

# PREP BATCH REPORT

Prep Code: **PRP-3010**  
 Prep Batch **164029** Prep Temp **91 °C**

Technician: **Amanda E. McDaniels**  
 Batch Units: **ML**

Prep Start Date: **2/25/2022 8:24:41 AM**  
 Prep End Date: **2/25/2022 6:06:00 PM**

Sample ID	Matrix	pH	Initial Samp Amt	Sol Added	Sol Recovered	Final Vol (mL)	Factor	Balance	Prep Start Date	Prep End Date
MB-164029	Temp cell E4, supervised by JPV		50	0	0	50	1		2/25/2022	2/25/2022
LCS4-164029			50	0	0	50	1		2/25/2022	2/25/2022
B22021627-001B	Ground Water		50	0	0	50	1		2/25/2022	2/25/2022
B22021627-001BMS4			50	0	0	50	1		2/25/2022	2/25/2022
B22021627-001BMSD4			50	0	0	50	1		2/25/2022	2/25/2022
B22021627-006B	Ground Water		50	0	0	50	1		2/25/2022	2/25/2022
B22021627-011B	Ground Water		50	0	0	50	1		2/25/2022	2/25/2022

Number	Reagent Name	Exp Date
14614	50mL DigiTubes J526127-2104	12/10/2022
14755	Hydrochloric Acid, 36.5-38.0% 0000281827	3/29/2026
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 **164095** Prep Temp **91.8 °C**

Technician: **Amanda E. McDaniels**  
 Batch Units: **ML**

Prep Start Date: **2/28/2022 1:22:36 PM**  
 Prep End Date: **3/1/2022 1:31:00 PM**

Sample ID	Matrix	pH	Initial Samp Amt	Sol Added	Sol Recovered	Final Vol (mL)	Factor	Balance	Prep Start Date	Prep End Date
MB-164095			50	0	0	50	1		2/28/2022	3/1/2022
	Temp Cell D8, supervised by JPV									
LCS4-164095			50	0	0	50	1		2/28/2022	3/1/2022
B22021763-001B	Ground Water		50	0	0	50	1		2/28/2022	3/1/2022
B22021763-001BMS4			50	0	0	50	1		2/28/2022	3/1/2022
B22021763-001BMSD4			50	0	0	50	1		2/28/2022	3/1/2022
B22021763-006B	Ground Water		50	0	0	50	1		2/28/2022	3/1/2022
B22021763-011B	Ground Water		50	0	0	50	1		2/28/2022	3/1/2022
B22021763-016B	Ground Water		50	0	0	50	1		2/28/2022	3/1/2022

Number	Reagent Name	Exp Date
14614	50mL DigiTubes J526127-2104	12/10/2022
14755	Hydrochloric Acid, 36.5-38.0% 0000281827	3/29/2026
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
ME220223	AUDI	AUDIGSPK	0.05 ml	10/25/2022

# Energy Laboratories Inc

# ANALYTICAL RUN Summary

07-Mar-22

Run ID ICPMS207-B\_220301B

<b>Run Start Date:</b> 3/1/2022 11:58:35 A
<b>Analyst:</b> Cindy Rohrer
<b>Ical:</b> 0
<b>Column ID:</b>
<b>Comments:</b>

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					
15064045	Rinse	ICPMS-6020-W- SAMP			3/1/2022 11:58:3	1	R375488		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					
15064046	Rinse	ICPMS-6020-W- SAMP			3/1/2022 12:04:4	1	R375488		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					
15064047	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 12:11:0	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
15064048	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 12:17:1	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
15064049	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 12:23:2	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
15064050	Cal Blk	ICPMS-6020-W-	SAMP		3/1/2022 12:29:4	1	R375488		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%	
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%	
Cadmium	A	mg/L	0	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
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%	
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%	
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%	
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%	
Strontium	A	mg/L	0	0		0	0	0	9.743E-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					
15064050	Cal Blk	ICPMS-6020-W-	SAMP		3/1/2022 12:29:4	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
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%	
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%	
Calcium	B	mg/L	0	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Potassium	B	mg/L	0	0		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	L
Sodium	B	mg/L	0	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	0	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	0	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					
15064051	0.025 ppb STD	ICPMS-6020B-C	Cal1		3/1/2022 12:36:3	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0001893	0.0001893		0	0	0		0.01		0%			0%	
Antimony	A	mg/L	0.00002217	0.00002217		0	0	0		0.001		0%			0%	
Arsenic	A	mg/L	0.0000349	0.0000349		0.000025	0	0		0.001		140%	80	120	0%	S
Barium	A	mg/L	0.00003944	0.00003944		0.000025	0	0		0.0003		158%	80	120	0%	S
Beryllium	A	mg/L	9.624E-06	9.624E-06		0.000025	0	0		0.001		38%	80	120	0%	S
Boron	A	mg/L	-2.887E-07	-2.887E-07		0	0	0		0.1		0%				0%
Cadmium	A	mg/L	0.00002757	0.00002757		0.000025	0	0		0.001		110%	80	120	0%	
Calcium	A	mg/L	0.009598	0.009598		0	0	0		1		0%				0%
Cerium	A	mg/L	0.00002667	0.00002667		0.000025	0	0		0.001		107%	80	120	0%	
Chromium	A	mg/L	0.00004817	0.00004817		0.000025	0	0		0.001		193%	80	120	0%	S
Cobalt	A	mg/L	0.00002706	0.00002706		0.000025	0	0		0.001		108%	80	120	0%	
Copper	A	mg/L	0.00003019	0.00003019		0	0	0		0.005		0%				0%
Iron	A	mg/L	0.001	0.001		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	0.00002414	0.00002414		0.000025	0	0		0.001		97%	80	120	0%	
Lithium	A	mg/L	0.0002466	0.0002466		0.0003125	0	0		1		79%	80	120	0%	S
Magnesium	A	mg/L	0.00788	0.00788		0	0	0		1		0%				0%
Manganese	A	mg/L	0.00002844	0.00002844		0	0	0		0.001		0%				0%

