
Kr	84	72	1	No Gas		ug/l	20090.98
Sr	88	72	1	No Gas	0.060	ug/l	3719.79
Sr	88	72	3	He	0.073	ug/l	725.61
Mo	95	115	1	No Gas	0.055	ug/l	696.69
Mo	95	115	3	He	0.052	ug/l	253.34
Mo	98	115	1	No Gas	0.058	ug/l	1136.03
Ag	107	115	1	No Gas	0.022	ug/l	582.92
Ag	109	115	1	No Gas	0.024	ug/l	597.59
Cd	111	115	1	No Gas	0.064	ug/l	317.86

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.060	ug/l	93.89
Cd	114	115	1	No Gas	0.062	ug/l	677.70
Cd	114	115	3	He	0.061	ug/l	233.35
Sn	118	115	1	No Gas	0.200	ug/l	4009.32
Sn	118	115	3	He	0.189	ug/l	991.15
Sb	121	115	1	No Gas	0.069	ug/l	1583.92
Sb	121	115	3	He	0.072	ug/l	422.05
Sb	123	115	1	No Gas	0.069	ug/l	1208.17
Sb	123	115	3	He	0.071	ug/l	326.04
Ba	135	115	1	No Gas	0.055	ug/l	282.78
Ba	137	115	1	No Gas	0.057	ug/l	512.33
La	139	115	3	He	0.059	ug/l	1318.96
Ce	140	115	3	He	0.058	ug/l	1414.53
Hg	201	209	1	No Gas	0.001	ug/l	16.33
Hg	202	209	1	No Gas	0.001	ug/l	64.65
Hg	202	209	3	He	0.001	ug/l	22.67
Tl	203	209	3	He	0.058	ug/l	549.57
Tl	205	209	1	No Gas	0.058	ug/l	3041.48
Tl	205	209	3	He	0.058	ug/l	1323.93
[Pb]	206	209	1	No Gas	0.057	ug/l	1082.27
[Pb]	207	209	1	No Gas	0.057	ug/l	935.60
Pb	208	209	1	No Gas	0.056	ug/l	4316.97
Th	232	209	3	He	0.044	ug/l	1391.31
U	238	209	1	No Gas	0.056	ug/l	3708.12

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5774312.93	100.4
Sc	45	2	H2	2407360.93	99.5
Sc	45	3	He	319804.22	99.9
Ge	72	1	No Gas	1367653.67	103.0
Ge	72	2	H2	752635.55	100.8
Ge	72	3	He	185222.91	98.6
In	115	1	No Gas	9550514.63	100.7
In	115	3	He	2115895.02	100.3
Tb	159	1	No Gas	13767072.53	102.6
Tb	159	3	He	5421352.31	98.9
Ho	165	1	No Gas	13476044.11	101.4
Ho	165	3	He	5410520.59	99.2
Lu	175	1	No Gas	12940613.60	102.1
Lu	175	3	He	4420743.45	100.0
Bi	209	1	No Gas	8417264.45	102.1
Bi	209	3	He	3598136.69	99.7

ICPMS207-B Analytical Data

Sample Name 0.10 ppb STD
File Name 022CAL5.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 20:21:25
Sample Type CalStd
Total Dilution 1.0000
Comment ICPMS-6020B-Cal
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.463	ug/l	34839.06
Be	9	45	1	No Gas	0.111	ug/l	833.52
B	11	45	1	No Gas	-0.039	ug/l	4326.36
Na	23	45	3	He	32.392	ug/l	75595.29
Mg	24	45	3	He	32.405	ug/l	17588.75
Al	27	45	1	No Gas	0.530	ug/l	19156.91
Si	28	45	2	H2	1.271	ug/l	18006.75
K	39	72	3	He	33.053	ug/l	81967.53
Ca	40	72	2	H2	36.294	ug/l	305639.18
Ti	47	72	1	No Gas	0.145	ug/l	547.23
V	51	72	1	No Gas	-0.718	ug/l	-42552.32
V	51	72	3	He	0.383	ug/l	16937.54
Cr	52	72	1	No Gas	0.304	ug/l	77469.55
Cr	52	72	3	He	0.119	ug/l	983.37
Mn	55	72	1	No Gas	0.135	ug/l	11531.71
Mn	55	72	3	He	0.157	ug/l	663.21
Fe	56	72	2	H2	3.382	ug/l	61576.92
Fe	56	72	3	He	3.310	ug/l	20870.91
Co	59	72	1	No Gas	0.114	ug/l	4035.92
Ni	60	72	1	No Gas	0.128	ug/l	1437.22
Ni	60	72	3	He	0.154	ug/l	393.34
Cu	63	72	1	No Gas	0.188	ug/l	6533.42
Cu	63	72	3	He	0.195	ug/l	1266.47
Cu	65	72	1	No Gas	0.174	ug/l	1941.58
Zn	66	72	1	No Gas	0.453	ug/l	2698.51
Zn	66	72	3	He	0.468	ug/l	535.57
As	75	72	1	No Gas	-0.109	ug/l	14134.62
As	75	72	3	He	0.128	ug/l	241.93
Se	78	72	2	H2	0.132	ug/l	70.45
Br	79	72	1	No Gas	4.775	ug/l	141212.00
Br	79	72	2	H2	5.518	ug/l	64428.28
Se	82	72	1	No Gas	0.985	ug/l	997.98
Kr	84	72	1	No Gas		ug/l	20843.76
Sr	88	72	1	No Gas	0.123	ug/l	6578.47
Sr	88	72	3	He	0.111	ug/l	930.04
Mo	95	115	1	No Gas	0.105	ug/l	1197.84
Mo	95	115	3	He	0.114	ug/l	435.56
Mo	98	115	1	No Gas	0.103	ug/l	1873.41
Ag	107	115	1	No Gas	0.044	ug/l	1112.49
Ag	109	115	1	No Gas	0.046	ug/l	1127.17
Cd	111	115	1	No Gas	0.115	ug/l	584.55

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.122	ug/l	183.67
Cd	114	115	1	No Gas	0.116	ug/l	1298.64
Cd	114	115	3	He	0.120	ug/l	442.65
Sn	118	115	1	No Gas	0.220	ug/l	4398.66
Sn	118	115	3	He	0.254	ug/l	1218.95
Sb	121	115	1	No Gas	0.122	ug/l	2764.22
Sb	121	115	3	He	0.130	ug/l	708.09
Sb	123	115	1	No Gas	0.121	ug/l	2064.03
Sb	123	115	3	He	0.130	ug/l	560.73
Ba	135	115	1	No Gas	0.118	ug/l	592.17
Ba	137	115	1	No Gas	0.115	ug/l	1004.72
La	139	115	3	He	0.120	ug/l	2586.93
Ce	140	115	3	He	0.124	ug/l	2913.66
Hg	201	209	1	No Gas	0.002	ug/l	18.00
Hg	202	209	1	No Gas	0.002	ug/l	70.65
Hg	202	209	3	He	0.002	ug/l	23.33
Tl	203	209	3	He	0.116	ug/l	1027.79
Tl	205	209	1	No Gas	0.117	ug/l	5824.63
Tl	205	209	3	He	0.115	ug/l	2468.56
[Pb]	206	209	1	No Gas	0.111	ug/l	1947.94
[Pb]	207	209	1	No Gas	0.113	ug/l	1739.02
Pb	208	209	1	No Gas	0.112	ug/l	7949.89
Th	232	209	3	He	0.088	ug/l	2651.34
U	238	209	1	No Gas	0.107	ug/l	7114.85

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5677489.65	98.7
Sc	45	2	H2	2412200.14	99.7
Sc	45	3	He	319336.29	99.8
Ge	72	1	No Gas	1331053.49	100.3
Ge	72	2	H2	738653.59	98.9
Ge	72	3	He	188038.00	100.1
In	115	1	No Gas	9622859.33	101.5
In	115	3	He	2090924.93	99.1
Tb	159	1	No Gas	13494164.73	100.6
Tb	159	3	He	5491392.61	100.1
Ho	165	1	No Gas	13387993.56	100.7
Ho	165	3	He	5422120.58	99.4
Lu	175	1	No Gas	12863492.83	101.5
Lu	175	3	He	4413883.78	99.8
Bi	209	1	No Gas	8375705.87	101.6
Bi	209	3	He	3589670.77	99.4

ICPMS207-B Analytical Data

Sample Name 0.5 ppb STD
File Name 023CAL.S.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 20:28:03
Sample Type CalStd
Total Dilution 1.0000
Comment ICPMS-6020B-Cal
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	6.780	ug/l	125213.11
Be	9	45	1	No Gas	0.517	ug/l	3216.70
B	11	45	1	No Gas	0.294	ug/l	5442.50
Na	23	45	3	He	142.286	ug/l	187277.91
Mg	24	45	3	He	144.672	ug/l	79832.70
Al	27	45	1	No Gas	0.956	ug/l	30748.21
Si	28	45	2	H2	2.972	ug/l	21588.50
K	39	72	3	He	142.834	ug/l	139295.41
Ca	40	72	2	H2	149.975	ug/l	1164469.76
Ti	47	72	1	No Gas	0.555	ug/l	1601.70
V	51	72	1	No Gas	-0.496	ug/l	-35756.74
V	51	72	3	He	0.434	ug/l	17225.67
Cr	52	72	1	No Gas	0.578	ug/l	86745.22
Cr	52	72	3	He	0.584	ug/l	3383.74
Mn	55	72	1	No Gas	0.568	ug/l	28934.51
Mn	55	72	3	He	0.612	ug/l	2260.72
Fe	56	72	2	H2	14.962	ug/l	242762.66
Fe	56	72	3	He	15.061	ug/l	74745.55
Co	59	72	1	No Gas	0.550	ug/l	18398.48
Ni	60	72	1	No Gas	0.579	ug/l	4688.12
Ni	60	72	3	He	0.644	ug/l	1313.40
Cu	63	72	1	No Gas	0.637	ug/l	14277.35
Cu	63	72	3	He	0.664	ug/l	3596.39
Cu	65	72	1	No Gas	0.629	ug/l	5699.41
Zn	66	72	1	No Gas	1.074	ug/l	5752.91
Zn	66	72	3	He	1.212	ug/l	1232.28
As	75	72	1	No Gas	0.085	ug/l	15292.79
As	75	72	3	He	0.552	ug/l	544.93
Se	78	72	2	H2	0.599	ug/l	289.23
Br	79	72	1	No Gas	3.846	ug/l	132992.69
Br	79	72	2	H2	4.249	ug/l	60168.89
Se	82	72	1	No Gas	0.672	ug/l	909.57
Kr	84	72	1	No Gas		ug/l	20137.62
Sr	88	72	1	No Gas	0.543	ug/l	26611.91
Sr	88	72	3	He	0.540	ug/l	3191.48
Mo	95	115	1	No Gas	0.497	ug/l	5057.59
Mo	95	115	3	He	0.511	ug/l	1689.00
Mo	98	115	1	No Gas	0.511	ug/l	8331.58
Ag	107	115	1	No Gas	0.210	ug/l	5206.39
Ag	109	115	1	No Gas	0.209	ug/l	4989.56
Cd	111	115	1	No Gas	0.526	ug/l	2719.26

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.550	ug/l	844.80
Cd	114	115	1	No Gas	0.527	ug/l	6029.05
Cd	114	115	3	He	0.550	ug/l	2074.52
Sn	118	115	1	No Gas	0.684	ug/l	11541.86
Sn	118	115	3	He	0.712	ug/l	3015.89
Sb	121	115	1	No Gas	0.520	ug/l	11414.76
Sb	121	115	3	He	0.539	ug/l	2895.92
Sb	123	115	1	No Gas	0.523	ug/l	8675.55
Sb	123	115	3	He	0.548	ug/l	2307.76
Ba	135	115	1	No Gas	0.480	ug/l	2345.56
Ba	137	115	1	No Gas	0.486	ug/l	4129.10
La	139	115	3	He	0.535	ug/l	11899.60
Ce	140	115	3	He	0.523	ug/l	12692.51
Hg	201	209	1	No Gas	0.009	ug/l	41.66
Hg	202	209	1	No Gas	0.008	ug/l	119.98
Hg	202	209	3	He	0.008	ug/l	43.66
Tl	203	209	3	He	0.524	ug/l	4551.94
Tl	205	209	1	No Gas	0.517	ug/l	24839.87
Tl	205	209	3	He	0.520	ug/l	10850.10
[Pb]	206	209	1	No Gas	0.511	ug/l	8518.33
[Pb]	207	209	1	No Gas	0.499	ug/l	7342.07
Pb	208	209	1	No Gas	0.506	ug/l	34164.13
Th	232	209	3	He	0.467	ug/l	13814.82
U	238	209	1	No Gas	0.500	ug/l	33577.93

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5799446.93	100.8
Sc	45	2	H2	2430976.94	100.5
Sc	45	3	He	323194.36	101.0
Ge	72	1	No Gas	1348852.11	101.6
Ge	72	2	H2	765428.21	102.5
Ge	72	3	He	187290.50	99.7
In	115	1	No Gas	9759134.24	102.9
In	115	3	He	2125327.46	100.7
Tb	159	1	No Gas	13718420.96	102.3
Tb	159	3	He	5602020.94	102.2
Ho	165	1	No Gas	13569835.61	102.1
Ho	165	3	He	5557083.50	101.8
Lu	175	1	No Gas	12990675.53	102.5
Lu	175	3	He	4518926.99	102.2
Bi	209	1	No Gas	8477029.60	102.9
Bi	209	3	He	3619387.95	100.2

ICPMS207-B Analytical Data

Sample Name 1 ppb STD
File Name 024CAL.S.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 20:34:42
Sample Type CalStd
Total Dilution 1.0000
Comment ICPMS-6020B-Cal
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	14.273	ug/l	254398.73
Be	9	45	1	No Gas	1.113	ug/l	6764.16
B	11	45	1	No Gas	0.930	ug/l	7480.86
Na	23	45	3	He	297.867	ug/l	345738.82
Mg	24	45	3	He	307.951	ug/l	171287.36
Al	27	45	1	No Gas	1.630	ug/l	48992.92
Si	28	45	2	H2	5.338	ug/l	26429.88
K	39	72	3	He	292.838	ug/l	221951.65
Ca	40	72	2	H2	309.305	ug/l	2338635.51
Ti	47	72	1	No Gas	1.214	ug/l	3302.03
V	51	72	1	No Gas	-0.238	ug/l	-27444.14
V	51	72	3	He	0.777	ug/l	19209.20
Cr	52	72	1	No Gas	1.186	ug/l	105493.59
Cr	52	72	3	He	1.197	ug/l	6683.77
Mn	55	72	1	No Gas	1.178	ug/l	53440.66
Mn	55	72	3	He	1.195	ug/l	4395.45
Fe	56	72	2	H2	31.737	ug/l	499039.03
Fe	56	72	3	He	31.231	ug/l	151961.79
Co	59	72	1	No Gas	1.151	ug/l	38277.43
Ni	60	72	1	No Gas	1.185	ug/l	9088.16
Ni	60	72	3	He	1.274	ug/l	2546.91
Cu	63	72	1	No Gas	1.261	ug/l	25037.42
Cu	63	72	3	He	1.323	ug/l	7016.28
Cu	65	72	1	No Gas	1.235	ug/l	10723.57
Zn	66	72	1	No Gas	1.508	ug/l	7892.82
Zn	66	72	3	He	1.540	ug/l	1573.43
As	75	72	1	No Gas	0.845	ug/l	19232.21
As	75	72	3	He	1.164	ug/l	1001.61
Se	78	72	2	H2	1.225	ug/l	575.46
Br	79	72	1	No Gas	3.349	ug/l	128174.07
Br	79	72	2	H2	3.371	ug/l	55248.86
Se	82	72	1	No Gas	1.044	ug/l	1035.18
Kr	84	72	1	No Gas		ug/l	20397.36
Sr	88	72	1	No Gas	1.138	ug/l	55106.34
Sr	88	72	3	He	1.161	ug/l	6607.11
Mo	95	115	1	No Gas	1.042	ug/l	10454.99
Mo	95	115	3	He	1.107	ug/l	3606.04
Mo	98	115	1	No Gas	1.068	ug/l	17226.86
Ag	107	115	1	No Gas	0.442	ug/l	10931.94
Ag	109	115	1	No Gas	0.440	ug/l	10468.08
Cd	111	115	1	No Gas	1.106	ug/l	5755.14

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	1.190	ug/l	1854.79
Cd	114	115	1	No Gas	1.107	ug/l	12754.03
Cd	114	115	3	He	1.164	ug/l	4461.61
Sn	118	115	1	No Gas	1.206	ug/l	19631.40
Sn	118	115	3	He	1.253	ug/l	5194.32
Sb	121	115	1	No Gas	1.085	ug/l	23785.72
Sb	121	115	3	He	1.113	ug/l	6028.90
Sb	123	115	1	No Gas	1.080	ug/l	17905.51
Sb	123	115	3	He	1.123	ug/l	4767.96
Ba	135	115	1	No Gas	1.065	ug/l	5180.71
Ba	137	115	1	No Gas	1.063	ug/l	9011.74
La	139	115	3	He	1.196	ug/l	27006.42
Ce	140	115	3	He	1.124	ug/l	27698.75
Hg	201	209	1	No Gas	0.021	ug/l	77.98
Hg	202	209	1	No Gas	0.023	ug/l	224.96
Hg	202	209	3	He	0.025	ug/l	93.65
Tl	203	209	3	He	1.092	ug/l	9660.05
Tl	205	209	1	No Gas	1.068	ug/l	51668.67
Tl	205	209	3	He	1.073	ug/l	22777.23
[Pb]	206	209	1	No Gas	1.074	ug/l	17996.62
[Pb]	207	209	1	No Gas	1.056	ug/l	15631.42
Pb	208	209	1	No Gas	1.059	ug/l	71882.99
Th	232	209	3	He	1.004	ug/l	30275.57
U	238	209	1	No Gas	1.057	ug/l	72047.58

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5867212.91	102.0
Sc	45	2	H2	2432576.70	100.6
Sc	45	3	He	326266.07	101.9
Ge	72	1	No Gas	1355223.84	102.1
Ge	72	2	H2	760929.55	101.9
Ge	72	3	He	191294.62	101.9
In	115	1	No Gas	9826855.56	103.6
In	115	3	He	2160516.72	102.4
Tb	159	1	No Gas	14017996.88	104.5
Tb	159	3	He	5739100.72	104.7
Ho	165	1	No Gas	13698059.77	103.0
Ho	165	3	He	5660852.53	103.7
Lu	175	1	No Gas	13226649.10	104.4
Lu	175	3	He	4567764.58	103.3
Bi	209	1	No Gas	8606727.78	104.4
Bi	209	3	He	3706330.98	102.7

ICPMS207-B Analytical Data

Sample Name 10 ppb STD
File Name 025CAL5.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 20:41:19
Sample Type CalStd
Total Dilution 1.0000
Comment ICPMS-6020B-Cal
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	131.265	ug/l	2266354.51
Be	9	45	1	No Gas	10.327	ug/l	61536.06
B	11	45	1	No Gas	10.249	ug/l	36749.77
Na	23	45	3	He	2776.132	ug/l	2893451.03
Mg	24	45	3	He	2814.284	ug/l	1592280.35
Al	27	45	1	No Gas	10.928	ug/l	297954.70
Si	28	45	2	H2	42.100	ug/l	104200.30
K	39	72	3	He	2706.548	ug/l	1530076.32
Ca	40	72	2	H2	2807.241	ug/l	21504774.85
Ti	47	72	1	No Gas	10.895	ug/l	28236.99
V	51	72	1	No Gas	9.638	ug/l	304629.50
V	51	72	3	He	9.645	ug/l	61985.12
Cr	52	72	1	No Gas	10.367	ug/l	383687.19
Cr	52	72	3	He	10.703	ug/l	57751.56
Mn	55	72	1	No Gas	10.749	ug/l	437184.71
Mn	55	72	3	He	10.959	ug/l	40032.17
Fe	56	72	2	H2	289.793	ug/l	4602383.31
Fe	56	72	3	He	289.681	ug/l	1384080.00
Co	59	72	1	No Gas	10.969	ug/l	362759.72
Ni	60	72	1	No Gas	11.246	ug/l	81882.18
Ni	60	72	3	He	11.568	ug/l	22637.53
Cu	63	72	1	No Gas	11.260	ug/l	196904.35
Cu	63	72	3	He	11.421	ug/l	59247.67
Cu	65	72	1	No Gas	11.162	ug/l	92867.03
Zn	66	72	1	No Gas	11.194	ug/l	55276.04
Zn	66	72	3	He	11.453	ug/l	11255.52
As	75	72	1	No Gas	10.060	ug/l	66451.90
As	75	72	3	He	10.665	ug/l	8046.86
Se	78	72	2	H2	11.338	ug/l	5388.89
Br	79	72	1	No Gas	3.535	ug/l	130637.20
Br	79	72	2	H2	3.649	ug/l	58458.57
Se	82	72	1	No Gas	11.314	ug/l	4392.70
Kr	84	72	1	No Gas		ug/l	23855.91
Sr	88	72	1	No Gas	10.701	ug/l	512592.44
Sr	88	72	3	He	10.617	ug/l	58507.55
Mo	95	115	1	No Gas	10.026	ug/l	100227.49
Mo	95	115	3	He	10.409	ug/l	33440.22
Mo	98	115	1	No Gas	10.162	ug/l	163577.89
Ag	107	115	1	No Gas	4.056	ug/l	101157.98
Ag	109	115	1	No Gas	4.117	ug/l	98736.07
Cd	111	115	1	No Gas	10.339	ug/l	54431.35

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	10.973	ug/l	17240.78
Cd	114	115	1	No Gas	10.470	ug/l	122070.01
Cd	114	115	3	He	10.872	ug/l	42032.63
Sn	118	115	1	No Gas	10.166	ug/l	159120.60
Sn	118	115	3	He	10.504	ug/l	41951.24
Sb	121	115	1	No Gas	10.084	ug/l	222594.25
Sb	121	115	3	He	10.401	ug/l	56458.14
Sb	123	115	1	No Gas	10.148	ug/l	169370.13
Sb	123	115	3	He	10.460	ug/l	44543.64
Ba	135	115	1	No Gas	10.040	ug/l	49242.83
Ba	137	115	1	No Gas	10.055	ug/l	85813.69
La	139	115	3	He	10.545	ug/l	240286.64
Ce	140	115	3	He	10.419	ug/l	259102.34
Hg	201	209	1	No Gas	0.194	ug/l	619.56
Hg	202	209	1	No Gas	0.198	ug/l	1472.13
Hg	202	209	3	He	0.201	ug/l	632.89
Tl	203	209	3	He	10.275	ug/l	90673.07
Tl	205	209	1	No Gas	10.258	ug/l	491783.04
Tl	205	209	3	He	10.278	ug/l	217345.80
[Pb]	206	209	1	No Gas	10.178	ug/l	168723.82
[Pb]	207	209	1	No Gas	10.033	ug/l	146896.20
Pb	208	209	1	No Gas	10.105	ug/l	678127.53
Th	232	209	3	He	9.884	ug/l	297807.25
U	238	209	1	No Gas	10.090	ug/l	685761.09

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5916763.14	102.8
Sc	45	2	H2	2501714.19	103.4
Sc	45	3	He	332252.96	103.8
Ge	72	1	No Gas	1359264.94	102.4
Ge	72	2	H2	784431.95	105.1
Ge	72	3	He	194605.30	103.6
In	115	1	No Gas	9936020.01	104.8
In	115	3	He	2181185.88	103.4
Tb	159	1	No Gas	14198093.01	105.8
Tb	159	3	He	5707076.56	104.1
Ho	165	1	No Gas	13963057.98	105.0
Ho	165	3	He	5633783.43	103.2
Lu	175	1	No Gas	13358764.23	105.4
Lu	175	3	He	4633261.33	104.8
Bi	209	1	No Gas	8580857.52	104.1
Bi	209	3	He	3715304.27	102.9

ICPMS207-B Analytical Data

Sample Name 50 ppb STD
File Name 026CAL.S.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 20:47:56
Sample Type CalStd
Total Dilution 1.0000
Comment ICPMS-6020B-Cal
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	599.300	ug/l	1005931.58
Be	9	45	1	No Gas	48.093	ug/l	278989.14
B	11	45	1	No Gas	49.554	ug/l	156147.88
Na	23	45	3	He	12736.100	ug/l	13097344.53
Mg	24	45	3	He	12652.909	ug/l	7152971.07
Al	27	45	1	No Gas	49.476	ug/l	1297170.24
Si	28	45	2	H2	203.227	ug/l	426235.99
K	39	72	3	He	12496.254	ug/l	6806255.52
Ca	40	72	2	H2	12640.395	ug/l	95304694.67
Ti	47	72	1	No Gas	50.464	ug/l	129304.07
V	51	72	1	No Gas	45.568	ug/l	1501805.70
V	51	72	3	He	48.575	ug/l	247827.41
Cr	52	72	1	No Gas	49.262	ug/l	1551088.55
Cr	52	72	3	He	50.009	ug/l	267869.07
Mn	55	72	1	No Gas	48.719	ug/l	1945603.21
Mn	55	72	3	He	51.270	ug/l	186440.06
Fe	56	72	2	H2	1311.324	ug/l	20489438.30
Fe	56	72	3	He	1317.458	ug/l	6260350.70
Co	59	72	1	No Gas	49.132	ug/l	1613311.48
Ni	60	72	1	No Gas	50.633	ug/l	364556.47
Ni	60	72	3	He	52.352	ug/l	101838.12
Cu	63	72	1	No Gas	50.927	ug/l	873025.45
Cu	63	72	3	He	52.400	ug/l	270154.46
Cu	65	72	1	No Gas	50.754	ug/l	417739.38
Zn	66	72	1	No Gas	49.759	ug/l	242292.18
Zn	66	72	3	He	51.871	ug/l	50521.78
As	75	72	1	No Gas	48.894	ug/l	263465.79
As	75	72	3	He	50.290	ug/l	37283.94
Se	78	72	2	H2	52.216	ug/l	24421.59
Br	79	72	1	No Gas	1.399	ug/l	106279.54
Br	79	72	2	H2	0.856	ug/l	42921.94
Se	82	72	1	No Gas	51.712	ug/l	17468.95
Kr	84	72	1	No Gas		ug/l	34979.64
Sr	88	72	1	No Gas	49.081	ug/l	2334164.31
Sr	88	72	3	He	49.891	ug/l	273042.09
Mo	95	115	1	No Gas	48.395	ug/l	465508.80
Mo	95	115	3	He	50.166	ug/l	156348.49
Mo	98	115	1	No Gas	48.785	ug/l	755835.33
Ag	107	115	1	No Gas	19.598	ug/l	470866.54
Ag	109	115	1	No Gas	19.545	ug/l	451631.23
Cd	111	115	1	No Gas	49.369	ug/l	250502.43

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.913	ug/l	79296.14
Cd	114	115	1	No Gas	50.134	ug/l	563389.94
Cd	114	115	3	He	51.587	ug/l	193912.83
Sn	118	115	1	No Gas	49.505	ug/l	742725.06
Sn	118	115	3	He	50.311	ug/l	194343.66
Sb	121	115	1	No Gas	48.845	ug/l	1038626.03
Sb	121	115	3	He	49.826	ug/l	262779.06
Sb	123	115	1	No Gas	48.897	ug/l	786079.76
Sb	123	115	3	He	49.898	ug/l	206487.25
Ba	135	115	1	No Gas	48.853	ug/l	230812.85
Ba	137	115	1	No Gas	49.087	ug/l	403602.89
La	139	115	3	He	51.001	ug/l	1129756.12
Ce	140	115	3	He	51.251	ug/l	1239102.51
Hg	201	209	1	No Gas	0.961	ug/l	2906.07
Hg	202	209	1	No Gas	0.969	ug/l	6710.35
Hg	202	209	3	He	0.991	ug/l	2949.41
Tl	203	209	3	He	49.128	ug/l	418416.82
Tl	205	209	1	No Gas	47.412	ug/l	2189898.66
Tl	205	209	3	He	49.571	ug/l	1011644.39
[Pb]	206	209	1	No Gas	48.571	ug/l	775633.64
[Pb]	207	209	1	No Gas	48.083	ug/l	678152.70
Pb	208	209	1	No Gas	47.986	ug/l	3101497.20
Th	232	209	3	He	49.132	ug/l	1428917.68
U	238	209	1	No Gas	47.014	ug/l	3080099.53

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5769540.60	100.3
Sc	45	2	H2	2414017.72	99.8
Sc	45	3	He	332035.61	103.8
Ge	72	1	No Gas	1351263.99	101.8
Ge	72	2	H2	773425.20	103.6
Ge	72	3	He	194219.89	103.4
In	115	1	No Gas	9576936.61	101.0
In	115	3	He	2120362.79	100.5
Tb	159	1	No Gas	13855851.51	103.3
Tb	159	3	He	5635582.94	102.8
Ho	165	1	No Gas	13560631.30	102.0
Ho	165	3	He	5494997.67	100.7
Lu	175	1	No Gas	13102933.41	103.4
Lu	175	3	He	4486590.34	101.5
Bi	209	1	No Gas	8271902.84	100.4
Bi	209	3	He	3587175.01	99.4

ICPMS207-B Analytical Data

Sample Name 100 ppb STD
File Name 027CAL.S.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 20:54:33
Sample Type CalStd
Total Dilution 1.0000
Comment ICPMS-6020B-Cal
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1250.362	ug/l	20278162.30
Be	9	45	1	No Gas	99.967	ug/l	559988.13
B	11	45	1	No Gas	102.100	ug/l	306249.69
Na	23	45	3	He	24942.270	ug/l	25602550.45
Mg	24	45	3	He	24969.378	ug/l	14113274.75
Al	27	45	1	No Gas	99.902	ug/l	2525610.66
Si	28	45	2	H2	398.157	ug/l	814237.27
K	39	72	3	He	24637.633	ug/l	13387654.80
Ca	40	72	2	H2	25093.001	ug/l	187512480.88
Ti	47	72	1	No Gas	99.676	ug/l	256806.45
V	51	72	1	No Gas	91.526	ug/l	3060863.51
V	51	72	3	He	95.899	ug/l	475088.22
Cr	52	72	1	No Gas	96.618	ug/l	2994120.25
Cr	52	72	3	He	98.161	ug/l	526773.02
Mn	55	72	1	No Gas	94.992	ug/l	3816248.74
Mn	55	72	3	He	99.778	ug/l	363685.38
Fe	56	72	2	H2	2613.837	ug/l	40481543.03
Fe	56	72	3	He	2559.720	ug/l	12189452.67
Co	59	72	1	No Gas	97.229	ug/l	3213545.57
Ni	60	72	1	No Gas	100.198	ug/l	725279.03
Ni	60	72	3	He	102.984	ug/l	200748.63
Cu	63	72	1	No Gas	97.744	ug/l	1682323.33
Cu	63	72	3	He	101.485	ug/l	524298.89
Cu	65	72	1	No Gas	99.750	ug/l	825398.81
Zn	66	72	1	No Gas	99.083	ug/l	484734.30
Zn	66	72	3	He	101.477	ug/l	98991.22
As	75	72	1	No Gas	97.674	ug/l	514599.59
As	75	72	3	He	98.934	ug/l	73384.53
Se	78	72	2	H2	102.408	ug/l	47474.80
Br	79	72	1	No Gas	4.775	ug/l	144225.83
Br	79	72	2	H2	4.978	ug/l	64077.52
Se	82	72	1	No Gas	101.616	ug/l	33858.79
Kr	84	72	1	No Gas		ug/l	51152.32
Sr	88	72	1	No Gas	97.020	ug/l	4639559.85
Sr	88	72	3	He	97.026	ug/l	532033.96
Mo	95	115	1	No Gas	100.799	ug/l	926842.71
Mo	95	115	3	He	99.875	ug/l	307416.55
Mo	98	115	1	No Gas	100.591	ug/l	1487674.14
Ag	107	115	1	No Gas	40.195	ug/l	923040.51
Ag	109	115	1	No Gas	40.215	ug/l	888049.99
Cd	111	115	1	No Gas	101.982	ug/l	494442.12

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	102.454	ug/l	154616.14
Cd	114	115	1	No Gas	104.190	ug/l	1118549.84
Cd	114	115	3	He	102.230	ug/l	379654.73
Sn	118	115	1	No Gas	100.227	ug/l	1434984.60
Sn	118	115	3	He	99.790	ug/l	380602.30
Sb	121	115	1	No Gas	100.568	ug/l	2041216.47
Sb	121	115	3	He	100.046	ug/l	521259.23
Sb	123	115	1	No Gas	100.536	ug/l	1544231.75
Sb	123	115	3	He	100.004	ug/l	408848.14
Ba	135	115	1	No Gas	100.588	ug/l	453626.35
Ba	137	115	1	No Gas	102.123	ug/l	800629.32
La	139	115	3	He	99.443	ug/l	2176488.37
Ce	140	115	3	He	99.331	ug/l	2372713.44
Hg	201	209	1	No Gas	2.020	ug/l	5757.43
Hg	202	209	1	No Gas	2.016	ug/l	13142.83
Hg	202	209	3	He	2.004	ug/l	5714.08
Tl	203	209	3	He	99.612	ug/l	815343.75
Tl	205	209	1	No Gas	99.172	ug/l	4329750.59
Tl	205	209	3	He	98.826	ug/l	1938032.50
[Pb]	206	209	1	No Gas	100.837	ug/l	1520972.20
[Pb]	207	209	1	No Gas	101.020	ug/l	1346944.30
Pb	208	209	1	No Gas	99.915	ug/l	6104873.54
Th	232	209	3	He	97.692	ug/l	2730624.94
U	238	209	1	No Gas	99.256	ug/l	6145576.14

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5626081.73	97.8
Sc	45	2	H2	2396510.11	99.1
Sc	45	3	He	331959.20	103.7
Ge	72	1	No Gas	1366013.33	102.9
Ge	72	2	H2	766834.34	102.7
Ge	72	3	He	194705.07	103.7
In	115	1	No Gas	9274421.66	97.8
In	115	3	He	2095080.23	99.3
Tb	159	1	No Gas	13375314.95	99.7
Tb	159	3	He	5485541.70	100.0
Ho	165	1	No Gas	13283777.06	99.9
Ho	165	3	He	5479093.43	100.4
Lu	175	1	No Gas	12875642.06	101.6
Lu	175	3	He	4508218.06	102.0
Bi	209	1	No Gas	7923331.57	96.1
Bi	209	3	He	3447515.72	95.5

ICPMS207-B Analytical Data

Sample Name 1000 ppb STD
File Name 028CAL.S.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 21:01:04
Sample Type CalStd
Total Dilution 1.0000
Comment ICPMS-6020B-Cal
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	2505.920	ug/l	40321655.40
Be	9	45	1	No Gas	1000.095	ug/l	5560713.26
B	11	45	1	No Gas	999.810	ug/l	2939160.62
Na	23	45	3	He	49955.744	ug/l	50081917.59
Mg	24	45	3	He	49961.026	ug/l	27605619.27
Al	27	45	1	No Gas	1000.026	ug/l	25037904.35
Si	28	45	2	H2	2.447	ug/l	19808.35
K	39	72	3	He	50171.528	ug/l	26122509.33
Ca	40	72	2	H2	49902.671	ug/l	362347361.26
Ti	47	72	1	No Gas	6.431	ug/l	15836.20
V	51	72	1	No Gas	1001.074	ug/l	31808362.39
V	51	72	3	He	1000.485	ug/l	4617148.30
Cr	52	72	1	No Gas	1000.371	ug/l	28700302.64
Cr	52	72	3	He	1000.176	ug/l	5152215.86
Mn	55	72	1	No Gas	1000.557	ug/l	37900807.28
Mn	55	72	3	He	999.949	ug/l	3500209.84
Fe	56	72	2	H2	5990.230	ug/l	90163292.62
Fe	56	72	3	He	6012.359	ug/l	27495258.66
Co	59	72	1	No Gas	1000.311	ug/l	31261833.39
Ni	60	72	1	No Gas	999.936	ug/l	6845011.40
Ni	60	72	3	He	999.568	ug/l	1870695.30
Cu	63	72	1	No Gas	1000.166	ug/l	16248381.81
Cu	63	72	3	He	999.717	ug/l	4958542.58
Cu	65	72	1	No Gas	999.975	ug/l	7821000.80
Zn	66	72	1	No Gas	1000.091	ug/l	4622926.07
Zn	66	72	3	He	999.743	ug/l	935988.62
As	75	72	1	No Gas	1000.288	ug/l	4853176.43
As	75	72	3	He	1000.085	ug/l	711238.93
Se	78	72	2	H2	999.635	ug/l	450452.83
Br	79	72	1	No Gas	6.002	ug/l	149019.78
Br	79	72	2	H2	6.402	ug/l	69528.39
Se	82	72	1	No Gas	999.739	ug/l	309403.23
Kr	84	72	1	No Gas		ug/l	302929.36
Sr	88	72	1	No Gas	1000.337	ug/l	45231671.57
Sr	88	72	3	He	1000.296	ug/l	5265926.69
Mo	95	115	1	No Gas	0.140	ug/l	1431.19
Mo	95	115	3	He	0.071	ug/l	298.90
Mo	98	115	1	No Gas	0.110	ug/l	1836.41
Ag	107	115	1	No Gas	383.184	ug/l	8641620.03
Ag	109	115	1	No Gas	338.905	ug/l	7340356.47
Cd	111	115	1	No Gas	999.830	ug/l	4762893.74

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	999.649	ug/l	1456115.68
Cd	114	115	1	No Gas	999.569	ug/l	10549355.89
Cd	114	115	3	He	999.689	ug/l	3583505.26
Sn	118	115	1	No Gas	0.395	ug/l	6555.21
Sn	118	115	3	He	0.383	ug/l	1659.00
Sb	121	115	1	No Gas	0.375	ug/l	7599.82
Sb	121	115	3	He	0.290	ug/l	1500.90
Sb	123	115	1	No Gas	0.398	ug/l	6096.61
Sb	123	115	3	He	0.293	ug/l	1191.17
Ba	135	115	1	No Gas	999.998	ug/l	4436043.91
Ba	137	115	1	No Gas	999.833	ug/l	7717953.36
La	139	115	3	He	0.009	ug/l	204.45
Ce	140	115	3	He	0.026	ug/l	596.68
Hg	201	209	1	No Gas	0.011	ug/l	40.99
Hg	202	209	1	No Gas	0.009	ug/l	112.98
Hg	202	209	3	He	0.011	ug/l	47.32
Tl	203	209	3	He	1000.080	ug/l	7859402.41
Tl	205	209	1	No Gas	1000.210	ug/l	42014479.65
Tl	205	209	3	He	1000.136	ug/l	18831689.74
[Pb]	206	209	1	No Gas	999.986	ug/l	14524482.56
[Pb]	207	209	1	No Gas	999.994	ug/l	12827022.45
Pb	208	209	1	No Gas	1000.108	ug/l	58802865.37
Th	232	209	3	He	1000.275	ug/l	26844294.10
U	238	209	1	No Gas	1000.223	ug/l	59601996.96

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5539359.13	96.3
Sc	45	2	H2	2346563.86	97.0
Sc	45	3	He	324520.78	101.4
Ge	72	1	No Gas	1285972.19	96.9
Ge	72	2	H2	745419.52	99.8
Ge	72	3	He	187053.63	99.6
In	115	1	No Gas	9010413.37	95.0
In	115	3	He	2022434.19	95.9
Tb	159	1	No Gas	13317482.95	99.3
Tb	159	3	He	5413347.32	98.7
Ho	165	1	No Gas	13031286.04	98.0
Ho	165	3	He	5357602.62	98.2
Lu	175	1	No Gas	12478162.83	98.5
Lu	175	3	He	4414896.77	99.8
Bi	209	1	No Gas	7531723.05	91.4
Bi	209	3	He	3309932.36	91.7

ICPMS207-B Analytical Data

Sample Name 100 ppb Br STD
File Name 029CAL.S.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 21:07:30
Sample Type CalStd
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	3.352	ug/l	66027.24
Be	9	45	1	No Gas	0.038	ug/l	418.92
B	11	45	1	No Gas	11.152	ug/l	37995.49
Na	23	45	3	He	5.657	ug/l	51162.13
Mg	24	45	3	He	0.555	ug/l	528.97
Al	27	45	1	No Gas	0.368	ug/l	15012.15
Si	28	45	2	H2	3.933	ug/l	23684.28
K	39	72	3	He	740.676	ug/l	460070.35
Ca	40	72	2	H2	6.012	ug/l	89816.51
Ti	47	72	1	No Gas	0.290	ug/l	917.62
V	51	72	1	No Gas	-0.734	ug/l	-44165.21
V	51	72	3	He	-1.001	ug/l	10850.69
Cr	52	72	1	No Gas	-0.005	ug/l	68797.08
Cr	52	72	3	He	0.014	ug/l	451.12
Mn	55	72	1	No Gas	0.079	ug/l	9414.40
Mn	55	72	3	He	0.016	ug/l	174.97
Fe	56	72	2	H2	0.656	ug/l	21422.13
Fe	56	72	3	He	0.619	ug/l	8821.55
Co	59	72	1	No Gas	0.009	ug/l	632.10
Ni	60	72	1	No Gas	0.040	ug/l	818.40
Ni	60	72	3	He	0.016	ug/l	138.89
Cu	63	72	1	No Gas	0.331	ug/l	8989.71
Cu	63	72	3	He	0.054	ug/l	578.57
Cu	65	72	1	No Gas	0.057	ug/l	993.77
Zn	66	72	1	No Gas	0.351	ug/l	2230.73
Zn	66	72	3	He	0.343	ug/l	427.79
As	75	72	1	No Gas	0.073	ug/l	15134.50
As	75	72	3	He	0.123	ug/l	244.80
Se	78	72	2	H2	0.258	ug/l	129.67
Br	79	72	1	No Gas	100.000	ug/l	1175152.38
Br	79	72	2	H2	100.000	ug/l	552961.07
Se	82	72	1	No Gas	3.547	ug/l	1827.15
Kr	84	72	1	No Gas		ug/l	20384.04
Sr	88	72	1	No Gas	0.015	ug/l	1507.10
Sr	88	72	3	He	0.013	ug/l	422.23
Mo	95	115	1	No Gas	0.022	ug/l	387.79
Mo	95	115	3	He	0.003	ug/l	103.33
Mo	98	115	1	No Gas	0.012	ug/l	445.01
Ag	107	115	1	No Gas	0.324	ug/l	7804.63
Ag	109	115	1	No Gas	0.330	ug/l	7640.48
Cd	111	115	1	No Gas	0.072	ug/l	360.07

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.053	ug/l	83.67
Cd	114	115	1	No Gas	0.068	ug/l	750.22
Cd	114	115	3	He	0.051	ug/l	197.22
Sn	118	115	1	No Gas	0.259	ug/l	4934.43
Sn	118	115	3	He	0.255	ug/l	1263.40
Sb	121	115	1	No Gas	0.099	ug/l	2240.74
Sb	121	115	3	He	0.095	ug/l	552.40
Sb	123	115	1	No Gas	0.099	ug/l	1679.94
Sb	123	115	3	He	0.094	ug/l	427.72
Ba	135	115	1	No Gas	0.030	ug/l	172.99
Ba	137	115	1	No Gas	0.020	ug/l	212.91
La	139	115	3	He	0.000	ug/l	15.55
Ce	140	115	3	He	0.001	ug/l	27.78
Hg	201	209	1	No Gas	0.006	ug/l	29.32
Hg	202	209	1	No Gas	0.007	ug/l	105.65
Hg	202	209	3	He	0.009	ug/l	45.99
Tl	203	209	3	He	0.427	ug/l	3771.39
Tl	205	209	1	No Gas	0.349	ug/l	16632.86
Tl	205	209	3	He	0.431	ug/l	9143.48
[Pb]	206	209	1	No Gas	0.040	ug/l	800.03
[Pb]	207	209	1	No Gas	0.042	ug/l	728.92
Pb	208	209	1	No Gas	0.040	ug/l	3251.29
Th	232	209	3	He	0.300	ug/l	9051.67
U	238	209	1	No Gas	0.020	ug/l	1335.16

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5682133.90	98.8
Sc	45	2	H2	2442487.52	101.0
Sc	45	3	He	324320.93	101.3
Ge	72	1	No Gas	1341735.64	101.1
Ge	72	2	H2	756432.79	101.3
Ge	72	3	He	191440.99	102.0
In	115	1	No Gas	9532602.70	100.5
In	115	3	He	2151246.89	102.0
Tb	159	1	No Gas	13642991.26	101.7
Tb	159	3	He	5637076.25	102.8
Ho	165	1	No Gas	13487024.99	101.4
Ho	165	3	He	5553620.35	101.8
Lu	175	1	No Gas	12804432.10	101.1
Lu	175	3	He	4557104.08	103.1
Bi	209	1	No Gas	8331026.74	101.1
Bi	209	3	He	3670536.82	101.7

ICPMS207-B Analytical Data

Sample Name QCS
File Name 030_QC1.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-11 21:13:54
Sample Type QC1
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	51.753	ug/l	894859.09
Be	9	45	1	No Gas	24.172	ug/l	142823.29
B	11	45	1	No Gas	54.282	ug/l	173729.05
Na	23	45	3	He	2559.087	ug/l	2661252.97
Mg	24	45	3	He	2616.775	ug/l	1475199.20
Al	27	45	1	No Gas	246.308	ug/l	6559313.44
Si	28	45	2	H2	509.659	ug/l	1090253.48
K	39	72	3	He	2492.392	ug/l	1425662.43
Ca	40	72	2	H2	2648.662	ug/l	20592181.46
Ti	47	72	1	No Gas	49.230	ug/l	125731.61
V	51	72	1	No Gas	46.844	ug/l	1539328.42
V	51	72	3	He	46.783	ug/l	241655.60
Cr	52	72	1	No Gas	49.598	ug/l	1555263.46
Cr	52	72	3	He	49.284	ug/l	266639.76
Mn	55	72	1	No Gas	248.866	ug/l	9891295.06
Mn	55	72	3	He	255.177	ug/l	936792.67
Fe	56	72	2	H2	252.063	ug/l	4061996.57
Fe	56	72	3	He	253.806	ug/l	1223020.93
Co	59	72	1	No Gas	49.163	ug/l	1608893.34
Ni	60	72	1	No Gas	51.251	ug/l	367554.29
Ni	60	72	3	He	52.785	ug/l	103708.23
Cu	63	72	1	No Gas	51.833	ug/l	884965.50
Cu	63	72	3	He	52.268	ug/l	272189.47
Cu	65	72	1	No Gas	51.869	ug/l	425235.51
Zn	66	72	1	No Gas	51.189	ug/l	248220.99
Zn	66	72	3	He	52.852	ug/l	51985.63
As	75	72	1	No Gas	50.233	ug/l	269015.61
As	75	72	3	He	50.967	ug/l	38162.59
Se	78	72	2	H2	51.978	ug/l	25013.37
Br	79	72	1	No Gas	6.520	ug/l	162036.69
Br	79	72	2	H2	6.366	ug/l	74032.32
Se	82	72	1	No Gas	53.075	ug/l	17857.66
Kr	84	72	1	No Gas		ug/l	36296.99
Sr	88	72	1	No Gas	49.569	ug/l	2345291.92
Sr	88	72	3	He	49.609	ug/l	274218.49
Mo	95	115	1	No Gas	48.086	ug/l	458891.00
Mo	95	115	3	He	49.173	ug/l	153940.75
Mo	98	115	1	No Gas	48.331	ug/l	742573.56
Ag	107	115	1	No Gas	24.846	ug/l	592913.17
Ag	109	115	1	No Gas	25.079	ug/l	575678.32
Cd	111	115	1	No Gas	24.998	ug/l	125961.98

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	26.262	ug/l	40295.84
Cd	114	115	1	No Gas	25.308	ug/l	282558.06
Cd	114	115	3	He	25.984	ug/l	98113.71
Sn	118	115	1	No Gas	48.979	ug/l	728545.33
Sn	118	115	3	He	49.749	ug/l	193033.70
Sb	121	115	1	No Gas	44.802	ug/l	945840.61
Sb	121	115	3	He	47.684	ug/l	252618.44
Sb	123	115	1	No Gas	44.723	ug/l	714008.57
Sb	123	115	3	He	47.691	ug/l	198245.24
Ba	135	115	1	No Gas	49.590	ug/l	232637.45
Ba	137	115	1	No Gas	50.115	ug/l	409156.75
La	139	115	3	He	50.399	ug/l	1121462.30
Ce	140	115	3	He	50.591	ug/l	1228637.56
Hg	201	209	1	No Gas	0.906	ug/l	2768.07
Hg	202	209	1	No Gas	0.921	ug/l	6443.94
Hg	202	209	3	He	0.938	ug/l	2823.07
Tl	203	209	3	He	49.403	ug/l	425537.79
Tl	205	209	1	No Gas	48.391	ug/l	2259951.39
Tl	205	209	3	He	50.092	ug/l	1033745.15
[Pb]	206	209	1	No Gas	46.909	ug/l	756828.55
[Pb]	207	209	1	No Gas	48.045	ug/l	684813.80
Pb	208	209	1	No Gas	47.216	ug/l	3084232.43
Th	232	209	3	He	48.305	ug/l	1420739.84
U	238	209	1	No Gas	48.739	ug/l	3229293.91

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	6000362.19	104.3
Sc	45	2	H2	2514309.79	104.0
Sc	45	3	He	331053.49	103.4
Ge	72	1	No Gas	1353362.14	102.0
Ge	72	2	H2	795745.04	106.6
Ge	72	3	He	196151.98	104.5
In	115	1	No Gas	9635808.80	101.6
In	115	3	He	2129863.69	100.9
Tb	159	1	No Gas	13756690.16	102.6
Tb	159	3	He	5541745.98	101.1
Ho	165	1	No Gas	13720202.11	103.2
Ho	165	3	He	5488031.64	100.6
Lu	175	1	No Gas	13009092.59	102.7
Lu	175	3	He	4469598.30	101.1
Bi	209	1	No Gas	8459645.74	102.6
Bi	209	3	He	3627316.38	100.5

ICPMS207-B Analytical Data

Sample Name CCV
File Name 031_CC.V.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-11 21:20:08
Sample Type CCV
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	624.759	ug/l	10556424.07
Be	9	45	1	No Gas	49.173	ug/l	287107.26
B	11	45	1	No Gas	54.251	ug/l	171634.52
Na	23	45	3	He	12771.360	ug/l	13255211.75
Mg	24	45	3	He	12759.932	ug/l	7279754.43
Al	27	45	1	No Gas	49.694	ug/l	1311432.06
Si	28	45	2	H2	210.149	ug/l	455299.09
K	39	72	3	He	12699.958	ug/l	6978049.55
Ca	40	72	2	H2	13251.483	ug/l	102534947.17
Ti	47	72	1	No Gas	49.778	ug/l	130829.42
V	51	72	1	No Gas	44.661	ug/l	1511605.95
V	51	72	3	He	48.344	ug/l	248910.81
Cr	52	72	1	No Gas	48.132	ug/l	1556081.98
Cr	52	72	3	He	49.898	ug/l	269668.31
Mn	55	72	1	No Gas	48.567	ug/l	1990105.23
Mn	55	72	3	He	50.855	ug/l	186594.28
Fe	56	72	2	H2	1322.765	ug/l	21202796.01
Fe	56	72	3	He	1312.354	ug/l	6292480.54
Co	59	72	1	No Gas	48.997	ug/l	1650220.20
Ni	60	72	1	No Gas	50.211	ug/l	370622.55
Ni	60	72	3	He	52.711	ug/l	103459.02
Cu	63	72	1	No Gas	50.852	ug/l	894039.93
Cu	63	72	3	He	52.252	ug/l	271809.76
Cu	65	72	1	No Gas	50.687	ug/l	427833.26
Zn	66	72	1	No Gas	49.458	ug/l	247000.68
Zn	66	72	3	He	52.205	ug/l	51296.45
As	75	72	1	No Gas	48.666	ug/l	269114.67
As	75	72	3	He	50.477	ug/l	37756.65
Se	78	72	2	H2	52.222	ug/l	25060.00
Br	79	72	1	No Gas	1.724	ug/l	112734.20
Br	79	72	2	H2	0.900	ug/l	44276.55
Se	82	72	1	No Gas	51.092	ug/l	17711.13
Kr	84	72	1	No Gas		ug/l	35873.43
Sr	88	72	1	No Gas	48.023	ug/l	2340766.00
Sr	88	72	3	He	49.865	ug/l	275335.04
Mo	95	115	1	No Gas	48.463	ug/l	471654.58
Mo	95	115	3	He	50.118	ug/l	156805.52
Mo	98	115	1	No Gas	48.875	ug/l	766135.62
Ag	107	115	1	No Gas	19.471	ug/l	473324.83
Ag	109	115	1	No Gas	19.575	ug/l	457596.95
Cd	111	115	1	No Gas	49.209	ug/l	252647.10

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.834	ug/l	79484.48
Cd	114	115	1	No Gas	49.928	ug/l	567686.48
Cd	114	115	3	He	51.843	ug/l	195643.71
Sn	118	115	1	No Gas	48.714	ug/l	739466.53
Sn	118	115	3	He	50.400	ug/l	195453.51
Sb	121	115	1	No Gas	48.553	ug/l	1044566.64
Sb	121	115	3	He	49.935	ug/l	264386.57
Sb	123	115	1	No Gas	48.558	ug/l	789856.04
Sb	123	115	3	He	50.294	ug/l	208943.83
Ba	135	115	1	No Gas	48.143	ug/l	230123.73
Ba	137	115	1	No Gas	48.005	ug/l	399295.52
La	139	115	3	He	51.260	ug/l	1139937.65
Ce	140	115	3	He	51.101	ug/l	1240268.32
Hg	201	209	1	No Gas	0.970	ug/l	2925.74
Hg	202	209	1	No Gas	0.974	ug/l	6728.02
Hg	202	209	3	He	0.995	ug/l	2925.41
Tl	203	209	3	He	49.584	ug/l	417390.80
Tl	205	209	1	No Gas	47.708	ug/l	2196605.99
Tl	205	209	3	He	49.527	ug/l	998894.00
[Pb]	206	209	1	No Gas	49.014	ug/l	780188.41
[Pb]	207	209	1	No Gas	48.176	ug/l	677349.03
Pb	208	209	1	No Gas	48.063	ug/l	3096762.97
Th	232	209	3	He	49.234	ug/l	1415078.28
U	238	209	1	No Gas	47.073	ug/l	3074112.87

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5807884.38	100.9
Sc	45	2	H2	2493091.05	103.1
Sc	45	3	He	335101.00	104.7
Ge	72	1	No Gas	1386310.66	104.5
Ge	72	2	H2	793580.45	106.3
Ge	72	3	He	195939.64	104.3
In	115	1	No Gas	9689202.34	102.2
In	115	3	He	2128714.54	100.9
Tb	159	1	No Gas	13720020.37	102.3
Tb	159	3	He	5556251.47	101.3
Ho	165	1	No Gas	13575048.21	102.1
Ho	165	3	He	5513121.31	101.0
Lu	175	1	No Gas	13053828.47	103.0
Lu	175	3	He	4532535.55	102.5
Bi	209	1	No Gas	8245815.16	100.1
Bi	209	3	He	3545352.06	98.2

ICPMS207-B Analytical Data

Sample Name CCB
File Name 032_CCB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 21:26:23
Sample Type CCB
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.633	ug/l	36769.57
Be	9	45	1	No Gas	0.005	ug/l	220.63
B	11	45	1	No Gas	2.962	ug/l	13046.18
Na	23	45	3	He	5.573	ug/l	51926.97
Mg	24	45	3	He	0.072	ug/l	266.14
Al	27	45	1	No Gas	-0.003	ug/l	5356.57
Si	28	45	2	H2	0.030	ug/l	16153.24
K	39	72	3	He	6.894	ug/l	70061.83
Ca	40	72	2	H2	0.136	ug/l	47635.46
Ti	47	72	1	No Gas	0.125	ug/l	485.50
V	51	72	1	No Gas	-0.462	ug/l	-34179.05
V	51	72	3	He	-1.004	ug/l	10827.35
Cr	52	72	1	No Gas	-0.264	ug/l	59528.48
Cr	52	72	3	He	-0.002	ug/l	368.90
Mn	55	72	1	No Gas	0.027	ug/l	7177.55
Mn	55	72	3	He	0.001	ug/l	121.31
Fe	56	72	2	H2	0.088	ug/l	13055.63
Fe	56	72	3	He	0.213	ug/l	6911.93
Co	59	72	1	No Gas	-0.001	ug/l	316.04
Ni	60	72	1	No Gas	-0.001	ug/l	512.33
Ni	60	72	3	He	0.017	ug/l	142.25
Cu	63	72	1	No Gas	0.226	ug/l	7041.87
Cu	63	72	3	He	0.024	ug/l	427.59
Cu	65	72	1	No Gas	0.020	ug/l	678.96
Zn	66	72	1	No Gas	-0.002	ug/l	513.85
Zn	66	72	3	He	-0.003	ug/l	95.56
As	75	72	1	No Gas	-0.314	ug/l	12951.40
As	75	72	3	He	-0.014	ug/l	144.73
Se	78	72	2	H2	0.063	ug/l	41.56
Br	79	72	1	No Gas	1.565	ug/l	104403.59
Br	79	72	2	H2	0.547	ug/l	41373.67
Se	82	72	1	No Gas	0.560	ug/l	843.95
Kr	84	72	1	No Gas		ug/l	20543.96
Sr	88	72	1	No Gas	0.001	ug/l	825.07
Sr	88	72	3	He	-0.007	ug/l	317.78
Mo	95	115	1	No Gas	0.030	ug/l	462.23
Mo	95	115	3	He	0.013	ug/l	134.44
Mo	98	115	1	No Gas	0.028	ug/l	684.19
Ag	107	115	1	No Gas	0.003	ug/l	115.38
Ag	109	115	1	No Gas	0.002	ug/l	100.04
Cd	111	115	1	No Gas	0.021	ug/l	100.25

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.014	ug/l	24.22
Cd	114	115	1	No Gas	0.019	ug/l	204.02
Cd	114	115	3	He	0.013	ug/l	53.36
Sn	118	115	1	No Gas	0.088	ug/l	2358.87
Sn	118	115	3	He	0.099	ug/l	653.35
Sb	121	115	1	No Gas	0.310	ug/l	6626.25
Sb	121	115	3	He	0.240	ug/l	1327.87
Sb	123	115	1	No Gas	0.318	ug/l	5137.47
Sb	123	115	3	He	0.241	ug/l	1040.81
Ba	135	115	1	No Gas	0.002	ug/l	43.25
Ba	137	115	1	No Gas	-0.001	ug/l	43.25
La	139	115	3	He	0.000	ug/l	11.11
Ce	140	115	3	He	0.000	ug/l	18.89
Hg	201	209	1	No Gas	0.009	ug/l	36.99
Hg	202	209	1	No Gas	0.006	ug/l	100.98
Hg	202	209	3	He	0.006	ug/l	36.99
Tl	203	209	3	He	0.186	ug/l	1677.45
Tl	205	209	1	No Gas	0.134	ug/l	6429.40
Tl	205	209	3	He	0.193	ug/l	4189.01
[Pb]	206	209	1	No Gas	0.014	ug/l	363.34
[Pb]	207	209	1	No Gas	0.011	ug/l	274.45
Pb	208	209	1	No Gas	0.011	ug/l	1298.92
Th	232	209	3	He	0.051	ug/l	1617.42
U	238	209	1	No Gas	0.002	ug/l	158.97

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5587492.45	97.1
Sc	45	2	H2	2512655.44	103.9
Sc	45	3	He	329728.06	103.0
Ge	72	1	No Gas	1310134.58	98.7
Ge	72	2	H2	774810.61	103.8
Ge	72	3	He	191303.57	101.9
In	115	1	No Gas	9478214.86	100.0
In	115	3	He	2144303.86	101.6
Tb	159	1	No Gas	13365299.10	99.6
Tb	159	3	He	5598361.34	102.1
Ho	165	1	No Gas	13118850.16	98.7
Ho	165	3	He	5476289.01	100.4
Lu	175	1	No Gas	12471972.68	98.4
Lu	175	3	He	4521835.53	102.3
Bi	209	1	No Gas	8119301.34	98.5
Bi	209	3	He	3673485.56	101.7

ICPMS207-B Analytical Data

Sample Name Rinse
File Name 033BLKV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 21:32:37
Sample Type BkVrfy
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.859	ug/l	25350.58
Be	9	45	1	No Gas	0.000	ug/l	203.96
B	11	45	1	No Gas	1.880	ug/l	10308.98
Na	23	45	3	He	5.040	ug/l	50875.53
Mg	24	45	3	He	0.124	ug/l	292.76
Al	27	45	1	No Gas	-0.008	ug/l	5505.50
Si	28	45	2	H2	-0.384	ug/l	15330.70
K	39	72	3	He	5.313	ug/l	69369.55
Ca	40	72	2	H2	0.182	ug/l	47715.88
Ti	47	72	1	No Gas	0.074	ug/l	372.05
V	51	72	1	No Gas	-0.135	ug/l	-24682.46
V	51	72	3	He	-1.345	ug/l	9242.95
Cr	52	72	1	No Gas	-0.369	ug/l	57955.54
Cr	52	72	3	He	-0.010	ug/l	327.78
Mn	55	72	1	No Gas	0.009	ug/l	6688.26
Mn	55	72	3	He	0.001	ug/l	122.98
Fe	56	72	2	H2	0.050	ug/l	12392.72
Fe	56	72	3	He	0.063	ug/l	6225.94
Co	59	72	1	No Gas	-0.004	ug/l	222.90
Ni	60	72	1	No Gas	-0.017	ug/l	412.52
Ni	60	72	3	He	-0.016	ug/l	78.89
Cu	63	72	1	No Gas	0.182	ug/l	6488.72
Cu	63	72	3	He	0.026	ug/l	439.59
Cu	65	72	1	No Gas	0.027	ug/l	754.99
Zn	66	72	1	No Gas	-0.013	ug/l	477.42
Zn	66	72	3	He	-0.001	ug/l	97.78
As	75	72	1	No Gas	0.454	ug/l	17021.44
As	75	72	3	He	-0.025	ug/l	136.73
Se	78	72	2	H2	0.039	ug/l	30.00
Br	79	72	1	No Gas	1.065	ug/l	102702.11
Br	79	72	2	H2	0.678	ug/l	41820.70
Se	82	72	1	No Gas	1.085	ug/l	1034.78
Kr	84	72	1	No Gas		ug/l	21133.63
Sr	88	72	1	No Gas	0.000	ug/l	841.70
Sr	88	72	3	He	-0.004	ug/l	333.34
Mo	95	115	1	No Gas	0.002	ug/l	203.34
Mo	95	115	3	He	-0.002	ug/l	85.55
Mo	98	115	1	No Gas	0.000	ug/l	268.28
Ag	107	115	1	No Gas	0.001	ug/l	86.70
Ag	109	115	1	No Gas	0.001	ug/l	87.37
Cd	111	115	1	No Gas	0.017	ug/l	82.08

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.011	ug/l	18.66
Cd	114	115	1	No Gas	0.014	ug/l	150.63
Cd	114	115	3	He	0.009	ug/l	37.34
Sn	118	115	1	No Gas	0.029	ug/l	1540.37
Sn	118	115	3	He	0.027	ug/l	370.01
Sb	121	115	1	No Gas	0.092	ug/l	2137.71
Sb	121	115	3	He	0.088	ug/l	519.06
Sb	123	115	1	No Gas	0.090	ug/l	1581.25
Sb	123	115	3	He	0.090	ug/l	413.72
Ba	135	115	1	No Gas	-0.002	ug/l	26.61
Ba	137	115	1	No Gas	-0.001	ug/l	49.90
La	139	115	3	He	0.020	ug/l	455.68
Ce	140	115	3	He	0.000	ug/l	7.78
Hg	201	209	1	No Gas	0.004	ug/l	25.33
Hg	202	209	1	No Gas	0.005	ug/l	93.32
Hg	202	209	3	He	0.006	ug/l	37.66
Tl	203	209	3	He	0.079	ug/l	748.99
Tl	205	209	1	No Gas	0.048	ug/l	2576.94
Tl	205	209	3	He	0.080	ug/l	1832.87
[Pb]	206	209	1	No Gas	0.007	ug/l	268.89
[Pb]	207	209	1	No Gas	0.005	ug/l	204.45
Pb	208	209	1	No Gas	0.006	ug/l	1026.69
Th	232	209	3	He	0.019	ug/l	672.96
U	238	209	1	No Gas	0.001	ug/l	60.66

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5907070.64	102.7
Sc	45	2	H2	2522391.79	104.3
Sc	45	3	He	326430.43	102.0
Ge	72	1	No Gas	1351228.38	101.8
Ge	72	2	H2	770458.18	103.2
Ge	72	3	He	191692.74	102.1
In	115	1	No Gas	9849403.84	103.9
In	115	3	He	2151684.55	102.0
Tb	159	1	No Gas	13878033.69	103.5
Tb	159	3	He	5614254.00	102.4
Ho	165	1	No Gas	13636154.74	102.6
Ho	165	3	He	5588054.00	102.4
Lu	175	1	No Gas	13100781.78	103.4
Lu	175	3	He	4521756.49	102.3
Bi	209	1	No Gas	8495466.11	103.1
Bi	209	3	He	3694631.03	102.3

ICPMS207-B Analytical Data

Sample Name LRB
File Name 034MBLK.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 21:38:52
Sample Type MBLK
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.893	ug/l	24397.28
Be	9	45	1	No Gas	0.002	ug/l	204.29
B	11	45	1	No Gas	1.667	ug/l	9071.03
Na	23	45	3	He	5.129	ug/l	50462.03
Mg	24	45	3	He	0.414	ug/l	449.12
Al	27	45	1	No Gas	0.344	ug/l	13737.46
Si	28	45	2	H2	0.771	ug/l	17467.43
K	39	72	3	He	5.878	ug/l	68521.40
Ca	40	72	2	H2	3.577	ug/l	72286.05
Ti	47	72	1	No Gas	0.098	ug/l	418.76
V	51	72	1	No Gas	0.838	ug/l	8081.09
V	51	72	3	He	-1.191	ug/l	9808.86
Cr	52	72	1	No Gas	-0.193	ug/l	61061.64
Cr	52	72	3	He	0.014	ug/l	447.79
Mn	55	72	1	No Gas	0.028	ug/l	7130.95
Mn	55	72	3	He	0.005	ug/l	134.31
Fe	56	72	2	H2	0.154	ug/l	13817.08
Fe	56	72	3	He	0.177	ug/l	6648.21
Co	59	72	1	No Gas	-0.001	ug/l	292.76
Ni	60	72	1	No Gas	-0.008	ug/l	452.45
Ni	60	72	3	He	-0.007	ug/l	94.45
Cu	63	72	1	No Gas	0.179	ug/l	6209.16
Cu	63	72	3	He	0.036	ug/l	477.91
Cu	65	72	1	No Gas	0.033	ug/l	773.00
Zn	66	72	1	No Gas	0.988	ug/l	5119.10
Zn	66	72	3	He	1.029	ug/l	1068.93
As	75	72	1	No Gas	-0.632	ug/l	11182.12
As	75	72	3	He	0.005	ug/l	156.00
Se	78	72	2	H2	0.036	ug/l	28.67
Br	79	72	1	No Gas	3.913	ug/l	128260.84
Br	79	72	2	H2	3.337	ug/l	55085.47
Se	82	72	1	No Gas	0.371	ug/l	777.02
Kr	84	72	1	No Gas		ug/l	19604.61
Sr	88	72	1	No Gas	0.001	ug/l	845.03
Sr	88	72	3	He	-0.001	ug/l	342.23
Mo	95	115	1	No Gas	-0.006	ug/l	113.33
Mo	95	115	3	He	-0.011	ug/l	56.67
Mo	98	115	1	No Gas	-0.003	ug/l	209.67
Ag	107	115	1	No Gas	0.000	ug/l	60.69
Ag	109	115	1	No Gas	0.000	ug/l	58.02
Cd	111	115	1	No Gas	0.011	ug/l	52.59