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064051	0.025 ppb STD	ICPMS-6020B-C	Cal1		3/1/2022 12:36:3	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Mercury	A	mg/L	-8.455E-06	-8.455E-06		0	0	0		0.001		0%			0%	
Molybdenum	A	mg/L	0.00007997	0.00007997		0	0	0		0.001		0%			0%	
Nickel	A	mg/L	0.00005559	0.00005559		0	0	0		0.005		0%			0%	
Potassium	A	mg/L	0.007154	0.007154		0.00625	0	0		1		114%	80	120	0%	
Selenium	A	mg/L	0.00002081	0.00002081		0.000025	0	0		0.005		83%	80	120	0%	
Silicon	A	mg/L	0.0005239	0.0005239		0	0	0		0.1		0%			0%	
Silver	A	mg/L	0.00001321	0.00001321		0	0	0		0.001		0%			0%	
Sodium	A	mg/L	0.006983	0.006983		0.00625	0	0		1		112%	80	120	0%	
Strontium	A	mg/L	0.00002913	0.00002913		0	0	0		0.001		0%	80	120	0%	
Thallium	A	mg/L	0.00002385	0.00002385		0	0	0		0.001		0%			0%	
Thorium	A	mg/L	0.00001081	0.00001081		0	0	0		0.05		0%			0%	
Tin	A	mg/L	0.00003134	0.00003134		0	0	0		0.001		0%			0%	
Titanium	A	mg/L	0.0001098	0.0001098		0	0	0		0.001		0%			0%	
Uranium	A	mg/L	0.00002472	0.00002472		0.000025	0	0		0.001		99%	80	120	0%	
Vanadium	A	mg/L	0.0001729	0.0001729		0	0	0		0.005		0%			0%	
Zinc	A	mg/L	0.00009618	0.00009618		0	0	0		0.01		0%			0%	
Iron, Ferrous	C	mg/L	0.001	0.001		0.000025	0	0		0.01	5	4000%	80	120	0%	S
Silicon as SiO2	C	mg/L	0.00112115	0.00112115		0.0000535	0	0		0.214	0.9	2096%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064052	0.05 ppb STD	ICPMS-6020B-C	Cal2		3/1/2022 12:43:1	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0002155	0.0002155		0	0	0		0.01		0%			0%	
Antimony	A	mg/L	0.00005372	0.00005372		0.00005	0	0		0.001		107%	80	120	0%	
Arsenic	A	mg/L	0.00006913	0.00006913		0.00005	0	0		0.001		138%	80	120	0%	S
Barium	A	mg/L	0.00005635	0.00005635		0.00005	0	0		0.0003		113%	80	120	0%	
Beryllium	A	mg/L	0.00003485	0.00003485		0.00005	0	0		0.001		70%	80	120	0%	S
Boron	A	mg/L	0.0000142	0.0000142		0	0	0		0.1		0%			0%	
Cadmium	A	mg/L	0.00006134	0.00006134		0.00005	0	0		0.001		123%	80	120	0%	S
Calcium	A	mg/L	0.01953	0.01953		0.0125	0	0		1		156%	80	120	0%	S
Cerium	A	mg/L	0.00006408	0.00006408		0.00005	0	0		0.001		128%	80	120	0%	S
Chromium	A	mg/L	0.00006663	0.00006663		0.00005	0	0		0.001		133%	80	120	0%	S
Cobalt	A	mg/L	0.00006955	0.00006955		0	0	0		0.001		0%			0%	
Copper	A	mg/L	0.0000585	0.0000585		0.00005	0	0		0.005		117%	80	120	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064052	0.05 ppb STD	ICPMS-6020B-C	Cal2		3/1/2022 12:43:1	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Iron	A	mg/L	0.001767	0.001767		0.00125	0	0		0.01		141%	80	120	0%	S
Lanthanum	A	mg/L	0.00006268	0.00006268		0.00005	0	0		0.001		125%	80	120	0%	S
Lead	A	mg/L	0.00005667	0.00005667		0.00005	0	0		0.001		113%	80	120	0%	
Lithium	A	mg/L	0.0005767	0.0005767		0.000625	0	0		1		92%	80	120	0%	
Magnesium	A	mg/L	0.01732	0.01732		0.0125	0	0		1		139%	80	120	0%	S
Manganese	A	mg/L	0.00006856	0.00006856		0.00005	0	0		0.001		137%	80	120	0%	S
Mercury	A	mg/L	-5.546E-06	-5.546E-06		0	0	0		0.001		0%			0%	
Molybdenum	A	mg/L	0.00005515	0.00005515		0.00005	0	0		0.001		110%	80	120	0%	
Nickel	A	mg/L	0.00007792	0.00007792		0	0	0		0.005		0%			0%	
Potassium	A	mg/L	0.01269	0.01269		0.0125	0	0		1		102%	80	120	0%	
Selenium	A	mg/L	0.00005149	0.00005149		0.00005	0	0		0.005		103%	80	120	0%	
Silicon	A	mg/L	0.0005837	0.0005837		0	0	0		0.1		0%			0%	
Silver	A	mg/L	0.00002674	0.00002674		0.00002	0	0		0.001		134%	80	120	0%	S
Sodium	A	mg/L	0.01416	0.01416		0.0125	0	0		1		113%	80	120	0%	
Strontium	A	mg/L	0.00007045	0.00007045		0.00005	0	0		0.001		141%	80	120	0%	S
Thallium	A	mg/L	0.00005674	0.00005674		0	0	0		0.001		0%			0%	
Thorium	A	mg/L	0.0000273	0.0000273		0	0	0		0.05		0%			0%	
Tin	A	mg/L	0.00007063	0.00007063		0	0	0		0.001		0%			0%	
Titanium	A	mg/L	0.0001494	0.0001494		0	0	0		0.001		0%			0%	
Uranium	A	mg/L	0.00005545	0.00005545		0.00005	0	0		0.001		111%	80	120	0%	
Vanadium	A	mg/L	0.0003206	0.0003206		0	0	0		0.005		0%			0%	
Zinc	A	mg/L	0.000188	0.000188		0	0	0		0.01		0%			0%	
Iron, Ferrous	C	mg/L	0.001767	0.001767		0.00005	0	0		0.01	5	3534%	80	120	0%	S
Silicon as SiO2	C	mg/L	0.00124912	0.00124912		0.00428	0	0		0.214	0.9	29%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064053	0.10 ppb STD	ICPMS-6020B-C	Cal3		3/1/2022 12:49:5	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0002725	0.0002725		0.0001	0	0		0.01		273%	80	120	0%	S
Antimony	A	mg/L	0.0001025	0.0001025		0.0001	0	0		0.001		103%	80	120	0%	
Arsenic	A	mg/L	0.0001277	0.0001277		0.0001	0	0		0.001		128%	80	120	0%	S
Barium	A	mg/L	0.0001202	0.0001202		0.0001	0	0		0.0003		120%	80	120	0%	
Beryllium	A	mg/L	0.00008897	0.00008897		0.0001	0	0		0.001		89%	80	120	0%	
Boron	A	mg/L	0.0000179	0.0000179		0	0	0		0.1		0%			0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064053	0.10 ppb STD	ICPMS-6020B-C	Cal3		3/1/2022 12:49:5	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Cadmium	A	mg/L	0.0001218	0.0001218		0.0001	0	0		0.001		122%	80	120	0%	S
Calcium	A	mg/L	0.03483	0.03483		0.025	0	0		1		139%	80	120	0%	S
Cerium	A	mg/L	0.000118	0.000118		0.0001	0	0		0.001		118%	80	120	0%	
Chromium	A	mg/L	0.000118	0.000118		0.0001	0	0		0.001		118%	80	120	0%	
Cobalt	A	mg/L	0.0001197	0.0001197		0.0001	0	0		0.001		120%	80	120	0%	
Copper	A	mg/L	0.0001204	0.0001204		0.0001	0	0		0.005		120%	80	120	0%	
Iron	A	mg/L	0.00333	0.00333		0.0025	0	0		0.01		133%	80	120	0%	S
Lanthanum	A	mg/L	0.0001179	0.0001179		0.0001	0	0		0.001		118%	80	120	0%	
Lead	A	mg/L	0.0001098	0.0001098		0.0001	0	0		0.001		110%	80	120	0%	
Lithium	A	mg/L	0.001159	0.001159		0.00125	0	0		1		93%	80	120	0%	
Magnesium	A	mg/L	0.03327	0.03327		0.025	0	0		1		133%	80	120	0%	S
Manganese	A	mg/L	0.0001248	0.0001248		0.0001	0	0		0.001		125%	80	120	0%	S
Mercury	A	mg/L	-0.000028	-0.000028		0.000002	0	0		0.001		-1400%	80	120	0%	S
Molybdenum	A	mg/L	0.0001183	0.0001183		0.0001	0	0		0.001		118%	80	120	0%	
Nickel	A	mg/L	0.0001639	0.0001639		0.0001	0	0		0.005		164%	80	120	0%	S
Potassium	A	mg/L	0.03009	0.03009		0.025	0	0		1		120%	80	120	0%	
Selenium	A	mg/L	0.0001107	0.0001107		0.0001	0	0		0.005		111%	80	120	0%	
Silicon	A	mg/L	0.0005839	0.0005839		0.0004	0	0		0.1		146%	80	120	0%	S
Silver	A	mg/L	0.00004904	0.00004904		0.00004	0	0		0.001		123%	80	120	0%	S
Sodium	A	mg/L	0.02874	0.02874		0.025	0	0		1		115%	80	120	0%	
Strontium	A	mg/L	0.0001265	0.0001265		0.0001	0	0		0.001		127%	80	120	0%	S
Thallium	A	mg/L	0.0001034	0.0001034		0.0001	0	0		0.001		103%	80	120	0%	
Thorium	A	mg/L	0.00005843	0.00005843		0.0001	0	0		0.05		58%	80	120	0%	S
Tin	A	mg/L	0.0001217	0.0001217		0.0001	0	0		0.001		122%	80	120	0%	S
Titanium	A	mg/L	0.0001733	0.0001733		0.0001	0	0		0.001		173%	80	120	0%	S
Uranium	A	mg/L	0.0001047	0.0001047		0.0001	0	0		0.001		105%	80	120	0%	
Vanadium	A	mg/L	0.0004332	0.0004332		0.0001	0	0		0.005		433%	80	120	0%	S
Zinc	A	mg/L	0.0002363	0.0002363		0.0001	0	0		0.01		236%	80	120	0%	S
Iron, Ferrous	C	mg/L	0.00333	0.00333		0.0001	0	0		0.01	5	3330%	80	120	0%	S
Silicon as SiO2	C	mg/L	0.00124955	0.00124955		0.00856	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					
15064054	0.5 ppb STD	ICPMS-6020B-C	Cal4		3/1/2022 12:56:3	1	R375488		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					
15064054	0.5 ppb STD	ICPMS-6020B-C	CaI4		3/1/2022 12:56:3	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0007298	0.0007298		0.0005	0	0		0.01		146%	80	120	0%	S
Antimony	A	mg/L	0.0005048	0.0005048		0.0005	0	0		0.001		101%	80	120	0%	
Arsenic	A	mg/L	0.0005518	0.0005518		0.0005	0	0		0.001		110%	80	120	0%	
Barium	A	mg/L	0.0005186	0.0005186		0.0005	0	0		0.0003		104%	80	120	0%	
Beryllium	A	mg/L	0.0004586	0.0004586		0.0005	0	0		0.001		92%	80	120	0%	
Boron	A	mg/L	0.0004604	0.0004604		0.0005	0	0		0.1		92%	80	120	0%	
Cadmium	A	mg/L	0.000546	0.000546		0.0005	0	0		0.001		109%	80	120	0%	
Calcium	A	mg/L	0.1481	0.1481		0.125	0	0		1		118%	80	120	0%	
Cerium	A	mg/L	0.0005512	0.0005512		0.0005	0	0		0.001		110%	80	120	0%	
Chromium	A	mg/L	0.0005785	0.0005785		0.0005	0	0		0.001		116%	80	120	0%	
Cobalt	A	mg/L	0.0005477	0.0005477		0.0005	0	0		0.001		110%	80	120	0%	
Copper	A	mg/L	0.000602	0.000602		0.0005	0	0		0.005		120%	80	120	0%	
Iron	A	mg/L	0.01491	0.01491		0.0125	0	0		0.01		119%	80	120	0%	
Lanthanum	A	mg/L	0.0005433	0.0005433		0.0005	0	0		0.001		109%	80	120	0%	
Lead	A	mg/L	0.0005112	0.0005112		0.0005	0	0		0.001		102%	80	120	0%	
Lithium	A	mg/L	0.00604	0.00604		0.00625	0	0		1		97%	80	120	0%	
Magnesium	A	mg/L	0.1467	0.1467		0.125	0	0		1		117%	80	120	0%	
Manganese	A	mg/L	0.0005611	0.0005611		0.0005	0	0		0.001		112%	80	120	0%	
Mercury	A	mg/L	-3.91E-06	-3.91E-06		0.00001	0	0		0.001		-39%	80	120	0%	S
Molybdenum	A	mg/L	0.0005119	0.0005119		0.0005	0	0		0.001		102%	80	120	0%	
Nickel	A	mg/L	0.0006054	0.0006054		0.0005	0	0		0.005		121%	80	120	0%	S
Potassium	A	mg/L	0.1342	0.1342		0.125	0	0		1		107%	80	120	0%	
Selenium	A	mg/L	0.0005481	0.0005481		0.0005	0	0		0.005		110%	80	120	0%	
Silicon	A	mg/L	0.002384	0.002384		0.002	0	0		0.1		119%	80	120	0%	
Silver	A	mg/L	0.0002215	0.0002215		0.0002	0	0		0.001		111%	80	120	0%	
Sodium	A	mg/L	0.142	0.142		0.125	0	0		1		114%	80	120	0%	
Strontium	A	mg/L	0.000567	0.000567		0.0005	0	0		0.001		113%	80	120	0%	
Thallium	A	mg/L	0.00051	0.00051		0.0005	0	0		0.001		102%	80	120	0%	
Thorium	A	mg/L	0.0003415	0.0003415		0.0005	0	0		0.05		68%	80	120	0%	S
Tin	A	mg/L	0.0005146	0.0005146		0.0005	0	0		0.001		103%	80	120	0%	
Titanium	A	mg/L	0.0006003	0.0006003		0.0005	0	0		0.001		120%	80	120	0%	
Uranium	A	mg/L	0.0004888	0.0004888		0.0005	0	0		0.001		98%	80	120	0%	
Vanadium	A	mg/L	0.0005494	0.0005494		0.0005	0	0		0.005		110%	80	120	0%	
Zinc	A	mg/L	0.0006711	0.0006711		0.0005	0	0		0.01		134%	80	120	0%	S
Iron, Ferrous	C	mg/L	0.01491	0.01491		0.0005	0	0		0.01	5	2982%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064054	0.5 ppb STD	ICPMS-6020B-C Cal4			3/1/2022 12:56:3	1	R375488		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	0.00510176	0.00510176		0.0428	0	0		0.214	0.9	12%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064055	1 ppb STD	ICPMS-6020B-C Cal5			3/1/2022 1:03:14	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001312	0.001312		0.001	0	0		0.01		131%	80	120	0%	S
Antimony	A	mg/L	0.001093	0.001093		0.001	0	0		0.001		109%	80	120	0%	
Arsenic	A	mg/L	0.001108	0.001108		0.001	0	0		0.001		111%	80	120	0%	
Barium	A	mg/L	0.001069	0.001069		0.001	0	0		0.0003		107%	80	120	0%	
Beryllium	A	mg/L	0.0008901	0.0008901		0.001	0	0		0.001		89%	80	120	0%	
Boron	A	mg/L	0.00089	0.00089		0.001	0	0		0.1		89%	80	120	0%	
Cadmium	A	mg/L	0.001118	0.001118		0.001	0	0		0.001		112%	80	120	0%	
Calcium	A	mg/L	0.2905	0.2905		0.25	0	0		1		116%	80	120	0%	
Cerium	A	mg/L	0.001099	0.001099		0.001	0	0		0.001		110%	80	120	0%	
Chromium	A	mg/L	0.001144	0.001144		0.001	0	0		0.001		114%	80	120	0%	
Cobalt	A	mg/L	0.001146	0.001146		0.001	0	0		0.001		115%	80	120	0%	
Copper	A	mg/L	0.001249	0.001249		0.001	0	0		0.005		125%	80	120	0%	S
Iron	A	mg/L	0.02973	0.02973		0.025	0	0		0.01		119%	80	120	0%	
Lanthanum	A	mg/L	0.001159	0.001159		0.001	0	0		0.001		116%	80	120	0%	
Lead	A	mg/L	0.001045	0.001045		0.001	0	0		0.001		104%	80	120	0%	
Lithium	A	mg/L	0.01156	0.01156		0.0125	0	0		1		92%	80	120	0%	
Magnesium	A	mg/L	0.3019	0.3019		0.25	0	0		1		121%	80	120	0%	S
Manganese	A	mg/L	0.001176	0.001176		0.001	0	0		0.001		118%	80	120	0%	
Mercury	A	mg/L	0.00000643	0.00000643		0.00002	0	0		0.001		32%	80	120	0%	S
Molybdenum	A	mg/L	0.001099	0.001099		0.001	0	0		0.001		110%	80	120	0%	
Nickel	A	mg/L	0.001154	0.001154		0.001	0	0		0.005		115%	80	120	0%	
Potassium	A	mg/L	0.2682	0.2682		0.25	0	0		1		107%	80	120	0%	
Selenium	A	mg/L	0.001102	0.001102		0.001	0	0		0.005		110%	80	120	0%	
Silicon	A	mg/L	0.004667	0.004667		0.004	0	0		0.1		117%	80	120	0%	
Silver	A	mg/L	0.0004686	0.0004686		0.0004	0	0		0.001		117%	80	120	0%	
Sodium	A	mg/L	0.2905	0.2905		0.25	0	0		1		116%	80	120	0%	
Strontium	A	mg/L	0.001125	0.001125		0.001	0	0		0.001		113%	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	0.0008576	0.0008576		0.001	0	0		0.05		86%	80	120	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064055	1 ppb STD	ICPMS-6020B-C Cal5			3/1/2022 1:03:14	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Tin	A	mg/L	0.001086	0.001086		0.001	0	0		0.001		109%	80	120	0%	
Titanium	A	mg/L	0.001185	0.001185		0.001	0	0		0.001		119%	80	120	0%	
Uranium	A	mg/L	0.0009947	0.0009947		0.001	0	0		0.001		99%	80	120	0%	
Vanadium	A	mg/L	0.000753	0.000753		0.001	0	0		0.005		75%	80	120	0%	S
Zinc	A	mg/L	0.001449	0.001449		0.001	0	0		0.01		145%	80	120	0%	S
Iron, Ferrous	C	mg/L	0.02973	0.02973		0.001	0	0		0.01	5	2973%	80	120	0%	S
Silicon as SiO2	C	mg/L	0.00998738	0.00998738		0.0856	0	0		0.214	0.9	12%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064056	10 ppb STD	ICPMS-6020B-C Cal6			3/1/2022 1:09:52	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.01042	0.01042		0.01	0	0		0.01		104%	90	110	0%	
Antimony	A	mg/L	0.01051	0.01051		0.01	0	0		0.001		105%	90	110	0%	
Arsenic	A	mg/L	0.011	0.011		0.01	0	0		0.001		110%	90	110	0%	
Barium	A	mg/L	0.0103	0.0103		0.01	0	0		0.0003		103%	90	110	0%	
Beryllium	A	mg/L	0.008975	0.008975		0.01	0	0		0.001		90%	90	110	0%	
Boron	A	mg/L	0.009651	0.009651		0.01	0	0		0.1		97%	90	110	0%	
Cadmium	A	mg/L	0.01052	0.01052		0.01	0	0		0.001		105%	90	110	0%	
Calcium	A	mg/L	2.786	2.786		2.5	0	0		1		111%	90	110	0%	S
Cerium	A	mg/L	0.01081	0.01081		0.01	0	0		0.001		108%	90	110	0%	
Chromium	A	mg/L	0.01107	0.01107		0.01	0	0		0.001		111%	90	110	0%	S
Cobalt	A	mg/L	0.01091	0.01091		0.01	0	0		0.001		109%	90	110	0%	
Copper	A	mg/L	0.01214	0.01214		0.01	0	0		0.005		121%	90	110	0%	S
Iron	A	mg/L	0.2914	0.2914		0.25	0	0		0.01		117%	90	110	0%	S
Lanthanum	A	mg/L	0.01102	0.01102		0.01	0	0		0.001		110%	90	110	0%	
Lead	A	mg/L	0.01046	0.01046		0.01	0	0		0.001		105%	90	110	0%	
Lithium	A	mg/L	0.1157	0.1157		0.125	0	0		1		93%	90	110	0%	
Magnesium	A	mg/L	2.89	2.89		2.5	0	0		1		116%	90	110	0%	S
Manganese	A	mg/L	0.01135	0.01135		0.01	0	0		0.001		114%	90	110	0%	S
Mercury	A	mg/L	0.0001515	0.0001515		0.0002	0	0		0.001		76%	90	110	0%	S
Molybdenum	A	mg/L	0.01048	0.01048		0.01	0	0		0.001		105%	90	110	0%	
Nickel	A	mg/L	0.01188	0.01188		0.01	0	0		0.005		119%	90	110	0%	S
Potassium	A	mg/L	2.845	2.845		2.5	0	0		1		114%	90	110	0%	S
Selenium	A	mg/L	0.01089	0.01089		0.01	0	0		0.005		109%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064056	10 ppb STD	ICPMS-6020B-C Cal6			3/1/2022 1:09:52	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Silicon	A	mg/L	0.04206	0.04206		0.04	0	0		0.1		105%	90	110	0%	
Silver	A	mg/L	0.004318	0.004318		0.004	0	0		0.001		108%	90	110	0%	
Sodium	A	mg/L	2.778	2.778		2.5	0	0		1		111%	90	110	0%	S
Strontium	A	mg/L	0.0111	0.0111		0.01	0	0		0.001		111%	90	110	0%	S
Thallium	A	mg/L	0.0104	0.0104		0.01	0	0		0.001		104%	90	110	0%	
Thorium	A	mg/L	0.009938	0.009938		0.01	0	0		0.05		99%	90	110	0%	
Tin	A	mg/L	0.01058	0.01058		0.01	0	0		0.001		106%	90	110	0%	
Titanium	A	mg/L	0.01071	0.01071		0.01	0	0		0.001		107%	90	110	0%	
Uranium	A	mg/L	0.0102	0.0102		0.01	0	0		0.001		102%	90	110	0%	
Vanadium	A	mg/L	0.009644	0.009644		0.01	0	0		0.005		96%	90	110	0%	
Zinc	A	mg/L	0.01128	0.01128		0.01	0	0		0.01		113%	90	110	0%	S
Iron, Ferrous	C	mg/L	0.2914	0.2914		0.01	0	0		0.01	5	2914%	90	110	0%	S
Silicon as SiO2	C	mg/L	0.0900084	0.0900084		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					
15064057	50 ppb STD	ICPMS-6020B-C Cal7			3/1/2022 1:16:30	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.05078	0.05078		0.05	0	0		0.01		102%	90	110	0%	
Antimony	A	mg/L	0.05035	0.05035		0.05	0	0		0.001		101%	90	110	0%	
Arsenic	A	mg/L	0.05117	0.05117		0.05	0	0		0.001		102%	90	110	0%	
Barium	A	mg/L	0.04991	0.04991		0.05	0	0		0.0003		100%	90	110	0%	
Beryllium	A	mg/L	0.04587	0.04587		0.05	0	0		0.001		92%	90	110	0%	
Boron	A	mg/L	0.04826	0.04826		0.05	0	0		0.1		97%	90	110	0%	
Cadmium	A	mg/L	0.05006	0.05006		0.05	0	0		0.001		100%	90	110	0%	
Calcium	A	mg/L	12.59	12.59		12.5	0	0		1		101%	90	110	0%	
Cerium	A	mg/L	0.05191	0.05191		0.05	0	0		0.001		104%	90	110	0%	
Chromium	A	mg/L	0.05023	0.05023		0.05	0	0		0.001		100%	90	110	0%	
Cobalt	A	mg/L	0.05084	0.05084		0.05	0	0		0.001		102%	90	110	0%	
Copper	A	mg/L	0.05428	0.05428		0.05	0	0		0.005		109%	90	110	0%	
Iron	A	mg/L	1.316	1.316		1.25	0	0		0.01		105%	90	110	0%	
Lanthanum	A	mg/L	0.05237	0.05237		0.05	0	0		0.001		105%	90	110	0%	
Lead	A	mg/L	0.04983	0.04983		0.05	0	0		0.001		100%	90	110	0%	
Lithium	A	mg/L	0.5608	0.5608		0.625	0	0		1		90%	90	110	0%	
Magnesium	A	mg/L	13.16	13.16		12.5	0	0		1		105%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064057	50 ppb STD	ICPMS-6020B-C Cal7			3/1/2022 1:16:30	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Manganese	A	mg/L	0.05215	0.05215		0.05	0	0		0.001		104%	90	110	0%	
Mercury	A	mg/L	0.0009736	0.0009736		0.001	0	0		0.001		97%	90	110	0%	
Molybdenum	A	mg/L	0.05008	0.05008		0.05	0	0		0.001		100%	90	110	0%	
Nickel	A	mg/L	0.0541	0.0541		0.05	0	0		0.005		108%	90	110	0%	
Potassium	A	mg/L	12.91	12.91		12.5	0	0		1		103%	90	110	0%	
Selenium	A	mg/L	0.05048	0.05048		0.05	0	0		0.005		101%	90	110	0%	
Silicon	A	mg/L	0.2021	0.2021		0.2	0	0		0.1		101%	90	110	0%	
Silver	A	mg/L	0.0204	0.0204		0.02	0	0		0.001		102%	90	110	0%	
Sodium	A	mg/L	12.64	12.64		12.5	0	0		1		101%	90	110	0%	
Strontium	A	mg/L	0.05192	0.05192		0.05	0	0		0.001		104%	90	110	0%	
Thallium	A	mg/L	0.05038	0.05038		0.05	0	0		0.001		101%	90	110	0%	
Thorium	A	mg/L	0.04953	0.04953		0.05	0	0		0.05		99%	90	110	0%	
Tin	A	mg/L	0.05139	0.05139		0.05	0	0		0.001		103%	90	110	0%	
Titanium	A	mg/L	0.04873	0.04873		0.05	0	0		0.001		97%	90	110	0%	
Uranium	A	mg/L	0.04849	0.04849		0.05	0	0		0.001		97%	90	110	0%	
Vanadium	A	mg/L	0.05023	0.05023		0.05	0	0		0.005		100%	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	1.316	1.316		0.05	0	0		0.01	5	2632%	90	110	0%	S
Silicon as SiO2	C	mg/L	0.432494	0.432494		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					
15064058	100 ppb STD	ICPMS-6020B-C Cal8			3/1/2022 1:23:06	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.09888	0.09888		0.1	0	0		0.01		99%	90	110	0%	
Antimony	A	mg/L	0.09977	0.09977		0.1	0	0		0.001		100%	90	110	0%	
Arsenic	A	mg/L	0.1012	0.1012		0.1	0	0		0.001		101%	90	110	0%	
Barium	A	mg/L	0.09747	0.09747		0.1	0	0		0.0003		97%	90	110	0%	
Beryllium	A	mg/L	0.09654	0.09654		0.1	0	0		0.001		97%	90	110	0%	
Boron	A	mg/L	0.09938	0.09938		0.1	0	0		0.1		99%	90	110	0%	
Cadmium	A	mg/L	0.1006	0.1006		0.1	0	0		0.001		101%	90	110	0%	
Calcium	A	mg/L	25.08	25.08		25	0	0		1		100%	90	110	0%	
Cerium	A	mg/L	0.09896	0.09896		0.1	0	0		0.001		99%	90	110	0%	
Chromium	A	mg/L	0.1007	0.1007		0.1	0	0		0.001		101%	90	110	0%	
Cobalt	A	mg/L	0.09798	0.09798		0.1	0	0		0.001		98%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064058	100 ppb STD	ICPMS-6020B-C Cal8			3/1/2022 1:23:06	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Copper	A	mg/L	0.1042	0.1042		0.1	0	0		0.005		104%	90	110	0%	
Iron	A	mg/L	2.595	2.595		2.5	0	0		0.01		104%	90	110	0%	
Lanthanum	A	mg/L	0.09871	0.09871		0.1	0	0		0.001		99%	90	110	0%	
Lead	A	mg/L	0.09848	0.09848		0.1	0	0		0.001		98%	90	110	0%	
Lithium	A	mg/L	1.225	1.225		1.25	0	0		1		98%	90	110	0%	
Magnesium	A	mg/L	25.87	25.87		25	0	0		1		103%	90	110	0%	
Manganese	A	mg/L	0.1025	0.1025		0.1	0	0		0.001		102%	90	110	0%	
Mercury	A	mg/L	0.002018	0.002018		0.002	0	0		0.001		101%	90	110	0%	
Molybdenum	A	mg/L	0.09991	0.09991		0.1	0	0		0.001		100%	90	110	0%	
Nickel	A	mg/L	0.1059	0.1059		0.1	0	0		0.005		106%	90	110	0%	
Potassium	A	mg/L	25.28	25.28		25	0	0		1		101%	90	110	0%	
Selenium	A	mg/L	0.101	0.101		0.1	0	0		0.005		101%	90	110	0%	
Silicon	A	mg/L	0.3987	0.3987		0.4	0	0		0.1		100%	90	110	0%	
Silver	A	mg/L	0.03977	0.03977		0.04	0	0		0.001		99%	90	110	0%	
Sodium	A	mg/L	24.98	24.98		25	0	0		1		100%	90	110	0%	
Strontium	A	mg/L	0.1026	0.1026		0.1	0	0		0.001		103%	90	110	0%	
Thallium	A	mg/L	0.1034	0.1034		0.1	0	0		0.001		103%	90	110	0%	
Thorium	A	mg/L	0.1003	0.1003		0.1	0	0		0.05		100%	90	110	0%	
Tin	A	mg/L	0.09925	0.09925		0.1	0	0		0.001		99%	90	110	0%	
Titanium	A	mg/L	0.1006	0.1006		0.1	0	0		0.001		101%	90	110	0%	
Uranium	A	mg/L	0.09756	0.09756		0.1	0	0		0.001		98%	90	110	0%	
Vanadium	A	mg/L	0.09732	0.09732		0.1	0	0		0.005		97%	90	110	0%	
Zinc	A	mg/L	0.1012	0.1012		0.1	0	0		0.01		101%	90	110	0%	
Iron, Ferrous	C	mg/L	2.595	2.595		0.1	0	0		0.01	5	2595%	90	110	0%	S
Silicon as SiO2	C	mg/L	0.853218	0.853218		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					
15064059	1000 ppb STD	ICPMS-6020B-C Cal10			3/1/2022 1:29:39	1	R375488		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	0.0003009	0.0003009		0	0	0		0.001		0%			0%	
Arsenic	A	mg/L	0.9998	0.9998		1	0	0		0.001		100%	90	110	0%	
Barium	A	mg/L	1	1		1	0	0		0.0003		100%	90	110	0%	
Beryllium	A	mg/L	1.001	1.001		1	0	0		0.001		100%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064059	1000 ppb STD	ICPMS-6020B-C	Cal10		3/1/2022 1:29:39	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Boron	A	mg/L	1	1		1	0	0		0.1		100%	90	110	0%	
Cadmium	A	mg/L	0.9999	0.9999		1	0	0		0.001		100%	90	110	0%	
Calcium	A	mg/L	49.92	49.92		50	0	0		1		100%	90	110	0%	
Cerium	A	mg/L	0.00002247	0.00002247		0	0	0		0.001		0%			0%	
Chromium	A	mg/L	0.9999	0.9999		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	0.9993	0.9993		1	0	0		0.005		100%	90	110	0%	
Iron	A	mg/L	5.997	5.997		6	0	0		0.01		100%	90	110	0%	
Lanthanum	A	mg/L	9.476E-06	9.476E-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	2.529	2.529		2.5	0	0		1		101%	90	110	0%	
Magnesium	A	mg/L	49.38	49.38		50	0	0		1		99%	90	110	0%	
Manganese	A	mg/L	0.9996	0.9996		1	0	0		0.001		100%	90		0%	
Mercury	A	mg/L	-1.952E-06	-1.952E-06		0	0	0		0.001		0%			0%	
Molybdenum	A	mg/L	0.0001053	0.0001053		0	0	0		0.001		0%			0%	
Nickel	A	mg/L	0.9992	0.9992		1	0	0		0.005		100%	90	110	0%	
Potassium	A	mg/L	49.74	49.74		50	0	0		1		99%	90	110	0%	
Selenium	A	mg/L	0.9999	0.9999		1	0	0		0.005		100%	90	110	0%	
Silicon	A	mg/L	0.002054	0.002054		0	0	0		0.1		0%			0%	
Silver	A	mg/L	0.3198	0.3198		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	0.9996	0.9996		1	0	0		0.001		100%	90	110	0%	
Thallium	A	mg/L	0.9996	0.9996		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	0.0001312	0.0001312		0	0	0		0.001		0%			0%	
Titanium	A	mg/L	0.006839	0.006839		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	0.9998	0.9998		1	0	0		0.01		100%	90	110	0%	
Iron, Ferrous	C	mg/L	5.997	5.997		0	0	0		0.01	5	0%			0%	
Silicon as SiO2	C	mg/L	0.00439556	0.00439556		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					
15064060	100 ppb Br STD	ICPMS-6020-W-	SAMP		3/1/2022 1:36:07	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0001366	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Antimony	A	mg/L	0.00005994	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	0.0001089	0.0001089		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	J
Barium	A	mg/L	0.00001639	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-1.638E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	0.000025	0.000025		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	J
Cerium	A	mg/L	2.143E-06	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00005536	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	8.308E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	1.915E-06	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00008249	0.00008249		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.00002334	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-6.125E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00002023	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	0.00004249	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.0001672	0.0001672		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silicon	A	mg/L	0.001664	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	0.0005969	0.0005969		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	J
Strontium	A	mg/L	5.187E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.0003035	0.0003035		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Titanium	A	mg/L	0.0001371	0.0001371		0	0	0	0.0001004	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	0.00002578	0.00002578		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	J
Calcium	B	mg/L	0.002712	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0.000713	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.000713	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	-0.0005682	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Potassium	B	mg/L	0.7791	0.7791		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	D
Sodium	B	mg/L	-0.002297	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	0.000305	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Vanadium	B	mg/L	-0.001185	0		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	B	mg/L	0.0004396	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					
15064061	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 1:42:30	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	-0.0001176	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Antimony	A	mg/L	0.00002347	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-2.613E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	3.894E-06	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-4.809E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	7.247E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	-1.706E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-4.228E-05	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	1.655E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	-1.614E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00003105	0.00003105		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	3.669E-06	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-5.474E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00000791	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-1.535E-06	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.00004789	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	-6.621E-05	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	6.801E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	6.033E-07	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0004295	0.0004295		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00005713	0.00005713		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Titanium	A	mg/L	-2.847E-06	0		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	4.346E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Calcium	B	mg/L	-0.0007545	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0.00002488	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.00002488	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	-0.001041	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Potassium	B	mg/L	0.01304	0		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	L
Sodium	B	mg/L	-0.0117	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	0.00002319	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	-0.0000919	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					
15064062	QCS	ICPMS-6020-W- ICV			3/1/2022 1:48:44	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.2554	0.2554		0.25	0	0	0.0017836	0.001	1	102%	90	110	0%	
Antimony	A	mg/L	0.04971	0.04971		0.05	0	0	6.768E-05	0.001	0.1	99%	90	110	0%	
Arsenic	A	mg/L	0.04982	0.04982		0.05	0	0	8.203E-05	0.001	1	100%	90	110	0%	
Barium	A	mg/L	0.05172	0.05172		0.05	0	0	6.762E-05	0.001	1	103%	90	110	0%	
Beryllium	A	mg/L	0.02366	0.02366		0.025	0	0	8.516E-05	0.001	1	95%	90	110	0%	
Boron	A	mg/L	0.0558	0.0558		0.05	0	0	0.0039526	0.00561	1	112%	90	110	0%	S
Cadmium	A	mg/L	0.02626	0.02626		0.025	0	0	2.308E-05	0.001	1	105%	90	110	0%	
Calcium	A	mg/L	2.523	2.523		2.5	0	0	0.2027235	0.02092	50	101%	90	110	0%	
Cerium	A	mg/L	0.05006	0.05006		0.05	0	0	0.0000222	0.001	0.1	100%	90	110	0%	
Chromium	A	mg/L	0.05018	0.05018		0.05	0	0	0.0002538	0.001	1	100%	90	110	0%	
Cobalt	A	mg/L	0.05244	0.05244		0.05	0	0	2.141E-05	0.001	1	105%	90	110	0%	
Copper	A	mg/L	0.05527	0.05527		0.05	0	0	0.0001748	0.001	1	111%	90	110	0%	S
Iron	A	mg/L	0.2579	0.2579		0.25	0	0	0.0021157	0.00119	5	103%	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	0.04768	0.04768		0.05	0	0	3.031E-05	0.001	1	95%	90	110	0%	
Magnesium	A	mg/L	2.626	2.626		2.5	0	0	0.0203306	0.00564	50	105%	90	110	0%	
Manganese	A	mg/L	0.2586	0.2586		0.25	0	0	7.309E-05	0.001	1	103%	90	110	0%	
Mercury	A	mg/L	0.0009352	0.0009352		0.001	0	0	3.043E-05	0.001	0.002	94%	90	110	0%	
Molybdenum	A	mg/L	0.04982	0.04982		0.05	0	0	8.113E-05	0.001	0.1	100%	90	110	0%	
Nickel	A	mg/L	0.05352	0.05352		0.05	0	0	0.0001769	0.001	1	107%	90	110	0%	
Potassium	A	mg/L	2.499	2.499		2.5	0	0	0.0215433	0.08139	50	100%	90	110	0%	
Selenium	A	mg/L	0.0515	0.0515		0.05	0	0	7.174E-05	0.001	1	103%	90	110	0%	
Silicon	A	mg/L	0.493	0.493		0.5	0	0	0.0033337	0.1	0.4	99%	90	110	0%	
Silver	A	mg/L	0.02624	0.02624		0.025	0	0	2.644E-05	0.001	0.04	105%	90	110	0%	
Sodium	A	mg/L	2.605	2.605		2.5	0	0	0.0451914	0.02171	50	104%	90	110	0%	
Strontium	A	mg/L	0.05086	0.05086		0.05	0	0	9.743E-05	0.001	1	102%	90	110	0%	
Thallium	A	mg/L	0.04919	0.04919		0.05	0	0	4.842E-05	0.001	1	98%	90	110	0%	
Thorium	A	mg/L	0.04783	0.04783		0.05	0	0	3.018E-05	0.001	1	96%	90	110	0%	
Tin	A	mg/L	0.05086	0.05086		0.05	0	0	0.0009928	0.00132	0.1	102%	90	110	0%	
Titanium	A	mg/L	0.04944	0.04944		0.05	0	0	0.0001004	0.001	1	99%	90	110	0%	
Uranium	A	mg/L	0.04999	0.04999		0.05	0	0	2.468E-05	0.0003	1	100%	90	110	0%	
Vanadium	A	mg/L	0.04797	0.04797		0.05	0	0	0.0018612	0.0013	1	96%	90	110	0%	
Zinc	A	mg/L	0.05077	0.05077		0.05	0	0	0.0010089	0.00273	1	102%	90	110	0%	
Iron, Ferrous	C	mg/L	0.2579	0.2579		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					
15064063	ICB	ICPMS-6020-W-	ICB		3/1/2022 1:54:59	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	-8.275E-05	-8.275E-05		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Antimony	A	mg/L	0.0001257	0.0001257		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-8.234E-05	-8.234E-05		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	2.297E-06	2.297E-06		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-5.018E-05	-5.018E-05		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Boron	A	mg/L	0.003373	0.003373		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	
Cadmium	A	mg/L	2.636E-06	2.636E-06		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Calcium	A	mg/L	-0.0005673	-0.0005673		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	
Cerium	A	mg/L	1.188E-07	1.188E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-0.0000209	-0.0000209		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-1.943E-07	-1.943E-07		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	-2.638E-05	-2.638E-05		0	0	0	0.0001748	0.001	1	0%	0	0	0%	
Iron	A	mg/L	0.00002729	0.00002729		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Lanthanum	A	mg/L	1.901E-07	1.901E-07		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00002602	0.00002602		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Magnesium	A	mg/L	-0.0006249	-0.0006249		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	
Manganese	A	mg/L	1.973E-06	1.973E-06		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-5.695E-05	-5.695E-05		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.0000316	0.0000316		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	0.00001655	0.00001655		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Potassium	A	mg/L	0.00207	0.00207		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	
Selenium	A	mg/L	0.00001828	0.00001828		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	-0.00105	-0.00105		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	3.427E-06	3.427E-06		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	-0.0125	-0.0125		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	
Strontium	A	mg/L	2.712E-06	2.712E-06		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.000157	0.000157		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00004133	0.00004133		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Tin	A	mg/L	0.00005779	0.00005779		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Titanium	A	mg/L	-3.075E-05	-3.075E-05		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	3.202E-06	3.202E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.001917	-0.001917		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	A	mg/L	-0.000179	-0.000179		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	
Iron, Ferrous	C	mg/L	0.00002729	0.00002729		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					
15064064	CCV	ICPMS-6020-W-	CCV		3/1/2022 2:01:13	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.05092	0.05092		0.05	0	0	0.0017836	0.001	1	102%	90	110	0%	
Antimony	A	mg/L	0.05331	0.05331		0.05	0	0	6.768E-05	0.001	0.1	107%	90	110	0%	
Arsenic	A	mg/L	0.0511	0.0511		0.05	0	0	8.203E-05	0.001	1	102%	90	110	0%	
Barium	A	mg/L	0.05296	0.05296		0.05	0	0	6.762E-05	0.001	1	106%	90	110	0%	
Beryllium	A	mg/L	0.04661	0.04661		0.05	0	0	8.516E-05	0.001	1	93%	90	110	0%	
Boron	A	mg/L	0.05039	0.05039		0.05	0	0	0.0039526	0.00561	1	101%	90	110	0%	
Cadmium	A	mg/L	0.05379	0.05379		0.05	0	0	2.308E-05	0.001	1	108%	90	110	0%	
Calcium	A	mg/L	12.17	12.17		12.5	0	0	0.2027235	0.02092	50	97%	90	110	0%	
Cerium	A	mg/L	0.05158	0.05158		0.05	0	0	0.0000222	0.001	0.1	103%	90	110	0%	
Chromium	A	mg/L	0.05008	0.05008		0.05	0	0	0.0002538	0.001	1	100%	90	110	0%	
Cobalt	A	mg/L	0.0521	0.0521		0.05	0	0	2.141E-05	0.001	1	104%	90	110	0%	
Copper	A	mg/L	0.05392	0.05392		0.05	0	0	0.0001748	0.001	1	108%	90	110	0%	
Iron	A	mg/L	1.305	1.305		1.3	0	0	0.0021157	0.00119	5	100%	90	110	0%	
Lanthanum	A	mg/L	0.05286	0.05286		0.05	0	0	6.805E-05	0.001	0.1	106%	90	110	0%	
Lead	A	mg/L	0.04963	0.04963		0.05	0	0	3.031E-05	0.001	1	99%	90	110	0%	
Magnesium	A	mg/L	13.12	13.12		12.5	0	0	0.0203306	0.00564	50	105%	90	110	0%	
Manganese	A	mg/L	0.05157	0.05157		0.05	0	0	7.309E-05	0.001	1	103%	90	110	0%	
Mercury	A	mg/L	0.0009314	0.0009314		0.001	0	0	3.043E-05	0.001	0.002	93%	90	110	0%	
Molybdenum	A	mg/L	0.05268	0.05268		0.05	0	0	8.113E-05	0.001	0.1	105%	90	110	0%	
Nickel	A	mg/L	0.05455	0.05455		0.05	0	0	0.0001769	0.001	1	109%	90	110	0%	
Potassium	A	mg/L	12.56	12.56		12.5	0	0	0.0215433	0.08139	50	100%	90	110	0%	
Selenium	A	mg/L	0.05076	0.05076		0.05	0	0	7.174E-05	0.001	1	102%	90	110	0%	
Silicon	A	mg/L	0.1978	0.1978		0.2	0	0	0.0033337	0.1	0.4	99%	90	110	0%	
Silver	A	mg/L	0.02151	0.02151		0.02	0	0	2.644E-05	0.001	0.04	108%	90	110	0%	
Sodium	A	mg/L	12.91	12.91		12.5	0	0	0.0451914	0.02171	50	103%	90	110	0%	
Strontium	A	mg/L	0.05141	0.05141		0.05	0	0	9.743E-05	0.001	1	103%	90	110	0%	
Thallium	A	mg/L	0.05043	0.05043		0.05	0	0	4.842E-05	0.001	1	101%	90	110	0%	
Thorium	A	mg/L	0.04959	0.04959		0.05	0	0	3.018E-05	0.001	1	99%	90	110	0%	
Tin	A	mg/L	0.05326	0.05326		0.05	0	0	0.0009928	0.00132	0.1	107%	90	110	0%	
Titanium	A	mg/L	0.04926	0.04926		0.05	0	0	0.0001004	0.001	1	99%	90	110	0%	
Uranium	A	mg/L	0.04818	0.04818		0.05	0	0	2.468E-05	0.0003	1	96%	90	110	0%	
Vanadium	A	mg/L	0.04939	0.04939		0.05	0	0	0.0018612	0.0013	1	99%	90	110	0%	
Zinc	A	mg/L	0.05118	0.05118		0.05	0	0	0.0010089	0.00273	1	102%	90	110	0%	
Iron, Ferrous	C	mg/L	1.305	1.305		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					
15064065	CCB	ICPMS-6020-W-	CCB		3/1/2022 2:07:27	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	-8.027E-05	-8.027E-05		0	0	0	0.0017836	0.001	1	0%				0%
Antimony	A	mg/L	0.0001449	0.0001449		0	0	0	6.768E-05	0.001	0.1	0%				0%
Arsenic	A	mg/L	-5.423E-05	-5.423E-05		0	0	0	8.203E-05	0.001	1	0%				0%
Barium	A	mg/L	1.571E-06	1.571E-06		0	0	0	6.762E-05	0.001	1	0%				0%
Beryllium	A	mg/L	-6.307E-05	-6.307E-05		0	0	0	8.516E-05	0.001	1	0%				0%
Boron	A	mg/L	0.002518	0.002518		0	0	0	0.0039526	0.00561	1	0%				0%
Cadmium	A	mg/L	4.085E-06	4.085E-06		0	0	0	2.308E-05	0.001	1	0%				0%
Calcium	A	mg/L	-0.001264	-0.001264		0	0	0	0.2027235	0.02092	50	0%				0%
Cerium	A	mg/L	-2.527E-07	-2.527E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0		0%
Chromium	A	mg/L	-7.599E-06	-7.599E-06		0	0	0	0.0002538	0.001	1	0%				0%
Cobalt	A	mg/L	2.755E-07	2.755E-07		0	0	0	2.141E-05	0.001	1	0%				0%
Copper	A	mg/L	-0.0000336	-0.0000336		0	0	0	0.0001748	0.001	1	0%				0%
Iron	A	mg/L	0.00005017	0.00005017		0	0	0	0.0021157	0.00119	5	0%				0%
Lanthanum	A	mg/L	5.152E-07	5.152E-07		0	0	0	6.805E-05	0.001	0.1	0%	0	0		0%
Lead	A	mg/L	0.00001923	0.00001923		0	0	0	3.031E-05	0.001	1	0%				0%
Magnesium	A	mg/L	-0.0002346	-0.0002346		0	0	0	0.0203306	0.00564	50	0%				0%
Manganese	A	mg/L	-2.626E-06	-2.626E-06		0	0	0	7.309E-05	0.001	1	0%				0%
Mercury	A	mg/L	-4.611E-05	-4.611E-05		0	0	0	3.043E-05	0.001	0.002	0%				0%
Molybdenum	A	mg/L	0.00003814	0.00003814		0	0	0	8.113E-05	0.001	0.1	0%				0%
Nickel	A	mg/L	0.00001831	0.00001831		0	0	0	0.0001769	0.001	1	0%				0%
Potassium	A	mg/L	0.00217	0.00217		0	0	0	0.0215433	0.08139	50	0%				0%
Selenium	A	mg/L	0.00001383	0.00001383		0	0	0	7.174E-05	0.001	1	0%				0%
Silicon	A	mg/L	-0.0007193	-0.0007193		0	0	0	0.0033337	0.1	0.4	0%	0	0		0%
Silver	A	mg/L	0.00000299	0.00000299		0	0	0	2.644E-05	0.001	0.04	0%				0%
Sodium	A	mg/L	-0.008561	-0.008561		0	0	0	0.0451914	0.02171	50	0%				0%
Strontium	A	mg/L	9.372E-08	9.372E-08		0	0	0	9.743E-05	0.001	1	0%	0	0		0%
Thallium	A	mg/L	0.0001295	0.0001295		0	0	0	4.842E-05	0.001	1	0%	0	0		0%
Thorium	A	mg/L	0.00004524	0.00004524		0	0	0	3.018E-05	0.001	1	0%	0	0		0%
Tin	A	mg/L	0.00006839	0.00006839		0	0	0	0.0009928	0.00132	0.1	0%	0	0		0%
Titanium	A	mg/L	-1.404E-05	-1.404E-05		0	0	0	0.0001004	0.001	1	0%	0	0		0%
Uranium	A	mg/L	2.329E-06	2.329E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0		0%
Vanadium	A	mg/L	-0.001074	-0.001074		0	0	0	0.0018612	0.0013	1	0%	0	0		0%
Zinc	A	mg/L	-0.0001732	-0.0001732		0	0	0	0.0010089	0.00273	1	0%	0	0		0%
Iron, Ferrous	C	mg/L	0.00005017	0.00005017		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					
15064066	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 2:13:42	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	-8.374E-05	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Antimony	A	mg/L	0.00002458	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-8.153E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	0.00000136	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	1.366E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	-1.645E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00001038	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-8.622E-07	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	1.737E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.0000114	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	-1.892E-06	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-6.315E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	7.037E-06	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	8.776E-06	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	3.011E-06	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	-0.001333	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	3.291E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	3.146E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00006599	0.00006599		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00001636	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Titanium	A	mg/L	-3.808E-05	0		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	9.061E-07	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Calcium	B	mg/L	-0.0005677	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0.00002521	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.00002521	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	-0.0003607	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Potassium	B	mg/L	-0.006706	0		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	L
Sodium	B	mg/L	-0.009607	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	0.0000286	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	-0.0001567	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					
15064067	LRB	ICPMS-6020-W-	MBLK		3/1/2022 2:19:56	1	R375488		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					
15064067	LRB	ICPMS-6020-W- MBLK			3/1/2022 2:19:56	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0003329	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Antimony	A	mg/L	-3.07E-06	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-6.235E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	0.00005401	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-5.501E-05	0		0	0	0	8.516E-05	0.001	1	0%	0	0	0%	
Boron	A	mg/L	0.0009543	0		0	0	0	0.0039526	0.00561	1	0%	0	0	0%	
Cadmium	A	mg/L	3.283E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Calcium	A	mg/L	0.005908	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	
Cerium	A	mg/L	5.285E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00003524	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	6.101E-07	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	-2.766E-05	0		0	0	0	0.0001748	0.001	1	0%	0	0	0%	
Iron	A	mg/L	0.0003495	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Lanthanum	A	mg/L	9.11E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00001422	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Magnesium	A	mg/L	0.0006867	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	
Manganese	A	mg/L	7.889E-06	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-7.366E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	1.223E-06	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	0.00002079	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Potassium	A	mg/L	-0.005393	0		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	
Selenium	A	mg/L	3.626E-06	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	0.02513	0.02513		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	1.951E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	0.0005903	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	
Strontium	A	mg/L	6.748E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00002639	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	9.136E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Tin	A	mg/L	0.00006129	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Titanium	A	mg/L	-1.448E-05	0		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	6.194E-07	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.001499	0		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	A	mg/L	0.001525	0.001525		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	
Iron, Ferrous	C	mg/L	0.0003495	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					
15064068	LFB	ICPMS-6020-W-	LFB		3/1/2022 2:26:10	1.03	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04944	0.0509232		0.05	0	0	0.0018371	0.001	1	102%	85	115	0%	
Antimony	A	mg/L	0.04791	0.0493473		0.05	0	0	6.971E-05	0.001	0.1	99%	85	115	0%	
Arsenic	A	mg/L	0.04975	0.0512425		0.05	0	0	8.449E-05	0.001	1	102%	85	115	0%	
Barium	A	mg/L	0.04891	0.0503773		0.05	0	0	6.965E-05	0.001	1	101%	85	115	0%	
Beryllium	A	mg/L	0.04334	0.0446402		0.05	0	0	8.771E-05	0.001	1	89%	85	115	0%	
Boron	A	mg/L	0.04786	0.0492958		0.05	0	0	0.0040712	0.0057783	1	99%	85	115	0%	
Cadmium	A	mg/L	0.04904	0.0505112		0.05	0	0	2.377E-05	0.001	1	101%	85	115	0%	
Calcium	A	mg/L	45.39	46.7517		50	0	0	0.2088052	0.0215476	50	94%	85	115	0%	
Cerium	A	mg/L	0.05157	0.0531171		0.05	0	0	2.287E-05	0.001	0.1	106%	85	115	0%	
Chromium	A	mg/L	0.04801	0.0494503		0.05	0	0	0.0002614	0.001	1	99%	85	115	0%	
Cobalt	A	mg/L	0.04769	0.0491207		0.05	0	0	2.205E-05	0.001	1	98%	85	115	0%	
Copper	A	mg/L	0.0519	0.053457		0.05	0	0	0.0001801	0.001	1	107%	85	115	0%	
Iron	A	mg/L	4.618	4.75654		5.05	0	0	0.0021792	0.0012257	5	94%	85	115	0%	
Lanthanum	A	mg/L	0.05272	0.0543016		0.05	0	0	7.009E-05	0.001	0.1	109%	85	115	0%	
Lead	A	mg/L	0.04892	0.0503876		0.05	0	0	3.122E-05	0.001	1	101%	85	115	0%	
Magnesium	A	mg/L	47.36	48.7808		50	0	0	0.0209406	0.0058092	50	98%	85	115	0%	
Manganese	A	mg/L	0.04979	0.0512837		0.05	0	0	7.528E-05	0.001	1	103%	85	115	0%	
Mercury	A	mg/L	0.0009167	0.00094420		0.001	0	0	3.134E-05	0.001	0.002	94%	85	115	0%	
Molybdenum	A	mg/L	0.04815	0.0495945		0.05	0	0	8.356E-05	0.001	0.1	99%	85	115	0%	
Nickel	A	mg/L	0.05136	0.0529008		0.05	0	0	0.0001822	0.001	1	106%	85	115	0%	
Potassium	A	mg/L	46.21	47.5963		50	0	0	0.0221896	0.0838317	50	95%	85	115	0%	
Selenium	A	mg/L	0.04912	0.0505936		0.05	0	0	7.389E-05	0.001	1	101%	85	115	0%	
Silicon	A	mg/L	0.2143	0.220729		0.2	0	0	0.0034337	0.1	0.4	110%	85	115	0%	
Silver	A	mg/L	0.0196	0.020188		0.02	0	0	2.723E-05	0.001	0.04	101%	85	115	0%	
Sodium	A	mg/L	47.09	48.5027		50	0	0	0.0465471	0.0223613	50	97%	85	115	0%	
Strontium	A	mg/L	0.04984	0.0513352		0.05	0	0	0.0001004	0.001	1	103%	85	115	0%	
Thallium	A	mg/L	0.04949	0.0509747		0.05	0	0	4.987E-05	0.001	1	102%	85	115	0%	
Thorium	A	mg/L	0.04918	0.0506554		0.05	0	0	3.109E-05	0.001	1	101%	85	115	0%	
Tin	A	mg/L	0.0488	0.050264		0.05	0	0	0.0010226	0.0013596	0.1	101%	85	115	0%	
Titanium	A	mg/L	0.05163	0.0531789		0.05	0	0	0.0001034	0.001	1	106%	85	115	0%	
Uranium	A	mg/L	0.04939	0.0508717		0.05	0	0	2.542E-05	0.0003	1	102%	85	115	0%	
Vanadium	A	mg/L	0.04817	0.0496151		0.05	0	0	0.001917	0.001339	1	99%	85	115	0%	
Zinc	A	mg/L	0.0519	0.053457		0.05	0	0	0.0010392	0.0028119	1	107%	85	115	0%	
Iron, Ferrous	C	mg/L	4.618	4.75654		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					
15064069	ICSA	ICPMS-6020-W-	ICSA		3/1/2022 2:32:25	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	40.34	40.34		40	0	0	0.0017836	0.001	1	101%	80	120	0%	
Antimony	A	mg/L	0.0002181	0.0002181		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	-8.751E-05	-8.751E-05		0	0	0	8.203E-05	0.001	1	0%			0%	
Barium	A	mg/L	0.0002146	0.0002146		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	-8.575E-05	-8.575E-05		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	0.00132	0.00132		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	0.00005723	0.00005723		0	0	0	2.308E-05	0.001	1	0%			0%	
Calcium	A	mg/L	124.6	124.6		120	0	0	0.2027235	0.02092	50	104%	80	120	0%	
Cerium	A	mg/L	9.702E-06	9.702E-06		0	0	0	0.0000222	0.001	0.1	0%			0%	
Chromium	A	mg/L	0.001872	0.001872		0	0	0	0.0002538	0.001	1	0%			0%	
Cobalt	A	mg/L	0.0001988	0.0001988		0	0	0	2.141E-05	0.001	1	0%			0%	
Copper	A	mg/L	0.00007658	0.00007658		0	0	0	0.0001748	0.001	1	0%			0%	
Iron	A	mg/L	106.2	106.2		100	0	0	0.0021157	0.00119	5	106%	80	120	0%	
Lanthanum	A	mg/L	6.168E-06	6.168E-06		0	0	0	6.805E-05	0.001	0.1	0%			0%	
Lead	A	mg/L	0.00005082	0.00005082		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	42.16	42.16		50	0	0	0.0203306	0.00564	50	84%			0%	
Manganese	A	mg/L	0.0002981	0.0002981		0	0	0	7.309E-05	0.001	1	0%			0%	
Mercury	A	mg/L	-7.102E-05	-7.102E-05		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.8794	0.8794		0.8	0	0	8.113E-05	0.001	0.1	110%	80	120	0%	
Nickel	A	mg/L	0.0001465	0.0001465		0	0	0	0.0001769	0.001	1	0%			0%	
Potassium	A	mg/L	40.57	40.57		50	0	0	0.0215433	0.08139	50	81%			0%	
Selenium	A	mg/L	0.0001794	0.0001794		0	0	0	7.174E-05	0.001	1	0%			0%	
Silicon	A	mg/L	0.0018	0.0018		0	0	0	0.0033337	0.1	0.4	0%			0%	
Silver	A	mg/L	0.00001639	0.00001639		0	0	0	2.644E-05	0.001	0.04	0%			0%	
Sodium	A	mg/L	102.5	102.5		100	0	0	0.0451914	0.02171	50	102%			0%	
Strontium	A	mg/L	0.001097	0.001097		0	0	0	9.743E-05	0.001	1	0%			0%	
Thallium	A	mg/L	0.00006732	0.00006732		0	0	0	4.842E-05	0.001	1	0%			0%	
Thorium	A	mg/L	0.00005985	0.00005985		0	0	0	3.018E-05	0.001	1	0%			0%	
Tin	A	mg/L	0.0004445	0.0004445		0	0	0	0.0009928	0.00132	0.1	0%			0%	
Titanium	A	mg/L	0.8269	0.8269		0.8	0	0	0.0001004	0.001	1	103%			0%	
Uranium	A	mg/L	0.00002284	0.00002284		0	0	0	2.468E-05	0.0003	1	0%			0%	
Vanadium	A	mg/L	-0.003604	-0.003604		0	0	0	0.0018612	0.0013	1	0%			0%	
Zinc	A	mg/L	0.001849	0.001849		0	0	0	0.0010089	0.00273	1	0%			0%	
Iron, Ferrous	C	mg/L	106.2	106.2		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					
15064070	ICSAB	ICPMS-6020-W-	ICSAB		3/1/2022 2:38:42	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	38.07	38.07		40	0	0	0.0017836	0.001	1	95%	80	120	0%	
Antimony	A	mg/L	0.00009937	0.00009937		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	0.0102	0.0102		0.01	0	0	8.203E-05	0.001	1	102%	80	120	0%	
Barium	A	mg/L	0.0001714	0.0001714		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	-9.357E-05	-9.357E-05		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	0.000802	0.000802		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	0.01051	0.01051		0.01	0	0	2.308E-05	0.001	1	105%	80	120	0%	
Calcium	A	mg/L	121.2	121.2		120	0	0	0.2027235	0.02092	50	101%	80	120	0%	
Cerium	A	mg/L	9.101E-06	9.101E-06		0	0	0	0.0000222	0.001	0.1	0%			0%	
Chromium	A	mg/L	0.02151	0.02151		0.02	0	0	0.0002538	0.001	1	108%	80	120	0%	
Cobalt	A	mg/L	0.01976	0.01976		0.02	0	0	2.141E-05	0.001	1	99%	80	120	0%	
Copper	A	mg/L	0.02144	0.02144		0.02	0	0	0.0001748	0.001	1	107%	80	120	0%	
Iron	A	mg/L	103.1	103.1		100	0	0	0.0021157	0.00119	5	103%	80	120	0%	
Lanthanum	A	mg/L	6.159E-06	6.159E-06		0	0	0	6.805E-05	0.001	0.1	0%			0%	
Lead	A	mg/L	0.00004974	0.00004974		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	41.76	41.76		40	0	0	0.0203306	0.00564	50	104%	80	120	0%	
Manganese	A	mg/L	0.0207	0.0207		0.02	0	0	7.309E-05	0.001	1	103%	80	120	0%	
Mercury	A	mg/L	-7.787E-05	-7.787E-05		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.8513	0.8513		0.8	0	0	8.113E-05	0.001	0.1	106%	80	120	0%	
Nickel	A	mg/L	0.02137	0.02137		0.02	0	0	0.0001769	0.001	1	107%	80	120	0%	
Potassium	A	mg/L	38.88	38.88		40	0	0	0.0215433	0.08139	50	97%	80	120	0%	
Selenium	A	mg/L	0.01065	0.01065		0.01	0	0	7.174E-05	0.001	1	106%	80	120	0%	
Silicon	A	mg/L	0.0007228	0.0007228		0	0	0	0.0033337	0.1	0.4	0%			0%	
Silver	A	mg/L	0.005259	0.005259		0.005	0	0	2.644E-05	0.001	0.04	105%	80	120	0%	
Sodium	A	mg/L	100.4	100.4		100	0	0	0.0451914	0.02171	50	100%	80	120	0%	
Strontium	A	mg/L	0.001085	0.001085		0	0	0	9.743E-05	0.001	1	0%			0%	
Thallium	A	mg/L	0.00002683	0.00002683		0	0	0	4.842E-05	0.001	1	0%			0%	
Thorium	A	mg/L	0.00002893	0.00002893		0	0	0	3.018E-05	0.001	1	0%			0%	
Tin	A	mg/L	0.0007219	0.0007219		0	0	0	0.0009928	0.00132	0.1	0%			0%	
Titanium	A	mg/L	0.7869	0.7869		0.8	0	0	0.0001004	0.001	1	98%	80	120	0%	
Uranium	A	mg/L	0.0000208	0.0000208		0	0	0	2.468E-05	0.0003	1	0%			0%	
Vanadium	A	mg/L	0.01623	0.01623		0.02	0	0	0.0018612	0.0013	1	81%	80	120	0%	
Zinc	A	mg/L	0.01141	0.01141		0.01	0	0	0.0010089	0.00273	1	114%	80	120	0%	
Iron, Ferrous	C	mg/L	103.1	103.1		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					
15064071	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 2:44:59	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0001316	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Antimony	A	mg/L	0.00005131	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-0.0001351	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	-3.48E-06	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	-8.745E-07	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	-3.424E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-5.611E-05	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	1.493E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	5.714E-08	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	5.676E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	-1.685E-06	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-5.923E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.0004013	0.0004013		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	-0.0000349	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.00001903	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	-0.000607	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	2.226E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	-3.85E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00003577	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00001114	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Titanium	A	mg/L	0.0002567	0.0002567		0	0	0	0.0001004	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	3.269E-07	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Calcium	B	mg/L	-0.0008811	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0.001165	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.001165	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	-0.000748	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Potassium	B	mg/L	-0.008498	0		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	L
Sodium	B	mg/L	0.01291	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	0.00001735	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	-0.0001605	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					
15064072	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 2:51:12	1	R375488		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					
15064072	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 2:51:12	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.00006288	0		0	0	0	0.0017836	0.001	1	0%	0	0	0%	
Antimony	A	mg/L	-1.16E-06	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-0.0001762	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	-3.316E-07	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	-6.016E-07	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	-2.799E-08	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	-3.126E-05	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-3.876E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	1.754E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	5.213E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	-3.769E-06	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-8.365E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00006098	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-4.142E-05	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	-2.201E-06	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	-0.002062	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	2.008E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	-2.514E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00001495	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	3.707E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Titanium	A	mg/L	0.00003037	0		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	1.623E-07	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Calcium	B	mg/L	-0.001357	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0.0003644	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.0003644	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	-0.0005176	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Potassium	B	mg/L	-0.0118	0		0	0	0	0.0215433	0.08139	50	0%	0	0	0%	L
Sodium	B	mg/L	0.01088	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	2.766E-06	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	-0.0001212	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					
15064073	CCV	ICPMS-6020-W-	CCV		3/1/2022 2:57:25	1	R375488		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					
15064073	CCV	ICPMS-6020-W-	CCV		3/1/2022 2:57:25	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04789	0.04789		0.05	0	0	0.0017836	0.001	1	96%	90	110	0%	
Antimony	A	mg/L	0.05163	0.05163		0.05	0	0	6.768E-05	0.001	0.1	103%	90	110	0%	
Arsenic	A	mg/L	0.04961	0.04961		0.05	0	0	8.203E-05	0.001	1	99%	90	110	0%	
Barium	A	mg/L	0.05057	0.05057		0.05	0	0	6.762E-05	0.001	1	101%	90	110	0%	
Beryllium	A	mg/L	0.03987	0.03987		0.05	0	0	8.516E-05	0.001	1	80%	90	110	0%	S
Boron	A	mg/L	0.04333	0.04333		0.05	0	0	0.0039526	0.00561	1	87%	90	110	0%	S
Cadmium	A	mg/L	0.05202	0.05202		0.05	0	0	2.308E-05	0.001	1	104%	90	110	0%	
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	0.05231	0.05231		0.05	0	0	0.0000222	0.001	0.1	105%	90	110	0%	
Chromium	A	mg/L	0.04762	0.04762		0.05	0	0	0.0002538	0.001	1	95%	90	110	0%	
Cobalt	A	mg/L	0.04865	0.04865		0.05	0	0	2.141E-05	0.001	1	97%	90	110	0%	
Copper	A	mg/L	0.05383	0.05383		0.05	0	0	0.0001748	0.001	1	108%	90	110	0%	
Iron	A	mg/L	1.292	1.292		1.3	0	0	0.0021157	0.00119	5	99%	90	110	0%	
Lanthanum	A	mg/L	0.05241	0.05241		0.05	0	0	6.805E-05	0.001	0.1	105%	90	110	0%	
Lead	A	mg/L	0.04817	0.04817		0.05	0	0	3.031E-05	0.001	1	96%	90	110	0%	
Magnesium	A	mg/L	13.2	13.2		12.5	0	0	0.0203306	0.00564	50	106%	90	110	0%	
Manganese	A	mg/L	0.0495	0.0495		0.05	0	0	7.309E-05	0.001	1	99%	90	110	0%	
Mercury	A	mg/L	0.0009455	0.0009455		0.001	0	0	3.043E-05	0.001	0.002	95%	90	110	0%	
Molybdenum	A	mg/L	0.05089	0.05089		0.05	0	0	8.113E-05	0.001	0.1	102%	90	110	0%	
Nickel	A	mg/L	0.05391	0.05391		0.05	0	0	0.0001769	0.001	1	108%	90	110	0%	
Potassium	A	mg/L	11.4	11.4		12.5	0	0	0.0215433	0.08139	50	91%	90	110	0%	
Selenium	A	mg/L	0.05089	0.05089		0.05	0	0	7.174E-05	0.001	1	102%	90	110	0%	
Silicon	A	mg/L	0.1934	0.1934		0.2	0	0	0.0033337	0.1	0.4	97%	90	110	0%	
Silver	A	mg/L	0.02055	0.02055		0.02	0	0	2.644E-05	0.001	0.04	103%	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	0.05036	0.05036		0.05	0	0	9.743E-05	0.001	1	101%	90	110	0%	
Thallium	A	mg/L	0.04889	0.04889		0.05	0	0	4.842E-05	0.001	1	98%	90	110	0%	
Thorium	A	mg/L	0.05123	0.05123		0.05	0	0	3.018E-05	0.001	1	102%	90	110	0%	
Tin	A	mg/L	0.0505	0.0505		0.05	0	0	0.0009928	0.00132	0.1	101%	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	0.04795	0.04795		0.05	0	0	2.468E-05	0.0003	1	96%	90	110	0%	
Vanadium	A	mg/L	0.04642	0.04642		0.05	0	0	0.0018612	0.0013	1	93%	90	110	0%	
Zinc	A	mg/L	0.05171	0.05171		0.05	0	0	0.0010089	0.00273	1	103%	90	110	0%	
Iron, Ferrous	C	mg/L	1.292	1.292		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					
15064074	CCB	ICPMS-6020-W-	CCB		3/1/2022 3:03:40	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0001503	0.0001503		0	0	0	0.0017836	0.001	1	0%				0%
Antimony	A	mg/L	0.0001333	0.0001333		0	0	0	6.768E-05	0.001	0.1	0%				0%
Arsenic	A	mg/L	-0.0001543	-0.0001543		0	0	0	8.203E-05	0.001	1	0%				0%
Barium	A	mg/L	5.636E-07	5.636E-07		0	0	0	6.762E-05	0.001	1	0%				0%
Beryllium	A	mg/L	-8.295E-05	-8.295E-05		0	0	0	8.516E-05	0.001	1	0%				0%
Boron	A	mg/L	0.0007162	0.0007162		0	0	0	0.0039526	0.00561	1	0%				0%
Cadmium	A	mg/L	4.506E-06	4.506E-06		0	0	0	2.308E-05	0.001	1	0%				0%
Calcium	A	mg/L	-0.001021	-0.001021		0	0	0	0.2027235	0.02092	50	0%				0%
Cerium	A	mg/L	1.646E-07	1.646E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0		0%
Chromium	A	mg/L	-1.484E-05	-1.484E-05		0	0	0	0.0002538	0.001	1	0%				0%
Cobalt	A	mg/L	1.223E-06	1.223E-06		0	0	0	2.141E-05	0.001	1	0%				0%
Copper	A	mg/L	-4.538E-05	-4.538E-05		0	0	0	0.0001748	0.001	1	0%				0%
Iron	A	mg/L	0.0002648	0.0002648		0	0	0	0.0021157	0.00119	5	0%				0%
Lanthanum	A	mg/L	-2.485E-07	-2.485E-07		0	0	0	6.805E-05	0.001	0.1	0%	0	0		0%
Lead	A	mg/L	8.886E-06	8.886E-06		0	0	0	3.031E-05	0.001	1	0%				0%
Magnesium	A	mg/L	0.0002445	0.0002445		0	0	0	0.0203306	0.00564	50	0%				0%
Manganese	A	mg/L	-5.552E-06	-5.552E-06		0	0	0	7.309E-05	0.001	1	0%				0%
Mercury	A	mg/L	-5.732E-05	-5.732E-05		0	0	0	3.043E-05	0.001	0.002	0%				0%
Molybdenum	A	mg/L	0.00005526	0.00005526		0	0	0	8.113E-05	0.001	0.1	0%				0%
Nickel	A	mg/L	-2.128E-05	-2.128E-05		0	0	0	0.0001769	0.001	1	0%				0%
Potassium	A	mg/L	-0.02488	-0.02488		0	0	0	0.0215433	0.08139	50	0%				0%
Selenium	A	mg/L	0.00001119	0.00001119		0	0	0	7.174E-05	0.001	1	0%				0%
Silicon	A	mg/L	-0.0009709	-0.0009709		0	0	0	0.0033337	0.1	0.4	0%	0	0		0%
Silver	A	mg/L	3.598E-06	3.598E-06		0	0	0	2.644E-05	0.001	0.04	0%				0%
Sodium	A	mg/L	0.01682	0.01682		0	0	0	0.0451914	0.02171	50	0%				0%
Strontium	A	mg/L	-3.425E-06	-3.425E-06		0	0	0	9.743E-05	0.001	1	0%	0	0		0%
Thallium	A	mg/L	0.00006698	0.00006698		0	0	0	4.842E-05	0.001	1	0%	0	0		0%
Thorium	A	mg/L	0.0000361	0.0000361		0	0	0	3.018E-05	0.001	1	0%	0	0		0%
Tin	A	mg/L	0.00005327	0.00005327		0	0	0	0.0009928	0.00132	0.1	0%	0	0		0%
Titanium	A	mg/L	-1.954E-06	-1.954E-06		0	0	0	0.0001004	0.001	1	0%	0	0		0%
Uranium	A	mg/L	0.00000215	0.00000215		0	0	0	2.468E-05	0.0003	1	0%	0	0		0%
Vanadium	A	mg/L	-0.002898	-0.002898		0	0	0	0.0018612	0.0013	1	0%	0	0		0%
Zinc	A	mg/L	-0.0001203	-0.0001203		0	0	0	0.0010089	0.00273	1	0%	0	0		0%
Iron, Ferrous	C	mg/L	0.0002648	0.0002648		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					
15064075	MB-164029	ICPMS-6020-W- MBLK				3/1/2022 3:09:55	1	164029	2/25/2022 8:	0	0					
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.00179	0		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	
Antimony	A	mg/L	0.0000277	0		0	0	0	0.0002485	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-8.666E-05	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Barium	A	mg/L	0.0001818	0.0001818		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-7.635E-05	0		0	0	0	0.0001071	0.01	1	0%	0	0	0%	
Boron	A	mg/L	0.0005164	0		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	
Cadmium	A	mg/L	2.908E-06	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	
Calcium	A	mg/L	0.007949	0		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	
Cerium	A	mg/L	6.489E-07	0		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00007145	0		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	
Cobalt	A	mg/L	0.00004082	0		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.0002813	0		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	
Iron	A	mg/L	0.00116	0		0	0	0	0.007424	0.00513	5	0%	0	0	0%	
Lanthanum	A	mg/L	2.485E-07	0		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00002346	0		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	
Magnesium	A	mg/L	0.00196	0		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	
Manganese	A	mg/L	0.00003859	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.00005441	0		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	0.00005264	0		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	
Potassium	A	mg/L	-0.03564	0		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	
Selenium	A	mg/L	8.814E-06	0		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	0.01747	0		0	0	0	0.0218797	0.0053212	0.4	0%	0	0	0%	
Silver	A	mg/L	1.057E-06	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	0.05771	0		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	
Strontium	A	mg/L	0.00001353	0		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00002356	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.0001004	0.0001004		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	
Tin	A	mg/L	0.0002175	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	
Titanium	A	mg/L	0.0004012	0		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	1.308E-06	0		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.00271	0		0	0	0	0.0012418	0.0021085	1	0%	0	0	0%	
Zinc	A	mg/L	0.00009781	0		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	
Silica	C	mg/L	0.03737182	0		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	0.03737182	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					
15064076	MB-164095	ICPMS-6020-W-	MBLK		3/1/2022 3:16:09	1	164095	2/28/2022 1:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001871	0		0	0	0	0.0029215	0.0031975	1	0%	0	0	0%	
Antimony	A	mg/L	0.00003282	0		0	0	0	0.0002485	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-9.518E-05	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Barium	A	mg/L	0.00002612	0		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Beryllium	A	mg/L	-6.534E-05	0		0	0	0	0.0001071	0.01	1	0%	0	0	0%	
Boron	A	mg/L	0.0004568	0		0	0	0	0.0030301	0.01467	1	0%	0	0	0%	
Cadmium	A	mg/L	9.387E-07	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	
Calcium	A	mg/L	0.01561	0		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	
Cerium	A	mg/L	2.198E-06	0		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.0001511	0		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	
Cobalt	A	mg/L	0.0000291	0		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	
Copper	A	mg/L	0.0002916	0		0	0	0	0.0005744	0.00198	1	0%	0	0	0%	
Iron	A	mg/L	0.001844	0		0	0	0	0.007424	0.00513	5	0%	0	0	0%	
Lanthanum	A	mg/L	0.00002266	0.00002266		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00002447	0		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	
Magnesium	A	mg/L	0.002429	0		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	
Manganese	A	mg/L	0.00004174	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.0003493	0.0003493		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	0.00004679	0		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	
Potassium	A	mg/L	-0.05467	0		0	0	0	0.0289412	0.0261205	50	0%	0	0	0%	
Selenium	A	mg/L	0.00001341	0		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	0.02454	0.02454		0	0	0	0.0218797	0.0053212	0.4	0%	0	0	0%	
Silver	A	mg/L	1.206E-06	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	
Sodium	A	mg/L	0.06477	0		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	
Strontium	A	mg/L	0.00001632	0		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00002981	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00006864	0.00006864		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	
Tin	A	mg/L	0.0001937	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	
Titanium	A	mg/L	0.0003381	0		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	7.165E-07	0		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.002872	0		0	0	0	0.0012418	0.0021085	1	0%	0	0	0%	
Zinc	A	mg/L	0.0001818	0		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	
Silica	C	mg/L	0.05249597	0.05249597		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	0.05249597	0.05249597		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					
15064077	LCS4-164029	ICPMS-6020-W-	LCS4-DOD		3/1/2022 3:22:24	1	164029	2/25/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.3951	0.3951		0.5	0	0	0.0029215	0.0031975	1	79%	80	120	0%	S
Antimony	A	mg/L	0.09868	0.09868		0.1	0	0	0.0002485	0.001	0.1	99%	80	120	0%	
Arsenic	A	mg/L	0.09847	0.09847		0.1	0	0	0.0002595	0.001	1	98%	80	120	0%	
Barium	A	mg/L	0.09095	0.09095		0.1	0	0	0.0001041	0.001	1	91%	80	120	0%	
Beryllium	A	mg/L	0.03013	0.03013		0.05	0	0	0.0001071	0.01	1	60%	80	120	0%	S
Boron	A	mg/L	0.06846	0.06846		0.1	0	0	0.0030301	0.01467	1	68%	80	120	0%	S
Cadmium	A	mg/L	0.05357	0.05357		0.05	0	0	0.0000141	0.005	1	107%	80	120	0%	
Calcium	A	mg/L	4.482	4.482		5	0	0	0.0372936	0.1103481	50	90%	80	120	0%	
Cerium	A	mg/L	0.1109	0.1109		0.1	0	0	0.0000087	0.001	0.1	111%	80	120	0%	
Chromium	A	mg/L	0.09579	0.09579		0.1	0	0	0.0005265	0.0015375	1	96%	80	120	0%	
Cobalt	A	mg/L	0.094	0.094		0.1	0	0	8.402E-05	0.001	1	94%	80	120	0%	
Copper	A	mg/L	0.1111	0.1111		0.1	0	0	0.0005744	0.00198	1	111%	80	120	0%	
Iron	A	mg/L	0.4849	0.4849		0.5	0	0	0.007424	0.00513	5	97%	80	120	0%	
Lanthanum	A	mg/L	0.1104	0.1104		0.1	0	0	1.105E-05	0.001	0.1	110%	80	120	0%	
Lead	A	mg/L	0.09746	0.09746		0.1	0	0	5.246E-05	0.001	1	97%	88	115	0%	
Magnesium	A	mg/L	4.821	4.821		5	0	0	0.0686349	0.0081522	50	96%	80	120	0%	
Manganese	A	mg/L	0.4765	0.4765		0.5	0	0	0.0002595	0.001	1	95%	80	120	0%	
Molybdenum	A	mg/L	0.09285	0.09285		0.1	0	0	0.0000966	0.001	0.1	93%	80	120	0%	
Nickel	A	mg/L	0.1065	0.1065		0.1	0	0	0.0002388	0.0024200	1	106%	80	120	0%	
Potassium	A	mg/L	4.123	4.123		5	0	0	0.0289412	0.0261205	50	82%	80	120	0%	
Selenium	A	mg/L	0.09808	0.09808		0.1	0	0	6.251E-05	0.001	1	98%	80	120	0%	
Silicon	A	mg/L	0.944	0.944		1	0	0	0.0218797	0.0053212	0.4	94%	80	120	0%	
Silver	A	mg/L	0.009488	0.009488		0.01	0	0	2.318E-05	0.001	0.04	95%	80	120	0%	
Sodium	A	mg/L	4.982	4.982		5	0	0	0.0721517	0.7330269	50	100%	80	120	0%	
Strontium	A	mg/L	0.1031	0.1031		0.1	0	0	7.178E-05	0.001	1	103%	80	120	0%	
Thallium	A	mg/L	0.1028	0.1028		0.1	0	0	0.0001114	0.001	1	103%	80	120	0%	
Thorium	A	mg/L	0.09956	0.09956		0.1	0	0	5.898E-05	0.00415	1	100%	80	120	0%	
Tin	A	mg/L	0.1012	0.1012		0.1	0	0	0.0018932	0.0011175	0.1	101%	80	120	0%	
Titanium	A	mg/L	0.08361	0.08361		0.1	0	0	0.0004924	0.001	1	84%	80	120	0%	
Uranium	A	mg/L	0.09853	0.09853		0.1	0	0	1.084E-05	0.0003	1	99%	80	120	0%	
Vanadium	A	mg/L	0.08897	0.08897		0.1	0	0	0.0012418	0.0021085	1	89%	80	120	0%	
Zinc	A	mg/L	0.1001	0.1001		0.1	0	0	0.0011617	0.0065544	1	100%	80	120	0%	
Silica	C	mg/L	2.0194048	2.0194048		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	2.0194048	2.0194048		2.14	0	0	0.0468049	0.0113831	5	94%	80	120	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064078	LCS4-164095	ICPMS-6020-W-	LCS4-DOD		3/1/2022 3:28:37	1	164095	2/28/2022 1:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.4073	0.4073		0.5	0	0	0.0029215	0.0031975	1	81%	80	120	0%	
Antimony	A	mg/L	0.1021	0.1021		0.1	0	0	0.0002485	0.001	0.1	102%	80	120	0%	
Arsenic	A	mg/L	0.0983	0.0983		0.1	0	0	0.0002595	0.001	1	98%	80	120	0%	
Barium	A	mg/L	0.09515	0.09515		0.1	0	0	0.0001041	0.001	1	95%	80	120	0%	
Beryllium	A	mg/L	0.03148	0.03148		0.05	0	0	0.0001071	0.01	1	63%	80	120	0%	S
Boron	A	mg/L	0.0692	0.0692		0.1	0	0	0.0030301	0.01467	1	69%	80	120	0%	S
Cadmium	A	mg/L	0.05303	0.05303		0.05	0	0	0.0000141	0.005	1	106%	80	120	0%	
Calcium	A	mg/L	4.447	4.447		5	0	0	0.0372936	0.1103481	50	89%	80	120	0%	
Cerium	A	mg/L	0.107	0.107		0.1	0	0	0.0000087	0.001	0.1	107%	80	120	0%	
Chromium	A	mg/L	0.09288	0.09288		0.1	0	0	0.0005265	0.0015375	1	93%	80	120	0%	
Cobalt	A	mg/L	0.09098	0.09098		0.1	0	0	8.402E-05	0.001	1	91%	80	120	0%	
Copper	A	mg/L	0.1104	0.1104		0.1	0	0	0.0005744	0.00198	1	110%	80	120	0%	
Iron	A	mg/L	0.4949	0.4949		0.5	0	0	0.007424	0.00513	5	99%	80	120	0%	
Lanthanum	A	mg/L	0.1093	0.1093		0.1	0	0	1.105E-05	0.001	0.1	109%	80	120	0%	
Lead	A	mg/L	0.09974	0.09974		0.1	0	0	5.246E-05	0.001	1	100%	88	115	0%	
Magnesium	A	mg/L	4.91	4.91		5	0	0	0.0686349	0.0081522	50	98%	80	120	0%	
Manganese	A	mg/L	0.4785	0.4785		0.5	0	0	0.0002595	0.001	1	96%	80	120	0%	
Molybdenum	A	mg/L	0.09246	0.09246		0.1	0	0	0.0000966	0.001	0.1	92%	80	120	0%	
Nickel	A	mg/L	0.1082	0.1082		0.1	0	0	0.0002388	0.0024200	1	108%	80	120	0%	
Potassium	A	mg/L	4.056	4.056		5	0	0	0.0289412	0.0261205	50	81%	80	120	0%	
Selenium	A	mg/L	0.1009	0.1009		0.1	0	0	6.251E-05	0.001	1	101%	80	120	0%	
Silicon	A	mg/L	0.9524	0.9524		1	0	0	0.0218797	0.0053212	0.4	95%	80	120	0%	
Silver	A	mg/L	0.00935	0.00935		0.01	0	0	2.318E-05	0.001	0.04	94%	80	120	0%	
Sodium	A	mg/L	4.918	4.918		5	0	0	0.0721517	0.7330269	50	98%	80	120	0%	
Strontium	A	mg/L	0.1016	0.1016		0.1	0	0	7.178E-05	0.001	1	102%	80	120	0%	
Thallium	A	mg/L	0.1041	0.1041		0.1	0	0	0.0001114	0.001	1	104%	80	120	0%	
Thorium	A	mg/L	0.1005	0.1005		0.1	0	0	5.898E-05	0.00415	1	100%	80	120	0%	
Tin	A	mg/L	0.105	0.105		0.1	0	0	0.0018932	0.0011175	0.1	105%	80	120	0%	
Titanium	A	mg/L	0.08097	0.08097		0.1	0	0	0.0004924	0.001	1	81%	80	120	0%	
Uranium	A	mg/L	0.1025	0.1025		0.1	0	0	1.084E-05	0.0003	1	102%	80	120	0%	
Vanadium	A	mg/L	0.09004	0.09004		0.1	0	0	0.0012418	0.0021085	1	90%	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	2.03737408	2.03737408		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	2.03737408	2.03737408		2.14	0	0	0.0468049	0.0113831	5	95%	80	120	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064079	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 3:34:50	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0002398	0.0002398		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	-0.0001718	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	1.603E-06	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	2.082E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	1.07E-08	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00002462	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0.00000395	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	4.462E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00001624	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	7.714E-06	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-3.125E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00003037	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-0.0000075	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	1.141E-06	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	-0.0009197	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	2.281E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	1.652E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0001654	0.0001654		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00006966	0.00006966		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	2.737E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Iron	B	mg/L	0.0001516	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.0001516	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.001482	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Tin	B	mg/L	0.00002019	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	-0.0001236	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					
15064080	B22021627-001	ICPMS-6020-W-	SAMP		3/1/2022 3:41:04	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.000214	0.000214		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	-0.000226	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.008131	0.008131		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	8.983E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	0.00000178	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064080	B22021627-001	ICPMS-6020-W-	SAMP		3/1/2022 3:41:04	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Chromium	A	mg/L	0.001933	0.001933		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0.00003687	0.00003687		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	3.77E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00003691	0.00003691		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.001476	0.001476		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	4.667E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	U
Molybdenum	A	mg/L	0.0003128	0.0003128		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.0002055	0.0002055		0	0	0	0.0001769	0.001	1	0%	0	0	0%	J
Selenium	A	mg/L	0.0002913	0.0002913		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	1.611E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.1635	0.1635		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00007682	0.00007682		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00001394	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Uranium	A	mg/L	0.00002717	0.00002717		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	J
Iron	B	mg/L	0.002648	0.002648		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	U
Iron, Ferrous	B	mg/L	0.002648	0.002648		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	U
Magnesium	B	mg/L	21.05	21.05		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Tin	B	mg/L	-3.365E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.003829	0.003829		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					
15064081	B22021627-001	ICPMS-6020-W-	SD		3/1/2022 3:47:18	5	R375488		0	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.002211	0.011055		0	0	0.001927	0.0089181	0.0043	1	0%				N
Antimony	A	mg/L	0.00006852	0.0003426		0	0	0.000214	0.0003384	0.0021	0.1	0%				N
Arsenic	A	mg/L	-0.0001533	0		0	0	0	0.0004102	0.001	1	0%				
Barium	A	mg/L	0.001706	0.00853		0	0	0.008131	0.0003381	0.001	1	0%			5%	
Beryllium	A	mg/L	-8.344E-05	0		0	0	0	0.0004258	0.001	1	0%				
Boron	A	mg/L	0.009502	0.04751		0	0	0.04675	0.0197631	0.02805	1	0%				N
Cadmium	A	mg/L	5.254E-06	0		0	0	0	0.0001154	0.001	1	0%				
Calcium	A	mg/L	4.102	20.51		0	0	20.41	1.0136175	0.1046	50	0%			0%	
Cerium	A	mg/L	2.115E-06	0		0	0	0	0.000111	0.001	0.1	0%				
Chromium	A	mg/L	0.0004163	0.0020815		0	0	0.001933	0.001269	0.001	1	0%				N
Cobalt	A	mg/L	6.363E-06	0		0	0	3.687E-05	0.0001071	0.001	1	0%				

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064081	B22021627-001	ICPMS-6020-W- SD			3/1/2022 3:47:18	5	R375488		0	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Copper	A	mg/L	0.00009645	0		0	0	0	0.0008742	0.00135	1	0%				
Iron	A	mg/L	0.0008197	0		0	0	0.002648	0.0105787	0.00595	5	0%				
Lanthanum	A	mg/L	9.466E-07	0		0	0	0	0.0003403	0.001	0.1	0%				
Lead	A	mg/L	0.00001983	0		0	0	3.691E-05	0.0001516	0.001	1	0%				
Magnesium	A	mg/L	4.295	21.475		0	0	21.05	0.1016532	0.0282	50	0%				2%
Manganese	A	mg/L	0.0003167	0.0015835		0	0	0.001476	0.0003655	0.001	1	0%				N
Mercury	A	mg/L	-5.132E-05	0		0	0	0	0.0001522	0.001	0.002	0%				
Molybdenum	A	mg/L	0.00007069	0		0	0	0.0003128	0.0004057	0.001	0.1	0%				
Nickel	A	mg/L	0.00008873	0		0	0	0.0002055	0.0008844	0.00315	1	0%				
Potassium	A	mg/L	0.4214	2.107		0	0	2.544	0.1077164	0.40695	50	0%				19% R
Selenium	A	mg/L	0.00005404	0		0	0	0.0002913	0.0003587	0.00165	1	0%				
Silicon	A	mg/L	4.024	20.12		0	0	20.26	0.0166685	0.1	0.4	0%				1%
Silver	A	mg/L	2.168E-06	0		0	0	0	0.0001322	0.001	0.04	0%				
Sodium	A	mg/L	9.972	49.86		0	0	50.13	0.225957	0.10855	50	0%				1%
Strontium	A	mg/L	0.0323	0.1615		0	0	0.1635	0.0004872	0.001	1	0%				1%
Thallium	A	mg/L	0.00002312	0		0	0	7.682E-05	0.0002421	0.001	1	0%				
Thorium	A	mg/L	0.0000129	0		0	0	0	0.0001509	0.00305	1	0%				
Tin	A	mg/L	0.00003384	0		0	0	0	0.0049642	0.0066	0.1	0%				
Titanium	A	mg/L	0.0002853	0.0014265		0	0	0.00139	0.000502	0.001	1	0%				N
Uranium	A	mg/L	6.371E-06	0		0	0	2.717E-05	0.0001234	0.0003	1	0%				
Vanadium	A	mg/L	0.001337	0		0	0	0.01176	0.0093058	0.0065	1	0%				
Zinc	A	mg/L	0.001965	0.009825		0	0	0.003829	0.0050446	0.01365	1	0%				N
Iron, Ferrous	C	mg/L	0.0008197	0		0	0	0.002648	0.0105787	0.00595	5	0%				