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.008	ug/l	14.22
Cd	114	115	1	No Gas	0.006	ug/l	59.11
Cd	114	115	3	He	-0.001	ug/l	-0.64
Sn	118	115	1	No Gas	2.562	ug/l	37559.51
Sn	118	115	3	He	2.524	ug/l	10081.44
Sb	121	115	1	No Gas	0.065	ug/l	1446.55
Sb	121	115	3	He	0.063	ug/l	383.04
Sb	123	115	1	No Gas	0.066	ug/l	1114.16
Sb	123	115	3	He	0.061	ug/l	287.36
Ba	135	115	1	No Gas	0.006	ug/l	56.55
Ba	137	115	1	No Gas	0.002	ug/l	63.21
La	139	115	3	He	0.000	ug/l	15.56
Ce	140	115	3	He	0.000	ug/l	11.11
Hg	201	209	1	No Gas	0.005	ug/l	25.66
Hg	202	209	1	No Gas	0.004	ug/l	83.98
Hg	202	209	3	He	0.004	ug/l	29.99
Tl	203	209	3	He	0.044	ug/l	429.51
Tl	205	209	1	No Gas	0.029	ug/l	1661.23
Tl	205	209	3	He	0.044	ug/l	1048.46
[Pb]	206	209	1	No Gas	0.005	ug/l	236.67
[Pb]	207	209	1	No Gas	0.004	ug/l	177.78
Pb	208	209	1	No Gas	0.005	ug/l	942.25
Th	232	209	3	He	0.014	ug/l	533.56
U	238	209	1	No Gas	0.001	ug/l	44.66

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5474583.52	95.1
Sc	45	2	H2	2473422.60	102.3
Sc	45	3	He	323223.12	101.0
Ge	72	1	No Gas	1298419.00	97.8
Ge	72	2	H2	760513.51	101.9
Ge	72	3	He	188541.18	100.4
In	115	1	No Gas	9170073.66	96.7
In	115	3	He	2137832.36	101.3
Tb	159	1	No Gas	13238097.74	98.7
Tb	159	3	He	5509415.73	100.5
Ho	165	1	No Gas	12971629.50	97.6
Ho	165	3	He	5510213.93	101.0
Lu	175	1	No Gas	12401684.06	97.9
Lu	175	3	He	4479386.84	101.3
Bi	209	1	No Gas	8162206.72	99.0
Bi	209	3	He	3636169.03	100.7

ICPMS207-B Analytical Data

Sample Name LFB
File Name 035_LFB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-11 21:45:07
Sample Type LFB
Total Dilution 1.0300
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	2389.908	ug/l	35851008.91
Be	9	45	1	No Gas	49.273	ug/l	255647.92
B	11	45	1	No Gas	53.063	ug/l	149405.82
Na	23	45	3	He	48895.569	ug/l	46969921.52
Mg	24	45	3	He	49553.994	ug/l	26234044.46
Al	27	45	1	No Gas	51.358	ug/l	1203462.90
Si	28	45	2	H2	199.969	ug/l	392327.55
K	39	72	3	He	48862.074	ug/l	24545667.14
Ca	40	72	2	H2	49246.880	ug/l	342869614.20
Ti	47	72	1	No Gas	54.673	ug/l	129187.29
V	51	72	1	No Gas	45.414	ug/l	1381117.16
V	51	72	3	He	49.442	ug/l	234519.82
Cr	52	72	1	No Gas	49.915	ug/l	1450700.56
Cr	52	72	3	He	49.984	ug/l	248759.75
Mn	55	72	1	No Gas	49.000	ug/l	1805593.87
Mn	55	72	3	He	50.422	ug/l	170370.64
Fe	56	72	2	H2	5033.080	ug/l	72628306.58
Fe	56	72	3	He	4917.418	ug/l	21695870.52
Co	59	72	1	No Gas	49.840	ug/l	1509759.46
Ni	60	72	1	No Gas	49.598	ug/l	329292.06
Ni	60	72	3	He	51.491	ug/l	93062.53
Cu	63	72	1	No Gas	51.418	ug/l	813133.71
Cu	63	72	3	He	50.831	ug/l	243511.63
Cu	65	72	1	No Gas	50.000	ug/l	379574.75
Zn	66	72	1	No Gas	50.274	ug/l	225811.44
Zn	66	72	3	He	51.550	ug/l	46648.73
As	75	72	1	No Gas	49.701	ug/l	247207.91
As	75	72	3	He	50.071	ug/l	34495.74
Se	78	72	2	H2	51.528	ug/l	22269.91
Br	79	72	1	No Gas	12.612	ug/l	213766.71
Br	79	72	2	H2	11.101	ug/l	90586.36
Se	82	72	1	No Gas	51.516	ug/l	16082.54
Kr	84	72	1	No Gas		ug/l	35559.92
Sr	88	72	1	No Gas	49.947	ug/l	2190534.72
Sr	88	72	3	He	49.749	ug/l	252966.51
Mo	95	115	1	No Gas	50.434	ug/l	436724.62
Mo	95	115	3	He	50.916	ug/l	146687.97
Mo	98	115	1	No Gas	50.964	ug/l	711250.97
Ag	107	115	1	No Gas	19.657	ug/l	425419.91
Ag	109	115	1	No Gas	19.613	ug/l	408225.82
Cd	111	115	1	No Gas	49.626	ug/l	226824.34

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.009	ug/l	72023.20
Cd	114	115	1	No Gas	50.451	ug/l	510604.94
Cd	114	115	3	He	50.582	ug/l	175755.96
Sn	118	115	1	No Gas	53.949	ug/l	728942.25
Sn	118	115	3	He	52.889	ug/l	188835.87
Sb	121	115	1	No Gas	49.788	ug/l	953598.90
Sb	121	115	3	He	49.813	ug/l	242838.65
Sb	123	115	1	No Gas	49.915	ug/l	722988.52
Sb	123	115	3	He	49.859	ug/l	190724.57
Ba	135	115	1	No Gas	49.427	ug/l	210250.98
Ba	137	115	1	No Gas	49.417	ug/l	365630.66
La	139	115	3	He	52.351	ug/l	1071915.47
Ce	140	115	3	He	52.249	ug/l	1167716.90
Hg	201	209	1	No Gas	1.022	ug/l	2759.07
Hg	202	209	1	No Gas	1.007	ug/l	6229.54
Hg	202	209	3	He	1.004	ug/l	2696.41
Tl	203	209	3	He	49.982	ug/l	384271.90
Tl	205	209	1	No Gas	49.509	ug/l	2043664.85
Tl	205	209	3	He	50.243	ug/l	925389.32
[Pb]	206	209	1	No Gas	49.915	ug/l	712153.39
[Pb]	207	209	1	No Gas	49.412	ug/l	622506.07
Pb	208	209	1	No Gas	49.446	ug/l	2854361.40
Th	232	209	3	He	49.947	ug/l	1311273.68
U	238	209	1	No Gas	50.059	ug/l	2929003.75

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5340475.54	92.8
Sc	45	2	H2	2322492.38	96.0
Sc	45	3	He	320268.34	100.1
Ge	72	1	No Gas	1283674.91	96.7
Ge	72	2	H2	735977.48	98.6
Ge	72	3	He	185850.91	99.0
In	115	1	No Gas	8934324.55	94.2
In	115	3	He	2018834.74	95.7
Tb	159	1	No Gas	13143655.49	98.0
Tb	159	3	He	5380171.86	98.1
Ho	165	1	No Gas	12950006.63	97.4
Ho	165	3	He	5388299.67	98.8
Lu	175	1	No Gas	12536904.48	98.9
Lu	175	3	He	4420698.83	100.0
Bi	209	1	No Gas	7637914.59	92.7
Bi	209	3	He	3334716.73	92.4

ICPMS207-B Analytical Data

Sample Name ICSA
File Name 036ICSA.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 21:51:23
Sample Type ICSA
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	2.202	ug/l	45501.14
Be	9	45	1	No Gas	-0.011	ug/l	131.30
B	11	45	1	No Gas	1.532	ug/l	8762.72
Na	23	45	3	He	100825.999	ug/l	93466850.83
Mg	24	45	3	He	40999.235	ug/l	20955275.41
Al	27	45	1	No Gas	37945.959	ug/l	943075399.28
Si	28	45	2	H2	3.258	ug/l	20496.21
K	39	72	3	He	40115.018	ug/l	19693191.37
Ca	40	72	2	H2	122299.439	ug/l	840177000.74
Ti	47	72	1	No Gas	785.603	ug/l	1941480.84
V	51	72	1	No Gas	0.699	ug/l	3946.61
V	51	72	3	He	-2.682	ug/l	2704.71
Cr	52	72	1	No Gas	0.770	ug/l	89440.07
Cr	52	72	3	He	1.807	ug/l	9121.75
Mn	55	72	1	No Gas	0.309	ug/l	18012.01
Mn	55	72	3	He	0.294	ug/l	1079.16
Fe	56	72	2	H2	102913.073	ug/l	1465383531.91
Fe	56	72	3	He	101918.808	ug/l	439101285.82
Co	59	72	1	No Gas	0.263	ug/l	8682.07
Ni	60	72	1	No Gas	1.159	ug/l	8558.92
Ni	60	72	3	He	0.144	ug/l	354.45
Cu	63	72	1	No Gas	5.141	ug/l	88096.96
Cu	63	72	3	He	0.226	ug/l	1334.46
Cu	65	72	1	No Gas	0.859	ug/l	7339.47
Zn	66	72	1	No Gas	1.212	ug/l	6205.42
Zn	66	72	3	He	0.711	ug/l	717.80
As	75	72	1	No Gas	-0.312	ug/l	12840.87
As	75	72	3	He	0.034	ug/l	165.40
Se	78	72	2	H2	0.569	ug/l	253.56
Br	79	72	1	No Gas	6.793	ug/l	159646.97
Br	79	72	2	H2	6.204	ug/l	64826.15
Se	82	72	1	No Gas	0.149	ug/l	715.27
Kr	84	72	1	No Gas		ug/l	21060.38
Sr	88	72	1	No Gas	0.983	ug/l	45922.18
Sr	88	72	3	He	1.009	ug/l	5333.25
Mo	95	115	1	No Gas	789.966	ug/l	7303243.43
Mo	95	115	3	He	829.120	ug/l	2379717.29
Mo	98	115	1	No Gas	791.480	ug/l	11786967.26
Ag	107	115	1	No Gas	0.013	ug/l	346.81
Ag	109	115	1	No Gas	0.012	ug/l	319.47
Cd	111	115	1	No Gas	0.083	ug/l	402.39

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.300	ug/l	424.12
Cd	114	115	1	No Gas	0.099	ug/l	1058.48
Cd	114	115	3	He	0.214	ug/l	745.20
Sn	118	115	1	No Gas	0.234	ug/l	4401.98
Sn	118	115	3	He	0.235	ug/l	1075.60
Sb	121	115	1	No Gas	0.312	ug/l	6510.17
Sb	121	115	3	He	0.260	ug/l	1303.86
Sb	123	115	1	No Gas	0.316	ug/l	4978.06
Sb	123	115	3	He	0.260	ug/l	1022.14
Ba	135	115	1	No Gas	0.144	ug/l	685.33
Ba	137	115	1	No Gas	0.159	ug/l	1307.48
La	139	115	3	He	0.005	ug/l	113.34
Ce	140	115	3	He	0.009	ug/l	198.89
Hg	201	209	1	No Gas	0.004	ug/l	21.33
Hg	202	209	1	No Gas	0.004	ug/l	80.98
Hg	202	209	3	He	0.005	ug/l	28.99
Tl	203	209	3	He	0.070	ug/l	584.25
Tl	205	209	1	No Gas	0.047	ug/l	2359.12
Tl	205	209	3	He	0.067	ug/l	1369.29
[Pb]	206	209	1	No Gas	0.051	ug/l	894.48
[Pb]	207	209	1	No Gas	0.047	ug/l	737.80
Pb	208	209	1	No Gas	0.046	ug/l	3361.30
Th	232	209	3	He	0.067	ug/l	1858.88
U	238	209	1	No Gas	0.021	ug/l	1291.14

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5492816.75	95.5
Sc	45	2	H2	2246758.15	92.9
Sc	45	3	He	300208.36	93.8
Ge	72	1	No Gas	1303914.97	98.2
Ge	72	2	H2	705290.05	94.5
Ge	72	3	He	176262.17	93.9
In	115	1	No Gas	9206257.77	97.1
In	115	3	He	1953773.33	92.6
Tb	159	1	No Gas	13620275.32	101.5
Tb	159	3	He	5346799.84	97.5
Ho	165	1	No Gas	13416174.87	100.9
Ho	165	3	He	5302715.19	97.2
Lu	175	1	No Gas	13076801.86	103.2
Lu	175	3	He	4313243.98	97.5
Bi	209	1	No Gas	7682032.00	93.2
Bi	209	3	He	3246471.36	89.9

ICPMS207-B Analytical Data

Sample Name ICSAB
File Name 037ICSB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 21:57:40
Sample Type ICSAB
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.077	ug/l	27895.31
Be	9	45	1	No Gas	-0.017	ug/l	97.65
B	11	45	1	No Gas	1.002	ug/l	7306.71
Na	23	45	3	He	99086.587	ug/l	92329385.29
Mg	24	45	3	He	40424.394	ug/l	20771713.57
Al	27	45	1	No Gas	36650.249	ug/l	922432332.92
Si	28	45	2	H2	3.729	ug/l	21484.49
K	39	72	3	He	39581.007	ug/l	19600662.76
Ca	40	72	2	H2	121149.169	ug/l	829200644.77
Ti	47	72	1	No Gas	788.703	ug/l	1933116.58
V	51	72	1	No Gas	20.409	ug/l	634671.99
V	51	72	3	He	16.309	ug/l	85763.31
Cr	52	72	1	No Gas	19.282	ug/l	621978.26
Cr	52	72	3	He	21.280	ug/l	104527.80
Mn	55	72	1	No Gas	19.237	ug/l	739849.86
Mn	55	72	3	He	19.850	ug/l	66143.05
Fe	56	72	2	H2	101875.079	ug/l	1445757413.15
Fe	56	72	3	He	100310.662	ug/l	435924035.35
Co	59	72	1	No Gas	19.280	ug/l	606700.76
Ni	60	72	1	No Gas	19.825	ug/l	137007.34
Ni	60	72	3	He	20.072	ug/l	35802.54
Cu	63	72	1	No Gas	25.298	ug/l	416985.74
Cu	63	72	3	He	19.781	ug/l	93523.13
Cu	65	72	1	No Gas	19.486	ug/l	153910.01
Zn	66	72	1	No Gas	10.193	ug/l	47950.51
Zn	66	72	3	He	10.516	ug/l	9448.66
As	75	72	1	No Gas	8.831	ug/l	57254.32
As	75	72	3	He	9.857	ug/l	6804.25
Se	78	72	2	H2	10.983	ug/l	4677.98
Br	79	72	1	No Gas	7.094	ug/l	161498.72
Br	79	72	2	H2	5.750	ug/l	62423.77
Se	82	72	1	No Gas	9.414	ug/l	3589.05
Kr	84	72	1	No Gas		ug/l	20464.03
Sr	88	72	1	No Gas	1.011	ug/l	46823.56
Sr	88	72	3	He	0.976	ug/l	5210.97
Mo	95	115	1	No Gas	796.317	ug/l	7328113.36
Mo	95	115	3	He	807.504	ug/l	2351158.12
Mo	98	115	1	No Gas	795.102	ug/l	11785131.15
Ag	107	115	1	No Gas	4.646	ug/l	106880.69
Ag	109	115	1	No Gas	4.659	ug/l	103066.85
Cd	111	115	1	No Gas	9.421	ug/l	45749.72

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	10.073	ug/l	14382.82
Cd	114	115	1	No Gas	9.520	ug/l	102380.18
Cd	114	115	3	He	10.015	ug/l	35189.49
Sn	118	115	1	No Gas	0.186	ug/l	3706.49
Sn	118	115	3	He	0.188	ug/l	924.48
Sb	121	115	1	No Gas	0.139	ug/l	2971.28
Sb	121	115	3	He	0.141	ug/l	737.76
Sb	123	115	1	No Gas	0.140	ug/l	2250.41
Sb	123	115	3	He	0.132	ug/l	540.40
Ba	135	115	1	No Gas	0.161	ug/l	758.52
Ba	137	115	1	No Gas	0.164	ug/l	1340.75
La	139	115	3	He	0.006	ug/l	132.22
Ce	140	115	3	He	0.009	ug/l	218.89
Hg	201	209	1	No Gas	0.004	ug/l	23.33
Hg	202	209	1	No Gas	0.003	ug/l	74.99
Hg	202	209	3	He	0.006	ug/l	32.32
Tl	203	209	3	He	0.035	ug/l	320.13
Tl	205	209	1	No Gas	0.021	ug/l	1234.51
Tl	205	209	3	He	0.036	ug/l	803.01
[Pb]	206	209	1	No Gas	0.053	ug/l	948.93
[Pb]	207	209	1	No Gas	0.040	ug/l	652.24
Pb	208	209	1	No Gas	0.046	ug/l	3385.75
Th	232	209	3	He	0.029	ug/l	874.38
U	238	209	1	No Gas	0.020	ug/l	1268.48

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5563472.00	96.7
Sc	45	2	H2	2254364.55	93.2
Sc	45	3	He	301806.01	94.3
Ge	72	1	No Gas	1293205.86	97.4
Ge	72	2	H2	702915.86	94.1
Ge	72	3	He	177783.48	94.7
In	115	1	No Gas	9165039.28	96.7
In	115	3	He	1981923.64	93.9
Tb	159	1	No Gas	13760087.21	102.6
Tb	159	3	He	5425763.86	98.9
Ho	165	1	No Gas	13617269.08	102.4
Ho	165	3	He	5383343.93	98.7
Lu	175	1	No Gas	13164489.55	103.9
Lu	175	3	He	4417494.26	99.9
Bi	209	1	No Gas	7856479.22	95.3
Bi	209	3	He	3252126.29	90.1

ICPMS207-B Analytical Data

Sample Name Rinse
File Name 038BLKV.d
Data Path Name D:\Agilent\ICPMH1\DATA\220311ADoDb.b
Acq Time 2022-03-11 22:03:56
Sample Type BkVrfy
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.152	ug/l	29698.75
Be	9	45	1	No Gas	-0.014	ug/l	117.98
B	11	45	1	No Gas	0.311	ug/l	5376.45
Na	23	45	3	He	36.836	ug/l	79356.65
Mg	24	45	3	He	1.680	ug/l	1107.85
Al	27	45	1	No Gas	1.268	ug/l	38082.68
Si	28	45	2	H2	-0.461	ug/l	14549.60
K	39	72	3	He	8.378	ug/l	69365.17
Ca	40	72	2	H2	1.939	ug/l	59757.77
Ti	47	72	1	No Gas	0.569	ug/l	1605.04
V	51	72	1	No Gas	0.538	ug/l	-1280.73
V	51	72	3	He	-2.488	ug/l	3768.28
Cr	52	72	1	No Gas	-1.388	ug/l	27074.46
Cr	52	72	3	He	-0.018	ug/l	280.00
Mn	55	72	1	No Gas	0.002	ug/l	6292.23
Mn	55	72	3	He	-0.001	ug/l	111.65
Fe	56	72	2	H2	1.326	ug/l	31639.11
Fe	56	72	3	He	1.263	ug/l	11576.20
Co	59	72	1	No Gas	-0.002	ug/l	286.11
Ni	60	72	1	No Gas	0.000	ug/l	522.31
Ni	60	72	3	He	-0.028	ug/l	54.44
Cu	63	72	1	No Gas	1.377	ug/l	26342.87
Cu	63	72	3	He	0.070	ug/l	643.89
Cu	65	72	1	No Gas	0.078	ug/l	1153.85
Zn	66	72	1	No Gas	0.010	ug/l	575.07
Zn	66	72	3	He	-0.009	ug/l	87.78
As	75	72	1	No Gas	-0.718	ug/l	10988.56
As	75	72	3	He	-0.081	ug/l	94.07
Se	78	72	2	H2	0.122	ug/l	67.55
Br	79	72	1	No Gas	4.493	ug/l	137129.70
Br	79	72	2	H2	4.307	ug/l	59731.37
Se	82	72	1	No Gas	0.602	ug/l	867.57
Kr	84	72	1	No Gas		ug/l	20640.53
Sr	88	72	1	No Gas	0.000	ug/l	808.43
Sr	88	72	3	He	-0.008	ug/l	307.79
Mo	95	115	1	No Gas	0.283	ug/l	2994.78
Mo	95	115	3	He	0.193	ug/l	701.13
Mo	98	115	1	No Gas	0.270	ug/l	4588.41
Ag	107	115	1	No Gas	0.001	ug/l	77.36
Ag	109	115	1	No Gas	0.001	ug/l	82.70
Cd	111	115	1	No Gas	0.010	ug/l	50.73

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.007	ug/l	12.78
Cd	114	115	1	No Gas	0.008	ug/l	90.45
Cd	114	115	3	He	0.005	ug/l	24.06
Sn	118	115	1	No Gas	0.013	ug/l	1320.78
Sn	118	115	3	He	0.014	ug/l	318.89
Sb	121	115	1	No Gas	0.047	ug/l	1180.84
Sb	121	115	3	He	0.050	ug/l	312.04
Sb	123	115	1	No Gas	0.047	ug/l	886.79
Sb	123	115	3	He	0.054	ug/l	261.70
Ba	135	115	1	No Gas	0.004	ug/l	53.23
Ba	137	115	1	No Gas	-0.001	ug/l	43.25
La	139	115	3	He	0.000	ug/l	11.11
Ce	140	115	3	He	0.000	ug/l	16.67
Hg	201	209	1	No Gas	0.001	ug/l	17.67
Hg	202	209	1	No Gas	0.002	ug/l	77.99
Hg	202	209	3	He	0.002	ug/l	24.33
Tl	203	209	3	He	0.023	ug/l	256.77
Tl	205	209	1	No Gas	0.013	ug/l	1026.71
Tl	205	209	3	He	0.024	ug/l	650.95
[Pb]	206	209	1	No Gas	0.003	ug/l	214.45
[Pb]	207	209	1	No Gas	0.002	ug/l	158.89
Pb	208	209	1	No Gas	0.002	ug/l	763.35
Th	232	209	3	He	0.008	ug/l	359.48
U	238	209	1	No Gas	0.001	ug/l	76.34

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5674806.00	98.6
Sc	45	2	H2	2420128.96	100.1
Sc	45	3	He	312474.51	97.6
Ge	72	1	No Gas	1320525.10	99.5
Ge	72	2	H2	756030.73	101.3
Ge	72	3	He	187277.53	99.7
In	115	1	No Gas	9903901.48	104.4
In	115	3	He	2145901.29	101.7
Tb	159	1	No Gas	14090231.82	105.0
Tb	159	3	He	5622467.16	102.5
Ho	165	1	No Gas	13776081.22	103.6
Ho	165	3	He	5531756.87	101.4
Lu	175	1	No Gas	13205395.24	104.2
Lu	175	3	He	4522260.64	102.3
Bi	209	1	No Gas	8749494.15	106.2
Bi	209	3	He	3753559.95	104.0

ICPMS207-B Analytical Data

Sample Name Rinse
File Name 039BLKV.d
Data Path Name D:\Agilent\ICPMH1\DATA\220311ADoDb.b
Acq Time 2022-03-11 22:10:09
Sample Type BlkVrfy
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.027	ug/l	26987.28
Be	9	45	1	No Gas	-0.015	ug/l	110.65
B	11	45	1	No Gas	0.374	ug/l	5434.49
Na	23	45	3	He	23.871	ug/l	66294.03
Mg	24	45	3	He	1.709	ug/l	1114.50
Al	27	45	1	No Gas	1.221	ug/l	35968.66
Si	28	45	2	H2	-0.467	ug/l	14802.00
K	39	72	3	He	1.827	ug/l	65987.79
Ca	40	72	2	H2	1.561	ug/l	56763.33
Ti	47	72	1	No Gas	0.283	ug/l	892.60
V	51	72	1	No Gas	0.515	ug/l	-1887.99
V	51	72	3	He	-2.441	ug/l	3985.01
Cr	52	72	1	No Gas	-1.325	ug/l	28961.03
Cr	52	72	3	He	-0.018	ug/l	276.67
Mn	55	72	1	No Gas	0.009	ug/l	6541.85
Mn	55	72	3	He	-0.001	ug/l	109.98
Fe	56	72	2	H2	0.773	ug/l	23108.02
Fe	56	72	3	He	0.568	ug/l	8399.20
Co	59	72	1	No Gas	-0.003	ug/l	239.53
Ni	60	72	1	No Gas	-0.004	ug/l	492.37
Ni	60	72	3	He	-0.019	ug/l	70.00
Cu	63	72	1	No Gas	0.818	ug/l	17020.04
Cu	63	72	3	He	0.049	ug/l	541.23
Cu	65	72	1	No Gas	0.051	ug/l	940.41
Zn	66	72	1	No Gas	-0.009	ug/l	495.16
Zn	66	72	3	He	0.007	ug/l	103.33
As	75	72	1	No Gas	-0.977	ug/l	9802.44
As	75	72	3	He	-0.079	ug/l	95.80
Se	78	72	2	H2	0.074	ug/l	45.56
Br	79	72	1	No Gas	3.948	ug/l	131559.96
Br	79	72	2	H2	3.968	ug/l	57814.45
Se	82	72	1	No Gas	0.230	ug/l	753.16
Kr	84	72	1	No Gas		ug/l	20140.82
Sr	88	72	1	No Gas	-0.002	ug/l	741.89
Sr	88	72	3	He	-0.005	ug/l	323.34
Mo	95	115	1	No Gas	0.065	ug/l	818.92
Mo	95	115	3	He	0.045	ug/l	235.56
Mo	98	115	1	No Gas	0.061	ug/l	1232.29
Ag	107	115	1	No Gas	0.001	ug/l	69.36
Ag	109	115	1	No Gas	0.001	ug/l	78.03
Cd	111	115	1	No Gas	0.008	ug/l	36.59

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	8.44
Cd	114	115	1	No Gas	0.007	ug/l	69.04
Cd	114	115	3	He	0.005	ug/l	21.11
Sn	118	115	1	No Gas	0.008	ug/l	1214.31
Sn	118	115	3	He	0.021	ug/l	350.01
Sb	121	115	1	No Gas	0.034	ug/l	882.12
Sb	121	115	3	He	0.034	ug/l	232.03
Sb	123	115	1	No Gas	0.034	ug/l	667.41
Sb	123	115	3	He	0.034	ug/l	177.02
Ba	135	115	1	No Gas	0.005	ug/l	56.55
Ba	137	115	1	No Gas	0.001	ug/l	63.21
La	139	115	3	He	0.000	ug/l	7.78
Ce	140	115	3	He	0.000	ug/l	7.78
Hg	201	209	1	No Gas	0.003	ug/l	22.00
Hg	202	209	1	No Gas	0.001	ug/l	70.32
Hg	202	209	3	He	0.000	ug/l	20.00
Tl	203	209	3	He	0.022	ug/l	252.77
Tl	205	209	1	No Gas	0.011	ug/l	890.04
Tl	205	209	3	He	0.019	ug/l	552.23
[Pb]	206	209	1	No Gas	0.002	ug/l	190.00
[Pb]	207	209	1	No Gas	0.004	ug/l	183.34
Pb	208	209	1	No Gas	0.002	ug/l	770.02
Th	232	209	3	He	0.006	ug/l	291.45
U	238	209	1	No Gas	0.005	ug/l	334.95

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5653049.15	98.2
Sc	45	2	H2	2460389.45	101.7
Sc	45	3	He	309841.87	96.8
Ge	72	1	No Gas	1332344.25	100.4
Ge	72	2	H2	753168.15	100.9
Ge	72	3	He	187365.62	99.8
In	115	1	No Gas	9899084.39	104.4
In	115	3	He	2162464.77	102.5
Tb	159	1	No Gas	14141939.04	105.4
Tb	159	3	He	5663207.43	103.3
Ho	165	1	No Gas	13989588.16	105.2
Ho	165	3	He	5602175.31	102.7
Lu	175	1	No Gas	13400145.82	105.8
Lu	175	3	He	4557113.46	103.1
Bi	209	1	No Gas	8710537.86	105.7
Bi	209	3	He	3738086.52	103.5

ICPMS207-B Analytical Data

Sample Name CCV
File Name 040_CCV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-11 22:16:23
Sample Type CCV
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	569.450	ug/l	8915276.24
Be	9	45	1	No Gas	45.759	ug/l	247633.17
B	11	45	1	No Gas	48.238	ug/l	141840.30
Na	23	45	3	He	12562.622	ug/l	12496551.48
Mg	24	45	3	He	12605.656	ug/l	6892898.75
Al	27	45	1	No Gas	49.340	ug/l	1205767.75
Si	28	45	2	H2	200.513	ug/l	414705.35
K	39	72	3	He	12118.923	ug/l	6546617.54
Ca	40	72	2	H2	12755.375	ug/l	94755941.77
Ti	47	72	1	No Gas	48.555	ug/l	122785.36
V	51	72	1	No Gas	45.046	ug/l	1466408.50
V	51	72	3	He	47.013	ug/l	238317.46
Cr	52	72	1	No Gas	48.112	ug/l	1496419.87
Cr	52	72	3	He	48.913	ug/l	259792.93
Mn	55	72	1	No Gas	49.432	ug/l	1948086.99
Mn	55	72	3	He	50.296	ug/l	181365.02
Fe	56	72	2	H2	1325.389	ug/l	20396397.34
Fe	56	72	3	He	1304.130	ug/l	6145139.82
Co	59	72	1	No Gas	49.733	ug/l	1612038.21
Ni	60	72	1	No Gas	50.565	ug/l	359195.06
Ni	60	72	3	He	52.415	ug/l	101101.33
Cu	63	72	1	No Gas	51.199	ug/l	865859.08
Cu	63	72	3	He	51.631	ug/l	263946.29
Cu	65	72	1	No Gas	50.488	ug/l	409992.48
Zn	66	72	1	No Gas	50.425	ug/l	242238.59
Zn	66	72	3	He	51.642	ug/l	49868.19
As	75	72	1	No Gas	49.497	ug/l	262948.21
As	75	72	3	He	49.873	ug/l	36662.77
Se	78	72	2	H2	52.926	ug/l	24382.30
Br	79	72	1	No Gas	2.145	ug/l	112611.52
Br	79	72	2	H2	1.360	ug/l	44877.12
Se	82	72	1	No Gas	52.381	ug/l	17462.78
Kr	84	72	1	No Gas		ug/l	35953.38
Sr	88	72	1	No Gas	49.496	ug/l	2321657.37
Sr	88	72	3	He	49.186	ug/l	266905.21
Mo	95	115	1	No Gas	48.926	ug/l	462566.33
Mo	95	115	3	He	49.893	ug/l	155644.69
Mo	98	115	1	No Gas	49.518	ug/l	754085.72
Ag	107	115	1	No Gas	19.774	ug/l	466941.19
Ag	109	115	1	No Gas	19.624	ug/l	445704.20
Cd	111	115	1	No Gas	50.378	ug/l	251353.32

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.823	ug/l	79231.15
Cd	114	115	1	No Gas	51.185	ug/l	565508.92
Cd	114	115	3	He	51.675	ug/l	194434.30
Sn	118	115	1	No Gas	49.853	ug/l	735375.82
Sn	118	115	3	He	49.554	ug/l	191595.23
Sb	121	115	1	No Gas	49.803	ug/l	1041295.30
Sb	121	115	3	He	49.769	ug/l	262740.38
Sb	123	115	1	No Gas	49.744	ug/l	786351.71
Sb	123	115	3	He	49.570	ug/l	205335.77
Ba	135	115	1	No Gas	49.312	ug/l	229079.33
Ba	137	115	1	No Gas	49.828	ug/l	402841.97
La	139	115	3	He	50.932	ug/l	1129362.30
Ce	140	115	3	He	51.058	ug/l	1235578.21
Hg	201	209	1	No Gas	0.975	ug/l	3020.07
Hg	202	209	1	No Gas	0.972	ug/l	6899.74
Hg	202	209	3	He	0.993	ug/l	3013.07
Tl	203	209	3	He	48.264	ug/l	419197.93
Tl	205	209	1	No Gas	48.096	ug/l	2274918.96
Tl	205	209	3	He	48.971	ug/l	1019163.39
[Pb]	206	209	1	No Gas	49.312	ug/l	806392.62
[Pb]	207	209	1	No Gas	48.384	ug/l	698872.72
Pb	208	209	1	No Gas	48.706	ug/l	3223634.61
Th	232	209	3	He	48.566	ug/l	1440506.23
U	238	209	1	No Gas	48.072	ug/l	3224776.98

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5391919.95	93.7
Sc	45	2	H2	2378392.68	98.3
Sc	45	3	He	321141.28	100.3
Ge	72	1	No Gas	1333527.63	100.5
Ge	72	2	H2	761651.93	102.0
Ge	72	3	He	192556.10	102.5
In	115	1	No Gas	9428946.24	99.4
In	115	3	He	2122529.08	100.6
Tb	159	1	No Gas	13992364.58	104.3
Tb	159	3	He	5656489.52	103.1
Ho	165	1	No Gas	13899775.43	104.5
Ho	165	3	He	5597783.84	102.6
Lu	175	1	No Gas	13257102.16	104.6
Lu	175	3	He	4561122.37	103.2
Bi	209	1	No Gas	8480088.24	102.9
Bi	209	3	He	3658847.64	101.3

ICPMS207-B Analytical Data

Sample Name CCB
File Name 041_CCB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-11 22:22:38
Sample Type CCB
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.434	ug/l	32438.77
Be	9	45	1	No Gas	-0.008	ug/l	146.31
B	11	45	1	No Gas	0.620	ug/l	5955.57
Na	23	45	3	He	14.835	ug/l	58881.32
Mg	24	45	3	He	0.166	ug/l	306.06
Al	27	45	1	No Gas	0.056	ug/l	6707.58
Si	28	45	2	H2	-0.649	ug/l	14281.26
K	39	72	3	He	3.747	ug/l	67861.69
Ca	40	72	2	H2	-0.026	ug/l	46469.07
Ti	47	72	1	No Gas	0.126	ug/l	483.83
V	51	72	1	No Gas	-0.098	ug/l	-22273.25
V	51	72	3	He	-1.260	ug/l	9549.81
Cr	52	72	1	No Gas	-0.891	ug/l	40685.37
Cr	52	72	3	He	-0.012	ug/l	312.23
Mn	55	72	1	No Gas	0.031	ug/l	7237.45
Mn	55	72	3	He	-0.005	ug/l	98.65
Fe	56	72	2	H2	0.386	ug/l	17735.21
Fe	56	72	3	He	0.359	ug/l	7536.19
Co	59	72	1	No Gas	-0.002	ug/l	259.49
Ni	60	72	1	No Gas	-0.015	ug/l	409.20
Ni	60	72	3	He	-0.029	ug/l	53.33
Cu	63	72	1	No Gas	0.558	ug/l	12354.84
Cu	63	72	3	He	0.035	ug/l	479.25
Cu	65	72	1	No Gas	0.040	ug/l	827.69
Zn	66	72	1	No Gas	-0.009	ug/l	477.59
Zn	66	72	3	He	0.019	ug/l	115.56
As	75	72	1	No Gas	-0.637	ug/l	11103.11
As	75	72	3	He	-0.048	ug/l	118.80
Se	78	72	2	H2	0.075	ug/l	47.44
Br	79	72	1	No Gas	1.166	ug/l	98779.05
Br	79	72	2	H2	0.168	ug/l	39405.64
Se	82	72	1	No Gas	0.532	ug/l	822.76
Kr	84	72	1	No Gas		ug/l	20950.44
Sr	88	72	1	No Gas	-0.004	ug/l	612.14
Sr	88	72	3	He	0.034	ug/l	536.82
Mo	95	115	1	No Gas	0.039	ug/l	534.46
Mo	95	115	3	He	0.023	ug/l	163.34
Mo	98	115	1	No Gas	0.038	ug/l	831.92
Ag	107	115	1	No Gas	0.001	ug/l	78.03
Ag	109	115	1	No Gas	0.001	ug/l	80.70
Cd	111	115	1	No Gas	0.010	ug/l	44.21

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.005	ug/l	10.33
Cd	114	115	1	No Gas	0.010	ug/l	99.09
Cd	114	115	3	He	0.006	ug/l	26.25
Sn	118	115	1	No Gas	0.077	ug/l	2182.52
Sn	118	115	3	He	0.074	ug/l	554.46
Sb	121	115	1	No Gas	0.249	ug/l	5293.22
Sb	121	115	3	He	0.173	ug/l	966.47
Sb	123	115	1	No Gas	0.251	ug/l	4029.67
Sb	123	115	3	He	0.171	ug/l	747.10
Ba	135	115	1	No Gas	0.001	ug/l	36.59
Ba	137	115	1	No Gas	-0.001	ug/l	39.92
La	139	115	3	He	0.000	ug/l	8.89
Ce	140	115	3	He	0.000	ug/l	11.11
Hg	201	209	1	No Gas	0.005	ug/l	29.33
Hg	202	209	1	No Gas	0.002	ug/l	72.99
Hg	202	209	3	He	0.002	ug/l	25.66
Tl	203	209	3	He	0.120	ug/l	1137.84
Tl	205	209	1	No Gas	0.094	ug/l	4838.71
Tl	205	209	3	He	0.128	ug/l	2911.49
[Pb]	206	209	1	No Gas	0.005	ug/l	240.00
[Pb]	207	209	1	No Gas	0.006	ug/l	210.01
Pb	208	209	1	No Gas	0.005	ug/l	954.47
Th	232	209	3	He	0.033	ug/l	1122.50
U	238	209	1	No Gas	0.002	ug/l	122.65

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5406065.66	94.0
Sc	45	2	H2	2436714.63	100.8
Sc	45	3	He	316457.86	98.9
Ge	72	1	No Gas	1291812.37	97.3
Ge	72	2	H2	775369.37	103.8
Ge	72	3	He	189822.49	101.1
In	115	1	No Gas	9415796.99	99.3
In	115	3	He	2138726.04	101.4
Tb	159	1	No Gas	13607452.49	101.4
Tb	159	3	He	5636388.28	102.8
Ho	165	1	No Gas	13362578.88	100.5
Ho	165	3	He	5609002.19	102.8
Lu	175	1	No Gas	12948519.52	102.2
Lu	175	3	He	4559166.87	103.1
Bi	209	1	No Gas	8575317.86	104.1
Bi	209	3	He	3797503.69	105.2

ICPMS207-B Analytical Data

Sample Name MB-164321
File Name 042ARef.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 22:28:53
Sample Type AIRRef
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.063	ug/l	27868.58
Be	9	45	1	No Gas	-0.014	ug/l	119.98
B	11	45	1	No Gas	0.599	ug/l	6161.73
Na	23	45	3	He	12.719	ug/l	55091.45
Mg	24	45	3	He	1.087	ug/l	778.48
Al	27	45	1	No Gas	1.179	ug/l	35347.26
Si	28	45	2	H2	12.384	ug/l	39533.45
K	39	72	3	He	1.805	ug/l	64776.88
Ca	40	72	2	H2	43.082	ug/l	355818.18
Ti	47	72	1	No Gas	0.330	ug/l	1016.06
V	51	72	1	No Gas	0.577	ug/l	110.30
V	51	72	3	He	-1.268	ug/l	9221.81
Cr	52	72	1	No Gas	-0.593	ug/l	51063.86
Cr	52	72	3	He	0.014	ug/l	434.45
Mn	55	72	1	No Gas	0.165	ug/l	12800.21
Mn	55	72	3	He	0.023	ug/l	192.96
Fe	56	72	2	H2	1.688	ug/l	36411.57
Fe	56	72	3	He	1.703	ug/l	13346.17
Co	59	72	1	No Gas	0.003	ug/l	455.77
Ni	60	72	1	No Gas	0.009	ug/l	595.51
Ni	60	72	3	He	0.007	ug/l	117.78
Cu	63	72	1	No Gas	0.610	ug/l	13707.92
Cu	63	72	3	He	0.096	ug/l	760.20
Cu	65	72	1	No Gas	0.081	ug/l	1193.86
Zn	66	72	1	No Gas	0.136	ug/l	1189.56
Zn	66	72	3	He	0.146	ug/l	228.89
As	75	72	1	No Gas	-0.406	ug/l	12683.21
As	75	72	3	He	0.000	ug/l	149.07
Se	78	72	2	H2	0.069	ug/l	42.67
Br	79	72	1	No Gas	0.740	ug/l	98286.11
Br	79	72	2	H2	0.543	ug/l	39552.33
Se	82	72	1	No Gas	0.296	ug/l	781.02
Kr	84	72	1	No Gas		ug/l	20630.51
Sr	88	72	1	No Gas	0.033	ug/l	2385.49
Sr	88	72	3	He	0.031	ug/l	500.01
Mo	95	115	1	No Gas	0.027	ug/l	458.90
Mo	95	115	3	He	0.016	ug/l	141.12
Mo	98	115	1	No Gas	0.029	ug/l	736.43
Ag	107	115	1	No Gas	0.000	ug/l	48.69
Ag	109	115	1	No Gas	0.000	ug/l	54.69
Cd	111	115	1	No Gas	0.007	ug/l	32.94

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.005	ug/l	9.55
Cd	114	115	1	No Gas	0.007	ug/l	73.11
Cd	114	115	3	He	0.006	ug/l	25.51
Sn	118	115	1	No Gas	0.271	ug/l	5360.42
Sn	118	115	3	He	0.289	ug/l	1372.30
Sb	121	115	1	No Gas	0.093	ug/l	2207.40
Sb	121	115	3	He	0.089	ug/l	511.73
Sb	123	115	1	No Gas	0.092	ug/l	1649.26
Sb	123	115	3	He	0.092	ug/l	411.38
Ba	135	115	1	No Gas	0.103	ug/l	542.27
Ba	137	115	1	No Gas	0.095	ug/l	874.96
La	139	115	3	He	0.001	ug/l	37.78
Ce	140	115	3	He	0.001	ug/l	35.56
Hg	201	209	1	No Gas	0.009	ug/l	43.66
Hg	202	209	1	No Gas	0.007	ug/l	117.31
Hg	202	209	3	He	0.009	ug/l	47.66
Tl	203	209	3	He	0.042	ug/l	422.18
Tl	205	209	1	No Gas	0.026	ug/l	1680.12
Tl	205	209	3	He	0.039	ug/l	965.76
[Pb]	206	209	1	No Gas	0.012	ug/l	373.34
[Pb]	207	209	1	No Gas	0.014	ug/l	347.79
Pb	208	209	1	No Gas	0.012	ug/l	1541.15
Th	232	209	3	He	0.042	ug/l	1379.30
U	238	209	1	No Gas	0.001	ug/l	85.99

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5605429.29	97.4
Sc	45	2	H2	2355810.23	97.4
Sc	45	3	He	306846.06	95.9
Ge	72	1	No Gas	1336554.27	100.7
Ge	72	2	H2	741030.78	99.2
Ge	72	3	He	183956.66	98.0
In	115	1	No Gas	9980239.15	105.3
In	115	3	He	2111205.11	100.1
Tb	159	1	No Gas	14463479.01	107.8
Tb	159	3	He	5685035.20	103.7
Ho	165	1	No Gas	14186117.07	106.7
Ho	165	3	He	5627318.53	103.1
Lu	175	1	No Gas	13774074.22	108.7
Lu	175	3	He	4511730.32	102.0
Bi	209	1	No Gas	9029015.68	109.6
Bi	209	3	He	3716302.17	102.9

ICPMS207-B Analytical Data

Sample Name MB-164435
File Name 043ARef.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 22:35:07
Sample Type AIRRef
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.442	ug/l	17203.95
Be	9	45	1	No Gas	-0.011	ug/l	127.64
B	11	45	1	No Gas	0.641	ug/l	6086.33
Na	23	45	3	He	10.611	ug/l	54035.32
Mg	24	45	3	He	1.213	ug/l	858.33
Al	27	45	1	No Gas	1.588	ug/l	44258.46
Si	28	45	2	H2	26.512	ug/l	69764.45
K	39	72	3	He	-2.185	ug/l	63551.64
Ca	40	72	2	H2	64.669	ug/l	519249.53
Ti	47	72	1	No Gas	0.396	ug/l	1164.56
V	51	72	1	No Gas	1.529	ug/l	30560.69
V	51	72	3	He	-1.799	ug/l	6904.99
Cr	52	72	1	No Gas	-0.774	ug/l	44849.34
Cr	52	72	3	He	0.031	ug/l	530.01
Mn	55	72	1	No Gas	0.356	ug/l	19947.22
Mn	55	72	3	He	0.073	ug/l	367.93
Fe	56	72	2	H2	2.236	ug/l	45226.45
Fe	56	72	3	He	2.251	ug/l	16018.20
Co	59	72	1	No Gas	0.032	ug/l	1374.01
Ni	60	72	1	No Gas	0.004	ug/l	552.25
Ni	60	72	3	He	0.010	ug/l	124.45
Cu	63	72	1	No Gas	0.585	ug/l	13025.02
Cu	63	72	3	He	0.138	ug/l	976.51
Cu	65	72	1	No Gas	0.124	ug/l	1514.69
Zn	66	72	1	No Gas	0.096	ug/l	973.54
Zn	66	72	3	He	0.116	ug/l	204.45
As	75	72	1	No Gas	-0.830	ug/l	10415.44
As	75	72	3	He	-0.060	ug/l	108.40
Se	78	72	2	H2	0.051	ug/l	34.89
Br	79	72	1	No Gas	3.618	ug/l	126957.79
Br	79	72	2	H2	3.115	ug/l	53299.38
Se	82	72	1	No Gas	0.618	ug/l	866.36
Kr	84	72	1	No Gas		ug/l	20474.01
Sr	88	72	1	No Gas	0.054	ug/l	3290.54
Sr	88	72	3	He	0.047	ug/l	592.24
Mo	95	115	1	No Gas	0.033	ug/l	501.12
Mo	95	115	3	He	0.024	ug/l	171.11
Mo	98	115	1	No Gas	0.034	ug/l	797.33
Ag	107	115	1	No Gas	0.001	ug/l	77.37
Ag	109	115	1	No Gas	0.000	ug/l	64.03
Cd	111	115	1	No Gas	0.006	ug/l	27.29

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.005	ug/l	9.33
Cd	114	115	1	No Gas	0.006	ug/l	56.30
Cd	114	115	3	He	0.004	ug/l	18.03
Sn	118	115	1	No Gas	0.286	ug/l	5410.31
Sn	118	115	3	He	0.286	ug/l	1402.31
Sb	121	115	1	No Gas	0.055	ug/l	1328.53
Sb	121	115	3	He	0.055	ug/l	342.37
Sb	123	115	1	No Gas	0.055	ug/l	996.80
Sb	123	115	3	He	0.056	ug/l	273.03
Ba	135	115	1	No Gas	0.103	ug/l	522.31
Ba	137	115	1	No Gas	0.093	ug/l	825.06
La	139	115	3	He	0.001	ug/l	24.45
Ce	140	115	3	He	0.002	ug/l	48.89
Hg	201	209	1	No Gas	0.017	ug/l	65.32
Hg	202	209	1	No Gas	0.016	ug/l	175.30
Hg	202	209	3	He	0.019	ug/l	76.32
Tl	203	209	3	He	0.038	ug/l	390.16
Tl	205	209	1	No Gas	0.030	ug/l	1803.47
Tl	205	209	3	He	0.035	ug/l	899.06
[Pb]	206	209	1	No Gas	0.034	ug/l	721.13
[Pb]	207	209	1	No Gas	0.034	ug/l	620.02
Pb	208	209	1	No Gas	0.033	ug/l	2813.46
Th	232	209	3	He	0.043	ug/l	1413.98
U	238	209	1	No Gas	0.001	ug/l	59.66

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5434674.59	94.5
Sc	45	2	H2	2437364.89	100.8
Sc	45	3	He	312247.35	97.6
Ge	72	1	No Gas	1312685.99	98.9
Ge	72	2	H2	751495.25	100.6
Ge	72	3	He	186338.47	99.2
In	115	1	No Gas	9677582.41	102.1
In	115	3	He	2176700.40	103.2
Tb	159	1	No Gas	14044120.60	104.7
Tb	159	3	He	5773277.92	105.3
Ho	165	1	No Gas	14060595.52	105.8
Ho	165	3	He	5750252.45	105.4
Lu	175	1	No Gas	13401168.61	105.8
Lu	175	3	He	4658638.84	105.4
Bi	209	1	No Gas	8509512.14	103.3
Bi	209	3	He	3747267.17	103.8

ICPMS207-B Analytical Data

Sample Name LCS4-164321
File Name 044LCS4.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-11 22:41:21
Sample Type LCS4
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	81.454	ug/l	1296083.02
Be	9	45	1	No Gas	41.783	ug/l	228223.43
B	11	45	1	No Gas	88.815	ug/l	260120.06
Na	23	45	3	He	4981.315	ug/l	4809385.14
Mg	24	45	3	He	5009.821	ug/l	2644322.59
Al	27	45	1	No Gas	450.185	ug/l	11070930.95
Si	28	45	2	H2	960.743	ug/l	1879159.50
K	39	72	3	He	4768.254	ug/l	2541175.40
Ca	40	72	2	H2	4920.011	ug/l	36470438.32
Ti	47	72	1	No Gas	91.103	ug/l	226969.36
V	51	72	1	No Gas	77.866	ug/l	2510994.84
V	51	72	3	He	81.324	ug/l	389304.30
Cr	52	72	1	No Gas	95.999	ug/l	2875158.79
Cr	52	72	3	He	98.226	ug/l	506361.74
Mn	55	72	1	No Gas	484.679	ug/l	18778127.56
Mn	55	72	3	He	493.285	ug/l	1726467.69
Fe	56	72	2	H2	502.864	ug/l	7722543.05
Fe	56	72	3	He	497.063	ug/l	2278101.23
Co	59	72	1	No Gas	97.457	ug/l	3113669.12
Ni	60	72	1	No Gas	95.991	ug/l	671928.19
Ni	60	72	3	He	104.388	ug/l	195431.56
Cu	63	72	1	No Gas	98.685	ug/l	1642179.86
Cu	63	72	3	He	104.453	ug/l	518320.51
Cu	65	72	1	No Gas	99.249	ug/l	794047.69
Zn	66	72	1	No Gas	95.537	ug/l	452012.62
Zn	66	72	3	He	100.022	ug/l	93725.90
As	75	72	1	No Gas	93.721	ug/l	477971.99
As	75	72	3	He	96.095	ug/l	68467.00
Se	78	72	2	H2	98.441	ug/l	45194.29
Br	79	72	1	No Gas	-0.402	ug/l	84365.28
Br	79	72	2	H2	-0.739	ug/l	33899.10
Se	82	72	1	No Gas	98.316	ug/l	31697.06
Kr	84	72	1	No Gas		ug/l	51032.28
Sr	88	72	1	No Gas	101.024	ug/l	4669667.71
Sr	88	72	3	He	100.610	ug/l	529858.47
Mo	95	115	1	No Gas	91.683	ug/l	906940.70
Mo	95	115	3	He	99.511	ug/l	309285.08
Mo	98	115	1	No Gas	93.486	ug/l	1489447.17
Ag	107	115	1	No Gas	9.228	ug/l	228087.07
Ag	109	115	1	No Gas	9.310	ug/l	221263.83
Cd	111	115	1	No Gas	47.248	ug/l	246584.25

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.043	ug/l	77758.81
Cd	114	115	1	No Gas	48.064	ug/l	555516.08
Cd	114	115	3	He	50.556	ug/l	189548.69
Sn	118	115	1	No Gas	93.440	ug/l	1440972.88
Sn	118	115	3	He	97.029	ug/l	373569.06
Sb	121	115	1	No Gas	92.898	ug/l	2031605.09
Sb	121	115	3	He	98.243	ug/l	516732.15
Sb	123	115	1	No Gas	95.711	ug/l	1582715.76
Sb	123	115	3	He	99.504	ug/l	410646.42
Ba	135	115	1	No Gas	88.458	ug/l	429780.85
Ba	137	115	1	No Gas	88.562	ug/l	748773.52
La	139	115	3	He	104.427	ug/l	2306531.16
Ce	140	115	3	He	104.685	ug/l	2524041.18
Hg	201	209	1	No Gas	0.006	ug/l	32.66
Hg	202	209	1	No Gas	0.005	ug/l	103.31
Hg	202	209	3	He	0.006	ug/l	37.32
Tl	203	209	3	He	97.885	ug/l	866804.68
Tl	205	209	1	No Gas	94.442	ug/l	4697246.28
Tl	205	209	3	He	98.665	ug/l	2093457.94
[Pb]	206	209	1	No Gas	94.772	ug/l	1629573.48
[Pb]	207	209	1	No Gas	94.149	ug/l	1429454.41
Pb	208	209	1	No Gas	94.978	ug/l	6609725.93
Th	232	209	3	He	95.842	ug/l	2898379.10
U	238	209	1	No Gas	94.542	ug/l	6669761.99

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5434187.13	94.4
Sc	45	2	H2	2314755.18	95.7
Sc	45	3	He	309998.64	96.9
Ge	72	1	No Gas	1314293.17	99.0
Ge	72	2	H2	759444.45	101.7
Ge	72	3	He	187034.18	99.6
In	115	1	No Gas	9851637.38	103.9
In	115	3	He	2115157.74	100.2
Tb	159	1	No Gas	14473735.52	107.9
Tb	159	3	He	5865552.43	107.0
Ho	165	1	No Gas	14398527.50	108.3
Ho	165	3	He	5740834.23	105.2
Lu	175	1	No Gas	13871874.62	109.5
Lu	175	3	He	4604767.10	104.1
Bi	209	1	No Gas	8914705.11	108.2
Bi	209	3	He	3729978.54	103.3

ICPMS207-B Analytical Data

Sample Name LCS4-164435
File Name 045LCS4.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-11 22:47:35
Sample Type LCS4
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	78.374	ug/l	1273811.85
Be	9	45	1	No Gas	39.005	ug/l	217600.71
B	11	45	1	No Gas	88.300	ug/l	264272.50
Na	23	45	3	He	4882.379	ug/l	4676420.66
Mg	24	45	3	He	4930.412	ug/l	2581366.19
Al	27	45	1	No Gas	434.711	ug/l	10898062.48
Si	28	45	2	H2	989.049	ug/l	1943388.14
K	39	72	3	He	4608.794	ug/l	2439360.16
Ca	40	72	2	H2	4850.631	ug/l	36025221.04
Ti	47	72	1	No Gas	95.573	ug/l	243047.88
V	51	72	1	No Gas	86.061	ug/l	2837124.40
V	51	72	3	He	93.497	ug/l	441854.35
Cr	52	72	1	No Gas	92.037	ug/l	2818062.65
Cr	52	72	3	He	97.576	ug/l	499082.61
Mn	55	72	1	No Gas	468.366	ug/l	18524518.73
Mn	55	72	3	He	490.432	ug/l	1703344.96
Fe	56	72	2	H2	501.589	ug/l	7717289.46
Fe	56	72	3	He	497.546	ug/l	2262949.46
Co	59	72	1	No Gas	94.956	ug/l	3097741.83
Ni	60	72	1	No Gas	93.866	ug/l	671116.40
Ni	60	72	3	He	102.488	ug/l	190412.34
Cu	63	72	1	No Gas	103.408	ug/l	1757440.50
Cu	63	72	3	He	112.361	ug/l	553242.77
Cu	65	72	1	No Gas	103.889	ug/l	848598.88
Zn	66	72	1	No Gas	89.628	ug/l	432911.25
Zn	66	72	3	He	96.479	ug/l	89715.06
As	75	72	1	No Gas	88.263	ug/l	460480.05
As	75	72	3	He	92.929	ug/l	65707.68
Se	78	72	2	H2	94.888	ug/l	43652.01
Br	79	72	1	No Gas	2.508	ug/l	118027.22
Br	79	72	2	H2	2.256	ug/l	49476.48
Se	82	72	1	No Gas	91.255	ug/l	30106.11
Kr	84	72	1	No Gas		ug/l	50027.38
Sr	88	72	1	No Gas	96.153	ug/l	4538594.59
Sr	88	72	3	He	98.620	ug/l	515395.69
Mo	95	115	1	No Gas	96.038	ug/l	949851.99
Mo	95	115	3	He	104.152	ug/l	322710.86
Mo	98	115	1	No Gas	96.273	ug/l	1535453.79
Ag	107	115	1	No Gas	8.996	ug/l	222417.82
Ag	109	115	1	No Gas	8.950	ug/l	212893.08
Cd	111	115	1	No Gas	45.831	ug/l	239211.30

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	50.322	ug/l	76437.61
Cd	114	115	1	No Gas	46.473	ug/l	537109.07
Cd	114	115	3	He	49.731	ug/l	185904.35
Sn	118	115	1	No Gas	102.618	ug/l	1580986.11
Sn	118	115	3	He	106.504	ug/l	408837.93
Sb	121	115	1	No Gas	95.114	ug/l	2078900.34
Sb	121	115	3	He	100.811	ug/l	528700.04
Sb	123	115	1	No Gas	97.646	ug/l	1613888.76
Sb	123	115	3	He	102.162	ug/l	420398.46
Ba	135	115	1	No Gas	86.819	ug/l	421935.42
Ba	137	115	1	No Gas	88.251	ug/l	745973.93
La	139	115	3	He	102.820	ug/l	2265051.67
Ce	140	115	3	He	103.281	ug/l	2483029.51
Hg	201	209	1	No Gas	0.012	ug/l	51.32
Hg	202	209	1	No Gas	0.013	ug/l	159.63
Hg	202	209	3	He	0.015	ug/l	64.32
Tl	203	209	3	He	97.837	ug/l	860438.60
Tl	205	209	1	No Gas	91.705	ug/l	4592471.70
Tl	205	209	3	He	97.828	ug/l	2061231.86
[Pb]	206	209	1	No Gas	93.088	ug/l	1610783.15
[Pb]	207	209	1	No Gas	92.482	ug/l	1415706.35
Pb	208	209	1	No Gas	92.639	ug/l	6493363.58
Th	232	209	3	He	97.101	ug/l	2915761.74
U	238	209	1	No Gas	95.216	ug/l	6764668.51

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5592758.17	97.2
Sc	45	2	H2	2328046.48	96.3
Sc	45	3	He	307476.87	96.1
Ge	72	1	No Gas	1343877.76	101.3
Ge	72	2	H2	760867.94	101.9
Ge	72	3	He	185575.36	98.8
In	115	1	No Gas	9907746.20	104.5
In	115	3	He	2108618.56	99.9
Tb	159	1	No Gas	14750449.09	110.0
Tb	159	3	He	5773188.77	105.3
Ho	165	1	No Gas	14701453.54	110.6
Ho	165	3	He	5732956.50	105.1
Lu	175	1	No Gas	14230005.55	112.3
Lu	175	3	He	4597429.40	104.0
Bi	209	1	No Gas	9044313.85	109.7
Bi	209	3	He	3703662.13	102.6

ICPMS207-B Analytical Data

Sample Name Rinse
File Name 046BLKV.d
Data Path Name D:\Agilent\ICPMH1\DATA\220311ADoDb.b
Acq Time 2022-03-11 22:53:48
Sample Type BlkVrfy
Total Dilution 1.0000
Comment ICPMS-200.8-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.434	ug/l	17807.56
Be	9	45	1	No Gas	-0.013	ug/l	126.97
B	11	45	1	No Gas	0.326	ug/l	5409.14
Na	23	45	3	He	8.651	ug/l	52719.63
Mg	24	45	3	He	0.154	ug/l	299.41
Al	27	45	1	No Gas	0.042	ug/l	6618.19
Si	28	45	2	H2	-0.171	ug/l	15026.25
K	39	72	3	He	-5.153	ug/l	63645.31
Ca	40	72	2	H2	1.006	ug/l	53958.46
Ti	47	72	1	No Gas	0.074	ug/l	372.05
V	51	72	1	No Gas	0.489	ug/l	-2837.53
V	51	72	3	He	-1.666	ug/l	7712.07
Cr	52	72	1	No Gas	-0.967	ug/l	40108.52
Cr	52	72	3	He	-0.011	ug/l	323.34
Mn	55	72	1	No Gas	0.031	ug/l	7527.04
Mn	55	72	3	He	0.013	ug/l	162.30
Fe	56	72	2	H2	0.212	ug/l	14932.62
Fe	56	72	3	He	0.177	ug/l	6743.37
Co	59	72	1	No Gas	-0.002	ug/l	279.45
Ni	60	72	1	No Gas	-0.013	ug/l	439.14
Ni	60	72	3	He	-0.016	ug/l	78.89
Cu	63	72	1	No Gas	0.245	ug/l	7556.32
Cu	63	72	3	He	0.057	ug/l	594.56
Cu	65	72	1	No Gas	0.056	ug/l	987.10
Zn	66	72	1	No Gas	0.320	ug/l	2078.43
Zn	66	72	3	He	0.330	ug/l	414.45
As	75	72	1	No Gas	-0.737	ug/l	11062.10
As	75	72	3	He	-0.056	ug/l	114.47
Se	78	72	2	H2	0.040	ug/l	30.67
Br	79	72	1	No Gas	-0.926	ug/l	80583.25
Br	79	72	2	H2	-1.410	ug/l	30881.72
Se	82	72	1	No Gas	0.404	ug/l	818.75
Kr	84	72	1	No Gas		ug/l	21103.67
Sr	88	72	1	No Gas	0.001	ug/l	848.35
Sr	88	72	3	He	-0.006	ug/l	321.12
Mo	95	115	1	No Gas	0.015	ug/l	335.56
Mo	95	115	3	He	0.010	ug/l	125.56
Mo	98	115	1	No Gas	0.011	ug/l	459.60
Ag	107	115	1	No Gas	0.002	ug/l	118.05
Ag	109	115	1	No Gas	0.002	ug/l	106.71
Cd	111	115	1	No Gas	0.006	ug/l	28.22

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.005	ug/l	10.55
Cd	114	115	1	No Gas	0.006	ug/l	65.90
Cd	114	115	3	He	0.005	ug/l	24.45
Sn	118	115	1	No Gas	0.044	ug/l	1839.81
Sn	118	115	3	He	0.055	ug/l	481.12
Sb	121	115	1	No Gas	0.568	ug/l	12888.54
Sb	121	115	3	He	0.476	ug/l	2597.17
Sb	123	115	1	No Gas	0.567	ug/l	9720.02
Sb	123	115	3	He	0.480	ug/l	2052.36
Ba	135	115	1	No Gas	-0.004	ug/l	13.31
Ba	137	115	1	No Gas	0.001	ug/l	63.21
La	139	115	3	He	0.000	ug/l	18.89
Ce	140	115	3	He	0.000	ug/l	21.11
Hg	201	209	1	No Gas	0.002	ug/l	21.67
Hg	202	209	1	No Gas	0.001	ug/l	72.65
Hg	202	209	3	He	0.002	ug/l	24.33
Tl	203	209	3	He	0.166	ug/l	1569.39
Tl	205	209	1	No Gas	0.127	ug/l	6997.52
Tl	205	209	3	He	0.166	ug/l	3782.06
[Pb]	206	209	1	No Gas	0.008	ug/l	316.67
[Pb]	207	209	1	No Gas	0.009	ug/l	277.78
Pb	208	209	1	No Gas	0.008	ug/l	1278.92
Th	232	209	3	He	0.053	ug/l	1760.83
U	238	209	1	No Gas	0.002	ug/l	171.63

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5661135.27	98.4
Sc	45	2	H2	2401789.05	99.3
Sc	45	3	He	315726.42	98.7
Ge	72	1	No Gas	1341891.88	101.1
Ge	72	2	H2	771219.24	103.3
Ge	72	3	He	191248.93	101.9
In	115	1	No Gas	10089135.31	106.4
In	115	3	He	2152507.03	102.0
Tb	159	1	No Gas	14759165.73	110.0
Tb	159	3	He	5761145.27	105.1
Ho	165	1	No Gas	14604833.27	109.9
Ho	165	3	He	5705082.48	104.6
Lu	175	1	No Gas	14346462.94	113.2
Lu	175	3	He	4650116.05	105.2
Bi	209	1	No Gas	9325863.39	113.2
Bi	209	3	He	3841144.01	106.4

ICPMS207-B Analytical Data

Sample Name B22030502-001A
File Name 047ARef.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 23:00:02
Sample Type AllRef
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	7.453	ug/l	137988.26
Be	9	45	1	No Gas	-0.015	ug/l	119.31
B	11	45	1	No Gas	44.044	ug/l	141726.78
Na	23	45	3	He	381557.215	ug/l	374982189.97
Mg	24	45	3	He	246849.828	ug/l	133819396.32
Al	27	45	1	No Gas	1.718	ug/l	49419.27
Si	28	45	2	H2	26052.895	ug/l	49812791.30
K	39	72	3	He	7237.780	ug/l	3704129.43
Ca	40	72	2	H2	149371.930	ug/l	1011724882.58
Ti	47	72	1	No Gas	3.379	ug/l	8324.09
V	51	72	1	No Gas	11.337	ug/l	338333.99
V	51	72	3	He	8.184	ug/l	51200.82
Cr	52	72	1	No Gas	9.465	ug/l	333870.46
Cr	52	72	3	He	10.048	ug/l	50495.20
Mn	55	72	1	No Gas	1.545	ug/l	64015.33
Mn	55	72	3	He	1.654	ug/l	5719.31
Fe	56	72	2	H2	9.818	ug/l	148347.40
Fe	56	72	3	He	9.388	ug/l	47182.80
Co	59	72	1	No Gas	0.776	ug/l	24375.26
Ni	60	72	1	No Gas	52.265	ug/l	354536.19
Ni	60	72	3	He	53.843	ug/l	97709.27
Cu	63	72	1	No Gas	4.519	ug/l	75969.08
Cu	63	72	3	He	0.735	ug/l	3820.07
Cu	65	72	1	No Gas	1.461	ug/l	11827.54
Zn	66	72	1	No Gas	2.251	ug/l	10825.55
Zn	66	72	3	He	1.655	ug/l	1594.54
As	75	72	1	No Gas	1.665	ug/l	21988.21
As	75	72	3	He	1.195	ug/l	969.48
Se	78	72	2	H2	4.940	ug/l	2087.82
Br	79	72	1	No Gas	247.132	ug/l	2629939.59
Br	79	72	2	H2	242.933	ug/l	1185453.96
Se	82	72	1	No Gas	12.049	ug/l	4335.48
Kr	84	72	1	No Gas		ug/l	574573.40
Sr	88	72	1	No Gas	1999.566	ug/l	89615723.36
Sr	88	72	3	He	2053.698	ug/l	10471338.32
Mo	95	115	1	No Gas	0.958	ug/l	8986.21
Mo	95	115	3	He	0.982	ug/l	2892.53
Mo	98	115	1	No Gas	0.959	ug/l	14449.02
Ag	107	115	1	No Gas	0.017	ug/l	430.85
Ag	109	115	1	No Gas	0.016	ug/l	398.17
Cd	111	115	1	No Gas	0.021	ug/l	98.97