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064082	B22021627-001	ICPMS-6020-W- MS-DOD			3/1/2022 3:53:32	1.03	R375488		2E+07	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0439	0.045217		0.05	0.001927	0	0.0018371	0.001	1	87%	75	125	0%	
Antimony	A	mg/L	0.04453	0.0458659		0.05	0.000214	0	6.971E-05	0.001	0.1	91%	75	125	0%	
Arsenic	A	mg/L	0.04892	0.0503876		0.05	0	0	8.449E-05	0.001	1	101%	75	125	0%	
Barium	A	mg/L	0.05734	0.0590602		0.05	0.008131	0	6.965E-05	0.001	1	102%	75	125	0%	
Beryllium	A	mg/L	0.03449	0.0355247		0.05	0	0	8.771E-05	0.001	1	71%	75	125	0%	S
Boron	A	mg/L	0.07972	0.0821116		0.05	0.04675	0	0.0040712	0.0057783	1	71%	75	125	0%	S
Cadmium	A	mg/L	0.04957	0.0510571		0.05	0	0	2.377E-05	0.001	1	102%	75	125	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064082	B22021627-001	ICPMS-6020-W-	MS-DOD		3/1/2022 3:53:32	1.03	R375488		2E+07	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Calcium	A	mg/L	61.32	63.1596		50	20.41	0	0.2088052	0.0215476	50	85%	75	125	0%	
Cerium	A	mg/L	0.05359	0.0551977		0.05	0	0	2.287E-05	0.001	0.1	110%	75	125	0%	
Chromium	A	mg/L	0.04731	0.0487293		0.05	0.001933	0	0.0002614	0.001	1	94%	75	125	0%	
Cobalt	A	mg/L	0.04355	0.0448565		0.05	3.687E-05	0	2.205E-05	0.001	1	90%	75	125	0%	
Copper	A	mg/L	0.04993	0.0514279		0.05	0	0	0.0001801	0.001	1	103%	75	125	0%	
Iron	A	mg/L	4.65	4.7895		5.05	0.002648	0	0.0021792	0.0012257	5	95%	75	125	0%	
Lanthanum	A	mg/L	0.05272	0.0543016		0.05	0	0	7.009E-05	0.001	0.1	109%	75	125	0%	
Lead	A	mg/L	0.04867	0.0501301		0.05	3.691E-05	0	3.122E-05	0.001	1	100%	88	115	0%	
Magnesium	A	mg/L	66.3	68.289		50	21.05	0	0.0209406	0.0058092	50	94%	75	125	0%	
Manganese	A	mg/L	0.048	0.04944		0.05	0.001476	0	7.528E-05	0.001	1	96%	75	125	0%	
Mercury	A	mg/L	0.000938	0.00096614		0.001	0	0	3.134E-05	0.001	0.002	97%	75	125	0%	
Molybdenum	A	mg/L	0.04756	0.0489868		0.05	0.0003128	0	8.356E-05	0.001	0.1	97%	75	125	0%	
Nickel	A	mg/L	0.04899	0.0504597		0.05	0.0002055	0	0.0001822	0.001	1	101%	75	125	0%	
Potassium	A	mg/L	43.3	44.599		50	2.544	0	0.0221896	0.0838317	50	84%	75	125	0%	
Selenium	A	mg/L	0.0495	0.050985		0.05	0.0002913	0	7.389E-05	0.001	1	101%	75	125	0%	
Silicon	A	mg/L	19.82	20.4146		0.2	20.26	0	0.0034337	0.1	0.4		75	125	0%	A
Silver	A	mg/L	0.01931	0.0198893		0.02	0	0	2.723E-05	0.001	0.04	99%	75	125	0%	
Sodium	A	mg/L	90.62	93.3386		50	50.13	0	0.0465471	0.0223613	50	86%	75	125	0%	
Strontium	A	mg/L	0.2002	0.206206		0.05	0.1635	0	0.0001004	0.001	1	85%	75	125	0%	
Thallium	A	mg/L	0.04914	0.0506142		0.05	7.682E-05	0	4.987E-05	0.001	1	101%	75	125	0%	
Thorium	A	mg/L	0.05063	0.0521489		0.05	0	0	3.109E-05	0.001	1	104%	75	125	0%	
Tin	A	mg/L	0.04919	0.0506657		0.05	0	0	0.0010226	0.0013596	0.1	101%	75	125	0%	
Titanium	A	mg/L	0.04666	0.0480598		0.05	0.00139	0	0.0001034	0.001	1	93%	75	125	0%	
Uranium	A	mg/L	0.04962	0.0511086		0.05	2.717E-05	0	2.542E-05	0.0003	1	102%	75	125	0%	
Vanadium	A	mg/L	0.05944	0.0612232		0.05	0.01176	0	0.001917	0.001339	1	99%	75	125	0%	
Zinc	A	mg/L	0.05356	0.0551668		0.05	0.003829	0	0.0010392	0.0028119	1	103%	75	125	0%	
Iron, Ferrous	C	mg/L	4.65	4.7895		0	0.002648	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					
15064083	B22021627-001	ICPMS-6020-W-	MSD-DOD		3/1/2022 3:59:46	1.03	R375488		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	0.04329	0.0445887		0.05	0.001927	0.045217	0.0018371	0.001	1	85%	75	125	1%	
Antimony	A	mg/L	0.04636	0.0477508		0.05	0.000214	0.0458659	6.971E-05	0.001	0.1	95%	75	125	4%	
Arsenic	A	mg/L	0.0493	0.050779		0.05	0	0.0503876	8.449E-05	0.001	1	102%	75	125	1%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064083	B22021627-001	ICPMS-6020-W-	MSD-DOD		3/1/2022 3:59:46	1.03	R375488		2E+07	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Barium	A	mg/L	0.05889	0.0606567		0.05	0.008131	0.0590602	6.965E-05	0.001	1	105%	75	125	3%	
Beryllium	A	mg/L	0.03378	0.0347934		0.05	0	0.0355247	8.771E-05	0.001	1	70%	75	125	2%	S
Boron	A	mg/L	0.07906	0.0814318		0.05	0.04675	0.0821116	0.0040712	0.0057783	1	69%	75	125	1%	S
Cadmium	A	mg/L	0.05004	0.0515412		0.05	0	0.0510571	2.377E-05	0.001	1	103%	75	125	1%	
Calcium	A	mg/L	63.16	65.0548		50	20.41	63.1596	0.2088052	0.0215476	50	89%	75	125	3%	
Cerium	A	mg/L	0.05281	0.0543943		0.05	0	0.0551977	2.287E-05	0.001	0.1	109%	75	125	1%	
Chromium	A	mg/L	0.04807	0.0495121		0.05	0.001933	0.0487293	0.0002614	0.001	1	95%	75	125	2%	
Cobalt	A	mg/L	0.04499	0.0463397		0.05	3.687E-05	0.0448565	2.205E-05	0.001	1	93%	75	125	3%	
Copper	A	mg/L	0.05133	0.0528699		0.05	0	0.0514279	0.0001801	0.001	1	106%	75	125	3%	
Iron	A	mg/L	4.601	4.73903		5.05	0.002648	4.7895	0.0021792	0.0012257	5	94%	75	125	1%	
Lanthanum	A	mg/L	0.054	0.05562		0.05	0	0.0543016	7.009E-05	0.001	0.1	111%	75	125	2%	
Lead	A	mg/L	0.04912	0.0505936		0.05	3.691E-05	0.0501301	3.122E-05	0.001	1	101%	88	115	1%	
Magnesium	A	mg/L	65.23	67.1869		50	21.05	68.289	0.0209406	0.0058092	50	92%	75	125	2%	
Manganese	A	mg/L	0.04841	0.0498623		0.05	0.001476	0.04944	7.528E-05	0.001	1	97%	75	125	1%	
Mercury	A	mg/L	0.0009382	0.00096635		0.001	0	0.0009661	3.134E-05	0.001	0.002	97%	75	125		
Molybdenum	A	mg/L	0.04855	0.0500065		0.05	0.0003128	0.0489868	8.356E-05	0.001	0.1	99%	75	125	2%	
Nickel	A	mg/L	0.04957	0.0510571		0.05	0.0002055	0.0504597	0.0001822	0.001	1	102%	75	125	1%	
Potassium	A	mg/L	43.7	45.011		50	2.544	44.599	0.0221896	0.0838317	50	85%	75	125	1%	
Selenium	A	mg/L	0.04944	0.0509232		0.05	0.0002913	0.050985	7.389E-05	0.001	1	101%	75	125	0%	
Silicon	A	mg/L	19.48	20.0644		0.2	20.26	20.4146	0.0034337	0.1	0.4		75	125	2%	A
Silver	A	mg/L	0.01949	0.0200747		0.02	0	0.0198893	2.723E-05	0.001	0.04	100%	75	125	1%	
Sodium	A	mg/L	89.59	92.2777		50	50.13	93.3386	0.0465471	0.0223613	50	84%	75	125	1%	
Strontium	A	mg/L	0.2054	0.211562		0.05	0.1635	0.206206	0.0001004	0.001	1	96%	75	125	3%	
Thallium	A	mg/L	0.04948	0.0509644		0.05	7.682E-05	0.0506142	4.987E-05	0.001	1	102%	75	125	1%	
Thorium	A	mg/L	0.05075	0.0522725		0.05	0	0.0521489	3.109E-05	0.001	1	105%	75	125	0%	
Tin	A	mg/L	0.05019	0.0516957		0.05	0	0.0506657	0.0010226	0.0013596	0.1	103%	75	125	2%	
Titanium	A	mg/L	0.04908	0.0505524		0.05	0.00139	0.0480598	0.0001034	0.001	1	98%	75	125	5%	
Uranium	A	mg/L	0.04895	0.0504185		0.05	2.717E-05	0.0511086	2.542E-05	0.0003	1	101%	75	125	1%	
Vanadium	A	mg/L	0.061	0.06283		0.05	0.01176	0.0612232	0.001917	0.001339	1	102%	75	125	3%	
Zinc	A	mg/L	0.05368	0.0552904		0.05	0.003829	0.0551668	0.0010392	0.0028119	1	103%	75	125	0%	
Iron, Ferrous	C	mg/L	4.601	4.73903		0	0.002648	4.7895	0.0021792	0.0012257	5	0%	0	0	1%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064084	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 4:06:00	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.00174	0.00174		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-8.098E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	-2.38E-06	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	1.266E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	6.806E-08	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00002931	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-1.122E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	-7.085E-08	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	4.961E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	9.715E-07	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-6.342E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00006932	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-2.029E-05	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.00000889	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	0.001506	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	3.742E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	-1.429E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00005364	0.00005364		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00005191	0.00005191		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	2.992E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Iron	B	mg/L	0.0002343	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.0002343	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.002018	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Tin	B	mg/L	0.0001347	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	-0.0001156	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					
15064085	B22021627-001	ICPMS-6020-W-	SAMP		3/1/2022 4:12:14	1	164029	2/25/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.001806	0.001806		0	0	0	0.0002485	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	0.00006493	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.008428	0.008428		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	8.109E-06	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	4.299E-06	0		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	U



Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064085	B22021627-001	ICPMS-6020-W-	SAMP		3/1/2022 4:12:14	1	164029	2/25/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Cobalt	A	mg/L	0.00007167	0		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	U
Lanthanum	A	mg/L	4.245E-06	0		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.0002163	0.0002163		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.004982	0.004982		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.000359	0.000359		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	J
Selenium	A	mg/L	0.0003429	0.0003429		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	3.687E-06	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.168	0.168		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0000507	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Uranium	A	mg/L	0.00003019	0.00003019		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	J
Chromium	B	mg/L	0.002088	0.002088		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	D
Iron	B	mg/L	0.02337	0.02337		0	0	0	0.007424	0.00513	5	0%	0	0	0%	D
Magnesium	B	mg/L	20.62	20.62		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.0003351	0.0003351		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Sodium	B	mg/L	46.17	46.17		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	D
Thorium	B	mg/L	0.000154	0.000154		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	JL
Tin	B	mg/L	0.0003819	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.003762	0.003762		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					
15064086	B22021627-001	ICPMS-6020-W-	SD		3/1/2022 4:18:28	5	164029	2/25/2022 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	0.001901	0		0	0	0.004643	0.0146074	0.0159875	1	0%	0	0		
Antimony	A	mg/L	0.0002826	0.001413		0	0	0.001806	0.0012426	0.0049	0.1	0%	0	0		N
Arsenic	A	mg/L	-9.545E-05	0		0	0	0	0.0012977	0.0013383	1	0%	0	0		
Barium	A	mg/L	0.001644	0.00822		0	0	0.008428	0.0005204	0.0012039	1	0%	0	0	2%	
Beryllium	A	mg/L	-8.825E-05	0		0	0	0	0.0005353	0.01	1	0%	0	0		
Boron	A	mg/L	0.007948	0.03974		0	0	0.03792	0.0151506	0.07335	1	0%	0	0		N
Cadmium	A	mg/L	6.531E-06	0		0	0	0	0.0000705	0.005	1	0%	0	0		
Calcium	A	mg/L	3.974	19.87		0	0	19.65	0.1864681	0.5517403	50	0%	0	0	1%	
Cerium	A	mg/L	8.525E-06	0		0	0	0	0.0000435	0.001	0.1	0%	0	0		
Chromium	A	mg/L	0.0004585	0		0	0	0.002088	0.0026324	0.0076875	1	0%	0	0		
Cobalt	A	mg/L	0.00001878	0		0	0	0	0.0004201	0.001	1	0%	0	0		
Copper	A	mg/L	0.00009535	0		0	0	0	0.0028718	0.0099	1	0%	0	0		

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064086	B22021627-001	ICPMS-6020-W-	SD		3/1/2022 4:18:28	5	164029	2/25/2022 8:	0	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Iron	A	mg/L	0.00521	0		0	0	0.02337	0.0371198	0.02565	5	0%	0	0		
Lanthanum	A	mg/L	0.00001544	0.0000772		0	0	0	5.525E-05	0.001	0.1	0%	0	0		N
Lead	A	mg/L	0.00005317	0.00026585		0	0	0.0002163	0.0002623	0.001	1	0%	0	0		N
Magnesium	A	mg/L	4.195	20.975		0	0	20.62	0.3431747	0.0407608	50	0%	0	0	2%	
Manganese	A	mg/L	0.001058	0.00529		0	0	0.004982	0.0012975	0.0010695	1	0%	0	0		N
Molybdenum	A	mg/L	0.00006614	0		0	0	0.000359	0.000483	0.001	0.1	0%	0	0		
Nickel	A	mg/L	0.00006568	0		0	0	0.0003351	0.0011941	0.0121000	1	0%	0	0		
Potassium	A	mg/L	0.3972	1.986		0	0	2.226	0.1447062	0.1306027	50	0%	0	0	11%	R
Selenium	A	mg/L	0.00006273	0.00031365		0	0	0.0003429	0.0003126	0.0029274	1	0%	0	0		N
Silicon	A	mg/L	3.944	19.72		0	0	19.57	0.1093983	0.026606	0.4	0%	0	0	1%	
Silver	A	mg/L	1.995E-06	0		0	0	0	0.0001159	0.001	0.04	0%	0	0		
Sodium	A	mg/L	9.72	48.6		0	0	46.17	0.3607583	3.6651346	50	0%	0	0	5%	
Strontium	A	mg/L	0.0331	0.1655		0	0	0.168	0.0003589	0.001	1	0%	0	0	1%	
Thallium	A	mg/L	0.00001766	0		0	0	0	0.0005569	0.001	1	0%	0	0		
Thorium	A	mg/L	0.00001317	0		0	0	0.000154	0.0002949	0.02075	1	0%	0	0		
Tin	A	mg/L	0.00007967	0		0	0	0	0.0094659	0.0055874	0.1	0%	0	0		
Titanium	A	mg/L	0.0002923	0		0	0	0.001623	0.0024621	0.001	1	0%	0	0		
Uranium	A	mg/L	8.273E-06	0		0	0	3.019E-05	0.0000542	0.0004224	1	0%	0	0		
Vanadium	A	mg/L	0.002349	0.011745		0	0	0.0147	0.0062091	0.0105423	1	0%	0	0		N
Zinc	A	mg/L	0.005659	0.028295		0	0	0.003762	0.0058087	0.0327721	1	0%	0	0		N
Silica	C	mg/L	8.4370048	42.185024		0	0	0	0.2340247	0.0569155	5	0%	0	0		N
Silicon as SiO2	C	mg/L	8.4370048	42.185024		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					
15064087	CCV	ICPMS-6020-W-	CCV		3/1/2022 4:24:42	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04315	0.04315		0.05	0	0	0.0017836	0.001	1	86%	90	110	0%	S
Antimony	A	mg/L	0.0511	0.0511		0.05	0	0	6.768E-05	0.001	0.1	102%	90	110	0%	
Arsenic	A	mg/L	0.05089	0.05089		0.05	0	0	8.203E-05	0.001	1	102%	90	110	0%	
Barium	A	mg/L	0.05073	0.05073		0.05	0	0	6.762E-05	0.001	1	101%	90	110	0%	
Beryllium	A	mg/L	0.0345	0.0345		0.05	0	0	8.516E-05	0.001	1	69%	90	110	0%	S
Boron	A	mg/L	0.03831	0.03831		0.05	0	0	0.0039526	0.00561	1	77%	90	110	0%	S
Cadmium	A	mg/L	0.05023	0.05023		0.05	0	0	2.308E-05	0.001	1	100%	90	110	0%	
Calcium	A	mg/L	11.11	11.11		12.5	0	0	0.2027235	0.02092	50	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					
15064087	CCV	ICPMS-6020-W- CCV			3/1/2022 4:24:42	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Cerium	A	mg/L	0.05518	0.05518		0.05	0	0	0.0000222	0.001	0.1	110%	90	110	0%	
Chromium	A	mg/L	0.04741	0.04741		0.05	0	0	0.0002538	0.001	1	95%	90	110	0%	
Cobalt	A	mg/L	0.04557	0.04557		0.05	0	0	2.141E-05	0.001	1	91%	90	110	0%	
Copper	A	mg/L	0.05506	0.05506		0.05	0	0	0.0001748	0.001	1	110%	90	110	0%	
Iron	A	mg/L	1.244	1.244		1.3	0	0	0.0021157	0.00119	5	96%	90	110	0%	
Lanthanum	A	mg/L	0.0547	0.0547		0.05	0	0	6.805E-05	0.001	0.1	109%	90	110	0%	
Lead	A	mg/L	0.04979	0.04979		0.05	0	0	3.031E-05	0.001	1	100%	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	0.04856	0.04856		0.05	0	0	7.309E-05	0.001	1	97%	90	110	0%	
Mercury	A	mg/L	0.001008	0.001008		0.001	0	0	3.043E-05	0.001	0.002	101%	90	110	0%	
Molybdenum	A	mg/L	0.04729	0.04729		0.05	0	0	8.113E-05	0.001	0.1	95%	90	110	0%	
Nickel	A	mg/L	0.05413	0.05413		0.05	0	0	0.0001769	0.001	1	108%	90	110	0%	
Potassium	A	mg/L	10.36	10.36		12.5	0	0	0.0215433	0.08139	50	83%	90	110	0%	S
Selenium	A	mg/L	0.05062	0.05062		0.05	0	0	7.174E-05	0.001	1	101%	90	110	0%	
Silicon	A	mg/L	0.1973	0.1973		0.2	0	0	0.0033337	0.1	0.4	99%	90	110	0%	
Silver	A	mg/L	0.01973	0.01973		0.02	0	0	2.644E-05	0.001	0.04	99%	90	110	0%	
Sodium	A	mg/L	12.22	12.22		12.5	0	0	0.0451914	0.02171	50	98%	90	110	0%	
Strontium	A	mg/L	0.05158	0.05158		0.05	0	0	9.743E-05	0.001	1	103%	90	110	0%	
Thallium	A	mg/L	0.05102	0.05102		0.05	0	0	4.842E-05	0.001	1	102%	90	110	0%	
Thorium	A	mg/L	0.05101	0.05101		0.05	0	0	3.018E-05	0.001	1	102%	90	110	0%	
Tin	A	mg/L	0.04992	0.04992		0.05	0	0	0.0009928	0.00132	0.1	100%	90	110	0%	
Titanium	A	mg/L	0.04129	0.04129		0.05	0	0	0.0001004	0.001	1	83%	90	110	0%	S
Uranium	A	mg/L	0.05018	0.05018		0.05	0	0	2.468E-05	0.0003	1	100%	90	110	0%	
Vanadium	A	mg/L	0.04594	0.04594		0.05	0	0	0.0018612	0.0013	1	92%	90	110	0%	
Zinc	A	mg/L	0.0524	0.0524		0.05	0	0	0.0010089	0.00273	1	105%	90	110	0%	
Iron, Ferrous	C	mg/L	1.244	1.244		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					
15064088	CCB	ICPMS-6020-W- CCB			3/1/2022 4:30:57	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0002252	0.0002252		0	0	0	0.0017836	0.001	1	0%				0%
Antimony	A	mg/L	0.0002686	0.0002686		0	0	0	6.768E-05	0.001	0.1	0%				0%
Arsenic	A	mg/L	-0.0001218	-0.0001218		0	0	0	8.203E-05	0.001	1	0%				0%
Barium	A	mg/L	-2.632E-07	-2.632E-07		0	0	0	6.762E-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					
15064088	CCB	ICPMS-6020-W- CCB			3/1/2022 4:30:57	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Beryllium	A	mg/L	-7.384E-05	-7.384E-05		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	0.0006628	0.0006628		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	2.939E-06	2.939E-06		0	0	0	2.308E-05	0.001	1	0%			0%	
Calcium	A	mg/L	-0.003334	-0.003334		0	0	0	0.2027235	0.02092	50	0%			0%	
Cerium	A	mg/L	1.24E-07	1.24E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00004324	0.00004324		0	0	0	0.0002538	0.001	1	0%			0%	
Cobalt	A	mg/L	-0.0000001	-0.0000001		0	0	0	2.141E-05	0.001	1	0%			0%	
Copper	A	mg/L	-3.377E-05	-3.377E-05		0	0	0	0.0001748	0.001	1	0%			0%	
Iron	A	mg/L	0.000172	0.000172		0	0	0	0.0021157	0.00119	5	0%			0%	
Lanthanum	A	mg/L	3.135E-07	3.135E-07		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	5.039E-06	5.039E-06		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	0.002646	0.002646		0	0	0	0.0203306	0.00564	50	0%			0%	
Manganese	A	mg/L	1.098E-06	1.098E-06		0	0	0	7.309E-05	0.001	1	0%			0%	
Mercury	A	mg/L	-5.711E-05	-5.711E-05		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.00003583	0.00003583		0	0	0	8.113E-05	0.001	0.1	0%			0%	
Nickel	A	mg/L	-0.0000182	-0.0000182		0	0	0	0.0001769	0.001	1	0%			0%	
Potassium	A	mg/L	-0.06505	-0.06505		0	0	0	0.0215433	0.08139	50	0%			0%	
Selenium	A	mg/L	-8.66E-06	-8.66E-06		0	0	0	7.174E-05	0.001	1	0%			0%	
Silicon	A	mg/L	0.001279	0.001279		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	3.229E-06	3.229E-06		0	0	0	2.644E-05	0.001	0.04	0%			0%	
Sodium	A	mg/L	0.04012	0.04012		0	0	0	0.0451914	0.02171	50	0%			0%	
Strontium	A	mg/L	-6.617E-06	-6.617E-06		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00005244	0.00005244		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00004137	0.00004137		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Tin	A	mg/L	0.00006965	0.00006965		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Titanium	A	mg/L	-3.271E-05	-3.271E-05		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	2.118E-06	2.118E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.0004791	-0.0004791		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	A	mg/L	-0.0001823	-0.0001823		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	
Iron, Ferrous	C	mg/L	0.000172	0.000172		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					
15064089	B22021627-001	ICPMS-6020-W- PDS1-DOD			3/1/2022 4:37:11	1.03	R375488	2/25/2022 8:	2E+07	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					
15064089	B22021627-001	ICPMS-6020-W-	PDS1-DOD		3/1/2022 4:37:11	1.03	R375488	2/25/2022 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	0.04179	0.0430437		0.0515	0.004643	0	0.0030091	0.0032934	1	75%	75	125	0%	
Antimony	A	mg/L	0.04545	0.0468135		0.0515	0.001806	0	0.000256	0.0010094	0.1	87%	75	125	0%	
Arsenic	A	mg/L	0.04907	0.0505421		0.0515	0	0	0.0002673	0.001	1	98%	75	125	0%	
Barium	A	mg/L	0.0567	0.058401		0.0515	0.008428	0	0.0001072	0.001	1	97%	75	125	0%	
Beryllium	A	mg/L	0.02938	0.0302614		0.0515	0	0	0.0001103	0.01	1	59%	75	125	0%	S
Boron	A	mg/L	0.0718	0.073954		0.0515	0.03792	0	0.0031210	0.0151101	1	70%	75	125	0%	S
Cadmium	A	mg/L	0.05168	0.0532304		0.0515	0	0	1.452E-05	0.005	1	103%	75	125	0%	
Calcium	A	mg/L	60.03	61.8309		51.5	19.65	0	0.0384124	0.1136585	50	82%	75	125	0%	
Cerium	A	mg/L	0.05456	0.0561968		0.0515	0	0	8.961E-06	0.001	0.1	109%	75	125	0%	
Chromium	A	mg/L	0.04733	0.0487499		0.0515	0.002088	0	0.0005423	0.0015836	1	91%	75	125	0%	
Cobalt	A	mg/L	0.0427	0.043981		0.0515	0	0	8.654E-05	0.001	1	85%	75	125	0%	
Copper	A	mg/L	0.05226	0.0538278		0.0515	0	0	0.0005916	0.0020394	1	105%	75	125	0%	
Iron	A	mg/L	4.515	4.65045		5.15	0.02337	0	0.0076467	0.0052839	5	90%	75	125	0%	
Lanthanum	A	mg/L	0.05284	0.0544252		0.0515	0	0	1.138E-05	0.001	0.1	106%	75	125	0%	
Lead	A	mg/L	0.0474	0.048822		0.0515	0.0002163	0	5.403E-05	0.001	1	94%	80	120	0%	
Magnesium	A	mg/L	62.86	64.7458		51.5	20.62	0	0.070694	0.0083967	50	86%	75	125	0%	
Manganese	A	mg/L	0.05048	0.0519944		0.0515	0.004982	0	0.0002673	0.001	1	91%	75	125	0%	
Molybdenum	A	mg/L	0.0467	0.048101		0.0515	0.000359	0	9.95E-05	0.001	0.1	93%	75	125	0%	
Nickel	A	mg/L	0.05042	0.0519326		0.0515	0.0003351	0	0.000246	0.0024926	1	100%	75	125	0%	
Potassium	A	mg/L	40.5	41.715		51.5	2.226	0	0.0298095	0.0269042	50	77%	75	125	0%	
Selenium	A	mg/L	0.04845	0.0499035		0.0515	0.0003429	0	6.439E-05	0.001	1	96%	75	125	0%	
Silicon	A	mg/L	19.31	19.8893		0.206	19.57	0	0.0225360	0.0054808	0.4		75	125	0%	A
Silver	A	mg/L	0.01869	0.0192507		0.0206	0	0	2.388E-05	0.001	0.04	93%	75	125	0%	
Sodium	A	mg/L	87.22	89.8366		51.5	46.17	0	0.0743162	0.7550177	50	85%	75	125	0%	
Strontium	A	mg/L	0.2085	0.214755		0.0515	0.168	0	7.393E-05	0.001	1	91%	75	125	0%	
Thallium	A	mg/L	0.04776	0.0491928		0.0515	0	0	0.0001147	0.001	1	96%	75	125	0%	
Thorium	A	mg/L	0.04925	0.0507275		0.0515	0.000154	0	6.075E-05	0.0042745	1	98%	75	125	0%	
Tin	A	mg/L	0.04981	0.0513043		0.0515	0	0	0.00195	0.001151	0.1	100%	75	125	0%	
Titanium	A	mg/L	0.04416	0.0454848		0.0515	0.001623	0	0.0005072	0.001	1	85%	75	125	0%	
Uranium	A	mg/L	0.04892	0.0503876		0.0515	3.019E-05	0	1.117E-05	0.0003	1	98%	75	125	0%	
Vanadium	A	mg/L	0.06107	0.0629021		0.0515	0.0147	0	0.0012791	0.0021717	1	94%	75	125	0%	
Zinc	A	mg/L	0.05092	0.0524476		0.0515	0.003762	0	0.0011966	0.0067511	1	95%	75	125	0%	
Silica	C	mg/L	41.307952	42.5471906		0	0	0	0.0482091	0.0117246	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	41.307952	42.5471906		0.0515	0	0	0.0482091	0.0117246	5	82616%	75	125	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064090	B22021627-001	ICPMS-6020-W-	MS4-DOD		3/1/2022 4:43:25	1	164029	2/25/2022 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	0.385	0.385		0.5	0.004643	0	0.0029215	0.0031975	1	76%	75	125	0%	
Antimony	A	mg/L	0.1044	0.1044		0.1	0.001806	0	0.0002485	0.001	0.1	103%	75	125	0%	
Arsenic	A	mg/L	0.09724	0.09724		0.1	0	0	0.0002595	0.001	1	97%	75	125	0%	
Barium	A	mg/L	0.1003	0.1003		0.1	0.008428	0	0.0001041	0.001	1	92%	75	125	0%	
Beryllium	A	mg/L	0.02982	0.02982		0.05	0	0	0.0001071	0.01	1	60%	75	125	0%	S
Boron	A	mg/L	0.1027	0.1027		0.1	0.03792	0	0.0030301	0.01467	1	65%	75	125	0%	S
Cadmium	A	mg/L	0.054	0.054		0.05	0	0	0.0000141	0.005	1	108%	75	125	0%	
Calcium	A	mg/L	23.75	23.75		5	19.65	0	0.0372936	0.1103481	50	82%	75	125	0%	
Cerium	A	mg/L	0.1117	0.1117		0.1	0	0	0.0000087	0.001	0.1	112%	75	125	0%	
Chromium	A	mg/L	0.09276	0.09276		0.1	0.002088	0	0.0005265	0.0015375	1	91%	75	125	0%	
Cobalt	A	mg/L	0.08774	0.08774		0.1	0	0	8.402E-05	0.001	1	88%	75	125	0%	
Copper	A	mg/L	0.105	0.105		0.1	0	0	0.0005744	0.00198	1	105%	75	125	0%	
Iron	A	mg/L	0.4983	0.4983		0.5	0.02337	0	0.007424	0.00513	5	95%	75	125	0%	
Lanthanum	A	mg/L	0.11	0.11		0.1	0	0	1.105E-05	0.001	0.1	110%	75	125	0%	
Lead	A	mg/L	0.09754	0.09754		0.1	0.0002163	0	5.246E-05	0.001	1	97%	88	115	0%	
Magnesium	A	mg/L	24.41	24.41		5	20.62	0	0.0686349	0.0081522	50		75	125	0%	A
Manganese	A	mg/L	0.4602	0.4602		0.5	0.004982	0	0.0002595	0.001	1	91%	75	125	0%	
Molybdenum	A	mg/L	0.09241	0.09241		0.1	0.000359	0	0.0000966	0.001	0.1	92%	75	125	0%	
Nickel	A	mg/L	0.09854	0.09854		0.1	0.0003351	0	0.0002388	0.0024200	1	98%	75	125	0%	
Potassium	A	mg/L	5.861	5.861		5	2.226	0	0.0289412	0.0261205	50	73%	75	125	0%	S
Selenium	A	mg/L	0.09905	0.09905		0.1	0.0003429	0	6.251E-05	0.001	1	99%	75	125	0%	
Silicon	A	mg/L	19.87	19.87		1	19.57	0	0.0218797	0.0053212	0.4		75	125	0%	A
Silver	A	mg/L	0.009243	0.009243		0.01	0	0	2.318E-05	0.001	0.04	92%	75	125	0%	
Sodium	A	mg/L	50.57	50.57		5	46.17	0	0.0721517	0.7330269	50		75	125	0%	A
Strontium	A	mg/L	0.2645	0.2645		0.1	0.168	0	7.178E-05	0.001	1	96%	75	125	0%	
Thallium	A	mg/L	0.1007	0.1007		0.1	0	0	0.0001114	0.001	1	101%	75	125	0%	
Thorium	A	mg/L	0.09854	0.09854		0.1	0.000154	0	5.898E-05	0.00415	1	98%	75	125	0%	
Tin	A	mg/L	0.1034	0.1034		0.1	0	0	0.0018932	0.0011175	0.1	103%	75	125	0%	
Titanium	A	mg/L	0.08224	0.08224		0.1	0.001623	0	0.0004924	0.001	1	81%	75	125	0%	
Uranium	A	mg/L	0.09913	0.09913		0.1	3.019E-05	0	1.084E-05	0.0003	1	99%	75	125	0%	
Vanadium	A	mg/L	0.1032	0.1032		0.1	0.0147	0	0.0012418	0.0021085	1	88%	75	125	0%	
Zinc	A	mg/L	0.1016	0.1016		0.1	0.003762	0	0.0011617	0.0065544	1	98%	75	125	0%	
Silica	C	mg/L	42.505904	42.505904		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	42.505904	42.505904		2.14	0	0	0.0468049	0.0113831	5	1986%	75	125	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064091	B22021627-001	ICPMS-6020-W-	MSD4-DOD		3/1/2022 4:49:40	1	164029	2/25/2022 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	0.3738	0.3738		0.5	0.004643	0.385	0.0029215	0.0031975	1	74%	75	125	3%	S
Antimony	A	mg/L	0.1035	0.1035		0.1	0.001806	0.1044	0.0002485	0.001	0.1	102%	75	125	1%	
Arsenic	A	mg/L	0.09878	0.09878		0.1	0	0.09724	0.0002595	0.001	1	99%	75	125	2%	
Barium	A	mg/L	0.1026	0.1026		0.1	0.008428	0.1003	0.0001041	0.001	1	94%	75	125	2%	
Beryllium	A	mg/L	0.02991	0.02991		0.05	0	0.02982	0.0001071	0.01	1	60%	75	125	0%	S
Boron	A	mg/L	0.1048	0.1048		0.1	0.03792	0.1027	0.0030301	0.01467	1	67%	75	125	2%	S
Cadmium	A	mg/L	0.05346	0.05346		0.05	0	0.054	0.0000141	0.005	1	107%	75	125	1%	
Calcium	A	mg/L	23.39	23.39		5	19.65	23.75	0.0372936	0.1103481	50	75%	75	125	2%	
Cerium	A	mg/L	0.1121	0.1121		0.1	0	0.1117	0.0000087	0.001	0.1	112%	75	125	0%	
Chromium	A	mg/L	0.09306	0.09306		0.1	0.002088	0.09276	0.0005265	0.0015375	1	91%	75	125	0%	
Cobalt	A	mg/L	0.08222	0.08222		0.1	0	0.08774	8.402E-05	0.001	1	82%	75	125	6%	
Copper	A	mg/L	0.1071	0.1071		0.1	0	0.105	0.0005744	0.00198	1	107%	75	125	2%	
Iron	A	mg/L	0.4978	0.4978		0.5	0.02337	0.4983	0.007424	0.00513	5	95%	75	125	0%	
Lanthanum	A	mg/L	0.1089	0.1089		0.1	0	0.11	1.105E-05	0.001	0.1	109%	75	125	1%	
Lead	A	mg/L	0.09511	0.09511		0.1	0.0002163	0.09754	5.246E-05	0.001	1	95%	88	115	3%	
Magnesium	A	mg/L	25.01	25.01		5	20.62	24.41	0.0686349	0.0081522	50		75	125	2%	A
Manganese	A	mg/L	0.4677	0.4677		0.5	0.004982	0.4602	0.0002595	0.001	1	93%	75	125	2%	
Molybdenum	A	mg/L	0.09225	0.09225		0.1	0.000359	0.09241	0.0000966	0.001	0.1	92%	75	125	0%	
Nickel	A	mg/L	0.1046	0.1046		0.1	0.0003351	0.09854	0.0002388	0.0024200	1	104%	75	125	6%	
Potassium	A	mg/L	6.03	6.03		5	2.226	5.861	0.0289412	0.0261205	50	76%	75	125	3%	
Selenium	A	mg/L	0.09985	0.09985		0.1	0.0003429	0.09905	6.251E-05	0.001	1	100%	75	125	1%	
Silicon	A	mg/L	20.41	20.41		1	19.57	19.87	0.0218797	0.0053212	0.4		75	125	3%	A
Silver	A	mg/L	0.009207	0.009207		0.01	0	0.009243	2.318E-05	0.001	0.04	92%	75	125	0%	
Sodium	A	mg/L	50.93	50.93		5	46.17	50.57	0.0721517	0.7330269	50		75	125	1%	A
Strontium	A	mg/L	0.2739	0.2739		0.1	0.168	0.2645	7.178E-05	0.001	1	106%	75	125	3%	
Thallium	A	mg/L	0.1055	0.1055		0.1	0	0.1007	0.0001114	0.001	1	105%	75	125	5%	
Thorium	A	mg/L	0.1065	0.1065		0.1	0.000154	0.09854	5.898E-05	0.00415	1	106%	75	125	8%	
Tin	A	mg/L	0.1057	0.1057		0.1	0	0.1034	0.0018932	0.0011175	0.1	106%	75	125	2%	
Titanium	A	mg/L	0.07659	0.07659		0.1	0.001623	0.08224	0.0004924	0.001	1	75%	75	125	7%	
Uranium	A	mg/L	0.09727	0.09727		0.1	3.019E-05	0.09913	1.084E-05	0.0003	1	97%	75	125	2%	
Vanadium	A	mg/L	0.1057	0.1057		0.1	0.0147	0.1032	0.0012418	0.0021085	1	91%	75	125	2%	
Zinc	A	mg/L	0.102	0.102		0.1	0.003762	0.1016	0.0011617	0.0065544	1	98%	75	125	0%	
Silica	C	mg/L	43.661072	43.661072		0	0	42.505904	0.0468049	0.0113831	5	0%	0	0	3%	
Silicon as SiO2	C	mg/L	43.661072	43.661072		2.14	0	42.505904	0.0468049	0.0113831	5	2040%	75	125	3%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064092	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 4:55:53	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0003079	0.0003079		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	-0.000129	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	-9.152E-07	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	2.312E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	1.367E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00003049	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-1.721E-06	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	-6.669E-08	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	9.778E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	5.168E-06	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-6.648E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.0000195	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	-1.346E-05	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	-7.446E-07	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	0.01236	0.01236		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	J
Silver	A	mg/L	2.506E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	-7.261E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0001226	0.0001226		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00006258	0.00006258		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	2.213E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Iron	B	mg/L	0.000126	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.000126	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.00291	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Tin	B	mg/L	8.631E-06	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	-9.635E-05	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					
15064093	B22021627-006	ICPMS-6020-W-	SAMP		3/1/2022 5:02:07	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0001435	0.0001435		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	-0.000122	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.02178	0.02178		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	0.00001492	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	0.00001161	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U



Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064093	B22021627-006	ICPMS-6020-W-	SAMP		3/1/2022 5:02:07	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Chromium	A	mg/L	0.001568	0.001568		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0.0000783	0.0000783		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	0.00000447	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.0002116	0.0002116		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.01756	0.01756		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-5.417E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	U
Molybdenum	A	mg/L	0.0003472	0.0003472		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.0009549	0.0009549		0	0	0	0.0001769	0.001	1	0%	0	0	0%	J
Selenium	A	mg/L	0.0003726	0.0003726		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	1.356E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.1823	0.1823		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00006988	0.00006988		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00003876	0.00003876		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	0.00002657	0.00002657		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	J
Iron	B	mg/L	0.02149	0.02149		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.02149	0.02149		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	22.87	22.87		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Tin	B	mg/L	-4.262E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.003817	0.003817		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					
15064094	B22021627-006	ICPMS-6020-W-	SAMP		3/1/2022 5:08:22	1	164029	2/25/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0003129	0.0003129		0	0	0	0.0002485	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	0.0002174	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.02084	0.02084		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	0.0000314	0.0000314		0	0	0	0.0000141	0.005	1	0%	0	0	0%	J
Cerium	A	mg/L	0.0000718	0.0000718		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	J
Cobalt	A	mg/L	0.0001426	0.0001426		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	0.00003672	0.00003672		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	J
Lead	A	mg/L	0.001385	0.001385		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	0.01845	0.01845		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.0004188	0.0004188		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	J
Selenium	A	mg/L	0.0003858	0.0003858		0	0	0	6.251E-05	0.001	1	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					
15064094	B22021627-006	ICPMS-6020-W-	SAMP		3/1/2022 5:08:22	1	164029	2/25/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Silver	A	mg/L	5.115E-06	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.1861	0.1861		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00006446	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Uranium	A	mg/L	0.00002886	0.00002886		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	J
Chromium	B	mg/L	0.002061	0.002061		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	D
Iron	B	mg/L	0.2172	0.2172		0	0	0	0.007424	0.00513	5	0%	0	0	0%	D
Magnesium	B	mg/L	21.8	21.8		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.001156	0.001156		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Thorium	B	mg/L	0.0001467	0.0001467		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	JL
Tin	B	mg/L	0.0002344	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.007358	0.007358		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					
15064095	B22021627-011	ICPMS-6020-W-	SAMP		3/1/2022 5:14:38	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	8.311E-08	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	U
Arsenic	A	mg/L	-0.0002458	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.007739	0.007739		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	3.143E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	8.368E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.001814	0.001814		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0.00001938	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	U
Lanthanum	A	mg/L	-1.289E-08	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	9.785E-06	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.000773	0.000773		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	J
Mercury	A	mg/L	-0.0000462	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	U
Molybdenum	A	mg/L	0.0002885	0.0002885		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.0001262	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	U
Selenium	A	mg/L	0.000286	0.000286		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	4.37E-07	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.1609	0.1609		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00002393	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	U
Thorium	A	mg/L	9.193E-07	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Uranium	A	mg/L	0.00002639	0.00002639		0	0	0	2.468E-05	0.0003	1	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					
15064095	B22021627-011	ICPMS-6020-W-	SAMP		3/1/2022 5:14:38	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Iron	B	mg/L	0.0007963	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	U
Iron, Ferrous	B	mg/L	0.0007963	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	U
Magnesium	B	mg/L	20.26	20.26		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Sodium	B	mg/L	47.43	47.43		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	-4.413E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.0002817	0		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	LU

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064096	B22021627-011	ICPMS-6020-W-	SAMP		3/1/2022 5:20:52	1	164029	2/25/2022 8:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.00009008	0		0	0	0	0.0002485	0.001	0.1	0%	0	0	0%	U
Arsenic	A	mg/L	0.00005184	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.008117	0.008117		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	2.026E-06	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	4.438E-06	0		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	U
Cobalt	A	mg/L	0.00005105	0		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	U
Lanthanum	A	mg/L	1.215E-06	0		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00004316	0		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.002561	0.002561		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.0003678	0.0003678		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	J
Selenium	A	mg/L	0.0003392	0.0003392		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	2.404E-06	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.1597	0.1597		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00002422	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Uranium	A	mg/L	0.00002832	0.00002832		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	J
Chromium	B	mg/L	0.002029	0.002029		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	D
Iron	B	mg/L	0.01247	0.01247		0	0	0	0.007424	0.00513	5	0%	0	0	0%	DU
Magnesium	B	mg/L	20.01	20.01		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.0002453	0.0002453		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Sodium	B	mg/L	46.23	46.23		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	D
Thorium	B	mg/L	0.00006091	0.00006091		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	JL
Tin	B	mg/L	0.00019	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.0003823	0		0	0	0	0.0011617	0.0065544	1	0%	0	0	0%	LU

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064097	CCV	ICPMS-6020-W-	CCV		3/1/2022 5:27:05	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04079	0.04079		0.05	0	0	0.0017836	0.001	1	82%	90	110	0%	S
Antimony	A	mg/L	0.05103	0.05103		0.05	0	0	6.768E-05	0.001	0.1	102%	90	110	0%	
Arsenic	A	mg/L	0.05012	0.05012		0.05	0	0	8.203E-05	0.001	1	100%	90	110	0%	
Barium	A	mg/L	0.05032	0.05032		0.05	0	0	6.762E-05	0.001	1	101%	90	110	0%	
Beryllium	A	mg/L	0.0317	0.0317		0.05	0	0	8.516E-05	0.001	1	63%	90	110	0%	S
Boron	A	mg/L	0.03584	0.03584		0.05	0	0	0.0039526	0.00561	1	72%	90	110	0%	S
Cadmium	A	mg/L	0.05026	0.05026		0.05	0	0	2.308E-05	0.001	1	101%	90	110	0%	
Calcium	A	mg/L	11	11		12.5	0	0	0.2027235	0.02092	50	88%	90	110	0%	S
Cerium	A	mg/L	0.05443	0.05443		0.05	0	0	0.0000222	0.001	0.1	109%	90	110	0%	
Chromium	A	mg/L	0.04753	0.04753		0.05	0	0	0.0002538	0.001	1	95%	90	110	0%	
Cobalt	A	mg/L	0.04584	0.04584		0.05	0	0	2.141E-05	0.001	1	92%	90	110	0%	
Copper	A	mg/L	0.0548	0.0548		0.05	0	0	0.0001748	0.001	1	110%	90	110	0%	
Iron	A	mg/L	1.238	1.238		1.3	0	0	0.0021157	0.00119	5	95%	90	110	0%	
Lanthanum	A	mg/L	0.05458	0.05458		0.05	0	0	6.805E-05	0.001	0.1	109%	90	110	0%	
Lead	A	mg/L	0.04918	0.04918		0.05	0	0	3.031E-05	0.001	1	98%	90	110	0%	
Magnesium	A	mg/L	12.69	12.69		12.5	0	0	0.0203306	0.00564	50	102%	90	110	0%	
Manganese	A	mg/L	0.04791	0.04791		0.05	0	0	7.309E-05	0.001	1	96%	90	110	0%	
Mercury	A	mg/L	0.0009741	0.0009741		0.001	0	0	3.043E-05	0.001	0.002	97%	90	110	0%	
Molybdenum	A	mg/L	0.04609	0.04609		0.05	0	0	8.113E-05	0.001	0.1	92%	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	10.36	10.36		12.5	0	0	0.0215433	0.08139	50	83%	90	110	0%	S
Selenium	A	mg/L	0.05017	0.05017		0.05	0	0	7.174E-05	0.001	1	100%	90	110	0%	
Silicon	A	mg/L	0.2053	0.2053		0.2	0	0	0.0033337	0.1	0.4	103%	90	110	0%	
Silver	A	mg/L	0.01959	0.01959		0.02	0	0	2.644E-05	0.001	0.04	98%	90	110	0%	
Sodium	A	mg/L	12.36	12.36		12.5	0	0	0.0451914	0.02171	50	99%	90	110	0%	
Strontium	A	mg/L	0.05173	0.05173		0.05	0	0	9.743E-05	0.001	1	103%	90	110	0%	
Thallium	A	mg/L	0.04981	0.04981		0.05	0	0	4.842E-05	0.001	1	100%	90	110	0%	
Thorium	A	mg/L	0.05085	0.05085		0.05	0	0	3.018E-05	0.001	1	102%	90	110	0%	
Tin	A	mg/L	0.05064	0.05064		0.05	0	0	0.0009928	0.00132	0.1	101%	90	110	0%	
Titanium	A	mg/L	0.04196	0.04196		0.05	0	0	0.0001004	0.001	1	84%	90	110	0%	S
Uranium	A	mg/L	0.05012	0.05012		0.05	0	0	2.468E-05	0.0003	1	100%	90	110	0%	
Vanadium	A	mg/L	0.04624	0.04624		0.05	0	0	0.0018612	0.0013	1	92%	90	110	0%	
Zinc	A	mg/L	0.05149	0.05149		0.05	0	0	0.0010089	0.00273	1	103%	90	110	0%	
Iron, Ferrous	C	mg/L	1.238	1.238		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					
15064098	CCB	ICPMS-6020-W-	CCB		3/1/2022 5:33:20	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0001362	0.0001362		0	0	0	0.0017836	0.001	1	0%				0%
Antimony	A	mg/L	0.000143	0.000143		0	0	0	6.768E-05	0.001	0.1	0%				0%
Arsenic	A	mg/L	-0.000131	-0.000131		0	0	0	8.203E-05	0.001	1	0%				0%
Barium	A	mg/L	2.384E-06	2.384E-06		0	0	0	6.762E-05	0.001	1	0%				0%
Beryllium	A	mg/L	-8.276E-05	-8.276E-05		0	0	0	8.516E-05	0.001	1	0%				0%
Boron	A	mg/L	0.0006368	0.0006368		0	0	0	0.0039526	0.00561	1	0%				0%
Cadmium	A	mg/L	3.009E-06	3.009E-06		0	0	0	2.308E-05	0.001	1	0%				0%
Calcium	A	mg/L	-0.003739	-0.003739		0	0	0	0.2027235	0.02092	50	0%				0%
Cerium	A	mg/L	-6.987E-08	-6.987E-08		0	0	0	0.0000222	0.001	0.1	0%	0	0		0%
Chromium	A	mg/L	0.00005074	0.00005074		0	0	0	0.0002538	0.001	1	0%				0%
Cobalt	A	mg/L	-2.507E-06	-2.507E-06		0	0	0	2.141E-05	0.001	1	0%				0%
Copper	A	mg/L	-0.0000371	-0.0000371		0	0	0	0.0001748	0.001	1	0%				0%
Iron	A	mg/L	0.0001472	0.0001472		0	0	0	0.0021157	0.00119	5	0%				0%
Lanthanum	A	mg/L	5.601E-07	5.601E-07		0	0	0	6.805E-05	0.001	0.1	0%	0	0		0%
Lead	A	mg/L	2.648E-06	2.648E-06		0	0	0	3.031E-05	0.001	1	0%				0%
Magnesium	A	mg/L	0.003675	0.003675		0	0	0	0.0203306	0.00564	50	0%				0%
Manganese	A	mg/L	-3.339E-07	-3.339E-07		0	0	0	7.309E-05	0.001	1	0%				0%
Mercury	A	mg/L	-0.0000651	-0.0000651		0	0	0	3.043E-05	0.001	0.002	0%				0%
Molybdenum	A	mg/L	0.00002537	0.00002537		0	0	0	8.113E-05	0.001	0.1	0%				0%
Nickel	A	mg/L	0.00000716	0.00000716		0	0	0	0.0001769	0.001	1	0%				0%
Potassium	A	mg/L	-0.07769	-0.07769		0	0	0	0.0215433	0.08139	50	0%				0%
Selenium	A	mg/L	-5.056E-06	-5.056E-06		0	0	0	7.174E-05	0.001	1	0%				0%
Silicon	A	mg/L	0.003752	0.003752		0	0	0	0.0033337	0.1	0.4	0%	0	0		0%
Silver	A	mg/L	3.629E-06	3.629E-06		0	0	0	2.644E-05	0.001	0.04	0%				0%
Sodium	A	mg/L	0.06525	0.06525		0	0	0	0.0451914	0.02171	50	0%				0%
Strontium	A	mg/L	-5.427E-06	-5.427E-06		0	0	0	9.743E-05	0.001	1	0%	0	0		0%
Thallium	A	mg/L	0.00007123	0.00007123		0	0	0	4.842E-05	0.001	1	0%	0	0		0%
Thorium	A	mg/L	0.00004185	0.00004185		0	0	0	3.018E-05	0.001	1	0%	0	0		0%
Tin	A	mg/L	0.00005987	0.00005987		0	0	0	0.0009928	0.00132	0.1	0%	0	0		0%
Titanium	A	mg/L	-5.776E-05	-5.776E-05		0	0	0	0.0001004	0.001	1	0%	0	0		0%
Uranium	A	mg/L	0.00000195	0.00000195		0	0	0	2.468E-05	0.0003	1	0%	0	0		0%
Vanadium	A	mg/L	-0.0006052	-0.0006052		0	0	0	0.0018612	0.0013	1	0%	0	0		0%
Zinc	A	mg/L	-0.0001721	-0.0001721		0	0	0	0.0010089	0.00273	1	0%	0	0		0%
Iron, Ferrous	C	mg/L	0.0001472	0.0001472		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					
15064099	Cal Blk	ICPMS-6020-W-	SAMP		3/1/2022 5:39:36	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
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%	
Cadmium	A	mg/L	0	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
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%	
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%	
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%	
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%	
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%	
Uranium	A	mg/L	0	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Iron	B	mg/L	0	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Sodium	B	mg/L	0	0		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	L
Tin	B	mg/L	0	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	0	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					
15064100	0.025 ppb STD	ICPMS-6020B-C	Cal1		3/1/2022 5:45:59	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0002914	0.0002914		0	0	0		0.01		0%				0%
Antimony	A	mg/L	-8.986E-06	-8.986E-06		0	0	0		0.001		0%				0%
Arsenic	A	mg/L	0.00002954	0.00002954		0.000025	0	0		0.001		118%	80	120		0%
Barium	A	mg/L	0.00002161	0.00002161		0.000025	0	0		0.0003		86%	80	120		0%

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064100	0.025 ppb STD	ICPMS-6020B-C Cal1			3/1/2022 5:45:59	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Beryllium	A	mg/L	0.0000196	0.0000196		0.000025	0	0		0.001		78%	80	120	0%	S
Boron	A	mg/L	-0.0003841	-0.0003841		0	0	0		0.1		0%			0%	
Cadmium	A	mg/L	0.00002403	0.00002403		0.000025	0	0		0.001		96%	80	120	0%	
Calcium	A	mg/L	0.01001	0.01001		0	0	0		1		0%			0%	
Cerium	A	mg/L	0.00002788	0.00002788		0.000025	0	0		0.001		112%	80	120	0%	
Chromium	A	mg/L	0.00005144	0.00005144		0.000025	0	0		0.001		206%	80	120	0%	S
Cobalt	A	mg/L	7.658E-06	7.658E-06		0.000025	0	0		0.001		31%	80	120	0%	S
Copper	A	mg/L	0.00004699	0.00004699		0	0	0		0.005		0%			0%	
Iron	A	mg/L	0.0009721	0.0009721		0	0	0		0.01		0%			0%	
Lanthanum	A	mg/L	0.00002697	0.00002697		0.000025	0	0		0.001		108%	80	120	0%	
Lead	A	mg/L	0.0000264	0.0000264		0.000025	0	0		0.001		106%	80	120	0%	
Lithium	A	mg/L	0.0009502	0.0009502		0.0003125	0	0		1		304%	80	120	0%	S
Magnesium	A	mg/L	0.007569	0.007569		0	0	0		1		0%			0%	
Manganese	A	mg/L	0.00003506	0.00003506		0	0	0		0.001		0%			0%	
Mercury	A	mg/L	-1.298E-05	-1.298E-05		0	0	0		0.001		0%			0%	
Molybdenum	A	mg/L	0.00008068	0.00008068		0	0	0		0.001		0%			0%	
Nickel	A	mg/L	0.00005909	0.00005909		0	0	0		0.005		0%			0%	
Potassium	A	mg/L	0.007038	0.007038		0.00625	0	0		1		113%	80	120	0%	
Selenium	A	mg/L	0.00002466	0.00002466		0.000025	0	0		0.005		99%	80	120	0%	
Silicon	A	mg/L	-0.00091	-0.00091		0	0	0		0.1		0%			0%	
Silver	A	mg/L	0.00001036	0.00001036		0	0	0		0.001		0%			0%	
Sodium	A	mg/L	0.02102	0.02102		0.00625	0	0		1		336%	80	120	0%	S
Strontium	A	mg/L	0.00003242	0.00003242		0	0	0		0.001		0%	80	120	0%	
Thallium	A	mg/L	6.938E-06	6.938E-06		0	0	0		0.001		0%			0%	
Thorium	A	mg/L	7.883E-06	7.883E-06		0	0	0		0.05		0%			0%	
Tin	A	mg/L	0.00004088	0.00004088		0	0	0		0.001		0%			0%	
Titanium	A	mg/L	0.0001159	0.0001159		0	0	0		0.001		0%			0%	
Uranium	A	mg/L	0.00002526	0.00002526		0.000025	0	0		0.001		101%	80	120	0%	
Vanadium	A	mg/L	0.00007857	0.00007857		0	0	0		0.005		0%			0%	
Zinc	A	mg/L	0.0002061	0.0002061		0	0	0		0.01		0%			0%	
Iron, Ferrous	C	mg/L	0.0009721	0.0009721		0.000025	0	0		0.01	5	3888%	80	120	0%	S
Silicon as SiO2	C	mg/L	-0.0019474	-0.0019474		0.0000535	0	0		0.214	0.9	-3640%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064101	0.05 ppb STD	ICPMS-6020B-C	Cal2		3/1/2022 5:52:22	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0004437	0.0004437		0	0	0		0.01		0%			0%	
Antimony	A	mg/L	0.00002089	0.00002089		0.00005	0	0		0.001		42%	80	120	0%	S
Arsenic	A	mg/L	0.00005759	0.00005759		0.00005	0	0		0.001		115%	80	120	0%	
Barium	A	mg/L	0.00007219	0.00007219		0.00005	0	0		0.0003		144%	80	120	0%	S
Beryllium	A	mg/L	0.00006797	0.00006797		0.00005	0	0		0.001		136%	80	120	0%	S
Boron	A	mg/L	-0.000311	-0.000311		0	0	0		0.1		0%			0%	
Cadmium	A	mg/L	0.00006374	0.00006374		0.00005	0	0		0.001		127%	80	120	0%	S
Calcium	A	mg/L	0.01849	0.01849		0.0125	0	0		1		148%	80	120	0%	S
Cerium	A	mg/L	0.00006987	0.00006987		0.00005	0	0		0.001		140%	80	120	0%	S
Chromium	A	mg/L	0.0001046	0.0001046		0.00005	0	0		0.001		209%	80	120	0%	S
Cobalt	A	mg/L	0.00003945	0.00003945		0	0	0		0.001		0%			0%	
Copper	A	mg/L	0.00007693	0.00007693		0.00005	0	0		0.005		154%	80	120	0%	S
Iron	A	mg/L	0.001774	0.001774		0.00125	0	0		0.01		142%	80	120	0%	S
Lanthanum	A	mg/L	0.00006363	0.00006363		0.00005	0	0		0.001		127%	80	120	0%	S
Lead	A	mg/L	0.00005935	0.00005935		0.00005	0	0		0.001		119%	80	120	0%	
Lithium	A	mg/L	0.002488	0.002488		0.000625	0	0		1		398%	80	120	0%	S
Magnesium	A	mg/L	0.01834	0.01834		0.0125	0	0		1		147%	80	120	0%	S
Manganese	A	mg/L	0.00006627	0.00006627		0.00005	0	0		0.001		133%	80	120	0%	S
Mercury	A	mg/L	-8.453E-06	-8.453E-06		0	0	0		0.001		0%			0%	
Molybdenum	A	mg/L	0.00006827	0.00006827		0.00005	0	0		0.001		137%	80	120	0%	S
Nickel	A	mg/L	0.00004192	0.00004192		0	0	0		0.005		0%			0%	
Potassium	A	mg/L	0.007167	0.007167		0.0125	0	0		1		57%	80	120	0%	S
Selenium	A	mg/L	0.00005389	0.00005389		0.00005	0	0		0.005		108%	80	120	0%	
Silicon	A	mg/L	-0.0008113	-0.0008113		0	0	0		0.1		0%			0%	
Silver	A	mg/L	0.00002575	0.00002575		0.00002	0	0		0.001		129%	80	120	0%	S
Sodium	A	mg/L	0.03663	0.03663		0.0125	0	0		1		293%	80	120	0%	S
Strontium	A	mg/L	0.0000643	0.0000643		0.00005	0	0		0.001		129%	80	120	0%	S
Thallium	A	mg/L	0.00004363	0.00004363		0	0	0		0.001		0%			0%	
Thorium	A	mg/L	0.0000256	0.0000256		0	0	0		0.05		0%			0%	
Tin	A	mg/L	0.000106	0.000106		0	0	0		0.001		0%			0%	
Titanium	A	mg/L	0.0001244	0.0001244		0	0	0		0.001		0%			0%	
Uranium	A	mg/L	0.00005675	0.00005675		0.00005	0	0		0.001		114%	80	120	0%	
Vanadium	A	mg/L	0.0001109	0.0001109		0	0	0		0.005		0%			0%	
Zinc	A	mg/L	0.0003603	0.0003603		0	0	0		0.01		0%			0%	
Iron, Ferrous	C	mg/L	0.001774	0.001774		0.00005	0	0		0.01	5	3548%	80	120	0%	S



Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064101	0.05 ppb STD	ICPMS-6020B-C Cal2			3/1/2022 5:52:22	1	R375488		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	-0.0017362	-0.0017362		0.00428	0	0		0.214	0.9	-41%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064102	0.10 ppb STD	ICPMS-6020B-C Cal3			3/1/2022 5:58:45	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0006041	0.0006041		0.0001	0	0		0.01		604%	80	120	0%	S
Antimony	A	mg/L	0.00007001	0.00007001		0.0001	0	0		0.001		70%	80	120	0%	S
Arsenic	A	mg/L	0.0001164	0.0001164		0.0001	0	0		0.001		116%	80	120	0%	
Barium	A	mg/L	0.0001058	0.0001058		0.0001	0	0		0.0003		106%	80	120	0%	
Beryllium	A	mg/L	0.0001188	0.0001188		0.0001	0	0		0.001		119%	80	120	0%	
Boron	A	mg/L	-0.0003067	-0.0003067		0	0	0		0.1		0%			0%	
Cadmium	A	mg/L	0.0001201	0.0001201		0.0001	0	0		0.001		120%	80	120	0%	
Calcium	A	mg/L	0.03165	0.03165		0.025	0	0		1		127%	80	120	0%	S
Cerium	A	mg/L	0.0001283	0.0001283		0.0001	0	0		0.001		128%	80	120	0%	S
Chromium	A	mg/L	0.0001562	0.0001562		0.0001	0	0		0.001		156%	80	120	0%	S
Cobalt	A	mg/L	0.00009525	0.00009525		0.0001	0	0		0.001		95%	80	120	0%	
Copper	A	mg/L	0.0001377	0.0001377		0.0001	0	0		0.005		138%	80	120	0%	S
Iron	A	mg/L	0.003197	0.003197		0.0025	0	0		0.01		128%	80	120	0%	S
Lanthanum	A	mg/L	0.0001204	0.0001204		0.0001	0	0		0.001		120%	80	120	0%	
Lead	A	mg/L	0.0001078	0.0001078		0.0001	0	0		0.001		108%	80	120	0%	
Lithium	A	mg/L	0.003617	0.003617		0.00125	0	0		1		289%	80	120	0%	S
Magnesium	A	mg/L	0.03592	0.03592		0.025	0	0		1		144%	80	120	0%	S
Manganese	A	mg/L	0.0001133	0.0001133		0.0001	0	0		0.001		113%	80	120	0%	
Mercury	A	mg/L	-3.769E-06	-3.769E-06		0.000002	0	0		0.001		-188%	80	120	0%	S
Molybdenum	A	mg/L	0.0001113	0.0001113		0.0001	0	0		0.001		111%	80	120	0%	
Nickel	A	mg/L	0.0001155	0.0001155		0.0001	0	0		0.005		116%	80	120	0%	
Potassium	A	mg/L	0.02111	0.02111		0.025	0	0		1		84%	80	120	0%	
Selenium	A	mg/L	0.0001016	0.0001016		0.0001	0	0		0.005		102%	80	120	0%	
Silicon	A	mg/L	-0.0008325	-0.0008325		0.0004	0	0		0.1		-208%	80	120	0%	S
Silver	A	mg/L	0.00004876	0.00004876		0.00004	0	0		0.001		122%	80	120	0%	S
Sodium	A	mg/L	0.05964	0.05964		0.025	0	0		1		239%	80	120	0%	S
Strontium	A	mg/L	0.0001299	0.0001299		0.0001	0	0		0.001		130%	80	120	0%	S
Thallium	A	mg/L	0.00008848	0.00008848		0.0001	0	0		0.001		88%	80	120	0%	
Thorium	A	mg/L	0.00005382	0.00005382		0.0001	0	0		0.05		54%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064102	0.10 ppb STD	ICPMS-6020B-C	Cal3		3/1/2022 5:58:45	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Tin	A	mg/L	0.000127	0.000127		0.0001	0	0		0.001		127%	80	120	0%	S
Titanium	A	mg/L	0.0002221	0.0002221		0.0001	0	0		0.001		222%	80	120	0%	S
Uranium	A	mg/L	0.000107	0.000107		0.0001	0	0		0.001		107%	80	120	0%	
Vanadium	A	mg/L	0.00005541	0.00005541		0.0001	0	0		0.005		55%	80	120	0%	S
Zinc	A	mg/L	0.0003868	0.0003868		0.0001	0	0		0.01		387%	80	120	0%	S
Iron, Ferrous	C	mg/L	0.003197	0.003197		0.0001	0	0		0.01	5	3197%	80	120	0%	S
Silicon as SiO2	C	mg/L	-0.0017816	-0.0017816		0.00856	0	0		0.214	0.9	-21%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064103	0.5 ppb STD	ICPMS-6020B-C	Cal4		3/1/2022 6:05:08	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001023	0.001023		0.0005	0	0		0.01		205%	80	120	0%	S
Antimony	A	mg/L	0.0004775	0.0004775		0.0005	0	0		0.001		95%	80	120	0%	
Arsenic	A	mg/L	0.0005317	0.0005317		0.0005	0	0		0.001		106%	80	120	0%	
Barium	A	mg/L	0.0005197	0.0005197		0.0005	0	0		0.0003		104%	80	120	0%	
Beryllium	A	mg/L	0.0004933	0.0004933		0.0005	0	0		0.001		99%	80	120	0%	
Boron	A	mg/L	0.00005503	0.00005503		0.0005	0	0		0.1		11%	80	120	0%	S
Cadmium	A	mg/L	0.0005231	0.0005231		0.0005	0	0		0.001		105%	80	120	0%	
Calcium	A	mg/L	0.1356	0.1356		0.125	0	0		1		108%	80	120	0%	
Cerium	A	mg/L	0.0005626	0.0005626		0.0005	0	0		0.001		113%	80	120	0%	
Chromium	A	mg/L	0.0005275	0.0005275		0.0005	0	0		0.001		105%	80	120	0%	
Cobalt	A	mg/L	0.0005028	0.0005028		0.0005	0	0		0.001		101%	80	120	0%	
Copper	A	mg/L	0.0006301	0.0006301		0.0005	0	0		0.005		126%	80	120	0%	S
Iron	A	mg/L	0.0141	0.0141		0.0125	0	0		0.01		113%	80	120	0%	
Lanthanum	A	mg/L	0.0005515	0.0005515		0.0005	0	0		0.001		110%	80	120	0%	
Lead	A	mg/L	0.0005137	0.0005137		0.0005	0	0		0.001		103%	80	120	0%	
Lithium	A	mg/L	0.008508	0.008508		0.00625	0	0		1		136%	80	120	0%	S
Magnesium	A	mg/L	0.1422	0.1422		0.125	0	0		1		114%	80	120	0%	
Manganese	A	mg/L	0.0005254	0.0005254		0.0005	0	0		0.001		105%	80	120	0%	
Mercury	A	mg/L	2.793E-06	2.793E-06		0.00001	0	0		0.001		28%	80	120	0%	S
Molybdenum	A	mg/L	0.0004983	0.0004983		0.0005	0	0		0.001		100%	80	120	0%	
Nickel	A	mg/L	0.0005714	0.0005714		0.0005	0	0		0.005		114%	80	120	0%	
Potassium	A	mg/L	0.1117	0.1117		0.125	0	0		1		89%	80	120	0%	
Selenium	A	mg/L	0.0005384	0.0005384		0.0005	0	0		0.005		108%	80	120	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064103	0.5 ppb STD	ICPMS-6020B-C Cal4			3/1/2022 6:05:08	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Silicon	A	mg/L	0.0002904	0.0002904		0.002	0	0		0.1		15%	80	120	0%	S
Silver	A	mg/L	0.0002116	0.0002116		0.0002	0	0		0.001		106%	80	120	0%	
Sodium	A	mg/L	0.1674	0.1674		0.125	0	0		1		134%	80	120	0%	S
Strontium	A	mg/L	0.0005627	0.0005627		0.0005	0	0		0.001		113%	80	120	0%	
Thallium	A	mg/L	0.0004658	0.0004658		0.0005	0	0		0.001		93%	80	120	0%	
Thorium	A	mg/L	0.0003456	0.0003456		0.0005	0	0		0.05		69%	80	120	0%	S
Tin	A	mg/L	0.0005594	0.0005594		0.0005	0	0		0.001		112%	80	120	0%	
Titanium	A	mg/L	0.0005804	0.0005804		0.0005	0	0		0.001		116%	80	120	0%	
Uranium	A	mg/L	0.0005049	0.0005049		0.0005	0	0		0.001		101%	80	120	0%	
Vanadium	A	mg/L	0.0004975	0.0004975		0.0005	0	0		0.005		99%	80	120	0%	
Zinc	A	mg/L	0.0007611	0.0007611		0.0005	0	0		0.01		152%	80	120	0%	S
Iron, Ferrous	C	mg/L	0.0141	0.0141		0.0005	0	0		0.01	5	2820%	80	120	0%	S
Silicon as SiO2	C	mg/L	0.00062146	0.00062146		0.0428	0	0		0.214	0.9	1%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064104	1 ppb STD	ICPMS-6020B-C Cal5			3/1/2022 6:11:31	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.001513	0.001513		0.001	0	0		0.01		151%	80	120	0%	S
Antimony	A	mg/L	0.00104	0.00104		0.001	0	0		0.001		104%	80	120	0%	
Arsenic	A	mg/L	0.00114	0.00114		0.001	0	0		0.001		114%	80	120	0%	
Barium	A	mg/L	0.001076	0.001076		0.001	0	0		0.0003		108%	80	120	0%	
Beryllium	A	mg/L	0.0009852	0.0009852		0.001	0	0		0.001		99%	80	120	0%	
Boron	A	mg/L	0.0005322	0.0005322		0.001	0	0		0.1		53%	80	120	0%	S
Cadmium	A	mg/L	0.00107	0.00107		0.001	0	0		0.001		107%	80	120	0%	
Calcium	A	mg/L	0.2718	0.2718		0.25	0	0		1		109%	80	120	0%	
Cerium	A	mg/L	0.001146	0.001146		0.001	0	0		0.001		115%	80	120	0%	
Chromium	A	mg/L	0.001187	0.001187		0.001	0	0		0.001		119%	80	120	0%	
Cobalt	A	mg/L	0.001127	0.001127		0.001	0	0		0.001		113%	80	120	0%	
Copper	A	mg/L	0.001321	0.001321		0.001	0	0		0.005		132%	80	120	0%	S
Iron	A	mg/L	0.02937	0.02937		0.025	0	0		0.01		117%	80	120	0%	
Lanthanum	A	mg/L	0.00111	0.00111		0.001	0	0		0.001		111%	80	120	0%	
Lead	A	mg/L	0.001037	0.001037		0.001	0	0		0.001		104%	80	120	0%	
Lithium	A	mg/L	0.0146	0.0146		0.0125	0	0		1		117%	80	120	0%	
Magnesium	A	mg/L	0.295	0.295		0.25	0	0		1		118%	80	120	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064104	1 ppb STD	ICPMS-6020B-C Cal5			3/1/2022 6:11:31	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Manganese	A	mg/L	0.001118	0.001118		0.001	0	0		0.001		112%	80	120	0%	
Mercury	A	mg/L	0.00001876	0.00001876		0.00002	0	0		0.001		94%	80	120	0%	
Molybdenum	A	mg/L	0.001002	0.001002		0.001	0	0		0.001		100%	80	120	0%	
Nickel	A	mg/L	0.001199	0.001199		0.001	0	0		0.005		120%	80	120	0%	
Potassium	A	mg/L	0.2412	0.2412		0.25	0	0		1		96%	80	120	0%	
Selenium	A	mg/L	0.001116	0.001116		0.001	0	0		0.005		112%	80	120	0%	
Silicon	A	mg/L	0.001946	0.001946		0.004	0	0		0.1		49%	80	120	0%	S
Silver	A	mg/L	0.0004367	0.0004367		0.0004	0	0		0.001		109%	80	120	0%	
Sodium	A	mg/L	0.3219	0.3219		0.25	0	0		1		129%	80	120	0%	S
Strontium	A	mg/L	0.001208	0.001208		0.001	0	0		0.001		121%	80	120	0%	S
Thallium	A	mg/L	0.001043	0.001043		0.001	0	0		0.001		104%	80	120	0%	
Thorium	A	mg/L	0.0008401	0.0008401		0.001	0	0		0.05		84%	80	120	0%	
Tin	A	mg/L	0.001118	0.001118		0.001	0	0		0.001		112%	80	120	0%	
Titanium	A	mg/L	0.00114	0.00114		0.001	0	0		0.001		114%	80	120	0%	
Uranium	A	mg/L	0.001038	0.001038		0.001	0	0		0.001		104%	80	120	0%	
Vanadium	A	mg/L	0.0008632	0.0008632		0.001	0	0		0.005		86%	80	120	0%	
Zinc	A	mg/L	0.00166	0.00166		0.001	0	0		0.01		166%	80	120	0%	S
Iron, Ferrous	C	mg/L	0.02937	0.02937		0.001	0	0		0.01	5	2937%	80	120	0%	S
Silicon as SiO2	C	mg/L	0.00416444	0.00416444		0.0856	0	0		0.214	0.9	5%	80	120	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064105	10 ppb STD	ICPMS-6020B-C Cal6			3/1/2022 6:17:54	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0104	0.0104		0.01	0	0		0.01		104%	90	110	0%	
Antimony	A	mg/L	0.01055	0.01055		0.01	0	0		0.001		105%	90	110	0%	
Arsenic	A	mg/L	0.01125	0.01125		0.01	0	0		0.001		113%	90	110	0%	S
Barium	A	mg/L	0.01056	0.01056		0.01	0	0		0.0003		106%	90	110	0%	
Beryllium	A	mg/L	0.009313	0.009313		0.01	0	0		0.001		93%	90	110	0%	
Boron	A	mg/L	0.008698	0.008698		0.01	0	0		0.1		87%	90	110	0%	S
Cadmium	A	mg/L	0.01048	0.01048		0.01	0	0		0.001		105%	90	110	0%	
Calcium	A	mg/L	2.653	2.653		2.5	0	0		1		106%	90	110	0%	
Cerium	A	mg/L	0.01135	0.01135		0.01	0	0		0.001		114%	90	110	0%	S
Chromium	A	mg/L	0.01055	0.01055		0.01	0	0		0.001		105%	90	110	0%	
Cobalt	A	mg/L	0.01112	0.01112		0.01	0	0		0.001		111%	90	110	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064105	10 ppb STD	ICPMS-6020B-C Cal6			3/1/2022 6:17:54	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Copper	A	mg/L	0.01251	0.01251		0.01	0	0		0.005		125%	90	110	0%	S
Iron	A	mg/L	0.2834	0.2834		0.25	0	0		0.01		113%	90	110	0%	S
Lanthanum	A	mg/L	0.01089	0.01089		0.01	0	0		0.001		109%	90	110	0%	
Lead	A	mg/L	0.009983	0.009983		0.01	0	0		0.001		100%	90	110	0%	
Lithium	A	mg/L	0.1143	0.1143		0.125	0	0		1		91%	90	110	0%	
Magnesium	A	mg/L	2.756	2.756		2.5	0	0		1		110%	90	110	0%	
Manganese	A	mg/L	0.01068	0.01068		0.01	0	0		0.001		107%	90	110	0%	
Mercury	A	mg/L	0.0002019	0.0002019		0.0002	0	0		0.001		101%	90	110	0%	
Molybdenum	A	mg/L	0.01018	0.01018		0.01	0	0		0.001		102%	90	110	0%	
Nickel	A	mg/L	0.01198	0.01198		0.01	0	0		0.005		120%	90	110	0%	S
Potassium	A	mg/L	2.475	2.475		2.5	0	0		1		99%	90	110	0%	
Selenium	A	mg/L	0.01087	0.01087		0.01	0	0		0.005		109%	90	110	0%	
Silicon	A	mg/L	0.03951	0.03951		0.04	0	0		0.1		99%	90	110	0%	
Silver	A	mg/L	0.004258	0.004258		0.004	0	0		0.001		106%	90	110	0%	
Sodium	A	mg/L	2.798	2.798		2.5	0	0		1		112%	90	110	0%	S
Strontium	A	mg/L	0.0115	0.0115		0.01	0	0		0.001		115%	90	110	0%	S
Thallium	A	mg/L	0.0106	0.0106		0.01	0	0		0.001		106%	90	110	0%	
Thorium	A	mg/L	0.01018	0.01018		0.01	0	0		0.05		102%	90	110	0%	
Tin	A	mg/L	0.01099	0.01099		0.01	0	0		0.001		110%	90	110	0%	
Titanium	A	mg/L	0.01	0.01		0.01	0	0		0.001		100%	90	110	0%	
Uranium	A	mg/L	0.009952	0.009952		0.01	0	0		0.001		100%	90	110	0%	
Vanadium	A	mg/L	0.009836	0.009836		0.01	0	0		0.005		98%	90	110	0%	
Zinc	A	mg/L	0.01192	0.01192		0.01	0	0		0.01		119%	90	110	0%	S
Iron, Ferrous	C	mg/L	0.2834	0.2834		0.01	0	0		0.01	5	2834%	90	110	0%	S
Silicon as SiO2	C	mg/L	0.0845514	0.0845514		0.856	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					
15064106	50 ppb STD	ICPMS-6020B-C Cal7			3/1/2022 6:24:17	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04777	0.04777		0.05	0	0		0.01		96%	90	110	0%	
Antimony	A	mg/L	0.05146	0.05146		0.05	0	0		0.001		103%	90	110	0%	
Arsenic	A	mg/L	0.04965	0.04965		0.05	0	0		0.001		99%	90	110	0%	
Barium	A	mg/L	0.04896	0.04896		0.05	0	0		0.0003		98%	90	110	0%	
Beryllium	A	mg/L	0.04603	0.04603		0.05	0	0		0.001		92%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064106	50 ppb STD	ICPMS-6020B-C Cal7			3/1/2022 6:24:17	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Boron	A	mg/L	0.04488	0.04488		0.05	0	0		0.1		90%	90	110	0%	
Cadmium	A	mg/L	0.05017	0.05017		0.05	0	0		0.001		100%	90	110	0%	
Calcium	A	mg/L	11.89	11.89		12.5	0	0		1		95%	90	110	0%	
Cerium	A	mg/L	0.05189	0.05189		0.05	0	0		0.001		104%	90	110	0%	
Chromium	A	mg/L	0.04636	0.04636		0.05	0	0		0.001		93%	90	110	0%	
Cobalt	A	mg/L	0.05097	0.05097		0.05	0	0		0.001		102%	90	110	0%	
Copper	A	mg/L	0.0528	0.0528		0.05	0	0		0.005		106%	90	110	0%	
Iron	A	mg/L	1.289	1.289		1.25	0	0		0.01		103%	90	110	0%	
Lanthanum	A	mg/L	0.05116	0.05116		0.05	0	0		0.001		102%	90	110	0%	
Lead	A	mg/L	0.05015	0.05015		0.05	0	0		0.001		100%	90	110	0%	
Lithium	A	mg/L	0.5226	0.5226		0.625	0	0		1		84%	90	110	0%	S
Magnesium	A	mg/L	12.37	12.37		12.5	0	0		1		99%	90	110	0%	
Manganese	A	mg/L	0.04672	0.04672		0.05	0	0		0.001		93%	90	110	0%	
Mercury	A	mg/L	0.001002	0.001002		0.001	0	0		0.001		100%	90	110	0%	
Molybdenum	A	mg/L	0.0503	0.0503		0.05	0	0		0.001		101%	90	110	0%	
Nickel	A	mg/L	0.04987	0.04987		0.05	0	0		0.005		100%	90	110	0%	
Potassium	A	mg/L	10.42	10.42		12.5	0	0		1		83%	90	110	0%	S
Selenium	A	mg/L	0.0507	0.0507		0.05	0	0		0.005		101%	90	110	0%	
Silicon	A	mg/L	0.1973	0.1973		0.2	0	0		0.1		99%	90	110	0%	
Silver	A	mg/L	0.02035	0.02035		0.02	0	0		0.001		102%	90	110	0%	
Sodium	A	mg/L	12.46	12.46		12.5	0	0		1		100%	90	110	0%	
Strontium	A	mg/L	0.04884	0.04884		0.05	0	0		0.001		98%	90	110	0%	
Thallium	A	mg/L	0.04987	0.04987		0.05	0	0		0.001		100%	90	110	0%	
Thorium	A	mg/L	0.04932	0.04932		0.05	0	0		0.05		99%	90	110	0%	
Tin	A	mg/L	0.0506	0.0506		0.05	0	0		0.001		101%	90	110	0%	
Titanium	A	mg/L	0.04855	0.04855		0.05	0	0		0.001		97%	90	110	0%	
Uranium	A	mg/L	0.0506	0.0506		0.05	0	0		0.001		101%	90	110	0%	
Vanadium	A	mg/L	0.04404	0.04404		0.05	0	0		0.005		88%	90	110	0%	S
Zinc	A	mg/L	0.05038	0.05038		0.05	0	0		0.01		101%	90	110	0%	
Iron, Ferrous	C	mg/L	1.289	1.289		0.05	0	0		0.01	5	2578%	90	110	0%	S
Silicon as SiO2	C	mg/L	0.422222	0.422222		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					
15064107	100 ppb STD	ICPMS-6020B-C Cal8			3/1/2022 6:30:40	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.09147	0.09147		0.1	0	0		0.01		91%	90	110	0%	
Antimony	A	mg/L	0.09921	0.09921		0.1	0	0		0.001		99%	90	110	0%	
Arsenic	A	mg/L	0.1031	0.1031		0.1	0	0		0.001		103%	90	110	0%	
Barium	A	mg/L	0.09759	0.09759		0.1	0	0		0.0003		98%	90	110	0%	
Beryllium	A	mg/L	0.0906	0.0906		0.1	0	0		0.001		91%	90	110	0%	
Boron	A	mg/L	0.08819	0.08819		0.1	0	0		0.1		88%	90	110	0%	S
Cadmium	A	mg/L	0.099	0.099		0.1	0	0		0.001		99%	90	110	0%	
Calcium	A	mg/L	24.8	24.8		25	0	0		1		99%	90	110	0%	
Cerium	A	mg/L	0.09892	0.09892		0.1	0	0		0.001		99%	90	110	0%	
Chromium	A	mg/L	0.09617	0.09617		0.1	0	0		0.001		96%	90	110	0%	
Cobalt	A	mg/L	0.09606	0.09606		0.1	0	0		0.001		96%	90	110	0%	
Copper	A	mg/L	0.1065	0.1065		0.1	0	0		0.005		106%	90	110	0%	
Iron	A	mg/L	2.667	2.667		2.5	0	0		0.01		107%	90	110	0%	
Lanthanum	A	mg/L	0.09933	0.09933		0.1	0	0		0.001		99%	90	110	0%	
Lead	A	mg/L	0.1004	0.1004		0.1	0	0		0.001		100%	90	110	0%	
Lithium	A	mg/L	1.108	1.108		1.25	0	0		1		89%	90	110	0%	S
Magnesium	A	mg/L	26.4	26.4		25	0	0		1		106%	90	110	0%	
Manganese	A	mg/L	0.1016	0.1016		0.1	0	0		0.001		102%	90	110	0%	
Mercury	A	mg/L	0.001999	0.001999		0.002	0	0		0.001		100%	90	110	0%	
Molybdenum	A	mg/L	0.09983	0.09983		0.1	0	0		0.001		100%	90	110	0%	
Nickel	A	mg/L	0.1013	0.1013		0.1	0	0		0.005		101%	90	110	0%	
Potassium	A	mg/L	24	24		25	0	0		1		96%	90	110	0%	
Selenium	A	mg/L	0.1006	0.1006		0.1	0	0		0.005		101%	90	110	0%	
Silicon	A	mg/L	0.4014	0.4014		0.4	0	0		0.1		100%	90	110	0%	
Silver	A	mg/L	0.0398	0.0398		0.04	0	0		0.001		99%	90	110	0%	
Sodium	A	mg/L	24.75	24.75		25	0	0		1		99%	90	110	0%	
Strontium	A	mg/L	0.1037	0.1037		0.1	0	0		0.001		104%	90	110	0%	
Thallium	A	mg/L	0.102	0.102		0.1	0	0		0.001		102%	90	110	0%	
Thorium	A	mg/L	0.09841	0.09841		0.1	0	0		0.05		98%	90	110	0%	
Tin	A	mg/L	0.0996	0.0996		0.1	0	0		0.001		100%	90	110	0%	
Titanium	A	mg/L	0.1007	0.1007		0.1	0	0		0.001		101%	90	110	0%	
Uranium	A	mg/L	0.09897	0.09897		0.1	0	0		0.001		99%	90	110	0%	
Vanadium	A	mg/L	0.09673	0.09673		0.1	0	0		0.005		97%	90	110	0%	
Zinc	A	mg/L	0.1057	0.1057		0.1	0	0		0.01		106%	90	110	0%	
Iron, Ferrous	C	mg/L	2.667	2.667		0.1	0	0		0.01	5	2667%	90	110	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064107	100 ppb STD	ICPMS-6020B-C Cal8			3/1/2022 6:30:40	1	R375488		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	0.858996	0.858996		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					
15064108	1000 ppb STD	ICPMS-6020B-C Cal10			3/1/2022 6:37:03	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	1.001	1.001		1	0	0		0.01		100%	90	110	0%	
Antimony	A	mg/L	0.0002653	0.0002653		0	0	0		0.001		0%			0%	
Arsenic	A	mg/L	0.9997	0.9997		1	0	0		0.001		100%	90	110	0%	
Barium	A	mg/L	1	1		1	0	0		0.0003		100%	90	110	0%	
Beryllium	A	mg/L	1.001	1.001		1	0	0		0.001		100%	90	110	0%	
Boron	A	mg/L	1.001	1.001		1	0	0		0.1		100%	90	110	0%	
Cadmium	A	mg/L	1	1		1	0	0		0.001		100%	90	110	0%	
Calcium	A	mg/L	50.24	50.24		50	0	0		1		100%	90	110	0%	
Cerium	A	mg/L	0.00002084	0.00002084		0	0	0		0.001		0%			0%	
Chromium	A	mg/L	1.001	1.001		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	0.9992	0.9992		1	0	0		0.005		100%	90	110	0%	
Iron	A	mg/L	5.972	5.972		6	0	0		0.01		100%	90	110	0%	
Lanthanum	A	mg/L	7.671E-06	7.671E-06		0	0	0		0.001		0%			0%	
Lead	A	mg/L	0.9999	0.9999		1	0	0		0.001		100%	90	110	0%	
Lithium	A	mg/L	2.597	2.597		2.5	0	0		1		104%	90	110	0%	
Magnesium	A	mg/L	49.32	49.32		50	0	0		1		99%	90	110	0%	
Manganese	A	mg/L	1	1		1	0	0		0.001		100%	90		0%	
Mercury	A	mg/L	-9.386E-06	-9.386E-06		0	0	0		0.001		0%			0%	
Molybdenum	A	mg/L	0.0001007	0.0001007		0	0	0		0.001		0%			0%	
Nickel	A	mg/L	0.9999	0.9999		1	0	0		0.005		100%	90	110	0%	
Potassium	A	mg/L	51.02	51.02		50	0	0		1		102%	90	110	0%	
Selenium	A	mg/L	0.9999	0.9999		1	0	0		0.005		100%	90	110	0%	
Silicon	A	mg/L	-0.0006787	-0.0006787		0	0	0		0.1		0%			0%	
Silver	A	mg/L	0.3099	0.3099		0	0	0		0.001		0%			0%	
Sodium	A	mg/L	50.12	50.12		50	0	0		1		100%	90	110	0%	
Strontium	A	mg/L	0.9997	0.9997		1	0	0		0.001		100%	90	110	0%	
Thallium	A	mg/L	0.9998	0.9998		1	0	0		0.001		100%	90	110	0%	
Thorium	A	mg/L	1	1		1	0	0		0.05		100%	90	110	0%	



Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064108	1000 ppb STD	ICPMS-6020B-C	Cal10		3/1/2022 6:37:03	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Tin	A	mg/L	0.0001434	0.0001434		0	0	0		0.001		0%			0%	
Titanium	A	mg/L	0.006198	0.006198		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	1.001	1.001		1	0	0		0.005		100%	90	110	0%	
Zinc	A	mg/L	0.9994	0.9994		1	0	0		0.01		100%	90	110	0%	
Iron, Ferrous	C	mg/L	5.972	5.972		0	0	0		0.01	5	0%			0%	
Silicon as SiO2	C	mg/L	-0.0014524	-0.0014524		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					
15064109	100 ppb Br STD	ICPMS-6020-W-	SAMP		3/1/2022 6:43:27	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.00003764	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	0.0001056	0.0001056		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	J
Barium	A	mg/L	0.00001472	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	0.00002301	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	3.029E-06	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.0001625	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-2.104E-05	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	1.432E-06	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00006694	0.00006694		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.00002927	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-1.546E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00001497	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	0.00006217	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.0001963	0.0001963		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silicon	A	mg/L	0.0002842	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	0.0005323	0.0005323		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	J
Strontium	A	mg/L	4.078E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.001622	0.001622		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.0002954	0.0002954		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	0.00002493	0.00002493		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	J
Iron	B	mg/L	0.0006884	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.0006884	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.002141	0		0	0	0	0.0203306	0.00564	50	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					
15064109	100 ppb Br STD	ICPMS-6020-W-	SAMP		3/1/2022 6:43:27	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Tin	B	mg/L	0.000276	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	0.0006635	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					
15064110	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 6:49:49	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	-2.147E-05	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-0.0000342	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	-9.536E-07	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	0.00000659	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	-5.934E-08	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00002204	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-2.642E-05	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	-8.184E-08	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00002297	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	9.226E-06	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-1.271E-05	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	2.897E-06	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	0.00002187	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.00003089	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	-0.003508	0		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	6.466E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	4.791E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0005373	0.0005373		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00003485	0.00003485		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Uranium	A	mg/L	3.196E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Iron	B	mg/L	7.914E-06	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	7.914E-06	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.001336	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Tin	B	mg/L	3.382E-06	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	0.00001343	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					
15064111	QCS	ICPMS-6020-W- ICV			3/1/2022 6:56:03	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.2292	0.2292		0.25	0	0	0.0017836	0.001	1	92%	90	110	0%	
Antimony	A	mg/L	0.04763	0.04763		0.05	0	0	6.768E-05	0.001	0.1	95%	90	110	0%	
Arsenic	A	mg/L	0.05276	0.05276		0.05	0	0	8.203E-05	0.001	1	106%	90	110	0%	
Barium	A	mg/L	0.04949	0.04949		0.05	0	0	6.762E-05	0.001	1	99%	90	110	0%	
Beryllium	A	mg/L	0.02153	0.02153		0.025	0	0	8.516E-05	0.001	1	86%	90	110	0%	S
Boron	A	mg/L	0.04516	0.04516		0.05	0	0	0.0039526	0.00561	1	90%	90	110	0%	
Cadmium	A	mg/L	0.02455	0.02455		0.025	0	0	2.308E-05	0.001	1	98%	90	110	0%	
Calcium	A	mg/L	2.4	2.4		2.5	0	0	0.2027235	0.02092	50	96%	90	110	0%	
Cerium	A	mg/L	0.05199	0.05199		0.05	0	0	0.0000222	0.001	0.1	104%	90	110	0%	
Chromium	A	mg/L	0.04983	0.04983		0.05	0	0	0.0002538	0.001	1	100%	90	110	0%	
Cobalt	A	mg/L	0.04989	0.04989		0.05	0	0	2.141E-05	0.001	1	100%	90	110	0%	
Copper	A	mg/L	0.05731	0.05731		0.05	0	0	0.0001748	0.001	1	115%	90	110	0%	S
Iron	A	mg/L	0.2476	0.2476		0.25	0	0	0.0021157	0.00119	5	99%	90	110	0%	
Lanthanum	A	mg/L	0.0486	0.0486		0.05	0	0	6.805E-05	0.001	0.1	97%	90	110	0%	
Lead	A	mg/L	0.04915	0.04915		0.05	0	0	3.031E-05	0.001	1	98%	90	110	0%	
Magnesium	A	mg/L	2.537	2.537		2.5	0	0	0.0203306	0.00564	50	101%	90	110	0%	
Manganese	A	mg/L	0.2467	0.2467		0.25	0	0	7.309E-05	0.001	1	99%	90	110	0%	
Mercury	A	mg/L	0.0009884	0.0009884		0.001	0	0	3.043E-05	0.001	0.002	99%	90	110	0%	
Molybdenum	A	mg/L	0.04781	0.04781		0.05	0	0	8.113E-05	0.001	0.1	96%	90	110	0%	
Nickel	A	mg/L	0.05235	0.05235		0.05	0	0	0.0001769	0.001	1	105%	90	110	0%	
Potassium	A	mg/L	2.134	2.134		2.5	0	0	0.0215433	0.08139	50	85%	90	110	0%	S
Selenium	A	mg/L	0.05087	0.05087		0.05	0	0	7.174E-05	0.001	1	102%	90	110	0%	
Silicon	A	mg/L	0.4847	0.4847		0.5	0	0	0.0033337	0.1	0.4	97%	90	110	0%	
Silver	A	mg/L	0.02503	0.02503		0.025	0	0	2.644E-05	0.001	0.04	100%	90	110	0%	
Sodium	A	mg/L	2.506	2.506		2.5	0	0	0.0451914	0.02171	50	100%	90	110	0%	
Strontium	A	mg/L	0.05497	0.05497		0.05	0	0	9.743E-05	0.001	1	110%	90	110	0%	
Thallium	A	mg/L	0.05046	0.05046		0.05	0	0	4.842E-05	0.001	1	101%	90	110	0%	
Thorium	A	mg/L	0.04992	0.04992		0.05	0	0	3.018E-05	0.001	1	100%	90	110	0%	
Tin	A	mg/L	0.04984	0.04984		0.05	0	0	0.0009928	0.00132	0.1	100%	90	110	0%	
Titanium	A	mg/L	0.04692	0.04692		0.05	0	0	0.0001004	0.001	1	94%	90	110	0%	
Uranium	A	mg/L	0.05115	0.05115		0.05	0	0	2.468E-05	0.0003	1	102%	90	110	0%	
Vanadium	A	mg/L	0.04435	0.04435		0.05	0	0	0.0018612	0.0013	1	89%	90	110	0%	S
Zinc	A	mg/L	0.05445	0.05445		0.05	0	0	0.0010089	0.00273	1	109%	90	110	0%	
Iron, Ferrous	C	mg/L	0.2476	0.2476		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					
15064112	ICB	ICPMS-6020-W-	ICB		3/1/2022 7:02:18	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0001032	0.0001032		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	
Arsenic	A	mg/L	-5.467E-05	-5.467E-05		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	-3.315E-07	-3.315E-07		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	3.154E-06	3.154E-06		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	3.647E-07	3.647E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00008321	0.00008321		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-2.212E-05	-2.212E-05		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	-2.869E-08	-2.869E-08		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.0000188	0.0000188		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	0.0000144	0.0000144		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-1.256E-05	-1.256E-05		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00002726	0.00002726		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	0.00002755	0.00002755		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.0000122	0.0000122		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silicon	A	mg/L	-0.003918	-0.003918		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	1.599E-06	1.599E-06		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	3.465E-06	3.465E-06		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0001711	0.0001711		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00003065	0.00003065		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Titanium	A	mg/L	-1.492E-06	-1.492E-06		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	2.622E-06	2.622E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Calcium	B	mg/L	0.0003335	0.0003335		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	
Iron	B	mg/L	0.00002114	0.00002114		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.00002114	0.00002114		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.003491	0.003491		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	
Tin	B	mg/L	0.00003889	0.00003889		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	-2.262E-05	-2.262E-05		0	0	0	0.0010089	0.00273	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					
15064113	CCV	ICPMS-6020-W-	CCV		3/1/2022 7:08:31	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04365	0.04365		0.05	0	0	0.0017836	0.001	1	87%	90	110	0%	S
Antimony	A	mg/L	0.04949	0.04949		0.05	0	0	6.768E-05	0.001	0.1	99%	90	110	0%	
Arsenic	A	mg/L	0.05029	0.05029		0.05	0	0	8.203E-05	0.001	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					
15064113	CCV	ICPMS-6020-W-	CCV		3/1/2022 7:08:31	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Barium	A	mg/L	0.04959	0.04959		0.05	0	0	6.762E-05	0.001	1	99%	90	110	0%	
Beryllium	A	mg/L	0.0405	0.0405		0.05	0	0	8.516E-05	0.001	1	81%	90	110	0%	S
Boron	A	mg/L	0.04009	0.04009		0.05	0	0	0.0039526	0.00561	1	80%	90	110	0%	S
Cadmium	A	mg/L	0.04919	0.04919		0.05	0	0	2.308E-05	0.001	1	98%	90	110	0%	
Calcium	A	mg/L	12.13	12.13		12.5	0	0	0.2027235	0.02092	50	97%	90	110	0%	
Cerium	A	mg/L	0.05231	0.05231		0.05	0	0	0.0000222	0.001	0.1	105%	90	110	0%	
Chromium	A	mg/L	0.0457	0.0457		0.05	0	0	0.0002538	0.001	1	91%	90	110	0%	
Cobalt	A	mg/L	0.0515	0.0515		0.05	0	0	2.141E-05	0.001	1	103%	90	110	0%	
Copper	A	mg/L	0.05391	0.05391		0.05	0	0	0.0001748	0.001	1	108%	90	110	0%	
Iron	A	mg/L	1.347	1.347		1.3	0	0	0.0021157	0.00119	5	104%	90	110	0%	
Lanthanum	A	mg/L	0.0507	0.0507		0.05	0	0	6.805E-05	0.001	0.1	101%	90	110	0%	
Lead	A	mg/L	0.04849	0.04849		0.05	0	0	3.031E-05	0.001	1	97%	90	110	0%	
Magnesium	A	mg/L	12.39	12.39		12.5	0	0	0.0203306	0.00564	50	99%	90	110	0%	
Manganese	A	mg/L	0.04604	0.04604		0.05	0	0	7.309E-05	0.001	1	92%	90	110	0%	
Mercury	A	mg/L	0.001008	0.001008		0.001	0	0	3.043E-05	0.001	0.002	101%	90	110	0%	
Molybdenum	A	mg/L	0.04794	0.04794		0.05	0	0	8.113E-05	0.001	0.1	96%	90	110	0%	
Nickel	A	mg/L	0.05004	0.05004		0.05	0	0	0.0001769	0.001	1	100%	90	110	0%	
Potassium	A	mg/L	10.29	10.29		12.5	0	0	0.0215433	0.08139	50	82%	90	110	0%	S
Selenium	A	mg/L	0.05227	0.05227		0.05	0	0	7.174E-05	0.001	1	105%	90	110	0%	
Silicon	A	mg/L	0.1981	0.1981		0.2	0	0	0.0033337	0.1	0.4	99%	90	110	0%	
Silver	A	mg/L	0.02019	0.02019		0.02	0	0	2.644E-05	0.001	0.04	101%	90	110	0%	
Sodium	A	mg/L	12.57	12.57		12.5	0	0	0.0451914	0.02171	50	101%	90	110	0%	
Strontium	A	mg/L	0.05022	0.05022		0.05	0	0	9.743E-05	0.001	1	100%	90	110	0%	
Thallium	A	mg/L	0.04995	0.04995		0.05	0	0	4.842E-05	0.001	1	100%	90	110	0%	
Thorium	A	mg/L	0.05014	0.05014		0.05	0	0	3.018E-05	0.001	1	100%	90	110	0%	
Tin	A	mg/L	0.04844	0.04844		0.05	0	0	0.0009928	0.00132	0.1	97%	90	110	0%	
Titanium	A	mg/L	0.04932	0.04932		0.05	0	0	0.0001004	0.001	1	99%	90	110	0%	
Uranium	A	mg/L	0.04806	0.04806		0.05	0	0	2.468E-05	0.0003	1	96%	90	110	0%	
Vanadium	A	mg/L	0.04457	0.04457		0.05	0	0	0.0018612	0.0013	1	89%	90	110	0%	S
Zinc	A	mg/L	0.05273	0.05273		0.05	0	0	0.0010089	0.00273	1	105%	90	110	0%	
Iron, Ferrous	C	mg/L	1.347	1.347		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					
15064114	CCB	ICPMS-6020-W-	CCB		3/1/2022 7:14:46	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.0001958	0.0001958		0	0	0	0.0017836	0.001	1	0%				0%
Antimony	A	mg/L	0.0001022	0.0001022		0	0	0	6.768E-05	0.001	0.1	0%				0%
Arsenic	A	mg/L	-4.454E-05	-4.454E-05		0	0	0	8.203E-05	0.001	1	0%				0%
Barium	A	mg/L	6.225E-06	6.225E-06		0	0	0	6.762E-05	0.001	1	0%				0%
Beryllium	A	mg/L	0.00002961	0.00002961		0	0	0	8.516E-05	0.001	1	0%				0%
Boron	A	mg/L	0.0005371	0.0005371		0	0	0	0.0039526	0.00561	1	0%				0%
Cadmium	A	mg/L	1.876E-06	1.876E-06		0	0	0	2.308E-05	0.001	1	0%				0%
Calcium	A	mg/L	-0.0001494	-0.0001494		0	0	0	0.2027235	0.02092	50	0%				0%
Cerium	A	mg/L	-7.176E-08	-7.176E-08		0	0	0	0.0000222	0.001	0.1	0%	0	0		0%
Chromium	A	mg/L	0.00007297	0.00007297		0	0	0	0.0002538	0.001	1	0%				0%
Cobalt	A	mg/L	-2.307E-05	-2.307E-05		0	0	0	2.141E-05	0.001	1	0%				0%
Copper	A	mg/L	-1.153E-06	-1.153E-06		0	0	0	0.0001748	0.001	1	0%				0%
Iron	A	mg/L	8.595E-06	8.595E-06		0	0	0	0.0021157	0.00119	5	0%				0%
Lanthanum	A	mg/L	3.06E-07	3.06E-07		0	0	0	6.805E-05	0.001	0.1	0%	0	0		0%
Lead	A	mg/L	0.00001233	0.00001233		0	0	0	3.031E-05	0.001	1	0%				0%
Magnesium	A	mg/L	0.00247	0.00247		0	0	0	0.0203306	0.00564	50	0%				0%
Manganese	A	mg/L	6.119E-06	6.119E-06		0	0	0	7.309E-05	0.001	1	0%				0%
Mercury	A	mg/L	-1.999E-05	-1.999E-05		0	0	0	3.043E-05	0.001	0.002	0%				0%
Molybdenum	A	mg/L	0.00002677	0.00002677		0	0	0	8.113E-05	0.001	0.1	0%				0%
Nickel	A	mg/L	0.00000983	0.00000983		0	0	0	0.0001769	0.001	1	0%				0%
Potassium	A	mg/L	-0.005043	-0.005043		0	0	0	0.0215433	0.08139	50	0%				0%
Selenium	A	mg/L	0.00001317	0.00001317		0	0	0	7.174E-05	0.001	1	0%				0%
Silicon	A	mg/L	-0.004147	-0.004147		0	0	0	0.0033337	0.1	0.4	0%	0	0		0%
Silver	A	mg/L	-1.345E-06	-1.345E-06		0	0	0	2.644E-05	0.001	0.04	0%				0%
Sodium	A	mg/L	0.01279	0.01279		0	0	0	0.0451914	0.02171	50	0%				0%
Strontium	A	mg/L	-1.905E-06	-1.905E-06		0	0	0	9.743E-05	0.001	1	0%	0	0		0%
Thallium	A	mg/L	0.0001281	0.0001281		0	0	0	4.842E-05	0.001	1	0%	0	0		0%
Thorium	A	mg/L	0.0000335	0.0000335		0	0	0	3.018E-05	0.001	1	0%	0	0		0%
Tin	A	mg/L	0.00005471	0.00005471		0	0	0	0.0009928	0.00132	0.1	0%	0	0		0%
Titanium	A	mg/L	-4.46E-06	-4.46E-06		0	0	0	0.0001004	0.001	1	0%	0	0		0%
Uranium	A	mg/L	2.046E-06	2.046E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0		0%
Vanadium	A	mg/L	-0.001716	-0.001716		0	0	0	0.0018612	0.0013	1	0%	0	0		0%
Zinc	A	mg/L	-1.801E-05	-1.801E-05		0	0	0	0.0010089	0.00273	1	0%	0	0		0%
Iron, Ferrous	C	mg/L	8.595E-06	8.595E-06		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					
15064115	B22021763-001	ICPMS-6020-W-	SAMP		3/1/2022 7:21:00	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0006734	0.0006734		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	0.00001498	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.005129	0.005129		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	1.464E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	0.00001159	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.00229	0.00229		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	0.00002456	0.00002456		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	4.939E-06	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00003825	0.00003825		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.0003224	0.0003224		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	J
Mercury	A	mg/L	-0.0000137	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	U
Molybdenum	A	mg/L	0.0002251	0.0002251		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.0007405	0.0007405		0	0	0	0.0001769	0.001	1	0%	0	0	0%	J
Selenium	A	mg/L	0.000123	0.000123		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	1.095E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.07082	0.07082		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.000124	0.000124		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	-5.702E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002729	0.002729		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00001867	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	U
Calcium	B	mg/L	10.36	10.36		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.01263	0.01263		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.01263	0.01263		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	9.751	9.751		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Sodium	B	mg/L	32.77	32.77		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	0.0003846	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.016	0.016		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					
15064116	B22021763-001	ICPMS-6020-W-	SAMP		3/1/2022 7:27:14	1	164095	2/28/2022 1:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0004789	0.0004789		0	0	0	0.0002485	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	0.0002144	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.005619	0.005619		0	0	0	0.0001041	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					
15064116	B22021763-001	ICPMS-6020-W-	SAMP		3/1/2022 7:27:14	1	164095	2/28/2022 1:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Cadmium	A	mg/L	5.339E-06	0		0	0	0.0000141	0.005	1	0%	0	0	0%	U	
Cerium	A	mg/L	0.00004057	0.00004057		0	0	0.0000087	0.001	0.1	0%	0	0	0%	J	
Cobalt	A	mg/L	0.00004216	0		0	0	8.402E-05	0.001	1	0%	0	0	0%	U	
Lanthanum	A	mg/L	0.00001513	0.00001513		0	0	1.105E-05	0.001	0.1	0%	0	0	0%	J	
Lead	A	mg/L	0.0000943	0.0000943		0	0	5.246E-05	0.001	1	0%	0	0	0%	J	
Manganese	A	mg/L	0.0007106	0.0007106		0	0	0.0002595	0.001	1	0%	0	0	0%	J	
Molybdenum	A	mg/L	0.0002643	0.0002643		0	0	0.0000966	0.001	0.1	0%	0	0	0%	J	
Selenium	A	mg/L	0.0001564	0.0001564		0	0	6.251E-05	0.001	1	0%	0	0	0%	J	
Silver	A	mg/L	7.502E-06	0		0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U	
Strontium	A	mg/L	0.07381	0.07381		0	0	7.178E-05	0.001	1	0%	0	0	0%		
Thallium	A	mg/L	0.0000472	0		0	0	0.0001114	0.001	1	0%	0	0	0%	U	
Titanium	A	mg/L	0.003854	0.003854		0	0	0.0004924	0.001	1	0%	0	0	0%		
Uranium	A	mg/L	0.00002211	0.00002211		0	0	1.084E-05	0.0003	1	0%	0	0	0%	J	
Calcium	B	mg/L	9.861	9.861		0	0	0.0372936	0.1103481	50	0%	0	0	0%	D	
Chromium	B	mg/L	0.002513	0.002513		0	0	0.0005265	0.0015375	1	0%	0	0	0%	D	
Iron	B	mg/L	0.03963	0.03963		0	0	0.007424	0.00513	5	0%	0	0	0%	D	
Magnesium	B	mg/L	9.734	9.734		0	0	0.0686349	0.0081522	50	0%	0	0	0%	D	
Nickel	B	mg/L	0.000711	0.000711		0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL	
Sodium	B	mg/L	32.22	32.22		0	0	0.0721517	0.7330269	50	0%	0	0	0%	D	
Thorium	B	mg/L	0.0001276	0.0001276		0	0	5.898E-05	0.00415	1	0%	0	0	0%	JL	
Tin	B	mg/L	0.0008148	0		0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U	
Zinc	B	mg/L	0.0276	0.0276		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					
15064117	B22021763-001	ICPMS-6020-W-	SD		3/1/2022 7:33:27	5	164095	2/28/2022 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	0.008337	0.041685		0	0	0.03348	0.0146074	0.0159875	1	0%	0	0		N
Antimony	A	mg/L	0.00007104	0		0	0	0.0004789	0.0012426	0.0049	0.1	0%	0	0		
Arsenic	A	mg/L	0.0000234	0		0	0	0.0012977	0.0013383	1	0%	0	0			
Barium	A	mg/L	0.001198	0.00599		0	0	0.005619	0.0005204	0.0012039	1	0%	0	0	6%	
Beryllium	A	mg/L	0.0000275	0		0	0	0.0005353	0.01	1	0%	0	0			
Boron	A	mg/L	0.008369	0.041845		0	0	0.03783	0.0151506	0.07335	1	0%	0	0		N
Cadmium	A	mg/L	0.00000281	0		0	0	0.0000705	0.005	1	0%	0	0			
Calcium	A	mg/L	2.083	10.415		0	0	9.861	0.1864681	0.5517403	50	0%	0	0	5%	



Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064117	B22021763-001	ICPMS-6020-W- SD			3/1/2022 7:33:27	5	164095	2/28/2022 1:	0	2E+07						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Cerium	A	mg/L	0.0000113	0.0000565		0	0	4.057E-05	0.0000435	0.001	0.1	0%	0	0		N
Chromium	A	mg/L	0.0005858	0.002929		0	0	0.002513	0.0026324	0.0076875	1	0%	0	0		N
Cobalt	A	mg/L	-8.547E-06	0		0	0	0	0.0004201	0.001	1	0%	0	0		
Copper	A	mg/L	0.0002253	0		0	0	0.0008377	0.0028718	0.0099	1	0%	0	0		
Iron	A	mg/L	0.01101	0.05505		0	0	0.03963	0.0371198	0.02565	5	0%	0	0		N
Lanthanum	A	mg/L	0.00001065	0		0	0	1.513E-05	5.525E-05	0.001	0.1	0%	0	0		
Lead	A	mg/L	0.00009212	0.0004606		0	0	0.0000943	0.0002623	0.001	1	0%	0	0		N
Magnesium	A	mg/L	2.007	10.035		0	0	9.734	0.3431747	0.0407608	50	0%	0	0	3%	
Manganese	A	mg/L	0.0001845	0		0	0	0.0007106	0.0012975	0.0010695	1	0%	0	0		
Molybdenum	A	mg/L	0.0000489	0		0	0	0.0002643	0.000483	0.001	0.1	0%	0	0		
Nickel	A	mg/L	0.0001879	0		0	0	0.000711	0.0011941	0.0121000	1	0%	0	0		
Potassium	A	mg/L	0.5264	2.632		0	0	2.629	0.1447062	0.1306027	50	0%	0	0	0%	
Selenium	A	mg/L	0.00003084	0		0	0	0.0001564	0.0003126	0.0029274	1	0%	0	0		
Silicon	A	mg/L	4.251	21.255		0	0	20.93	0.1093983	0.026606	0.4	0%	0	0	2%	
Silver	A	mg/L	3.156E-06	0		0	0	0	0.0001159	0.001	0.04	0%	0	0		
Sodium	A	mg/L	6.49	32.45		0	0	32.22	0.3607583	3.6651346	50	0%	0	0	1%	
Strontium	A	mg/L	0.01503	0.07515		0	0	0.07381	0.0003589	0.001	1	0%	0	0	2%	
Thallium	A	mg/L	0.00003574	0		0	0	0	0.0005569	0.001	1	0%	0	0		
Thorium	A	mg/L	5.949E-06	0		0	0	0.0001276	0.0002949	0.02075	1	0%	0	0		
Tin	A	mg/L	0.0001896	0		0	0	0	0.0094659	0.0055874	0.1	0%	0	0		
Titanium	A	mg/L	0.000749	0.003745		0	0	0.003854	0.0024621	0.001	1	0%	0	0		N
Uranium	A	mg/L	7.629E-06	0		0	0	2.211E-05	0.0000542	0.0004224	1	0%	0	0		
Vanadium	A	mg/L	0.002174	0.01087		0	0	0.0156	0.0062091	0.0105423	1	0%	0	0		N
Zinc	A	mg/L	0.008982	0.04491		0	0	0.0276	0.0058087	0.0327721	1	0%	0	0		N
Silica	C	mg/L	9.0937392	45.468696		0	0	0	0.2340247	0.0569155	5	0%	0	0		N
Silicon as SiO2	C	mg/L	9.0937392	45.468696		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					
15064118	B22021763-001	ICPMS-6020-W- PDS1-DOD			3/1/2022 7:39:40	1.03	164095	2/28/2022 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	0.07193	0.0740879		0.0515	0.03348	0	0.0030091	0.0032934	1	79%	75	125	0%	
Antimony	A	mg/L	0.04499	0.0463397		0.0515	0.0004789	0	0.000256	0.0010094	0.1	89%	75	125	0%	
Arsenic	A	mg/L	0.04904	0.0505112		0.0515	0	0	0.0002673	0.001	1	98%	75	125	0%	
Barium	A	mg/L	0.05205	0.0536115		0.0515	0.005619	0	0.0001072	0.001	1	93%	75	125	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064118	B22021763-001	ICPMS-6020-W-	PDS1-DOD		3/1/2022 7:39:40	1.03	164095	2/28/2022 1:	2E+07	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Beryllium	A	mg/L	0.03974	0.0409322		0.0515	0	0	0.0001103	0.01	1	79%	75	125	0%	
Boron	A	mg/L	0.07687	0.0791761		0.0515	0.03783	0	0.0031210	0.0151101	1	80%	75	125	0%	
Cadmium	A	mg/L	0.04979	0.0512837		0.0515	0	0	1.452E-05	0.005	1	100%	75	125	0%	
Calcium	A	mg/L	53.05	54.6415		51.5	9.861	0	0.0384124	0.1136585	50	87%	75	125	0%	
Cerium	A	mg/L	0.05047	0.0519841		0.0515	4.057E-05	0	8.961E-06	0.001	0.1	101%	75	125	0%	
Chromium	A	mg/L	0.04781	0.0492443		0.0515	0.002513	0	0.0005423	0.0015836	1	91%	75	125	0%	
Cobalt	A	mg/L	0.04644	0.0478332		0.0515	0	0	8.654E-05	0.001	1	93%	75	125	0%	
Copper	A	mg/L	0.05208	0.0536424		0.0515	0.0008377	0	0.0005916	0.0020394	1	103%	75	125	0%	
Iron	A	mg/L	4.587	4.72461		5.15	0.03963	0	0.0076467	0.0052839	5	91%	75	125	0%	
Lanthanum	A	mg/L	0.05119	0.0527257		0.0515	1.513E-05	0	1.138E-05	0.001	0.1	102%	75	125	0%	
Lead	A	mg/L	0.04605	0.0474315		0.0515	0.0000943	0	5.403E-05	0.001	1	92%	80	120	0%	
Magnesium	A	mg/L	53.47	55.0741		51.5	9.734	0	0.070694	0.0083967	50	88%	75	125	0%	
Manganese	A	mg/L	0.04646	0.0478538		0.0515	0.0007106	0	0.0002673	0.001	1	92%	75	125	0%	
Molybdenum	A	mg/L	0.04674	0.0481422		0.0515	0.0002643	0	9.95E-05	0.001	0.1	93%	75	125	0%	
Nickel	A	mg/L	0.04818	0.0496254		0.0515	0.000711	0	0.000246	0.0024926	1	95%	75	125	0%	
Potassium	A	mg/L	42.26	43.5278		51.5	2.629	0	0.0298095	0.0269042	50	79%	75	125	0%	
Selenium	A	mg/L	0.04852	0.0499756		0.0515	0.0001564	0	6.439E-05	0.001	1	97%	75	125	0%	
Silicon	A	mg/L	20.89	21.5167		0.206	20.93	0	0.0225360	0.0054808	0.4		75	125	0%	A
Silver	A	mg/L	0.01871	0.0192713		0.0206	0	0	2.388E-05	0.001	0.04	94%	75	125	0%	
Sodium	A	mg/L	73.36	75.5608		51.5	32.22	0	0.0743162	0.7550177	50	84%	75	125	0%	
Strontium	A	mg/L	0.1238	0.127514		0.0515	0.07381	0	7.393E-05	0.001	1	104%	75	125	0%	
Thallium	A	mg/L	0.04871	0.0501713		0.0515	0	0	0.0001147	0.001	1	97%	75	125	0%	
Thorium	A	mg/L	0.04931	0.0507893		0.0515	0.0001276	0	6.075E-05	0.0042745	1	98%	75	125	0%	
Tin	A	mg/L	0.04867	0.0501301		0.0515	0	0	0.00195	0.001151	0.1	97%	75	125	0%	
Titanium	A	mg/L	0.05325	0.0548475		0.0515	0.003854	0	0.0005072	0.001	1	99%	75	125	0%	
Uranium	A	mg/L	0.04719	0.0486057		0.0515	2.211E-05	0	1.117E-05	0.0003	1	94%	75	125	0%	
Vanadium	A	mg/L	0.05997	0.0617691		0.0515	0.0156	0	0.0012791	0.0021717	1	90%	75	125	0%	
Zinc	A	mg/L	0.07596	0.0782388		0.0515	0.0276	0	0.0011966	0.0067511	1	98%	75	125	0%	
Silica	C	mg/L	44.687888	46.0285246		0	0	0	0.0482091	0.0117246	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	44.687888	46.0285246		0.0515	0	0	0.0482091	0.0117246	5	89376%	75	125	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064119	B22021763-001	ICPMS-6020-W-	MS4-DOD		3/1/2022 7:45:55	1	164095	2/28/2022 1:	2E+07	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					
15064119	B22021763-001	ICPMS-6020-W-	MS4-DOD		3/1/2022 7:45:55	1	164095	2/28/2022 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	0.4734	0.4734		0.5	0.03348	0	0.0029215	0.0031975	1	88%	75	125	0%	
Antimony	A	mg/L	0.1016	0.1016		0.1	0.0004789	0	0.0002485	0.001	0.1	101%	75	125	0%	
Arsenic	A	mg/L	0.1029	0.1029		0.1	0	0	0.0002595	0.001	1	103%	75	125	0%	
Barium	A	mg/L	0.09507	0.09507		0.1	0.005619	0	0.0001041	0.001	1	89%	75	125	0%	
Beryllium	A	mg/L	0.04165	0.04165		0.05	0	0	0.0001071	0.01	1	83%	75	125	0%	
Boron	A	mg/L	0.1231	0.1231		0.1	0.03783	0	0.0030301	0.01467	1	85%	75	125	0%	
Cadmium	A	mg/L	0.0534	0.0534		0.05	0	0	0.0000141	0.005	1	107%	75	125	0%	
Calcium	A	mg/L	13.7	13.7		5	9.861	0	0.0372936	0.1103481	50	77%	75	125	0%	
Cerium	A	mg/L	0.1065	0.1065		0.1	4.057E-05	0	0.0000087	0.001	0.1	106%	75	125	0%	
Chromium	A	mg/L	0.09768	0.09768		0.1	0.002513	0	0.0005265	0.0015375	1	95%	75	125	0%	
Cobalt	A	mg/L	0.09985	0.09985		0.1	0	0	8.402E-05	0.001	1	100%	75	125	0%	
Copper	A	mg/L	0.1112	0.1112		0.1	0.0008377	0	0.0005744	0.00198	1	110%	75	125	0%	
Iron	A	mg/L	0.5085	0.5085		0.5	0.03963	0	0.007424	0.00513	5	94%	75	125	0%	
Lanthanum	A	mg/L	0.1066	0.1066		0.1	1.513E-05	0	1.105E-05	0.001	0.1	107%	75	125	0%	
Lead	A	mg/L	0.1019	0.1019		0.1	0.0000943	0	5.246E-05	0.001	1	102%	88	115	0%	
Magnesium	A	mg/L	14.47	14.47		5	9.734	0	0.0686349	0.0081522	50	95%	75	125	0%	
Manganese	A	mg/L	0.4797	0.4797		0.5	0.0007106	0	0.0002595	0.001	1	96%	75	125	0%	
Molybdenum	A	mg/L	0.09648	0.09648		0.1	0.0002643	0	0.0000966	0.001	0.1	96%	75	125	0%	
Nickel	A	mg/L	0.1013	0.1013		0.1	0.000711	0	0.0002388	0.0024200	1	101%	75	125	0%	
Potassium	A	mg/L	6.699	6.699		5	2.629	0	0.0289412	0.0261205	50	81%	75	125	0%	
Selenium	A	mg/L	0.09905	0.09905		0.1	0.0001564	0	6.251E-05	0.001	1	99%	75	125	0%	
Silicon	A	mg/L	19.4	19.4		1	20.93	0	0.0218797	0.0053212	0.4		75	125	0%	A
Silver	A	mg/L	0.009242	0.009242		0.01	0	0	2.318E-05	0.001	0.04	92%	75	125	0%	
Sodium	A	mg/L	35.27	35.27		5	32.22	0	0.0721517	0.7330269	50		75	125	0%	A
Strontium	A	mg/L	0.1849	0.1849		0.1	0.07381	0	7.178E-05	0.001	1	111%	75	125	0%	
Thallium	A	mg/L	0.1082	0.1082		0.1	0	0	0.0001114	0.001	1	108%	75	125	0%	
Thorium	A	mg/L	0.1063	0.1063		0.1	0.0001276	0	5.898E-05	0.00415	1	106%	75	125	0%	
Tin	A	mg/L	0.1013	0.1013		0.1	0	0	0.0018932	0.0011175	0.1	101%	75	125	0%	
Titanium	A	mg/L	0.1035	0.1035		0.1	0.003854	0	0.0004924	0.001	1	100%	75	125	0%	
Uranium	A	mg/L	0.103	0.103		0.1	2.211E-05	0	1.084E-05	0.0003	1	103%	75	125	0%	
Vanadium	A	mg/L	0.1072	0.1072		0.1	0.0156	0	0.0012418	0.0021085	1	92%	75	125	0%	
Zinc	A	mg/L	0.1321	0.1321		0.1	0.0276	0	0.0011617	0.0065544	1	104%	75	125	0%	
Silica	C	mg/L	41.50048	41.50048		0	0	0	0.0468049	0.0113831	5	0%	0	0	0%	
Silicon as SiO2	C	mg/L	41.50048	41.50048		2.14	0	0	0.0468049	0.0113831	5	1939%	75	125	0%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064120	B22021763-001	ICPMS-6020-W-	MSD4-DOD		3/1/2022 7:52:08	1	164095	2/28/2022 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	0.4386	0.4386		0.5	0.03348	0.4734	0.0029215	0.0031975	1	81%	75	125	8%	
Antimony	A	mg/L	0.1034	0.1034		0.1	0.0004789	0.1016	0.0002485	0.001	0.1	103%	75	125	2%	
Arsenic	A	mg/L	0.102	0.102		0.1	0	0.1029	0.0002595	0.001	1	102%	75	125	1%	
Barium	A	mg/L	0.09827	0.09827		0.1	0.005619	0.09507	0.0001041	0.001	1	93%	75	125	3%	
Beryllium	A	mg/L	0.04024	0.04024		0.05	0	0.04165	0.0001071	0.01	1	80%	75	125	3%	
Boron	A	mg/L	0.1139	0.1139		0.1	0.03783	0.1231	0.0030301	0.01467	1	76%	75	125	8%	
Cadmium	A	mg/L	0.05365	0.05365		0.05	0	0.0534	0.0000141	0.005	1	107%	75	125	0%	
Calcium	A	mg/L	14.33	14.33		5	9.861	13.7	0.0372936	0.1103481	50	89%	75	125	4%	
Cerium	A	mg/L	0.1045	0.1045		0.1	4.057E-05	0.1065	0.0000087	0.001	0.1	104%	75	125	2%	
Chromium	A	mg/L	0.09565	0.09565		0.1	0.002513	0.09768	0.0005265	0.0015375	1	93%	75	125	2%	
Cobalt	A	mg/L	0.09684	0.09684		0.1	0	0.09985	8.402E-05	0.001	1	97%	75	125	3%	
Copper	A	mg/L	0.1096	0.1096		0.1	0.0008377	0.1112	0.0005744	0.00198	1	109%	75	125	1%	
Iron	A	mg/L	0.5303	0.5303		0.5	0.03963	0.5085	0.007424	0.00513	5	98%	75	125	4%	
Lanthanum	A	mg/L	0.1055	0.1055		0.1	1.513E-05	0.1066	1.105E-05	0.001	0.1	105%	75	125	1%	
Lead	A	mg/L	0.09868	0.09868		0.1	0.0000943	0.1019	5.246E-05	0.001	1	99%	88	115	3%	
Magnesium	A	mg/L	14.65	14.65		5	9.734	14.47	0.0686349	0.0081522	50	98%	75	125	1%	
Manganese	A	mg/L	0.4716	0.4716		0.5	0.0007106	0.4797	0.0002595	0.001	1	94%	75	125	2%	
Molybdenum	A	mg/L	0.09584	0.09584		0.1	0.0002643	0.09648	0.0000966	0.001	0.1	96%	75	125	1%	
Nickel	A	mg/L	0.1039	0.1039		0.1	0.000711	0.1013	0.0002388	0.0024200	1	103%	75	125	3%	
Potassium	A	mg/L	6.48	6.48		5	2.629	6.699	0.0289412	0.0261205	50	77%	75	125	3%	
Selenium	A	mg/L	0.1011	0.1011		0.1	0.0001564	0.09905	6.251E-05	0.001	1	101%	75	125	2%	
Silicon	A	mg/L	18.98	18.98		1	20.93	19.4	0.0218797	0.0053212	0.4		75	125	2%	A
Silver	A	mg/L	0.009272	0.009272		0.01	0	0.009242	2.318E-05	0.001	0.04	93%	75	125	0%	
Sodium	A	mg/L	35.05	35.05		5	32.22	35.27	0.0721517	0.7330269	50		75	125	1%	A
Strontium	A	mg/L	0.1823	0.1823		0.1	0.07381	0.1849	7.178E-05	0.001	1	108%	75	125	1%	
Thallium	A	mg/L	0.1063	0.1063		0.1	0	0.1082	0.0001114	0.001	1	106%	75	125	2%	
Thorium	A	mg/L	0.1054	0.1054		0.1	0.0001276	0.1063	5.898E-05	0.00415	1	105%	75	125	1%	
Tin	A	mg/L	0.09769	0.09769		0.1	0	0.1013	0.0018932	0.0011175	0.1	98%	75	125	4%	
Titanium	A	mg/L	0.09798	0.09798		0.1	0.003854	0.1035	0.0004924	0.001	1	94%	75	125	5%	
Uranium	A	mg/L	0.1005	0.1005		0.1	2.211E-05	0.103	1.084E-05	0.0003	1	100%	75	125	2%	
Vanadium	A	mg/L	0.1075	0.1075		0.1	0.0156	0.1072	0.0012418	0.0021085	1	92%	75	125	0%	
Zinc	A	mg/L	0.1305	0.1305		0.1	0.0276	0.1321	0.0011617	0.0065544	1	103%	75	125	1%	
Silica	C	mg/L	40.602016	40.602016		0	0	41.50048	0.0468049	0.0113831	5	0%	0	0	2%	
Silicon as SiO2	C	mg/L	40.602016	40.602016		2.14	0	41.50048	0.0468049	0.0113831	5	1897%	75	125	2%	S

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064121	Rinse	ICPMS-6020-W-	SAMP		3/1/2022 7:58:21	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0002713	0.0002713		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	-5.087E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	
Barium	A	mg/L	3.846E-06	0		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	8.92E-07	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	
Cerium	A	mg/L	5.275E-07	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00007508	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	
Cobalt	A	mg/L	-0.0000222	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	
Lanthanum	A	mg/L	-4.388E-08	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	0.00000839	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	
Manganese	A	mg/L	0.00001096	0		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-1.902E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	
Molybdenum	A	mg/L	0.00001905	0		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	
Nickel	A	mg/L	0.00002516	0		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.00000575	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	
Silver	A	mg/L	-7.459E-07	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	
Strontium	A	mg/L	-1.418E-06	0		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.0002543	0.0002543		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	0.00005049	0.00005049		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	J
Titanium	A	mg/L	0.00005296	0		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	2.263E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Calcium	B	mg/L	0.0001475	0		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	L
Iron	B	mg/L	0.00001245	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.00001245	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	0.003172	0		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	L
Tin	B	mg/L	8.155E-06	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Zinc	B	mg/L	4.857E-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					
15064122	B22021763-006	ICPMS-6020-W-	SAMP		3/1/2022 8:04:34	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0003085	0.0003085		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	-4.236E-05	0		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.004128	0.004128		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	5.145E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064122	B22021763-006	ICPMS-6020-W-	SAMP		3/1/2022 8:04:34	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Cerium	A	mg/L	1.695E-06	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.000764	0.000764		0	0	0	0.0002538	0.001	1	0%	0	0	0%	J
Cobalt	A	mg/L	0.0000139	0		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	U
Lanthanum	A	mg/L	9.489E-07	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00001032	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.005913	0.005913		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	-9.575E-06	0		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	U
Molybdenum	A	mg/L	0.0003755	0.0003755		0	0	0	8.113E-05	0.001	0.1	0%	0	0	0%	J
Nickel	A	mg/L	0.001053	0.001053		0	0	0	0.0001769	0.001	1	0%	0	0	0%	
Selenium	A	mg/L	0.0002249	0.0002249		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	-1.763E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.1687	0.1687		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00009832	0.00009832		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	J
Thorium	A	mg/L	-1.707E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.001666	0.001666		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00001114	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	U
Calcium	B	mg/L	16.22	16.22		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.0003696	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	U
Iron, Ferrous	B	mg/L	0.0003696	0		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	U
Magnesium	B	mg/L	16.62	16.62		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Sodium	B	mg/L	36.72	36.72		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	-5.334E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.0008931	0		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	LU