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.018	ug/l	27.67
Cd	114	115	1	No Gas	0.018	ug/l	185.99
Cd	114	115	3	He	0.017	ug/l	61.23
Sn	118	115	1	No Gas	-0.021	ug/l	741.88
Sn	118	115	3	He	-0.006	ug/l	217.78
Sb	121	115	1	No Gas	0.265	ug/l	5533.32
Sb	121	115	3	He	0.251	ug/l	1254.85
Sb	123	115	1	No Gas	0.278	ug/l	4384.80
Sb	123	115	3	He	0.254	ug/l	995.14
Ba	135	115	1	No Gas	64.033	ug/l	289576.32
Ba	137	115	1	No Gas	64.405	ug/l	507092.47
La	139	115	3	He	0.002	ug/l	47.78
Ce	140	115	3	He	0.002	ug/l	57.78
Hg	201	209	1	No Gas	0.017	ug/l	56.99
Hg	202	209	1	No Gas	0.040	ug/l	300.61
Hg	202	209	3	He	0.033	ug/l	99.98
Tl	203	209	3	He	0.080	ug/l	632.94
Tl	205	209	1	No Gas	0.066	ug/l	3078.16
Tl	205	209	3	He	0.087	ug/l	1663.44
[Pb]	206	209	1	No Gas	0.055	ug/l	937.81
[Pb]	207	209	1	No Gas	0.053	ug/l	794.48
Pb	208	209	1	No Gas	0.054	ug/l	3710.23
Th	232	209	3	He	0.023	ug/l	660.95
U	238	209	1	No Gas	0.083	ug/l	4954.29

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5921632.51	102.9
Sc	45	2	H2	2284361.21	94.5
Sc	45	3	He	318380.58	99.5
Ge	72	1	No Gas	1278265.97	96.3
Ge	72	2	H2	695542.58	93.2
Ge	72	3	He	181170.57	96.5
In	115	1	No Gas	9221286.39	97.2
In	115	3	He	1945751.29	92.2
Tb	159	1	No Gas	13743045.58	102.5
Tb	159	3	He	5275560.64	96.2
Ho	165	1	No Gas	13630178.55	102.5
Ho	165	3	He	5217747.25	95.6
Lu	175	1	No Gas	13116612.71	103.5
Lu	175	3	He	4292561.89	97.1
Bi	209	1	No Gas	7538753.88	91.5
Bi	209	3	He	3097597.26	85.8

ICPMS207-B Analytical Data

Sample Name B22030502-001ADIL
File Name 048SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 23:06:18
Sample Type Sample
Total Dilution 5.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	8.947	ug/l	40842.38
Be	9	45	1	No Gas	-0.092	ug/l	96.65
B	11	45	1	No Gas	50.433	ug/l	35375.32
Na	23	45	3	He	383858.887	ug/l	75606146.65
Mg	24	45	3	He	253808.816	ug/l	27560801.40
Al	27	45	1	No Gas	4.503	ug/l	29192.90
Si	28	45	2	H2	27163.205	ug/l	10922942.51
K	39	72	3	He	7024.671	ug/l	789226.49
Ca	40	72	2	H2	154499.267	ug/l	221239681.89
Ti	47	72	1	No Gas	3.845	ug/l	2120.63
V	51	72	1	No Gas	14.387	ug/l	78158.66
V	51	72	3	He	7.929	ug/l	22350.30
Cr	52	72	1	No Gas	11.894	ug/l	140041.13
Cr	52	72	3	He	10.297	ug/l	10902.98
Mn	55	72	1	No Gas	1.969	ug/l	21829.61
Mn	55	72	3	He	1.823	ug/l	1381.13
Fe	56	72	2	H2	25.181	ug/l	85759.90
Fe	56	72	3	He	25.654	ug/l	29044.55
Co	59	72	1	No Gas	0.854	ug/l	5906.16
Ni	60	72	1	No Gas	54.804	ug/l	78657.57
Ni	60	72	3	He	55.436	ug/l	20714.68
Cu	63	72	1	No Gas	5.207	ug/l	21038.19
Cu	63	72	3	He	1.406	ug/l	1680.43
Cu	65	72	1	No Gas	2.096	ug/l	3954.13
Zn	66	72	1	No Gas	6.014	ug/l	6341.35
Zn	66	72	3	He	5.975	ug/l	1206.72
As	75	72	1	No Gas	1.206	ug/l	15816.80
As	75	72	3	He	1.488	ug/l	360.60
Se	78	72	2	H2	4.752	ug/l	433.56
Br	79	72	1	No Gas	251.543	ug/l	635751.66
Br	79	72	2	H2	252.776	ug/l	289442.69
Se	82	72	1	No Gas	11.350	ug/l	1419.50
Kr	84	72	1	No Gas		ug/l	136588.24
Sr	88	72	1	No Gas	1980.144	ug/l	18681962.18
Sr	88	72	3	He	2048.813	ug/l	2142710.45
Mo	95	115	1	No Gas	1.162	ug/l	2362.43
Mo	95	115	3	He	1.124	ug/l	773.36
Mo	98	115	1	No Gas	1.155	ug/l	3769.28
Ag	107	115	1	No Gas	0.013	ug/l	108.71
Ag	109	115	1	No Gas	0.009	ug/l	96.04
Cd	111	115	1	No Gas	0.038	ug/l	35.32

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.028	ug/l	10.33
Cd	114	115	1	No Gas	0.017	ug/l	34.87
Cd	114	115	3	He	-0.003	ug/l	1.72
Sn	118	115	1	No Gas	9.999	ug/l	30376.04
Sn	118	115	3	He	10.056	ug/l	7837.78
Sb	121	115	1	No Gas	0.782	ug/l	3406.76
Sb	121	115	3	He	0.796	ug/l	865.78
Sb	123	115	1	No Gas	0.811	ug/l	2666.19
Sb	123	115	3	He	0.765	ug/l	650.75
Ba	135	115	1	No Gas	65.283	ug/l	60544.46
Ba	137	115	1	No Gas	66.188	ug/l	106738.67
La	139	115	3	He	0.009	ug/l	51.11
Ce	140	115	3	He	0.004	ug/l	27.78
Hg	201	209	1	No Gas	0.025	ug/l	26.66
Hg	202	209	1	No Gas	0.052	ug/l	126.64
Hg	202	209	3	He	0.028	ug/l	33.66
Tl	203	209	3	He	0.169	ug/l	329.47
Tl	205	209	1	No Gas	0.103	ug/l	1258.96
Tl	205	209	3	He	0.160	ug/l	769.67
[Pb]	206	209	1	No Gas	0.100	ug/l	463.35
[Pb]	207	209	1	No Gas	0.104	ug/l	410.01
Pb	208	209	1	No Gas	0.099	ug/l	1857.84
Th	232	209	3	He	0.067	ug/l	482.87
U	238	209	1	No Gas	0.081	ug/l	1038.50

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5855042.20	101.8
Sc	45	2	H2	2398175.22	99.2
Sc	45	3	He	318884.75	99.6
Ge	72	1	No Gas	1347557.57	101.5
Ge	72	2	H2	734418.10	98.4
Ge	72	3	He	185779.35	98.9
In	115	1	No Gas	9495881.80	100.1
In	115	3	He	2071799.61	98.2
Tb	159	1	No Gas	14284815.14	106.5
Tb	159	3	He	5584956.43	101.8
Ho	165	1	No Gas	14050840.66	105.7
Ho	165	3	He	5543578.49	101.6
Lu	175	1	No Gas	13416197.70	105.9
Lu	175	3	He	4484246.22	101.4
Bi	209	1	No Gas	8129872.01	98.6
Bi	209	3	He	3473355.69	96.2

ICPMS207-B Analytical Data

Sample Name B22030502-001AMS
File Name 049MS.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 23:12:31
Sample Type MS
Total Dilution 1.0300
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1951.416	ug/l	30240681.24
Be	9	45	1	No Gas	41.759	ug/l	223827.71
B	11	45	1	No Gas	91.086	ug/l	261794.16
Na	23	45	3	He	421468.246	ug/l	383202803.18
Mg	24	45	3	He	289590.965	ug/l	145229100.54
Al	27	45	1	No Gas	47.092	ug/l	1140578.40
Si	28	45	2	H2	26108.607	ug/l	45881402.17
K	39	72	3	He	54354.562	ug/l	25657849.34
Ca	40	72	2	H2	191806.212	ug/l	1224290941.15
Ti	47	72	1	No Gas	58.065	ug/l	130487.57
V	51	72	1	No Gas	56.948	ug/l	1648366.99
V	51	72	3	He	59.202	ug/l	261149.24
Cr	52	72	1	No Gas	59.299	ug/l	1627408.91
Cr	52	72	3	He	58.430	ug/l	273256.44
Mn	55	72	1	No Gas	50.234	ug/l	1760728.26
Mn	55	72	3	He	50.569	ug/l	160602.18
Fe	56	72	2	H2	4749.823	ug/l	62875545.83
Fe	56	72	3	He	4724.610	ug/l	19593103.04
Co	59	72	1	No Gas	48.811	ug/l	1405585.56
Ni	60	72	1	No Gas	101.130	ug/l	638133.14
Ni	60	72	3	He	103.226	ug/l	175273.15
Cu	63	72	1	No Gas	52.750	ug/l	793650.82
Cu	63	72	3	He	47.973	ug/l	216017.74
Cu	65	72	1	No Gas	48.253	ug/l	348395.56
Zn	66	72	1	No Gas	47.183	ug/l	201607.76
Zn	66	72	3	He	47.945	ug/l	40783.58
As	75	72	1	No Gas	51.354	ug/l	242438.56
As	75	72	3	He	51.960	ug/l	33641.59
Se	78	72	2	H2	55.828	ug/l	22131.03
Br	79	72	1	No Gas	268.322	ug/l	2653023.87
Br	79	72	2	H2	253.619	ug/l	1165789.57
Se	82	72	1	No Gas	62.786	ug/l	18493.69
Kr	84	72	1	No Gas		ug/l	567579.29
Sr	88	72	1	No Gas	2060.901	ug/l	85864326.89
Sr	88	72	3	He	2104.861	ug/l	10047074.78
Mo	95	115	1	No Gas	50.962	ug/l	418415.66
Mo	95	115	3	He	52.127	ug/l	136155.74
Mo	98	115	1	No Gas	51.715	ug/l	683966.51
Ag	107	115	1	No Gas	18.587	ug/l	381220.36
Ag	109	115	1	No Gas	18.571	ug/l	366273.31
Cd	111	115	1	No Gas	46.804	ug/l	202690.72

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	48.819	ug/l	62491.36
Cd	114	115	1	No Gas	47.589	ug/l	456429.00
Cd	114	115	3	He	48.340	ug/l	152281.56
Sn	118	115	1	No Gas	48.797	ug/l	624857.08
Sn	118	115	3	He	49.235	ug/l	159414.63
Sb	121	115	1	No Gas	48.153	ug/l	873956.91
Sb	121	115	3	He	48.881	ug/l	216036.30
Sb	123	115	1	No Gas	48.254	ug/l	662035.13
Sb	123	115	3	He	49.415	ug/l	171378.16
Ba	135	115	1	No Gas	118.919	ug/l	479530.97
Ba	137	115	1	No Gas	119.816	ug/l	840550.81
La	139	115	3	He	53.249	ug/l	988454.22
Ce	140	115	3	He	52.337	ug/l	1060317.30
Hg	201	209	1	No Gas	1.040	ug/l	2533.41
Hg	202	209	1	No Gas	1.089	ug/l	6075.51
Hg	202	209	3	He	1.063	ug/l	2514.41
Tl	203	209	3	He	49.708	ug/l	336710.93
Tl	205	209	1	No Gas	51.377	ug/l	1912489.42
Tl	205	209	3	He	49.807	ug/l	808361.75
[Pb]	206	209	1	No Gas	51.283	ug/l	659923.37
[Pb]	207	209	1	No Gas	50.538	ug/l	574417.82
Pb	208	209	1	No Gas	50.597	ug/l	2635441.90
Th	232	209	3	He	52.593	ug/l	1216504.26
U	238	209	1	No Gas	52.484	ug/l	2770835.97

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5493133.30	95.5
Sc	45	2	H2	2162275.23	89.4
Sc	45	3	He	303381.34	94.8
Ge	72	1	No Gas	1222098.40	92.1
Ge	72	2	H2	675172.21	90.4
Ge	72	3	He	174687.48	93.0
In	115	1	No Gas	8421053.63	88.8
In	115	3	He	1830427.03	86.8
Tb	159	1	No Gas	12592585.16	93.9
Tb	159	3	He	5007731.30	91.3
Ho	165	1	No Gas	12617667.43	94.9
Ho	165	3	He	4931632.14	90.4
Lu	175	1	No Gas	12233901.08	96.6
Lu	175	3	He	4096735.55	92.6
Bi	209	1	No Gas	6872414.14	83.4
Bi	209	3	He	2938323.47	81.4

ICPMS207-B Analytical Data

Sample Name B22030502-001AMSD
File Name 050MSD.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 23:18:46
Sample Type MSD
Total Dilution 1.0300
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	2015.010	ug/l	32569742.48
Be	9	45	1	No Gas	41.884	ug/l	234170.21
B	11	45	1	No Gas	88.427	ug/l	265234.47
Na	23	45	3	He	414352.827	ug/l	380725749.88
Mg	24	45	3	He	284273.650	ug/l	144084305.10
Al	27	45	1	No Gas	46.349	ug/l	1171558.52
Si	28	45	2	H2	26465.772	ug/l	46329481.06
K	39	72	3	He	56201.310	ug/l	26567503.50
Ca	40	72	2	H2	198199.930	ug/l	1239209632.65
Ti	47	72	1	No Gas	57.817	ug/l	133993.14
V	51	72	1	No Gas	56.529	ug/l	1689759.52
V	51	72	3	He	59.629	ug/l	263299.52
Cr	52	72	1	No Gas	58.774	ug/l	1663720.86
Cr	52	72	3	He	58.562	ug/l	274273.90
Mn	55	72	1	No Gas	48.759	ug/l	1762709.37
Mn	55	72	3	He	51.012	ug/l	162236.04
Fe	56	72	2	H2	4925.106	ug/l	63852646.23
Fe	56	72	3	He	4737.355	ug/l	19674632.06
Co	59	72	1	No Gas	48.328	ug/l	1435933.53
Ni	60	72	1	No Gas	101.435	ug/l	659906.28
Ni	60	72	3	He	101.182	ug/l	172045.38
Cu	63	72	1	No Gas	55.514	ug/l	860604.18
Cu	63	72	3	He	48.404	ug/l	218273.63
Cu	65	72	1	No Gas	48.345	ug/l	359937.21
Zn	66	72	1	No Gas	47.117	ug/l	207571.29
Zn	66	72	3	He	47.646	ug/l	40587.39
As	75	72	1	No Gas	52.217	ug/l	254026.05
As	75	72	3	He	52.163	ug/l	33819.04
Se	78	72	2	H2	57.560	ug/l	22349.92
Br	79	72	1	No Gas	259.526	ug/l	2649282.62
Br	79	72	2	H2	260.364	ug/l	1171465.71
Se	82	72	1	No Gas	61.086	ug/l	18575.80
Kr	84	72	1	No Gas		ug/l	570704.53
Sr	88	72	1	No Gas	2007.773	ug/l	86306920.05
Sr	88	72	3	He	2090.851	ug/l	9993848.95
Mo	95	115	1	No Gas	50.850	ug/l	421233.41
Mo	95	115	3	He	52.142	ug/l	137000.30
Mo	98	115	1	No Gas	51.011	ug/l	680548.83
Ag	107	115	1	No Gas	18.468	ug/l	382092.48
Ag	109	115	1	No Gas	18.642	ug/l	370907.38
Cd	111	115	1	No Gas	46.685	ug/l	203996.31

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	48.581	ug/l	62559.71
Cd	114	115	1	No Gas	47.241	ug/l	457155.94
Cd	114	115	3	He	48.338	ug/l	153182.34
Sn	118	115	1	No Gas	48.757	ug/l	629872.83
Sn	118	115	3	He	50.013	ug/l	162874.16
Sb	121	115	1	No Gas	48.378	ug/l	885808.72
Sb	121	115	3	He	50.035	ug/l	222474.47
Sb	123	115	1	No Gas	48.659	ug/l	673626.97
Sb	123	115	3	He	49.943	ug/l	174242.65
Ba	135	115	1	No Gas	118.102	ug/l	480424.62
Ba	137	115	1	No Gas	118.721	ug/l	840475.01
La	139	115	3	He	53.009	ug/l	989964.97
Ce	140	115	3	He	52.368	ug/l	1067355.25
Hg	201	209	1	No Gas	1.050	ug/l	2583.74
Hg	202	209	1	No Gas	1.073	ug/l	6043.83
Hg	202	209	3	He	1.030	ug/l	2409.41
Tl	203	209	3	He	50.061	ug/l	335409.56
Tl	205	209	1	No Gas	49.036	ug/l	1842444.38
Tl	205	209	3	He	50.400	ug/l	808959.30
[Pb]	206	209	1	No Gas	50.095	ug/l	650782.09
[Pb]	207	209	1	No Gas	49.127	ug/l	563654.56
Pb	208	209	1	No Gas	49.649	ug/l	2610524.39
Th	232	209	3	He	52.401	ug/l	1198721.45
U	238	209	1	No Gas	50.039	ug/l	2666830.96

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5730248.71	99.6
Sc	45	2	H2	2153979.44	89.1
Sc	45	3	He	306643.40	95.8
Ge	72	1	No Gas	1258394.99	94.8
Ge	72	2	H2	661301.82	88.6
Ge	72	3	He	174936.07	93.2
In	115	1	No Gas	8494119.59	89.6
In	115	3	He	1841245.32	87.3
Tb	159	1	No Gas	12918904.18	96.3
Tb	159	3	He	4917863.52	89.7
Ho	165	1	No Gas	12678364.06	95.4
Ho	165	3	He	4916682.34	90.1
Lu	175	1	No Gas	12129583.12	95.7
Lu	175	3	He	4087929.17	92.5
Bi	209	1	No Gas	6931775.28	84.1
Bi	209	3	He	2906096.72	80.5

ICPMS207-B Analytical Data

Sample Name Rinse
File Name 051BLKV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 23:25:00
Sample Type BlkVrfy
Total Dilution 1.0000
Comment ICPMS-200.8-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	3.635	ug/l	70186.72
Be	9	45	1	No Gas	-0.016	ug/l	107.65
B	11	45	1	No Gas	1.236	ug/l	8107.51
Na	23	45	3	He	89.809	ug/l	135645.16
Mg	24	45	3	He	7.915	ug/l	4601.60
Al	27	45	1	No Gas	0.055	ug/l	6955.14
Si	28	45	2	H2	5.501	ug/l	27676.78
K	39	72	3	He	13.876	ug/l	74194.94
Ca	40	72	2	H2	4.143	ug/l	76424.41
Ti	47	72	1	No Gas	0.257	ug/l	805.84
V	51	72	1	No Gas	0.955	ug/l	11571.17
V	51	72	3	He	3.004	ug/l	29851.28
Cr	52	72	1	No Gas	1.462	ug/l	107355.80
Cr	52	72	3	He	0.027	ug/l	523.35
Mn	55	72	1	No Gas	0.145	ug/l	11475.09
Mn	55	72	3	He	0.015	ug/l	173.30
Fe	56	72	2	H2	0.632	ug/l	21161.51
Fe	56	72	3	He	0.849	ug/l	9943.40
Co	59	72	1	No Gas	0.002	ug/l	382.58
Ni	60	72	1	No Gas	0.113	ug/l	1284.18
Ni	60	72	3	He	-0.020	ug/l	71.11
Cu	63	72	1	No Gas	1.056	ug/l	20359.03
Cu	63	72	3	He	0.229	ug/l	1475.11
Cu	65	72	1	No Gas	0.305	ug/l	2892.12
Zn	66	72	1	No Gas	0.345	ug/l	2080.69
Zn	66	72	3	He	0.297	ug/l	385.56
As	75	72	1	No Gas	0.156	ug/l	15065.01
As	75	72	3	He	0.089	ug/l	220.60
Se	78	72	2	H2	0.082	ug/l	49.67
Br	79	72	1	No Gas	8.114	ug/l	171320.00
Br	79	72	2	H2	4.509	ug/l	61117.68
Se	82	72	1	No Gas	0.074	ug/l	678.74
Kr	84	72	1	No Gas		ug/l	21306.93
Sr	88	72	1	No Gas	0.029	ug/l	2092.69
Sr	88	72	3	He	0.005	ug/l	383.34
Mo	95	115	1	No Gas	0.059	ug/l	711.13
Mo	95	115	3	He	0.027	ug/l	177.78
Mo	98	115	1	No Gas	0.055	ug/l	1048.66
Ag	107	115	1	No Gas	0.002	ug/l	92.04
Ag	109	115	1	No Gas	0.002	ug/l	99.37
Cd	111	115	1	No Gas	0.011	ug/l	49.73

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.006	ug/l	11.66
Cd	114	115	1	No Gas	0.010	ug/l	100.73
Cd	114	115	3	He	0.006	ug/l	28.10
Sn	118	115	1	No Gas	0.237	ug/l	4385.34
Sn	118	115	3	He	0.183	ug/l	980.04
Sb	121	115	1	No Gas	0.743	ug/l	15077.67
Sb	121	115	3	He	0.593	ug/l	3217.36
Sb	123	115	1	No Gas	0.743	ug/l	11411.83
Sb	123	115	3	He	0.597	ug/l	2537.49
Ba	135	115	1	No Gas	-0.002	ug/l	19.96
Ba	137	115	1	No Gas	0.001	ug/l	59.88
La	139	115	3	He	0.000	ug/l	15.56
Ce	140	115	3	He	0.000	ug/l	16.67
Hg	201	209	1	No Gas	0.003	ug/l	21.33
Hg	202	209	1	No Gas	0.003	ug/l	72.32
Hg	202	209	3	He	0.005	ug/l	31.99
Tl	203	209	3	He	0.101	ug/l	904.40
Tl	205	209	1	No Gas	0.061	ug/l	2929.24
Tl	205	209	3	He	0.100	ug/l	2159.71
[Pb]	206	209	1	No Gas	0.007	ug/l	242.22
[Pb]	207	209	1	No Gas	0.009	ug/l	228.89
Pb	208	209	1	No Gas	0.007	ug/l	1007.80
Th	232	209	3	He	0.041	ug/l	1299.25
U	238	209	1	No Gas	0.003	ug/l	203.31

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5731430.41	99.6
Sc	45	2	H2	2513592.40	103.9
Sc	45	3	He	324892.36	101.5
Ge	72	1	No Gas	1291760.86	97.3
Ge	72	2	H2	760501.67	101.9
Ge	72	3	He	192390.99	102.5
In	115	1	No Gas	9161662.91	96.6
In	115	3	He	2149801.51	101.9
Tb	159	1	No Gas	12723969.88	94.9
Tb	159	3	He	5496340.42	100.2
Ho	165	1	No Gas	12566056.24	94.5
Ho	165	3	He	5444332.21	99.8
Lu	175	1	No Gas	12122561.82	95.7
Lu	175	3	He	4448314.88	100.6
Bi	209	1	No Gas	7756792.03	94.1
Bi	209	3	He	3549865.98	98.3

ICPMS207-B Analytical Data

Sample Name B22030502-001B
File Name 052ARef.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 23:31:15
Sample Type AIRRef
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	10.161	ug/l	171144.51
Be	9	45	1	No Gas	0.177	ug/l	1187.74
B	11	45	1	No Gas	48.235	ug/l	143588.35
Na	23	45	3	He	373994.649	ug/l	349879021.45
Mg	24	45	3	He	247073.293	ug/l	127497340.27
Al	27	45	1	No Gas	3.586	ug/l	93680.44
Si	28	45	2	H2	19755.111	ug/l	36026979.96
K	39	72	3	He	7417.086	ug/l	3605012.24
Ca	40	72	2	H2	152760.210	ug/l	988440038.55
Ti	47	72	1	No Gas	3.112	ug/l	7335.89
V	51	72	1	No Gas	11.076	ug/l	316127.08
V	51	72	3	He	11.054	ug/l	60801.23
Cr	52	72	1	No Gas	14.942	ug/l	467183.84
Cr	52	72	3	He	13.197	ug/l	62907.11
Mn	55	72	1	No Gas	1.970	ug/l	76365.76
Mn	55	72	3	He	1.774	ug/l	5822.66
Fe	56	72	2	H2	64.393	ug/l	873650.87
Fe	56	72	3	He	62.488	ug/l	268316.11
Co	59	72	1	No Gas	1.030	ug/l	30751.49
Ni	60	72	1	No Gas	55.527	ug/l	359800.74
Ni	60	72	3	He	55.176	ug/l	95128.65
Cu	63	72	1	No Gas	45.365	ug/l	700469.46
Cu	63	72	3	He	40.827	ug/l	186647.78
Cu	65	72	1	No Gas	40.226	ug/l	298059.85
Zn	66	72	1	No Gas	1.894	ug/l	8768.85
Zn	66	72	3	He	1.352	ug/l	1254.50
As	75	72	1	No Gas	1.007	ug/l	18026.67
As	75	72	3	He	1.630	ug/l	1205.70
Se	78	72	2	H2	4.564	ug/l	1843.01
Br	79	72	1	No Gas	33.604	ug/l	412285.30
Br	79	72	2	H2	31.327	ug/l	174732.36
Se	82	72	1	No Gas	5.066	ug/l	2102.96
Kr	84	72	1	No Gas		ug/l	568890.40
Sr	88	72	1	No Gas	2063.833	ug/l	88279568.14
Sr	88	72	3	He	2123.371	ug/l	10286752.35
Mo	95	115	1	No Gas	1.242	ug/l	10389.37
Mo	95	115	3	He	1.210	ug/l	3410.43
Mo	98	115	1	No Gas	1.235	ug/l	16630.36
Ag	107	115	1	No Gas	0.013	ug/l	309.46
Ag	109	115	1	No Gas	0.011	ug/l	270.78
Cd	111	115	1	No Gas	0.035	ug/l	148.80

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.024	ug/l	34.78
Cd	114	115	1	No Gas	0.028	ug/l	264.74
Cd	114	115	3	He	0.024	ug/l	84.47
Sn	118	115	1	No Gas	0.367	ug/l	5656.62
Sn	118	115	3	He	0.376	ug/l	1513.43
Sb	121	115	1	No Gas	0.474	ug/l	8755.94
Sb	121	115	3	He	0.459	ug/l	2178.39
Sb	123	115	1	No Gas	0.530	ug/l	7397.36
Sb	123	115	3	He	0.469	ug/l	1742.62
Ba	135	115	1	No Gas	69.803	ug/l	282808.41
Ba	137	115	1	No Gas	70.571	ug/l	497808.35
La	139	115	3	He	0.005	ug/l	112.22
Ce	140	115	3	He	0.006	ug/l	145.56
Hg	201	209	1	No Gas	0.023	ug/l	66.32
Hg	202	209	1	No Gas	0.068	ug/l	416.59
Hg	202	209	3	He	0.055	ug/l	149.30
Tl	203	209	3	He	0.035	ug/l	289.45
Tl	205	209	1	No Gas	0.027	ug/l	1286.74
Tl	205	209	3	He	0.034	ug/l	682.96
[Pb]	206	209	1	No Gas	0.171	ug/l	2295.77
[Pb]	207	209	1	No Gas	0.170	ug/l	2010.17
Pb	208	209	1	No Gas	0.171	ug/l	9318.02
Th	232	209	3	He	0.060	ug/l	1530.71
U	238	209	1	No Gas	0.091	ug/l	4757.88

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5456324.21	94.8
Sc	45	2	H2	2178251.85	90.1
Sc	45	3	He	303065.33	94.7
Ge	72	1	No Gas	1216366.97	91.6
Ge	72	2	H2	664267.91	89.0
Ge	72	3	He	172166.14	91.7
In	115	1	No Gas	8228886.86	86.8
In	115	3	He	1872769.82	88.8
Tb	159	1	No Gas	12203296.30	91.0
Tb	159	3	He	4986057.29	90.9
Ho	165	1	No Gas	12048623.72	90.6
Ho	165	3	He	5060496.88	92.7
Lu	175	1	No Gas	11622699.16	91.7
Lu	175	3	He	4130217.65	93.4
Bi	209	1	No Gas	6597059.33	80.0
Bi	209	3	He	2969462.66	82.2

ICPMS207-B Analytical Data

Sample Name B22030502-001BDIL
File Name 053SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 23:37:29
Sample Type Sample
Total Dilution 5.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	14.964	ug/l	61798.58
Be	9	45	1	No Gas	-0.100	ug/l	86.99
B	11	45	1	No Gas	51.144	ug/l	36248.28
Na	23	45	3	He	377462.944	ug/l	74057881.68
Mg	24	45	3	He	250873.621	ug/l	27136746.58
Al	27	45	1	No Gas	9.155	ug/l	54085.95
Si	28	45	2	H2	22817.438	ug/l	9063266.01
K	39	72	3	He	7111.994	ug/l	795383.65
Ca	40	72	2	H2	163278.220	ug/l	227809029.34
Ti	47	72	1	No Gas	3.321	ug/l	1850.32
V	51	72	1	No Gas	12.409	ug/l	62674.14
V	51	72	3	He	12.070	ug/l	26041.92
Cr	52	72	1	No Gas	20.941	ug/l	191927.96
Cr	52	72	3	He	12.973	ug/l	13594.10
Mn	55	72	1	No Gas	2.337	ug/l	24505.07
Mn	55	72	3	He	1.787	ug/l	1351.80
Fe	56	72	2	H2	69.258	ug/l	210956.60
Fe	56	72	3	He	67.856	ug/l	67139.57
Co	59	72	1	No Gas	0.929	ug/l	6325.50
Ni	60	72	1	No Gas	55.100	ug/l	78313.04
Ni	60	72	3	He	55.814	ug/l	20781.43
Cu	63	72	1	No Gas	47.525	ug/l	162738.04
Cu	63	72	3	He	42.563	ug/l	42080.40
Cu	65	72	1	No Gas	41.930	ug/l	68228.82
Zn	66	72	1	No Gas	5.608	ug/l	5881.00
Zn	66	72	3	He	5.367	ug/l	1090.05
As	75	72	1	No Gas	6.402	ug/l	21007.26
As	75	72	3	He	2.119	ug/l	448.07
Se	78	72	2	H2	4.863	ug/l	432.01
Br	79	72	1	No Gas	45.265	ug/l	186706.74
Br	79	72	2	H2	44.559	ug/l	78991.24
Se	82	72	1	No Gas	6.787	ug/l	1111.46
Kr	84	72	1	No Gas		ug/l	133707.19
Sr	88	72	1	No Gas	1990.366	ug/l	18578567.51
Sr	88	72	3	He	2124.209	ug/l	2213617.75
Mo	95	115	1	No Gas	1.670	ug/l	3250.39
Mo	95	115	3	He	1.657	ug/l	1091.16
Mo	98	115	1	No Gas	1.718	ug/l	5352.54
Ag	107	115	1	No Gas	0.013	ug/l	108.71
Ag	109	115	1	No Gas	0.007	ug/l	88.04
Cd	111	115	1	No Gas	0.060	ug/l	55.46

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.030	ug/l	10.89
Cd	114	115	1	No Gas	0.032	ug/l	63.46
Cd	114	115	3	He	-0.005	ug/l	0.33
Sn	118	115	1	No Gas	10.193	ug/l	30305.88
Sn	118	115	3	He	10.546	ug/l	8152.40
Sb	121	115	1	No Gas	1.015	ug/l	4276.42
Sb	121	115	3	He	1.014	ug/l	1083.15
Sb	123	115	1	No Gas	1.077	ug/l	3420.43
Sb	123	115	3	He	1.020	ug/l	852.45
Ba	135	115	1	No Gas	66.464	ug/l	60213.83
Ba	137	115	1	No Gas	66.672	ug/l	105116.47
La	139	115	3	He	0.005	ug/l	35.56
Ce	140	115	3	He	0.009	ug/l	52.22
Hg	201	209	1	No Gas	0.028	ug/l	26.66
Hg	202	209	1	No Gas	0.068	ug/l	141.31
Hg	202	209	3	He	0.056	ug/l	47.32
Tl	203	209	3	He	0.124	ug/l	244.10
Tl	205	209	1	No Gas	0.076	ug/l	973.38
Tl	205	209	3	He	0.124	ug/l	600.26
[Pb]	206	209	1	No Gas	0.171	ug/l	648.91
[Pb]	207	209	1	No Gas	0.161	ug/l	535.57
Pb	208	209	1	No Gas	0.175	ug/l	2665.68
Th	232	209	3	He	0.069	ug/l	473.53
U	238	209	1	No Gas	0.080	ug/l	972.51

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5840399.40	101.5
Sc	45	2	H2	2367470.31	97.9
Sc	45	3	He	317644.48	99.3
Ge	72	1	No Gas	1326568.32	100.0
Ge	72	2	H2	715708.66	95.9
Ge	72	3	He	185110.12	98.6
In	115	1	No Gas	9178788.77	96.8
In	115	3	He	2058297.02	97.6
Tb	159	1	No Gas	13275420.37	99.0
Tb	159	3	He	5329807.22	97.2
Ho	165	1	No Gas	13086023.27	98.4
Ho	165	3	He	5338507.64	97.8
Lu	175	1	No Gas	12500655.63	98.7
Lu	175	3	He	4391817.03	99.3
Bi	209	1	No Gas	7658162.56	92.9
Bi	209	3	He	3320231.55	92.0

ICPMS207-B Analytical Data

Sample Name CCV
File Name 054_CCV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-11 23:43:43
Sample Type CCV
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	615.955	ug/l	10352890.83
Be	9	45	1	No Gas	47.882	ug/l	278138.83
B	11	45	1	No Gas	48.649	ug/l	153583.27
Na	23	45	3	He	12407.339	ug/l	12536840.51
Mg	24	45	3	He	12535.137	ug/l	6961925.29
Al	27	45	1	No Gas	49.469	ug/l	1298674.35
Si	28	45	2	H2	290.931	ug/l	611708.95
K	39	72	3	He	12433.729	ug/l	6754820.04
Ca	40	72	2	H2	13619.204	ug/l	99373976.31
Ti	47	72	1	No Gas	49.027	ug/l	126043.68
V	51	72	1	No Gas	48.634	ug/l	1610857.55
V	51	72	3	He	50.001	ug/l	253959.71
Cr	52	72	1	No Gas	50.238	ug/l	1585630.39
Cr	52	72	3	He	48.173	ug/l	257363.18
Mn	55	72	1	No Gas	48.748	ug/l	1954224.38
Mn	55	72	3	He	49.447	ug/l	179356.38
Fe	56	72	2	H2	1348.446	ug/l	20383661.48
Fe	56	72	3	He	1273.238	ug/l	6035192.43
Co	59	72	1	No Gas	48.954	ug/l	1613154.15
Ni	60	72	1	No Gas	48.789	ug/l	352401.09
Ni	60	72	3	He	50.913	ug/l	98784.83
Cu	63	72	1	No Gas	50.119	ug/l	861913.26
Cu	63	72	3	He	49.884	ug/l	256533.94
Cu	65	72	1	No Gas	49.696	ug/l	410344.57
Zn	66	72	1	No Gas	47.741	ug/l	233262.01
Zn	66	72	3	He	49.060	ug/l	47663.24
As	75	72	1	No Gas	47.741	ug/l	258448.71
As	75	72	3	He	49.029	ug/l	36259.98
Se	78	72	2	H2	51.896	ug/l	23484.16
Br	79	72	1	No Gas	1.896	ug/l	112142.36
Br	79	72	2	H2	1.696	ug/l	45794.82
Se	82	72	1	No Gas	51.105	ug/l	17335.14
Kr	84	72	1	No Gas		ug/l	35783.23
Sr	88	72	1	No Gas	47.443	ug/l	2262980.06
Sr	88	72	3	He	48.787	ug/l	266317.15
Mo	95	115	1	No Gas	47.459	ug/l	446974.83
Mo	95	115	3	He	48.988	ug/l	149350.70
Mo	98	115	1	No Gas	47.686	ug/l	723329.94
Ag	107	115	1	No Gas	19.016	ug/l	447317.23
Ag	109	115	1	No Gas	18.846	ug/l	426301.16
Cd	111	115	1	No Gas	47.389	ug/l	235417.79

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	50.606	ug/l	75615.27
Cd	114	115	1	No Gas	48.216	ug/l	530436.64
Cd	114	115	3	He	50.341	ug/l	185104.98
Sn	118	115	1	No Gas	47.375	ug/l	695925.91
Sn	118	115	3	He	49.726	ug/l	187894.96
Sb	121	115	1	No Gas	47.014	ug/l	978778.90
Sb	121	115	3	He	49.789	ug/l	256862.57
Sb	123	115	1	No Gas	46.957	ug/l	739123.40
Sb	123	115	3	He	49.852	ug/l	201801.80
Ba	135	115	1	No Gas	46.596	ug/l	215518.86
Ba	137	115	1	No Gas	47.391	ug/l	381476.93
La	139	115	3	He	50.137	ug/l	1086431.98
Ce	140	115	3	He	49.915	ug/l	1180507.14
Hg	201	209	1	No Gas	0.951	ug/l	2709.07
Hg	202	209	1	No Gas	0.963	ug/l	6287.23
Hg	202	209	3	He	0.962	ug/l	2753.74
Tl	203	209	3	He	48.218	ug/l	395158.55
Tl	205	209	1	No Gas	47.324	ug/l	2059164.50
Tl	205	209	3	He	48.337	ug/l	949096.22
[Pb]	206	209	1	No Gas	48.063	ug/l	723056.96
[Pb]	207	209	1	No Gas	47.438	ug/l	630303.51
Pb	208	209	1	No Gas	47.776	ug/l	2908972.32
Th	232	209	3	He	47.944	ug/l	1341661.69
U	238	209	1	No Gas	46.591	ug/l	2875422.90

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5776898.70	100.4
Sc	45	2	H2	2443872.39	101.1
Sc	45	3	He	326178.23	101.9
Ge	72	1	No Gas	1354646.59	102.1
Ge	72	2	H2	748172.61	100.2
Ge	72	3	He	193701.03	103.2
In	115	1	No Gas	9374704.48	98.9
In	115	3	He	2074128.09	98.3
Tb	159	1	No Gas	13191849.72	98.3
Tb	159	3	He	5359766.04	97.7
Ho	165	1	No Gas	13022503.82	97.9
Ho	165	3	He	5370663.91	98.4
Lu	175	1	No Gas	12289040.27	97.0
Lu	175	3	He	4377519.14	99.0
Bi	209	1	No Gas	7792240.80	94.5
Bi	209	3	He	3451121.52	95.6

ICPMS207-B Analytical Data

Sample Name CCB
File Name 055_CCB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 23:49:58
Sample Type CCB
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	2.238	ug/l	48217.88
Be	9	45	1	No Gas	-0.016	ug/l	106.65
B	11	45	1	No Gas	0.513	ug/l	6060.31
Na	23	45	3	He	57.224	ug/l	101102.34
Mg	24	45	3	He	3.757	ug/l	2259.03
Al	27	45	1	No Gas	0.838	ug/l	27241.56
Si	28	45	2	H2	41.957	ug/l	103122.89
K	39	72	3	He	11.668	ug/l	71930.46
Ca	40	72	2	H2	1.140	ug/l	53107.76
Ti	47	72	1	No Gas	0.057	ug/l	323.66
V	51	72	1	No Gas	0.174	ug/l	-12215.61
V	51	72	3	He	4.152	ug/l	34764.24
Cr	52	72	1	No Gas	1.109	ug/l	101211.44
Cr	52	72	3	He	0.012	ug/l	436.68
Mn	55	72	1	No Gas	0.140	ug/l	11741.44
Mn	55	72	3	He	0.007	ug/l	141.64
Fe	56	72	2	H2	0.358	ug/l	16614.43
Fe	56	72	3	He	0.525	ug/l	8295.73
Co	59	72	1	No Gas	-0.003	ug/l	242.86
Ni	60	72	1	No Gas	0.034	ug/l	765.17
Ni	60	72	3	He	-0.033	ug/l	45.55
Cu	63	72	1	No Gas	0.238	ug/l	7370.16
Cu	63	72	3	He	0.220	ug/l	1408.12
Cu	65	72	1	No Gas	0.249	ug/l	2541.25
Zn	66	72	1	No Gas	-0.003	ug/l	514.86
Zn	66	72	3	He	0.023	ug/l	120.00
As	75	72	1	No Gas	-0.125	ug/l	14009.37
As	75	72	3	He	0.074	ug/l	206.80
Se	78	72	2	H2	0.044	ug/l	31.56
Br	79	72	1	No Gas	1.539	ug/l	106134.62
Br	79	72	2	H2	1.330	ug/l	43755.81
Se	82	72	1	No Gas	0.455	ug/l	827.83
Kr	84	72	1	No Gas		ug/l	20980.39
Sr	88	72	1	No Gas	0.003	ug/l	954.82
Sr	88	72	3	He	-0.006	ug/l	321.12
Mo	95	115	1	No Gas	0.022	ug/l	383.34
Mo	95	115	3	He	0.003	ug/l	102.22
Mo	98	115	1	No Gas	0.018	ug/l	532.66
Ag	107	115	1	No Gas	0.001	ug/l	72.03
Ag	109	115	1	No Gas	0.001	ug/l	82.03
Cd	111	115	1	No Gas	0.008	ug/l	37.17

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.006	ug/l	11.56
Cd	114	115	1	No Gas	0.008	ug/l	84.75
Cd	114	115	3	He	0.005	ug/l	20.73
Sn	118	115	1	No Gas	0.089	ug/l	2368.86
Sn	118	115	3	He	0.097	ug/l	635.57
Sb	121	115	1	No Gas	0.317	ug/l	6761.98
Sb	121	115	3	He	0.254	ug/l	1384.54
Sb	123	115	1	No Gas	0.313	ug/l	5037.42
Sb	123	115	3	He	0.263	ug/l	1123.16
Ba	135	115	1	No Gas	-0.002	ug/l	23.29
Ba	137	115	1	No Gas	-0.003	ug/l	29.94
La	139	115	3	He	0.006	ug/l	149.00
Ce	140	115	3	He	0.001	ug/l	22.22
Hg	201	209	1	No Gas	0.004	ug/l	23.33
Hg	202	209	1	No Gas	0.003	ug/l	79.32
Hg	202	209	3	He	0.003	ug/l	27.66
Tl	203	209	3	He	0.145	ug/l	1269.24
Tl	205	209	1	No Gas	0.089	ug/l	4331.86
Tl	205	209	3	He	0.141	ug/l	2974.86
[Pb]	206	209	1	No Gas	0.005	ug/l	233.34
[Pb]	207	209	1	No Gas	0.008	ug/l	235.56
Pb	208	209	1	No Gas	0.005	ug/l	934.46
Th	232	209	3	He	0.036	ug/l	1143.85
U	238	209	1	No Gas	0.001	ug/l	102.65

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5746491.96	99.9
Sc	45	2	H2	2480749.70	102.6
Sc	45	3	He	319035.70	99.7
Ge	72	1	No Gas	1330581.13	100.3
Ge	72	2	H2	745197.93	99.8
Ge	72	3	He	189530.73	100.9
In	115	1	No Gas	9402826.30	99.2
In	115	3	He	2118827.04	100.4
Tb	159	1	No Gas	13088258.53	97.6
Tb	159	3	He	5437117.87	99.1
Ho	165	1	No Gas	12920742.27	97.2
Ho	165	3	He	5366660.90	98.4
Lu	175	1	No Gas	12306497.21	97.1
Lu	175	3	He	4401075.35	99.5
Bi	209	1	No Gas	7991042.05	97.0
Bi	209	3	He	3540237.67	98.1

ICPMS207-B Analytical Data

Sample Name B22030502-001BPDS1
File Name 056ARef.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-11 23:56:12
Sample Type AIRRef
Total Dilution 1.0300
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	2000.692	ug/l	30676240.79
Be	9	45	1	No Gas	40.870	ug/l	216782.92
B	11	45	1	No Gas	89.409	ug/l	254432.58
Na	23	45	3	He	421213.788	ug/l	360202545.75
Mg	24	45	3	He	287831.111	ug/l	135766327.51
Al	27	45	1	No Gas	47.707	ug/l	1144243.49
Si	28	45	2	H2	22337.741	ug/l	37058100.05
K	39	72	3	He	55510.830	ug/l	24852794.35
Ca	40	72	2	H2	198273.176	ug/l	1192771649.63
Ti	47	72	1	No Gas	53.723	ug/l	127147.33
V	51	72	1	No Gas	56.957	ug/l	1738577.28
V	51	72	3	He	61.578	ug/l	257105.73
Cr	52	72	1	No Gas	60.436	ug/l	1744702.18
Cr	52	72	3	He	61.375	ug/l	272240.24
Mn	55	72	1	No Gas	46.251	ug/l	1705822.11
Mn	55	72	3	He	51.602	ug/l	155441.57
Fe	56	72	2	H2	5030.108	ug/l	62746543.50
Fe	56	72	3	He	4935.423	ug/l	19413255.07
Co	59	72	1	No Gas	44.999	ug/l	1364456.02
Ni	60	72	1	No Gas	95.083	ug/l	631604.42
Ni	60	72	3	He	103.819	ug/l	167196.03
Cu	63	72	1	No Gas	86.138	ug/l	1360940.37
Cu	63	72	3	He	87.964	ug/l	375488.56
Cu	65	72	1	No Gas	80.374	ug/l	610391.19
Zn	66	72	1	No Gas	42.677	ug/l	191964.84
Zn	66	72	3	He	46.776	ug/l	37745.37
As	75	72	1	No Gas	48.222	ug/l	240472.04
As	75	72	3	He	51.668	ug/l	31729.40
Se	78	72	2	H2	53.135	ug/l	19851.64
Br	79	72	1	No Gas	32.869	ug/l	418301.49
Br	79	72	2	H2	32.935	ug/l	170169.10
Se	82	72	1	No Gas	48.424	ug/l	15163.82
Kr	84	72	1	No Gas		ug/l	554417.06
Sr	88	72	1	No Gas	1904.609	ug/l	83576703.75
Sr	88	72	3	He	2165.574	ug/l	9804016.17
Mo	95	115	1	No Gas	50.181	ug/l	408422.70
Mo	95	115	3	He	52.398	ug/l	133335.01
Mo	98	115	1	No Gas	50.634	ug/l	663632.37
Ag	107	115	1	No Gas	17.967	ug/l	365261.76
Ag	109	115	1	No Gas	18.004	ug/l	351916.75
Cd	111	115	1	No Gas	45.069	ug/l	193508.66

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	48.701	ug/l	60738.84
Cd	114	115	1	No Gas	45.747	ug/l	434986.18
Cd	114	115	3	He	48.131	ug/l	147721.61
Sn	118	115	1	No Gas	49.057	ug/l	622678.77
Sn	118	115	3	He	51.977	ug/l	163928.95
Sb	121	115	1	No Gas	46.013	ug/l	827715.09
Sb	121	115	3	He	49.199	ug/l	211856.51
Sb	123	115	1	No Gas	46.110	ug/l	627133.94
Sb	123	115	3	He	49.327	ug/l	166672.78
Ba	135	115	1	No Gas	115.490	ug/l	461654.44
Ba	137	115	1	No Gas	115.620	ug/l	804233.73
La	139	115	3	He	52.748	ug/l	954044.21
Ce	140	115	3	He	52.220	ug/l	1030853.22
Hg	201	209	1	No Gas	1.023	ug/l	2400.41
Hg	202	209	1	No Gas	1.058	ug/l	5686.41
Hg	202	209	3	He	1.057	ug/l	2377.07
Tl	203	209	3	He	50.903	ug/l	327712.17
Tl	205	209	1	No Gas	49.272	ug/l	1766434.71
Tl	205	209	3	He	51.290	ug/l	791138.08
[Pb]	206	209	1	No Gas	49.717	ug/l	616213.24
[Pb]	207	209	1	No Gas	48.646	ug/l	532520.09
Pb	208	209	1	No Gas	48.987	ug/l	2457566.50
Th	232	209	3	He	52.914	ug/l	1163238.30
U	238	209	1	No Gas	50.510	ug/l	2568974.93

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5440856.19	94.6
Sc	45	2	H2	2041340.89	84.4
Sc	45	3	He	285359.49	89.2
Ge	72	1	No Gas	1285175.69	96.8
Ge	72	2	H2	636310.86	85.2
Ge	72	3	He	165682.96	88.2
In	115	1	No Gas	8353759.70	88.1
In	115	3	He	1783184.58	84.5
Tb	159	1	No Gas	12212570.06	91.0
Tb	159	3	He	4778537.90	87.1
Ho	165	1	No Gas	12167513.33	91.5
Ho	165	3	He	4792372.15	87.8
Lu	175	1	No Gas	11575994.13	91.4
Lu	175	3	He	3916932.11	88.6
Bi	209	1	No Gas	6618522.00	80.3
Bi	209	3	He	2792506.03	77.3

ICPMS207-B Analytical Data

Sample Name B22030502-001BMS4
File Name 057MS4.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 00:02:28
Sample Type MS4
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	93.486	ug/l	1514335.20
Be	9	45	1	No Gas	41.780	ug/l	232538.14
B	11	45	1	No Gas	132.355	ug/l	392859.53
Na	23	45	3	He	371568.182	ug/l	338191448.29
Mg	24	45	3	He	242788.641	ug/l	121886856.92
Al	27	45	1	No Gas	453.732	ug/l	11368905.39
Si	28	45	2	H2	24309.653	ug/l	42832976.87
K	39	72	3	He	12134.178	ug/l	5795970.12
Ca	40	72	2	H2	155263.946	ug/l	997002093.64
Ti	47	72	1	No Gas	100.227	ug/l	235173.11
V	51	72	1	No Gas	105.800	ug/l	3222324.87
V	51	72	3	He	109.309	ug/l	471583.93
Cr	52	72	1	No Gas	110.832	ug/l	3118431.24
Cr	52	72	3	He	109.344	ug/l	513065.60
Mn	55	72	1	No Gas	473.141	ug/l	17271472.50
Mn	55	72	3	He	495.069	ug/l	1577431.19
Fe	56	72	2	H2	561.349	ug/l	7482748.16
Fe	56	72	3	He	544.188	ug/l	2270312.71
Co	59	72	1	No Gas	92.948	ug/l	2797151.58
Ni	60	72	1	No Gas	144.513	ug/l	952237.46
Ni	60	72	3	He	148.877	ug/l	253735.26
Cu	63	72	1	No Gas	98.198	ug/l	1539535.87
Cu	63	72	3	He	94.055	ug/l	424926.81
Cu	65	72	1	No Gas	92.381	ug/l	696322.91
Zn	66	72	1	No Gas	87.867	ug/l	391619.31
Zn	66	72	3	He	90.453	ug/l	77164.93
As	75	72	1	No Gas	95.744	ug/l	459779.70
As	75	72	3	He	99.506	ug/l	64544.79
Se	78	72	2	H2	102.089	ug/l	40700.03
Br	79	72	1	No Gas	37.697	ug/l	460693.02
Br	79	72	2	H2	36.123	ug/l	194956.02
Se	82	72	1	No Gas	97.542	ug/l	29643.49
Kr	84	72	1	No Gas		ug/l	606021.64
Sr	88	72	1	No Gas	2095.891	ug/l	91262300.25
Sr	88	72	3	He	2257.411	ug/l	10816745.74
Mo	95	115	1	No Gas	102.408	ug/l	843855.48
Mo	95	115	3	He	100.324	ug/l	274752.63
Mo	98	115	1	No Gas	102.320	ug/l	1357170.23
Ag	107	115	1	No Gas	9.057	ug/l	186425.07
Ag	109	115	1	No Gas	9.150	ug/l	181110.87
Cd	111	115	1	No Gas	47.254	ug/l	205372.37

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	47.748	ug/l	64109.53
Cd	114	115	1	No Gas	47.583	ug/l	458082.63
Cd	114	115	3	He	47.341	ug/l	156424.07
Sn	118	115	1	No Gas	103.283	ug/l	1326029.08
Sn	118	115	3	He	101.896	ug/l	345775.01
Sb	121	115	1	No Gas	98.273	ug/l	1790214.51
Sb	121	115	3	He	100.241	ug/l	464682.02
Sb	123	115	1	No Gas	101.178	ug/l	1393738.08
Sb	123	115	3	He	101.512	ug/l	369267.90
Ba	135	115	1	No Gas	165.071	ug/l	668001.80
Ba	137	115	1	No Gas	165.857	ug/l	1168052.20
La	139	115	3	He	103.636	ug/l	2018021.78
Ce	140	115	3	He	101.072	ug/l	2147908.01
Hg	201	209	1	No Gas	0.025	ug/l	69.66
Hg	202	209	1	No Gas	0.071	ug/l	437.25
Hg	202	209	3	He	0.053	ug/l	140.30
Tl	203	209	3	He	100.761	ug/l	688928.72
Tl	205	209	1	No Gas	99.294	ug/l	3671781.85
Tl	205	209	3	He	100.488	ug/l	1646154.38
[Pb]	206	209	1	No Gas	100.510	ug/l	1284971.80
[Pb]	207	209	1	No Gas	98.891	ug/l	1116649.75
Pb	208	209	1	No Gas	99.263	ug/l	5136001.06
Th	232	209	3	He	103.087	ug/l	2406808.42
U	238	209	1	No Gas	102.787	ug/l	5391047.03

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5535882.44	96.2
Sc	45	2	H2	2105009.83	87.0
Sc	45	3	He	294856.76	92.1
Ge	72	1	No Gas	1238613.80	93.3
Ge	72	2	H2	659349.67	88.3
Ge	72	3	He	170263.63	90.7
In	115	1	No Gas	8209631.63	86.6
In	115	3	He	1864173.17	88.4
Tb	159	1	No Gas	12107257.56	90.3
Tb	159	3	He	4937591.01	90.0
Ho	165	1	No Gas	12127781.21	91.2
Ho	165	3	He	4932159.07	90.4
Lu	175	1	No Gas	11569342.79	91.3
Lu	175	3	He	4105496.60	92.8
Bi	209	1	No Gas	6626180.66	80.4
Bi	209	3	He	2879535.58	79.8

ICPMS207-B Analytical Data

Sample Name B22030502-001BMSD4
File Name 058MSD4.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 00:08:42
Sample Type MSD4
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	89.360	ug/l	1482993.21
Be	9	45	1	No Gas	40.396	ug/l	230263.44
B	11	45	1	No Gas	126.230	ug/l	384003.98
Na	23	45	3	He	374974.698	ug/l	333685570.58
Mg	24	45	3	He	246110.342	ug/l	120806092.59
Al	27	45	1	No Gas	443.573	ug/l	11391393.72
Si	28	45	2	H2	24480.809	ug/l	43126055.43
K	39	72	3	He	11956.363	ug/l	5717585.68
Ca	40	72	2	H2	158072.497	ug/l	1001802774.15
Ti	47	72	1	No Gas	96.381	ug/l	236147.20
V	51	72	1	No Gas	100.417	ug/l	3192438.30
V	51	72	3	He	107.100	ug/l	462819.90
Cr	52	72	1	No Gas	104.074	ug/l	3062842.98
Cr	52	72	3	He	107.312	ug/l	504031.32
Mn	55	72	1	No Gas	453.719	ug/l	17299013.88
Mn	55	72	3	He	493.174	ug/l	1573055.93
Fe	56	72	2	H2	574.758	ug/l	7557636.90
Fe	56	72	3	He	542.362	ug/l	2264823.52
Co	59	72	1	No Gas	88.551	ug/l	2783659.50
Ni	60	72	1	No Gas	136.451	ug/l	939371.22
Ni	60	72	3	He	147.828	ug/l	252183.37
Cu	63	72	1	No Gas	188.405	ug/l	3081700.42
Cu	63	72	3	He	196.546	ug/l	888538.95
Cu	65	72	1	No Gas	183.625	ug/l	1444824.45
Zn	66	72	1	No Gas	83.891	ug/l	390553.03
Zn	66	72	3	He	90.792	ug/l	77534.70
As	75	72	1	No Gas	91.991	ug/l	461874.63
As	75	72	3	He	99.352	ug/l	64507.01
Se	78	72	2	H2	102.842	ug/l	40449.21
Br	79	72	1	No Gas	32.236	ug/l	424303.90
Br	79	72	2	H2	32.532	ug/l	176500.83
Se	82	72	1	No Gas	94.264	ug/l	29932.70
Kr	84	72	1	No Gas		ug/l	592672.34
Sr	88	72	1	No Gas	1978.979	ug/l	90011377.06
Sr	88	72	3	He	2208.625	ug/l	10593588.66
Mo	95	115	1	No Gas	97.765	ug/l	833218.92
Mo	95	115	3	He	101.474	ug/l	272572.09
Mo	98	115	1	No Gas	99.031	ug/l	1359719.19
Ag	107	115	1	No Gas	8.872	ug/l	188910.14
Ag	109	115	1	No Gas	8.807	ug/l	180325.22
Cd	111	115	1	No Gas	45.643	ug/l	205222.96

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	48.840	ug/l	64316.40
Cd	114	115	1	No Gas	45.936	ug/l	457412.24
Cd	114	115	3	He	47.888	ug/l	155186.44
Sn	118	115	1	No Gas	99.365	ug/l	1320042.68
Sn	118	115	3	He	102.250	ug/l	340272.63
Sb	121	115	1	No Gas	93.696	ug/l	1765201.67
Sb	121	115	3	He	100.501	ug/l	456910.78
Sb	123	115	1	No Gas	97.812	ug/l	1393406.93
Sb	123	115	3	He	101.818	ug/l	363214.03
Ba	135	115	1	No Gas	157.977	ug/l	661329.51
Ba	137	115	1	No Gas	158.201	ug/l	1152638.85
La	139	115	3	He	104.556	ug/l	1996641.39
Ce	140	115	3	He	103.343	ug/l	2153956.70
Hg	201	209	1	No Gas	0.020	ug/l	58.32
Hg	202	209	1	No Gas	0.066	ug/l	419.26
Hg	202	209	3	He	0.054	ug/l	142.31
Tl	203	209	3	He	101.085	ug/l	686712.66
Tl	205	209	1	No Gas	95.885	ug/l	3617803.35
Tl	205	209	3	He	100.461	ug/l	1635219.47
[Pb]	206	209	1	No Gas	98.095	ug/l	1279678.87
[Pb]	207	209	1	No Gas	96.282	ug/l	1109411.49
Pb	208	209	1	No Gas	96.520	ug/l	5096543.66
Th	232	209	3	He	103.669	ug/l	2405094.92
U	238	209	1	No Gas	99.205	ug/l	5308878.63

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5676885.23	98.7
Sc	45	2	H2	2103991.65	87.0
Sc	45	3	He	288291.08	90.1
Ge	72	1	No Gas	1292791.05	97.4
Ge	72	2	H2	650602.07	87.1
Ge	72	3	He	170428.65	90.8
In	115	1	No Gas	8489249.63	89.5
In	115	3	He	1828013.34	86.6
Tb	159	1	No Gas	12493162.52	93.1
Tb	159	3	He	4908447.70	89.5
Ho	165	1	No Gas	12253430.19	92.2
Ho	165	3	He	5030883.57	92.2
Lu	175	1	No Gas	11774043.32	92.9
Lu	175	3	He	4056495.15	91.7
Bi	209	1	No Gas	6762059.70	82.0
Bi	209	3	He	2861296.11	79.3

ICPMS207-B Analytical Data

Sample Name Rinse
File Name 059BLKV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 00:14:56
Sample Type BkVrfy
Total Dilution 1.0000
Comment ICPMS-200.8-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.009	ug/l	28188.59
Be	9	45	1	No Gas	-0.011	ug/l	139.97
B	11	45	1	No Gas	0.952	ug/l	7528.23
Na	23	45	3	He	99.534	ug/l	142290.08
Mg	24	45	3	He	11.379	ug/l	6378.74
Al	27	45	1	No Gas	0.016	ug/l	6135.73
Si	28	45	2	H2	192.099	ug/l	406225.72
K	39	72	3	He	12.079	ug/l	71983.11
Ca	40	72	2	H2	3.556	ug/l	69383.97
Ti	47	72	1	No Gas	0.115	ug/l	477.16
V	51	72	1	No Gas	0.167	ug/l	-13538.90
V	51	72	3	He	2.455	ug/l	26790.97
Cr	52	72	1	No Gas	1.449	ug/l	112704.86
Cr	52	72	3	He	0.019	ug/l	474.46
Mn	55	72	1	No Gas	0.122	ug/l	11182.13
Mn	55	72	3	He	0.012	ug/l	160.30
Fe	56	72	2	H2	1.844	ug/l	37790.38
Fe	56	72	3	He	0.732	ug/l	9232.22
Co	59	72	1	No Gas	0.001	ug/l	379.26
Ni	60	72	1	No Gas	0.164	ug/l	1706.81
Ni	60	72	3	He	-0.022	ug/l	65.56
Cu	63	72	1	No Gas	1.505	ug/l	29031.72
Cu	63	72	3	He	0.593	ug/l	3275.38
Cu	65	72	1	No Gas	0.640	ug/l	5782.80
Zn	66	72	1	No Gas	0.290	ug/l	1944.82
Zn	66	72	3	He	0.309	ug/l	390.01
As	75	72	1	No Gas	0.035	ug/l	15000.61
As	75	72	3	He	0.109	ug/l	231.60
Se	78	72	2	H2	0.072	ug/l	43.22
Br	79	72	1	No Gas	1.847	ug/l	110967.55
Br	79	72	2	H2	1.198	ug/l	42338.00
Se	82	72	1	No Gas	-0.216	ug/l	621.53
Kr	84	72	1	No Gas		ug/l	20170.80
Sr	88	72	1	No Gas	0.017	ug/l	1646.83
Sr	88	72	3	He	0.009	ug/l	398.90
Mo	95	115	1	No Gas	0.020	ug/l	368.90
Mo	95	115	3	He	0.013	ug/l	131.11
Mo	98	115	1	No Gas	0.020	ug/l	559.81
Ag	107	115	1	No Gas	0.001	ug/l	78.03
Ag	109	115	1	No Gas	0.001	ug/l	81.37
Cd	111	115	1	No Gas	0.010	ug/l	46.77

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.006	ug/l	11.00
Cd	114	115	1	No Gas	0.008	ug/l	77.80
Cd	114	115	3	He	0.007	ug/l	29.85
Sn	118	115	1	No Gas	0.066	ug/l	2039.45
Sn	118	115	3	He	0.060	ug/l	491.12
Sb	121	115	1	No Gas	0.568	ug/l	12005.00
Sb	121	115	3	He	0.465	ug/l	2491.81
Sb	123	115	1	No Gas	0.575	ug/l	9190.94
Sb	123	115	3	He	0.463	ug/l	1945.67
Ba	135	115	1	No Gas	0.002	ug/l	43.25
Ba	137	115	1	No Gas	0.000	ug/l	56.55
La	139	115	3	He	0.000	ug/l	20.00
Ce	140	115	3	He	0.001	ug/l	34.44
Hg	201	209	1	No Gas	0.002	ug/l	17.00
Hg	202	209	1	No Gas	0.002	ug/l	68.99
Hg	202	209	3	He	0.001	ug/l	22.33
Tl	203	209	3	He	0.298	ug/l	2569.28
Tl	205	209	1	No Gas	0.218	ug/l	9957.23
Tl	205	209	3	He	0.306	ug/l	6328.71
[Pb]	206	209	1	No Gas	0.010	ug/l	306.67
[Pb]	207	209	1	No Gas	0.011	ug/l	274.45
Pb	208	209	1	No Gas	0.010	ug/l	1225.59
Th	232	209	3	He	0.051	ug/l	1582.07
U	238	209	1	No Gas	0.003	ug/l	166.30

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5849905.81	101.7
Sc	45	2	H2	2425272.43	100.3
Sc	45	3	He	317954.47	99.4
Ge	72	1	No Gas	1346267.38	101.4
Ge	72	2	H2	731811.11	98.0
Ge	72	3	He	189094.74	100.7
In	115	1	No Gas	9408723.54	99.2
In	115	3	He	2114210.29	100.2
Tb	159	1	No Gas	13042605.79	97.2
Tb	159	3	He	5369813.32	97.9
Ho	165	1	No Gas	12824467.98	96.5
Ho	165	3	He	5296302.84	97.1
Lu	175	1	No Gas	12288962.28	97.0
Lu	175	3	He	4369732.96	98.8
Bi	209	1	No Gas	7883888.65	95.7
Bi	209	3	He	3554576.46	98.5

ICPMS207-B Analytical Data

Sample Name B22030502-006A
File Name 060SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 00:21:10
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.301	ug/l	16660.46
Be	9	45	1	No Gas	-0.019	ug/l	98.98
B	11	45	1	No Gas	60.411	ug/l	198004.86
Na	23	45	3	He	36322.262	ug/l	35140532.53
Mg	24	45	3	He	10561.985	ug/l	5630097.45
Al	27	45	1	No Gas	1.683	ug/l	51876.69
Si	28	45	2	H2	23524.917	ug/l	48592931.39
K	39	72	3	He	1932.816	ug/l	1051936.84
Ca	40	72	2	H2	10274.070	ug/l	71288963.95
Ti	47	72	1	No Gas	2.784	ug/l	7082.25
V	51	72	1	No Gas	19.043	ug/l	598142.68
V	51	72	3	He	16.992	ug/l	91906.39
Cr	52	72	1	No Gas	1.194	ug/l	102135.90
Cr	52	72	3	He	1.840	ug/l	9693.23
Mn	55	72	1	No Gas	1.775	ug/l	74667.29
Mn	55	72	3	He	1.915	ug/l	6710.19
Fe	56	72	2	H2	5.094	ug/l	83913.96
Fe	56	72	3	He	4.778	ug/l	27194.69
Co	59	72	1	No Gas	0.117	ug/l	4045.88
Ni	60	72	1	No Gas	10.285	ug/l	72183.86
Ni	60	72	3	He	10.444	ug/l	19342.83
Cu	63	72	1	No Gas	1.120	ug/l	21867.74
Cu	63	72	3	He	0.370	ug/l	2099.07
Cu	65	72	1	No Gas	0.541	ug/l	4835.42
Zn	66	72	1	No Gas	14.218	ug/l	67487.32
Zn	66	72	3	He	15.016	ug/l	13932.27
As	75	72	1	No Gas	-0.286	ug/l	12995.77
As	75	72	3	He	-0.053	ug/l	111.87
Se	78	72	2	H2	0.222	ug/l	106.78
Br	79	72	1	No Gas	10.644	ug/l	201046.57
Br	79	72	2	H2	11.596	ug/l	91519.68
Se	82	72	1	No Gas	0.469	ug/l	818.22
Kr	84	72	1	No Gas		ug/l	36904.06
Sr	88	72	1	No Gas	63.766	ug/l	2938724.01
Sr	88	72	3	He	63.874	ug/l	331277.38
Mo	95	115	1	No Gas	0.489	ug/l	4760.82
Mo	95	115	3	He	0.489	ug/l	1577.88
Mo	98	115	1	No Gas	0.503	ug/l	7847.42
Ag	107	115	1	No Gas	0.002	ug/l	88.04
Ag	109	115	1	No Gas	0.000	ug/l	66.69
Cd	111	115	1	No Gas	0.009	ug/l	41.29

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.007	ug/l	12.45
Cd	114	115	1	No Gas	0.008	ug/l	84.25
Cd	114	115	3	He	0.006	ug/l	24.43
Sn	118	115	1	No Gas	-0.029	ug/l	625.44
Sn	118	115	3	He	-0.030	ug/l	144.45
Sb	121	115	1	No Gas	0.146	ug/l	3174.68
Sb	121	115	3	He	0.144	ug/l	785.10
Sb	123	115	1	No Gas	0.143	ug/l	2346.77
Sb	123	115	3	He	0.154	ug/l	653.75
Ba	135	115	1	No Gas	2.912	ug/l	13453.19
Ba	137	115	1	No Gas	2.919	ug/l	23459.92
La	139	115	3	He	0.001	ug/l	24.44
Ce	140	115	3	He	0.001	ug/l	37.78
Hg	201	209	1	No Gas	0.002	ug/l	16.00
Hg	202	209	1	No Gas	0.004	ug/l	80.65
Hg	202	209	3	He	0.003	ug/l	25.33
Tl	203	209	3	He	0.149	ug/l	1258.57
Tl	205	209	1	No Gas	0.087	ug/l	4045.11
Tl	205	209	3	He	0.153	ug/l	3114.29
[Pb]	206	209	1	No Gas	0.014	ug/l	352.23
[Pb]	207	209	1	No Gas	0.014	ug/l	300.01
Pb	208	209	1	No Gas	0.013	ug/l	1382.26
Th	232	209	3	He	0.014	ug/l	490.21
U	238	209	1	No Gas	0.009	ug/l	557.57

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	6035694.24	104.9
Sc	45	2	H2	2463335.26	101.9
Sc	45	3	He	313061.81	97.8
Ge	72	1	No Gas	1309118.09	98.6
Ge	72	2	H2	711428.62	95.3
Ge	72	3	He	184098.60	98.0
In	115	1	No Gas	9344923.70	98.6
In	115	3	He	2069740.01	98.1
Tb	159	1	No Gas	13070199.32	97.4
Tb	159	3	He	5298751.85	96.6
Ho	165	1	No Gas	12842866.48	96.6
Ho	165	3	He	5273765.77	96.7
Lu	175	1	No Gas	12269695.20	96.8
Lu	175	3	He	4322949.20	97.8
Bi	209	1	No Gas	7655289.09	92.9
Bi	209	3	He	3416772.98	94.6

ICPMS207-B Analytical Data

Sample Name B22030502-006B
File Name 061SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 00:27:25
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	2.311	ug/l	47047.74
Be	9	45	1	No Gas	-0.013	ug/l	119.65
B	11	45	1	No Gas	62.384	ug/l	185348.59
Na	23	45	3	He	36542.545	ug/l	31463776.48
Mg	24	45	3	He	10668.390	ug/l	5061753.03
Al	27	45	1	No Gas	3.238	ug/l	85550.52
Si	28	45	2	H2	19336.780	ug/l	35278566.95
K	39	72	3	He	1868.955	ug/l	944720.22
Ca	40	72	2	H2	10116.271	ug/l	64751755.31
Ti	47	72	1	No Gas	2.479	ug/l	5912.14
V	51	72	1	No Gas	16.706	ug/l	488398.12
V	51	72	3	He	20.631	ug/l	100454.07
Cr	52	72	1	No Gas	4.177	ug/l	176763.73
Cr	52	72	3	He	2.308	ug/l	11185.42
Mn	55	72	1	No Gas	3.229	ug/l	122181.27
Mn	55	72	3	He	2.974	ug/l	9601.55
Fe	56	72	2	H2	18.699	ug/l	257778.71
Fe	56	72	3	He	17.463	ug/l	78119.77
Co	59	72	1	No Gas	0.156	ug/l	4957.69
Ni	60	72	1	No Gas	13.195	ug/l	86355.14
Ni	60	72	3	He	13.864	ug/l	23767.13
Cu	63	72	1	No Gas	1.408	ug/l	24879.73
Cu	63	72	3	He	0.835	ug/l	4049.75
Cu	65	72	1	No Gas	1.043	ug/l	8252.99
Zn	66	72	1	No Gas	10.041	ug/l	44657.75
Zn	66	72	3	He	10.741	ug/l	9260.74
As	75	72	1	No Gas	0.741	ug/l	16930.02
As	75	72	3	He	0.228	ug/l	285.80
Se	78	72	2	H2	0.223	ug/l	98.78
Br	79	72	1	No Gas	10.878	ug/l	190235.64
Br	79	72	2	H2	10.816	ug/l	80981.78
Se	82	72	1	No Gas	0.546	ug/l	791.29
Kr	84	72	1	No Gas		ug/l	35986.69
Sr	88	72	1	No Gas	64.599	ug/l	2781325.29
Sr	88	72	3	He	64.501	ug/l	310043.42
Mo	95	115	1	No Gas	0.754	ug/l	6933.94
Mo	95	115	3	He	0.815	ug/l	2387.99
Mo	98	115	1	No Gas	0.778	ug/l	11486.44
Ag	107	115	1	No Gas	0.003	ug/l	106.71
Ag	109	115	1	No Gas	0.003	ug/l	112.04
Cd	111	115	1	No Gas	0.008	ug/l	33.63

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	8.00
Cd	114	115	1	No Gas	0.006	ug/l	54.29
Cd	114	115	3	He	0.005	ug/l	21.19
Sn	118	115	1	No Gas	0.167	ug/l	3347.10
Sn	118	115	3	He	0.206	ug/l	960.04
Sb	121	115	1	No Gas	0.192	ug/l	3940.28
Sb	121	115	3	He	0.212	ug/l	1057.15
Sb	123	115	1	No Gas	0.192	ug/l	2983.95
Sb	123	115	3	He	0.218	ug/l	849.11
Ba	135	115	1	No Gas	3.053	ug/l	13483.49
Ba	137	115	1	No Gas	2.778	ug/l	21350.90
La	139	115	3	He	0.002	ug/l	51.11
Ce	140	115	3	He	0.003	ug/l	84.45
Hg	201	209	1	No Gas	0.005	ug/l	23.66
Hg	202	209	1	No Gas	0.013	ug/l	136.30
Hg	202	209	3	He	0.011	ug/l	46.32
Tl	203	209	3	He	0.046	ug/l	399.50
Tl	205	209	1	No Gas	0.029	ug/l	1507.88
Tl	205	209	3	He	0.049	ug/l	1026.45
[Pb]	206	209	1	No Gas	0.022	ug/l	450.01
[Pb]	207	209	1	No Gas	0.024	ug/l	418.90
Pb	208	209	1	No Gas	0.023	ug/l	1896.73
Th	232	209	3	He	0.050	ug/l	1388.63
U	238	209	1	No Gas	0.011	ug/l	647.59

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5475632.16	95.2
Sc	45	2	H2	2176353.09	90.0
Sc	45	3	He	278672.03	87.1
Ge	72	1	No Gas	1223998.40	92.2
Ge	72	2	H2	656469.42	87.9
Ge	72	3	He	170621.92	90.9
In	115	1	No Gas	8943269.20	94.3
In	115	3	He	1925827.14	91.3
Tb	159	1	No Gas	12647024.91	94.3
Tb	159	3	He	5127075.59	93.5
Ho	165	1	No Gas	12576469.46	94.6
Ho	165	3	He	5055918.19	92.7
Lu	175	1	No Gas	11956255.63	94.4
Lu	175	3	He	4120457.79	93.2
Bi	209	1	No Gas	7451128.22	90.4
Bi	209	3	He	3202279.74	88.7

ICPMS207-B Analytical Data

Sample Name B22030502-011A
File Name 062SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 00:33:39
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	-0.019	ug/l	10611.97
Be	9	45	1	No Gas	-0.005	ug/l	168.34
B	11	45	1	No Gas	43.848	ug/l	139534.78
Na	23	45	3	He	48981.292	ug/l	47286002.08
Mg	24	45	3	He	14808.540	ug/l	7879542.79
Al	27	45	1	No Gas	0.370	ug/l	15387.20
Si	28	45	2	H2	27235.136	ug/l	55987435.02
K	39	72	3	He	571.829	ug/l	359677.98
Ca	40	72	2	H2	12708.081	ug/l	89642117.29
Ti	47	72	1	No Gas	2.954	ug/l	7267.45
V	51	72	1	No Gas	0.818	ug/l	7709.50
V	51	72	3	He	-1.208	ug/l	9593.16
Cr	52	72	1	No Gas	-0.647	ug/l	46894.78
Cr	52	72	3	He	0.018	ug/l	458.90
Mn	55	72	1	No Gas	70.212	ug/l	2630339.96
Mn	55	72	3	He	68.817	ug/l	239503.54
Fe	56	72	2	H2	3861.436	ug/l	56449669.76
Fe	56	72	3	He	3650.537	ug/l	16594341.88
Co	59	72	1	No Gas	0.042	ug/l	1636.85
Ni	60	72	1	No Gas	0.427	ug/l	3383.69
Ni	60	72	3	He	0.224	ug/l	522.23
Cu	63	72	1	No Gas	0.706	ug/l	14516.35
Cu	63	72	3	He	0.165	ug/l	1109.82
Cu	65	72	1	No Gas	0.349	ug/l	3195.64
Zn	66	72	1	No Gas	0.716	ug/l	3765.72
Zn	66	72	3	He	0.662	ug/l	712.24
As	75	72	1	No Gas	-0.491	ug/l	11643.68
As	75	72	3	He	-0.135	ug/l	55.40
Se	78	72	2	H2	0.180	ug/l	90.22
Br	79	72	1	No Gas	15.636	ug/l	245788.77
Br	79	72	2	H2	15.605	ug/l	112890.48
Se	82	72	1	No Gas	1.303	ug/l	1045.44
Kr	84	72	1	No Gas		ug/l	49616.77
Sr	88	72	1	No Gas	111.873	ug/l	4991031.82
Sr	88	72	3	He	109.211	ug/l	571651.08
Mo	95	115	1	No Gas	0.050	ug/l	622.24
Mo	95	115	3	He	0.035	ug/l	197.78
Mo	98	115	1	No Gas	0.050	ug/l	984.14
Ag	107	115	1	No Gas	0.002	ug/l	104.71
Ag	109	115	1	No Gas	0.001	ug/l	86.70
Cd	111	115	1	No Gas	0.005	ug/l	22.82

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	8.11
Cd	114	115	1	No Gas	0.004	ug/l	37.76
Cd	114	115	3	He	0.003	ug/l	14.92
Sn	118	115	1	No Gas	-0.047	ug/l	352.64
Sn	118	115	3	He	-0.043	ug/l	93.33
Sb	121	115	1	No Gas	0.061	ug/l	1363.21
Sb	121	115	3	He	0.059	ug/l	349.71
Sb	123	115	1	No Gas	0.062	ug/l	1035.81
Sb	123	115	3	He	0.061	ug/l	280.36
Ba	135	115	1	No Gas	2.542	ug/l	11358.83
Ba	137	115	1	No Gas	2.555	ug/l	19858.15
La	139	115	3	He	0.000	ug/l	16.67
Ce	140	115	3	He	0.000	ug/l	20.00
Hg	201	209	1	No Gas	0.002	ug/l	15.67
Hg	202	209	1	No Gas	0.000	ug/l	51.66
Hg	202	209	3	He	0.002	ug/l	22.33
Tl	203	209	3	He	0.049	ug/l	444.86
Tl	205	209	1	No Gas	0.025	ug/l	1400.09
Tl	205	209	3	He	0.045	ug/l	1012.45
[Pb]	206	209	1	No Gas	0.008	ug/l	264.45
[Pb]	207	209	1	No Gas	0.009	ug/l	225.56
Pb	208	209	1	No Gas	0.008	ug/l	1032.25
Th	232	209	3	He	0.007	ug/l	301.46
U	238	209	1	No Gas	0.001	ug/l	52.99

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5808418.11	100.9
Sc	45	2	H2	2452604.80	101.4
Sc	45	3	He	312499.68	97.6
Ge	72	1	No Gas	1267673.28	95.5
Ge	72	2	H2	723879.47	97.0
Ge	72	3	He	185881.24	99.0
In	115	1	No Gas	9032302.68	95.3
In	115	3	He	2073639.98	98.3
Tb	159	1	No Gas	12809039.53	95.5
Tb	159	3	He	5341732.22	97.4
Ho	165	1	No Gas	12488014.56	93.9
Ho	165	3	He	5368444.51	98.4
Lu	175	1	No Gas	11962299.69	94.4
Lu	175	3	He	4384787.24	99.2
Bi	209	1	No Gas	7600322.76	92.2
Bi	209	3	He	3408252.57	94.4

ICPMS207-B Analytical Data

Sample Name B22030502-011B
File Name 063SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 00:39:53
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.841	ug/l	39470.74
Be	9	45	1	No Gas	-0.017	ug/l	98.31
B	11	45	1	No Gas	43.682	ug/l	130681.83
Na	23	45	3	He	49257.004	ug/l	42395967.15
Mg	24	45	3	He	15007.963	ug/l	7120715.47
Al	27	45	1	No Gas	1.884	ug/l	51955.80
Si	28	45	2	H2	23756.190	ug/l	43804390.75
K	39	72	3	He	566.695	ug/l	324192.26
Ca	40	72	2	H2	12841.696	ug/l	82151955.73
Ti	47	72	1	No Gas	2.842	ug/l	6773.39
V	51	72	1	No Gas	-0.983	ug/l	-47484.15
V	51	72	3	He	7.709	ug/l	45735.22
Cr	52	72	1	No Gas	2.804	ug/l	139791.07
Cr	52	72	3	He	0.323	ug/l	1835.68
Mn	55	72	1	No Gas	69.062	ug/l	2505742.22
Mn	55	72	3	He	69.215	ug/l	218733.20
Fe	56	72	2	H2	6226.354	ug/l	82430651.08
Fe	56	72	3	He	5909.697	ug/l	24390399.12
Co	59	72	1	No Gas	0.062	ug/l	2152.56
Ni	60	72	1	No Gas	0.607	ug/l	4451.86
Ni	60	72	3	He	0.348	ug/l	683.36
Cu	63	72	1	No Gas	1.388	ug/l	24651.25
Cu	63	72	3	He	0.815	ug/l	3918.08
Cu	65	72	1	No Gas	1.019	ug/l	8102.84
Zn	66	72	1	No Gas	0.820	ug/l	4113.28
Zn	66	72	3	He	0.842	ug/l	798.91
As	75	72	1	No Gas	-0.266	ug/l	12223.61
As	75	72	3	He	0.223	ug/l	280.07
Se	78	72	2	H2	0.195	ug/l	87.78
Br	79	72	1	No Gas	12.465	ug/l	206700.14
Br	79	72	2	H2	12.340	ug/l	87678.07
Se	82	72	1	No Gas	0.814	ug/l	870.09
Kr	84	72	1	No Gas		ug/l	49249.61
Sr	88	72	1	No Gas	110.900	ug/l	4789892.16
Sr	88	72	3	He	113.373	ug/l	538842.46
Mo	95	115	1	No Gas	0.073	ug/l	805.58
Mo	95	115	3	He	0.076	ug/l	297.78
Mo	98	115	1	No Gas	0.070	ug/l	1236.95
Ag	107	115	1	No Gas	0.004	ug/l	132.05
Ag	109	115	1	No Gas	0.003	ug/l	124.72
Cd	111	115	1	No Gas	0.008	ug/l	33.85

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.003	ug/l	6.67
Cd	114	115	1	No Gas	0.006	ug/l	59.21
Cd	114	115	3	He	0.003	ug/l	12.91
Sn	118	115	1	No Gas	0.243	ug/l	4322.11
Sn	118	115	3	He	0.298	ug/l	1283.40
Sb	121	115	1	No Gas	0.110	ug/l	2279.08
Sb	121	115	3	He	0.115	ug/l	594.07
Sb	123	115	1	No Gas	0.110	ug/l	1718.28
Sb	123	115	3	He	0.117	ug/l	469.39
Ba	135	115	1	No Gas	2.811	ug/l	12194.53
Ba	137	115	1	No Gas	2.735	ug/l	20641.12
La	139	115	3	He	0.001	ug/l	41.11
Ce	140	115	3	He	0.002	ug/l	54.44
Hg	201	209	1	No Gas	0.003	ug/l	20.00
Hg	202	209	1	No Gas	0.006	ug/l	90.98
Hg	202	209	3	He	0.006	ug/l	32.99
Tl	203	209	3	He	0.023	ug/l	224.09
Tl	205	209	1	No Gas	0.014	ug/l	884.48
Tl	205	209	3	He	0.025	ug/l	574.91
[Pb]	206	209	1	No Gas	0.019	ug/l	401.12
[Pb]	207	209	1	No Gas	0.022	ug/l	385.56
Pb	208	209	1	No Gas	0.019	ug/l	1656.72
Th	232	209	3	He	0.027	ug/l	797.01
U	238	209	1	No Gas	0.001	ug/l	63.32

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5462411.62	94.9
Sc	45	2	H2	2198232.62	90.9
Sc	45	3	He	278669.83	87.1
Ge	72	1	No Gas	1228441.50	92.6
Ge	72	2	H2	655557.07	87.8
Ge	72	3	He	168788.75	89.9
In	115	1	No Gas	8771765.53	92.5
In	115	3	He	1925719.33	91.3
Tb	159	1	No Gas	12608930.36	94.0
Tb	159	3	He	5111584.84	93.2
Ho	165	1	No Gas	12506486.46	94.1
Ho	165	3	He	5061430.21	92.8
Lu	175	1	No Gas	11961902.52	94.4
Lu	175	3	He	4170446.50	94.3
Bi	209	1	No Gas	7308997.93	88.7
Bi	209	3	He	3212080.06	89.0

ICPMS207-B Analytical Data

Sample Name B22030502-016A
File Name 064SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 00:46:06
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.383	ug/l	17961.78
Be	9	45	1	No Gas	-0.024	ug/l	67.66
B	11	45	1	No Gas	47.833	ug/l	156649.77
Na	23	45	3	He	35185.111	ug/l	34001816.16
Mg	24	45	3	He	11267.453	ug/l	5998979.59
Al	27	45	1	No Gas	7.893	ug/l	219785.05
Si	28	45	2	H2	22103.007	ug/l	45081196.11
K	39	72	3	He	2083.374	ug/l	1142426.81
Ca	40	72	2	H2	12411.347	ug/l	87261027.12
Ti	47	72	1	No Gas	2.439	ug/l	6249.34
V	51	72	1	No Gas	15.698	ug/l	491501.64
V	51	72	3	He	13.538	ug/l	77180.41
Cr	52	72	1	No Gas	1.284	ug/l	105130.17
Cr	52	72	3	He	2.141	ug/l	11349.96
Mn	55	72	1	No Gas	0.485	ug/l	24961.72
Mn	55	72	3	He	0.537	ug/l	1987.74
Fe	56	72	2	H2	8.537	ug/l	135091.65
Fe	56	72	3	He	8.806	ug/l	45921.66
Co	59	72	1	No Gas	0.040	ug/l	1620.22
Ni	60	72	1	No Gas	0.686	ug/l	5313.77
Ni	60	72	3	He	0.526	ug/l	1086.72
Cu	63	72	1	No Gas	1.946	ug/l	35661.55
Cu	63	72	3	He	1.671	ug/l	8553.80
Cu	65	72	1	No Gas	1.774	ug/l	14705.29
Zn	66	72	1	No Gas	27.691	ug/l	131410.30
Zn	66	72	3	He	28.839	ug/l	26989.48
As	75	72	1	No Gas	-0.375	ug/l	12625.20
As	75	72	3	He	-0.048	ug/l	117.00
Se	78	72	2	H2	0.203	ug/l	99.78
Br	79	72	1	No Gas	9.957	ug/l	194476.52
Br	79	72	2	H2	10.526	ug/l	87420.16
Se	82	72	1	No Gas	0.956	ug/l	974.77
Kr	84	72	1	No Gas		ug/l	40973.49
Sr	88	72	1	No Gas	75.182	ug/l	3476264.25
Sr	88	72	3	He	75.472	ug/l	396081.27
Mo	95	115	1	No Gas	0.171	ug/l	1802.35
Mo	95	115	3	He	0.168	ug/l	607.80
Mo	98	115	1	No Gas	0.179	ug/l	3000.01
Ag	107	115	1	No Gas	0.006	ug/l	205.42
Ag	109	115	1	No Gas	0.006	ug/l	188.08
Cd	111	115	1	No Gas	0.006	ug/l	25.43

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.005	ug/l	9.78
Cd	114	115	1	No Gas	0.005	ug/l	46.05
Cd	114	115	3	He	0.005	ug/l	20.70
Sn	118	115	1	No Gas	0.010	ug/l	1224.31
Sn	118	115	3	He	0.030	ug/l	373.34
Sb	121	115	1	No Gas	0.865	ug/l	18353.10
Sb	121	115	3	He	0.938	ug/l	4933.03
Sb	123	115	1	No Gas	0.859	ug/l	13770.77
Sb	123	115	3	He	0.930	ug/l	3837.91
Ba	135	115	1	No Gas	5.070	ug/l	23736.52
Ba	137	115	1	No Gas	5.226	ug/l	42567.27
La	139	115	3	He	0.004	ug/l	90.00
Ce	140	115	3	He	0.009	ug/l	233.34
Hg	201	209	1	No Gas	0.001	ug/l	13.33
Hg	202	209	1	No Gas	0.008	ug/l	107.31
Hg	202	209	3	He	0.008	ug/l	38.66
Tl	203	209	3	He	0.028	ug/l	275.45
Tl	205	209	1	No Gas	0.016	ug/l	1020.05
Tl	205	209	3	He	0.027	ug/l	655.62
[Pb]	206	209	1	No Gas	0.060	ug/l	1062.27
[Pb]	207	209	1	No Gas	0.059	ug/l	906.70
Pb	208	209	1	No Gas	0.057	ug/l	4116.95
Th	232	209	3	He	0.012	ug/l	438.63
U	238	209	1	No Gas	0.015	ug/l	933.52

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5992300.19	104.1
Sc	45	2	H2	2432347.67	100.6
Sc	45	3	He	312690.37	97.7
Ge	72	1	No Gas	1313636.19	99.0
Ge	72	2	H2	720432.22	96.5
Ge	72	3	He	186310.80	99.2
In	115	1	No Gas	9477334.49	99.9
In	115	3	He	2095698.96	99.3
Tb	159	1	No Gas	13180060.53	98.3
Tb	159	3	He	5433261.46	99.1
Ho	165	1	No Gas	13090043.44	98.5
Ho	165	3	He	5363848.61	98.3
Lu	175	1	No Gas	12569334.21	99.2
Lu	175	3	He	4450973.26	100.7
Bi	209	1	No Gas	7869198.32	95.5
Bi	209	3	He	3415196.02	94.6

ICPMS207-B Analytical Data

Sample Name B22030502-016B
File Name 065SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 00:52:20
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.898	ug/l	40105.29
Be	9	45	1	No Gas	-0.020	ug/l	83.65
B	11	45	1	No Gas	49.725	ug/l	147145.85
Na	23	45	3	He	35156.761	ug/l	30179784.83
Mg	24	45	3	He	11234.210	ug/l	5313014.32
Al	27	45	1	No Gas	70.387	ug/l	1731169.23
Si	28	45	2	H2	17653.688	ug/l	32575190.66
K	39	72	3	He	2056.167	ug/l	1033322.58
Ca	40	72	2	H2	12497.912	ug/l	80680014.67
Ti	47	72	1	No Gas	6.305	ug/l	14812.35
V	51	72	1	No Gas	14.602	ug/l	425151.78
V	51	72	3	He	18.858	ug/l	93004.38
Cr	52	72	1	No Gas	4.617	ug/l	189151.28
Cr	52	72	3	He	2.996	ug/l	14414.87
Mn	55	72	1	No Gas	3.204	ug/l	121577.86
Mn	55	72	3	He	2.955	ug/l	9538.85
Fe	56	72	2	H2	134.550	ug/l	1808104.67
Fe	56	72	3	He	123.288	ug/l	519451.48
Co	59	72	1	No Gas	0.112	ug/l	3666.53
Ni	60	72	1	No Gas	1.194	ug/l	8275.95
Ni	60	72	3	He	1.129	ug/l	2024.60
Cu	63	72	1	No Gas	3.624	ug/l	59279.12
Cu	63	72	3	He	3.436	ug/l	15819.37
Cu	65	72	1	No Gas	3.496	ug/l	26576.07
Zn	66	72	1	No Gas	65.306	ug/l	288528.73
Zn	66	72	3	He	69.111	ug/l	59102.48
As	75	72	1	No Gas	1.094	ug/l	18601.05
As	75	72	3	He	0.248	ug/l	298.93
Se	78	72	2	H2	0.241	ug/l	106.89
Br	79	72	1	No Gas	10.528	ug/l	187199.07
Br	79	72	2	H2	10.975	ug/l	82343.18
Se	82	72	1	No Gas	0.892	ug/l	891.96
Kr	84	72	1	No Gas		ug/l	39739.27
Sr	88	72	1	No Gas	78.503	ug/l	3386997.47
Sr	88	72	3	He	78.158	ug/l	375578.65
Mo	95	115	1	No Gas	0.285	ug/l	2691.38
Mo	95	115	3	He	0.274	ug/l	861.15
Mo	98	115	1	No Gas	0.285	ug/l	4312.01
Ag	107	115	1	No Gas	0.043	ug/l	997.77
Ag	109	115	1	No Gas	0.043	ug/l	968.43
Cd	111	115	1	No Gas	0.010	ug/l	45.83

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.008	ug/l	13.33
Cd	114	115	1	No Gas	0.004	ug/l	40.59
Cd	114	115	3	He	0.003	ug/l	13.26
Sn	118	115	1	No Gas	1.730	ug/l	24842.84
Sn	118	115	3	He	1.902	ug/l	6916.18
Sb	121	115	1	No Gas	1.421	ug/l	27940.08
Sb	121	115	3	He	1.538	ug/l	7421.03
Sb	123	115	1	No Gas	1.436	ug/l	21345.97
Sb	123	115	3	He	1.544	ug/l	5845.14
Ba	135	115	1	No Gas	11.518	ug/l	50127.03
Ba	137	115	1	No Gas	11.226	ug/l	85020.22
La	139	115	3	He	0.037	ug/l	746.69
Ce	140	115	3	He	0.090	ug/l	1999.05
Hg	201	209	1	No Gas	0.005	ug/l	24.33
Hg	202	209	1	No Gas	0.021	ug/l	185.63
Hg	202	209	3	He	0.017	ug/l	60.99
Tl	203	209	3	He	0.018	ug/l	181.41
Tl	205	209	1	No Gas	0.011	ug/l	776.69
Tl	205	209	3	He	0.018	ug/l	445.52
[Pb]	206	209	1	No Gas	0.311	ug/l	4634.18
[Pb]	207	209	1	No Gas	0.295	ug/l	3881.70
Pb	208	209	1	No Gas	0.301	ug/l	18188.34
Th	232	209	3	He	0.022	ug/l	654.28
U	238	209	1	No Gas	0.017	ug/l	1017.50

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5423604.13	94.3
Sc	45	2	H2	2200804.89	91.0
Sc	45	3	He	277793.55	86.8
Ge	72	1	No Gas	1226251.76	92.4
Ge	72	2	H2	661780.97	88.6
Ge	72	3	He	170606.35	90.9
In	115	1	No Gas	8823679.90	93.1
In	115	3	He	1929699.99	91.5
Tb	159	1	No Gas	12662772.54	94.4
Tb	159	3	He	5101982.43	93.0
Ho	165	1	No Gas	12605660.63	94.8
Ho	165	3	He	5039300.01	92.4
Lu	175	1	No Gas	12208211.64	96.3
Lu	175	3	He	4136079.53	93.5
Bi	209	1	No Gas	7501612.87	91.0
Bi	209	3	He	3185811.71	88.2

ICPMS207-B Analytical Data

Sample Name B22030502-021A
File Name 066SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 00:58:34
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.242	ug/l	15628.27
Be	9	45	1	No Gas	-0.024	ug/l	66.66
B	11	45	1	No Gas	44.660	ug/l	147755.39
Na	23	45	3	He	31810.292	ug/l	31363620.64
Mg	24	45	3	He	9416.952	ug/l	5114826.68
Al	27	45	1	No Gas	2.385	ug/l	71091.74
Si	28	45	2	H2	23439.555	ug/l	48352255.12
K	39	72	3	He	1778.305	ug/l	1015438.78
Ca	40	72	2	H2	10008.890	ug/l	71917076.21
Ti	47	72	1	No Gas	2.523	ug/l	6508.25
V	51	72	1	No Gas	13.960	ug/l	438068.48
V	51	72	3	He	9.449	ug/l	60228.41
Cr	52	72	1	No Gas	1.452	ug/l	110840.59
Cr	52	72	3	He	1.995	ug/l	10938.57
Mn	55	72	1	No Gas	0.317	ug/l	18598.36
Mn	55	72	3	He	0.376	ug/l	1471.79
Fe	56	72	2	H2	5.718	ug/l	96025.75
Fe	56	72	3	He	5.587	ug/l	32178.31
Co	59	72	1	No Gas	0.025	ug/l	1154.43
Ni	60	72	1	No Gas	0.277	ug/l	2478.63
Ni	60	72	3	He	0.139	ug/l	376.67
Cu	63	72	1	No Gas	0.615	ug/l	13640.49
Cu	63	72	3	He	0.424	ug/l	2464.39
Cu	65	72	1	No Gas	0.515	ug/l	4673.30
Zn	66	72	1	No Gas	15.084	ug/l	72346.71
Zn	66	72	3	He	15.043	ug/l	14565.10
As	75	72	1	No Gas	-0.524	ug/l	11995.16
As	75	72	3	He	-0.087	ug/l	91.87
Se	78	72	2	H2	0.215	ug/l	107.33
Br	79	72	1	No Gas	7.021	ug/l	164470.57
Br	79	72	2	H2	7.410	ug/l	73778.05
Se	82	72	1	No Gas	1.065	ug/l	1017.44
Kr	84	72	1	No Gas		ug/l	36520.34
Sr	88	72	1	No Gas	61.279	ug/l	2853631.90
Sr	88	72	3	He	58.236	ug/l	315249.24
Mo	95	115	1	No Gas	0.134	ug/l	1450.09
Mo	95	115	3	He	0.121	ug/l	465.57
Mo	98	115	1	No Gas	0.139	ug/l	2381.61
Ag	107	115	1	No Gas	0.001	ug/l	67.36
Ag	109	115	1	No Gas	0.000	ug/l	66.03
Cd	111	115	1	No Gas	0.006	ug/l	24.76

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	7.33
Cd	114	115	1	No Gas	0.005	ug/l	54.46
Cd	114	115	3	He	0.003	ug/l	16.35
Sn	118	115	1	No Gas	0.099	ug/l	2538.54
Sn	118	115	3	He	0.089	ug/l	604.46
Sb	121	115	1	No Gas	0.316	ug/l	6788.99
Sb	121	115	3	He	0.328	ug/l	1764.96
Sb	123	115	1	No Gas	0.316	ug/l	5123.12
Sb	123	115	3	He	0.334	ug/l	1406.21
Ba	135	115	1	No Gas	3.750	ug/l	17532.94
Ba	137	115	1	No Gas	3.768	ug/l	30666.19
La	139	115	3	He	0.000	ug/l	13.34
Ce	140	115	3	He	0.001	ug/l	21.11
Hg	201	209	1	No Gas	0.001	ug/l	15.67
Hg	202	209	1	No Gas	0.009	ug/l	116.31
Hg	202	209	3	He	0.008	ug/l	39.99
Tl	203	209	3	He	0.018	ug/l	197.42
Tl	205	209	1	No Gas	0.010	ug/l	760.03
Tl	205	209	3	He	0.017	ug/l	467.53
[Pb]	206	209	1	No Gas	0.031	ug/l	613.35
[Pb]	207	209	1	No Gas	0.027	ug/l	486.68
Pb	208	209	1	No Gas	0.027	ug/l	2240.09
Th	232	209	3	He	0.004	ug/l	225.43
U	238	209	1	No Gas	0.082	ug/l	5045.07

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	6040468.23	105.0
Sc	45	2	H2	2459659.24	101.7
Sc	45	3	He	318984.85	99.7
Ge	72	1	No Gas	1323651.79	99.7
Ge	72	2	H2	736466.67	98.6
Ge	72	3	He	192128.74	102.3
In	115	1	No Gas	9467127.48	99.8
In	115	3	He	2108101.32	99.9
Tb	159	1	No Gas	13413962.66	100.0
Tb	159	3	He	5442125.58	99.2
Ho	165	1	No Gas	13224264.94	99.5
Ho	165	3	He	5410608.07	99.2
Lu	175	1	No Gas	12674030.56	100.0
Lu	175	3	He	4439084.03	100.4
Bi	209	1	No Gas	7847879.92	95.2
Bi	209	3	He	3428500.67	95.0

ICPMS207-B Analytical Data

Sample Name CCV
File Name 067_CCV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 01:04:47
Sample Type CCV
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	586.853	ug/l	9137536.39
Be	9	45	1	No Gas	46.215	ug/l	248645.93
B	11	45	1	No Gas	47.969	ug/l	140311.39
Na	23	45	3	He	12134.616	ug/l	11301972.47
Mg	24	45	3	He	12203.880	ug/l	6246974.28
Al	27	45	1	No Gas	48.538	ug/l	1180145.62
Si	28	45	2	H2	272.426	ug/l	531549.25
K	39	72	3	He	12005.599	ug/l	6110323.73
Ca	40	72	2	H2	13211.545	ug/l	91281048.66
Ti	47	72	1	No Gas	46.683	ug/l	114598.55
V	51	72	1	No Gas	45.585	ug/l	1440493.86
V	51	72	3	He	49.447	ug/l	235370.05
Cr	52	72	1	No Gas	46.977	ug/l	1420145.83
Cr	52	72	3	He	47.077	ug/l	235587.00
Mn	55	72	1	No Gas	46.963	ug/l	1797579.46
Mn	55	72	3	He	48.422	ug/l	164495.56
Fe	56	72	2	H2	1324.429	ug/l	18960108.81
Fe	56	72	3	He	1234.164	ug/l	5478690.53
Co	59	72	1	No Gas	46.838	ug/l	1473716.32
Ni	60	72	1	No Gas	47.083	ug/l	324741.36
Ni	60	72	3	He	49.619	ug/l	90160.72
Cu	63	72	1	No Gas	47.736	ug/l	783908.69
Cu	63	72	3	He	49.322	ug/l	237545.83
Cu	65	72	1	No Gas	47.673	ug/l	375850.06
Zn	66	72	1	No Gas	46.978	ug/l	219171.68
Zn	66	72	3	He	49.044	ug/l	44619.08
As	75	72	1	No Gas	47.436	ug/l	245267.21
As	75	72	3	He	48.885	ug/l	33856.59
Se	78	72	2	H2	51.763	ug/l	22181.67
Br	79	72	1	No Gas	0.622	ug/l	93707.67
Br	79	72	2	H2	0.434	ug/l	37287.50
Se	82	72	1	No Gas	50.401	ug/l	16327.01
Kr	84	72	1	No Gas		ug/l	33579.10
Sr	88	72	1	No Gas	47.570	ug/l	2165828.22
Sr	88	72	3	He	48.866	ug/l	249784.57
Mo	95	115	1	No Gas	47.175	ug/l	422034.10
Mo	95	115	3	He	48.620	ug/l	141202.35
Mo	98	115	1	No Gas	47.463	ug/l	683865.50
Ag	107	115	1	No Gas	18.949	ug/l	423411.51
Ag	109	115	1	No Gas	19.016	ug/l	408601.53
Cd	111	115	1	No Gas	47.976	ug/l	226399.24

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	50.749	ug/l	72233.51
Cd	114	115	1	No Gas	48.392	ug/l	505727.60
Cd	114	115	3	He	49.971	ug/l	175032.65
Sn	118	115	1	No Gas	47.634	ug/l	664633.59
Sn	118	115	3	He	49.568	ug/l	178413.08
Sb	121	115	1	No Gas	47.151	ug/l	932370.10
Sb	121	115	3	He	49.758	ug/l	244533.00
Sb	123	115	1	No Gas	47.344	ug/l	707826.10
Sb	123	115	3	He	49.701	ug/l	191664.44
Ba	135	115	1	No Gas	47.390	ug/l	208210.51
Ba	137	115	1	No Gas	47.844	ug/l	365776.37
La	139	115	3	He	50.244	ug/l	1037204.53
Ce	140	115	3	He	49.622	ug/l	1117992.68
Hg	201	209	1	No Gas	0.936	ug/l	2591.74
Hg	202	209	1	No Gas	0.934	ug/l	5930.14
Hg	202	209	3	He	0.967	ug/l	2672.07
Tl	203	209	3	He	48.045	ug/l	379934.56
Tl	205	209	1	No Gas	46.422	ug/l	1963136.01
Tl	205	209	3	He	48.358	ug/l	916249.09
[Pb]	206	209	1	No Gas	47.437	ug/l	693579.39
[Pb]	207	209	1	No Gas	47.023	ug/l	607264.15
Pb	208	209	1	No Gas	47.287	ug/l	2798456.34
Th	232	209	3	He	47.603	ug/l	1285435.43
U	238	209	1	No Gas	46.485	ug/l	2788441.45

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5351455.30	93.0
Sc	45	2	H2	2263659.93	93.6
Sc	45	3	He	300641.36	93.9
Ge	72	1	No Gas	1293424.28	97.5
Ge	72	2	H2	708543.11	94.9
Ge	72	3	He	181416.63	96.6
In	115	1	No Gas	8905656.22	93.9
In	115	3	He	1975848.47	93.6
Tb	159	1	No Gas	12745721.52	95.0
Tb	159	3	He	5147067.51	93.9
Ho	165	1	No Gas	12490253.35	93.9
Ho	165	3	He	5166771.53	94.7
Lu	175	1	No Gas	12123868.96	95.7
Lu	175	3	He	4248071.31	96.1
Bi	209	1	No Gas	7573304.74	91.9
Bi	209	3	He	3330308.60	92.2

ICPMS207-B Analytical Data

Sample Name CCB
File Name 068_CCB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 01:11:01
Sample Type CCB
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.140	ug/l	28163.89
Be	9	45	1	No Gas	-0.007	ug/l	154.66
B	11	45	1	No Gas	0.750	ug/l	6392.59
Na	23	45	3	He	55.125	ug/l	91634.41
Mg	24	45	3	He	7.495	ug/l	3969.33
Al	27	45	1	No Gas	-0.019	ug/l	4835.29
Si	28	45	2	H2	56.053	ug/l	121591.70
K	39	72	3	He	6.149	ug/l	65713.23
Ca	40	72	2	H2	0.631	ug/l	46947.70
Ti	47	72	1	No Gas	0.057	ug/l	310.32
V	51	72	1	No Gas	-1.187	ug/l	-55455.46
V	51	72	3	He	5.130	ug/l	37428.57
Cr	52	72	1	No Gas	0.913	ug/l	91430.86
Cr	52	72	3	He	0.003	ug/l	370.01
Mn	55	72	1	No Gas	0.138	ug/l	11162.12
Mn	55	72	3	He	0.002	ug/l	118.31
Fe	56	72	2	H2	0.088	ug/l	11921.87
Fe	56	72	3	He	0.328	ug/l	7025.44
Co	59	72	1	No Gas	-0.001	ug/l	292.76
Ni	60	72	1	No Gas	-0.018	ug/l	385.90
Ni	60	72	3	He	-0.026	ug/l	55.56
Cu	63	72	1	No Gas	0.113	ug/l	5043.57
Cu	63	72	3	He	0.193	ug/l	1211.14
Cu	65	72	1	No Gas	0.200	ug/l	2056.98
Zn	66	72	1	No Gas	-0.002	ug/l	497.98
Zn	66	72	3	He	-0.001	ug/l	92.22
As	75	72	1	No Gas	-0.174	ug/l	13205.85
As	75	72	3	He	0.043	ug/l	175.60
Se	78	72	2	H2	0.014	ug/l	17.00
Br	79	72	1	No Gas	0.384	ug/l	89918.04
Br	79	72	2	H2	0.207	ug/l	36173.46
Se	82	72	1	No Gas	0.186	ug/l	710.08
Kr	84	72	1	No Gas		ug/l	19251.33
Sr	88	72	1	No Gas	-0.001	ug/l	731.91
Sr	88	72	3	He	-0.012	ug/l	275.56
Mo	95	115	1	No Gas	0.016	ug/l	317.79
Mo	95	115	3	He	-0.005	ug/l	72.22
Mo	98	115	1	No Gas	0.015	ug/l	463.69
Ag	107	115	1	No Gas	0.001	ug/l	64.69
Ag	109	115	1	No Gas	0.000	ug/l	60.69
Cd	111	115	1	No Gas	0.007	ug/l	29.30

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	7.67
Cd	114	115	1	No Gas	0.006	ug/l	52.49
Cd	114	115	3	He	0.004	ug/l	17.78
Sn	118	115	1	No Gas	0.081	ug/l	2165.88
Sn	118	115	3	He	0.086	ug/l	567.79
Sb	121	115	1	No Gas	0.284	ug/l	5855.48
Sb	121	115	3	He	0.231	ug/l	1205.51
Sb	123	115	1	No Gas	0.286	ug/l	4447.16
Sb	123	115	3	He	0.235	ug/l	958.13
Ba	135	115	1	No Gas	0.000	ug/l	29.94
Ba	137	115	1	No Gas	0.221	ug/l	1741.18
La	139	115	3	He	0.000	ug/l	15.56
Ce	140	115	3	He	0.000	ug/l	14.44
Hg	201	209	1	No Gas	0.003	ug/l	20.66
Hg	202	209	1	No Gas	0.003	ug/l	74.65
Hg	202	209	3	He	0.001	ug/l	21.00
Tl	203	209	3	He	0.112	ug/l	975.10
Tl	205	209	1	No Gas	0.079	ug/l	3841.70
Tl	205	209	3	He	0.113	ug/l	2382.51
[Pb]	206	209	1	No Gas	0.004	ug/l	212.22
[Pb]	207	209	1	No Gas	0.004	ug/l	173.34
Pb	208	209	1	No Gas	0.003	ug/l	755.57
Th	232	209	3	He	0.034	ug/l	1077.14
U	238	209	1	No Gas	0.002	ug/l	121.64

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5418097.75	94.2
Sc	45	2	H2	2277519.06	94.2
Sc	45	3	He	295194.03	92.2
Ge	72	1	No Gas	1273882.39	96.0
Ge	72	2	H2	708022.31	94.8
Ge	72	3	He	180416.36	96.1
In	115	1	No Gas	9065607.21	95.6
In	115	3	He	2018659.33	95.7
Tb	159	1	No Gas	12855276.81	95.8
Tb	159	3	He	5272815.96	96.1
Ho	165	1	No Gas	12713040.20	95.6
Ho	165	3	He	5214589.46	95.6
Lu	175	1	No Gas	12135503.51	95.8
Lu	175	3	He	4244206.51	96.0
Bi	209	1	No Gas	7905721.71	95.9
Bi	209	3	He	3488222.29	96.6

ICPMS207-B Analytical Data

Sample Name B22030502-021B
File Name 069SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 01:17:16
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.679	ug/l	36571.66
Be	9	45	1	No Gas	-0.019	ug/l	88.98
B	11	45	1	No Gas	43.303	ug/l	128431.60
Na	23	45	3	He	32034.570	ug/l	27367382.09
Mg	24	45	3	He	9468.435	ug/l	4456180.00
Al	27	45	1	No Gas	18.493	ug/l	457851.96
Si	28	45	2	H2	5298.586	ug/l	9666196.75
K	39	72	3	He	1746.013	ug/l	884621.57
Ca	40	72	2	H2	10106.654	ug/l	66002437.20
Ti	47	72	1	No Gas	2.185	ug/l	5276.30
V	51	72	1	No Gas	15.939	ug/l	469186.79
V	51	72	3	He	22.619	ug/l	108569.68
Cr	52	72	1	No Gas	4.372	ug/l	184016.68
Cr	52	72	3	He	2.516	ug/l	12138.39
Mn	55	72	1	No Gas	1.307	ug/l	53427.44
Mn	55	72	3	He	1.021	ug/l	3358.72
Fe	56	72	2	H2	96.881	ug/l	1319667.98
Fe	56	72	3	He	91.666	ug/l	386808.57
Co	59	72	1	No Gas	0.050	ug/l	1806.53
Ni	60	72	1	No Gas	0.530	ug/l	3972.67
Ni	60	72	3	He	0.424	ug/l	818.92
Cu	63	72	1	No Gas	0.815	ug/l	15876.30
Cu	63	72	3	He	0.701	ug/l	3436.39
Cu	65	72	1	No Gas	0.742	ug/l	6072.38
Zn	66	72	1	No Gas	21.835	ug/l	97612.28
Zn	66	72	3	He	23.217	ug/l	19873.61
As	75	72	1	No Gas	0.055	ug/l	13669.88
As	75	72	3	He	0.218	ug/l	279.27
Se	78	72	2	H2	0.213	ug/l	96.78
Br	79	72	1	No Gas	3.930	ug/l	122952.08
Br	79	72	2	H2	4.271	ug/l	52748.33
Se	82	72	1	No Gas	0.456	ug/l	766.21
Kr	84	72	1	No Gas		ug/l	35876.70
Sr	88	72	1	No Gas	61.231	ug/l	2663536.79
Sr	88	72	3	He	61.026	ug/l	292739.92
Mo	95	115	1	No Gas	0.175	ug/l	1734.56
Mo	95	115	3	He	0.193	ug/l	626.68
Mo	98	115	1	No Gas	0.178	ug/l	2812.26
Ag	107	115	1	No Gas	0.015	ug/l	375.49
Ag	109	115	1	No Gas	0.016	ug/l	404.17
Cd	111	115	1	No Gas	0.007	ug/l	30.61

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	7.11
Cd	114	115	1	No Gas	0.005	ug/l	41.82
Cd	114	115	3	He	0.001	ug/l	5.18
Sn	118	115	1	No Gas	0.573	ug/l	8991.72
Sn	118	115	3	He	0.617	ug/l	2392.44
Sb	121	115	1	No Gas	0.322	ug/l	6509.16
Sb	121	115	3	He	0.371	ug/l	1809.34
Sb	123	115	1	No Gas	0.322	ug/l	4914.69
Sb	123	115	3	He	0.349	ug/l	1338.20
Ba	135	115	1	No Gas	4.077	ug/l	17929.31
Ba	137	115	1	No Gas	4.167	ug/l	31906.61
La	139	115	3	He	0.019	ug/l	391.12
Ce	140	115	3	He	0.037	ug/l	817.81
Hg	201	209	1	No Gas	0.008	ug/l	32.66
Hg	202	209	1	No Gas	0.028	ug/l	233.29
Hg	202	209	3	He	0.027	ug/l	88.98
Tl	203	209	3	He	0.033	ug/l	301.46
Tl	205	209	1	No Gas	0.020	ug/l	1165.61
Tl	205	209	3	He	0.034	ug/l	762.33
[Pb]	206	209	1	No Gas	0.126	ug/l	1989.05
[Pb]	207	209	1	No Gas	0.128	ug/l	1767.91
Pb	208	209	1	No Gas	0.123	ug/l	7905.41
Th	232	209	3	He	0.042	ug/l	1219.21
U	238	209	1	No Gas	0.017	ug/l	1025.84

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5431884.91	94.4
Sc	45	2	H2	2173576.24	89.9
Sc	45	3	He	276395.74	86.4
Ge	72	1	No Gas	1239873.57	93.4
Ge	72	2	H2	669430.53	89.7
Ge	72	3	He	170263.03	90.7
In	115	1	No Gas	8931660.05	94.2
In	115	3	He	1919037.56	91.0
Tb	159	1	No Gas	12775808.48	95.2
Tb	159	3	He	5144185.67	93.8
Ho	165	1	No Gas	12664257.77	95.3
Ho	165	3	He	5137672.70	94.2
Lu	175	1	No Gas	12230063.28	96.5
Lu	175	3	He	4170052.77	94.3
Bi	209	1	No Gas	7631512.89	92.6
Bi	209	3	He	3271321.98	90.6

ICPMS207-B Analytical Data

Sample Name B22030502-026A
File Name 070SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 01:23:29
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	-0.278	ug/l	6181.75
Be	9	45	1	No Gas	-0.020	ug/l	87.65
B	11	45	1	No Gas	39.727	ug/l	125237.08
Na	23	45	3	He	38063.085	ug/l	36193332.79
Mg	24	45	3	He	17790.498	ug/l	9321361.06
Al	27	45	1	No Gas	0.974	ug/l	30737.77
Si	28	45	2	H2	18987.930	ug/l	37746166.26
K	39	72	3	He	1279.145	ug/l	723647.40
Ca	40	72	2	H2	18350.716	ug/l	127384749.43
Ti	47	72	1	No Gas	2.084	ug/l	5291.30
V	51	72	1	No Gas	0.406	ug/l	-5466.73
V	51	72	3	He	-1.516	ug/l	8168.98
Cr	52	72	1	No Gas	-0.704	ug/l	46330.60
Cr	52	72	3	He	0.002	ug/l	378.90
Mn	55	72	1	No Gas	344.230	ug/l	13158900.97
Mn	55	72	3	He	341.829	ug/l	1187405.12
Fe	56	72	2	H2	133.619	ug/l	1932172.53
Fe	56	72	3	He	122.973	ug/l	563684.04
Co	59	72	1	No Gas	0.166	ug/l	5566.71
Ni	60	72	1	No Gas	0.395	ug/l	3237.29
Ni	60	72	3	He	0.186	ug/l	451.12
Cu	63	72	1	No Gas	0.364	ug/l	9254.65
Cu	63	72	3	He	0.154	ug/l	1054.83
Cu	65	72	1	No Gas	0.271	ug/l	2650.64
Zn	66	72	1	No Gas	6.214	ug/l	29481.12
Zn	66	72	3	He	6.141	ug/l	5800.07
As	75	72	1	No Gas	-0.336	ug/l	12650.10
As	75	72	3	He	0.015	ug/l	161.00
Se	78	72	2	H2	0.011	ug/l	15.89
Br	79	72	1	No Gas	10.480	ug/l	197258.33
Br	79	72	2	H2	10.766	ug/l	87600.56
Se	82	72	1	No Gas	0.561	ug/l	839.83
Kr	84	72	1	No Gas		ug/l	59778.40
Sr	88	72	1	No Gas	145.174	ug/l	6619209.83
Sr	88	72	3	He	141.730	ug/l	740665.57
Mo	95	115	1	No Gas	5.527	ug/l	50634.82
Mo	95	115	3	He	5.795	ug/l	17446.29
Mo	98	115	1	No Gas	5.622	ug/l	82921.48
Ag	107	115	1	No Gas	0.000	ug/l	40.68
Ag	109	115	1	No Gas	-0.001	ug/l	33.35
Cd	111	115	1	No Gas	0.008	ug/l	34.35

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.005	ug/l	8.89
Cd	114	115	1	No Gas	0.007	ug/l	71.49
Cd	114	115	3	He	0.005	ug/l	22.50
Sn	118	115	1	No Gas	-0.034	ug/l	548.92
Sn	118	115	3	He	-0.031	ug/l	137.78
Sb	121	115	1	No Gas	0.046	ug/l	1060.82
Sb	121	115	3	He	0.048	ug/l	288.37
Sb	123	115	1	No Gas	0.047	ug/l	821.11
Sb	123	115	3	He	0.046	ug/l	216.36
Ba	135	115	1	No Gas	2.145	ug/l	9647.55
Ba	137	115	1	No Gas	2.262	ug/l	17719.48
La	139	115	3	He	0.000	ug/l	16.67
Ce	140	115	3	He	0.001	ug/l	26.67
Hg	201	209	1	No Gas	0.006	ug/l	27.99
Hg	202	209	1	No Gas	0.063	ug/l	463.25
Hg	202	209	3	He	0.056	ug/l	174.97
Tl	203	209	3	He	0.037	ug/l	352.81
Tl	205	209	1	No Gas	0.018	ug/l	1116.72
Tl	205	209	3	He	0.035	ug/l	813.69
[Pb]	206	209	1	No Gas	0.010	ug/l	294.45
[Pb]	207	209	1	No Gas	0.009	ug/l	235.56
Pb	208	209	1	No Gas	0.008	ug/l	1095.58
Th	232	209	3	He	0.003	ug/l	190.08
U	238	209	1	No Gas	0.016	ug/l	1010.87

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5732349.56	99.6
Sc	45	2	H2	2371323.47	98.1
Sc	45	3	He	307715.29	96.2
Ge	72	1	No Gas	1295578.12	97.6
Ge	72	2	H2	712104.92	95.4
Ge	72	3	He	185617.35	98.9
In	115	1	No Gas	9098041.92	95.9
In	115	3	He	2039193.26	96.6
Tb	159	1	No Gas	13062998.37	97.4
Tb	159	3	He	5334513.54	97.3
Ho	165	1	No Gas	12956942.22	97.5
Ho	165	3	He	5318073.98	97.5
Lu	175	1	No Gas	12407563.48	97.9
Lu	175	3	He	4371810.20	98.9
Bi	209	1	No Gas	7765631.92	94.2
Bi	209	3	He	3416669.34	94.6

ICPMS207-B Analytical Data

Sample Name B22030502-026B
File Name 071SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 01:29:43
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.230	ug/l	28729.83
Be	9	45	1	No Gas	-0.016	ug/l	101.98
B	11	45	1	No Gas	40.585	ug/l	117422.23
Na	23	45	3	He	38337.475	ug/l	32084079.24
Mg	24	45	3	He	17968.826	ug/l	8285959.86
Al	27	45	1	No Gas	1.868	ug/l	49630.76
Si	28	45	2	H2	15846.646	ug/l	28125506.56
K	39	72	3	He	1268.652	ug/l	644063.92
Ca	40	72	2	H2	18434.347	ug/l	115345261.20
Ti	47	72	1	No Gas	2.008	ug/l	4797.30
V	51	72	1	No Gas	-2.023	ug/l	-77066.15
V	51	72	3	He	5.554	ug/l	36264.57
Cr	52	72	1	No Gas	2.412	ug/l	128004.97
Cr	52	72	3	He	0.178	ug/l	1143.39
Mn	55	72	1	No Gas	348.941	ug/l	12527755.12
Mn	55	72	3	He	352.814	ug/l	1098854.63
Fe	56	72	2	H2	139.481	ug/l	1817718.29
Fe	56	72	3	He	130.852	ug/l	537456.56
Co	59	72	1	No Gas	0.181	ug/l	5676.52
Ni	60	72	1	No Gas	0.611	ug/l	4445.22
Ni	60	72	3	He	0.330	ug/l	644.46
Cu	63	72	1	No Gas	0.743	ug/l	14519.03
Cu	63	72	3	He	0.450	ug/l	2249.39
Cu	65	72	1	No Gas	0.598	ug/l	4912.81
Zn	66	72	1	No Gas	6.752	ug/l	30057.42
Zn	66	72	3	He	7.431	ug/l	6274.73
As	75	72	1	No Gas	0.689	ug/l	16579.54
As	75	72	3	He	0.325	ug/l	340.67
Se	78	72	2	H2	0.037	ug/l	24.33
Br	79	72	1	No Gas	9.935	ug/l	180003.54
Br	79	72	2	H2	10.313	ug/l	76991.67
Se	82	72	1	No Gas	0.777	ug/l	848.89
Kr	84	72	1	No Gas		ug/l	58235.29
Sr	88	72	1	No Gas	147.038	ug/l	6297179.81
Sr	88	72	3	He	149.176	ug/l	699041.45
Mo	95	115	1	No Gas	5.989	ug/l	53393.77
Mo	95	115	3	He	6.440	ug/l	18005.84
Mo	98	115	1	No Gas	6.055	ug/l	86932.44
Ag	107	115	1	No Gas	0.001	ug/l	64.69
Ag	109	115	1	No Gas	0.000	ug/l	61.36
Cd	111	115	1	No Gas	0.010	ug/l	42.03

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.009	ug/l	13.56
Cd	114	115	1	No Gas	0.006	ug/l	54.37
Cd	114	115	3	He	0.007	ug/l	25.31
Sn	118	115	1	No Gas	0.181	ug/l	3503.50
Sn	118	115	3	He	0.214	ug/l	972.26
Sb	121	115	1	No Gas	0.075	ug/l	1601.59
Sb	121	115	3	He	0.084	ug/l	436.05
Sb	123	115	1	No Gas	0.080	ug/l	1289.52
Sb	123	115	3	He	0.085	ug/l	344.04
Ba	135	115	1	No Gas	2.213	ug/l	9694.17
Ba	137	115	1	No Gas	2.277	ug/l	17346.49
La	139	115	3	He	0.002	ug/l	57.78
Ce	140	115	3	He	0.003	ug/l	83.33
Hg	201	209	1	No Gas	0.007	ug/l	31.33
Hg	202	209	1	No Gas	0.086	ug/l	592.56
Hg	202	209	3	He	0.073	ug/l	207.29
Tl	203	209	3	He	0.018	ug/l	178.08
Tl	205	209	1	No Gas	0.007	ug/l	627.80
Tl	205	209	3	He	0.015	ug/l	404.17
[Pb]	206	209	1	No Gas	0.018	ug/l	396.68
[Pb]	207	209	1	No Gas	0.017	ug/l	337.79
Pb	208	209	1	No Gas	0.017	ug/l	1557.83
Th	232	209	3	He	0.021	ug/l	634.28
U	238	209	1	No Gas	0.006	ug/l	352.94

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5269075.21	91.6
Sc	45	2	H2	2117348.52	87.6
Sc	45	3	He	270829.09	84.6
Ge	72	1	No Gas	1217587.86	91.7
Ge	72	2	H2	642002.29	86.0
Ge	72	3	He	166429.81	88.6
In	115	1	No Gas	8864893.34	93.5
In	115	3	He	1894387.63	89.8
Tb	159	1	No Gas	12790663.13	95.4
Tb	159	3	He	5071250.60	92.5
Ho	165	1	No Gas	12611730.45	94.9
Ho	165	3	He	5030631.71	92.2
Lu	175	1	No Gas	12089366.75	95.4
Lu	175	3	He	4080296.48	92.3
Bi	209	1	No Gas	7514344.37	91.2
Bi	209	3	He	3177861.81	88.0

ICPMS207-B Analytical Data

Sample Name B22030502-031A
File Name 072SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 01:35:58
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	5.195	ug/l	99883.08
Be	9	45	1	No Gas	-0.021	ug/l	81.65
B	11	45	1	No Gas	40.541	ug/l	131046.60
Na	23	45	3	He	33025.747	ug/l	31298216.20
Mg	24	45	3	He	9336.827	ug/l	4875028.25
Al	27	45	1	No Gas	11.471	ug/l	310991.67
Si	28	45	2	H2	22144.796	ug/l	44955750.27
K	39	72	3	He	4785.100	ug/l	2530722.81
Ca	40	72	2	H2	11253.443	ug/l	79561084.95
Ti	47	72	1	No Gas	2.990	ug/l	7554.05
V	51	72	1	No Gas	15.386	ug/l	477353.49
V	51	72	3	He	13.404	ug/l	76277.01
Cr	52	72	1	No Gas	1.366	ug/l	106665.62
Cr	52	72	3	He	2.336	ug/l	12308.54
Mn	55	72	1	No Gas	0.227	ug/l	14858.12
Mn	55	72	3	He	0.273	ug/l	1062.16
Fe	56	72	2	H2	9.945	ug/l	156312.01
Fe	56	72	3	He	9.437	ug/l	48560.74
Co	59	72	1	No Gas	0.050	ug/l	1919.66
Ni	60	72	1	No Gas	0.667	ug/l	5140.75
Ni	60	72	3	He	0.578	ug/l	1180.05
Cu	63	72	1	No Gas	1.175	ug/l	22667.29
Cu	63	72	3	He	1.032	ug/l	5374.92
Cu	65	72	1	No Gas	1.097	ug/l	9221.28
Zn	66	72	1	No Gas	14.529	ug/l	68634.79
Zn	66	72	3	He	15.129	ug/l	14152.47
As	75	72	1	No Gas	-0.329	ug/l	12754.27
As	75	72	3	He	-0.011	ug/l	142.47
Se	78	72	2	H2	0.150	ug/l	76.89
Br	79	72	1	No Gas	7.335	ug/l	165248.36
Br	79	72	2	H2	7.671	ug/l	73898.46
Se	82	72	1	No Gas	0.904	ug/l	951.03
Kr	84	72	1	No Gas		ug/l	39345.52
Sr	88	72	1	No Gas	69.457	ug/l	3186103.86
Sr	88	72	3	He	69.243	ug/l	362045.79
Mo	95	115	1	No Gas	0.201	ug/l	2059.06
Mo	95	115	3	He	0.212	ug/l	725.58
Mo	98	115	1	No Gas	0.196	ug/l	3216.71
Ag	107	115	1	No Gas	0.003	ug/l	110.71
Ag	109	115	1	No Gas	0.002	ug/l	105.38
Cd	111	115	1	No Gas	0.005	ug/l	23.23

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.005	ug/l	9.56
Cd	114	115	1	No Gas	0.004	ug/l	40.62
Cd	114	115	3	He	0.002	ug/l	11.25
Sn	118	115	1	No Gas	0.418	ug/l	7140.99
Sn	118	115	3	He	0.492	ug/l	2081.28
Sb	121	115	1	No Gas	1.023	ug/l	21297.20
Sb	121	115	3	He	1.109	ug/l	5682.05
Sb	123	115	1	No Gas	1.029	ug/l	16203.60
Sb	123	115	3	He	1.124	ug/l	4517.51
Ba	135	115	1	No Gas	4.827	ug/l	22217.10
Ba	137	115	1	No Gas	4.956	ug/l	39684.55
La	139	115	3	He	0.003	ug/l	84.45
Ce	140	115	3	He	0.008	ug/l	193.34
Hg	201	209	1	No Gas	0.001	ug/l	14.33
Hg	202	209	1	No Gas	0.003	ug/l	73.99
Hg	202	209	3	He	0.003	ug/l	26.66
Tl	203	209	3	He	0.023	ug/l	235.43
Tl	205	209	1	No Gas	0.010	ug/l	786.69
Tl	205	209	3	He	0.019	ug/l	504.21
[Pb]	206	209	1	No Gas	0.027	ug/l	562.24
[Pb]	207	209	1	No Gas	0.027	ug/l	484.46
Pb	208	209	1	No Gas	0.027	ug/l	2244.53
Th	232	209	3	He	0.001	ug/l	139.39
U	238	209	1	No Gas	0.021	ug/l	1305.88

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5881351.88	102.2
Sc	45	2	H2	2421254.38	100.1
Sc	45	3	He	306649.91	95.8
Ge	72	1	No Gas	1303065.69	98.2
Ge	72	2	H2	724989.72	97.1
Ge	72	3	He	185677.05	98.9
In	115	1	No Gas	9315835.13	98.2
In	115	3	He	2044025.61	96.9
Tb	159	1	No Gas	13294464.73	99.1
Tb	159	3	He	5355644.99	97.7
Ho	165	1	No Gas	13027301.53	98.0
Ho	165	3	He	5313493.20	97.4
Lu	175	1	No Gas	12518752.79	98.8
Lu	175	3	He	4347159.97	98.3
Bi	209	1	No Gas	7874393.63	95.5
Bi	209	3	He	3429942.97	95.0

ICPMS207-B Analytical Data

Sample Name B22030502-031B
File Name 073SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-12 01:42:11
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	6.995	ug/l	120566.41
Be	9	45	1	No Gas	-0.019	ug/l	85.65
B	11	45	1	No Gas	40.940	ug/l	122133.25
Na	23	45	3	He	33356.996	ug/l	28863360.96
Mg	24	45	3	He	9247.275	ug/l	4408203.13
Al	27	45	1	No Gas	35.013	ug/l	865348.08
Si	28	45	2	H2	19293.558	ug/l	35295907.22
K	39	72	3	He	5408.291	ug/l	2596701.11
Ca	40	72	2	H2	11200.806	ug/l	72754382.65
Ti	47	72	1	No Gas	4.522	ug/l	10736.96
V	51	72	1	No Gas	15.148	ug/l	446389.60
V	51	72	3	He	19.398	ug/l	94383.16
Cr	52	72	1	No Gas	4.058	ug/l	175490.91
Cr	52	72	3	He	2.933	ug/l	13984.50
Mn	55	72	1	No Gas	1.400	ug/l	56896.79
Mn	55	72	3	He	1.159	ug/l	3768.07
Fe	56	72	2	H2	73.417	ug/l	996793.09
Fe	56	72	3	He	69.351	ug/l	291724.11
Co	59	72	1	No Gas	0.099	ug/l	3283.87
Ni	60	72	1	No Gas	1.098	ug/l	7726.75
Ni	60	72	3	He	0.986	ug/l	1763.45
Cu	63	72	1	No Gas	1.920	ug/l	33173.39
Cu	63	72	3	He	1.804	ug/l	8351.72
Cu	65	72	1	No Gas	1.825	ug/l	14232.65
Zn	66	72	1	No Gas	56.885	ug/l	253648.27
Zn	66	72	3	He	61.735	ug/l	52308.84
As	75	72	1	No Gas	-0.101	ug/l	13240.14
As	75	72	3	He	0.221	ug/l	278.60
Se	78	72	2	H2	0.164	ug/l	76.22
Br	79	72	1	No Gas	7.172	ug/l	155347.58
Br	79	72	2	H2	7.541	ug/l	67307.10
Se	82	72	1	No Gas	0.625	ug/l	816.76
Kr	84	72	1	No Gas		ug/l	39482.35
Sr	88	72	1	No Gas	76.239	ug/l	3318446.22
Sr	88	72	3	He	77.398	ug/l	368449.81
Mo	95	115	1	No Gas	0.277	ug/l	2623.59
Mo	95	115	3	He	0.263	ug/l	831.14
Mo	98	115	1	No Gas	0.286	ug/l	4333.13
Ag	107	115	1	No Gas	0.011	ug/l	284.78
Ag	109	115	1	No Gas	0.010	ug/l	268.11
Cd	111	115	1	No Gas	0.011	ug/l	47.02

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.007	ug/l	12.11
Cd	114	115	1	No Gas	0.004	ug/l	36.09
Cd	114	115	3	He	0.003	ug/l	15.16
Sn	118	115	1	No Gas	1.864	ug/l	26788.95
Sn	118	115	3	He	1.939	ug/l	7064.03
Sb	121	115	1	No Gas	1.428	ug/l	28169.20
Sb	121	115	3	He	1.521	ug/l	7357.33
Sb	123	115	1	No Gas	1.440	ug/l	21471.82
Sb	123	115	3	He	1.527	ug/l	5795.44
Ba	135	115	1	No Gas	7.492	ug/l	32700.25
Ba	137	115	1	No Gas	7.778	ug/l	59078.18
La	139	115	3	He	0.021	ug/l	434.45
Ce	140	115	3	He	0.046	ug/l	1025.60
Hg	201	209	1	No Gas	0.004	ug/l	21.67
Hg	202	209	1	No Gas	0.009	ug/l	115.98
Hg	202	209	3	He	0.009	ug/l	40.99
Tl	203	209	3	He	0.011	ug/l	130.72
Tl	205	209	1	No Gas	0.008	ug/l	655.57
Tl	205	209	3	He	0.011	ug/l	332.14
[Pb]	206	209	1	No Gas	0.104	ug/l	1691.23
[Pb]	207	209	1	No Gas	0.099	ug/l	1414.53
Pb	208	209	1	No Gas	0.101	ug/l	6669.60
Th	232	209	3	He	0.014	ug/l	478.20
U	238	209	1	No Gas	0.022	ug/l	1336.14

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5434989.48	94.5
Sc	45	2	H2	2181636.17	90.2
Sc	45	3	He	279966.61	87.5
Ge	72	1	No Gas	1238443.72	93.3
Ge	72	2	H2	665605.80	89.1
Ge	72	3	He	169012.70	90.0
In	115	1	No Gas	8845671.59	93.3
In	115	3	He	1934242.86	91.7
Tb	159	1	No Gas	12858040.92	95.9
Tb	159	3	He	5200966.67	94.8
Ho	165	1	No Gas	12888569.37	96.9
Ho	165	3	He	5180176.35	94.9
Lu	175	1	No Gas	12389266.43	97.8
Lu	175	3	He	4243176.00	96.0
Bi	209	1	No Gas	7716231.51	93.6
Bi	209	3	He	3246153.00	89.9

ICPMS207-B Analytical Data

Sample Name B22030586-001A
File Name 074SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 01:48:25
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.408	ug/l	17780.16
Be	9	45	1	No Gas	-0.025	ug/l	60.32
B	11	45	1	No Gas	69.459	ug/l	217824.85
Na	23	45	3	He	91719.704	ug/l	85022372.06
Mg	24	45	3	He	38185.083	ug/l	19517972.27
Al	27	45	1	No Gas	2.745	ug/l	77544.98
Si	28	45	2	H2	25171.170	ug/l	48688293.20
K	39	72	3	He	2497.649	ug/l	1302635.56
Ca	40	72	2	H2	39159.742	ug/l	265757196.17
Ti	47	72	1	No Gas	2.675	ug/l	6623.18
V	51	72	1	No Gas	15.162	ug/l	459130.67
V	51	72	3	He	13.562	ug/l	74214.44
Cr	52	72	1	No Gas	-0.091	ug/l	62862.12
Cr	52	72	3	He	0.539	ug/l	3010.33
Mn	55	72	1	No Gas	1.777	ug/l	72665.17
Mn	55	72	3	He	1.842	ug/l	6275.42
Fe	56	72	2	H2	15.580	ug/l	229435.36
Fe	56	72	3	He	14.713	ug/l	69868.63
Co	59	72	1	No Gas	0.150	ug/l	4977.67
Ni	60	72	1	No Gas	1.102	ug/l	7963.08
Ni	60	72	3	He	0.717	ug/l	1384.52
Cu	63	72	1	No Gas	1.514	ug/l	27577.65
Cu	63	72	3	He	0.934	ug/l	4713.15
Cu	65	72	1	No Gas	1.126	ug/l	9225.29
Zn	66	72	1	No Gas	4.125	ug/l	19389.68
Zn	66	72	3	He	4.234	ug/l	3882.77
As	75	72	1	No Gas	0.252	ug/l	15234.89
As	75	72	3	He	0.385	ug/l	406.93
Se	78	72	2	H2	0.456	ug/l	202.89
Br	79	72	1	No Gas	53.827	ug/l	639843.60
Br	79	72	2	H2	53.918	ug/l	290318.10
Se	82	72	1	No Gas	2.312	ug/l	1358.41
Kr	84	72	1	No Gas		ug/l	98255.04
Sr	88	72	1	No Gas	283.409	ug/l	12689295.59
Sr	88	72	3	He	291.539	ug/l	1468014.80
Mo	95	115	1	No Gas	0.865	ug/l	8078.99
Mo	95	115	3	He	0.940	ug/l	2784.73
Mo	98	115	1	No Gas	0.867	ug/l	13013.93
Ag	107	115	1	No Gas	0.011	ug/l	304.13
Ag	109	115	1	No Gas	0.009	ug/l	260.77
Cd	111	115	1	No Gas	0.007	ug/l	32.26

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.006	ug/l	11.00
Cd	114	115	1	No Gas	0.008	ug/l	81.25
Cd	114	115	3	He	0.007	ug/l	27.51
Sn	118	115	1	No Gas	-0.035	ug/l	532.29
Sn	118	115	3	He	-0.022	ug/l	162.23
Sb	121	115	1	No Gas	0.040	ug/l	955.13
Sb	121	115	3	He	0.045	ug/l	262.70
Sb	123	115	1	No Gas	0.048	ug/l	832.44
Sb	123	115	3	He	0.045	ug/l	202.35
Ba	135	115	1	No Gas	12.230	ug/l	54928.93
Ba	137	115	1	No Gas	12.184	ug/l	95238.45
La	139	115	3	He	0.001	ug/l	37.78
Ce	140	115	3	He	0.003	ug/l	70.00
Hg	201	209	1	No Gas	0.031	ug/l	97.65
Hg	202	209	1	No Gas	0.556	ug/l	3564.77
Hg	202	209	3	He	0.460	ug/l	1250.48
Tl	203	209	3	He	0.011	ug/l	134.72
Tl	205	209	1	No Gas	0.005	ug/l	548.90
Tl	205	209	3	He	0.011	ug/l	336.81
[Pb]	206	209	1	No Gas	0.100	ug/l	1605.66
[Pb]	207	209	1	No Gas	0.094	ug/l	1331.19
Pb	208	209	1	No Gas	0.097	ug/l	6341.76
Th	232	209	3	He	0.000	ug/l	107.38
U	238	209	1	No Gas	0.049	ug/l	2936.42

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5790800.84	100.6
Sc	45	2	H2	2307013.69	95.4
Sc	45	3	He	300204.14	93.8
Ge	72	1	No Gas	1272273.77	95.9
Ge	72	2	H2	696137.74	93.2
Ge	72	3	He	178880.82	95.3
In	115	1	No Gas	9099912.81	96.0
In	115	3	He	1956061.63	92.7
Tb	159	1	No Gas	13238149.76	98.7
Tb	159	3	He	5272568.48	96.1
Ho	165	1	No Gas	13217800.04	99.4
Ho	165	3	He	5198358.59	95.3
Lu	175	1	No Gas	12583430.90	99.3
Lu	175	3	He	4277696.50	96.7
Bi	209	1	No Gas	7603126.16	92.3
Bi	209	3	He	3254009.92	90.1

ICPMS207-B Analytical Data

Sample Name B22030586-001B
File Name 075ARef.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 01:54:38
Sample Type AIRRef
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.241	ug/l	28387.08
Be	9	45	1	No Gas	-0.014	ug/l	108.65
B	11	45	1	No Gas	71.911	ug/l	201206.05
Na	23	45	3	He	93183.217	ug/l	75411096.10
Mg	24	45	3	He	38674.793	ug/l	17257480.48
Al	27	45	1	No Gas	8.018	ug/l	192553.88
Si	28	45	2	H2	20109.629	ug/l	34512839.01
K	39	72	3	He	2432.765	ug/l	1133998.06
Ca	40	72	2	H2	39556.065	ug/l	241397173.67
Ti	47	72	1	No Gas	3.256	ug/l	7335.88
V	51	72	1	No Gas	14.727	ug/l	408240.73
V	51	72	3	He	18.934	ug/l	87340.03
Cr	52	72	1	No Gas	3.040	ug/l	138834.07
Cr	52	72	3	He	0.805	ug/l	3854.97
Mn	55	72	1	No Gas	2.451	ug/l	89700.88
Mn	55	72	3	He	1.977	ug/l	6005.03
Fe	56	72	2	H2	48.901	ug/l	627917.14
Fe	56	72	3	He	45.855	ug/l	183913.95
Co	59	72	1	No Gas	0.200	ug/l	5952.77
Ni	60	72	1	No Gas	1.134	ug/l	7503.72
Ni	60	72	3	He	0.528	ug/l	934.48
Cu	63	72	1	No Gas	1.579	ug/l	26221.32
Cu	63	72	3	He	0.872	ug/l	3944.75
Cu	65	72	1	No Gas	1.088	ug/l	8179.58
Zn	66	72	1	No Gas	1.745	ug/l	7778.74
Zn	66	72	3	He	1.723	ug/l	1460.08
As	75	72	1	No Gas	1.163	ug/l	17910.94
As	75	72	3	He	0.691	ug/l	549.00
Se	78	72	2	H2	0.467	ug/l	186.44
Br	79	72	1	No Gas	15.279	ug/l	222743.79
Br	79	72	2	H2	14.300	ug/l	92122.67
Se	82	72	1	No Gas	0.898	ug/l	848.22
Kr	84	72	1	No Gas		ug/l	93736.83
Sr	88	72	1	No Gas	295.374	ug/l	12113819.03
Sr	88	72	3	He	294.146	ug/l	1322201.19
Mo	95	115	1	No Gas	0.986	ug/l	8549.27
Mo	95	115	3	He	0.993	ug/l	2795.85
Mo	98	115	1	No Gas	0.963	ug/l	13431.08
Ag	107	115	1	No Gas	0.022	ug/l	524.89
Ag	109	115	1	No Gas	0.022	ug/l	502.88
Cd	111	115	1	No Gas	0.019	ug/l	81.84

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.019	ug/l	27.11
Cd	114	115	1	No Gas	0.016	ug/l	156.42
Cd	114	115	3	He	0.016	ug/l	56.09
Sn	118	115	1	No Gas	0.303	ug/l	4981.02
Sn	118	115	3	He	0.349	ug/l	1412.31
Sb	121	115	1	No Gas	0.069	ug/l	1436.55
Sb	121	115	3	He	0.077	ug/l	398.71
Sb	123	115	1	No Gas	0.079	ug/l	1214.51
Sb	123	115	3	He	0.074	ug/l	299.03
Ba	135	115	1	No Gas	12.750	ug/l	53339.39
Ba	137	115	1	No Gas	12.683	ug/l	92321.84
La	139	115	3	He	0.019	ug/l	375.70
Ce	140	115	3	He	0.016	ug/l	347.78
Hg	201	209	1	No Gas	0.046	ug/l	133.31
Hg	202	209	1	No Gas	0.773	ug/l	4716.23
Hg	202	209	3	He	0.638	ug/l	1620.45
Tl	203	209	3	He	0.026	ug/l	232.76
Tl	205	209	1	No Gas	0.016	ug/l	968.93
Tl	205	209	3	He	0.022	ug/l	504.88
[Pb]	206	209	1	No Gas	0.247	ug/l	3609.40
[Pb]	207	209	1	No Gas	0.231	ug/l	2978.13
Pb	208	209	1	No Gas	0.235	ug/l	13918.48
Th	232	209	3	He	0.031	ug/l	848.37
U	238	209	1	No Gas	0.056	ug/l	3220.09

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5171685.62	89.9
Sc	45	2	H2	2047670.10	84.7
Sc	45	3	He	262083.39	81.9
Ge	72	1	No Gas	1165486.73	87.8
Ge	72	2	H2	626381.89	83.9
Ge	72	3	He	159688.61	85.0
In	115	1	No Gas	8477698.09	89.4
In	115	3	He	1860222.51	88.2
Tb	159	1	No Gas	12605613.82	94.0
Tb	159	3	He	5019343.54	91.5
Ho	165	1	No Gas	12403382.74	93.3
Ho	165	3	He	4994043.55	91.5
Lu	175	1	No Gas	11969758.50	94.5
Lu	175	3	He	4076547.21	92.2
Bi	209	1	No Gas	7273224.63	88.3
Bi	209	3	He	3049778.43	84.5

ICPMS207-B Analytical Data

Sample Name B22030586-001BDIL
File Name 076SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 02:00:53
Sample Type Sample
Total Dilution 5.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.802	ug/l	15673.00
Be	9	45	1	No Gas	-0.114	ug/l	64.66
B	11	45	1	No Gas	74.575	ug/l	46470.77
Na	23	45	3	He	93982.605	ug/l	16107120.18
Mg	24	45	3	He	39497.569	ug/l	3725690.62
Al	27	45	1	No Gas	14.722	ug/l	76624.56
Si	28	45	2	H2	20925.498	ug/l	7696108.02
K	39	72	3	He	2425.075	ug/l	288905.96
Ca	40	72	2	H2	39411.473	ug/l	52237529.86
Ti	47	72	1	No Gas	2.840	ug/l	1534.97
V	51	72	1	No Gas	20.913	ug/l	112556.38
V	51	72	3	He	27.309	ug/l	36785.80
Cr	52	72	1	No Gas	5.966	ug/l	98750.12
Cr	52	72	3	He	1.040	ug/l	1319.04
Mn	55	72	1	No Gas	2.774	ug/l	26661.32
Mn	55	72	3	He	1.952	ug/l	1350.46
Fe	56	72	2	H2	48.139	ug/l	142381.06
Fe	56	72	3	He	45.913	ug/l	43565.20
Co	59	72	1	No Gas	0.172	ug/l	1380.66
Ni	60	72	1	No Gas	1.224	ug/l	2152.57
Ni	60	72	3	He	0.651	ug/l	318.90
Cu	63	72	1	No Gas	1.816	ug/l	9021.07
Cu	63	72	3	He	1.634	ug/l	1749.76
Cu	65	72	1	No Gas	1.912	ug/l	3449.80
Zn	66	72	1	No Gas	5.443	ug/l	5459.54
Zn	66	72	3	He	5.812	ug/l	1080.05
As	75	72	1	No Gas	1.534	ug/l	15421.78
As	75	72	3	He	0.960	ug/l	262.53
Se	78	72	2	H2	0.537	ug/l	54.78
Br	79	72	1	No Gas	20.638	ug/l	127730.02
Br	79	72	2	H2	24.749	ug/l	56674.94
Se	82	72	1	No Gas	2.107	ug/l	778.35
Kr	84	72	1	No Gas		ug/l	34966.43
Sr	88	72	1	No Gas	280.405	ug/l	2499165.72
Sr	88	72	3	He	287.374	ug/l	276137.15
Mo	95	115	1	No Gas	2.833	ug/l	5403.28
Mo	95	115	3	He	3.093	ug/l	1842.35
Mo	98	115	1	No Gas	2.926	ug/l	8955.08
Ag	107	115	1	No Gas	0.023	ug/l	154.73
Ag	109	115	1	No Gas	0.018	ug/l	134.72
Cd	111	115	1	No Gas	0.032	ug/l	28.19

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.024	ug/l	8.56
Cd	114	115	1	No Gas	0.012	ug/l	20.11
Cd	114	115	3	He	-0.008	ug/l	-2.16
Sn	118	115	1	No Gas	9.795	ug/l	29218.97
Sn	118	115	3	He	10.328	ug/l	7512.04
Sb	121	115	1	No Gas	0.172	ug/l	842.11
Sb	121	115	3	He	0.210	ug/l	244.03
Sb	123	115	1	No Gas	0.181	ug/l	661.41
Sb	123	115	3	He	0.209	ug/l	188.69
Ba	135	115	1	No Gas	12.908	ug/l	11741.71
Ba	137	115	1	No Gas	12.433	ug/l	19678.22
La	139	115	3	He	0.013	ug/l	62.22
Ce	140	115	3	He	0.017	ug/l	83.33
Hg	201	209	1	No Gas	0.061	ug/l	45.99
Hg	202	209	1	No Gas	0.673	ug/l	921.18
Hg	202	209	3	He	0.527	ug/l	302.28
Tl	203	209	3	He	0.055	ug/l	133.39
Tl	205	209	1	No Gas	0.034	ug/l	618.91
Tl	205	209	3	He	0.043	ug/l	290.12
[Pb]	206	209	1	No Gas	0.248	ug/l	885.59
[Pb]	207	209	1	No Gas	0.255	ug/l	791.14
Pb	208	209	1	No Gas	0.239	ug/l	3476.86
Th	232	209	3	He	0.025	ug/l	230.10
U	238	209	1	No Gas	0.054	ug/l	669.55

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5350494.82	93.0
Sc	45	2	H2	2189642.04	90.5
Sc	45	3	He	277004.13	86.6
Ge	72	1	No Gas	1265949.88	95.4
Ge	72	2	H2	679669.07	91.0
Ge	72	3	He	170555.32	90.8
In	115	1	No Gas	9194879.43	97.0
In	115	3	He	1935140.43	91.7
Tb	159	1	No Gas	13118478.54	97.8
Tb	159	3	He	5200437.75	94.8
Ho	165	1	No Gas	12975422.99	97.6
Ho	165	3	He	5168143.59	94.7
Lu	175	1	No Gas	12406233.92	97.9
Lu	175	3	He	4192992.69	94.8
Bi	209	1	No Gas	7741371.18	93.9
Bi	209	3	He	3289055.02	91.1

ICPMS207-B Analytical Data

Sample Name B22030586-001BPDS1
File Name 077ARef.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 02:07:06
Sample Type AIRRef
Total Dilution 1.0300
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	2059.396	ug/l	29166012.40
Be	9	45	1	No Gas	42.194	ug/l	206692.42
B	11	45	1	No Gas	119.171	ug/l	311821.58
Na	23	45	3	He	139088.211	ug/l	106261299.53
Mg	24	45	3	He	85136.593	ug/l	35868341.74
Al	27	45	1	No Gas	53.129	ug/l	1176013.22
Si	28	45	2	H2	21094.372	ug/l	33816472.48
K	39	72	3	He	47655.495	ug/l	20058461.65
Ca	40	72	2	H2	86289.191	ug/l	503978624.20
Ti	47	72	1	No Gas	53.546	ug/l	116974.71
V	51	72	1	No Gas	59.702	ug/l	1683165.01
V	51	72	3	He	68.191	ug/l	266193.46
Cr	52	72	1	No Gas	49.911	ug/l	1341146.93
Cr	52	72	3	He	48.750	ug/l	203238.88
Mn	55	72	1	No Gas	47.931	ug/l	1633115.54
Mn	55	72	3	He	51.354	ug/l	145356.63
Fe	56	72	2	H2	4990.483	ug/l	60411264.55
Fe	56	72	3	He	4701.325	ug/l	17375799.98
Co	59	72	1	No Gas	44.868	ug/l	1256411.53
Ni	60	72	1	No Gas	45.400	ug/l	278740.54
Ni	60	72	3	He	49.094	ug/l	74338.66
Cu	63	72	1	No Gas	46.412	ug/l	678619.11
Cu	63	72	3	He	49.359	ug/l	198105.11
Cu	65	72	1	No Gas	45.814	ug/l	321543.37
Zn	66	72	1	No Gas	44.796	ug/l	186046.10
Zn	66	72	3	He	47.763	ug/l	36210.43
As	75	72	1	No Gas	46.552	ug/l	214947.27
As	75	72	3	He	49.505	ug/l	28574.06
Se	78	72	2	H2	49.223	ug/l	17842.82
Br	79	72	1	No Gas	19.014	ug/l	257225.78
Br	79	72	2	H2	18.979	ug/l	108136.94
Se	82	72	1	No Gas	46.860	ug/l	13576.43
Kr	84	72	1	No Gas		ug/l	101949.94
Sr	88	72	1	No Gas	324.249	ug/l	13139974.97
Sr	88	72	3	He	350.742	ug/l	1492538.74
Mo	95	115	1	No Gas	48.969	ug/l	391358.54
Mo	95	115	3	He	51.139	ug/l	128286.27
Mo	98	115	1	No Gas	49.731	ug/l	640132.45
Ag	107	115	1	No Gas	18.352	ug/l	366347.36
Ag	109	115	1	No Gas	18.462	ug/l	354374.03
Cd	111	115	1	No Gas	46.270	ug/l	195069.25

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	49.862	ug/l	61306.62
Cd	114	115	1	No Gas	46.992	ug/l	438749.90
Cd	114	115	3	He	49.522	ug/l	149838.02
Sn	118	115	1	No Gas	51.070	ug/l	636538.60
Sn	118	115	3	He	53.443	ug/l	166131.92
Sb	121	115	1	No Gas	46.576	ug/l	822890.06
Sb	121	115	3	He	49.482	ug/l	210045.15
Sb	123	115	1	No Gas	46.730	ug/l	624243.05
Sb	123	115	3	He	49.937	ug/l	166338.03
Ba	135	115	1	No Gas	61.105	ug/l	239822.05
Ba	137	115	1	No Gas	61.043	ug/l	416909.84
La	139	115	3	He	53.184	ug/l	948333.10
Ce	140	115	3	He	52.505	ug/l	1021682.18
Hg	201	209	1	No Gas	0.955	ug/l	2325.41
Hg	202	209	1	No Gas	1.741	ug/l	9666.23
Hg	202	209	3	He	1.620	ug/l	3752.11
Tl	203	209	3	He	51.033	ug/l	339127.62
Tl	205	209	1	No Gas	48.557	ug/l	1804522.37
Tl	205	209	3	He	51.029	ug/l	812494.15
[Pb]	206	209	1	No Gas	49.023	ug/l	629762.65
[Pb]	207	209	1	No Gas	48.507	ug/l	550425.53
Pb	208	209	1	No Gas	48.816	ug/l	2538136.78
Th	232	209	3	He	51.791	ug/l	1175247.02
U	238	209	1	No Gas	49.934	ug/l	2632058.21

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5019763.62	87.2
Sc	45	2	H2	1970207.22	81.5
Sc	45	3	He	254876.93	79.6
Ge	72	1	No Gas	1186115.92	89.4
Ge	72	2	H2	617358.26	82.7
Ge	72	3	He	155713.91	82.9
In	115	1	No Gas	8195431.75	86.4
In	115	3	He	1757993.18	83.3
Tb	159	1	No Gas	12000534.28	89.5
Tb	159	3	He	4765900.37	86.9
Ho	165	1	No Gas	11917189.69	89.6
Ho	165	3	He	4769269.47	87.4
Lu	175	1	No Gas	11464394.51	90.5
Lu	175	3	He	3902630.54	88.3
Bi	209	1	No Gas	6858435.26	83.2
Bi	209	3	He	2882846.56	79.8

ICPMS207-B Analytical Data

Sample Name B22030586-001BMS4
File Name 078MS4.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 02:13:21
Sample Type MS4
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	88.125	ug/l	1355824.36
Be	9	45	1	No Gas	41.869	ug/l	221226.57
B	11	45	1	No Gas	159.462	ug/l	448577.55
Na	23	45	3	He	93879.228	ug/l	76887084.97
Mg	24	45	3	He	41945.741	ug/l	18940749.20
Al	27	45	1	No Gas	453.189	ug/l	10782617.34
Si	28	45	2	H2	21569.459	ug/l	37117198.69
K	39	72	3	He	6913.590	ug/l	3200247.76
Ca	40	72	2	H2	42963.455	ug/l	268378298.85
Ti	47	72	1	No Gas	94.067	ug/l	218333.79
V	51	72	1	No Gas	101.827	ug/l	3066634.39
V	51	72	3	He	109.966	ug/l	456170.34
Cr	52	72	1	No Gas	92.034	ug/l	2572489.17
Cr	52	72	3	He	92.257	ug/l	416368.44
Mn	55	72	1	No Gas	455.339	ug/l	16443130.41
Mn	55	72	3	He	472.620	ug/l	1448290.10
Fe	56	72	2	H2	542.261	ug/l	7028203.48
Fe	56	72	3	He	511.356	ug/l	2051753.82
Co	59	72	1	No Gas	88.168	ug/l	2624966.75
Ni	60	72	1	No Gas	88.192	ug/l	575193.74
Ni	60	72	3	He	95.678	ug/l	156838.20
Cu	63	72	1	No Gas	89.551	ug/l	1389165.89
Cu	63	72	3	He	93.781	ug/l	407445.47
Cu	65	72	1	No Gas	88.998	ug/l	663624.20
Zn	66	72	1	No Gas	86.262	ug/l	380444.69
Zn	66	72	3	He	90.486	ug/l	74238.85
As	75	72	1	No Gas	89.269	ug/l	424954.61
As	75	72	3	He	92.984	ug/l	58012.44
Se	78	72	2	H2	94.738	ug/l	36719.34
Br	79	72	1	No Gas	11.389	ug/l	195387.97
Br	79	72	2	H2	12.014	ug/l	84310.85
Se	82	72	1	No Gas	88.899	ug/l	26783.66
Kr	84	72	1	No Gas		ug/l	121447.30
Sr	88	72	1	No Gas	377.761	ug/l	16274827.74
Sr	88	72	3	He	395.635	ug/l	1823540.11
Mo	95	115	1	No Gas	95.953	ug/l	811448.02
Mo	95	115	3	He	98.466	ug/l	264823.65
Mo	98	115	1	No Gas	96.238	ug/l	1310825.48
Ag	107	115	1	No Gas	9.020	ug/l	190610.04
Ag	109	115	1	No Gas	8.980	ug/l	182467.64
Cd	111	115	1	No Gas	45.902	ug/l	204779.61

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	48.692	ug/l	64205.16
Cd	114	115	1	No Gas	46.424	ug/l	458642.36
Cd	114	115	3	He	48.086	ug/l	156034.16
Sn	118	115	1	No Gas	98.119	ug/l	1293239.92
Sn	118	115	3	He	102.705	ug/l	342268.72
Sb	121	115	1	No Gas	90.787	ug/l	1697234.81
Sb	121	115	3	He	97.469	ug/l	443723.61
Sb	123	115	1	No Gas	94.506	ug/l	1335799.31
Sb	123	115	3	He	98.545	ug/l	351993.32
Ba	135	115	1	No Gas	100.406	ug/l	417051.74
Ba	137	115	1	No Gas	101.824	ug/l	735905.58
La	139	115	3	He	101.611	ug/l	1942963.13
Ce	140	115	3	He	101.091	ug/l	2109658.49
Hg	201	209	1	No Gas	0.055	ug/l	151.31
Hg	202	209	1	No Gas	0.778	ug/l	4559.54
Hg	202	209	3	He	0.619	ug/l	1546.78
Tl	203	209	3	He	98.407	ug/l	701593.93
Tl	205	209	1	No Gas	94.837	ug/l	3696891.72
Tl	205	209	3	He	98.281	ug/l	1678756.94
[Pb]	206	209	1	No Gas	96.688	ug/l	1302842.82
[Pb]	207	209	1	No Gas	95.704	ug/l	1139335.82
Pb	208	209	1	No Gas	95.965	ug/l	5234784.57
Th	232	209	3	He	98.000	ug/l	2386047.13
U	238	209	1	No Gas	97.430	ug/l	5387222.96

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5257845.49	91.4
Sc	45	2	H2	2053028.06	84.9
Sc	45	3	He	265243.44	82.9
Ge	72	1	No Gas	1224214.66	92.2
Ge	72	2	H2	640971.04	85.8
Ge	72	3	He	163738.31	87.2
In	115	1	No Gas	8422727.58	88.8
In	115	3	He	1830497.17	86.8
Tb	159	1	No Gas	12215549.81	91.1
Tb	159	3	He	4924855.52	89.8
Ho	165	1	No Gas	12234981.43	92.0
Ho	165	3	He	4878040.58	89.4
Lu	175	1	No Gas	11778106.55	93.0
Lu	175	3	He	4004329.71	90.6
Bi	209	1	No Gas	6984582.81	84.7
Bi	209	3	He	3003740.69	83.2

ICPMS207-B Analytical Data

Sample Name CCV
File Name 079_CCV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-12 02:19:34
Sample Type CCV
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	597.706	ug/l	9114539.11
Be	9	45	1	No Gas	46.159	ug/l	243261.22
B	11	45	1	No Gas	47.840	ug/l	137095.95
Na	23	45	3	He	12209.186	ug/l	10800442.06
Mg	24	45	3	He	12333.412	ug/l	5996463.22
Al	27	45	1	No Gas	48.553	ug/l	1156504.55
Si	28	45	2	H2	458.516	ug/l	856645.26
K	39	72	3	He	11772.027	ug/l	5784459.77
Ca	40	72	2	H2	13119.207	ug/l	88080251.32
Ti	47	72	1	No Gas	46.936	ug/l	113112.78
V	51	72	1	No Gas	45.922	ug/l	1424938.07
V	51	72	3	He	48.787	ug/l	224354.66
Cr	52	72	1	No Gas	47.293	ug/l	1402957.89
Cr	52	72	3	He	46.132	ug/l	222817.42
Mn	55	72	1	No Gas	46.452	ug/l	1745412.04
Mn	55	72	3	He	47.847	ug/l	156889.54
Fe	56	72	2	H2	1311.756	ug/l	18237050.99
Fe	56	72	3	He	1226.104	ug/l	5253584.96
Co	59	72	1	No Gas	46.198	ug/l	1426689.09
Ni	60	72	1	No Gas	46.024	ug/l	311612.95
Ni	60	72	3	He	48.524	ug/l	85106.61
Cu	63	72	1	No Gas	47.317	ug/l	762929.70
Cu	63	72	3	He	48.794	ug/l	226854.28
Cu	65	72	1	No Gas	47.504	ug/l	367675.90
Zn	66	72	1	No Gas	46.625	ug/l	213538.07
Zn	66	72	3	He	48.788	ug/l	42844.87
As	75	72	1	No Gas	46.389	ug/l	235830.66
As	75	72	3	He	48.838	ug/l	32648.76
Se	78	72	2	H2	50.973	ug/l	21210.78
Br	79	72	1	No Gas	-0.322	ug/l	82338.37
Br	79	72	2	H2	-0.380	ug/l	32405.37
Se	82	72	1	No Gas	49.369	ug/l	15719.49
Kr	84	72	1	No Gas		ug/l	33369.01
Sr	88	72	1	No Gas	47.305	ug/l	2115100.24
Sr	88	72	3	He	48.831	ug/l	240929.63
Mo	95	115	1	No Gas	47.026	ug/l	413405.07
Mo	95	115	3	He	48.199	ug/l	136527.19
Mo	98	115	1	No Gas	47.491	ug/l	672452.41
Ag	107	115	1	No Gas	18.925	ug/l	415574.21
Ag	109	115	1	No Gas	18.919	ug/l	399474.95
Cd	111	115	1	No Gas	47.832	ug/l	221809.89

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	50.258	ug/l	69774.45
Cd	114	115	1	No Gas	48.664	ug/l	499771.26
Cd	114	115	3	He	49.902	ug/l	170491.05
Sn	118	115	1	No Gas	48.321	ug/l	662463.42
Sn	118	115	3	He	49.352	ug/l	173272.27
Sb	121	115	1	No Gas	48.117	ug/l	934969.82
Sb	121	115	3	He	49.830	ug/l	238874.75
Sb	123	115	1	No Gas	48.163	ug/l	707618.33
Sb	123	115	3	He	50.273	ug/l	189097.41
Ba	135	115	1	No Gas	47.272	ug/l	204106.06
Ba	137	115	1	No Gas	47.451	ug/l	356516.54
La	139	115	3	He	50.861	ug/l	1024087.39
Ce	140	115	3	He	50.188	ug/l	1102880.95
Hg	201	209	1	No Gas	0.937	ug/l	2540.74
Hg	202	209	1	No Gas	0.969	ug/l	6017.15
Hg	202	209	3	He	0.943	ug/l	2517.07
Tl	203	209	3	He	48.100	ug/l	367577.61
Tl	205	209	1	No Gas	46.990	ug/l	1945341.22
Tl	205	209	3	He	48.746	ug/l	892524.61
[Pb]	206	209	1	No Gas	48.031	ug/l	687461.60
[Pb]	207	209	1	No Gas	47.256	ug/l	597431.37
Pb	208	209	1	No Gas	47.702	ug/l	2763645.98
Th	232	209	3	He	47.790	ug/l	1247086.37
U	238	209	1	No Gas	46.427	ug/l	2725699.52

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5242055.76	91.1
Sc	45	2	H2	2192589.36	90.7
Sc	45	3	He	285588.02	89.2
Ge	72	1	No Gas	1269932.85	95.7
Ge	72	2	H2	688163.02	92.2
Ge	72	3	He	175110.97	93.3
In	115	1	No Gas	8751276.74	92.3
In	115	3	He	1927314.83	91.3
Tb	159	1	No Gas	12760241.77	95.1
Tb	159	3	He	5030011.03	91.7
Ho	165	1	No Gas	12303489.10	92.5
Ho	165	3	He	5042000.94	92.4
Lu	175	1	No Gas	11723439.07	92.5
Lu	175	3	He	4072861.49	92.1
Bi	209	1	No Gas	7414341.07	90.0
Bi	209	3	He	3218196.51	89.1

ICPMS207-B Analytical Data

Sample Name CCB
File Name 080_CCB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 02:25:49
Sample Type CCB
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.699	ug/l	35307.52
Be	9	45	1	No Gas	-0.013	ug/l	116.31
B	11	45	1	No Gas	1.006	ug/l	6808.27
Na	23	45	3	He	79.397	ug/l	107810.46
Mg	24	45	3	He	5.521	ug/l	2821.34
Al	27	45	1	No Gas	-0.009	ug/l	4838.91
Si	28	45	2	H2	136.435	ug/l	263819.44
K	39	72	3	He	5.801	ug/l	62725.98
Ca	40	72	2	H2	0.974	ug/l	46648.21
Ti	47	72	1	No Gas	0.143	ug/l	495.51
V	51	72	1	No Gas	-1.294	ug/l	-56577.68
V	51	72	3	He	4.371	ug/l	32607.15
Cr	52	72	1	No Gas	1.023	ug/l	90513.37
Cr	52	72	3	He	0.010	ug/l	390.01
Mn	55	72	1	No Gas	0.126	ug/l	10279.92
Mn	55	72	3	He	0.000	ug/l	106.31
Fe	56	72	2	H2	-0.214	ug/l	7195.68
Fe	56	72	3	He	-0.109	ug/l	4880.74
Co	59	72	1	No Gas	0.000	ug/l	312.72
Ni	60	72	1	No Gas	-0.012	ug/l	405.87
Ni	60	72	3	He	-0.034	ug/l	38.89
Cu	63	72	1	No Gas	0.081	ug/l	4335.06
Cu	63	72	3	He	0.174	ug/l	1070.49
Cu	65	72	1	No Gas	0.189	ug/l	1884.88
Zn	66	72	1	No Gas	-0.019	ug/l	402.56
Zn	66	72	3	He	-0.008	ug/l	82.22
As	75	72	1	No Gas	-0.109	ug/l	12947.36
As	75	72	3	He	0.058	ug/l	177.73
Se	78	72	2	H2	0.027	ug/l	21.34
Br	79	72	1	No Gas	-0.489	ug/l	77504.65
Br	79	72	2	H2	-0.243	ug/l	32168.64
Se	82	72	1	No Gas	0.871	ug/l	880.49
Kr	84	72	1	No Gas		ug/l	19577.88
Sr	88	72	1	No Gas	0.005	ug/l	981.59
Sr	88	72	3	He	-0.011	ug/l	266.67
Mo	95	115	1	No Gas	0.014	ug/l	288.89
Mo	95	115	3	He	-0.003	ug/l	75.56
Mo	98	115	1	No Gas	0.017	ug/l	474.81
Ag	107	115	1	No Gas	0.001	ug/l	74.70
Ag	109	115	1	No Gas	0.000	ug/l	54.02
Cd	111	115	1	No Gas	0.006	ug/l	24.12

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.005	ug/l	8.89
Cd	114	115	1	No Gas	0.006	ug/l	53.88
Cd	114	115	3	He	0.006	ug/l	22.89
Sn	118	115	1	No Gas	0.089	ug/l	2205.81
Sn	118	115	3	He	0.085	ug/l	538.90
Sb	121	115	1	No Gas	0.462	ug/l	9095.20
Sb	121	115	3	He	0.388	ug/l	1904.32
Sb	123	115	1	No Gas	0.457	ug/l	6803.01
Sb	123	115	3	He	0.389	ug/l	1497.23
Ba	135	115	1	No Gas	-0.002	ug/l	19.96
Ba	137	115	1	No Gas	0.000	ug/l	49.90
La	139	115	3	He	0.050	ug/l	1025.45
Ce	140	115	3	He	0.002	ug/l	54.45
Hg	201	209	1	No Gas	0.004	ug/l	23.33
Hg	202	209	1	No Gas	0.005	ug/l	85.98
Hg	202	209	3	He	0.003	ug/l	24.33
Tl	203	209	3	He	0.171	ug/l	1400.64
Tl	205	209	1	No Gas	0.104	ug/l	4725.34
Tl	205	209	3	He	0.161	ug/l	3180.99
[Pb]	206	209	1	No Gas	0.005	ug/l	220.00
[Pb]	207	209	1	No Gas	0.006	ug/l	193.34
Pb	208	209	1	No Gas	0.006	ug/l	904.46
Th	232	209	3	He	0.046	ug/l	1335.28
U	238	209	1	No Gas	0.003	ug/l	197.66

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5174609.72	89.9
Sc	45	2	H2	2184847.77	90.3
Sc	45	3	He	279794.51	87.4
Ge	72	1	No Gas	1219644.80	91.9
Ge	72	2	H2	669966.07	89.7
Ge	72	3	He	172685.96	92.0
In	115	1	No Gas	8737299.22	92.1
In	115	3	He	1930638.63	91.5
Tb	159	1	No Gas	12276048.22	91.5
Tb	159	3	He	4975959.80	90.7
Ho	165	1	No Gas	12111122.99	91.1
Ho	165	3	He	4967817.59	91.0
Lu	175	1	No Gas	11753392.04	92.8
Lu	175	3	He	4087002.67	92.4
Bi	209	1	No Gas	7544414.86	91.5
Bi	209	3	He	3330282.95	92.2

ICPMS207-B Analytical Data

Sample Name B22030586-001BMSD4
File Name 081MSD4.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 02:32:04
Sample Type MSD4
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	87.526	ug/l	1304876.52
Be	9	45	1	No Gas	41.830	ug/l	214171.11
B	11	45	1	No Gas	159.445	ug/l	434581.89
Na	23	45	3	He	93980.002	ug/l	74444591.67
Mg	24	45	3	He	41931.788	ug/l	18314146.14
Al	27	45	1	No Gas	448.327	ug/l	10334923.46
Si	28	45	2	H2	21894.855	ug/l	36088450.55
K	39	72	3	He	6982.454	ug/l	3099468.88
Ca	40	72	2	H2	43323.898	ug/l	259596163.69
Ti	47	72	1	No Gas	93.975	ug/l	211160.12
V	51	72	1	No Gas	102.404	ug/l	2985563.97
V	51	72	3	He	112.505	ug/l	447315.27
Cr	52	72	1	No Gas	91.418	ug/l	2473882.43
Cr	52	72	3	He	94.056	ug/l	407056.59
Mn	55	72	1	No Gas	453.809	ug/l	15864434.15
Mn	55	72	3	He	476.394	ug/l	1399976.11
Fe	56	72	2	H2	552.452	ug/l	6868134.77
Fe	56	72	3	He	519.315	ug/l	1998490.37
Co	59	72	1	No Gas	89.392	ug/l	2576241.20
Ni	60	72	1	No Gas	88.867	ug/l	561031.25
Ni	60	72	3	He	96.543	ug/l	151797.99
Cu	63	72	1	No Gas	89.652	ug/l	1346193.50
Cu	63	72	3	He	94.687	ug/l	394601.98
Cu	65	72	1	No Gas	88.903	ug/l	641693.55
Zn	66	72	1	No Gas	85.600	ug/l	365426.84
Zn	66	72	3	He	91.789	ug/l	72239.98
As	75	72	1	No Gas	88.936	ug/l	409826.57
As	75	72	3	He	95.092	ug/l	56901.40
Se	78	72	2	H2	95.621	ug/l	35554.60
Br	79	72	1	No Gas	14.443	ug/l	218469.72
Br	79	72	2	H2	14.196	ug/l	90007.56
Se	82	72	1	No Gas	91.977	ug/l	26804.19
Kr	84	72	1	No Gas		ug/l	117609.59
Sr	88	72	1	No Gas	373.839	ug/l	15592729.94
Sr	88	72	3	He	398.922	ug/l	1763438.12
Mo	95	115	1	No Gas	95.119	ug/l	780272.39
Mo	95	115	3	He	98.134	ug/l	256499.60
Mo	98	115	1	No Gas	95.322	ug/l	1259607.23
Ag	107	115	1	No Gas	8.856	ug/l	181522.69
Ag	109	115	1	No Gas	8.913	ug/l	175710.65
Cd	111	115	1	No Gas	46.013	ug/l	199178.22

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	48.911	ug/l	62676.51
Cd	114	115	1	No Gas	46.450	ug/l	445257.77
Cd	114	115	3	He	48.447	ug/l	152776.17
Sn	118	115	1	No Gas	99.572	ug/l	1273488.59
Sn	118	115	3	He	103.905	ug/l	336468.24
Sb	121	115	1	No Gas	92.531	ug/l	1678510.71
Sb	121	115	3	He	99.001	ug/l	437997.24
Sb	123	115	1	No Gas	94.623	ug/l	1297575.41
Sb	123	115	3	He	100.021	ug/l	347222.16
Ba	135	115	1	No Gas	100.508	ug/l	405073.92
Ba	137	115	1	No Gas	99.488	ug/l	697695.49
La	139	115	3	He	102.271	ug/l	1900379.35
Ce	140	115	3	He	100.888	ug/l	2045989.60
Hg	201	209	1	No Gas	0.048	ug/l	131.31
Hg	202	209	1	No Gas	0.774	ug/l	4478.20
Hg	202	209	3	He	0.651	ug/l	1587.45
Tl	203	209	3	He	99.261	ug/l	690383.80
Tl	205	209	1	No Gas	94.332	ug/l	3630639.84
Tl	205	209	3	He	98.634	ug/l	1643682.60
[Pb]	206	209	1	No Gas	95.066	ug/l	1264896.09
[Pb]	207	209	1	No Gas	94.260	ug/l	1107574.48
Pb	208	209	1	No Gas	94.099	ug/l	5068070.86
Th	232	209	3	He	98.367	ug/l	2336338.94
U	238	209	1	No Gas	96.597	ug/l	5273718.50

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5094009.66	88.5
Sc	45	2	H2	1966935.69	81.3
Sc	45	3	He	256517.98	80.2
Ge	72	1	No Gas	1185002.72	89.3
Ge	72	2	H2	614920.07	82.4
Ge	72	3	He	157115.94	83.7
In	115	1	No Gas	8171613.22	86.2
In	115	3	He	1778943.16	84.3
Tb	159	1	No Gas	11721375.13	87.4
Tb	159	3	He	4748903.06	86.6
Ho	165	1	No Gas	11727894.56	88.2
Ho	165	3	He	4730612.27	86.7
Lu	175	1	No Gas	11278083.42	89.0
Lu	175	3	He	3877475.18	87.7
Bi	209	1	No Gas	6898352.27	83.7
Bi	209	3	He	2929276.45	81.1

ICPMS207-B Analytical Data

Sample Name Rinse
File Name 082BLKV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 02:38:18
Sample Type BlkVrfy
Total Dilution 1.0000
Comment ICPMS-200.8-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.755	ug/l	21577.23
Be	9	45	1	No Gas	-0.012	ug/l	123.65
B	11	45	1	No Gas	1.009	ug/l	6969.09
Na	23	45	3	He	58.326	ug/l	88539.53
Mg	24	45	3	He	5.343	ug/l	2704.90
Al	27	45	1	No Gas	0.012	ug/l	5445.48
Si	28	45	2	H2	179.663	ug/l	344559.24
K	39	72	3	He	3.482	ug/l	60444.35
Ca	40	72	2	H2	2.076	ug/l	54649.86
Ti	47	72	1	No Gas	0.112	ug/l	433.78
V	51	72	1	No Gas	0.217	ug/l	-11428.01
V	51	72	3	He	2.535	ug/l	24335.68
Cr	52	72	1	No Gas	0.806	ug/l	86347.05
Cr	52	72	3	He	0.010	ug/l	381.12
Mn	55	72	1	No Gas	0.123	ug/l	10366.45
Mn	55	72	3	He	0.009	ug/l	132.64
Fe	56	72	2	H2	-0.247	ug/l	6856.85
Fe	56	72	3	He	-0.093	ug/l	4855.71
Co	59	72	1	No Gas	0.002	ug/l	382.63
Ni	60	72	1	No Gas	-0.022	ug/l	349.31
Ni	60	72	3	He	-0.029	ug/l	46.67
Cu	63	72	1	No Gas	0.089	ug/l	4553.21
Cu	63	72	3	He	0.171	ug/l	1036.17
Cu	65	72	1	No Gas	0.188	ug/l	1915.56
Zn	66	72	1	No Gas	0.309	ug/l	1881.32
Zn	66	72	3	He	0.317	ug/l	356.67
As	75	72	1	No Gas	-0.080	ug/l	13373.03
As	75	72	3	He	0.046	ug/l	166.73
Se	78	72	2	H2	0.022	ug/l	19.78
Br	79	72	1	No Gas	-0.417	ug/l	79845.85
Br	79	72	2	H2	-0.706	ug/l	30505.15
Se	82	72	1	No Gas	0.684	ug/l	843.02
Kr	84	72	1	No Gas		ug/l	19268.07
Sr	88	72	1	No Gas	0.001	ug/l	818.41
Sr	88	72	3	He	-0.014	ug/l	248.89
Mo	95	115	1	No Gas	0.008	ug/l	232.23
Mo	95	115	3	He	-0.009	ug/l	58.89
Mo	98	115	1	No Gas	0.008	ug/l	355.29
Ag	107	115	1	No Gas	0.001	ug/l	60.02
Ag	109	115	1	No Gas	0.000	ug/l	61.36
Cd	111	115	1	No Gas	0.009	ug/l	39.87

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	7.33
Cd	114	115	1	No Gas	0.008	ug/l	74.90
Cd	114	115	3	He	0.004	ug/l	18.13
Sn	118	115	1	No Gas	0.045	ug/l	1616.90
Sn	118	115	3	He	0.029	ug/l	336.67
Sb	121	115	1	No Gas	0.470	ug/l	9320.37
Sb	121	115	3	He	0.382	ug/l	1864.32
Sb	123	115	1	No Gas	0.478	ug/l	7158.55
Sb	123	115	3	He	0.394	ug/l	1505.23
Ba	135	115	1	No Gas	0.001	ug/l	33.27
Ba	137	115	1	No Gas	0.001	ug/l	59.88
La	139	115	3	He	0.000	ug/l	18.89
Ce	140	115	3	He	0.001	ug/l	24.44
Hg	201	209	1	No Gas	0.004	ug/l	22.67
Hg	202	209	1	No Gas	0.005	ug/l	86.98
Hg	202	209	3	He	0.002	ug/l	22.66
Tl	203	209	3	He	0.141	ug/l	1157.19
Tl	205	209	1	No Gas	0.108	ug/l	5002.12
Tl	205	209	3	He	0.137	ug/l	2722.05
[Pb]	206	209	1	No Gas	0.007	ug/l	243.34
[Pb]	207	209	1	No Gas	0.006	ug/l	201.12
Pb	208	209	1	No Gas	0.006	ug/l	966.69
Th	232	209	3	He	0.051	ug/l	1481.35
U	238	209	1	No Gas	0.002	ug/l	121.98

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5289435.12	91.9
Sc	45	2	H2	2193118.95	90.7
Sc	45	3	He	276470.52	86.4
Ge	72	1	No Gas	1244649.06	93.8
Ge	72	2	H2	679865.34	91.1
Ge	72	3	He	169404.77	90.2
In	115	1	No Gas	8799782.14	92.8
In	115	3	He	1915922.18	90.8
Tb	159	1	No Gas	12617882.65	94.1
Tb	159	3	He	5025021.82	91.6
Ho	165	1	No Gas	12372102.81	93.1
Ho	165	3	He	4979657.09	91.3
Lu	175	1	No Gas	11865082.17	93.6
Lu	175	3	He	4066349.77	92.0
Bi	209	1	No Gas	7724639.30	93.7
Bi	209	3	He	3311755.01	91.7

ICPMS207-B Analytical Data

Sample Name B22030586-007A
File Name 083SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 02:44:32
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.151	ug/l	12937.35
Be	9	45	1	No Gas	-0.019	ug/l	91.65
B	11	45	1	No Gas	58.924	ug/l	178357.75
Na	23	45	3	He	36611.926	ug/l	33335544.78
Mg	24	45	3	He	10535.085	ug/l	5285230.04
Al	27	45	1	No Gas	1.269	ug/l	37404.72
Si	28	45	2	H2	23795.491	ug/l	46442815.39
K	39	72	3	He	1866.039	ug/l	983841.21
Ca	40	72	2	H2	9784.897	ug/l	66438918.66
Ti	47	72	1	No Gas	2.481	ug/l	6082.40
V	51	72	1	No Gas	18.802	ug/l	567153.42
V	51	72	3	He	17.305	ug/l	90210.67
Cr	52	72	1	No Gas	0.954	ug/l	91427.37
Cr	52	72	3	He	1.828	ug/l	9312.99
Mn	55	72	1	No Gas	1.057	ug/l	45103.08
Mn	55	72	3	He	1.084	ug/l	3720.40
Fe	56	72	2	H2	2.400	ug/l	44250.85
Fe	56	72	3	He	2.188	ug/l	15022.81
Co	59	72	1	No Gas	0.106	ug/l	3583.36
Ni	60	72	1	No Gas	8.526	ug/l	57605.34
Ni	60	72	3	He	8.876	ug/l	15904.28
Cu	63	72	1	No Gas	0.433	ug/l	10068.85
Cu	63	72	3	He	0.262	ug/l	1521.78
Cu	65	72	1	No Gas	0.329	ug/l	3016.20
Zn	66	72	1	No Gas	7.788	ug/l	35748.78
Zn	66	72	3	He	8.070	ug/l	7279.62
As	75	72	1	No Gas	-0.898	ug/l	9621.36
As	75	72	3	He	-0.063	ug/l	101.20
Se	78	72	2	H2	0.192	ug/l	91.56
Br	79	72	1	No Gas	9.519	ug/l	181801.19
Br	79	72	2	H2	9.983	ug/l	81962.30
Se	82	72	1	No Gas	0.781	ug/l	880.23
Kr	84	72	1	No Gas		ug/l	36417.13
Sr	88	72	1	No Gas	62.620	ug/l	2773102.12
Sr	88	72	3	He	61.047	ug/l	306059.50
Mo	95	115	1	No Gas	0.390	ug/l	3633.82
Mo	95	115	3	He	0.390	ug/l	1208.95
Mo	98	115	1	No Gas	0.397	ug/l	5941.42
Ag	107	115	1	No Gas	0.001	ug/l	73.36
Ag	109	115	1	No Gas	0.000	ug/l	54.02
Cd	111	115	1	No Gas	0.003	ug/l	10.22

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.005	ug/l	8.67
Cd	114	115	1	No Gas	0.004	ug/l	36.75
Cd	114	115	3	He	0.004	ug/l	17.80
Sn	118	115	1	No Gas	-0.038	ug/l	475.74
Sn	118	115	3	He	-0.036	ug/l	114.44
Sb	121	115	1	No Gas	0.113	ug/l	2360.10
Sb	121	115	3	He	0.114	ug/l	598.07
Sb	123	115	1	No Gas	0.114	ug/l	1797.63
Sb	123	115	3	He	0.115	ug/l	471.72
Ba	135	115	1	No Gas	2.885	ug/l	12650.74
Ba	137	115	1	No Gas	2.908	ug/l	22183.52
La	139	115	3	He	0.000	ug/l	12.22
Ce	140	115	3	He	0.001	ug/l	21.11
Hg	201	209	1	No Gas	0.001	ug/l	13.33
Hg	202	209	1	No Gas	0.003	ug/l	72.98
Hg	202	209	3	He	0.006	ug/l	32.99
Tl	203	209	3	He	0.067	ug/l	574.25
Tl	205	209	1	No Gas	0.041	ug/l	2043.51
Tl	205	209	3	He	0.069	ug/l	1411.31
[Pb]	206	209	1	No Gas	0.012	ug/l	318.89
[Pb]	207	209	1	No Gas	0.014	ug/l	296.67
Pb	208	209	1	No Gas	0.012	ug/l	1302.25
Th	232	209	3	He	0.013	ug/l	436.18
U	238	209	1	No Gas	0.008	ug/l	514.24

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5569730.58	96.8
Sc	45	2	H2	2327394.69	96.2
Sc	45	3	He	294641.07	92.1
Ge	72	1	No Gas	1258083.67	94.8
Ge	72	2	H2	696491.27	93.3
Ge	72	3	He	177948.33	94.8
In	115	1	No Gas	8866785.59	93.5
In	115	3	He	1964042.89	93.1
Tb	159	1	No Gas	12762501.85	95.1
Tb	159	3	He	5080473.11	92.6
Ho	165	1	No Gas	12579271.02	94.6
Ho	165	3	He	5042559.72	92.4
Lu	175	1	No Gas	12071212.77	95.3
Lu	175	3	He	4117274.50	93.1
Bi	209	1	No Gas	7546374.73	91.6
Bi	209	3	He	3286249.48	91.0

ICPMS207-B Analytical Data

Sample Name CCV
File Name 084_CCV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 02:50:45
Sample Type CCV
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	594.058	ug/l	8854924.60
Be	9	45	1	No Gas	45.649	ug/l	235156.81
B	11	45	1	No Gas	47.661	ug/l	133519.63
Na	23	45	3	He	12309.752	ug/l	10697633.80
Mg	24	45	3	He	12397.371	ug/l	5921411.65
Al	27	45	1	No Gas	48.151	ug/l	1121110.16
Si	28	45	2	H2	278.305	ug/l	513191.98
K	39	72	3	He	11789.628	ug/l	5719492.07
Ca	40	72	2	H2	13018.034	ug/l	86198296.09
Ti	47	72	1	No Gas	46.862	ug/l	109280.08
V	51	72	1	No Gas	46.619	ug/l	1400023.20
V	51	72	3	He	48.514	ug/l	220335.01
Cr	52	72	1	No Gas	47.204	ug/l	1354965.53
Cr	52	72	3	He	46.800	ug/l	223169.56
Mn	55	72	1	No Gas	47.469	ug/l	1725795.05
Mn	55	72	3	He	47.878	ug/l	155000.94
Fe	56	72	2	H2	1311.104	ug/l	17964580.62
Fe	56	72	3	He	1236.801	ug/l	5232210.98
Co	59	72	1	No Gas	46.509	ug/l	1390040.19
Ni	60	72	1	No Gas	47.498	ug/l	311205.95
Ni	60	72	3	He	48.806	ug/l	84518.10
Cu	63	72	1	No Gas	47.815	ug/l	745932.23
Cu	63	72	3	He	48.725	ug/l	223645.38
Cu	65	72	1	No Gas	48.022	ug/l	359653.44
Zn	66	72	1	No Gas	47.043	ug/l	208478.20
Zn	66	72	3	He	48.934	ug/l	42428.19
As	75	72	1	No Gas	47.166	ug/l	231721.16
As	75	72	3	He	48.546	ug/l	32043.49
Se	78	72	2	H2	51.214	ug/l	21004.27
Br	79	72	1	No Gas	0.719	ug/l	89968.51
Br	79	72	2	H2	0.642	ug/l	36673.86
Se	82	72	1	No Gas	50.209	ug/l	15455.08
Kr	84	72	1	No Gas		ug/l	33489.02
Sr	88	72	1	No Gas	48.079	ug/l	2080115.68
Sr	88	72	3	He	48.736	ug/l	237429.33
Mo	95	115	1	No Gas	46.131	ug/l	401648.11
Mo	95	115	3	He	48.799	ug/l	134762.59
Mo	98	115	1	No Gas	46.844	ug/l	656792.05
Ag	107	115	1	No Gas	18.611	ug/l	404593.84
Ag	109	115	1	No Gas	18.852	ug/l	394157.81
Cd	111	115	1	No Gas	47.389	ug/l	217609.29

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	50.570	ug/l	68456.48
Cd	114	115	1	No Gas	47.902	ug/l	487176.46
Cd	114	115	3	He	50.204	ug/l	167235.05
Sn	118	115	1	No Gas	47.180	ug/l	640558.59
Sn	118	115	3	He	49.566	ug/l	169676.08
Sb	121	115	1	No Gas	46.709	ug/l	898952.64
Sb	121	115	3	He	49.754	ug/l	232546.98
Sb	123	115	1	No Gas	46.788	ug/l	680826.90
Sb	123	115	3	He	49.847	ug/l	182808.62
Ba	135	115	1	No Gas	46.344	ug/l	198164.99
Ba	137	115	1	No Gas	47.390	ug/l	352617.77
La	139	115	3	He	50.149	ug/l	984465.52
Ce	140	115	3	He	50.092	ug/l	1073304.92
Hg	201	209	1	No Gas	0.960	ug/l	2576.41
Hg	202	209	1	No Gas	0.947	ug/l	5820.11
Hg	202	209	3	He	0.962	ug/l	2528.74
Tl	203	209	3	He	47.643	ug/l	358314.61
Tl	205	209	1	No Gas	46.599	ug/l	1908931.17
Tl	205	209	3	He	48.240	ug/l	869383.83
[Pb]	206	209	1	No Gas	47.436	ug/l	671832.57
[Pb]	207	209	1	No Gas	46.719	ug/l	584379.48
Pb	208	209	1	No Gas	46.970	ug/l	2692560.61
Th	232	209	3	He	47.232	ug/l	1213040.78
U	238	209	1	No Gas	46.742	ug/l	2716020.25

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5122910.09	89.0
Sc	45	2	H2	2140931.82	88.5
Sc	45	3	He	280522.90	87.7
Ge	72	1	No Gas	1228729.29	92.6
Ge	72	2	H2	678519.64	90.9
Ge	72	3	He	172878.46	92.1
In	115	1	No Gas	8667004.48	91.4
In	115	3	He	1879163.42	89.1
Tb	159	1	No Gas	12296707.11	91.7
Tb	159	3	He	4951612.11	90.3
Ho	165	1	No Gas	12017559.53	90.4
Ho	165	3	He	4950259.98	90.7
Lu	175	1	No Gas	11716832.25	92.5
Lu	175	3	He	4023977.01	91.0
Bi	209	1	No Gas	7336267.22	89.0
Bi	209	3	He	3167744.18	87.7

ICPMS207-B Analytical Data

Sample Name CCB
File Name 085_CCB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 02:57:00
Sample Type CCB
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.007	ug/l	24758.64
Be	9	45	1	No Gas	-0.012	ug/l	120.31
B	11	45	1	No Gas	0.906	ug/l	6502.01
Na	23	45	3	He	55.229	ug/l	86459.77
Mg	24	45	3	He	3.853	ug/l	2016.14
Al	27	45	1	No Gas	-0.016	ug/l	4656.31
Si	28	45	2	H2	65.599	ug/l	135693.36
K	39	72	3	He	6.223	ug/l	62418.00
Ca	40	72	2	H2	1.034	ug/l	48219.58
Ti	47	72	1	No Gas	0.108	ug/l	415.43
V	51	72	1	No Gas	0.098	ug/l	-14788.15
V	51	72	3	He	4.718	ug/l	33800.90
Cr	52	72	1	No Gas	0.900	ug/l	86986.60
Cr	52	72	3	He	0.008	ug/l	375.56
Mn	55	72	1	No Gas	0.133	ug/l	10479.62
Mn	55	72	3	He	0.001	ug/l	107.98
Fe	56	72	2	H2	-0.213	ug/l	7400.99
Fe	56	72	3	He	-0.067	ug/l	5017.59
Co	59	72	1	No Gas	-0.003	ug/l	236.20
Ni	60	72	1	No Gas	-0.028	ug/l	302.74
Ni	60	72	3	He	-0.032	ug/l	43.33
Cu	63	72	1	No Gas	0.057	ug/l	3962.17
Cu	63	72	3	He	0.155	ug/l	974.84
Cu	65	72	1	No Gas	0.166	ug/l	1716.80
Zn	66	72	1	No Gas	-0.006	ug/l	458.88
Zn	66	72	3	He	0.000	ug/l	88.89
As	75	72	1	No Gas	-0.163	ug/l	12679.54
As	75	72	3	He	0.057	ug/l	175.87
Se	78	72	2	H2	0.021	ug/l	19.56
Br	79	72	1	No Gas	0.564	ug/l	87602.01
Br	79	72	2	H2	0.491	ug/l	36413.63
Se	82	72	1	No Gas	0.338	ug/l	721.42
Kr	84	72	1	No Gas		ug/l	19531.26
Sr	88	72	1	No Gas	0.000	ug/l	735.23
Sr	88	72	3	He	-0.016	ug/l	241.12
Mo	95	115	1	No Gas	0.014	ug/l	287.78
Mo	95	115	3	He	0.000	ug/l	82.22
Mo	98	115	1	No Gas	0.015	ug/l	459.53
Ag	107	115	1	No Gas	0.001	ug/l	62.69
Ag	109	115	1	No Gas	0.001	ug/l	66.03
Cd	111	115	1	No Gas	0.009	ug/l	37.75

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.006	ug/l	9.56
Cd	114	115	1	No Gas	0.007	ug/l	66.09
Cd	114	115	3	He	0.004	ug/l	17.31
Sn	118	115	1	No Gas	0.100	ug/l	2355.53
Sn	118	115	3	He	0.095	ug/l	568.90
Sb	121	115	1	No Gas	0.364	ug/l	7204.24
Sb	121	115	3	He	0.302	ug/l	1485.89
Sb	123	115	1	No Gas	0.363	ug/l	5435.27
Sb	123	115	3	He	0.312	ug/l	1202.17
Ba	135	115	1	No Gas	0.002	ug/l	39.92
Ba	137	115	1	No Gas	-0.001	ug/l	39.92
La	139	115	3	He	0.005	ug/l	105.60
Ce	140	115	3	He	0.000	ug/l	17.78
Hg	201	209	1	No Gas	0.004	ug/l	23.66
Hg	202	209	1	No Gas	0.004	ug/l	78.65
Hg	202	209	3	He	0.004	ug/l	27.66
Tl	203	209	3	He	0.145	ug/l	1183.20
Tl	205	209	1	No Gas	0.088	ug/l	4058.43
Tl	205	209	3	He	0.144	ug/l	2847.45
[Pb]	206	209	1	No Gas	0.004	ug/l	203.34
[Pb]	207	209	1	No Gas	0.004	ug/l	173.34
Pb	208	209	1	No Gas	0.004	ug/l	843.36
Th	232	209	3	He	0.043	ug/l	1257.90
U	238	209	1	No Gas	0.006	ug/l	345.63

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5147039.59	89.5
Sc	45	2	H2	2210212.18	91.4
Sc	45	3	He	278279.36	87.0
Ge	72	1	No Gas	1217201.59	91.7
Ge	72	2	H2	686689.35	92.0
Ge	72	3	He	171278.61	91.2
In	115	1	No Gas	8757813.40	92.4
In	115	3	He	1922996.44	91.1
Tb	159	1	No Gas	12523446.86	93.4
Tb	159	3	He	5038179.15	91.9
Ho	165	1	No Gas	12258898.88	92.2
Ho	165	3	He	4984671.06	91.4
Lu	175	1	No Gas	11684459.26	92.2
Lu	175	3	He	4075664.43	92.2
Bi	209	1	No Gas	7653093.80	92.9
Bi	209	3	He	3309246.44	91.7

ICPMS207-B Analytical Data

Sample Name CCV
File Name 086_CCV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-12 12:24:15
Sample Type CCV
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	629.590	ug/l	8293223.60
Be	9	45	1	No Gas	46.651	ug/l	212383.49
B	11	45	1	No Gas	47.703	ug/l	118093.36
Na	23	45	3	He	11599.152	ug/l	8241236.55
Mg	24	45	3	He	11661.778	ug/l	4553283.50
Al	27	45	1	No Gas	47.274	ug/l	972857.02
Si	28	45	2	H2	196.586	ug/l	329839.51
K	39	72	3	He	10617.992	ug/l	4406269.24
Ca	40	72	2	H2	12700.010	ug/l	75882550.71
Ti	47	72	1	No Gas	44.162	ug/l	94966.14
V	51	72	1	No Gas	40.223	ug/l	1111218.46
V	51	72	3	He	42.005	ug/l	164620.16
Cr	52	72	1	No Gas	42.504	ug/l	1130812.93
Cr	52	72	3	He	43.486	ug/l	177197.46
Mn	55	72	1	No Gas	43.642	ug/l	1463491.86
Mn	55	72	3	He	44.930	ug/l	124287.88
Fe	56	72	2	H2	1248.122	ug/l	15445337.81
Fe	56	72	3	He	1156.553	ug/l	4180841.58
Co	59	72	1	No Gas	43.229	ug/l	1191302.61
Ni	60	72	1	No Gas	43.580	ug/l	263271.97
Ni	60	72	3	He	47.141	ug/l	69755.19
Cu	63	72	1	No Gas	43.905	ug/l	631745.83
Cu	63	72	3	He	46.740	ug/l	183311.34
Cu	65	72	1	No Gas	44.147	ug/l	304888.12
Zn	66	72	1	No Gas	43.944	ug/l	179598.39
Zn	66	72	3	He	46.691	ug/l	34593.22
As	75	72	1	No Gas	43.952	ug/l	200028.99
As	75	72	3	He	46.085	ug/l	25997.09
Se	78	72	2	H2	49.459	ug/l	18319.87
Br	79	72	1	No Gas	-0.728	ug/l	69756.61
Br	79	72	2	H2	-0.193	ug/l	29621.66
Se	82	72	1	No Gas	49.180	ug/l	13976.24
Kr	84	72	1	No Gas		ug/l	41365.38
Sr	88	72	1	No Gas	45.738	ug/l	1824117.36
Sr	88	72	3	He	47.628	ug/l	198265.49
Mo	95	115	1	No Gas	45.546	ug/l	360577.48
Mo	95	115	3	He	46.589	ug/l	115720.34
Mo	98	115	1	No Gas	45.993	ug/l	586549.78
Ag	107	115	1	No Gas	18.099	ug/l	357899.55
Ag	109	115	1	No Gas	18.252	ug/l	347077.30
Cd	111	115	1	No Gas	46.178	ug/l	192843.37

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	49.676	ug/l	60470.97
Cd	114	115	1	No Gas	46.766	ug/l	432517.24
Cd	114	115	3	He	49.266	ug/l	147576.77
Sn	118	115	1	No Gas	46.710	ug/l	576748.46
Sn	118	115	3	He	48.537	ug/l	149424.90
Sb	121	115	1	No Gas	46.646	ug/l	816310.17
Sb	121	115	3	He	49.394	ug/l	207607.70
Sb	123	115	1	No Gas	46.810	ug/l	619361.90
Sb	123	115	3	He	49.862	ug/l	164434.13
Ba	135	115	1	No Gas	46.507	ug/l	180846.02
Ba	137	115	1	No Gas	46.157	ug/l	312316.33
La	139	115	3	He	49.568	ug/l	875102.44
Ce	140	115	3	He	49.464	ug/l	953097.12
Hg	201	209	1	No Gas	0.870	ug/l	2208.41
Hg	202	209	1	No Gas	0.890	ug/l	5181.64
Hg	202	209	3	He	0.896	ug/l	2200.08
Tl	203	209	3	He	46.815	ug/l	328840.38
Tl	205	209	1	No Gas	45.398	ug/l	1759701.78
Tl	205	209	3	He	47.050	ug/l	791815.10
[Pb]	206	209	1	No Gas	46.057	ug/l	617209.75
[Pb]	207	209	1	No Gas	45.291	ug/l	536094.46
Pb	208	209	1	No Gas	45.721	ug/l	2480104.47
Th	232	209	3	He	45.571	ug/l	1092960.37
U	238	209	1	No Gas	45.414	ug/l	2496894.60

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4527605.27	78.7
Sc	45	2	H2	1925761.76	79.6
Sc	45	3	He	229303.26	71.7
Ge	72	1	No Gas	1132857.53	85.4
Ge	72	2	H2	612422.33	82.0
Ge	72	3	He	147708.77	78.7
In	115	1	No Gas	7880718.79	83.1
In	115	3	He	1689872.99	80.1
Tb	159	1	No Gas	11375115.76	84.8
Tb	159	3	He	4658711.73	85.0
Ho	165	1	No Gas	11272879.36	84.8
Ho	165	3	He	4613114.20	84.5
Lu	175	1	No Gas	10866247.74	85.8
Lu	175	3	He	3795239.19	85.8
Bi	209	1	No Gas	6941756.82	84.2
Bi	209	3	He	2958228.59	81.9

ICPMS207-B Analytical Data

Sample Name CCB
File Name 087_CCB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 12:30:29
Sample Type CCB
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.545	ug/l	28509.98
Be	9	45	1	No Gas	0.016	ug/l	231.29
B	11	45	1	No Gas	0.598	ug/l	4922.78
Na	23	45	3	He	16.636	ug/l	43175.01
Mg	24	45	3	He	4.654	ug/l	1939.62
Al	27	45	1	No Gas	-0.007	ug/l	4333.33
Si	28	45	2	H2	1.984	ug/l	15513.66
K	39	72	3	He	-8.534	ug/l	47442.13
Ca	40	72	2	H2	1.893	ug/l	48466.15
Ti	47	72	1	No Gas	0.182	ug/l	532.21
V	51	72	1	No Gas	-0.671	ug/l	-33100.81
V	51	72	3	He	-1.339	ug/l	7096.20
Cr	52	72	1	No Gas	0.150	ug/l	60323.39
Cr	52	72	3	He	0.000	ug/l	288.89
Mn	55	72	1	No Gas	0.061	ug/l	7174.25
Mn	55	72	3	He	0.013	ug/l	125.98
Fe	56	72	2	H2	0.287	ug/l	12866.93
Fe	56	72	3	He	0.248	ug/l	5426.48
Co	59	72	1	No Gas	0.002	ug/l	332.68
Ni	60	72	1	No Gas	0.261	ug/l	1969.57
Ni	60	72	3	He	0.351	ug/l	598.91
Cu	63	72	1	No Gas	0.045	ug/l	3429.12
Cu	63	72	3	He	0.142	ug/l	787.20
Cu	65	72	1	No Gas	0.155	ug/l	1478.67
Zn	66	72	1	No Gas	0.005	ug/l	464.36
Zn	66	72	3	He	-0.015	ug/l	64.44
As	75	72	1	No Gas	1.112	ug/l	16505.28
As	75	72	3	He	-0.020	ug/l	107.87
Se	78	72	2	H2	0.033	ug/l	21.78
Br	79	72	1	No Gas	0.615	ug/l	79803.79
Br	79	72	2	H2	0.806	ug/l	33999.13
Se	82	72	1	No Gas	2.077	ug/l	1105.36
Kr	84	72	1	No Gas		ug/l	28587.42
Sr	88	72	1	No Gas	0.000	ug/l	668.70
Sr	88	72	3	He	-0.010	ug/l	230.00
Mo	95	115	1	No Gas	0.018	ug/l	302.23
Mo	95	115	3	He	0.005	ug/l	88.89
Mo	98	115	1	No Gas	0.016	ug/l	437.58
Ag	107	115	1	No Gas	0.002	ug/l	90.04
Ag	109	115	1	No Gas	0.002	ug/l	78.70
Cd	111	115	1	No Gas	0.015	ug/l	61.95

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.010	ug/l	14.22
Cd	114	115	1	No Gas	0.017	ug/l	153.05
Cd	114	115	3	He	0.011	ug/l	37.88
Sn	118	115	1	No Gas	0.122	ug/l	2485.30
Sn	118	115	3	He	0.121	ug/l	601.13
Sb	121	115	1	No Gas	0.142	ug/l	2704.20
Sb	121	115	3	He	0.124	ug/l	578.07
Sb	123	115	1	No Gas	0.142	ug/l	2044.69
Sb	123	115	3	He	0.125	ug/l	456.06
Ba	135	115	1	No Gas	0.002	ug/l	33.27
Ba	137	115	1	No Gas	0.003	ug/l	73.20
La	139	115	3	He	0.000	ug/l	8.89
Ce	140	115	3	He	0.001	ug/l	18.89
Hg	201	209	1	No Gas	0.004	ug/l	22.66
Hg	202	209	1	No Gas	0.002	ug/l	63.99
Hg	202	209	3	He	0.003	ug/l	23.33
Tl	203	209	3	He	0.164	ug/l	1257.90
Tl	205	209	1	No Gas	0.113	ug/l	4877.60
Tl	205	209	3	He	0.158	ug/l	2914.16
[Pb]	206	209	1	No Gas	0.019	ug/l	403.34
[Pb]	207	209	1	No Gas	0.017	ug/l	330.01
Pb	208	209	1	No Gas	0.019	ug/l	1665.61
Th	232	209	3	He	0.181	ug/l	4664.05
U	238	209	1	No Gas	0.003	ug/l	154.30

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4560636.01	79.3
Sc	45	2	H2	1922379.58	79.5
Sc	45	3	He	225285.92	70.4
Ge	72	1	No Gas	1107115.59	83.4
Ge	72	2	H2	616536.30	82.6
Ge	72	3	He	146680.97	78.1
In	115	1	No Gas	8317973.80	87.7
In	115	3	He	1749579.44	82.9
Tb	159	1	No Gas	11861903.15	88.4
Tb	159	3	He	4728174.83	86.2
Ho	165	1	No Gas	11742513.98	88.3
Ho	165	3	He	4742000.11	86.9
Lu	175	1	No Gas	11314023.83	89.3
Lu	175	3	He	3829357.55	86.6
Bi	209	1	No Gas	7366875.38	89.4
Bi	209	3	He	3109678.53	86.1

ICPMS207-B Analytical Data

Sample Name ICSA
File Name 088ICSA.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 12:36:43
Sample Type ICSA
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.487	ug/l	26589.77
Be	9	45	1	No Gas	-0.005	ug/l	128.31
B	11	45	1	No Gas	0.280	ug/l	3988.13
Na	23	45	3	He	97755.002	ug/l	62528147.40
Mg	24	45	3	He	40111.660	ug/l	14149181.28
Al	27	45	1	No Gas	37545.569	ug/l	727583118.05
Si	28	45	2	H2	5.420	ug/l	18353.96
K	39	72	3	He	36796.818	ug/l	13423956.46
Ca	40	72	2	H2	122707.238	ug/l	643874311.63
Ti	47	72	1	No Gas	769.023	ug/l	1491076.08
V	51	72	1	No Gas	1.261	ug/l	17312.75
V	51	72	3	He	-2.407	ug/l	2894.75
Cr	52	72	1	No Gas	1.409	ug/l	84727.57
Cr	52	72	3	He	1.733	ug/l	6507.03
Mn	55	72	1	No Gas	0.319	ug/l	14431.79
Mn	55	72	3	He	0.322	ug/l	868.88
Fe	56	72	2	H2	104199.427	ug/l	1133527180.59
Fe	56	72	3	He	97587.151	ug/l	312358814.48
Co	59	72	1	No Gas	0.261	ug/l	6754.86
Ni	60	72	1	No Gas	1.392	ug/l	7986.36
Ni	60	72	3	He	0.311	ug/l	482.23
Cu	63	72	1	No Gas	6.278	ug/l	83800.67
Cu	63	72	3	He	0.330	ug/l	1353.46
Cu	65	72	1	No Gas	0.937	ug/l	6241.18
Zn	66	72	1	No Gas	1.220	ug/l	4898.31
Zn	66	72	3	He	0.817	ug/l	603.35
As	75	72	1	No Gas	0.245	ug/l	12191.19
As	75	72	3	He	0.045	ug/l	128.40
Se	78	72	2	H2	0.818	ug/l	274.89
Br	79	72	1	No Gas	7.761	ug/l	133288.42
Br	79	72	2	H2	6.459	ug/l	50454.62
Se	82	72	1	No Gas	1.047	ug/l	781.01
Kr	84	72	1	No Gas		ug/l	25820.76
Sr	88	72	1	No Gas	1.043	ug/l	38161.56
Sr	88	72	3	He	1.036	ug/l	4062.82
Mo	95	115	1	No Gas	792.619	ug/l	6017348.52
Mo	95	115	3	He	815.653	ug/l	1897442.77
Mo	98	115	1	No Gas	793.819	ug/l	9707037.71
Ag	107	115	1	No Gas	0.012	ug/l	260.11
Ag	109	115	1	No Gas	0.013	ug/l	273.45
Cd	111	115	1	No Gas	0.093	ug/l	371.29

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.273	ug/l	312.56
Cd	114	115	1	No Gas	0.102	ug/l	895.40
Cd	114	115	3	He	0.193	ug/l	543.39
Sn	118	115	1	No Gas	0.251	ug/l	3822.97
Sn	118	115	3	He	0.267	ug/l	965.60
Sb	121	115	1	No Gas	0.121	ug/l	2142.71
Sb	121	115	3	He	0.126	ug/l	528.73
Sb	123	115	1	No Gas	0.124	ug/l	1653.27
Sb	123	115	3	He	0.132	ug/l	434.05
Ba	135	115	1	No Gas	0.178	ug/l	688.65
Ba	137	115	1	No Gas	0.164	ug/l	1107.85
La	139	115	3	He	0.005	ug/l	97.78
Ce	140	115	3	He	0.009	ug/l	172.23
Hg	201	209	1	No Gas	0.003	ug/l	16.33
Hg	202	209	1	No Gas	0.004	ug/l	67.99
Hg	202	209	3	He	0.004	ug/l	22.67
Tl	203	209	3	He	0.061	ug/l	450.86
Tl	205	209	1	No Gas	0.035	ug/l	1576.77
Tl	205	209	3	He	0.059	ug/l	1058.47
[Pb]	206	209	1	No Gas	0.051	ug/l	774.47
[Pb]	207	209	1	No Gas	0.052	ug/l	681.13
Pb	208	209	1	No Gas	0.051	ug/l	3102.39
Th	232	209	3	He	0.136	ug/l	3191.01
U	238	209	1	No Gas	0.021	ug/l	1086.83

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4283405.64	74.4
Sc	45	2	H2	1677636.20	69.4
Sc	45	3	He	207161.33	64.7
Ge	72	1	No Gas	1023003.69	77.1
Ge	72	2	H2	538787.49	72.2
Ge	72	3	He	130928.25	69.7
In	115	1	No Gas	7560524.21	79.7
In	115	3	He	1583502.32	75.0
Tb	159	1	No Gas	11770871.60	87.8
Tb	159	3	He	4585783.80	83.6
Ho	165	1	No Gas	11457408.88	86.2
Ho	165	3	He	4595024.55	84.2
Lu	175	1	No Gas	11084438.32	87.5
Lu	175	3	He	3714149.28	84.0
Bi	209	1	No Gas	6587031.77	79.9
Bi	209	3	He	2821568.24	78.2

ICPMS207-B Analytical Data

Sample Name ICSAB
File Name 089ICSB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 12:43:01
Sample Type ICSAB
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.494	ug/l	26345.93
Be	9	45	1	No Gas	-0.008	ug/l	113.65
B	11	45	1	No Gas	0.016	ug/l	3336.38
Na	23	45	3	He	96641.739	ug/l	62238778.52
Mg	24	45	3	He	39391.373	ug/l	13987689.04
Al	27	45	1	No Gas	37078.362	ug/l	708690549.44
Si	28	45	2	H2	5.469	ug/l	18499.55
K	39	72	3	He	35832.795	ug/l	13342248.14
Ca	40	72	2	H2	121558.828	ug/l	649006603.74
Ti	47	72	1	No Gas	752.588	ug/l	1463067.90
V	51	72	1	No Gas	19.978	ug/l	492197.59
V	51	72	3	He	15.982	ug/l	63384.62
Cr	52	72	1	No Gas	19.371	ug/l	495439.74
Cr	52	72	3	He	19.963	ug/l	73736.74
Mn	55	72	1	No Gas	19.120	ug/l	583272.32
Mn	55	72	3	He	19.130	ug/l	47920.40
Fe	56	72	2	H2	101685.516	ug/l	1124766660.37
Fe	56	72	3	He	95215.145	ug/l	311016382.09
Co	59	72	1	No Gas	18.414	ug/l	459601.48
Ni	60	72	1	No Gas	19.490	ug/l	106902.83
Ni	60	72	3	He	19.657	ug/l	26359.27
Cu	63	72	1	No Gas	24.252	ug/l	317028.35
Cu	63	72	3	He	19.385	ug/l	68899.46
Cu	65	72	1	No Gas	18.875	ug/l	118343.07
Zn	66	72	1	No Gas	10.371	ug/l	38674.96
Zn	66	72	3	He	10.094	ug/l	6818.31
As	75	72	1	No Gas	10.557	ug/l	52237.49
As	75	72	3	He	9.982	ug/l	5179.48
Se	78	72	2	H2	11.222	ug/l	3725.70
Br	79	72	1	No Gas	8.159	ug/l	137092.57
Br	79	72	2	H2	6.873	ug/l	52858.31
Se	82	72	1	No Gas	12.236	ug/l	3544.08
Kr	84	72	1	No Gas		ug/l	29443.76
Sr	88	72	1	No Gas	1.036	ug/l	38071.58
Sr	88	72	3	He	1.041	ug/l	4161.74
Mo	95	115	1	No Gas	771.059	ug/l	6011807.83
Mo	95	115	3	He	799.678	ug/l	1916086.90
Mo	98	115	1	No Gas	773.920	ug/l	9718819.66
Ag	107	115	1	No Gas	4.556	ug/l	88892.20
Ag	109	115	1	No Gas	4.535	ug/l	85018.65
Cd	111	115	1	No Gas	9.268	ug/l	38145.16

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	10.129	ug/l	11902.42
Cd	114	115	1	No Gas	9.438	ug/l	85975.30
Cd	114	115	3	He	10.078	ug/l	29142.58
Sn	118	115	1	No Gas	0.200	ug/l	3310.49
Sn	118	115	3	He	0.236	ug/l	901.14
Sb	121	115	1	No Gas	0.098	ug/l	1807.97
Sb	121	115	3	He	0.112	ug/l	490.72
Sb	123	115	1	No Gas	0.101	ug/l	1403.88
Sb	123	115	3	He	0.106	ug/l	363.37
Ba	135	115	1	No Gas	0.181	ug/l	725.25
Ba	137	115	1	No Gas	0.163	ug/l	1127.81
La	139	115	3	He	0.006	ug/l	112.22
Ce	140	115	3	He	0.008	ug/l	163.34
Hg	201	209	1	No Gas	0.002	ug/l	14.33
Hg	202	209	1	No Gas	0.002	ug/l	59.32
Hg	202	209	3	He	0.002	ug/l	18.33
Tl	203	209	3	He	0.042	ug/l	321.47
Tl	205	209	1	No Gas	0.023	ug/l	1141.17
Tl	205	209	3	He	0.041	ug/l	773.67
[Pb]	206	209	1	No Gas	0.050	ug/l	770.03
[Pb]	207	209	1	No Gas	0.047	ug/l	645.57
Pb	208	209	1	No Gas	0.049	ug/l	3056.83
Th	232	209	3	He	0.072	ug/l	1736.82
U	238	209	1	No Gas	0.020	ug/l	1081.50

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4293644.46	74.6
Sc	45	2	H2	1685027.74	69.7
Sc	45	3	He	208549.79	65.2
Ge	72	1	No Gas	1032184.12	77.8
Ge	72	2	H2	547833.57	73.4
Ge	72	3	He	133642.88	71.2
In	115	1	No Gas	7867062.38	83.0
In	115	3	He	1630942.37	77.3
Tb	159	1	No Gas	11805564.10	88.0
Tb	159	3	He	4680567.64	85.4
Ho	165	1	No Gas	11692047.05	87.9
Ho	165	3	He	4668312.21	85.6
Lu	175	1	No Gas	11282005.46	89.0
Lu	175	3	He	3803347.95	86.0
Bi	209	1	No Gas	6807419.05	82.6
Bi	209	3	He	2837514.97	78.6

ICPMS207-B Analytical Data

Sample Name Rinse
File Name 090BLKV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 12:49:17
Sample Type BlkVrfy
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.140	ug/l	23482.83
Be	9	45	1	No Gas	-0.013	ug/l	99.98
B	11	45	1	No Gas	-0.379	ug/l	2626.62
Na	23	45	3	He	44.488	ug/l	62783.67
Mg	24	45	3	He	2.621	ug/l	1164.41
Al	27	45	1	No Gas	7.251	ug/l	151681.31
Si	28	45	2	H2	1.797	ug/l	14997.46
K	39	72	3	He	-6.818	ug/l	48824.43
Ca	40	72	2	H2	2.350	ug/l	50749.01
Ti	47	72	1	No Gas	0.640	ug/l	1519.95
V	51	72	1	No Gas	0.724	ug/l	4081.10
V	51	72	3	He	-2.409	ug/l	3282.61
Cr	52	72	1	No Gas	-1.010	ug/l	32591.46
Cr	52	72	3	He	-0.025	ug/l	193.34
Mn	55	72	1	No Gas	-0.007	ug/l	5064.18
Mn	55	72	3	He	-0.004	ug/l	79.98
Fe	56	72	2	H2	3.593	ug/l	53537.44
Fe	56	72	3	He	3.093	ug/l	15852.89
Co	59	72	1	No Gas	0.000	ug/l	289.43
Ni	60	72	1	No Gas	0.170	ug/l	1467.17
Ni	60	72	3	He	0.124	ug/l	270.00
Cu	63	72	1	No Gas	0.373	ug/l	8175.61
Cu	63	72	3	He	0.214	ug/l	1080.82
Cu	65	72	1	No Gas	0.248	ug/l	2147.02
Zn	66	72	1	No Gas	-0.003	ug/l	438.67
Zn	66	72	3	He	-0.001	ug/l	75.55
As	75	72	1	No Gas	0.849	ug/l	16031.24
As	75	72	3	He	-0.066	ug/l	83.00
Se	78	72	2	H2	0.028	ug/l	19.78
Br	79	72	1	No Gas	0.686	ug/l	82300.01
Br	79	72	2	H2	0.867	ug/l	33949.23
Se	82	72	1	No Gas	1.849	ug/l	1079.32
Kr	84	72	1	No Gas		ug/l	31508.32
Sr	88	72	1	No Gas	0.000	ug/l	682.00
Sr	88	72	3	He	-0.004	ug/l	257.78
Mo	95	115	1	No Gas	0.302	ug/l	2772.51
Mo	95	115	3	He	0.192	ug/l	584.46
Mo	98	115	1	No Gas	0.296	ug/l	4353.91
Ag	107	115	1	No Gas	0.001	ug/l	64.03
Ag	109	115	1	No Gas	0.001	ug/l	69.36
Cd	111	115	1	No Gas	0.007	ug/l	30.88

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	6.89
Cd	114	115	1	No Gas	0.005	ug/l	45.31
Cd	114	115	3	He	0.003	ug/l	13.69
Sn	118	115	1	No Gas	0.014	ug/l	1164.41
Sn	118	115	3	He	0.030	ug/l	320.00
Sb	121	115	1	No Gas	0.037	ug/l	847.45
Sb	121	115	3	He	0.046	ug/l	244.69
Sb	123	115	1	No Gas	0.039	ug/l	656.08
Sb	123	115	3	He	0.049	ug/l	199.35
Ba	135	115	1	No Gas	0.004	ug/l	46.57
Ba	137	115	1	No Gas	-0.004	ug/l	19.96
La	139	115	3	He	0.000	ug/l	17.78
Ce	140	115	3	He	0.015	ug/l	312.76
Hg	201	209	1	No Gas	0.000	ug/l	11.67
Hg	202	209	1	No Gas	-0.001	ug/l	50.99
Hg	202	209	3	He	0.001	ug/l	19.33
Tl	203	209	3	He	0.033	ug/l	302.13
Tl	205	209	1	No Gas	0.019	ug/l	1117.83
Tl	205	209	3	He	0.033	ug/l	746.99
[Pb]	206	209	1	No Gas	0.005	ug/l	223.34
[Pb]	207	209	1	No Gas	0.006	ug/l	194.45
Pb	208	209	1	No Gas	0.005	ug/l	905.58
Th	232	209	3	He	0.028	ug/l	847.71
U	238	209	1	No Gas	0.000	ug/l	19.67

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4517898.28	78.5
Sc	45	2	H2	1890787.33	78.2
Sc	45	3	He	226136.06	70.7
Ge	72	1	No Gas	1126970.06	84.9
Ge	72	2	H2	610936.15	81.8
Ge	72	3	He	148764.20	79.2
In	115	1	No Gas	8620090.44	90.9
In	115	3	He	1795806.72	85.1
Tb	159	1	No Gas	12393992.62	92.4
Tb	159	3	He	4911131.27	89.6
Ho	165	1	No Gas	12296741.10	92.5
Ho	165	3	He	4872768.02	89.3
Lu	175	1	No Gas	11717774.65	92.5
Lu	175	3	He	3984054.51	90.1
Bi	209	1	No Gas	7674188.18	93.1
Bi	209	3	He	3259876.33	90.3

ICPMS207-B Analytical Data

Sample Name CCV
File Name 091_CCV.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 12:55:31
Sample Type CCV
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	517.337	ug/l	6895249.36
Be	9	45	1	No Gas	39.756	ug/l	183116.88
B	11	45	1	No Gas	40.438	ug/l	101825.13
Na	23	45	3	He	11410.946	ug/l	8234895.23
Mg	24	45	3	He	11560.303	ug/l	4583798.04
Al	27	45	1	No Gas	44.525	ug/l	927259.99
Si	28	45	2	H2	185.626	ug/l	307966.95
K	39	72	3	He	10426.875	ug/l	4480724.03
Ca	40	72	2	H2	11842.469	ug/l	72400677.29
Ti	47	72	1	No Gas	43.627	ug/l	96791.08
V	51	72	1	No Gas	39.740	ug/l	1132733.78
V	51	72	3	He	41.369	ug/l	168053.17
Cr	52	72	1	No Gas	42.460	ug/l	1165760.15
Cr	52	72	3	He	42.815	ug/l	180638.72
Mn	55	72	1	No Gas	44.163	ug/l	1528035.84
Mn	55	72	3	He	44.106	ug/l	126321.50
Fe	56	72	2	H2	1230.902	ug/l	15582332.51
Fe	56	72	3	He	1141.582	ug/l	4272410.44
Co	59	72	1	No Gas	43.255	ug/l	1229984.53
Ni	60	72	1	No Gas	43.602	ug/l	271824.16
Ni	60	72	3	He	46.006	ug/l	70483.00
Cu	63	72	1	No Gas	44.149	ug/l	655518.90
Cu	63	72	3	He	46.653	ug/l	189433.32
Cu	65	72	1	No Gas	44.418	ug/l	316534.38
Zn	66	72	1	No Gas	44.366	ug/l	187071.45
Zn	66	72	3	He	46.828	ug/l	35923.02
As	75	72	1	No Gas	45.258	ug/l	212074.52
As	75	72	3	He	46.220	ug/l	26993.87
Se	78	72	2	H2	50.012	ug/l	18952.23
Br	79	72	1	No Gas	0.721	ug/l	85650.91
Br	79	72	2	H2	0.637	ug/l	33835.80
Se	82	72	1	No Gas	50.077	ug/l	14668.57
Kr	84	72	1	No Gas		ug/l	40475.57
Sr	88	72	1	No Gas	47.092	ug/l	1938091.06
Sr	88	72	3	He	47.419	ug/l	204367.36
Mo	95	115	1	No Gas	44.849	ug/l	379122.35
Mo	95	115	3	He	45.803	ug/l	118939.07
Mo	98	115	1	No Gas	45.362	ug/l	617595.96
Ag	107	115	1	No Gas	18.129	ug/l	382746.83
Ag	109	115	1	No Gas	18.084	ug/l	367181.88
Cd	111	115	1	No Gas	45.659	ug/l	203595.34

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	49.171	ug/l	62579.96
Cd	114	115	1	No Gas	46.294	ug/l	457151.89
Cd	114	115	3	He	49.076	ug/l	153707.84
Sn	118	115	1	No Gas	46.058	ug/l	607257.17
Sn	118	115	3	He	48.557	ug/l	156297.40
Sb	121	115	1	No Gas	46.282	ug/l	864780.90
Sb	121	115	3	He	49.209	ug/l	216268.00
Sb	123	115	1	No Gas	46.347	ug/l	654763.14
Sb	123	115	3	He	49.311	ug/l	170015.34
Ba	135	115	1	No Gas	46.123	ug/l	191482.73
Ba	137	115	1	No Gas	46.561	ug/l	336357.09
La	139	115	3	He	49.610	ug/l	915774.86
Ce	140	115	3	He	48.946	ug/l	985903.71
Hg	201	209	1	No Gas	0.892	ug/l	2408.74
Hg	202	209	1	No Gas	0.882	ug/l	5460.36
Hg	202	209	3	He	0.885	ug/l	2295.41
Tl	203	209	3	He	45.962	ug/l	341075.17
Tl	205	209	1	No Gas	45.604	ug/l	1880665.39
Tl	205	209	3	He	45.353	ug/l	806312.52
[Pb]	206	209	1	No Gas	45.699	ug/l	651609.07
[Pb]	207	209	1	No Gas	45.185	ug/l	569057.27
Pb	208	209	1	No Gas	45.507	ug/l	2626543.89
Th	232	209	3	He	45.000	ug/l	1140147.26
U	238	209	1	No Gas	45.122	ug/l	2639661.83

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4580542.05	79.6
Sc	45	2	H2	1900436.17	78.6
Sc	45	3	He	232913.20	72.8
Ge	72	1	No Gas	1168879.59	88.1
Ge	72	2	H2	626645.57	83.9
Ge	72	3	He	152927.03	81.4
In	115	1	No Gas	8414535.70	88.7
In	115	3	He	1767187.75	83.8
Tb	159	1	No Gas	12255975.23	91.4
Tb	159	3	He	4844267.06	88.3
Ho	165	1	No Gas	12062840.64	90.7
Ho	165	3	He	4850181.89	88.9
Lu	175	1	No Gas	11526764.17	91.0
Lu	175	3	He	3973367.50	89.9
Bi	209	1	No Gas	7387797.03	89.6
Bi	209	3	He	3125148.77	86.6

ICPMS207-B Analytical Data

Sample Name CCB
File Name 092_CCB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 13:01:45
Sample Type CCB
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.565	ug/l	29284.47
Be	9	45	1	No Gas	-0.001	ug/l	152.97
B	11	45	1	No Gas	0.068	ug/l	3723.29
Na	23	45	3	He	35.198	ug/l	56844.57
Mg	24	45	3	He	3.502	ug/l	1517.07
Al	27	45	1	No Gas	0.019	ug/l	4829.69
Si	28	45	2	H2	2.044	ug/l	15639.86
K	39	72	3	He	-5.432	ug/l	49217.81
Ca	40	72	2	H2	1.288	ug/l	44909.40
Ti	47	72	1	No Gas	0.268	ug/l	729.09
V	51	72	1	No Gas	-0.802	ug/l	-38679.96
V	51	72	3	He	-1.367	ug/l	7068.41
Cr	52	72	1	No Gas	-0.524	ug/l	45045.83
Cr	52	72	3	He	-0.021	ug/l	206.67
Mn	55	72	1	No Gas	0.017	ug/l	5899.52
Mn	55	72	3	He	-0.005	ug/l	76.32
Fe	56	72	2	H2	1.277	ug/l	25237.08
Fe	56	72	3	He	1.004	ug/l	8223.93
Co	59	72	1	No Gas	-0.002	ug/l	236.20
Ni	60	72	1	No Gas	0.076	ug/l	908.23
Ni	60	72	3	He	0.076	ug/l	196.67
Cu	63	72	1	No Gas	0.103	ug/l	4348.40
Cu	63	72	3	He	0.152	ug/l	832.53
Cu	65	72	1	No Gas	0.186	ug/l	1733.47
Zn	66	72	1	No Gas	-0.005	ug/l	431.23
Zn	66	72	3	He	-0.004	ug/l	73.33
As	75	72	1	No Gas	1.661	ug/l	19577.39
As	75	72	3	He	-0.047	ug/l	93.73
Se	78	72	2	H2	0.039	ug/l	24.33
Br	79	72	1	No Gas	0.759	ug/l	83420.15
Br	79	72	2	H2	0.994	ug/l	34866.20
Se	82	72	1	No Gas	1.884	ug/l	1093.62
Kr	84	72	1	No Gas		ug/l	30847.46
Sr	88	72	1	No Gas	0.003	ug/l	818.45
Sr	88	72	3	He	0.009	ug/l	311.13
Mo	95	115	1	No Gas	0.050	ug/l	587.80
Mo	95	115	3	He	0.036	ug/l	171.11
Mo	98	115	1	No Gas	0.044	ug/l	839.13
Ag	107	115	1	No Gas	0.001	ug/l	64.03
Ag	109	115	1	No Gas	0.001	ug/l	75.37
Cd	111	115	1	No Gas	0.012	ug/l	50.18

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.006	ug/l	10.00
Cd	114	115	1	No Gas	0.008	ug/l	79.33
Cd	114	115	3	He	0.006	ug/l	20.90
Sn	118	115	1	No Gas	0.099	ug/l	2292.31
Sn	118	115	3	He	0.105	ug/l	563.35
Sb	121	115	1	No Gas	0.136	ug/l	2712.87
Sb	121	115	3	He	0.110	ug/l	531.06
Sb	123	115	1	No Gas	0.139	ug/l	2098.04
Sb	123	115	3	He	0.109	ug/l	411.38
Ba	135	115	1	No Gas	-0.003	ug/l	16.63
Ba	137	115	1	No Gas	-0.001	ug/l	39.92
La	139	115	3	He	0.000	ug/l	12.22
Ce	140	115	3	He	0.000	ug/l	8.89
Hg	201	209	1	No Gas	0.004	ug/l	23.33
Hg	202	209	1	No Gas	0.003	ug/l	71.99
Hg	202	209	3	He	0.004	ug/l	26.33
Tl	203	209	3	He	0.151	ug/l	1195.20
Tl	205	209	1	No Gas	0.094	ug/l	4327.42
Tl	205	209	3	He	0.151	ug/l	2886.14
[Pb]	206	209	1	No Gas	0.004	ug/l	207.78
[Pb]	207	209	1	No Gas	0.004	ug/l	174.45
Pb	208	209	1	No Gas	0.005	ug/l	868.91
Th	232	209	3	He	0.145	ug/l	3874.80
U	238	209	1	No Gas	0.002	ug/l	128.98

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4550525.21	79.1
Sc	45	2	H2	1926741.97	79.7
Sc	45	3	He	228365.69	71.4
Ge	72	1	No Gas	1133047.62	85.4
Ge	72	2	H2	617676.13	82.7
Ge	72	3	He	148234.70	78.9
In	115	1	No Gas	8568860.75	90.4
In	115	3	He	1794235.98	85.0
Tb	159	1	No Gas	12305207.06	91.7
Tb	159	3	He	4834978.98	88.2
Ho	165	1	No Gas	12230645.95	92.0
Ho	165	3	He	4838926.52	88.7
Lu	175	1	No Gas	11724854.44	92.5
Lu	175	3	He	3941630.16	89.1
Bi	209	1	No Gas	7666031.48	93.0
Bi	209	3	He	3204325.69	88.8

ICPMS207-B Analytical Data

Sample Name B22030586-007A
File Name 093SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 13:07:59
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	0.350	ug/l	14533.42
Be	9	45	1	No Gas	0.009	ug/l	220.34
B	11	45	1	No Gas	53.024	ug/l	144731.43
Na	23	45	3	He	34932.133	ug/l	26147281.55
Mg	24	45	3	He	10159.500	ug/l	4189678.04
Al	27	45	1	No Gas	1.194	ug/l	31940.88
Si	28	45	2	H2	22442.853	ug/l	38389209.13
K	39	72	3	He	1682.733	ug/l	784422.62
Ca	40	72	2	H2	9179.357	ug/l	57108107.34
Ti	47	72	1	No Gas	2.425	ug/l	5611.73
V	51	72	1	No Gas	16.999	ug/l	481688.83
V	51	72	3	He	16.277	ug/l	75255.33
Cr	52	72	1	No Gas	0.693	ug/l	79288.40
Cr	52	72	3	He	1.748	ug/l	7833.23
Mn	55	72	1	No Gas	0.989	ug/l	40165.21
Mn	55	72	3	He	1.029	ug/l	3105.04
Fe	56	72	2	H2	3.594	ug/l	55865.13
Fe	56	72	3	He	3.216	ug/l	17122.20
Co	59	72	1	No Gas	0.097	ug/l	3100.85
Ni	60	72	1	No Gas	8.286	ug/l	52756.70
Ni	60	72	3	He	8.799	ug/l	13838.82
Cu	63	72	1	No Gas	0.569	ug/l	11533.19
Cu	63	72	3	He	0.313	ug/l	1544.78
Cu	65	72	1	No Gas	0.403	ug/l	3377.09
Zn	66	72	1	No Gas	7.677	ug/l	33207.80
Zn	66	72	3	He	8.101	ug/l	6418.11
As	75	72	1	No Gas	1.240	ug/l	18596.90
As	75	72	3	He	-0.062	ug/l	89.67
Se	78	72	2	H2	0.196	ug/l	85.44
Br	79	72	1	No Gas	10.579	ug/l	181467.12
Br	79	72	2	H2	11.332	ug/l	80868.47
Se	82	72	1	No Gas	2.905	ug/l	1433.14
Kr	84	72	1	No Gas		ug/l	47486.18
Sr	88	72	1	No Gas	62.870	ug/l	2623479.90
Sr	88	72	3	He	62.636	ug/l	275703.68
Mo	95	115	1	No Gas	0.408	ug/l	3701.61
Mo	95	115	3	He	0.416	ug/l	1197.83
Mo	98	115	1	No Gas	0.403	ug/l	5866.58
Ag	107	115	1	No Gas	0.001	ug/l	60.02
Ag	109	115	1	No Gas	0.000	ug/l	52.02
Cd	111	115	1	No Gas	0.006	ug/l	23.91

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.006	ug/l	9.78
Cd	114	115	1	No Gas	0.006	ug/l	54.55
Cd	114	115	3	He	0.005	ug/l	18.29
Sn	118	115	1	No Gas	-0.018	ug/l	731.91
Sn	118	115	3	He	-0.012	ug/l	186.67
Sb	121	115	1	No Gas	0.041	ug/l	921.46
Sb	121	115	3	He	0.048	ug/l	257.70
Sb	123	115	1	No Gas	0.042	ug/l	704.42
Sb	123	115	3	He	0.045	ug/l	188.69
Ba	135	115	1	No Gas	2.982	ug/l	12733.97
Ba	137	115	1	No Gas	2.943	ug/l	21867.30
La	139	115	3	He	0.000	ug/l	17.78
Ce	140	115	3	He	0.000	ug/l	15.56
Hg	201	209	1	No Gas	0.003	ug/l	20.00
Hg	202	209	1	No Gas	0.005	ug/l	82.65
Hg	202	209	3	He	0.007	ug/l	34.32
Tl	203	209	3	He	0.079	ug/l	640.27
Tl	205	209	1	No Gas	0.043	ug/l	2131.30
Tl	205	209	3	He	0.086	ug/l	1674.78
[Pb]	206	209	1	No Gas	0.013	ug/l	324.45
[Pb]	207	209	1	No Gas	0.011	ug/l	255.56
Pb	208	209	1	No Gas	0.012	ug/l	1274.48
Th	232	209	3	He	0.033	ug/l	950.42
U	238	209	1	No Gas	0.008	ug/l	504.58

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	5008326.24	87.0
Sc	45	2	H2	2038490.47	84.3
Sc	45	3	He	242234.14	75.7
Ge	72	1	No Gas	1185495.13	89.3
Ge	72	2	H2	637356.74	85.4
Ge	72	3	He	156292.89	83.2
In	115	1	No Gas	8638215.91	91.1
In	115	3	He	1830863.28	86.8
Tb	159	1	No Gas	12703210.16	94.7
Tb	159	3	He	4953608.70	90.3
Ho	165	1	No Gas	12449607.71	93.6
Ho	165	3	He	4917235.50	90.1
Lu	175	1	No Gas	12047962.75	95.1
Lu	175	3	He	4043516.14	91.4
Bi	209	1	No Gas	7496485.43	91.0
Bi	209	3	He	3153135.06	87.3

ICPMS207-B Analytical Data

Sample Name B22030586-007B
File Name 094SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 13:14:12
Sample Type Sample
Total Dilution 1.0000
Comment ICPMS-6020-W-T
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.817	ug/l	34213.29
Be	9	45	1	No Gas	-0.007	ug/l	134.64
B	11	45	1	No Gas	53.165	ug/l	138392.64
Na	23	45	3	He	33034.708	ug/l	23188825.21
Mg	24	45	3	He	9514.233	ug/l	3679454.52
Al	27	45	1	No Gas	2.827	ug/l	65755.83
Si	28	45	2	H2	14937.186	ug/l	23550071.65
K	39	72	3	He	1683.933	ug/l	695752.46
Ca	40	72	2	H2	9252.484	ug/l	50636448.00
Ti	47	72	1	No Gas	2.401	ug/l	4924.12
V	51	72	1	No Gas	18.443	ug/l	464862.66
V	51	72	3	He	20.518	ug/l	81160.97
Cr	52	72	1	No Gas	3.969	ug/l	146955.35
Cr	52	72	3	He	2.872	ug/l	11229.90
Mn	55	72	1	No Gas	2.147	ug/l	71491.24
Mn	55	72	3	He	1.882	ug/l	4962.52
Fe	56	72	2	H2	14.082	ug/l	168037.34
Fe	56	72	3	He	12.900	ug/l	47962.75
Co	59	72	1	No Gas	0.173	ug/l	4678.16
Ni	60	72	1	No Gas	13.358	ug/l	75156.58
Ni	60	72	3	He	14.740	ug/l	20507.73
Cu	63	72	1	No Gas	0.997	ug/l	15915.71
Cu	63	72	3	He	0.615	ug/l	2478.39
Cu	65	72	1	No Gas	0.776	ug/l	5384.50
Zn	66	72	1	No Gas	9.601	ug/l	36736.70
Zn	66	72	3	He	9.806	ug/l	6869.43
As	75	72	1	No Gas	0.580	ug/l	13862.03
As	75	72	3	He	0.146	ug/l	189.20
Se	78	72	2	H2	0.195	ug/l	74.78
Br	79	72	1	No Gas	8.887	ug/l	146539.94
Br	79	72	2	H2	8.379	ug/l	59908.03
Se	82	72	1	No Gas	1.692	ug/l	966.90
Kr	84	72	1	No Gas		ug/l	36847.21
Sr	88	72	1	No Gas	67.200	ug/l	2485734.77
Sr	88	72	3	He	65.944	ug/l	257310.58
Mo	95	115	1	No Gas	0.548	ug/l	4704.14
Mo	95	115	3	He	0.600	ug/l	1585.65
Mo	98	115	1	No Gas	0.560	ug/l	7707.77
Ag	107	115	1	No Gas	0.003	ug/l	115.38
Ag	109	115	1	No Gas	0.002	ug/l	92.04
Cd	111	115	1	No Gas	0.008	ug/l	31.61

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	6.78
Cd	114	115	1	No Gas	0.004	ug/l	31.25
Cd	114	115	3	He	0.002	ug/l	8.50
Sn	118	115	1	No Gas	0.750	ug/l	10616.32
Sn	118	115	3	He	0.853	ug/l	2870.32
Sb	121	115	1	No Gas	0.081	ug/l	1618.92
Sb	121	115	3	He	0.095	ug/l	443.05
Sb	123	115	1	No Gas	0.084	ug/l	1264.85
Sb	123	115	3	He	0.096	ug/l	347.71
Ba	135	115	1	No Gas	2.854	ug/l	11661.78
Ba	137	115	1	No Gas	2.876	ug/l	20437.89
La	139	115	3	He	0.002	ug/l	46.67
Ce	140	115	3	He	0.003	ug/l	74.44
Hg	201	209	1	No Gas	0.014	ug/l	46.66
Hg	202	209	1	No Gas	0.019	ug/l	167.97
Hg	202	209	3	He	0.022	ug/l	70.65
Tl	203	209	3	He	0.046	ug/l	382.16
Tl	205	209	1	No Gas	0.030	ug/l	1516.77
Tl	205	209	3	He	0.046	ug/l	935.08
[Pb]	206	209	1	No Gas	0.027	ug/l	516.68
[Pb]	207	209	1	No Gas	0.028	ug/l	453.34
Pb	208	209	1	No Gas	0.026	ug/l	2047.86
Th	232	209	3	He	0.667	ug/l	16798.18
U	238	209	1	No Gas	0.012	ug/l	677.22

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4777760.28	83.0
Sc	45	2	H2	1880154.50	77.7
Sc	45	3	He	227128.22	71.0
Ge	72	1	No Gas	1051058.95	79.2
Ge	72	2	H2	561228.08	75.2
Ge	72	3	He	138509.93	73.8
In	115	1	No Gas	8267381.81	87.2
In	115	3	He	1713684.68	81.2
Tb	159	1	No Gas	11954803.03	89.1
Tb	159	3	He	4877668.17	88.9
Ho	165	1	No Gas	11989895.93	90.2
Ho	165	3	He	4873840.39	89.3
Lu	175	1	No Gas	11524379.81	91.0
Lu	175	3	He	3941171.40	89.1
Bi	209	1	No Gas	7267519.77	88.2
Bi	209	3	He	3087828.99	85.5

ICPMS207-B Analytical Data

Sample Name CCV
File Name 095_CC.V.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311\ADoDb.b
Acq Time 2022-03-12 13:20:26
Sample Type CCV
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	497.202	ug/l	6804088.89
Be	9	45	1	No Gas	38.728	ug/l	183131.69
B	11	45	1	No Gas	40.208	ug/l	103947.65
Na	23	45	3	He	11611.058	ug/l	8507275.92
Mg	24	45	3	He	11578.687	ug/l	4662012.24
Al	27	45	1	No Gas	43.986	ug/l	940335.31
Si	28	45	2	H2	243.694	ug/l	408801.37
K	39	72	3	He	10523.344	ug/l	4528497.09
Ca	40	72	2	H2	11795.545	ug/l	74464469.35
Ti	47	72	1	No Gas	43.783	ug/l	98784.86
V	51	72	1	No Gas	38.324	ug/l	1110151.72
V	51	72	3	He	43.994	ug/l	178176.72
Cr	52	72	1	No Gas	43.374	ug/l	1209558.01
Cr	52	72	3	He	44.511	ug/l	188065.02
Mn	55	72	1	No Gas	44.230	ug/l	1556194.03
Mn	55	72	3	He	45.363	ug/l	130114.14
Fe	56	72	2	H2	1219.643	ug/l	15948778.43
Fe	56	72	3	He	1166.605	ug/l	4372531.02
Co	59	72	1	No Gas	43.505	ug/l	1257929.28
Ni	60	72	1	No Gas	43.742	ug/l	277273.18
Ni	60	72	3	He	47.689	ug/l	73168.20
Cu	63	72	1	No Gas	44.756	ug/l	675687.77
Cu	63	72	3	He	47.817	ug/l	194446.29
Cu	65	72	1	No Gas	44.737	ug/l	324167.54
Zn	66	72	1	No Gas	44.814	ug/l	192148.35
Zn	66	72	3	He	47.842	ug/l	36751.83
As	75	72	1	No Gas	46.362	ug/l	220599.45
As	75	72	3	He	47.265	ug/l	27643.68
Se	78	72	2	H2	49.436	ug/l	19349.75
Br	79	72	1	No Gas	0.104	ug/l	81223.92
Br	79	72	2	H2	-0.085	ug/l	31768.69
Se	82	72	1	No Gas	50.016	ug/l	14898.11
Kr	84	72	1	No Gas		ug/l	45127.99
Sr	88	72	1	No Gas	47.850	ug/l	2002530.94
Sr	88	72	3	He	48.566	ug/l	209622.82
Mo	95	115	1	No Gas	44.737	ug/l	389316.44
Mo	95	115	3	He	46.677	ug/l	123857.14
Mo	98	115	1	No Gas	45.275	ug/l	634593.88
Ag	107	115	1	No Gas	18.131	ug/l	394113.41
Ag	109	115	1	No Gas	18.185	ug/l	380170.76
Cd	111	115	1	No Gas	45.818	ug/l	210329.11

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	49.035	ug/l	63771.32
Cd	114	115	1	No Gas	46.631	ug/l	474062.17
Cd	114	115	3	He	49.019	ug/l	156899.60
Sn	118	115	1	No Gas	46.880	ug/l	636377.80
Sn	118	115	3	He	48.241	ug/l	158654.48
Sb	121	115	1	No Gas	46.886	ug/l	902009.80
Sb	121	115	3	He	49.325	ug/l	221516.63
Sb	123	115	1	No Gas	47.039	ug/l	684216.14
Sb	123	115	3	He	49.666	ug/l	174996.06
Ba	135	115	1	No Gas	46.350	ug/l	198131.98
Ba	137	115	1	No Gas	46.977	ug/l	349413.42
La	139	115	3	He	49.626	ug/l	936038.54
Ce	140	115	3	He	49.615	ug/l	1021369.78
Hg	201	209	1	No Gas	0.889	ug/l	2507.41
Hg	202	209	1	No Gas	0.880	ug/l	5689.41
Hg	202	209	3	He	0.927	ug/l	2439.74
Tl	203	209	3	He	46.520	ug/l	350261.90
Tl	205	209	1	No Gas	45.602	ug/l	1964220.02
Tl	205	209	3	He	46.548	ug/l	839618.95
[Pb]	206	209	1	No Gas	46.718	ug/l	695750.94
[Pb]	207	209	1	No Gas	45.649	ug/l	600418.42
Pb	208	209	1	No Gas	46.056	ug/l	2776188.96
Th	232	209	3	He	45.800	ug/l	1177439.35
U	238	209	1	No Gas	45.845	ug/l	2800911.75

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4702126.28	81.7
Sc	45	2	H2	1939666.47	80.2
Sc	45	3	He	236491.99	73.9
Ge	72	1	No Gas	1188648.80	89.6
Ge	72	2	H2	647249.18	86.7
Ge	72	3	He	153162.57	81.6
In	115	1	No Gas	8663585.96	91.4
In	115	3	He	1805660.09	85.6
Tb	159	1	No Gas	12780083.49	95.3
Tb	159	3	He	4893863.33	89.2
Ho	165	1	No Gas	12614492.90	94.9
Ho	165	3	He	4934701.82	90.4
Lu	175	1	No Gas	12140822.06	95.8
Lu	175	3	He	4030972.45	91.2
Bi	209	1	No Gas	7713708.50	93.6
Bi	209	3	He	3170528.41	87.8

ICPMS207-B Analytical Data

Sample Name CCB
File Name 096_CCB.d
Data Path Name D:\Agilent\ICPMH\1\DATA\220311ADoDb.b
Acq Time 2022-03-12 13:26:40
Sample Type CCB
Total Dilution 1.0000
Comment ICPMS-6020-W-D
Operator CAR/SRH/JPV/AEM
Method SW6020/SW6020B

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Li	7	45	1	No Gas	1.213	ug/l	25285.73
Be	9	45	1	No Gas	-0.003	ug/l	150.97
B	11	45	1	No Gas	0.440	ug/l	4747.99
Na	23	45	3	He	32.289	ug/l	55518.53
Mg	24	45	3	He	5.026	ug/l	2139.25
Al	27	45	1	No Gas	0.004	ug/l	4647.42
Si	28	45	2	H2	32.757	ug/l	64956.01
K	39	72	3	He	-6.910	ug/l	49555.65
Ca	40	72	2	H2	1.088	ug/l	44188.28
Ti	47	72	1	No Gas	0.132	ug/l	452.13
V	51	72	1	No Gas	-0.339	ug/l	-26777.62
V	51	72	3	He	2.287	ug/l	20781.38
Cr	52	72	1	No Gas	0.204	ug/l	65835.68
Cr	52	72	3	He	-0.005	ug/l	280.00
Mn	55	72	1	No Gas	0.080	ug/l	8292.58
Mn	55	72	3	He	0.001	ug/l	96.65
Fe	56	72	2	H2	0.353	ug/l	13862.16
Fe	56	72	3	He	0.234	ug/l	5534.97
Co	59	72	1	No Gas	-0.001	ug/l	272.80
Ni	60	72	1	No Gas	0.043	ug/l	731.90
Ni	60	72	3	He	0.039	ug/l	145.56
Cu	63	72	1	No Gas	0.010	ug/l	3132.27
Cu	63	72	3	He	0.114	ug/l	697.54
Cu	65	72	1	No Gas	0.122	ug/l	1340.60
Zn	66	72	1	No Gas	-0.030	ug/l	344.77
Zn	66	72	3	He	-0.015	ug/l	66.67
As	75	72	1	No Gas	1.236	ug/l	18439.39
As	75	72	3	He	-0.012	ug/l	115.40
Se	78	72	2	H2	0.029	ug/l	20.67
Br	79	72	1	No Gas	0.311	ug/l	82350.29
Br	79	72	2	H2	0.643	ug/l	33745.78
Se	82	72	1	No Gas	2.251	ug/l	1236.42
Kr	84	72	1	No Gas		ug/l	30912.00
Sr	88	72	1	No Gas	0.002	ug/l	811.76
Sr	88	72	3	He	0.009	ug/l	320.01
Mo	95	115	1	No Gas	0.023	ug/l	367.78
Mo	95	115	3	He	0.001	ug/l	80.00
Mo	98	115	1	No Gas	0.019	ug/l	506.06
Ag	107	115	1	No Gas	0.001	ug/l	67.36
Ag	109	115	1	No Gas	0.001	ug/l	70.03
Cd	111	115	1	No Gas	0.009	ug/l	36.71

ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	7.00
Cd	114	115	1	No Gas	0.007	ug/l	62.63
Cd	114	115	3	He	0.004	ug/l	16.78
Sn	118	115	1	No Gas	0.120	ug/l	2625.06
Sn	118	115	3	He	0.114	ug/l	596.68
Sb	121	115	1	No Gas	0.147	ug/l	2984.29
Sb	121	115	3	He	0.123	ug/l	591.74
Sb	123	115	1	No Gas	0.149	ug/l	2279.08
Sb	123	115	3	He	0.125	ug/l	467.72
Ba	135	115	1	No Gas	-0.002	ug/l	23.29
Ba	137	115	1	No Gas	0.000	ug/l	49.90
La	139	115	3	He	0.000	ug/l	8.89
Ce	140	115	3	He	0.000	ug/l	12.22
Hg	201	209	1	No Gas	0.006	ug/l	29.33
Hg	202	209	1	No Gas	0.004	ug/l	84.31
Hg	202	209	3	He	0.004	ug/l	27.33
Tl	203	209	3	He	0.153	ug/l	1240.56
Tl	205	209	1	No Gas	0.093	ug/l	4433.00
Tl	205	209	3	He	0.151	ug/l	2940.84
[Pb]	206	209	1	No Gas	0.005	ug/l	218.89
[Pb]	207	209	1	No Gas	0.007	ug/l	210.00
Pb	208	209	1	No Gas	0.005	ug/l	902.24
Th	232	209	3	He	0.152	ug/l	4152.33
U	238	209	1	No Gas	0.002	ug/l	146.30

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4674595.25	81.2
Sc	45	2	H2	1917390.95	79.3
Sc	45	3	He	231448.77	72.3
Ge	72	1	No Gas	1176282.80	88.6
Ge	72	2	H2	624473.55	83.6
Ge	72	3	He	151105.06	80.5
In	115	1	No Gas	8716727.28	91.9
In	115	3	He	1804312.54	85.5
Tb	159	1	No Gas	12700747.70	94.7
Tb	159	3	He	4927010.01	89.8
Ho	165	1	No Gas	12521812.94	94.2
Ho	165	3	He	4926234.34	90.3
Lu	175	1	No Gas	12099888.52	95.5
Lu	175	3	He	3943575.34	89.2
Bi	209	1	No Gas	7888214.54	95.7
Bi	209	3	He	3282146.87	90.9

Energy Laboratories Inc

Spike LOG

Standard ID: ME220223 AUDIGSPK

Standard Name: AUDIGSPK

Date Prepared: 2/23/2022

Date Expires: 10/25/2022

Department: ME

Vendor:

Lot Number:

Balance ID:

Comments:

Type: Secondary

BY: Amanda E. McDani

Status: Open

Final Volume: 50 mL

Stock Source

ME211202A U Stock

ME220215 Th Sec Th Secondary Stock

ME211222 Ce 2nd Ce Secondary Stock

ME211222 La Sec La Secondary Stock

ME220103Au Au Stock

ME211025A Te Stock

Base Units

ug/mL

ug/mL

ug/mL

ug/mL

ug/mL

ug/mL

Amount Added

5 mL

5 mL

5 mL

5 mL

15 mL

15 mL

Analvtes

CAS

Conc:

ug/mL

Energy Laboratories Inc

Standard LOG

Standard ID: ME211025A
Standard Name: Te Stock
Date Prepared: 10/25/2021
Date Expires: 10/25/2022
Department: ME
Vendor: SCP Science
Lot Number: S200130018
Balance ID:
Comments: Opened 10/25/2021; Expires 10/25/2022

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
ICP/ICPMS Standard Tellurium	14418	500	mL	10/25

Final Volume: 500 mL

Stock Source

Base Units

Amount Added

Analyses

CAS

Conc: **ug/mL**

Te

1.0 DESCRIPTION: *PlasmaCAL ICP/ICPMS Standard - Tellurium 1000 µg/ml*
 Catalogue Number: 140-051-520/-521/-525
 Starting Material: Tellurium Metal 99.99+%
 Lot Number: **S210615004**
 Matrix: 10% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **June 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:
 Certified Concentration: **1005 µg/ml +/- 5 µg/ml**
958 µg/g +/- 5 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3156 Lot: **140830**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:
 Density: **1.049 g/ml @ 25.5 °C**
 Actual Matrix: **10.0% (v/v) HNO₃**

ID #: 14418
 Opened: _____
 ICP/ICPMS Standard Tellurium
Expires: 6/30/2023
 Rec'd: 10/20/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Trace Metal Impurities as tested by ICP-AES:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<0.0018	Nd	0.0449	Sn	<0.0010
Al	<0.0010	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	0.0184	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	N/A
Ba	<0.0010	Hg	*	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	0.0028	Ti	<0.0012
Bi	<0.0010	In	0.0020	Pt	<0.0010	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0020	Sb	<0.0010	Yb	<0.0010
Cu	<0.0010	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.1	Zr	<0.0010
Er	<0.0010	Na	<0.0025	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:
 Certification Approval: Daniel Boisvert, Chemist
 Certification Date: June 30, 2021

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP* : Pour l'étalonnage de instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA* : Pour l'étalonnage de spectromètres d'absorption atomique flamme (FAAS) et four au graphite (GFAA).
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice* : Pour l'optimisation des conditions analytiques afin de fournir des meilleurs réponses instrumentales et limites de détection pour SAA four au graphite.
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH* : Pour étalonnage de pH mètres et autres applications de chimie humide.
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité* : Comme étalon pour les mesures de conductivité électrolytiques.
 - IC Standards: For calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC* : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en presumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou au CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034: SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktberdorfer Straße 14, 87616
Marktberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME211202A
Standard Name: U Stock
Date Prepared: 12/2/2021
Date Expires: 12/2/2022
Department: ME
Vendor: SCP Science
Lot Number: S210517021
Balance ID:

Type: Primary
BY: Amanda E. McDani
Status: New

Comments:

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Uranium	14419	500	mL	12/2/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

U

1.0 DESCRIPTION:

PlasmaCAL ICP/ICPMS Standard - Uranium 1000 µg/ml
 Catalogue Number: 140-051-920/-921/-925
 Starting Material: Uranyl Nitrate 99.99%
 Lot Number: **S210517021**
 Matrix: 4% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **May 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1004 µg/ml +/- 4 µg/ml**
985 µg/g +/- 4 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3164 Lot: **080521**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:

Density: **1.020 g/ml @ 24.0 °C**
 Actual Matrix: **4.0% (v/v) HNO₃**

% abundance of stable isotopes : ²³⁸U : 99.82% ; ²³⁵U : 0.18%
 Note : The uranyl nitrate comes from a depleted source of uranium.

ID #: 14419

Opened: _____
 ICP/ICPMS Standard Uranium
Expires: 5/31/2023
 Rec'd: 10/20/2021
 Enerav Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<0.0018	Nd	<0.0010	Sn	<0.0010
Al	0.0252	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0026	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	N/A
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0020	Sb	<0.0010	Yb	<0.0010
Cu	<0.0010	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.0010	Zr	<0.0010
Er	<0.0010	Na	<0.0010	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Yaling Sui, Chemist
 Certification Date: May 27, 2021

Yaling Sui

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (FAAS) et four au graphite (GFAA).*
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.*
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH : Pour étalonnage de pH mètres et autres applications de chimie humide.*
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité : Comme étalon pour les mesures de conductivité électrolytiques.*
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en presumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

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CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
SILIC 642, 91965
Villebon sur Yvette, France
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME211222 LA SECOND SOURCE
Standard Name: La Secondary Stock
Date Prepared: 12/22/2021
Date Expires: 12/22/2022
Department: ME
Vendor: SCP Science
Lot Number: S210803016
Balance ID:
Comments: opened 12/22/2021, expires 12/22/2022

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Lanthanum PlasmaCal Standard	14326	125	mL	12/22/2022

Final Volume:
mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

La

1.0 DESCRIPTION: **PlasmaCAL ICP/ICPMS Standard - Lanthanum 1000 µg/ml**
 Catalogue Number: 140-051-570/-571/-575
 Starting Material: Lanthanum(III) Oxide 99.99+%
 Lot Number: **S210803016**
 Matrix: 4% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **August 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:
 Certified Concentration: **1005 µg/ml +/- 4 µg/ml**
985 µg/g +/- 3 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3127a Lot: **151030**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:
 Density: **1.020 g/ml @ 23.2 °C**
 Actual Matrix: **4.0% (v/v) HNO₃**

ID #: 14326

Opened: _____

Lanthanum PlasmaCal Standard

Expires: 8/31/2023

Rec'd: 9/29/2021

Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<0.0018	Nd	<0.0010	Sn	<0.0010
Al	0.0106	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	0.0889	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0026	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	0.0031	Hg	*	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0062
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	0.0169	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	0.0272	La	N/A	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	0.0020
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<0.0010	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.0010	Zr	<0.0010
Er	<0.0010	Na	0.0156	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
 Certification Date: August 12, 2021

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.*
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH : Pour étalonnage de pH mètres et autres applications de chimie humide.*
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité : Comme étalon pour les mesures de conductivité électrolytiques.*
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*
 For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

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Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou au CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

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CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktberdorfer Straße 14, 87616
Marktberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME211222 CE 2ND SOURCE
Standard Name: Ce Secondary Stock
Date Prepared: 12/22/2021
Date Expires: 12/22/2022
Department: ME
Vendor: SCP Science
Lot Number: S210208003
Balance ID:
Type: Primary
BY: Amanda E. McDani
Status: Open
Comments: opened 12/22/2021, expires 12/22/2022

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Cerium PlasmaCal Standard	14327	125	mL	12/22/2022

Final Volume:
125 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

A Cerium

7440-45-1

1000

Ce

1.0 DESCRIPTION: **PlasmaCAL ICP/ICPMS Standard - Cerium 1000 µg/ml**
 Catalogue Number: 140-051-580/-581/-585
 Starting Material: Cerium(III) Nitrate Hexahydrate 99.99+%
 Lot Number: **S210208003**
 Matrix: 4% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **February 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:
 Certified Concentration: **1003 µg/ml +/- 4 µg/ml**
982 µg/g +/- 4 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3110 Lot: **090504**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:
 Density: **1.021 g/ml @ 22.5 °C**
 Actual Matrix: **4.0% (v/v) HNO₃**
 Trace Metal Impurities as tested by ICP-MS:

ID #: 14327
 Opened: _____
 Cerium PlasmaCal Standard
Expires: 2/28/2023
 Rec'd: 9/29/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<0.0018	Nd	0.0102	Sn	<0.0010
Al	0.0148	Ga	0.0526	Ni	0.0064	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	0.0235	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	0.0375	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	N/A	La	<0.10	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0121	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.0010	Zr	<0.0010
Er	<0.0010	Na	<0.0010	Si	<0.10		
Eu	0.0035	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:
 Certification Approval: Yaling Sui, Chemist
 Certification Date: February 22, 2021

Yaling Sui

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (FAAS) et four au graphite (GFAA).*
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des meilleurs réponses instrumentales et limites de détection pour SAA four au graphite.*
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH : Pour étalonnage de pH mètres et autres applications de chimie humide.*
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité : Comme étalon pour les mesures de conductivité électrolytiques.*
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034: SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Québec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
SILIC 642, 91965
Villebon sur Yvette, France
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME220103AU
Standard Name: Au Stock
Date Prepared: 1/3/2022
Date Expires: 1/8/2023
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-AU706428
Balance ID:

Type: Primary
BY: Ron Hunt
Status: Open

Comments:

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Gold Single Analyte Custom Grade So	14213	500	mL	7/4/23

Final Volume: 500 mL

Stock Source

Base Units

Amount Added

Analtes

CAS

Conc: **ug/mL**

A Gold

7440-57-5

1000

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: Single Analyte Custom Grade Solution
Catalog Number: CGAU1
Lot Number: S2-AU706428
Matrix: 10% (v/v) HCl
Value / Analyte(s): 1 000 µg/mL ea:
Gold
Starting Material: HAuCl4
Starting Material Lot#: 2426
Starting Material Purity: 99.9985%

ID #: 14213

Opened: _____
Gold Single Analyte Custom Grade Solution
Expires: 7/4/2025
Rec'd: 8/27/2021
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 999 ± 6 µg/mL
Density: 1.021 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 999 ± 5 µg/mL
ICP Assay NIST SRM 3121 Lot Number: 170531

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$
 w_i = the weighting factors for each method calculated using the inverse square of the variance:
 $w_i = (1/u_{char i})^2 / (\sum(1/(u_{char i})^2))$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag	0.022000	M Eu <	0.000011	O Na	0.003500	M Se <	0.013000	M Zn	0.002700
M Al	0.000960	O Fe	0.001600	M Nb <	0.000011	O Si <	0.005000	M Zr <	0.000210
M As <	0.002100	M Ga <	0.000150	M Nd <	0.000011	M Sm <	0.000011		
s Au <		M Gd <	0.000011	M Ni <	0.000650	M Sn	0.000420		
O B <	0.003000	M Ge <	0.000130	M Os <	0.001200	M Sr <	0.000062		
M Ba <	0.000045	M Hf <	0.000011	M P <	0.026000	M Ta <	0.000011		
O Be <	0.000072	M Hg <	0.001200	M Pb <	0.000031	M Tb <	0.000011		
M Bi <	0.000011	M Ho <	0.000011	M Pd	0.001300	M Te <	0.000240		
O Ca	0.007500	M In <	0.000098	M Pr <	0.000011	M Th <	0.000190		
M Cd <	0.000021	M Ir <	0.000170	M Pt	0.005100	O Ti <	0.000380		
M Ce <	0.000041	M K <	0.004500	M Rb <	0.000011	M Tl <	0.000011		
M Co <	0.000038	M La <	0.000011	M Re <	0.000011	M Tm <	0.000011		
O Cr <	0.001600	O Li <	0.000079	M Rh	0.000070	M U <	0.000011		
M Cs <	0.000060	M Lu <	0.000011	M Ru <	0.000065	O V <	0.000710		
M Cu	0.002900	O Mg	0.000880	O S <	0.022000	M W <	0.000140		
M Dy <	0.000011	M Mn <	0.000130	M Sb <	0.000031	M Y <	0.000011		
M Er <	0.000011	M Mo <	0.000046	M Sc <	0.000120	M Yb <	0.000011		

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 196.97 +3 6 Au(Cl)₆

Chemical Compatibility - Stable in HCl, and HNO₃, as the chloride complex. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels. 2-10 ppb Au is stable for #1 day maximum in 1% HNO₃ / LDPE container. 100 ppb is stable for #2 days maximum in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 10% HCl / LDPE container.

Au Containing Samples (Preparation and Solution) - Metal (Aqua Regia); Oxides (Soluble in HCl); Ores (Dissolve in HCl / 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 197 amu	5 ppt	N/A	181Ta16O
ICP-OES 208.209 nm	0.04/0.01 µg/mL	1	Ir, Re
ICP-OES 242.795 nm	0.02/0.003 µg/mL	1	Mn, Os, Th, Ta, Pt, Co, F
ICP-OES 267.595 nm	0.03/0.003 µg/mL	1	Nb, Ta, U, Cr, Th, Rh, 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: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 04, 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

- **July 04, 2025**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME220215 TH SECONDARY STOCK
Standard Name: Th Seondary Stock
Date Prepared: 2/15/2022
Date Expires: 2/15/2023
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-TH706436
Balance ID:
Comments: Opened 2/15/2022; expires 2/15/2023

Type: Secondary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Thorium Single Analyste Custom Grad	13749	500	mL	2/15/

Final Volume: 500 mL

Stock Source

Base Units

Amount Added

Analvtes

CAS

Conc: **ug/mL**

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: CGTH1
 Lot Number: R2-TH698957
 Matrix: 5% (v/v) HNO3
 Value / Analyte(s): 1 000 µg/mL ea:
 Thorium
 Starting Material: TH(NO3)4*4H2O
 Starting Material Lot#: 2250
 Starting Material Purity: 99.9905%

ID #: 13749

Opened: _____
 Thorium Single Analyte Custom Grade Solut
Expires: 11/16/2024
 Rec'd: 4/12/2021
 Eneray Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1000 ± 4 µg/mL
Density: 1.026 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **1000 ± 3 µg/mL**
 EDTA NIST SRM 928 Lot Number: 928

Assay Method #2 **1002 ± 4 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:

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u^2_{char} + u^2_{bb} + u^2_{Its} + u^2_{ts})^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{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 ($\mu\text{g/mL}$)

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 < 0.000448	M Eu < 0.000224	O Na 0.064009	M Se < 0.005827	M Zn 0.003180
O Al 0.010950	M Fe 0.012379	M Nb < 0.003138	i Si <	M Zr < 0.010310
M As < 0.038776	M Ga < 0.004931	M Nd 0.004692	M Sm 0.000870	
M Au < 0.000224	M Gd 0.000300	M Ni < 0.006724	M Sn < 0.028242	
M B < 0.021293	M Ge < 0.008965	M Os < 0.000224	M Sr 0.002579	
M Ba 0.001315	M Hf < 0.000224	i P <	M Ta < 0.001344	
M Be < 0.000224	M Hg < 0.000448	M Pb 0.003283	M Tb < 0.001793	
M Bi < 0.001793	M Ho < 0.001344	M Pd < 0.000448	M Te < 0.010086	
O Ca 0.051913	M In 0.000134	M Pr 0.001201	s Th <	
M Cd < 0.001344	M Ir < 0.000224	M Pt < 0.000224	M Ti < 0.004258	
M Ce 0.015404	O K 0.028897	M Rb < 0.005155	M Tl < 0.000224	
M Co < 0.001344	M La 0.003573	M Re < 0.000224	M Tm < 0.000224	
M Cr < 0.015465	M Li < 0.000448	M Rh < 0.000224	M U 0.006557	
M Cs < 0.013896	M Lu < 0.000224	M Ru < 0.000224	M V < 0.001793	
M Cu 0.001470	O Mg 0.027885	i S <	M W < 0.000224	
M Dy 0.000196	M Mn 0.001812	M Sb < 0.004931	M Y 0.000859	
M Er < 0.002241	M Mo < 0.000896	M Sc < 0.000672	M Yb < 0.000224	

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 232.04 +4 8 Th(OH) 3+ and Th(OH)22+

Chemical Compatibility -Soluble in HCl, and HNO₃. Avoid H₃PO₄, H₂SO₄ and HF although solubilities may not be a problem depending upon pH and matrix (For example: ThF₄ is soluble in acids). Avoid neutral to basic media. Th⁴⁺ is stable with most metals and inorganic anions forming an insoluble carbonate, oxide, fluoride, oxalate, sulfate and phosphate in neutral to slightly acidic media.

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.

Th Containing Samples (Preparation and Solution) -Metal (Soluble in Aqua Regia); Oxide (The heated oxide is not soluble in acids except hot conc. H₂SO₄); Ores (Na₂O₂ fusion at 480 ± 20EC for 7 minutes, cool and treat sintered mass with 50 mL cold water and stand until disintegrated. The mass is transferred to a beaker and acidified with HCl with 25 mL excess HCl added. Any residue is collected on a Whatman No. 42 filter, dried and ignited to 1000 EC in PtO crucible and the ash treated with H₂SO₄ / HF and fumed. If residue remains, then treat it by peroxide fusion as above.)

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 232 amu	1 ppt	N/A	
ICP-OES 274.716 nm	0.08 / 0.008 µg/mL	1	Ti, Ta, Fe, V
ICP-OES 283.231 nm	0.07 / 0.007 µg/mL	1	U, Mo, Ti, Fe, Cr
ICP-OES 283.730 nm	0.07 / 0.007 µg/mL	1	U, Zr

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 16, 2020

- The certification is valid within the measurement uncertainty specified provided the CRM/WRM 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/WRM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 16, 2024**

- The date after which this CRM/WRM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/WRM can be supported by long term stability studies conducted on properly stored and handled CRM/WRMs. 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/WRM 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/WRM 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME220125 EL-MSICV-2
Standard Name: EL-MSICV-2
Date Prepared: 1/25/2022
Date Expires: 1/25/2023
Department: ME
Vendor: Inorganic Ventures
Lot Number: R2-MEB696849
Balance ID:
Comments: opened 1/25/2022, expires 1/25/2023

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Multi Analyte Custom Grade Solution	14673	500	mL	1/25/

Final Volume: mL

Stock Source

Base Units

Amount Added

Analtes

CAS

Conc: ug/mL

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: EL-MSICV-2
 Lot Number: R2-MEB696849
 Matrix: 3% (v/v) HNO₃
 tr. HF
 Value / Analyte(s):
 1 000 µg/mL ea:
 Silicon,
 100 µg/mL ea:
 Tin, Titanium,
 Molybdenum, Antimony

ID #: 14673

Opened:

Multi Analyte Custom Grade Solution

Expires: 9/14/2024

Rec'd: 12/28/2021

 Enerav Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.6 µg/mL	Molybdenum, Mo	100.0 ± 0.5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	99.9 ± 0.4 µg/mL
Titanium, Ti	99.9 ± 0.6 µg/mL		

Density: 1.019 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102a	140911
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	070330
Sn	Calculated		See Sec. 4.2
Ti	ICP Assay	3162a	130925

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRMRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMRM 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 ($\mu\text{g/mL}$)

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.

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, EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 14, 2020

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 14, 2024**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME220216 EL200.2MS
Standard Name: EL-200.2MS
Date Prepared: 2/16/2022
Date Expires: 2/16/2023
Department: ME
Vendor: Inorganic Ventures
Lot Number: P2-MEB685870
Balance ID:
Comments: opened 2/16/2022; expires 2/16/2023

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Multi Analyte Custom Grade Solution	14672	500	mL	2/16/

Final Volume: 500 mL

Stock Source

Base Units

Amount Added

Analtes

CAS

Conc: **ug/mL**

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: EL-200.2MS
 Lot Number: S2-MEB702960
 Matrix: 5% (v/v) HNO₃
 Value / Analyte(s):

5 000 µg/mL ea:	Calcium,	Potassium,
	Magnesium,	Sodium,
1 000 µg/mL ea:	Phosphorus,	
500 µg/mL ea:	Manganese,	Iron,
	Aluminum,	
100 µg/mL ea:	Arsenic,	Boron,
	Barium,	Cobalt,
	Chromium,	Copper,
	Lithium,	Nickel,
	Lead,	Selenium,
	Strontium,	Thallium,
	Vanadium,	Zinc,
50 µg/mL ea:	Cadmium,	Beryllium,
10 µg/mL ea:	Silver	

ID #: 14672
 Opened:
 Multi Analyte Custom Grade Solution
Expires: 3/8/2025
 Rec'd: 12/28/2021
 Enerqy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	499.9 ± 1.9 µg/mL	Arsenic, As	100.0 ± 0.8 µg/mL
Barium, Ba	100.0 ± 0.4 µg/mL	Beryllium, Be	50.01 ± 0.30 µg/mL
Boron, B	100.0 ± 0.7 µg/mL	Cadmium, Cd	50.01 ± 0.22 µg/mL
Calcium, Ca	5 000 ± 20 µg/mL	Chromium, Cr	100.0 ± 0.7 µg/mL
Cobalt, Co	100.0 ± 0.5 µg/mL	Copper, Cu	100.0 ± 0.4 µg/mL
Iron, Fe	499.8 ± 2.1 µg/mL	Lead, Pb	100.0 ± 0.5 µg/mL
Lithium, Li	100.0 ± 0.4 µg/mL	Magnesium, Mg	5 000 ± 20 µg/mL
Manganese, Mn	500.1 ± 2.0 µg/mL	Nickel, Ni	100.0 ± 0.5 µg/mL
Phosphorus, P	1 000 ± 6 µg/mL	Potassium, K	5 000 ± 19 µg/mL
Selenium, Se	100.0 ± 0.8 µg/mL	Silver, Ag	10.00 ± 0.05 µg/mL
Sodium, Na	5 000 ± 18 µg/mL	Strontium, Sr	100.0 ± 0.4 µg/mL
Thallium, Tl	100.0 ± 0.7 µg/mL	Vanadium, V	100.0 ± 0.5 µg/mL
Zinc, Zn	100.1 ± 0.4 µg/mL		

Density: 1.097 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
As	ICP Assay	3103a	100818
B	ICP Assay	3107	110830
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
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
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	3152a	120715
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	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, 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:

$$w_i = (1/u_{\text{char } i})^2 / (\sum(1/(u_{\text{char } j})^2))$$

$$\text{CRM/RM Expanded Uncertainty } (t) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

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

$$\text{CRM/RM Expanded Uncertainty } (t) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

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 ($\mu\text{g/mL}$)

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.

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

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, EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 08, 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

- **March 08, 2025**

- 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



Energy Laboratories Inc

Spike LOG

Standard ID: ME220309 AUDIGSPK
Standard Name: AUDIGSPK
Date Prepared: 3/9/2022
Date Expires: 10/25/2022
Department: ME
Vendor:
Lot Number:
Balance ID:
Comments:

Type: Secondary
BY: Jason E. Backes
Status: Open

<u>Stock Source</u>	<u>Base Units</u>	<u>Final Volume:</u>	<u>Amount Added</u>
ME211202A U Stock	ug/mL	50 mL	5 mL
ME220215 Th Sec Th Secondary Stock	ug/mL		5 mL
ME211222 Ce 2nd Ce Secondary Stock	ug/mL		5 mL
ME211222 La Sec La Secondary Stock	ug/mL		5 mL
ME220103Au Au Stock	ug/mL		15 mL
ME211025A Te Stock	ug/mL		15 mL
<u>Analvtes</u>	<u>CAS</u>	<u>Conc:</u>	<u>ug/mL</u>

Energy Laboratories Inc

Standard LOG

Standard ID: ME211025A
Standard Name: Te Stock
Date Prepared: 10/25/2021
Date Expires: 10/25/2022
Department: ME
Vendor: SCP Science
Lot Number: S200130018
Balance ID:
Comments: Opened 10/25/2021; Expires 10/25/2022

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
ICP/ICPMS Standard Tellurium	14418	500	mL	10/25

Final Volume: 500 mL

Stock Source

Base Units

Amount Added

Analvtes

CAS

Conc: **ug/mL**

Te

1.0 DESCRIPTION: *PlasmaCAL ICP/ICPMS Standard - Tellurium 1000 µg/ml*
 Catalogue Number: 140-051-520/-521/-525
 Starting Material: Tellurium Metal 99.99+%
 Lot Number: **S210615004**
 Matrix: 10% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **June 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:
 Certified Concentration: **1005 µg/ml +/- 5 µg/ml**
958 µg/g +/- 5 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3156 Lot: **140830**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:
 Density: **1.049 g/ml @ 25.5 °C**
 Actual Matrix: **10.0% (v/v) HNO₃**

ID #: 14418
 Opened:
 ICP/ICPMS Standard Tellurium
Expires: 6/30/2023
 Rec'd: 10/20/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Trace Metal Impurities as tested by ICP-AES:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<0.0018	Nd	0.0449	Sn	<0.0010
Al	<0.0010	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	0.0184	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	N/A
Ba	<0.0010	Hg	*	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	0.0028	Ti	<0.0012
Bi	<0.0010	In	0.0020	Pt	<0.0010	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0020	Sb	<0.0010	Yb	<0.0010
Cu	<0.0010	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.1	Zr	<0.0010
Er	<0.0010	Na	<0.0025	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:
 Certification Approval: Daniel Boisvert, Chemist
 Certification Date: June 30, 2021

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP* : Pour l'étalonnage de instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA* : Pour l'étalonnage de spectromètres d'absorption atomique flamme (FAAS) et four au graphite (GFAA).
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice* : Pour l'optimisation des conditions analytiques afin de fournir des meilleurs réponses instrumentales et limites de détection pour SAA four au graphite.
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH* : Pour étalonnage de pH mètres et autres applications de chimie humide.
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité* : Comme étalon pour les mesures de conductivité électrolytiques.
 - IC Standards: For calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC* : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en presumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034: SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktberdorfer Straße 14, 87616
Marktberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME211202A
Standard Name: U Stock
Date Prepared: 12/2/2021
Date Expires: 12/2/2022
Department: ME
Vendor: SCP Science
Lot Number: S210517021
Balance ID:
Comments:

Type: Primary
BY: Amanda E. McDani
Status: New

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Uranium	14419	500	mL	12/2/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

U

1.0 DESCRIPTION:

PlasmaCAL ICP/ICPMS Standard - Uranium 1000 µg/ml
 Catalogue Number: 140-051-920/-921/-925
 Starting Material: Uranyl Nitrate 99.99%
 Lot Number: **S210517021**
 Matrix: 4% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **May 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1004 µg/ml +/- 4 µg/ml**
985 µg/g +/- 4 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3164 Lot: **080521**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:

Density: **1.020 g/ml @ 24.0 °C**
 Actual Matrix: **4.0% (v/v) HNO₃**

% abundance of stable isotopes : ²³⁸U : 99.82% ; ²³⁵U : 0.18%
 Note : The uranyl nitrate comes from a depleted source of uranium.

ID #: 14419

Opened: _____
 ICP/ICPMS Standard Uranium
Expires: 5/31/2023
 Rec'd: 10/20/2021
 Enerav Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<0.0018	Nd	<0.0010	Sn	<0.0010
Al	0.0252	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0026	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	N/A
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0020	Sb	<0.0010	Yb	<0.0010
Cu	<0.0010	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.0010	Zr	<0.0010
Er	<0.0010	Na	<0.0010	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Yaling Sui, Chemist
 Certification Date: May 27, 2021

Yaling Sui

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (FAAS) et four au graphite (GFAA).*
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.*
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH : Pour étalonnage de pH mètres et autres applications de chimie humide.*
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité : Comme étalon pour les mesures de conductivité électrolytiques.*
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en presumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est appropriée à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034 : SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
SILIC 642, 91965
Villebon sur Yvette, France
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME211222 LA SECOND SOURCE
Standard Name: La Secondary Stock
Date Prepared: 12/22/2021
Date Expires: 12/22/2022
Department: ME
Vendor: SCP Science
Lot Number: S210803016
Balance ID:
Comments: opened 12/22/2021, expires 12/22/2022

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Lanthanum PlasmaCal Standard	14326	125	mL	12/22/2022

Final Volume:
mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

La

1.0 DESCRIPTION: **PlasmaCAL ICP/ICPMS Standard - Lanthanum 1000 µg/ml**
 Catalogue Number: 140-051-570/-571/-575
 Starting Material: Lanthanum(III) Oxide 99.99+%
 Lot Number: **S210803016**
 Matrix: 4% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **August 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:
 Certified Concentration: **1005 µg/ml +/- 4 µg/ml**
985 µg/g +/- 3 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3127a Lot: **151030**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:
 Density: **1.020 g/ml @ 23.2 °C**
 Actual Matrix: **4.0% (v/v) HNO₃**

ID #: 14326

Opened: _____

Lanthanum PlasmaCal Standard

Expires: 8/31/2023

Rec'd: 9/29/2021

Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<0.0018	Nd	<0.0010	Sn	<0.0010
Al	0.0106	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	0.0889	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0026	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	0.0031	Hg	*	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0062
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	0.0169	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	0.0272	La	N/A	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	0.0020
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<0.0010	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.0010	Zr	<0.0010
Er	<0.0010	Na	0.0156	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
 Certification Date: August 12, 2021

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*

- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*

- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.*

- pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH : Pour étalonnage de pH mètres et autres applications de chimie humide.*

- Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité : Comme étalon pour les mesures de conductivité électrolytiques.*

- IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*

For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en presumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou au CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034 : SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktberdorfer Straße 14, 87616
Marktberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME211222 CE 2ND SOURCE
Standard Name: Ce Secondary Stock
Date Prepared: 12/22/2021
Date Expires: 12/22/2022
Department: ME
Vendor: SCP Science
Lot Number: S210208003
Balance ID:
Type: Primary
BY: Amanda E. McDani
Status: Open
Comments: opened 12/22/2021, expires 12/22/2022

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Cerium PlasmaCal Standard	14327	125	mL	12/22/2022

Final Volume:
125 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

A Cerium

7440-45-1

1000

Ce

1.0 DESCRIPTION: **PlasmaCAL ICP/ICPMS Standard - Cerium 1000 µg/ml**
 Catalogue Number: 140-051-580/-581/-585
 Starting Material: Cerium(III) Nitrate Hexahydrate 99.99+%
 Lot Number: **S210208003**
 Matrix: 4% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **February 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:
 Certified Concentration: **1003 µg/ml +/- 4 µg/ml**
982 µg/g +/- 4 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3110 Lot: **090504**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:
 Density: **1.021 g/ml @ 22.5 °C**
 Actual Matrix: **4.0% (v/v) HNO₃**
 Trace Metal Impurities as tested by ICP-MS:

ID #: 14327
 Opened: _____
 Cerium PlasmaCal Standard
Expires: 2/28/2023
 Rec'd: 9/29/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<0.0018	Nd	0.0102	Sn	<0.0010
Al	0.0148	Ga	0.0526	Ni	0.0064	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	0.0235	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	0.0375	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	N/A	La	<0.10	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0121	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.0010	Zr	<0.0010
Er	<0.0010	Na	<0.0010	Si	<0.10		
Eu	0.0035	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:
 Certification Approval: Yaling Sui, Chemist
 Certification Date: February 22, 2021

Yaling Sui

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (FAAS) et four au graphite (GFAA).*
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des meilleurs réponses instrumentales et limites de détection pour SAA four au graphite.*
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH : Pour étalonnage de pH mètres et autres applications de chimie humide.*
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité : Comme étalon pour les mesures de conductivité électrolytiques.*
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

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Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034: SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Québec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
SILIC 642, 91965
Villebon sur Yvette, France
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME220103AU
Standard Name: Au Stock
Date Prepared: 1/3/2022
Date Expires: 1/8/2023
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-AU706428
Balance ID:

Type: Primary
BY: Ron Hunt
Status: Open

Comments:

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Gold Single Analyte Custom Grade So	14213	500	mL	7/4/23

Final Volume: 500 mL

Stock Source

Base Units

Amount Added

Analtes

CAS

Conc: **ug/mL**

A Gold

7440-57-5

1000

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: Single Analyte Custom Grade Solution
Catalog Number: CGAU1
Lot Number: S2-AU706428
Matrix: 10% (v/v) HCl
Value / Analyte(s): 1 000 µg/mL ea:
Gold
Starting Material: HAuCl4
Starting Material Lot#: 2426
Starting Material Purity: 99.9985%

ID #: 14213

Opened: _____
Gold Single Analyte Custom Grade Solution
Expires: 7/4/2025
Rec'd: 8/27/2021
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 999 ± 6 µg/mL
Density: 1.021 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 999 ± 5 µg/mL
ICP Assay NIST SRM 3121 Lot Number: 170531

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$
 w_i = the weighting factors for each method calculated using the inverse square of the variance:
 $w_i = (1/u_{char i})^2 / (\sum(1/(u_{char i})^2))$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k(u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag	0.022000	M Eu <	0.000011	O Na	0.003500	M Se <	0.013000	M Zn	0.002700
M Al	0.000960	O Fe	0.001600	M Nb <	0.000011	O Si <	0.005000	M Zr <	0.000210
M As <	0.002100	M Ga <	0.000150	M Nd <	0.000011	M Sm <	0.000011		
s Au <		M Gd <	0.000011	M Ni <	0.000650	M Sn	0.000420		
O B <	0.003000	M Ge <	0.000130	M Os <	0.001200	M Sr <	0.000062		
M Ba <	0.000045	M Hf <	0.000011	O P <	0.026000	M Ta <	0.000011		
O Be <	0.000072	M Hg <	0.001200	M Pb <	0.000031	M Tb <	0.000011		
M Bi <	0.000011	M Ho <	0.000011	M Pd	0.001300	M Te <	0.000240		
O Ca	0.007500	M In <	0.000098	M Pr <	0.000011	M Th <	0.000190		
M Cd <	0.000021	M Ir <	0.000170	M Pt	0.005100	O Ti <	0.000380		
M Ce <	0.000041	M K <	0.004500	M Rb <	0.000011	M Tl <	0.000011		
M Co <	0.000038	M La <	0.000011	M Re <	0.000011	M Tm <	0.000011		
O Cr <	0.001600	O Li <	0.000079	M Rh	0.000070	M U <	0.000011		
M Cs <	0.000060	M Lu <	0.000011	M Ru <	0.000065	O V <	0.000710		
M Cu	0.002900	O Mg	0.000880	O S <	0.022000	M W <	0.000140		
M Dy <	0.000011	M Mn <	0.000130	M Sb <	0.000031	M Y <	0.000011		
M Er <	0.000011	M Mo <	0.000046	M Sc <	0.000120	M Yb <	0.000011		

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 196.97 +3 6 Au(Cl)₆

Chemical Compatibility - Stable in HCl, and HNO₃, as the chloride complex. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels. 2-10 ppb Au is stable for #1 day maximum in 1% HNO₃ / LDPE container. 100 ppb is stable for #2 days maximum in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 10% HCl / LDPE container.

Au Containing Samples (Preparation and Solution) - Metal (Aqua Regia); Oxides (Soluble in HCl); Ores (Dissolve in HCl / 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 197 amu	5 ppt	N/A	181Ta16O
ICP-OES 208.209 nm	0.04/0.01 µg/mL	1	Ir, Re
ICP-OES 242.795 nm	0.02/0.003 µg/mL	1	Mn, Os, Th, Ta, Pt, Co, F
ICP-OES 267.595 nm	0.03/0.003 µg/mL	1	Nb, Ta, U, Cr, Th, Rh, 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: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 04, 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

- **July 04, 2025**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME220215 TH SECONDARY STOCK
Standard Name: Th Seondary Stock
Date Prepared: 2/15/2022
Date Expires: 2/15/2023
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-TH706436
Balance ID:
Comments: Opened 2/15/2022; expires 2/15/2023

Type: Secondary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Thorium Single Analyste Custom Grad	13749	500	mL	2/15/

Final Volume: 500 mL

Stock Source

Base Units

Amount Added

Analvtes

CAS

Conc: **ug/mL**

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: CGTH1
 Lot Number: R2-TH698957
 Matrix: 5% (v/v) HNO3
 Value / Analyte(s): 1 000 µg/mL ea:
 Thorium
 Starting Material: TH(NO3)4*4H2O
 Starting Material Lot#: 2250
 Starting Material Purity: 99.9905%

ID #: 13749

Opened: _____
 Thorium Single Analyte Custom Grade Solut
Expires: 11/16/2024
 Rec'd: 4/12/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1000 ± 4 µg/mL
Density: 1.026 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **1000 ± 3 µg/mL**
 EDTA NIST SRM 928 Lot Number: 928

Assay Method #2 **1002 ± 4 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:

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES ($\mu\text{g/mL}$)

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 < 0.000448	M Eu < 0.000224	O Na 0.064009	M Se < 0.005827	M Zn 0.003180
O Al 0.010950	M Fe 0.012379	M Nb < 0.003138	i Si <	M Zr < 0.010310
M As < 0.038776	M Ga < 0.004931	M Nd 0.004692	M Sm 0.000870	
M Au < 0.000224	M Gd 0.000300	M Ni < 0.006724	M Sn < 0.028242	
M B < 0.021293	M Ge < 0.008965	M Os < 0.000224	M Sr 0.002579	
M Ba 0.001315	M Hf < 0.000224	i P <	M Ta < 0.001344	
M Be < 0.000224	M Hg < 0.000448	M Pb 0.003283	M Tb < 0.001793	
M Bi < 0.001793	M Ho < 0.001344	M Pd < 0.000448	M Te < 0.010086	
O Ca 0.051913	M In 0.000134	M Pr 0.001201	s Th <	
M Cd < 0.001344	M Ir < 0.000224	M Pt < 0.000224	M Ti < 0.004258	
M Ce 0.015404	O K 0.028897	M Rb < 0.005155	M Tl < 0.000224	
M Co < 0.001344	M La 0.003573	M Re < 0.000224	M Tm < 0.000224	
M Cr < 0.015465	M Li < 0.000448	M Rh < 0.000224	M U 0.006557	
M Cs < 0.013896	M Lu < 0.000224	M Ru < 0.000224	M V < 0.001793	
M Cu 0.001470	O Mg 0.027885	i S <	M W < 0.000224	
M Dy 0.000196	M Mn 0.001812	M Sb < 0.004931	M Y 0.000859	
M Er < 0.002241	M Mo < 0.000896	M Sc < 0.000672	M Yb < 0.000224	

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 232.04 +4 8 Th(OH) 3+ and Th(OH)22+

Chemical Compatibility -Soluble in HCl, and HNO3. Avoid H3PO4, H2SO4 and HF although solubilities may not be a problem depending upon pH and matrix (For example: ThF4 is soluble in acids). Avoid neutral to basic media. Th4+ is stable with most metals and inorganic anions forming an insoluble carbonate, oxide, fluoride, oxalate, sulfate and phosphate in neutral to slightly acidic media.

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.

Th Containing Samples (Preparation and Solution) -Metal (Soluble in Aqua Regia); Oxide (The heated oxide is not soluble in acids except hot conc. H2SO4); Ores (Na2O2 fusion at 480 ± 20EC for 7 minutes, cool and treat sintered mass with 50 mL cold water and stand until disintegrated. The mass is transferred to a beaker and acidified with HCl with 25 mL excess HCl added. Any residue is collected on a Whatman No. 42 filter, dried and ignited to 1000 EC in Pt0 crucible and the ash treated with H2SO4 / HF and fumed. If residue remains, then treat it by peroxide fusion as above.)

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 232 amu	1 ppt	N/A	
ICP-OES 274.716 nm	0.08 / 0.008 µg/mL	1	Ti, Ta, Fe, V
ICP-OES 283.231 nm	0.07 / 0.007 µg/mL	1	U, Mo, Ti, Fe, Cr
ICP-OES 283.730 nm	0.07 / 0.007 µg/mL	1	U, Zr

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 16, 2020

- The certification is valid within the measurement uncertainty specified provided the CRM/WRM 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/WRM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 16, 2024**

- The date after which this CRM/WRM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/WRM can be supported by long term stability studies conducted on properly stored and handled CRM/WRMs. 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/WRM 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/WRM 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME220114A TUNE SOLUTION
Standard Name: Tune Solution
Date Prepared: 1/14/2022
Date Expires: 12/7/2022
Department: ME
Vendor:
Lot Number:
Balance ID:

Type: Secondary
BY: Stacy R. Hendricks
Status: Open

Comments: All elements except Be at 10 ppb. Be is spiked at 210 ppb.

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Nitric Acid, 69.0-70.0%,0000282671	14178	5	mL	4/11/
Milli-Q H2O	391	493	mL	6/1/2
Multi Analyte Custom Grade Solution	13795	0.5	mL	12/7/
Beryllium Single Analyte Custom Grad	14679	0.2	mL	9/17/

Final Volume: 500 mL

Stock Source

ME220114 TUNE S Tune Solution Stock

Base Units

ug/mL

Amount Added

1 mL

Analvtes

CAS

Conc: ug/mL

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: 2008TS
 Lot Number: R2-MEB691898
 Matrix: 3% (v/v) HNO3
 Value / Analyte(s): 10 µg/mL ea:
 Beryllium, Cobalt,
 Indium, Magnesium,
 Lead

ID #: 13795
 Opened: _____
 Multi Analyte Custom Grade Solution
Expires: 4/8/2024
 Rec'd: 4/29/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Beryllium, Be	10.01 ± 0.06 µg/mL	Cobalt, Co	10.01 ± 0.04 µg/mL
Indium, In	10.01 ± 0.04 µg/mL	Lead, Pb	10.01 ± 0.04 µg/mL
Magnesium, Mg	10.01 ± 0.05 µg/mL		

Density: 1.014 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Be	ICP Assay	3105a	090514
Co	EDTA	928	928
Co	ICP Assay	traceable to 3113	M2-CO661665
Co	Calculated		See Sec. 4.2
In	ICP Assay	3124a	110516
In	EDTA	928	928
In	Calculated		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mg	Calculated		See Sec. 4.2
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Pb	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:

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{ITS}}^2 + u_{\text{TS}}^2)^{1/2}$$

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 ($\mu\text{g/mL}$)

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 $4^\circ - 30^\circ \text{C}$ 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 $4^\circ - 24^\circ \text{C}$ to minimize the effects of transpiration. Use at $20^\circ \pm 4^\circ \text{C}$ 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

April 08, 2020

- 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

- **April 08, 2024**

- 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
Manager, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



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: Single Analyte Custom Grade Solution
 Catalog Number: CGBE1
 Lot Number: S2-BE708103
 Matrix: 3% (v/v) HNO₃
 Value / Analyte(s): 1 000 µg/mL ea:
 Beryllium
 Starting Material: Beryllium Acetate
 Starting Material Lot#: 2354
 Starting Material Purity: 99.9997%

ID #: 14679

 Opened: _____
 Beryllium Single Analyte Custom Grade Solut
Expires: 9/17/2026
 Rec'd: 12/28/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL
Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	1003 ± 5 µg/mL ICP Assay NIST SRM 3105a Lot Number: 090514
Assay Method #2	1002 ± 6 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES ($\mu\text{g/mL}$)

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 < 0.000940	M Eu < 0.000240	O Na 0.003944	M Se < 0.018000	O Zn 0.001126
M Al 0.005019	O Fe 0.001024	M Nb < 0.000240	O Si 0.021513	M Zr < 0.000470
M As < 0.005500	M Ga < 0.000710	M Ni < 0.000240	M Sm < 0.000240	
M Au < 0.000240	M Gd < 0.000240	M Ni 0.000240	M Sn < 0.003300	
M B < 0.045000	M Ge < 0.003100	M Os 0.000240	M Sr < 0.001900	
M Ba < 0.001900	M Hf < 0.000240	O P < 0.130000	M Ta < 0.000240	
s Be < 0.000240	M Hg < 0.000470	M Pb < 0.000470	M Tb < 0.000240	
M Bi < 0.003300	M Ho < 0.000240	M Pd < 0.000470	M Te < 0.009700	
O Ca 0.002919	M In < 0.001900	M Pr < 0.000240	M Th < 0.000240	
M Cd < 0.000470	M Ir < 0.000240	M Pt < 0.000240	O Ti < 0.003600	
M Ce < 0.000240	M K 0.004968	M Rb < 0.001500	M Tl < 0.000240	
O Co < 0.002100	M La < 0.000240	M Re < 0.000240	M Tm < 0.000240	
O Cr < 0.002100	M Li < 0.002200	M Rh < 0.000240	M U < 0.000240	
M Cs 0.000133	M Lu < 0.000240	M Ru < 0.000710	M V < 0.001500	
O Cu < 0.013000	O Mg 0.000819	i S < 0.000240	M W < 0.001700	
M Dy < 0.000240	O Mn < 0.001900	M Sb < 0.000940	M Y < 0.000940	
M Er < 0.000240	M Mo < 0.001700	M Sc < 0.003600	M Yb < 0.000240	

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 9.01 ; +2 ; 4 ; Be(H₂O)₄+2

Chemical Compatibility -Soluble in HCl, HNO₃, H₂SO₄ and HF aqueous matrices. Stable with all metals and inorganic anions.

Stability - 2-100 ppb levels stable for months in 1 % HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 5-10 % HNO₃ / LDPE container.

Be Containing Samples (Preparation and Solution) - Meta l(is best dissolved in diluted H₂SO₄); BeO (boiling nitric, hydrochloric, or sulfuric acids or KHSO₄ fusion); Ores (H₂SO₄/HF digestion or carbonate fusion in Pt0); Organic Matrices (sulfuric/peroxide digestion or nitric/sulfuric/perchloric acid decomposition, or dry ash and dissolution according to the BeO procedure above).

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 9 amu	4 ppt	N/A	
ICP-OES 234.861 nm	0.0003/0.00016 µg/mL	1	Fe, Ta, Mo
ICP-OES 313.042 nm	0.0003/0.00009 µg/mL	1	V, Ce, U
ICP-OES 313.107 nm	0.0007/0.0005 µg/mL	1	Ce, Th, Tm

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 17, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 17, 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME220114 TUNE STOCK
 Standard Name: Tune Solution Stock Type: Secondary
 Date Prepared: 1/14/2022 BY: Stacy R. Hendricks
 Date Expires: 12/22/2022
 Department: ME Status: Open
 Vendor:
 Lot Number:
 Balance ID:
 Comments: Solution is 1% HNO3 preserved

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Nitric Acid Instra Analyzed 000026478	13061	5	mL	5/12/
Milli-Q H2O	391	482.25	mL	6/1/2
Yittrium Single Analyte Custom Grade	14210	2.5	mL	1/25/
Cerium PlasmaCal Standard	14327	2.5	mL	12/22
Cobalt Single Analyte Custom Grade S	14683	2.5	mL	3/22/
Lithium Single Analyte Custom Grade	14687	2.5	mL	2/11/
Magnesium Single Analyte Custom Gr	14688	0.25	mL	4/23/
Thallium Single Analyte Custom Grade	14693	2.5	mL	8/5/2

Final Volume: 500 mL

Stock Source

Base Units

Amount Added

Analvtes

CAS

Conc: **ug/mL**

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: CGY1
Lot Number: S2-Y700840
Matrix: 2% (v/v) HNO₃
Value / Analyte(s): 1 000 µg/mL ea:
Yttrium
Starting Material: Yttrium Oxide
Starting Material Lot#: 623052
Starting Material Purity: 99.9991%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1000 ± 4 µg/mL
Density: 1.011 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	999 ± 3 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	1000 ± 5 µg/mL ICP Assay NIST SRM 3167a Lot Number: 120314
Assay Method #3	1001 ± 3 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.

ID #: 14210

Opened: _____

Yttrium Single Analyte Custom Grade Solution

Expires: 1/25/2025

Rec'd: 8/27/2021

Eneray Laboratories Inc 1120 So. 27th Street
Billings MT 59107

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$
 w_i = the weighting factors for each method calculated using the inverse square of the variance:
 $w_i = (1/u_{char i}^2) / (\sum(1/(u_{char i}^2)))$

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2
 $u_{char} = [\sum((w_i)^2 (u_{char i}^2))]^{1/2}$ where $u_{char i}$ are the errors from each characterization method
 u_{bb} = bottle to bottle homogeneity standard uncertainty
 u_{Its} = long term stability standard uncertainty (storage)
 u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with
 $u_{char a}$ = the standard uncertainty of characterization Method A

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2
 $u_{char a}$ = the errors from characterization
 u_{bb} = bottle to bottle homogeneity standard uncertainty
 u_{Its} = long term stability standard uncertainty (storage)
 u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an UHPA-Filtered Clean Room. An UHPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag < 0.038000	M Eu < 0.002235	O Na < 0.060000	M Se < 0.027000	O Zn < 0.002642
O Al < 0.016000	O Fe < 0.000193	M Nb < 0.000570	O Si < 0.003658	O Zr < 0.012000
M As < 0.002300	M Ga < 0.000570	M Nd < 0.000570	M Sm < 0.000570	
M Au < 0.008000	M Gd < 0.000570	M Ni < 0.004600	M Sn < 0.001800	
O B < 0.022000	M Ge < 0.001200	M Os < 0.000570	O Sr < 0.003100	
M Ba < 0.001200	M Hf < 0.000570	n P <	M Ta < 0.000570	
O Be < 0.002900	M Hg < 0.002900	M Pb < 0.000833	M Tb < 0.000570	
M Bi < 0.005600	M Ho < 0.001524	i Pd <	M Te < 0.006900	
O Ca < 0.000304	M In < 0.002500	M Pr < 0.000570	M Th < 0.000570	
M Cd < 0.000570	M Ir < 0.000570	M Pt < 0.000570	M Ti < 0.005700	
M Ce < 0.000570	O K < 0.001117	M Rb < 0.001400	M Tl < 0.000570	
M Co < 0.000570	M La < 0.000570	M Re < 0.000570	M Tm < 0.001200	
M Cr < 0.003500	O Li < 0.004200	M Rh < 0.011000	M U < 0.000570	
M Cs < 0.005700	M Lu < 0.000570	M Ru < 0.000570	O V < 0.013000	
M Cu < 0.000365	O Mg < 0.000223	n S <	M W < 0.006900	
M Dy < 0.000508	O Mn < 0.001400	M Sb < 0.000365	s Y <	
M Er < 0.000197	M Mo < 0.006200	O Sc < 0.011000	M Yb < 0.003500	

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 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>73Ge16O</u> , <u>178Hf+2</u>
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

January 25, 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

- **January 25, 2025**

- 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



Ce

1.0 DESCRIPTION: **PlasmaCAL ICP/ICPMS Standard - Cerium 1000 µg/ml**
 Catalogue Number: 140-051-580/-581/-585
 Starting Material: Cerium(III) Nitrate Hexahydrate 99.99+%
 Lot Number: **S210208003**
 Matrix: 4% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **February 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:
 Certified Concentration: **1003 µg/ml +/- 4 µg/ml**
982 µg/g +/- 4 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3110 Lot: **090504**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:
 Density: **1.021 g/ml @ 22.5 °C**
 Actual Matrix: **4.0% (v/v) HNO₃**
 Trace Metal Impurities as tested by ICP-MS:

ID #: 14327
 Opened: _____
 Cerium PlasmaCal Standard
Expires: 2/28/2023
 Rec'd: 9/29/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<0.0018	Nd	0.0102	Sn	<0.0010
Al	0.0148	Ga	0.0526	Ni	0.0064	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	0.0235	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	0.0375	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	N/A	La	<0.10	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0121	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.0010	Zr	<0.0010
Er	<0.0010	Na	<0.0010	Si	<0.10		
Eu	0.0035	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:
 Certification Approval: Yaling Sui, Chemist
 Certification Date: February 22, 2021

Yaling Sui

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (FAAS) et four au graphite (GFAA).*
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des meilleurs réponses instrumentales et limites de détection pour SAA four au graphite.*
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH : Pour étalonnage de pH mètres et autres applications de chimie humide.*
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité : Comme étalon pour les mesures de conductivité électrolytiques.*
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou au CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034: SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Québec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
SILIC 642, 91965
Villebon sur Yvette, France
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES ($\mu\text{g/mL}$)

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	<	0.001515	M	Eu	<	0.000590	O	Na	<	0.000778	M	Se	<	0.019000	M	Zn	<	0.000357
M	Al	<	0.024000	M	Fe	<	0.005262	M	Nb	<	0.000590	O	Si	<	0.007789	M	Zr	<	0.001200
i	As	<		M	Ga	<	0.000590	M	Nd	<	0.000590	M	Sm	<	0.000590				
M	Au	<	0.004100	M	Gd	<	0.000590	O	Ni	<	0.044207	M	Sn	<	0.001200				
M	B	<	0.031000	M	Ge	<	0.003000	M	Os	<	0.000590	O	Sr	<	0.000260				
M	Ba	<	0.000590	M	Hf	<	0.000590	n	P	<		M	Ta	<	0.001200				
O	Be	<	0.001300	M	Hg	<	0.001800	M	Pb	<	0.000336	M	Tb	<	0.000590				
M	Bi	<	0.003000	M	Ho	<	0.000590	M	Pd	<	0.000590	M	Te	<	0.005300				
O	Ca	<	0.001094	M	In	<	0.001200	M	Pr	<	0.000590	M	Th	<	0.000590				
M	Cd	<	0.004700	M	Ir	<	0.001200	M	Pt	<	0.002400	M	Ti	<	0.014000				
M	Ce	<	0.000590	O	K	<	0.000842	M	Rb	<	0.000590	M	Tl	<	0.000273				
s	Co	<		M	La	<	0.000590	M	Re	<	0.000590	M	Tm	<	0.000590				
M	Cr	<	0.021000	O	Li	<	0.000130	M	Rh	<	0.000590	M	U	<	0.000590				
M	Cs	<	0.002400	M	Lu	<	0.000590	M	Ru	<	0.007100	O	V	<	0.000880				
M	Cu	<	0.019577	O	Mg	<	0.000195	n	S	<		M	W	<	0.000590				
M	Dy	<	0.000590	M	Mn	<	0.001800	M	Sb	<	0.003600	M	Y	<	0.000590				
M	Er	<	0.000590	M	Mo	<	0.002400	O	Sc	<	0.001600	M	Yb	<	0.000590				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 58.93 +2 6 Co(H₂O)₆2+

Chemical Compatibility - Stable in HCl, HNO₃, H₂SO₄, HF, H₃PO₄. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO₃ / LDPE container.

Co Containing Samples (Preparation and Solution) - Metal (soluble in HNO₃); Oxides (Soluble in HCl); Ore (dissolve in HCl / 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 59 amu	2 ppt	n/a	42Ca16O1H , 40Ar18O1H , 36Ar23Na, 43Ca16O, 24Mg35Cl
ICP-OES 228.616 nm	0.01/0.001 µg/mL	1	
ICP-OES 237.862 nm	0.01/0.002 µg/mL	1	W, Re, Al, Ta
ICP-OES 238.892 nm	0.01/0.002 µg/mL	1	Fe, W, Ta

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

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: CGLI1
 Lot Number: S2-LI701641
 Matrix: 0.1% (v/v) HNO3
 Value / Analyte(s): 1 000 µg/mL ea:
 Lithium
 Starting Material: Lithium Carbonate
 Starting Material Lot#: 1613
 Starting Material Purity: 99.9962%

ID #: 14687
 Opened:
 Lithium Single Analyte Custom Grade Solution
Expires: 2/11/2025
 Rec'd: 12/28/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1000 ± 3 µg/mL
Density: 1.005 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	997 ± 4 µg/mL ICP Assay NIST SRM 3129a Lot Number: 100714
Assay Method #2	1000 ± 1 µg/mL Gravimetric NIST SRM Lot Number: See Sec. 4.2
Assay Method #3	1001 ± 3 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:

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES ($\mu\text{g/mL}$)

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 <	0.000500	M Eu <	0.000500	O Na	0.018534	M Se <	0.011000	M Zn	0.003494
O Al	0.000741	O Fe	0.004342	M Nb <	0.000500	M Si	0.111204	M Zr <	0.002000
M As <	0.011000	M Ga <	0.000500	M Nd <	0.000500	M Sm <	0.000500		
M Au <	0.010000	M Gd <	0.000500	M Ni <	0.007000	M Sn <	0.001000		
O B	0.000503	M Ge <	0.004500	M Os <	0.001000	M Sr	0.000243		
O Ba	0.000381	M Hf <	0.000500	O P <	0.045000	M Ta <	0.000500		
O Be	0.000046	M Hg <	0.000500	M Pb <	0.003000	M Tb <	0.000500		
M Bi <	0.000500	M Ho <	0.000500	M Pd <	0.000500	M Te <	0.005000		
O Ca	0.058249	M In <	0.000500	M Pr <	0.000500	M Th <	0.000500		
M Cd <	0.000500	M Ir <	0.000500	M Pt <	0.000500	M Ti <	0.002500		
M Ce <	0.000500	O K	0.029124	M Rb <	0.001000	M Tl <	0.000500		
M Co <	0.000500	M La <	0.000500	M Re <	0.000500	M Tm <	0.000500		
M Cr	0.000153	s Li <		M Rh <	0.000500	M U <	0.000500		
M Cs <	0.000500	M Lu <	0.000500	M Ru <	0.000500	M V	0.000953		
M Cu <	0.002000	O Mg	0.011649	O S	0.031772	M W <	0.001000		
M Dy <	0.000500	O Mn	0.000164	M Sb <	0.003000	M Y <	0.000500		
M Er <	0.000500	M Mo <	0.000500	M Sc <	0.001500	M Yb <	0.000500		

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 6.94 +1 (6) Li+(aq) large effective radius due to hydration sphere

Chemical Compatibility -Soluble in HCl, HNO₃, H₂SO₄ and HF aqueous matrices. Stable with all metals and inorganic anions.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO₃ / LDPE container.

Li Containing Samples (Preparation and Solution) -Metal (Dissolves very rapidly in water); Ores (Sodium carbonate fusion in Pt0 followed by HCl dissolution-blank levels of Li in sodium carbonate critical); Organic Matrices (Sulfuric / peroxide digestion or nitric / sulfuric / perchloric acid decomposition).

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 7 amu	10 ppt	n/a	
ICP-OES 323.261 nm	1.1 / 0.05 micro;g/mL	1	Sb, Th, Ni
ICP-OES 460.286 nm	0.9 / 0.04 µg/mL	1	Zr, Th
ICP-OES 670.784 nm	0.002 / 0.00002 µg/mL	1	2nd order radiation from R.E.s on some optical designs

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 11, 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

- **February 11, 2025**

- 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



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: Single Analyte Custom Grade Solution
Catalog Number: CGMG10
Lot Number: S2-MG704239
Matrix: 2% (v/v) HNO3
Value / Analyte(s): 10 000 µg/mL ea:
Magnesium
Starting Material: Magnesium Metal
Starting Material Lot#: 2168
Starting Material Purity: 99.9984%

ID #: 14688
Opened:
Magnesium Single Analyte Custom Grade Sol
Expires: 4/23/2025
Rec'd: 12/28/2021
Enerav Laboratories Inc 1120 So. 27th Street
Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10053 ± 30 µg/mL
Density: 1.053 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10022 ± 62 µg/mL ICP Assay NIST SRM 3131a Lot Number: 140110
Assay Method #2	10078 ± 26 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	10033 ± 26 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:

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O Ag	0.002106	M	Eu	<	0.000910	O Na	0.071075	O Se	<	0.048000	O Zn	0.003299		
M Al	0.003553	M	Fe		0.002538	M Nb	<	0.000460	O Si	<	0.032000	O Zr	<	0.002700
M As	<	0.001400	M Ga	<	0.000460	M Nd	<	0.000910	M Sm	<	0.000460			
M Au	<	0.001400	M Gd	<	0.000460	O Ni	<	0.001600	M Sn	<	0.002300			
O B	0.006853	M	Ge	<	0.001400	M Os	<	0.000460	O Sr		0.000279			
O Ba	0.000964	M	Hf	<	0.000460	O P		0.015230	M Ta	<	0.000460			
O Be	<	0.000120	M Hg	<	0.000460	M Pb	<	0.000460	M Tb	<	0.000460			
M Bi	<	0.000460	M Ho	<	0.000460	M Pd	<	0.003200	M Te	<	0.007300			
O Ca	0.053306	M	In	<	0.000460	M Pr	<	0.000460	M Th	<	0.000460			
O Cd	<	0.000360	M Ir	<	0.000460	M Pt	<	0.001900	O Ti	<	0.001700			
M Ce	<	0.002300	M K		0.048229	M Rb		0.002411	M Tl		0.003046			
M Co	<	0.000910	M La	<	0.002800	M Re	<	0.000460	M Tm	<	0.000460			
M Cr	<	0.002300	O Li		0.027922	M Rh	<	0.000460	M U	<	0.000460			
M Cs	0.001040	M	Lu	<	0.000460	M Ru	<	0.000460	M V	<	0.000460			
O Cu	<	0.003000	s Mg	<		O S	<	0.190000	M W	<	0.000460			
M Dy	<	0.000460	O Mn		0.015230	M Sb		0.020814	O Y	<	0.000720			
M Er	<	0.000460	M Mo	<	0.000910	O Sc	<	0.000480	M Yb	<	0.000460			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 24.31 +2 6 Mg(H₂O)₆+2
Chemical Compatibility -Soluble in HCl, HNO₃, and H₂SO₄ avoid HF, H₃PO₄ and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicates, carbonates, hydroxides, oxides, and tungstates in neutral and slightly acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-10% HNO₃ / LDPE container.

Mg Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO₃); Oxide (Readily soluble in above compatible aqueous acidic solutions); Ores (Carbonate fusion in Pt₀ followed by HCl dissolution); Organic Matrices (Sulfuric / peroxide digestion or nitric / sulfuric / perchloric acid decomposition, 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 24 amu	42 ppt	n/a	7Li17O, 48Ti+2 , 48Ca+2
ICP-OES 279.553 nm	0.0002 / 0.00003 µg/mL	1	Th
ICP-OES 280.270 nm	0.0003 / 0.00005 µg/mL	1	U, V
ICP-OES 285.213 nm	0.002 / 0.00003 µg/mL	1	U, Hf, Cr, Zr

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

April 23, 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

- **April 23, 2025**

- 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



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: CGTL1
 Lot Number: R2-TL694852
 Matrix: 1% (v/v) HNO3
 Value / Analyte(s): 1 000 µg/mL ea:
 Thallium
 Starting Material: TINO3
 Starting Material Lot#: 2118
 Starting Material Purity: 99.9998%

ID #: 14693
 Opened:
 Thallium Single Analyte Custom Grade Solution
Expires: 8/5/2024
 Rec'd: 12/28/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL
Density: 1.005 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **1003 ± 4 µg/mL**
 ICP Assay NIST SRM 3158 Lot Number: 151215

Assay Method #2 **1000 ± 7 µg/mL**
 Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$
 w_i = the weighting factors for each method calculated using the inverse square of the variance:
 $w_i = (1/u_{char i}^2) / (\sum(1/u_{char i}^2))$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2
 $u_{char} = (\sum((w_i)^2 (u_{char i})^2))^{1/2}$ where $u_{char i}$ are the errors from each characterization method
 u_{bb} = bottle to bottle homogeneity standard uncertainty
 u_{lts} = long term stability standard uncertainty (storage)
 u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with
 $u_{char a}$ = the standard uncertainty of characterization Method A

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2
 $u_{char a}$ = the errors from characterization
 u_{bb} = bottle to bottle homogeneity standard uncertainty
 u_{lts} = long term stability standard uncertainty (storage)
 u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag < 0.000200	M Eu < 0.000200	O Na < 0.000256	M Se < 0.011019	O Zn < 0.000236
O Al < 0.004184	O Fe < 0.002824	M Nb < 0.000200	O Si < 0.000387	M Zr < 0.000200
M As < 0.002003	M Ga < 0.000200	M ⁱ Nd < 0.000200	M Sm < 0.000200	
O Au < 0.002824	M Gd < 0.000200	M ⁱ Ni < 0.000177	M Sn < 0.000601	
O B < 0.004184	M Ge < 0.000801	M ⁱ Os < 0.000198	O Sr < 0.000313	
M Ba < 0.000400	M Hf < 0.000200	O P < 0.010460	M Ta < 0.000200	
O Be < 0.000104	M Hg < 0.000794	M Pb < 0.000083	M Tb < 0.000200	
M Bi < 0.005209	M Ho < 0.000200	M Pd < 0.000400	M Te < 0.005008	
O Ca < 0.000250	M In < 0.000200	M Pr < 0.000200	M Th < 0.000200	
M Cd < 0.000135	M Ir < 0.000198	M Pt < 0.000801	O Ti < 0.001255	
M Ce < 0.000200	O K < 0.000636	M Rb < 0.000200	s Tl <	
M Co < 0.000601	M La < 0.000200	M Re < 0.000200	M Tm < 0.000200	
M Cr < 0.000801	O Li < 0.000177	M Rh < 0.000200	M U < 0.000200	
M Cs < 0.003606	M Lu < 0.000200	M Ru < 0.000397	M V < 0.002203	
M Cu < 0.001001	O Mg < 0.000054	O S < 0.015690	M W < 0.000601	
M Dy < 0.000200	M Mn < 0.000801	M Sb < 0.000400	M Y < 0.000200	
M Er < 0.000200	M Mo < 0.001202	O Sc < 0.000711	M Yb < 0.000200	

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 204.38 + 16 Ti(H₂O)₆1+

Chemical Compatibility - Soluble in HCl, HNO₃, and H₂SO₄. Stable with most metals and inorganic anions. The sulfite, thiocyanate and oxalate are moderately soluble; the phosphate and arsenite are slightly soluble and the sulfide is insoluble.

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.

Ti Containing Samples (Preparation and Solution) -Metal (Best dissolved in HNO₃ which forms chiefly the Ti³⁺ ion.); Oxide (The thalious oxide is readily soluble in water. The thallic oxide requires high levels of acid); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in 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 205 amu	2 ppt	N/A	189Os16O
ICP-OES 190.864 nm	0.04 / 0.004 µg/mL	1	V, Ti
ICP-OES 276.787 nm	0.1 / 0.01 µg/mL	1	Ta, V, Fe, Cr
ICP-OES 351.924 nm	0.2 / 0.02 µg/mL	1	Th, Ce, Zr

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 05, 2020

- 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 05, 2024**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME220112A 1000 PPB STANDARD
 Standard Name: 1000 PPB Standard
 Date Prepared: 1/12/2022
 Date Expires: 11/18/2022
 Department: ME
 Vendor:
 Lot Number:
 Balance ID:
 Comments: Made fresh daily

Type: Secondary
 BY: Cindy Rohrer
 Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	48.25	mL	6/1/2100

Final Volume:
 50 mL

Stock Source

ME211208 MSCAL MSCAL 2B
 ME211118 MSCAL EL-MSCAL-5A
 ME211229A AU 2n Au 2nd source Stock

Base Units

ug/mL
 ug/mL
 ug/mL

Amount Added

0.5 mL
 0.5 mL
 0.01 mL

Analytes

CAS

Conc: **mg/L**

Energy Laboratories Inc

Standard LOG

Standard ID: ME211208 MSCAL2B
Standard Name: MSCAL 2B
Date Prepared: 12/8/2021
Date Expires: 12/8/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-MEB704403
Balance ID:
Comments: Opened 12/08/2021; Expires 12/08/2022

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Multi Analyte Custom Grade Solution	13793		mL	12/8/2022

Final Volume:
mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

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1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	EL-MSCAL-2B
Lot Number:	S2-MEB704403
Matrix:	5% (v/v) HNO ₃
Value / Analyte(s):	100 µg/mL ea: Aluminum, Arsenic, Boron, Barium, Beryllium, Cadmium, Cobalt, Chromium, Copper, Iron, Manganese, Nickel, Lead, Selenium, Strontium, Thorium, Thallium, Uranium, Vanadium, Zinc, 40 µg/mL ea: Silver

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ID #: 13793

Opened: _____

Multi Analyte Custom Grade Solution
Expires: 4/21/2025

Rec'd: 4/29/2021

 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	100.0 ± 0.4 µg/mL	Arsenic, As	100.0 ± 0.9 µg/mL
Barium, Ba	100.0 ± 0.5 µg/mL	Beryllium, Be	100.0 ± 0.7 µg/mL
Boron, B	100.0 ± 0.7 µg/mL	Cadmium, Cd	100.0 ± 0.5 µg/mL
Chromium, Cr	100.0 ± 0.8 µg/mL	Cobalt, Co	100.0 ± 0.6 µg/mL
Copper, Cu	100.0 ± 0.5 µg/mL	Iron, Fe	100.1 ± 0.4 µg/mL
Lead, Pb	100.0 ± 0.6 µg/mL	Manganese, Mn	100.0 ± 0.5 µg/mL
Nickel, Ni	100.0 ± 0.6 µg/mL	Selenium, Se	100.0 ± 0.7 µg/mL
Silver, Ag	39.99 ± 0.18 µg/mL	Strontium, Sr	100.0 ± 0.4 µg/mL
Thallium, Tl	100.0 ± 0.6 µg/mL	Thorium, Th	100.0 ± 0.5 µg/mL
Uranium, U	100.0 ± 0.5 µg/mL	Vanadium, V	100.0 ± 0.5 µg/mL
Zinc, Zn	100.0 ± 0.5 µg/mL		

Density: 1.033 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
As	ICP Assay	3103a	100818
B	ICP Assay	3107	110830
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Cd	ICP Assay	3108	130116
Cd	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
Fe	Calculated		See Sec. 4.2
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Sr	Calculated		See Sec. 4.2
Th	EDTA	928	928
Th	Calculated		See Sec. 4.2
Tl	ICP Assay	3158	151215
U	ICP Assay	3164	080521
U	Calculated		See Sec. 4.2
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u^2_{char} + u^2_{bb} + u^2_{Its} + u^2_{ts})^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Certified Abundance:

IV's Certified Abundance

Isotope

Uranium 238U

Uranium 235U

Atom %

99.8 ± 0.1

0.24 ± 0.05

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{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

April 21, 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

- **April 21, 2025**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME211118 MSCAL-5A
Standard Name: EL-MSCAL-5A
Date Prepared: 11/18/2021
Date Expires: 11/18/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: P2-MEB687200
Balance ID:
Comments: Opened 11/18/2021; Expires 11/18/2022

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Multi Analyte Custom Grade Solution	13175	500	mL	11/18/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

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: EL-MSCAL-5A

Lot Number: P2-MEB687200

Matrix: 3% (v/v) HNO₃

Value / Analyte(s):

5 000 µg/mL ea:	Calcium,	Potassium,	Magnesium,
	Sodium,		
500 µg/mL ea:	Phosphorus,	Iron,	
250 µg/mL ea:	Lithium		

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Calcium, Ca	5 000 ± 20 µg/mL	Iron, Fe	499.9 ± 2.1 µg/mL
Lithium, Li	250.0 ± 1.1 µg/mL	Magnesium, Mg	5 000 ± 21 µg/mL
Phosphorus, P	499.8 ± 2.5 µg/mL	Potassium, K	5 000 ± 18 µg/mL
Sodium, Na	5 000 ± 18 µg/mL		

Density: 1.076 g/mL (measured at 20 ± 4 °C)

Assay Information:

ID #: 13175
 Opened: _____
 Multi Analyte Custom Grade Solution
Expires: 12/2/2023
 Rec'd: 10/12/2020
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	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
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES ($\mu\text{g/mL}$)

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 outer bag.

- While stored in the sealed outer bag, transpiration of this CRM/RM is negligible. After opening the sealed outer 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 outer 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.

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, EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 02, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **December 02, 2023**

- 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 outer 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
Manager, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



Energy Laboratories Inc

Standard LOG

Standard ID: ME211229A AU 2ND SOURCE
Standard Name: Au 2nd source Stock
Date Prepared: 12/29/2021
Date Expires: 12/29/2022
Department: ME
Vendor: SCP Science
Lot Number: S211129013
Balance ID:
Comments: opened 12/29/2021; expires 12/29/2022

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Gold	14710	500	mL	12/29/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

ID #: 14710

Opened:

ICP/ICPMS Standard Gold

Expires: 12/31/2023

Rec'd: 12/29/2021

Eneray Laboratories Inc 1120 So. 27th Street

Billings MT 59107

SCP SCIENC

Providing Innovative Solutions to Analytical

Certificate of Analysis**Au****1.0 DESCRIPTION:****PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Catalogue Number: 140-052-790/-791/-795

Starting Material: Gold Metal 99.99+%

Lot Number: **S211129013**

Matrix: 10% HCl (See Section 3 for actual matrix)

Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)**2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:**Certified Concentration: **1001 µg/ml +/- 4 µg/ml****982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:Density: **1.019 g/ml @ 22.4 °C**Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	0.3851	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	0.0062	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	N/A	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	0.0434	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	0.0048	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	0.0362	Re	<0.0010	U	<0.0010
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	0.0029	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0023	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.01	Zr	<0.0010
Er	<0.0010	Na	0.0070	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist

Certification Date: December 10, 2021

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP* : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA* : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice* : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.
- pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH* : Pour étalonnage de pH mètres et autres applications de chimie humide.
- Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité* : Comme étalon pour les mesures de conductivité électrolytiques.
- IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC* : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.
For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en presumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034: SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME220112 100 PPB STANDARD
 Standard Name: 100 ppb Standard
 Date Prepared: 1/12/2022
 Date Expires: 11/18/2022
 Department: ME
 Vendor: Inorganic Ventures
 Lot Number:
 Balance ID:
 Comments: Made Fresh Daily

Type: Secondary
 BY: Cindy Rohrer
 Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	48.335	mL	6/1/2100

Final Volume:
50 mL

<u>Stock Source</u>	<u>Base Units</u>	<u>Amount Added</u>
ME211221 MSCAL MSCAL 3C	ug/mL	0.05 mL
ME211118 MSCAL EL-MSCAL-5A	ug/mL	0.25 mL
ME220105 HgPrim Primary Hg Stock 2 PPM	ug/mL	0.05 mL
ME211208 MSCAL MSCAL 2B	ug/mL	0.05 mL
ME211229A AU 2n Au 2nd source Stock	ug/mL	0.01 mL
ME220110 Ce, La Ce, La Primary	ug/mL	0.05 mL

<u>Analytes</u>	<u>CAS</u>	Conc:	<u>mg/L</u>
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Energy Laboratories Inc

Standard LOG

Standard ID: ME211221 MSCAL 3C
Standard Name: MSCAL 3C
Date Prepared: 12/21/2021
Date Expires: 12/21/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-MEB700780
Balance ID:
Comments: Opened 12/21/21; expires 12/21/22

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Multi Analyte Custom Grade Solution	13473	250	mL	12/21/2022

Final Volume:
250 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

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: EL-MSCAL-3C
 Lot Number: S2-MEB700780
 Matrix: 3% (v/v) HNO₃
 tr. HF
 Value / Analyte(s): 400 µg/mL ea:
 Silicon,
 100 µg/mL ea:
 Tin,
 Molybdenum,
 Titanium,
 Antimony

1-6-2025

ID #: 13473

Opened: _____

Multi Analyte Custom Grade Solution

Expires: 1/6/2025

Rec'd: 1/15/2021

Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.8 µg/mL	Molybdenum, Mo	100.0 ± 0.6 µg/mL
Silicon, Si	399.9 ± 3.0 µg/mL	Tin, Sn	100.0 ± 0.6 µg/mL
Titanium, Ti	100.0 ± 0.7 µg/mL		

Density: 1.018 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102a	140911
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 ($\mu\text{g/mL}$)

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° \pm 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

January 06, 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

- **January 06, 2025**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME211118 MSCAL-5A
Standard Name: EL-MSCAL-5A
Date Prepared: 11/18/2021
Date Expires: 11/18/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: P2-MEB687200
Balance ID:
Comments: Opened 11/18/2021; Expires 11/18/2022

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Multi Analyte Custom Grade Solution	13175	500	mL	11/18/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

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: EL-MSCAL-5A

Lot Number: P2-MEB687200

Matrix: 3% (v/v) HNO₃

Value / Analyte(s):

5 000 µg/mL ea:	Calcium,	Potassium,	Magnesium,
	Sodium,		
500 µg/mL ea:	Phosphorus,	Iron,	
250 µg/mL ea:	Lithium		

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Calcium, Ca	5 000 ± 20 µg/mL	Iron, Fe	499.9 ± 2.1 µg/mL
Lithium, Li	250.0 ± 1.1 µg/mL	Magnesium, Mg	5 000 ± 21 µg/mL
Phosphorus, P	499.8 ± 2.5 µg/mL	Potassium, K	5 000 ± 18 µg/mL
Sodium, Na	5 000 ± 18 µg/mL		

Density: 1.076 g/mL (measured at 20 ± 4 °C)

Assay Information:

ID #: 13175
 Opened: _____
 Multi Analyte Custom Grade Solution
Expires: 12/2/2023
 Rec'd: 10/12/2020
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	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
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES ($\mu\text{g/mL}$)

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 outer bag.

- While stored in the sealed outer bag, transpiration of this CRM/RM is negligible. After opening the sealed outer 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 outer 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.

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, EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 02, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **December 02, 2023**

- 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 outer 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
Manager, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



Energy Laboratories Inc

Spike LOG

Standard ID: ME220105 HGPRIMARY
Standard Name: Primary Hg Stock 2 PPM
Date Prepared: 1/5/2022
Date Expires: 12/29/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Type: Secondary
BY: Amanda E. McDani
Status: Open
Comments: Made with different HG stock than QCS

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027

Final Volume:
25 mL

Stock Source

ME220110HG HG Stock
ME211229A AU 2N Au 2nd source Stock

Base Units

ug/mL
ug/mL

Amount Added

0.05 mL
0.05 mL

Analytes

CAS

Conc: ug/mL

Energy Laboratories Inc

Standard LOG

Standard ID: ME220110HG
Standard Name: HG Stock
Date Prepared: 1/10/2022
Date Expires: 1/10/2023
Department: ME
Vendor: SCP Science
Lot Number: S210729017
Balance ID:
Comments:

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Mercury	14711	125	mL	1/10/2023

Final Volume:
125 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

ID #: 14711

Opened: _____

ICP/ICPMS Standard Mercury

Expires: 7/31/2023

Rec'd: 12/29/2021

Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107**SCP SCIENCE**

Providing Innovative Solutions to Analytical Chemists

rtificate of Analysis**Hg****1.0 DESCRIPTION:**

PlasmaCAL ICP/ICPMS Standard - Mercury 1000 µg/ml
 Catalogue Number: 140-051-800/-801/-805
 Starting Material: Mercury(II) oxide 99.99+%
 Lot Number: **S210729017**
 Matrix: 10% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **July 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **999 µg/ml +/- 5 µg/ml**
952 µg/g +/- 5 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3133 Lot: **160921**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:

Density: **1.050 g/ml @ 23.6 °C**
 Actual Matrix: **10.0% (v/v) HNO₃**

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	0.0322	Nd	<0.0010	Sn	<0.0010
Al	0.0042	Ga	<0.0010	Ni	0.0039	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	N/A	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	0.0117
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	0.0112	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0060	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.0010	Zr	<0.0010
Er	<0.0010	Na	0.0092	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
 Certification Date: August 12, 2021

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP: Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA: Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice: Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.*
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH: Pour étalonnage de pH mètres et autres applications de chimie humide.*
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité: Comme étalon pour les mesures de conductivité électrolytiques.*
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC: Pour étalonnage d'instruments tels que: IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034: SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktberdorfer Straße 14, 87616
Marktberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

CORPORATE :

Phone: +1 (514) 457-0701 | Fax: +1 (514) 457-4499

www.scpscience.com | sales@scpscience.com

Energy Laboratories Inc

Standard LOG

Standard ID: ME211229A AU 2ND SOURCE
Standard Name: Au 2nd source Stock
Date Prepared: 12/29/2021
Date Expires: 12/29/2022
Department: ME
Vendor: SCP Science
Lot Number: S211129013
Balance ID:
Comments: opened 12/29/2021; expires 12/29/2022

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Gold	14710	500	mL	12/29/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

ID #: 14710

Opened:

ICP/ICPMS Standard Gold

Expires: 12/31/2023

Rec'd: 12/29/2021

Eneray Laboratories Inc 1120 So. 27th Street

Billings MT 59107

SCP SCIENC

Providing Innovative Solutions to Analytical

Certificate of Analysis**Au****1.0 DESCRIPTION:****PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Catalogue Number: 140-052-790/-791/-795

Starting Material: Gold Metal 99.99%+

Lot Number: **S211129013**

Matrix: 10% HCl (See Section 3 for actual matrix)

Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)**2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:**Certified Concentration: **1001 µg/ml +/- 4 µg/ml****982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:Density: **1.019 g/ml @ 22.4 °C**Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	0.3851	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	0.0062	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	N/A	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	0.0434	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	0.0048	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	0.0362	Re	<0.0010	U	<0.0010
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	0.0029	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0023	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.01	Zr	<0.0010
Er	<0.0010	Na	0.0070	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist

Certification Date: December 10, 2021

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP* : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA* : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice* : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.
- pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH* : Pour étalonnage de pH mètres et autres applications de chimie humide.
- Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité* : Comme étalon pour les mesures de conductivité électrolytiques.
- IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC* : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.
For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 meghom/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 meghom/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

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CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME211208 MSCAL2B
Standard Name: MSCAL 2B
Date Prepared: 12/8/2021
Date Expires: 12/8/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-MEB704403
Balance ID:
Comments: Opened 12/08/2021; Expires 12/08/2022

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Multi Analyte Custom Grade Solution	13793		mL	12/8/2022

Final Volume:
mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

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: EL-MSCAL-2B
 Lot Number: S2-MEB704403
 Matrix: 5% (v/v) HNO3
 Value / Analyte(s):
 100 µg/mL ea:
 Aluminum, Arsenic,
 Boron, Barium,
 Beryllium, Cadmium,
 Cobalt, Chromium,
 Copper, Iron,
 Manganese, Nickel,
 Lead, Selenium,
 Strontium, Thorium,
 Thallium, Uranium,
 Vanadium, Zinc,
 40 µg/mL ea:
 Silver

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ID #: 13793

Opened: _____

Multi Analyte Custom Grade Solution

Expires: 4/21/2025

Rec'd: 4/29/2021

Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	100.0 ± 0.4 µg/mL	Arsenic, As	100.0 ± 0.9 µg/mL
Barium, Ba	100.0 ± 0.5 µg/mL	Beryllium, Be	100.0 ± 0.7 µg/mL
Boron, B	100.0 ± 0.7 µg/mL	Cadmium, Cd	100.0 ± 0.5 µg/mL
Chromium, Cr	100.0 ± 0.8 µg/mL	Cobalt, Co	100.0 ± 0.6 µg/mL
Copper, Cu	100.0 ± 0.5 µg/mL	Iron, Fe	100.1 ± 0.4 µg/mL
Lead, Pb	100.0 ± 0.6 µg/mL	Manganese, Mn	100.0 ± 0.5 µg/mL
Nickel, Ni	100.0 ± 0.6 µg/mL	Selenium, Se	100.0 ± 0.7 µg/mL
Silver, Ag	39.99 ± 0.18 µg/mL	Strontium, Sr	100.0 ± 0.4 µg/mL
Thallium, Tl	100.0 ± 0.6 µg/mL	Thorium, Th	100.0 ± 0.5 µg/mL
Uranium, U	100.0 ± 0.5 µg/mL	Vanadium, V	100.0 ± 0.5 µg/mL
Zinc, Zn	100.0 ± 0.5 µg/mL		

Density: 1.033 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
As	ICP Assay	3103a	100818
B	ICP Assay	3107	110830
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Cd	ICP Assay	3108	130116
Cd	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
Fe	Calculated		See Sec. 4.2
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Sr	Calculated		See Sec. 4.2
Th	EDTA	928	928
Th	Calculated		See Sec. 4.2
Tl	ICP Assay	3158	151215
U	ICP Assay	3164	080521
U	Calculated		See Sec. 4.2
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u^2_{char} + u^2_{bb} + u^2_{Its} + u^2_{ts})^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Certified Abundance:

IV's Certified Abundance

Isotope

Uranium 238U

Uranium 235U

Atom %

99.8 ± 0.1

0.24 ± 0.05

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{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

April 21, 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

- **April 21, 2025**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME211229A AU 2ND SOURCE
Standard Name: Au 2nd source Stock
Date Prepared: 12/29/2021
Date Expires: 12/29/2022
Department: ME
Vendor: SCP Science
Lot Number: S211129013
Balance ID:
Comments: opened 12/29/2021; expires 12/29/2022

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Gold	14710	500	mL	12/29/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

ID #: 14710

Opened:

ICP/ICPMS Standard Gold

Expires: 12/31/2023

Rec'd: 12/29/2021

Eneray Laboratories Inc 1120 So. 27th Street

Billings MT 59107

SCP SCIENC

Providing Innovative Solutions to Analytical

Certificate of Analysis**Au****1.0 DESCRIPTION:****PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Catalogue Number: 140-052-790/-791/-795

Starting Material: Gold Metal 99.99%+

Lot Number: **S211129013**

Matrix: 10% HCl (See Section 3 for actual matrix)

Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)**2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:**Certified Concentration: **1001 µg/ml +/- 4 µg/ml****982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:Density: **1.019 g/ml @ 22.4 °C**Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	0.3851	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	0.0062	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	N/A	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	0.0434	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	0.0048	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	0.0362	Re	<0.0010	U	<0.0010
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	0.0029	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0023	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.01	Zr	<0.0010
Er	<0.0010	Na	0.0070	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist

Certification Date: December 10, 2021

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP* : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA* : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice* : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH* : Pour étalonnage de pH mètres et autres applications de chimie humide.
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité* : Comme étalon pour les mesures de conductivité électrolytiques.
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC* : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.
- For any inquiries, please contact **SCP SCIENCE**. / Pour toute question, veuillez contacter **SCP SCIENCE**.

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034: SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME220110 CE, LA PRIMARY
Standard Name: Ce, La Primary Type: Secondary
Date Prepared: 1/10/2022 BY: Amanda E. McDani
Date Expires: 1/6/2023
Department: ME Status: Open
Vendor: Inorganic Ventures
Lot Number: M2-CE657768/M2-
Balance ID:
Comments: Used to make standards and spiking solutions; No primary La available

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	39.5	mL	6/1/2100

Final Volume:
50 mL

Stock Source

ME220106-CE Ce Primary Stock

Base Units

ug/mL

Amount Added

5 mL

Analytes

CAS

Conc: ug/mL

Energy Laboratories Inc

Standard LOG

Standard ID: ME220112 50 PPB STANDARD_CCV
 Standard Name: 50 ppb Standard/CCV
 Date Prepared: 1/12/2022
 Date Expires: 11/18/2022
 Department: ME
 Vendor: Inorganic Ventures
 Lot Number:
 Balance ID:
 Comments: Made Fresh Daily

Type: Secondary
 BY: Cindy Rohrer
 Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	48.335	mL	6/1/2100

Final Volume:
100 mL

Stock Source

ME211221 MSCAL MSCAL 3C
 ME211118 MSCAL EL-MSCAL-5A
 ME220105 HgPrim Primary Hg Stock 2 PPM
 ME211208 MSCAL MSCAL 2B
 ME211229A AU 2n Au 2nd source Stock
 ME220110 Ce, La Ce, La Primary

Base Units

ug/mL
 ug/mL
 ug/mL
 ug/mL
 ug/mL
 ug/mL

Amount Added

0.05 mL
 0.25 mL
 0.05 mL
 0.05 mL
 0.01 mL
 0.05 mL

Analytes

CAS

Conc: **mg/L**

Energy Laboratories Inc

Standard LOG

Standard ID: ME211221 MSCAL 3C
Standard Name: MSCAL 3C
Date Prepared: 12/21/2021
Date Expires: 12/21/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-MEB700780
Balance ID:
Comments: Opened 12/21/21; expires 12/21/22

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Multi Analyte Custom Grade Solution	13473	250	mL	12/21/2022

Final Volume:
250 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

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: EL-MSCAL-3C
 Lot Number: S2-MEB700780
 Matrix: 3% (v/v) HNO₃
 tr. HF
 Value / Analyte(s): 400 µg/mL ea:
 Silicon,
 100 µg/mL ea:
 Tin,
 Molybdenum,

1-6-2025

ID #: 13473
 Opened: _____
 Multi Analyte Custom Grade Solution
Expires: 1/6/2025
 Rec'd: 1/15/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Titanium,
 Antimony

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.8 µg/mL	Molybdenum, Mo	100.0 ± 0.6 µg/mL
Silicon, Si	399.9 ± 3.0 µg/mL	Tin, Sn	100.0 ± 0.6 µg/mL
Titanium, Ti	100.0 ± 0.7 µg/mL		

Density: 1.018 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102a	140911
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 ($\mu\text{g/mL}$)

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° \pm 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

January 06, 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

- **January 06, 2025**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME211118 MSCAL-5A
Standard Name: EL-MSCAL-5A
Date Prepared: 11/18/2021
Date Expires: 11/18/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: P2-MEB687200
Balance ID:
Comments: Opened 11/18/2021; Expires 11/18/2022

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Multi Analyte Custom Grade Solution	13175	500	mL	11/18/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

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: EL-MSCAL-5A
 Lot Number: P2-MEB687200
 Matrix: 3% (v/v) HNO₃
 Value / Analyte(s): 5 000 µg/mL ea:
 Calcium, Potassium, Magnesium,
 Sodium,
 500 µg/mL ea:
 Phosphorus, Iron,
 250 µg/mL ea:
 Lithium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Calcium, Ca	5 000 ± 20 µg/mL	Iron, Fe	499.9 ± 2.1 µg/mL
Lithium, Li	250.0 ± 1.1 µg/mL	Magnesium, Mg	5 000 ± 21 µg/mL
Phosphorus, P	499.8 ± 2.5 µg/mL	Potassium, K	5 000 ± 18 µg/mL
Sodium, Na	5 000 ± 18 µg/mL		

Density: 1.076 g/mL (measured at 20 ± 4 °C)

Assay Information:

ID #: 13175
 Opened: _____
 Multi Analyte Custom Grade Solution
Expires: 12/2/2023
 Rec'd: 10/12/2020
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	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
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{Its}^2 + u_{Ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{Ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{Its}^2 + u_{Ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{Ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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 outer bag.

- While stored in the sealed outer bag, transpiration of this CRM/RM is negligible. After opening the sealed outer 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 outer 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.

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, EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 02, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **December 02, 2023**

- 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 outer 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
Manager, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



Energy Laboratories Inc

Spike LOG

Standard ID: ME220105 HGPRIMARY
Standard Name: Primary Hg Stock 2 PPM
Date Prepared: 1/5/2022
Date Expires: 12/29/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Type: Secondary
BY: Amanda E. McDani
Status: Open
Comments: Made with different HG stock than QCS

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027

Final Volume:
25 mL

Stock Source

ME220110HG HG Stock
ME211229A AU 2N Au 2nd source Stock

Base Units

ug/mL
ug/mL

Amount Added

0.05 mL
0.05 mL

Analytes

CAS

Conc: ug/mL

Energy Laboratories Inc

Standard LOG

Standard ID: ME220110HG
Standard Name: HG Stock
Date Prepared: 1/10/2022
Date Expires: 1/10/2023
Department: ME
Vendor: SCP Science
Lot Number: S210729017
Balance ID:
Comments:

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Mercury	14711	125	mL	1/10/2023

Final Volume:
125 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

ID #: 14711

Opened: _____

ICP/ICPMS Standard Mercury

Expires: 7/31/2023

Rec'd: 12/29/2021

Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

SCP SCIENCE

Providing Innovative Solutions to Analytical Chemists

rtificate of Analysis

Hg

1.0 DESCRIPTION:

PlasmaCAL ICP/ICPMS Standard - Mercury 1000 µg/ml
 Catalogue Number: 140-051-800/-801/-805
 Starting Material: Mercury(II) oxide 99.99+%
 Lot Number: **S210729017**
 Matrix: 10% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **July 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **999 µg/ml +/- 5 µg/ml**
952 µg/g +/- 5 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3133 Lot: **160921**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:

Density: **1.050 g/ml @ 23.6 °C**
 Actual Matrix: **10.0% (v/v) HNO₃**

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	0.0322	Nd	<0.0010	Sn	<0.0010
Al	0.0042	Ga	<0.0010	Ni	0.0039	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	N/A	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	0.0117
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	0.0112	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0060	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.0010	Zr	<0.0010
Er	<0.0010	Na	0.0092	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
 Certification Date: August 12, 2021

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP* : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA* : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice* : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH* : Pour étalonnage de pH mètres et autres applications de chimie humide.
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité* : Comme étalon pour les mesures de conductivité électrolytiques.
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC* : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034 : SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktberdorfer Straße 14, 87616
Marktberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME211229A AU 2ND SOURCE
Standard Name: Au 2nd source Stock
Date Prepared: 12/29/2021
Date Expires: 12/29/2022
Department: ME
Vendor: SCP Science
Lot Number: S211129013
Balance ID:
Comments: opened 12/29/2021; expires 12/29/2022

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Gold	14710	500	mL	12/29/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

ID #: 14710

Opened:

ICP/ICPMS Standard Gold

Expires: 12/31/2023

Rec'd: 12/29/2021

Eneray Laboratories Inc 1120 So. 27th Street

Billings MT 59107

SCP SCIENC

Providing Innovative Solutions to Analytical

Certificate of Analysis**Au****1.0 DESCRIPTION:****PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Catalogue Number: 140-052-790/-791/-795

Starting Material: Gold Metal 99.99%+

Lot Number: **S211129013**

Matrix: 10% HCl (See Section 3 for actual matrix)

Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)**2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:**Certified Concentration: **1001 µg/ml +/- 4 µg/ml****982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:Density: **1.019 g/ml @ 22.4 °C**Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	0.3851	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	0.0062	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	N/A	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	0.0434	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	0.0048	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	0.0362	Re	<0.0010	U	<0.0010
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	0.0029	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0023	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.01	Zr	<0.0010
Er	<0.0010	Na	0.0070	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist

Certification Date: December 10, 2021

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP* : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA* : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice* : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.
- pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH* : Pour étalonnage de pH mètres et autres applications de chimie humide.
- Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité* : Comme étalon pour les mesures de conductivité électrolytiques.
- IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC* : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.
For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 meghom/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 meghom/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034: SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME211208 MSCAL2B
Standard Name: MSCAL 2B
Date Prepared: 12/8/2021
Date Expires: 12/8/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-MEB704403
Balance ID:
Comments: Opened 12/08/2021; Expires 12/08/2022

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Multi Analyte Custom Grade Solution	13793		mL	12/8/2022

Final Volume:
mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

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: EL-MSCAL-2B
Lot Number: S2-MEB704403
Matrix: 5% (v/v) HNO₃
Value / Analyte(s):
100 µg/mL ea:
Aluminum, Arsenic,
Boron, Barium,
Beryllium, Cadmium,
Cobalt, Chromium,
Copper, Iron,
Manganese, Nickel,
Lead, Selenium,
Strontium, Thorium,
Thallium, Uranium,
Vanadium, Zinc,
40 µg/mL ea:
Silver

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ID #: 13793

Opened: _____

Multi Analyte Custom Grade Solution

Expires: 4/21/2025

Rec'd: 4/29/2021

Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	100.0 ± 0.4 µg/mL	Arsenic, As	100.0 ± 0.9 µg/mL
Barium, Ba	100.0 ± 0.5 µg/mL	Beryllium, Be	100.0 ± 0.7 µg/mL
Boron, B	100.0 ± 0.7 µg/mL	Cadmium, Cd	100.0 ± 0.5 µg/mL
Chromium, Cr	100.0 ± 0.8 µg/mL	Cobalt, Co	100.0 ± 0.6 µg/mL
Copper, Cu	100.0 ± 0.5 µg/mL	Iron, Fe	100.1 ± 0.4 µg/mL
Lead, Pb	100.0 ± 0.6 µg/mL	Manganese, Mn	100.0 ± 0.5 µg/mL
Nickel, Ni	100.0 ± 0.6 µg/mL	Selenium, Se	100.0 ± 0.7 µg/mL
Silver, Ag	39.99 ± 0.18 µg/mL	Strontium, Sr	100.0 ± 0.4 µg/mL
Thallium, Tl	100.0 ± 0.6 µg/mL	Thorium, Th	100.0 ± 0.5 µg/mL
Uranium, U	100.0 ± 0.5 µg/mL	Vanadium, V	100.0 ± 0.5 µg/mL
Zinc, Zn	100.0 ± 0.5 µg/mL		

Density: 1.033 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
As	ICP Assay	3103a	100818
B	ICP Assay	3107	110830
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Cd	ICP Assay	3108	130116
Cd	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
Fe	Calculated		See Sec. 4.2
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Sr	Calculated		See Sec. 4.2
Th	EDTA	928	928
Th	Calculated		See Sec. 4.2
Tl	ICP Assay	3158	151215
U	ICP Assay	3164	080521
U	Calculated		See Sec. 4.2
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u^2_{char} + u^2_{bb} + u^2_{Its} + u^2_{ts})^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Certified Abundance:

IV's Certified Abundance

Isotope

Uranium 238U

Uranium 235U

Atom %

99.8 ± 0.1

0.24 ± 0.05

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{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 ($\mu\text{g/mL}$)

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

April 21, 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

- **April 21, 2025**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME211229A AU 2ND SOURCE
Standard Name: Au 2nd source Stock
Date Prepared: 12/29/2021
Date Expires: 12/29/2022
Department: ME
Vendor: SCP Science
Lot Number: S211129013
Balance ID:
Comments: opened 12/29/2021; expires 12/29/2022

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Gold	14710	500	mL	12/29/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

ID #: 14710

Opened:

ICP/ICPMS Standard Gold

Expires: 12/31/2023

Rec'd: 12/29/2021

Eneray Laboratories Inc 1120 So. 27th Street

Billings MT 59107

SCP SCIENC

Providing Innovative Solutions to Analytical

Certificate of Analysis**Au****1.0 DESCRIPTION:****PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Catalogue Number: 140-052-790/-791/-795

Starting Material: Gold Metal 99.99%+

Lot Number: **S211129013**

Matrix: 10% HCl (See Section 3 for actual matrix)

Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)**2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:**Certified Concentration: **1001 µg/ml +/- 4 µg/ml****982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:Density: **1.019 g/ml @ 22.4 °C**Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	0.3851	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	0.0062	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	N/A	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	0.0434	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	0.0048	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	0.0362	Re	<0.0010	U	<0.0010
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	0.0029	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0023	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.01	Zr	<0.0010
Er	<0.0010	Na	0.0070	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist

Certification Date: December 10, 2021

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP* : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA* : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice* : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.
- pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH* : Pour étalonnage de pH mètres et autres applications de chimie humide.
- Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité* : Comme étalon pour les mesures de conductivité électrolytiques.
- IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC* : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.
For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

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CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME220110 CE, LA PRIMARY
Standard Name: Ce, La Primary Type: Secondary
Date Prepared: 1/10/2022 BY: Amanda E. McDani
Date Expires: 1/6/2023
Department: ME Status: Open
Vendor: Inorganic Ventures
Lot Number: M2-CE657768/M2-
Balance ID:
Comments: Used to make standards and spiking solutions; No primary La available

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	39.5	mL	6/1/2100

Final Volume:
50 mL

Stock Source

ME220106-CE Ce Primary Stock

Base Units

ug/mL

Amount Added

5 mL

Analytes

CAS

Conc: ug/mL

Energy Laboratories Inc

Standard LOG

Standard ID: ME220112 10 PPB STANDARD
Standard Name: 10 ppb Standard
Date Prepared: 1/12/2022
Date Expires: 11/18/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Comments: Made Fresh Daily

Type: Secondary
BY: Cindy Rohrer
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	48.335	mL	6/1/2100

Final Volume:
50 mL

Stock Source
ME220112 100 PP 100 ppb Standard

Base Units
ug/mL

Amount Added
5 mL

Analytes

CAS

Conc: **mg/L**

Energy Laboratories Inc

Standard LOG

Standard ID: ME220112 1 PPB STANDARD
Standard Name: 1 ppb Standard
Date Prepared: 1/12/2022
Date Expires: 11/18/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Comments: Made Fresh Daily

Type: Secondary
BY: Cindy Rohrer
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	48.335	mL	6/1/2100

Final Volume:
50 mL

Stock Source
ME220112 10 PPB 10 ppb Standard

Base Units
ug/mL

Amount Added
5 mL

Analytes

CAS

Conc: **mg/L**

Energy Laboratories Inc

Standard LOG

Standard ID: ME220112 0.5 PPB STANDARD
Standard Name: 0.5 ppb Standard
Date Prepared: 1/12/2022
Date Expires: 11/18/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Comments: Made Fresh Daily

Type: Secondary
BY: Cindy Rohrer
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	48.335	mL	6/1/2100

Final Volume:
50 mL

Stock Source
ME220112 10 PPB 10 ppb Standard

Base Units
ug/mL

Amount Added
2.5 mL

Analytes

CAS

Conc: **mg/L**

Energy Laboratories Inc

Standard LOG

Standard ID: ME220112 0.1 PPB STANDARD
Standard Name: 0.1 ppb Standard
Date Prepared: 1/12/2022
Date Expires: 11/18/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Comments: Made Fresh Daily

Type: Secondary
BY: Cindy Rohrer
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	48.335	mL	6/1/2100

Final Volume:
50 mL

Stock Source

ME220112 1 PPB 1 ppb Standard

Base Units

ug/mL

Amount Added

5 mL

Analytes

CAS

Conc: **mg/L**

Energy Laboratories Inc

Standard LOG

Standard ID: ME220112 0.05 PPB STANDARD
Standard Name: 0.5 ppb Standard
Date Prepared: 1/12/2022
Date Expires: 11/18/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Comments: Made Fresh Daily

Type: Secondary
BY: Cindy Rohrer
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	48.335	mL	6/1/2100

Final Volume:
50 mL

Stock Source
ME220112 0.5 PP 0.5 ppb Standard

Base Units
ug/mL

Amount Added
5 mL

Analytes

CAS

Conc: **mg/L**

Energy Laboratories Inc

Standard LOG

Standard ID: ME220112 0.025 PPB STANDARD
Standard Name: 0.025 ppb Standard
Date Prepared: 1/12/2022
Date Expires: 11/18/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Comments: Made Fresh Daily

Type: Secondary
BY: Cindy Rohrer
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	48.335	mL	6/1/2100

Final Volume:
50 mL

Stock Source
ME220112 0.5 PP 0.5 ppb Standard

Base Units
ug/mL

Amount Added
2.5 mL

Analytes

CAS

Conc: **mg/L**

Energy Laboratories Inc

Standard LOG

Standard ID: ME211206 ICV STANDARD
 Standard Name: ICV for ICPMS Standards
 Date Prepared: 12/6/2021
 Date Expires: 4/30/2022
 Department:
 Vendor:
 Lot Number:
 Balance ID:
 Comments: Made fresh daily

Type: Secondary
 BY: Stacy R. Hendricks
 Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Hydrochloric Acid Instra Analyzed 000	14028	1	mL	3/29/
Nitric Acid Instra Analyzed 000028856	14572	2	mL	6/28/
Milli-Q H2O	391		mL	6/1/2

Final Volume: 100 mL

<u>Stock Source</u>	Base Units	Amount Added
ME210211 U Seco U 2' QCS	ug/mL	0.05 mL
ME211206 Th QC Th QCS Stock	ug/mL	0.05 mL
ME210901 Hg Sec Secondary Hg Stock 2 PPM	ug/mL	0.05 mL
ME211124 EL-MSI EL-MSICV-2	ug/mL	0.05 mL
ME210817 ICV-1A EL-MSICV-1A	ug/mL	0.05 mL
ME210903 Ce, La Ce, La Secondary solution	ug/mL	0.05 mL

Analvtes **CAS** Conc: **mg/L**

Energy Laboratories Inc

Spike LOG

Standard ID: ME210211 U SECOND SOURCE
Standard Name: U 2' QCS
Date Prepared: 2/11/2021
Date Expires: 4/30/2022
Department: ME
Vendor:
Lot Number:
Balance ID:
Comments:

Type: Secondary
BY: Alyssa A. Olson
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Nitric Acid Instra Analyzed 0000264786	13061	0.25	mL	5/12/2025
Milli-Q H2O	391	22.25	mL	6/1/2100

Final Volume:
25 mL

Stock Source

ME200624A U Stock

Base Units

ug/mL

Amount Added

2.5 mL

Analytes

CAS

Conc: ug/mL

Energy Laboratories Inc

Standard LOG

Standard ID: ME200624A
Standard Name: U Stock
Date Prepared: 6/24/2020
Date Expires: 4/30/2022
Department: ME
Vendor: SCP Science
Lot Number: S200422002
Balance ID:
Comments:

Type: Primary
BY: Ron Hunt
Status: Empty/Disposed

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
PlasmaCal Standard Uranium	12767	500	mL	4/30/

Final Volume: 500 mL

Stock Source

Base Units

Amount Added

Analvtes

CAS

Conc: **ug/mL**

A Uranium

7440-61-1

1000

U

1.0 DESCRIPTION: **PlasmaCAL ICP/ICPMS Standard - Uranium 1000 µg/ml**
 Catalogue Number: 140-051-920/-921/-925
 Starting Material: Uranyl Nitrate 99.99%
 Lot Number: **S200422002**
 Matrix: 4% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **April 2022** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:
 Certified Concentration: **1003 µg/ml +/- 4 µg/ml**
983 µg/g +/- 4 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3164 Lot: **080521**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:
 Density: **1.020 g/ml @ 21.7 °C**
 Actual Matrix: **4.0% (v/v) HNO₃**

ID #: 12767
 Opened: _____
 PlasmaCAL Standard Uranium
Expires: 4/30/2022
 Rec'd: 6/15/2020
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

% abundance of stable isotopes: ²³⁸U : 99.79% ; ²³⁵U : 0.21%
 Note : The uranyl nitrate comes from a depleted source of uranium.

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<0.0018	Nd	<0.0010	Sn	<0.0010
Al	0.0073	Ga	<0.0010	Ni	0.0038	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	*	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0026	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0031
Ba	<0.0010	Hg	*	Pd	<0.0010	Th	0.0020
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	0.0340	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	N/A
Ce	<0.0010	La	*	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	<1.0000	Y	0.0049
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<0.0010	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	*	Zr	<0.0010
Er	<0.0010	Na	<0.0010	Si	<1.0000		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

4.0 APPROVAL AND DATE OF CERTIFICATION:
 Certification Approval: Daniel Boisvert, Chemist
 Certification Date: April 28, 2020

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des meilleurs réponses instrumentales et limites de détection pour SAA four au graphite.*
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH : Pour étalonnage de pH mètres et autres applications de chimie humide.*
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité : Comme étalon pour les mesures de conductivité électrolytiques.*
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en presumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou au CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisée, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034 : SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
SILIC 642, 91965
Villebon sur Yvette, France
Phone: +33 (0) 1 69 16 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktobendorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Spike LOG

Standard ID: ME211206 TH QCS STOCK
Standard Name: Th QCS Stock
Date Prepared: 12/6/2021
Date Expires: 10/25/2022
Department: ME
Vendor:
Lot Number:
Balance ID:
Comments:

Type: Secondary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Nitric Acid Instra Analyzed 000028856	14572	0.25	mL	6/28/
Milli-Q H2O	391	22.25	mL	6/1/2

Final Volume: 25 mL

Stock Source
ME 211025 Th Sec Th Secondary Stock

Base Units
ug/mL

Amount Added
2.5 mL

Analvtes

CAS

Conc: **ug/mL**

Energy Laboratories Inc

Standard LOG

Standard ID: ME 211025 TH SECONDARY STOCK
Standard Name: Th Secondary Stock
Date Prepared: 10/25/2021
Date Expires: 10/25/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-TH706436
Balance ID:
Comments: Opened 10/25/2021; Expires 10/25/2022

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Thorium Single Analyte Custom Grade Sol	14318	125	mL	10/25/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

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: Single Analyte Custom Grade Solution
 Catalog Number: CGTH1
 Lot Number: S2-TH706436
 Matrix: 5% (v/v) HNO₃
 Value / Analyte(s): 1 000 µg/mL ea:
 Thorium
 Starting Material: TH(NO₃)₄·4H₂O
 Starting Material Lot#: 2250
 Starting Material Purity: 99.9905%

ID #: 14318
 Opened:
 Thorium Single Analyte Custom Grade Solution
Expires: 7/4/2025
 Rec'd: 9/24/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1001 ± 4 µg/mL
Density: 1.026 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **1001 ± 3 µg/mL**
 EDTA NIST SRM 928 Lot Number: 928

Assay Method #2 **1001 ± 6 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:

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES ($\mu\text{g/mL}$)

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 <	0.000448	M Eu <	0.000224	O Na	0.064077	M Se <	0.005827	M Zn	0.003183
O Al	0.010962	M Fe	0.012392	M Nb <	0.003138	i Si <		M Zr <	0.010310
M As <	0.038776	M Ga <	0.004931	M Nd	0.004697	M Sm	0.000871		
M Au <	0.000224	M Gd	0.000300	M Ni <	0.006724	M Sn <	0.028242		
M B <	0.021293	M Ge <	0.008965	M Os <	0.000224	M Sr	0.002582		
M Ba	0.001317	M Hf <	0.000224	i P <		M Ta <	0.001344		
M Be <	0.000224	M Hg <	0.000448	M Pb	0.003287	M Tb <	0.001793		
M Bi <	0.001793	M Ho <	0.001344	M Pd <	0.000448	M Te <	0.010086		
O Ca	0.051969	M In	0.000134	M Pr	0.001202	s Th <			
M Cd <	0.001344	M Ir <	0.000224	M Pt <	0.000224	M Ti <	0.004258		
M Ce	0.015420	O K	0.028928	M Rb <	0.005155	M Tl <	0.000224		
M Co <	0.001344	M La	0.003577	M Re <	0.000224	M Tm <	0.000224		
M Cr <	0.015465	M Li <	0.000448	M Rh <	0.000224	M U	0.006564		
M Cs <	0.013896	M Lu <	0.000224	M Ru <	0.000224	M V <	0.001793		
M Cu	0.001472	O Mg	0.027914	i S <		M W <	0.000224		
M Dy	0.000197	M Mn	0.001814	M Sb <	0.004931	M Y	0.000860		
M Er <	0.002241	M Mo <	0.000896	M Sc <	0.000672	M Yb <	0.000224		

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 232.04 +4 8 Th(OH) 3+ and Th(OH)22+

Chemical Compatibility -Soluble in HCl, and HNO3. Avoid H3PO4, H2SO4 and HF although solubilities may not be a problem depending upon pH and matrix (For example: ThF4 is soluble in acids). Avoid neutral to basic media. Th4+ is stable with most metals and inorganic anions forming an insoluble carbonate, oxide, fluoride, oxalate, sulfate and phosphate in neutral to slightly acidic media.

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.

Th Containing Samples (Preparation and Solution) -Metal (Soluble in Aqua Regia); Oxide (The heated oxide is not soluble in acids except hot conc. H2SO4); Ores (Na2O2 fusion at 480 ± 20EC for 7 minutes, cool and treat sintered mass with 50 mL cold water and stand until disintegrated. The mass is transferred to a beaker and acidified with HCl with 25 mL excess HCl added. Any residue is collected on a Whatman No. 42 filter, dried and ignited to 1000 EC in Pt0 crucible and the ash treated with H2SO4 / HF and fumed. If residue remains, then treat it by peroxide fusion as above.)

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 232 amu	1 ppt	N/A	
ICP-OES 274.716 nm	0.08 / 0.008 µg/mL	1	Ti, Ta, Fe, V
ICP-OES 283.231 nm	0.07 / 0.007 µg/mL	1	U, Mo, Ti, Fe, Cr
ICP-OES 283.730 nm	0.07 / 0.007 µg/mL	1	U, Zr

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 04, 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

- July 04, 2025

- 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



Energy Laboratories Inc

Spike LOG

Standard ID: ME210901 HG SECOND SOURCE
Standard Name: Secondary Hg Stock 2 PPM
Date Prepared: 9/1/2021
Date Expires: 7/26/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Comments:

Type: Secondary
BY: Alyssa A. espinoza
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Nitric Acid, 69.0-70.0%,0000282671	14178	0.1	mL	4/11/
Hydrochloric Acid Instra Analyzed 000	14028	0.05	mL	3/29/

Final Volume: 50 mL

Stock Source
ME210726 Hg Secondary Source

Base Units
ug/mL

Amount Added
0.1 mL

Analvtes

CAS

Conc: **ug/mL**

Energy Laboratories Inc

Spike LOG

Standard ID: ME210726
Standard Name: Hg Secondary Source
Date Prepared: 7/26/2021
Date Expires: 7/26/2022
Department: _____
Vendor: _____
Lot Number: _____
Balance ID: _____
Comments: _____

Type: _____
BY: Jordan A. Gjerde
Status: New

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Mercury Single Analyte Custom Grade	13979	120	mL	7/26/

Final Volume: _____ mL

Stock Source

Base Units

Amount Added

Analvtes

CAS

Conc: _____ ug/mL

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: CGHG1
 Lot Number: R2-HG696409
 Matrix: 5% (v/v) HNO3
 Value / Analyte(s): 1 000 µg/mL ea:
 Mercury
 Starting Material: Hg metal
 Starting Material Lot#: 1959
 Starting Material Purity: 99.9994%

ID #: 13979
 Opened:
 Mercury Single Analyte Custom Grade Solution
Expires: 9/15/2024
 Rec'd: 6/23/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 3 µg/mL
Density: 1.026 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **1004 ± 8 µg/mL**
 ICP Assay NIST SRM 3133 Lot Number: 160921

Assay Method #2 **1003 ± 3 µg/mL**
 EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **1001 ± 3 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:

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O Ag	0.001159	M	Eu <	0.000201	O Na	0.000435	M	Se <	0.015915	O Zn <	0.001510
O Al	0.000090	O	Fe	0.000113	M Nb <	0.000201	O	Si	0.000525	M Zr <	0.000201
M As <	0.000402	M	Ga <	0.000201	M Nd <	0.000201	M	Sm <	0.000201		
M Au <	0.003631	M	Gd <	0.000201	M Ni <	0.000402	M	Sn <	0.001007		
M B <	0.001208	M	Ge <	0.000201	M Os <	0.000605	M	Sr <	0.000201		
M Ba <	0.000201	M	Hf <	0.000201	O P <	0.032370	M	Ta <	0.000201		
M Be <	0.000201	s	Hg <		M Pb <	0.000201	M	Tb <	0.000201		
M Bi <	0.000201	M	Ho <	0.000201	M Pd <	0.000403	M	Te <	0.002216		
O Ca	0.000746	M	In <	0.000201	M Pr <	0.000201	M	Th <	0.000201		
M Cd <	0.000201	M	Ir <	0.000201	M Pt <	0.000402	M	Ti <	0.000402		
M Ce <	0.000201	O	K	0.002007	M Rb <	0.000201	O	Tl <	0.016508		
M Co <	0.000201	M	La <	0.000201	M Re <	0.000201	M	Tm <	0.000201		
O Cr <	0.003021	O	Li <	0.000107	M Rh <	0.000201	M	U <	0.008058		
M Cs <	0.001208	M	Lu <	0.000201	M Ru <	0.000201	M	V <	0.000201		
M Cu <	0.000402	O	Mg	0.000096	O S <	0.053950	M	W <	0.000604		
M Dy <	0.000201	M	Mn <	0.000604	M Sb <	0.001208	M	Y <	0.000201		
M Er <	0.000201	M	Mo	0.000971	M Sc <	0.000201	M	Yb <	0.000201		

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+
Chemical Compatibility - Stable in HNO₃. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

Stability - 2-100 ppb levels not stable in 1% HNO₃ / LDPE container, stable in 10% HNO₃ packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO₃ packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO₃ / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO₃); Oxide (Soluble in HNO₃); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th, Rh, Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 15, 2020

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 15, 2024**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME211124 EL-MSICV-2
Standard Name: EL-MSICV-2
Date Prepared: 11/24/2021
Date Expires: 11/24/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Comments:

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Multi Analyte Custom Grade Solution	14023	500	mL	11/24

Final Volume: mL

Stock Source

Base Units

Amount Added

Analvtes

CAS

Conc: **ug/mL**

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: EL-MSICV-2
 Lot Number: R2-MEB696849
 Matrix: 3% (v/v) HNO₃
 tr. HF
 Value / Analyte(s):
 1 000 µg/mL ea:
 Silicon,
 100 µg/mL ea:
 Tin, Titanium,
 Molybdenum, Antimony

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.6 µg/mL	Molybdenum, Mo	100.0 ± 0.5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	99.9 ± 0.4 µg/mL
Titanium, Ti	99.9 ± 0.6 µg/mL		

Density: 1.019 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102a	140911
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	070330
Sn	Calculated		See Sec. 4.2
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.

ID #: 14023

Opened: _____

Multi Analyte Custom Grade Solution

Expires: 9/14/2024

Rec'd: 7/7/2021

 Eneray Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

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 ($\mu\text{g/mL}$)

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.

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, EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 14, 2020

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 14, 2024**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME210817 ICV-1A
Standard Name: EL-MSICV-1A
Date Prepared: 8/17/2021
Date Expires: 8/17/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: R2-MEB688457
Balance ID:
Comments: Opened 8/17/2021; Expires 8/17/2022

Type: Primary
BY: Alyssa A. espinoza
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Multi Analyte Custom Grade Solution	13475	500	mL	8/17/

Final Volume: 500 mL

Stock Source

Base Units

Amount Added

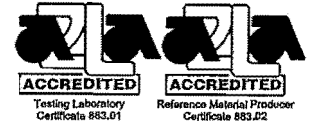
Analvtes

CAS

Conc: **ug/mL**

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: EL-MSICV-1A
 Lot Number: R2-MEB688457
 Matrix: 5% (v/v) HNO₃
 Value / Analyte(s):
 5 000 µg/mL ea:
 Calcium, Potassium, Magnesium,
 Sodium,
 1 000 µg/mL ea:
 Phosphorus,
 500 µg/mL ea:
 Manganese, Iron, Aluminum,
 100 µg/mL ea:
 Arsenic, Boron, Barium,
 Cobalt, Chromium, Copper,
 Lithium, Nickel, Lead,
 Selenium, Strontium, Thallium,
 Vanadium, Zinc,
 50 µg/mL ea:
 Silver, Cadmium, Beryllium

ID #: 13475

Opened: _____

Multi Analyte Custom Grade Solution

Expires: 1/10/2024

Rec'd: 1/15/2021

 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	500.3 ± 1.8 µg/mL	Arsenic, As	100.0 ± 0.8 µg/mL
Barium, Ba	99.9 ± 0.4 µg/mL	Beryllium, Be	49.96 ± 0.33 µg/mL
Boron, B	100.0 ± 0.6 µg/mL	Cadmium, Cd	50.10 ± 0.22 µg/mL
Calcium, Ca	5 001 ± 20 µg/mL	Chromium, Cr	100.0 ± 0.6 µg/mL
Cobalt, Co	100.0 ± 0.5 µg/mL	Copper, Cu	100.1 ± 0.4 µg/mL
Iron, Fe	499.7 ± 2.1 µg/mL	Lead, Pb	100.1 ± 0.4 µg/mL
Lithium, Li	100.0 ± 0.4 µg/mL	Magnesium, Mg	5 000 ± 21 µg/mL
Manganese, Mn	499.8 ± 1.9 µg/mL	Nickel, Ni	100.1 ± 0.4 µg/mL
Phosphorus, P	1 000 ± 5 µg/mL	Potassium, K	5 000 ± 18 µg/mL
Selenium, Se	100.1 ± 0.8 µg/mL	Silver, Ag	50.02 ± 0.22 µg/mL
Sodium, Na	5 000 ± 18 µg/mL	Strontium, Sr	100.1 ± 0.4 µg/mL
Thallium, Tl	100.0 ± 0.7 µg/mL	Vanadium, V	99.9 ± 0.5 µg/mL
Zinc, Zn	100.0 ± 0.4 µg/mL		

Density: 1.098 g/mL (measured at 20 ± 4 °C)

Assay Information:

1.098 g/mL
measured at
20 ± 4 °C

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	110830
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
Co	EDTA	928	928
Co	ICP Assay	traceable to 3113	M2-CO661665
Cr	ICP Assay	3112a	170630
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
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	3152a	120715
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	3153a	990906
Tl	ICP Assay	3158	993012
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, 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:

$$X_{\text{CRM/RM}} = (X_n) (u_{\text{char } n})$$

X_n = mean of Assay Method n with

$u_{\text{char } n}$ = the standard uncertainty of characterization Method n

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char } n}^2 + u_{\text{bb}}^2 + u_{\text{its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } n}$ = 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 ($\mu\text{g/mL}$)

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 outer bag.

- While stored in the sealed outer bag, transpiration of this CRM/RM is negligible. After opening the sealed outer 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 outer 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.

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, EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 10, 2020

- 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 10, 2024**

- 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 outer 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
Manager, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



Energy Laboratories Inc

Standard LOG

Standard ID: ME210903 CE, LA SECONDARY
Standard Name: Ce, La Secondary solution
Date Prepared: 9/3/2021
Date Expires: 5/25/2022
Department: ME
Vendor:
Lot Number:
Balance ID:
Comments: Second Source Stock Solution

Type: Secondary
BY: Parker A. Pearsall
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Nitric Acid Instra Analyzed 000020579	10902	0.5	mL	7/1/2
Milli-Q H2O	391	39.5	mL	6/1/2

Final Volume: 50 mL

Stock Source

ME210903 La Sec La Secondary Stock
ME210525 Ce 2nd Ce Secondary Stock

Base Units

ug/mL
ug/mL

Amount Added

5 mL
5 mL

Analvtes

CAS

Conc: ug/mL

Energy Laboratories Inc

Standard LOG

Standard ID: ME210903 LA SECOND SOURCE
Standard Name: La Secondary Stock
Date Prepared: 9/3/2021
Date Expires: 9/3/2022
Department: ME
Vendor: SCP Science
Lot Number: S201029004
Balance ID:
Comments: Opened 9/3/2021; Expires 9/3/2022

Type: Primary
BY: Alyssa A. espinoza
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Lanthanum PlasmaCal Standard	14019	125	mL	9/3/2022

Final Volume:
mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

La

1.0 DESCRIPTION:

PlasmaCAL ICP/ICPMS Standard - Lanthanum 1000 µg/ml
 Catalogue Number: 140-051-570/-571/-575
 Starting Material: Lanthanum(III) Oxide 99.99+%
 Lot Number: **S201029004**
 Matrix: 4% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **November 2022** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1005 µg/ml +/- 4 µg/ml**
985 µg/g +/- 4 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3127a Lot: **151030**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

ID #: 14019

Opened: _____
 Lanthanum PlasmaCal Standard
Expires: 11/30/2022
 Rec'd: 7/6/2021
 Energv Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 REFERENCE VALUES:

Density: **1.020 g/ml @ 23.4 °C**
 Actual Matrix: **4.0% (v/v) HNO₃**

Trace Metal Impurities as tested by ICP-AES:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0049	Fe	<0.0102	Nd	<0.1595	Sn	<0.0307
Al	<0.0280	Ga	<0.0260	Ni	<0.0139	Sr	<0.0004
As	<0.0525	Gd	<0.0685	Os	*	Ta	<0.0635
Au	<0.0085	Ge	<0.0548	P	<0.0104	Tb	<0.0146
B	<0.2535	Hf	<0.0339	Pb	<0.2460	Te	<0.4025
Ba	<0.0025	Hg	*	Pd	<0.1410	Th	<0.0471
Be	<0.0022	Ho	<0.0065	Pr	<0.0274	Ti	<0.0013
Bi	<0.0780	In	<0.0105	Pt	<0.0533	Tl	<0.5600
Ca	0.0164	Ir	<0.0243	Rb	*	Tm	<0.0105
Cd	<0.0048	K	<0.0128	Re	<0.0076	U	<0.2490
Ce	<0.0393	La	N/A	Rh	<0.0163	V	<0.0049
Co	<0.0224	Li	<0.0006	Ru	<0.0304	W	<0.0443
Cr	<0.0063	Lu	<0.0021	S	<0.0515	Y	<0.0033
Cs	*	Mg	<0.0045	Sb	<0.0197	Yb	<0.0057
Cu	<0.0040	Mn	<0.0018	Sc	<0.0055	Zn	<0.0045
Dy	<0.0043	Mo	<0.0229	Se	<0.0249	Zr	<0.0061
Er	<0.0070	Na	<0.0038	Si	<0.0455		
Eu	<0.0086	Nb	<0.0112	Sm	<0.1105		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
 Certification Date: November 04, 2020

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des meilleurs réponses instrumentales et limites de détection pour SAA four au graphite.*
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH : Pour étalonnage de pH mètres et autres applications de chimie humide.*
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité : Comme étalon pour les mesures de conductivité électrolytiques.*
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présupmant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (**Corporate Headquarters**) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034 : SCP SCIENCE (**Corporate Headquarters**) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
SILIC 642, 91965
Villebon sur Yvette, France
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME210525 CE 2ND SOURCE
Standard Name: Ce Secondary Stock
Date Prepared: 5/25/2021
Date Expires: 5/25/2022
Department: ME
Vendor: SCP Science
Lot Number: S210208003
Balance ID:
Comments: opened 5/25/2021, expires 5/25/2022

Type: Primary
BY: Stacy R. Hendricks
Status: Empty/Disposed

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Cerium	13642	125	mL	5/25/2022

Final Volume:
125 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

Ce

1.0 DESCRIPTION: *PlasmaCAL ICP/ICPMS Standard - Cerium 1000 µg/ml*
 Catalogue Number: 140-051-580/-581/-585
 Starting Material: Cerium(III) Nitrate Hexahydrate 99.99+%
 Lot Number: **S210208003**
 Matrix: 4% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **February 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:
 Certified Concentration: **1003 µg/ml +/- 4 µg/ml**
982 µg/g +/- 4 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3110 Lot: **090504**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:
 Density: **1.021 g/ml @ 22.5 °C**
 Actual Matrix: **4.0% (v/v) HNO₃**

Trace Metal Impurities as tested by ICP-MS:

ID #: 13642
 Opened: _____
 ICP/ICPMS Standard Cerium
Expires: 2/28/2023
 Rec'd: 3/16/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<0.0018	Nd	0.0102	Sn	<0.0010
Al	0.0148	Ga	0.0526	Ni	0.0064	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	0.0235	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	0.0375	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	N/A	La	<0.10	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0121	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.0010	Zr	<0.0010
Er	<0.0010	Na	<0.0010	Si	<0.10		
Eu	0.0035	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:
 Certification Approval: Yaling Sui, Chemist
 Certification Date: February 22, 2021

Yaling Sui

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (FAAS) et four au graphite (GFAA).*
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.*
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH : Pour étalonnage de pH mètres et autres applications de chimie humide.*
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité : Comme étalon pour les mesures de conductivité électrolytiques.*
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*
- For any inquiries, please contact SCP SCIENCE. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 meghom/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 meghom/cm doublement déionisée, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034: SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
SILIC 642, 91965
Villebon sur Yvette, France
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME210901 ICSAB
 Standard Name: ICSAB
 Date Prepared: 9/1/2021
 Date Expires: 9/1/2022
 Department: ME
 Vendor:
 Lot Number:
 Balance ID:

Type: Secondary
 BY: Cindy Rohrer
 Status: Open

Comments: Made fresh every Monday, Wednesday, and Friday

Chemical / Solvent Used	BottleNo	Amt	Units	Exp
Nitric Acid, 69.0-70.0%,0000282671	14178	1	mL	4/11/
Milli-Q H2O	391	46.45	mL	6/1/2
Hydrochloric Acid Instra Analyzed 000	14028	0.5	mL	3/29/

Final Volume: 50 mL

Stock Source

ME210901 6020IC 6020ICS-8A
 ME 210901 6020IC 6020ICS-9B

Base Units

ug/mL
 ug/mL

Amount Added

2 mL
 0.05 mL

Analvtes

CAS

Conc: **mg/L**

Energy Laboratories Inc

Standard LOG

Standard ID: ME 210901 6020ICS-9B
Standard Name: 6020ICS-9B
Date Prepared: 9/1/2021
Date Expires: 9/1/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: P2-MEB678862
Balance ID:
Comments: Opened 9/1/2021; Expires 9/1/2022

Type: Primary
BY: Alyssa A. espinoza
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Multi Analyte Custom Grade Solution	13478	125	mL	9/1/2022

Final Volume:
125 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **mg/L**

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: 6020ICS-9B
 Lot Number: P2-MEB678862
 Matrix: 3% (v/v) HNO₃
 Value / Analyte(s):
 20 µg/mL ea:
 Cobalt, Chromium,
 Manganese, Nickel,
 10 µg/mL ea:
 Zinc, Arsenic,
 Selenium, Cadmium,
 5 µg/mL ea:
 Silver

ID #: 13478
 Opened: _____
 Multi Analyte Custom Grade Solution
 Expires: 5/17/2023
 Rec'd: 1/15/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	10.01 ± 0.05 µg/mL	Cadmium, Cd	10.01 ± 0.04 µg/mL
Chromium, Cr	20.02 ± 0.12 µg/mL	Cobalt, Co	20.01 ± 0.10 µg/mL
Copper, Cu	20.02 ± 0.08 µg/mL	Manganese, Mn	20.02 ± 0.09 µg/mL
Nickel, Ni	20.02 ± 0.09 µg/mL	Selenium, Se	10.01 ± 0.06 µg/mL
Silver, Ag	5.005 ± 0.022 µg/mL	Vanadium, V	20.02 ± 0.08 µg/mL
Zinc, Zn	10.01 ± 0.04 µg/mL		

Density: 1.015 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
As	ICP Assay	3103a	100818
As	Calculated		See Sec. 4.2
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Co	EDTA	928	928
Co	ICP Assay	traceable to 3113	M2-CO661665
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Mn	EDTA	928	928
Mn	ICP Assay	Traceable to 3132	N2-MN665236
Mn	Calculated		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
V	EDTA	928	928
V	ICP Assay	3165	992706
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

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

May 17, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 17, 2023**

- 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

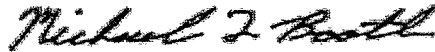
- Sealed TCT Bag Open Date: _____

- 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
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



Energy Laboratories Inc

Standard LOG

Standard ID: ME220112 SS1
Standard Name: SS1 ICPMS Spiking Solution
Date Prepared: 1/12/2022
Date Expires: 12/8/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Comments:

Type: Secondary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Nitric Acid, 69.0-70.0%,0000277202	13781	0.8	mL	1/14/2026
Hydrochloric Acid, 36.5-38.0% 000027567	13784	2	mL	12/15/2025
Milli-Q H2O	391	28.8	mL	6/1/2100

Final Volume:
40 mL

Stock Source

ME220105 HgPrim Primary Hg Stock 2 PPM
ME211208 MSCAL MSCAL 2B
ME211221 MSCAL MSCAL 3C
ME220110 Ce, La Ce, La Primary

Base Units

ug/mL
ug/mL
ug/mL
ug/mL

Amount Added

2 mL
2 mL
2 mL
2 mL

Analytes

CAS

Conc: **mg/L**

Energy Laboratories Inc

Spike LOG

Standard ID: ME220105 HGPRIMARY
Standard Name: Primary Hg Stock 2 PPM
Date Prepared: 1/5/2022
Date Expires: 12/29/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:
Type: Secondary
BY: Amanda E. McDani
Status: Open
Comments: Made with different HG stock than QCS

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Hydrochloric Acid E1421	14721	0.25	mL	1/4/2027

Final Volume:
25 mL

Stock Source

ME220110HG HG Stock
ME211229A AU 2N Au 2nd source Stock

Base Units

ug/mL
ug/mL

Amount Added

0.05 mL
0.05 mL

Analytes

CAS

Conc: ug/mL

Energy Laboratories Inc

Standard LOG

Standard ID: ME220110HG
Standard Name: HG Stock
Date Prepared: 1/10/2022
Date Expires: 1/10/2023
Department: ME
Vendor: SCP Science
Lot Number: S210729017
Balance ID:
Comments:

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Mercury	14711	125	mL	1/10/2023

Final Volume:
125 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

ID #: 14711

Opened:

ICP/ICPMS Standard Mercury

Expires: 7/31/2023

Rec'd: 12/29/2021

Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

SCP SCIENCE

Providing Innovative Solutions to Analytical Chemists

rtificate of Analysis

Hg

1.0 DESCRIPTION:

PlasmaCAL ICP/ICPMS Standard - Mercury 1000 µg/ml
 Catalogue Number: 140-051-800/-801/-805
 Starting Material: Mercury(II) oxide 99.99+%
 Lot Number: **S210729017**
 Matrix: 10% HNO₃ (See Section 3 for actual matrix)
 Expiration Date (End of month): **July 2023** (or 15 months after bottle is opened, whichever comes first)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **999 µg/ml +/- 5 µg/ml**
952 µg/g +/- 5 µg/g
 Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
 Traceability: NIST Standard Reference Material 3133 Lot: **160921**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:

Density: **1.050 g/ml @ 23.6 °C**
 Actual Matrix: **10.0% (v/v) HNO₃**

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	0.0322	Nd	<0.0010	Sn	<0.0010
Al	0.0042	Ga	<0.0010	Ni	0.0039	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	<0.0010	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	N/A	Pd	<0.0010	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	0.0117
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	0.0112	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0060	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.0010	Zr	<0.0010
Er	<0.0010	Na	0.0092	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
 Certification Date: August 12, 2021

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP*: Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA*: Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice*: Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH*: Pour étalonnage de pH mètres et autres applications de chimie humide.
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité*: Comme étalon pour les mesures de conductivité électrolytiques.
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC*: Pour étalonnage d'instruments tels que: IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisé, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

ISO 17034 Accreditation / Accréditation ISO 17034: SCP SCIENCE (Corporate Headquarters) is an ISO 17034 accredited Reference Material Producer. Please consult our website for a copy of our most recent certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est un Fabricant de Matériaux de Référence Accrédité ISO 17034. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktberdorfer Straße 14, 87616
Marktberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME211229A AU 2ND SOURCE
Standard Name: Au 2nd source Stock
Date Prepared: 12/29/2021
Date Expires: 12/29/2022
Department: ME
Vendor: SCP Science
Lot Number: S211129013
Balance ID:
Comments: opened 12/29/2021; expires 12/29/2022

Type: Primary
BY: Amanda E. McDani
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
ICP/ICPMS Standard Gold	14710	500	mL	12/29/2022

Final Volume:
500 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

ID #: 14710

Opened:

ICP/ICPMS Standard Gold

Expires: 12/31/2023

Rec'd: 12/29/2021

Eneray Laboratories Inc 1120 So. 27th Street

Billings MT 59107

SCP SCIENC

Providing Innovative Solutions to Analytical

Certificate of Analysis**Au****1.0 DESCRIPTION:****PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Catalogue Number: 140-052-790/-791/-795

Starting Material: Gold Metal 99.99+%

Lot Number: **S211129013**

Matrix: 10% HCl (See Section 3 for actual matrix)

Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)**2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:**Certified Concentration: **1001 µg/ml +/- 4 µg/ml****982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

Note: The uncertainty of the certified value has been calculated from applicable uncertainty contributors (u_i) including uncertainty established during characterization of the material (u_{char}), the between bottle variation (u_{bb}), short-term stability (u_{sts}) and long-term stability (u_{lts}) according to the model $u_c = \sqrt{(u_{char}^2 + u_{bb}^2 + u_{sts}^2 + u_{lts}^2)}$. This combined uncertainty has been further multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:Density: **1.019 g/ml @ 22.4 °C**Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	0.3851	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	0.0062	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	<0.0010	Os	<0.0010	Ta	<0.0010
Au	N/A	Ge	<0.0010	P	<0.0132	Tb	<0.0010
B	<0.0015	Hf	<0.0010	Pb	<0.0010	Te	<0.0010
Ba	<0.0010	Hg	*	Pd	0.0434	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	0.0048	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	0.0362	Re	<0.0010	U	<0.0010
Ce	<0.0010	La	<0.0010	Rh	<0.0010	V	<0.0010
Co	<0.0010	Li	<0.0010	Ru	<0.0010	W	<0.0020
Cr	<0.0010	Lu	<0.0010	S	*	Y	<0.0010
Cs	0.0029	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	0.0023	Mn	<0.0010	Sc	<0.0010	Zn	<0.0010
Dy	<0.0010	Mo	<0.0010	Se	<0.01	Zr	<0.0010
Er	<0.0010	Na	0.0070	Si	<0.1		
Eu	<0.0010	Nb	<0.0010	Sm	<0.0010		

*: Not tested

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist

Certification Date: December 10, 2021

Daniel Boisvert

5.0 INTENDED USE / UTILISATION PRÉVUE:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
 - AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
 - Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des meilleures réponses instrumentales et limites de détection pour SAA four au graphite.*
 - pH Standards: For the calibrating pH meters or for other wet chemistry applications. / *Étalons pH : Pour étalonnage de pH mètres et autres applications de chimie humide.*
 - Conductivity Standards: For electrolytic conductivity measurement as a calibration standard. / *Étalons de conductivité : Comme étalon pour les mesures de conductivité électrolytiques.*
 - IC Standards: for calibration of, but not limited to IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS or other wet chemistry applications. / *Étalons IC : Pour étalonnage d'instruments tels que : IC, HPLC, TLC, ISE, IR, NMR, MS, UV/VIS et autres applications de chimie humide.*
- For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter SCP SCIENCE.*

6.0 INSTRUCTIONS FOR USE / INSTRUCTIONS D'UTILISATION:

Handling and Storage / Manutention et entreposage: Keep product tightly capped when not in use. The solution should be opened for a minimum amount of time necessary to dispense the amount required. Do not pipet or use directly from container. Do not return unused portions back to container. Store under normal laboratory conditions. Avoid exposure to excessive sources of heat and humidity or direct sunlight. / *Garder les contenants bien fermés lorsque non utilisés. Le contenant devrait être ouvert seulement pour le temps requis afin de prélever la quantité nécessaire. Ne pas pipetter ou utiliser directement du contenant. Ne pas retourner les portions non-utilisées dans le contenant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

Stability / Stabilité: This Standard is guaranteed to be stable and accurate to within the specified uncertainty of measurement up to the unopened expiry date, if sealed, or up to the opened expiry date (when indicated), whichever comes first, provided the solution is kept tightly capped and stored under the indicated storage conditions. Purchasers will be notified of any significant changes resulting in re-certification or withdrawal of the product prior to the expiration date. / *La stabilité et l'exactitude de cet étalon sont garanties d'être à l'intérieur de l'incertitude de mesure, jusqu'à la date d'expiration de la bouteille non-ouverte, si scellée, ou jusqu'à la date d'expiration de la bouteille ouverte (si indiquée), en présumant que le contenant est maintenu fermé et gardé dans les conditions d'entreposage indiquées. Les acheteurs seront avisés dans le cas où il y aura des changements significatifs nécessitant une re-certification ou un rappel du produit avant la date d'expiration.*

7.0 HAZARDOUS INFORMATION / INFORMATION SUR LES RISQUES POTENTIELS:

Please refer to the associated Safety Data Sheet (SDS) for information regarding this product (available at www.SCPSCIENCE.com). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à www.SCPSCIENCE.com).*

8.0 HOMOGENEITY / HOMOGÉNÉITÉ:

This solution has been blended according to an in-house procedure and its homogeneity is guaranteed to be fit for purpose when a sample size sufficient for the intended method of analysis is used. / *Cette solution a été préparée selon une procédure maison et nous assurons que sa homogénéité est approprié à l'emploi lorsqu'un échantillon suffisant pour la méthode d'analyse prévue est utilisé.*

9.0 TRACEABILITY / TRAÇABILITÉ:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaîne de comparaison ininterrompue. De plus, les balances utilisées sont étalonnées régulièrement en utilisant des poids qui sont traçables au NIST (National Institute of Standards and Technology) ou au CRNC (Conseil National de Recherches Canada). Tout conductimètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et étalons traçables au NIST ou CNRC. Tout pH mètre utilisé afin d'analyser cet étalon a été sujet à un étalonnage périodique utilisant des thermomètres et un simulateur pH/MV traçables au NIST ou au CNRC.*

10.0 PREPARATION / PRÉPARATION:

For the preparation of these solutions, 18 megohm/cm double deionized water, high-purity acids and glassware calibrated to ASTM Class A specifications are used. / *Une eau de 18 megohm/cm doublement déionisée, de l'acide de haute pureté, ainsi que de la verrerie étalonnée afin de satisfaire les spécifications Classe A de ASTM ont été utilisés pour la préparation de cet étalon.*

11.0 QUALITY SYSTEM CERTIFICATIONS / CERTIFICATIONS DE SYSTÈME QUALITÉ:

ISO 9001 Certification / Certification ISO 9001: This standard was produced in a facility which operates under a registered ISO 9001 Quality Management System. Please consult our web site for a copy of the most recent revision of our certificate of registration. / *Cet étalon a été fabriqué dans un laboratoire qui utilise un Système de Gestion de la Qualité enregistré à la norme ISO 9001. Veuillez consulter notre site web pour obtenir la version la plus récente de notre certificat d'enregistrement.*

ISO 17025 Accreditation / Accréditation ISO 17025: SCP SCIENCE (Corporate Headquarters) operates an ISO 17025 accredited laboratory. Please consult our web site for a copy of the most recent revision of our certificate and scope of accreditation. / *SCP SCIENCE (Siège social) est accréditée ISO 17025. Veuillez consulter notre site web afin d'obtenir la plus récente version de notre certificat d'accréditation ainsi que la portée de notre accréditation.*

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CORPORATE HEADQUARTERS
21800 Clark Graham
Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

USA
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816
Phone: +1 (800) 361-6820
Fax: +1 (800) 253-5549

FRANCE
12 Ave. de Québec, Bat. IRIS
91140, Villebon-sur-Yvette
Phone: +33 (0) 1 69 18 71 17
Fax: +33 (0) 1 60 92 05 67

GERMANY
Alte Marktoberdorfer Straße 14, 87616
Marktoberdorf
Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

Energy Laboratories Inc

Standard LOG

Standard ID: ME211208 MSCAL2B
Standard Name: MSCAL 2B
Date Prepared: 12/8/2021
Date Expires: 12/8/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-MEB704403
Balance ID:
Comments: Opened 12/08/2021; Expires 12/08/2022

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Multi Analyte Custom Grade Solution	13793		mL	12/8/2022

Final Volume:
mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

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: EL-MSCAL-2B
Lot Number: S2-MEB704403
Matrix: 5% (v/v) HNO3
Value / Analyte(s):
100 µg/mL ea:
Aluminum, Arsenic,
Boron, Barium,
Beryllium, Cadmium,
Cobalt, Chromium,
Copper, Iron,
Manganese, Nickel,
Lead, Selenium,
Strontium, Thorium,
Thallium, Uranium,
Vanadium, Zinc,
40 µg/mL ea:
Silver

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ID #: 13793

Opened: _____

Multi Analyte Custom Grade Solution

Expires: 4/21/2025

Rec'd: 4/29/2021

Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	100.0 ± 0.4 µg/mL	Arsenic, As	100.0 ± 0.9 µg/mL
Barium, Ba	100.0 ± 0.5 µg/mL	Beryllium, Be	100.0 ± 0.7 µg/mL
Boron, B	100.0 ± 0.7 µg/mL	Cadmium, Cd	100.0 ± 0.5 µg/mL
Chromium, Cr	100.0 ± 0.8 µg/mL	Cobalt, Co	100.0 ± 0.6 µg/mL
Copper, Cu	100.0 ± 0.5 µg/mL	Iron, Fe	100.1 ± 0.4 µg/mL
Lead, Pb	100.0 ± 0.6 µg/mL	Manganese, Mn	100.0 ± 0.5 µg/mL
Nickel, Ni	100.0 ± 0.6 µg/mL	Selenium, Se	100.0 ± 0.7 µg/mL
Silver, Ag	39.99 ± 0.18 µg/mL	Strontium, Sr	100.0 ± 0.4 µg/mL
Thallium, Tl	100.0 ± 0.6 µg/mL	Thorium, Th	100.0 ± 0.5 µg/mL
Uranium, U	100.0 ± 0.5 µg/mL	Vanadium, V	100.0 ± 0.5 µg/mL
Zinc, Zn	100.0 ± 0.5 µg/mL		

Density: 1.033 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
As	ICP Assay	3103a	100818
B	ICP Assay	3107	110830
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Cd	ICP Assay	3108	130116
Cd	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
Fe	Calculated		See Sec. 4.2
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Sr	Calculated		See Sec. 4.2
Th	EDTA	928	928
Th	Calculated		See Sec. 4.2
Tl	ICP Assay	3158	151215
U	ICP Assay	3164	080521
U	Calculated		See Sec. 4.2
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Certified Abundance:

IV's Certified Abundance

Isotope

Uranium 238U

Uranium 235U

Atom %

99.8 ± 0.1

0.24 ± 0.05

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

April 21, 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

- **April 21, 2025**

- 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



Energy Laboratories Inc

Standard LOG

Standard ID: ME211221 MSCAL 3C
Standard Name: MSCAL 3C
Date Prepared: 12/21/2021
Date Expires: 12/21/2022
Department: ME
Vendor: Inorganic Ventures
Lot Number: S2-MEB700780
Balance ID:
Comments: Opened 12/21/21; expires 12/21/22

Type: Primary
BY: Stacy R. Hendricks
Status: Open

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Multi Analyte Custom Grade Solution	13473	250	mL	12/21/2022

Final Volume:
250 mL

Stock Source

Base Units

Amount Added

Analytes

CAS

Conc: **ug/mL**

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: EL-MSCAL-3C
 Lot Number: S2-MEB700780
 Matrix: 3% (v/v) HNO₃
 tr. HF
 Value / Analyte(s): 400 µg/mL ea:
 Silicon,
 100 µg/mL ea:
 Tin,
 Molybdenum,

1-6-2025

ID #: 13473
 Opened: _____
 Multi Analyte Custom Grade Solution
Expires: 1/6/2025
 Rec'd: 1/15/2021
 Energy Laboratories Inc 1120 So. 27th Street
 Billings MT 59107

Titanium,
 Antimony

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.8 µg/mL	Molybdenum, Mo	100.0 ± 0.6 µg/mL
Silicon, Si	399.9 ± 3.0 µg/mL	Tin, Sn	100.0 ± 0.6 µg/mL
Titanium, Ti	100.0 ± 0.7 µg/mL		

Density: 1.018 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102a	140911
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 ($\mu\text{g/mL}$)

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 06, 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

- **January 06, 2025**

- 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: _____

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12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Energy Laboratories Inc

Standard LOG

Standard ID: ME220110 CE, LA PRIMARY
Standard Name: Ce, La Primary Type: Secondary
Date Prepared: 1/10/2022 BY: Amanda E. McDani
Date Expires: 1/6/2023
Department: ME Status: Open
Vendor: Inorganic Ventures
Lot Number: M2-CE657768/M2-
Balance ID:
Comments: Used to make standards and spiking solutions; No primary La available

Chemical / Solvent Used	BottleNo	Amt	Units	Expires
Nitric Acid 69.0- 70.0% D0521	14626	0.5	mL	12/14/2026
Milli-Q H2O	391	39.5	mL	6/1/2100

Final Volume:
50 mL

Stock Source

ME220106-CE Ce Primary Stock

Base Units

ug/mL

Amount Added

5 mL

Analytes

CAS

Conc: ug/mL