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064123	B22021763-006	ICPMS-6020-W-	SAMP		3/1/2022 8:10:48	1	164095	2/28/2022 1:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0004303	0.0004303		0	0	0	0.0002485	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	0.0001985	0		0	0	0	0.0002595	0.001	1	0%	0	0	0%	U
Barium	A	mg/L	0.0045	0.0045		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	3.093E-06	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	0.00002671	0.00002671		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	J
Cobalt	A	mg/L	0.00007754	0		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	U
Lanthanum	A	mg/L	0.00001116	0.00001116		0	0	0	1.105E-05	0.001	0.1	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					
15064123	B22021763-006	ICPMS-6020-W-	SAMP		3/1/2022 8:10:48	1	164095	2/28/2022 1:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Lead	A	mg/L	0.0000603	0.0000603		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.008104	0.008104		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.000858	0.000858		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	J
Selenium	A	mg/L	0.0002806	0.0002806		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	4.497E-06	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.1794	0.1794		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00004814	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.003778	0.003778		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00001261	0.00001261		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	J
Calcium	B	mg/L	15.41	15.41		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	D
Chromium	B	mg/L	0.001091	0.001091		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	JL
Iron	B	mg/L	0.03073	0.03073		0	0	0	0.007424	0.00513	5	0%	0	0	0%	D
Magnesium	B	mg/L	17.39	17.39		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.00118	0.00118		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Sodium	B	mg/L	36.38	36.38		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	D
Thorium	B	mg/L	0.0001072	0.0001072		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	JL
Tin	B	mg/L	0.0001653	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.001194	0.001194		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					
15064124	B22021763-011	ICPMS-6020-W-	SAMP		3/1/2022 8:17:01	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0004618	0.0004618		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	0.0003279	0.0003279		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	J
Barium	A	mg/L	0.004669	0.004669		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	-1.091E-07	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	0.00002214	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	-5.738E-06	0		0	0	0	0.0002538	0.001	1	0%	0	0	0%	U
Cobalt	A	mg/L	0.0003464	0.0003464		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	3.435E-06	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00001729	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.4803	0.4803		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	0.0001155	0.0001155		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	J
Molybdenum	A	mg/L	0.0002448	0.0002448		0	0	0	8.113E-05	0.001	0.1	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					
15064124	B22021763-011	ICPMS-6020-W-	SAMP		3/1/2022 8:17:01	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Nickel	A	mg/L	0.0008404	0.0008404		0	0	0	0.0001769	0.001	1	0%	0	0	0%	J
Selenium	A	mg/L	7.546E-06	0		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	U
Silver	A	mg/L	-3.179E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.06605	0.06605		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00003814	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	U
Thorium	A	mg/L	-9.32E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.002175	0.002175		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	7.848E-06	0		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	U
Calcium	B	mg/L	9.106	9.106		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.4414	0.4414		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.4414	0.4414		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	10.18	10.18		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Sodium	B	mg/L	38.65	38.65		0	0	0	0.0451914	0.02171	50	0%	0	0	0%	D
Tin	B	mg/L	-3.808E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.001239	0.001239		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					
15064125	B22021763-011	ICPMS-6020-W-	SAMP		3/1/2022 8:23:15	1	164095	2/28/2022 1:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.0006629	0.0006629		0	0	0	0.0002485	0.001	0.1	0%	0	0	0%	J
Arsenic	A	mg/L	0.0004655	0.0004655		0	0	0	0.0002595	0.001	1	0%	0	0	0%	J
Barium	A	mg/L	0.005171	0.005171		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	8.529E-07	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	0.00006864	0.00006864		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	J
Cobalt	A	mg/L	0.0003378	0.0003378		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	0.00001565	0.00001565		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	J
Lead	A	mg/L	0.0000969	0.0000969		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.4761	0.4761		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.00128	0.00128		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	
Selenium	A	mg/L	0.00004736	0		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	U
Silver	A	mg/L	9.114E-06	0		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.06945	0.06945		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00001242	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.003797	0.003797		0	0	0	0.0004924	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					
15064125	B22021763-011	ICPMS-6020-W-	SAMP		3/1/2022 8:23:15	1	164095	2/28/2022 1:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Uranium	A	mg/L	8.882E-06	0		0	0	0	1.084E-05	0.0003	1	0%	0	0	0%	U
Calcium	B	mg/L	8.552	8.552		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	D
Chromium	B	mg/L	0.0002862	0		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	LU
Iron	B	mg/L	0.5273	0.5273		0	0	0	0.007424	0.00513	5	0%	0	0	0%	D
Magnesium	B	mg/L	10.27	10.27		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.0008857	0.0008857		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Sodium	B	mg/L	39.7	39.7		0	0	0	0.0721517	0.7330269	50	0%	0	0	0%	D
Thorium	B	mg/L	0.0000559	0		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	LU
Tin	B	mg/L	0.0001723	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.002051	0.002051		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					
15064126	CCV	ICPMS-6020-W-	CCV		3/1/2022 8:29:29	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04458	0.04458		0.05	0	0	0.0017836	0.001	1	89%	90	110	0%	S
Antimony	A	mg/L	0.04954	0.04954		0.05	0	0	6.768E-05	0.001	0.1	99%	90	110	0%	
Arsenic	A	mg/L	0.04992	0.04992		0.05	0	0	8.203E-05	0.001	1	100%	90	110	0%	
Barium	A	mg/L	0.04977	0.04977		0.05	0	0	6.762E-05	0.001	1	100%	90	110	0%	
Beryllium	A	mg/L	0.04452	0.04452		0.05	0	0	8.516E-05	0.001	1	89%	90	110	0%	S
Boron	A	mg/L	0.04235	0.04235		0.05	0	0	0.0039526	0.00561	1	85%	90	110	0%	S
Cadmium	A	mg/L	0.04877	0.04877		0.05	0	0	2.308E-05	0.001	1	98%	90	110	0%	
Calcium	A	mg/L	11.9	11.9		12.5	0	0	0.2027235	0.02092	50	95%	90	110	0%	
Cerium	A	mg/L	0.05228	0.05228		0.05	0	0	0.0000222	0.001	0.1	105%	90	110	0%	
Chromium	A	mg/L	0.04655	0.04655		0.05	0	0	0.0002538	0.001	1	93%	90	110	0%	
Cobalt	A	mg/L	0.05069	0.05069		0.05	0	0	2.141E-05	0.001	1	101%	90	110	0%	
Copper	A	mg/L	0.05353	0.05353		0.05	0	0	0.0001748	0.001	1	107%	90	110	0%	
Iron	A	mg/L	1.292	1.292		1.3	0	0	0.0021157	0.00119	5	99%	90	110	0%	
Lanthanum	A	mg/L	0.05194	0.05194		0.05	0	0	6.805E-05	0.001	0.1	104%	90	110	0%	
Lead	A	mg/L	0.04983	0.04983		0.05	0	0	3.031E-05	0.001	1	100%	90	110	0%	
Magnesium	A	mg/L	12.77	12.77		12.5	0	0	0.0203306	0.00564	50	102%	90	110	0%	
Manganese	A	mg/L	0.04741	0.04741		0.05	0	0	7.309E-05	0.001	1	95%	90	110	0%	
Mercury	A	mg/L	0.0009753	0.0009753		0.001	0	0	3.043E-05	0.001	0.002	98%	90	110	0%	
Molybdenum	A	mg/L	0.04814	0.04814		0.05	0	0	8.113E-05	0.001	0.1	96%	90	110	0%	
Nickel	A	mg/L	0.04981	0.04981		0.05	0	0	0.0001769	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					
15064126	CCV	ICPMS-6020-W- CCV			3/1/2022 8:29:29	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Potassium	A	mg/L	10.57	10.57		12.5	0	0	0.0215433	0.08139	50	85%	90	110	0%	S
Selenium	A	mg/L	0.04968	0.04968		0.05	0	0	7.174E-05	0.001	1	99%	90	110	0%	
Silicon	A	mg/L	0.2453	0.2453		0.2	0	0	0.0033337	0.1	0.4	123%	90	110	0%	S
Silver	A	mg/L	0.01988	0.01988		0.02	0	0	2.644E-05	0.001	0.04	99%	90	110	0%	
Sodium	A	mg/L	12.63	12.63		12.5	0	0	0.0451914	0.02171	50	101%	90	110	0%	
Strontium	A	mg/L	0.05095	0.05095		0.05	0	0	9.743E-05	0.001	1	102%	90	110	0%	
Thallium	A	mg/L	0.05069	0.05069		0.05	0	0	4.842E-05	0.001	1	101%	90	110	0%	
Thorium	A	mg/L	0.04947	0.04947		0.05	0	0	3.018E-05	0.001	1	99%	90	110	0%	
Tin	A	mg/L	0.04836	0.04836		0.05	0	0	0.0009928	0.00132	0.1	97%	90	110	0%	
Titanium	A	mg/L	0.0498	0.0498		0.05	0	0	0.0001004	0.001	1	100%	90	110	0%	
Uranium	A	mg/L	0.04982	0.04982		0.05	0	0	2.468E-05	0.0003	1	100%	90	110	0%	
Vanadium	A	mg/L	0.04553	0.04553		0.05	0	0	0.0018612	0.0013	1	91%	90	110	0%	
Zinc	A	mg/L	0.05105	0.05105		0.05	0	0	0.0010089	0.00273	1	102%	90	110	0%	
Iron, Ferrous	C	mg/L	1.292	1.292		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					
15064127	CCB	ICPMS-6020-W- CCB			3/1/2022 8:35:43	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.00007184	0.00007184		0	0	0	0.0017836	0.001	1	0%			0%	
Antimony	A	mg/L	0.00009361	0.00009361		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	-4.252E-05	-4.252E-05		0	0	0	8.203E-05	0.001	1	0%			0%	
Barium	A	mg/L	4.049E-07	4.049E-07		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	8.631E-07	8.631E-07		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	-0.0001816	-0.0001816		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	2.401E-06	2.401E-06		0	0	0	2.308E-05	0.001	1	0%			0%	
Calcium	A	mg/L	0.000573	0.000573		0	0	0	0.2027235	0.02092	50	0%			0%	
Cerium	A	mg/L	2.841E-07	2.841E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00005986	0.00005986		0	0	0	0.0002538	0.001	1	0%			0%	
Cobalt	A	mg/L	-2.289E-05	-2.289E-05		0	0	0	2.141E-05	0.001	1	0%			0%	
Copper	A	mg/L	5.193E-06	5.193E-06		0	0	0	0.0001748	0.001	1	0%			0%	
Iron	A	mg/L	0.00008461	0.00008461		0	0	0	0.0021157	0.00119	5	0%			0%	
Lanthanum	A	mg/L	-3.295E-07	-3.295E-07		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	4.369E-06	4.369E-06		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	0.003351	0.003351		0	0	0	0.0203306	0.00564	50	0%			0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064127	CCB	ICPMS-6020-W-	CCB		3/1/2022 8:35:43	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Manganese	A	mg/L	0.00001635	0.00001635		0	0	0	7.309E-05	0.001	1	0%			0%	
Mercury	A	mg/L	-1.997E-05	-1.997E-05		0	0	0	3.043E-05	0.001	0.002	0%			0%	
Molybdenum	A	mg/L	0.00002707	0.00002707		0	0	0	8.113E-05	0.001	0.1	0%			0%	
Nickel	A	mg/L	1.114E-06	1.114E-06		0	0	0	0.0001769	0.001	1	0%			0%	
Potassium	A	mg/L	-0.01925	-0.01925		0	0	0	0.0215433	0.08139	50	0%			0%	
Selenium	A	mg/L	8.954E-06	8.954E-06		0	0	0	7.174E-05	0.001	1	0%			0%	
Silicon	A	mg/L	0.01694	0.01694		0	0	0	0.0033337	0.1	0.4	0%	0	0	0%	
Silver	A	mg/L	-1.041E-06	-1.041E-06		0	0	0	2.644E-05	0.001	0.04	0%			0%	
Sodium	A	mg/L	0.05988	0.05988		0	0	0	0.0451914	0.02171	50	0%			0%	
Strontium	A	mg/L	3.912E-06	3.912E-06		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00008162	0.00008162		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	
Thorium	A	mg/L	0.00002949	0.00002949		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	
Tin	A	mg/L	0.0000507	0.0000507		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	
Titanium	A	mg/L	0.00004246	0.00004246		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	1.976E-06	1.976E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	
Vanadium	A	mg/L	-0.0003247	-0.0003247		0	0	0	0.0018612	0.0013	1	0%	0	0	0%	
Zinc	A	mg/L	-4.245E-05	-4.245E-05		0	0	0	0.0010089	0.00273	1	0%	0	0	0%	
Iron, Ferrous	C	mg/L	0.00008461	0.00008461		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					
15064128	B22021763-016	ICPMS-6020-W-	SAMP		3/1/2022 8:41:57	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	-2.577E-05	0		0	0	0	6.768E-05	0.001	0.1	0%	0	0	0%	U
Arsenic	A	mg/L	0.0004442	0.0004442		0	0	0	8.203E-05	0.001	1	0%	0	0	0%	J
Barium	A	mg/L	0.01184	0.01184		0	0	0	6.762E-05	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	4.799E-06	0		0	0	0	2.308E-05	0.001	1	0%	0	0	0%	U
Cerium	A	mg/L	5.824E-06	0		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	U
Chromium	A	mg/L	0.0004016	0.0004016		0	0	0	0.0002538	0.001	1	0%	0	0	0%	J
Cobalt	A	mg/L	0.0001251	0.0001251		0	0	0	2.141E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	1.087E-06	0		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	U
Lead	A	mg/L	0.00001958	0		0	0	0	3.031E-05	0.001	1	0%	0	0	0%	U
Manganese	A	mg/L	0.002532	0.002532		0	0	0	7.309E-05	0.001	1	0%	0	0	0%	
Mercury	A	mg/L	0.0004227	0.0004227		0	0	0	3.043E-05	0.001	0.002	0%	0	0	0%	J
Molybdenum	A	mg/L	0.001238	0.001238		0	0	0	8.113E-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					
15064128	B22021763-016	ICPMS-6020-W-	SAMP		3/1/2022 8:41:57	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Nickel	A	mg/L	0.0004474	0.0004474		0	0	0	0.0001769	0.001	1	0%	0	0	0%	J
Selenium	A	mg/L	0.0003896	0.0003896		0	0	0	7.174E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	5.616E-06	0		0	0	0	2.644E-05	0.001	0.04	0%	0	0	0%	U
Strontium	A	mg/L	0.2834	0.2834		0	0	0	9.743E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	0.00002919	0		0	0	0	4.842E-05	0.001	1	0%	0	0	0%	U
Thorium	A	mg/L	-7.36E-06	0		0	0	0	3.018E-05	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.001719	0.001719		0	0	0	0.0001004	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00005472	0.00005472		0	0	0	2.468E-05	0.0003	1	0%	0	0	0%	J
Calcium	B	mg/L	38.28	38.28		0	0	0	0.2027235	0.02092	50	0%	0	0	0%	D
Iron	B	mg/L	0.03121	0.03121		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Iron, Ferrous	B	mg/L	0.03121	0.03121		0	0	0	0.0021157	0.00119	5	0%	0	0	0%	
Magnesium	B	mg/L	38.26	38.26		0	0	0	0.0203306	0.00564	50	0%	0	0	0%	D
Tin	B	mg/L	-3.154E-05	0		0	0	0	0.0009928	0.00132	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.001166	0.001166		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					
15064129	B22021763-016	ICPMS-6020-W-	SAMP		3/1/2022 8:48:13	1	164095	2/28/2022 1:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Antimony	A	mg/L	0.00003847	0		0	0	0	0.0002485	0.001	0.1	0%	0	0	0%	U
Arsenic	A	mg/L	0.0007802	0.0007802		0	0	0	0.0002595	0.001	1	0%	0	0	0%	J
Barium	A	mg/L	0.01239	0.01239		0	0	0	0.0001041	0.001	1	0%	0	0	0%	
Cadmium	A	mg/L	5.521E-06	0		0	0	0	0.0000141	0.005	1	0%	0	0	0%	U
Cerium	A	mg/L	0.00003006	0.00003006		0	0	0	0.0000087	0.001	0.1	0%	0	0	0%	J
Cobalt	A	mg/L	0.0001549	0.0001549		0	0	0	8.402E-05	0.001	1	0%	0	0	0%	J
Lanthanum	A	mg/L	0.00001381	0.00001381		0	0	0	1.105E-05	0.001	0.1	0%	0	0	0%	J
Lead	A	mg/L	0.00005791	0.00005791		0	0	0	5.246E-05	0.001	1	0%	0	0	0%	J
Manganese	A	mg/L	0.002713	0.002713		0	0	0	0.0002595	0.001	1	0%	0	0	0%	
Molybdenum	A	mg/L	0.001511	0.001511		0	0	0	0.0000966	0.001	0.1	0%	0	0	0%	
Selenium	A	mg/L	0.00045	0.00045		0	0	0	6.251E-05	0.001	1	0%	0	0	0%	J
Silver	A	mg/L	0.000067	0.000067		0	0	0	2.318E-05	0.001	0.04	0%	0	0	0%	J
Strontium	A	mg/L	0.303	0.303		0	0	0	7.178E-05	0.001	1	0%	0	0	0%	
Thallium	A	mg/L	7.51E-07	0		0	0	0	0.0001114	0.001	1	0%	0	0	0%	U
Titanium	A	mg/L	0.003358	0.003358		0	0	0	0.0004924	0.001	1	0%	0	0	0%	
Uranium	A	mg/L	0.00005848	0.00005848		0	0	0	1.084E-05	0.0003	1	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					
15064129	B22021763-016	ICPMS-6020-W-	SAMP		3/1/2022 8:48:13	1	164095	2/28/2022 1:	0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Calcium	B	mg/L	35.41	35.41		0	0	0	0.0372936	0.1103481	50	0%	0	0	0%	D
Chromium	B	mg/L	0.0008833	0.0008833		0	0	0	0.0005265	0.0015375	1	0%	0	0	0%	JL
Iron	B	mg/L	0.1067	0.1067		0	0	0	0.007424	0.00513	5	0%	0	0	0%	D
Magnesium	B	mg/L	36.14	36.14		0	0	0	0.0686349	0.0081522	50	0%	0	0	0%	D
Nickel	B	mg/L	0.0006106	0.0006106		0	0	0	0.0002388	0.0024200	1	0%	0	0	0%	JL
Thorium	B	mg/L	0.00008417	0.00008417		0	0	0	5.898E-05	0.00415	1	0%	0	0	0%	JL
Tin	B	mg/L	0.000225	0		0	0	0	0.0018932	0.0011175	0.1	0%	0	0	0%	U
Zinc	B	mg/L	0.001601	0.001601		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					
15064130	CCV	ICPMS-6020-W-	CCV		3/1/2022 8:54:27	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	0.04635	0.04635		0.05	0	0	0.0017836	0.001	1	93%	90	110	0%	
Antimony	A	mg/L	0.04921	0.04921		0.05	0	0	6.768E-05	0.001	0.1	98%	90	110	0%	
Arsenic	A	mg/L	0.05045	0.05045		0.05	0	0	8.203E-05	0.001	1	101%	90	110	0%	
Barium	A	mg/L	0.049	0.049		0.05	0	0	6.762E-05	0.001	1	98%	90	110	0%	
Beryllium	A	mg/L	0.04268	0.04268		0.05	0	0	8.516E-05	0.001	1	85%	90	110	0%	S
Boron	A	mg/L	0.04144	0.04144		0.05	0	0	0.0039526	0.00561	1	83%	90	110	0%	S
Cadmium	A	mg/L	0.04875	0.04875		0.05	0	0	2.308E-05	0.001	1	97%	90	110	0%	
Calcium	A	mg/L	11.9	11.9		12.5	0	0	0.2027235	0.02092	50	95%	90	110	0%	
Cerium	A	mg/L	0.05035	0.05035		0.05	0	0	0.0000222	0.001	0.1	101%	90	110	0%	
Chromium	A	mg/L	0.04743	0.04743		0.05	0	0	0.0002538	0.001	1	95%	90	110	0%	
Cobalt	A	mg/L	0.05002	0.05002		0.05	0	0	2.141E-05	0.001	1	100%	90	110	0%	
Copper	A	mg/L	0.05387	0.05387		0.05	0	0	0.0001748	0.001	1	108%	90	110	0%	
Iron	A	mg/L	1.262	1.262		1.3	0	0	0.0021157	0.00119	5	97%	90	110	0%	
Lanthanum	A	mg/L	0.04921	0.04921		0.05	0	0	6.805E-05	0.001	0.1	98%	90	110	0%	
Lead	A	mg/L	0.04859	0.04859		0.05	0	0	3.031E-05	0.001	1	97%	90	110	0%	
Magnesium	A	mg/L	12.34	12.34		12.5	0	0	0.0203306	0.00564	50	99%	90	110	0%	
Manganese	A	mg/L	0.04803	0.04803		0.05	0	0	7.309E-05	0.001	1	96%	90	110	0%	
Mercury	A	mg/L	0.0009526	0.0009526		0.001	0	0	3.043E-05	0.001	0.002	95%	90	110	0%	
Molybdenum	A	mg/L	0.04736	0.04736		0.05	0	0	8.113E-05	0.001	0.1	95%	90	110	0%	
Nickel	A	mg/L	0.04982	0.04982		0.05	0	0	0.0001769	0.001	1	100%	90	110	0%	
Potassium	A	mg/L	10.75	10.75		12.5	0	0	0.0215433	0.08139	50	86%	90	110	0%	S
Selenium	A	mg/L	0.04945	0.04945		0.05	0	0	7.174E-05	0.001	1	99%	90	110	0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064130	CCV	ICPMS-6020-W- CCV			3/1/2022 8:54:27	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Silicon	A	mg/L	0.2297	0.2297		0.2	0	0	0.0033337	0.1	0.4	115%	90	110	0%	S
Silver	A	mg/L	0.01949	0.01949		0.02	0	0	2.644E-05	0.001	0.04	97%	90	110	0%	
Sodium	A	mg/L	12.5	12.5		12.5	0	0	0.0451914	0.02171	50	100%	90	110	0%	
Strontium	A	mg/L	0.05011	0.05011		0.05	0	0	9.743E-05	0.001	1	100%	90	110	0%	
Thallium	A	mg/L	0.05004	0.05004		0.05	0	0	4.842E-05	0.001	1	100%	90	110	0%	
Thorium	A	mg/L	0.04952	0.04952		0.05	0	0	3.018E-05	0.001	1	99%	90	110	0%	
Tin	A	mg/L	0.04785	0.04785		0.05	0	0	0.0009928	0.00132	0.1	96%	90	110	0%	
Titanium	A	mg/L	0.04999	0.04999		0.05	0	0	0.0001004	0.001	1	100%	90	110	0%	
Uranium	A	mg/L	0.04763	0.04763		0.05	0	0	2.468E-05	0.0003	1	95%	90	110	0%	
Vanadium	A	mg/L	0.04498	0.04498		0.05	0	0	0.0018612	0.0013	1	90%	90	110	0%	
Zinc	A	mg/L	0.05108	0.05108		0.05	0	0	0.0010089	0.00273	1	102%	90	110	0%	
Iron, Ferrous	C	mg/L	1.262	1.262		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					
15064131	CCB	ICPMS-6020-W- CCB			3/1/2022 9:00:42	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Aluminum	A	mg/L	-0.0001251	-0.0001251		0	0	0	0.0017836	0.001	1	0%			0%	
Antimony	A	mg/L	0.00007728	0.00007728		0	0	0	6.768E-05	0.001	0.1	0%			0%	
Arsenic	A	mg/L	-2.793E-05	-2.793E-05		0	0	0	8.203E-05	0.001	1	0%			0%	
Barium	A	mg/L	0.00000366	0.00000366		0	0	0	6.762E-05	0.001	1	0%			0%	
Beryllium	A	mg/L	-2.494E-05	-2.494E-05		0	0	0	8.516E-05	0.001	1	0%			0%	
Boron	A	mg/L	-0.0003191	-0.0003191		0	0	0	0.0039526	0.00561	1	0%			0%	
Cadmium	A	mg/L	2.108E-07	2.108E-07		0	0	0	2.308E-05	0.001	1	0%			0%	
Calcium	A	mg/L	0.001777	0.001777		0	0	0	0.2027235	0.02092	50	0%			0%	
Cerium	A	mg/L	1.94E-07	1.94E-07		0	0	0	0.0000222	0.001	0.1	0%	0	0	0%	
Chromium	A	mg/L	0.00005608	0.00005608		0	0	0	0.0002538	0.001	1	0%			0%	
Cobalt	A	mg/L	-3.018E-05	-3.018E-05		0	0	0	2.141E-05	0.001	1	0%			0%	
Copper	A	mg/L	-9.509E-06	-9.509E-06		0	0	0	0.0001748	0.001	1	0%			0%	
Iron	A	mg/L	0.00002375	0.00002375		0	0	0	0.0021157	0.00119	5	0%			0%	
Lanthanum	A	mg/L	3.174E-07	3.174E-07		0	0	0	6.805E-05	0.001	0.1	0%	0	0	0%	
Lead	A	mg/L	1.191E-06	1.191E-06		0	0	0	3.031E-05	0.001	1	0%			0%	
Magnesium	A	mg/L	0.000993	0.000993		0	0	0	0.0203306	0.00564	50	0%			0%	
Manganese	A	mg/L	4.068E-06	4.068E-06		0	0	0	7.309E-05	0.001	1	0%			0%	
Mercury	A	mg/L	-1.889E-05	-1.889E-05		0	0	0	3.043E-05	0.001	0.002	0%			0%	

Seq No	Lab ID	Test Code	Sample Typ	File ID	Analysis Date	DF	Batch ID	Prep Date	SPKref	RPDref	pmoist					
15064131	CCB	ICPMS-6020-W-	CCB		3/1/2022 9:00:42	1	R375488		0	0						
Analyte	T	Units	RAW	Final	Text	Spike	SPKref	RPDref	MDL	PQL	UQL	%REC	LOW	HIGH	%RPD	Q
Molybdenum	A	mg/L	0.00003024	0.00003024		0	0	0	8.113E-05	0.001	0.1	0%				0%
Nickel	A	mg/L	-8.776E-06	-8.776E-06		0	0	0	0.0001769	0.001	1	0%				0%
Potassium	A	mg/L	-0.01478	-0.01478		0	0	0	0.0215433	0.08139	50	0%				0%
Selenium	A	mg/L	8.843E-06	8.843E-06		0	0	0	7.174E-05	0.001	1	0%				0%
Silicon	A	mg/L	0.01171	0.01171		0	0	0	0.0033337	0.1	0.4	0%	0	0		0%
Silver	A	mg/L	-1.063E-06	-1.063E-06		0	0	0	2.644E-05	0.001	0.04	0%				0%
Sodium	A	mg/L	0.03113	0.03113		0	0	0	0.0451914	0.02171	50	0%				0%
Strontium	A	mg/L	-4.469E-06	-4.469E-06		0	0	0	9.743E-05	0.001	1	0%	0	0		0%
Thallium	A	mg/L	0.00007501	0.00007501		0	0	0	4.842E-05	0.001	1	0%	0	0		0%
Thorium	A	mg/L	0.00002518	0.00002518		0	0	0	3.018E-05	0.001	1	0%	0	0		0%
Tin	A	mg/L	0.00002686	0.00002686		0	0	0	0.0009928	0.00132	0.1	0%	0	0		0%
Titanium	A	mg/L	0.00002323	0.00002323		0	0	0	0.0001004	0.001	1	0%	0	0		0%
Uranium	A	mg/L	2.023E-06	2.023E-06		0	0	0	2.468E-05	0.0003	1	0%	0	0		0%
Vanadium	A	mg/L	-0.0001637	-0.0001637		0	0	0	0.0018612	0.0013	1	0%	0	0		0%
Zinc	A	mg/L	-3.954E-05	-3.954E-05		0	0	0	0.0010089	0.00273	1	0%	0	0		0%
Iron, Ferrous	C	mg/L	0.00002375	0.00002375		0	0	0	0.0021157	0.00119	5	0%	0	0		0%

## Batch Summary Report

Batch Folder: D:\Agilent\ICPMH1\DATA\220301ADoD.b\  
 Analysis File: 220301ADoD.batch.bin  
 Tune Step: #1 No Gas  
           #2 H2  
           #3 He

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
1		2022-03-01 12:23:29	005BLKV.d	Rinse	BlkVrfy		1.0000
2		2022-03-01 12:29:43	006CALB.d	Cal Blk	CalBlk	1	1.0000
3		2022-03-01 12:36:38	007CAL.S.d	0.025 ppb STD	CalStd	2	1.0000
4		2022-03-01 12:43:17	008CAL.S.d	0.05 ppb STD	CalStd	3	1.0000
5		2022-03-01 12:49:56	009CAL.S.d	0.10 ppb STD	CalStd	4	1.0000
6		2022-03-01 12:56:35	010CAL.S.d	0.5 ppb STD	CalStd	5	1.0000
7		2022-03-01 13:03:14	011CAL.S.d	1 ppb STD	CalStd	6	1.0000
8		2022-03-01 13:09:52	012CAL.S.d	10 ppb STD	CalStd	7	1.0000
9		2022-03-01 13:16:30	013CAL.S.d	50 ppb STD	CalStd	8	1.0000
10		2022-03-01 13:23:06	014CAL.S.d	100 ppb STD	CalStd	9	1.0000
11		2022-03-01 13:29:39	015CAL.S.d	1000 ppb STD	CalStd	10	1.0000
12		2022-03-01 13:36:07	016CAL.S.d	100 ppb Br STD	CalStd	11	1.0000
13		2022-03-01 13:42:30	017BLKV.d	Rinse	BlkVrfy		1.0000
14		2022-03-01 13:48:44	018_QC1.d	QCS	QC1		1.0000
15		2022-03-01 13:54:59	019_CCB.d	ICB	CCB		1.0000
16		2022-03-01 14:01:13	020_CCV.d	CCV	CCV		1.0000
17		2022-03-01 14:07:27	021_CCB.d	CCB	CCB		1.0000
18		2022-03-01 14:13:42	022BLKV.d	Rinse	BlkVrfy		1.0000
19		2022-03-01 14:19:56	023MBLK.d	LRB	MBLK		1.0000
20		2022-03-01 14:26:10	024_LFB.d	LFB	LFB		1.0300
21		2022-03-01 14:32:25	025ICSA.d	ICSA	ICSA		1.0000
22		2022-03-01 14:38:42	026ICSB.d	ICSAB	ICSAB		1.0000
23		2022-03-01 14:44:59	027BLKV.d	Rinse	BlkVrfy		1.0000
24		2022-03-01 14:51:12	028BLKV.d	Rinse	BlkVrfy		1.0000
25		2022-03-01 14:57:25	029_CCV.d	CCV	CCV		1.0000



## Batch Summary Report

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
26		2022-03-01 15:03:40	030_CCB.d	CCB	CCB		1.0000
27		2022-03-01 15:09:55	031ARef.d	MB-164029	AllRef		1.0000
28		2022-03-01 15:16:09	032ARef.d	MB-164095	AllRef		1.0000
29		2022-03-01 15:22:24	033LCS4.d	LCS4-164029	LCS4		1.0000
30		2022-03-01 15:28:37	034LCS4.d	LCS4-164095	LCS4		1.0000
31		2022-03-01 15:34:50	035BLKV.d	Rinse	BlkVrfy		1.0000
32		2022-03-01 15:41:04	036SMPL.d	B22021627-001A	Sample		1.0000
33		2022-03-01 15:47:18	037ARef.d	B22021627-001ADIL	AllRef		5.0000
34		2022-03-01 15:53:32	038MS.d	B22021627-001AMS	MS		1.0300
35		2022-03-01 15:59:46	039MSD.d	B22021627-001AMSD	MSD		1.0300
36		2022-03-01 16:06:00	040BLKV.d	Rinse	BlkVrfy		1.0000
37		2022-03-01 16:12:14	041SMPL.d	B22021627-001B	Sample		1.0000
38		2022-03-01 16:18:28	042SMPL.d	B22021627-001BDIL	Sample		5.0000
39		2022-03-01 16:24:42	043_CCV.d	CCV	CCV		1.0000
40		2022-03-01 16:30:57	044_CCB.d	CCB	CCB		1.0000
41		2022-03-01 16:37:11	045ARef.d	B22021627-001BPDS1	AllRef		1.0300
42		2022-03-01 16:43:25	046MS4.d	B22021627-001BMS4	MS4		1.0000
43		2022-03-01 16:49:40	047MSD4.d	B22021627-001BMSD4	MSD4		1.0000
44		2022-03-01 16:55:53	048BLKV.d	Rinse	BlkVrfy		1.0000
45		2022-03-01 17:02:07	049SMPL.d	B22021627-006A	Sample		1.0000
46		2022-03-01 17:08:22	050SMPL.d	B22021627-006B	Sample		1.0000
47		2022-03-01 17:14:38	051SMPL.d	B22021627-011A	Sample		1.0000
48		2022-03-01 17:20:52	052SMPL.d	B22021627-011B	Sample		1.0000
49		2022-03-01 17:27:05	053_CCV.d	CCV	CCV		1.0000
50		2022-03-01 17:33:20	054_CCB.d	CCB	CCB		1.0000
51		2022-03-01 17:39:36	055CALB.d	Cal Blk	CalBlk	1	1.0000
52		2022-03-01 17:45:59	056CAL.S.d	0.025 ppb STD	CalStd	2	1.0000
53		2022-03-01 17:52:22	057CAL.S.d	0.05 ppb STD	CalStd	3	1.0000
54		2022-03-01 17:58:45	058CAL.S.d	0.10 ppb STD	CalStd	4	1.0000
55		2022-03-01 18:05:08	059CAL.S.d	0.5 ppb STD	CalStd	5	1.0000
56		2022-03-01 18:11:31	060CAL.S.d	1 ppb STD	CalStd	6	1.0000
57		2022-03-01 18:17:54	061CAL.S.d	10 ppb STD	CalStd	7	1.0000

## Batch Summary Report

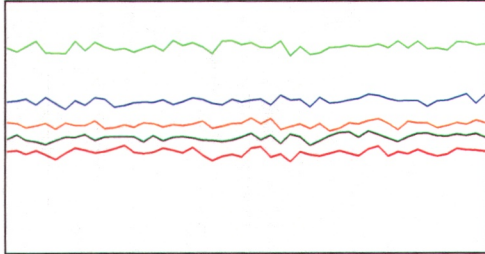
	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
58		2022-03-01 18:24:17	062CAL.S.d	50 ppb STD	CalStd	8	1.0000
59		2022-03-01 18:30:40	063CAL.S.d	100 ppb STD	CalStd	9	1.0000
60		2022-03-01 18:37:03	064CAL.S.d	1000 ppb STD	CalStd	10	1.0000
61		2022-03-01 18:43:27	065CAL.S.d	100 ppb Br STD	CalStd	11	1.0000
62		2022-03-01 18:49:49	066BLKV.d	Rinse	BlkVrfy		1.0000
63		2022-03-01 18:56:03	067 QC1.d	OCS	QC1		1.0000
64		2022-03-01 19:02:18	068BLKV.d	Rinse	BlkVrfy		1.0000
65		2022-03-01 19:08:31	069 CCV.d	CCV	CCV		1.0000
66		2022-03-01 19:14:46	070 CCB.d	CCB	CCB		1.0000
67		2022-03-01 19:21:00	071SMPL.d	B22021763-001A	Sample		1.0000
68		2022-03-01 19:27:14	072SMPL.d	B22021763-001B	Sample		1.0000
69		2022-03-01 19:33:27	073SMPL.d	B22021763-001BDIL	Sample		5.0000
70		2022-03-01 19:39:40	074ARef.d	B22021763-001BPDS1	AllRef		1.0300
71		2022-03-01 19:45:55	075MS4.d	B22021763-001BMS4	MS4		1.0000
72		2022-03-01 19:52:08	076MSD4.d	B22021763-001BMSD4	MSD4		1.0000
73		2022-03-01 19:58:21	077BLKV.d	Rinse	BlkVrfy		1.0000
74		2022-03-01 20:04:34	078SMPL.d	B22021763-006A	Sample		1.0000
75		2022-03-01 20:10:48	079SMPL.d	B22021763-006B	Sample		1.0000
76		2022-03-01 20:17:01	080SMPL.d	B22021763-011A	Sample		1.0000
77		2022-03-01 20:23:15	081SMPL.d	B22021763-011B	Sample		1.0000
78		2022-03-01 20:29:29	082 CCV.d	CCV	CCV		1.0000
79		2022-03-01 20:35:43	083 CCB.d	CCB	CCB		1.0000
80		2022-03-01 20:41:57	084SMPL.d	B22021763-016A	Sample		1.0000
81		2022-03-01 20:48:13	085SMPL.d	B22021763-016B	Sample		1.0000
82		2022-03-01 20:54:27	086 CCV.d	CCV	CCV		1.0000
83		2022-03-01 21:00:42	087 CCB.d	CCB	CCB		1.0000

# Tune Report

Operator Name elim  
 Acq/Data Batch D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
 Acq. Date-Time 2022-03-01 11:32:36  
 Report Comment ICPMS207-B JPV  
 Instrument Name G8403A JP17281923

[No Gas]

## Sensitivity



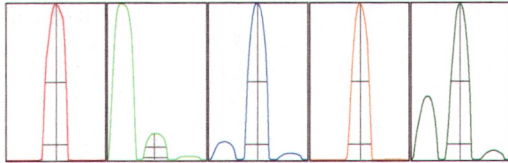
Mass	Range	Count	RSD%	Background
9	500000	197945	3.633	4.200
24	50000	40931	2.079	2.500
59	100000	60028	2.308	2.100
115	100000	50648	2.362	4.400
208	50000	22807	2.821	6.600

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

## Oxide/Doubly Charged Ratio

Oxide 156 / 140 0.998 %  
 Doubly Charged 70 / 140 1.172 %

## Resolution/Axis



Mass	Peak Height	Axis	W-50%	W-10%
9	204508.68	9.05	0.63	0.764
24	41689.92	23.95	0.63	0.737
59	61152.46	59.00	0.60	0.723
115	51196.50	115.05	0.54	0.708
208	22708.22	208.00	0.56	0.733

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

## Tune Parameters

### Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.80 L/min	Dilution Gas	0.12 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	11.6 V	Deflect	15.6 V
Extract 2	-250.0 V	Cell Entrance	-30 V	Plate Bias	-35 V

# Tune Report

Omega Bias -85 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 160 V

## QP Parameters

Mass Gain 125

Axis Gain 0.9990

QP Bias -3.0 V

Mass Offset 126

Axis Offset 0.10

## Hardware Settings

### Torch

Torch H -0.7 mm

Torch V -0.4 mm

### EM

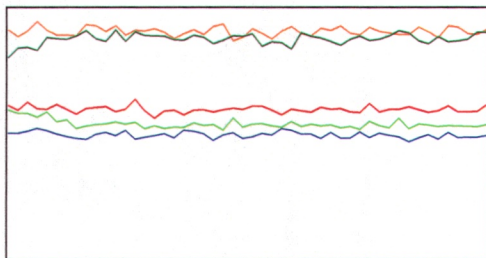
Discriminator 5.2 mV

Analog HV 2346 V

Pulse HV 1801 V

[H2]

## Sensitivity



Mass	Range	Count	RSD%	Background
9	50000	29665	2.235	0.500
24	20000	10718	3.380	0.000
59	50000	24551	2.586	0.300
115	50000	45388	1.931	0.000
208	20000	17561	2.574	0.300

Sampling Period [sec] 0.514

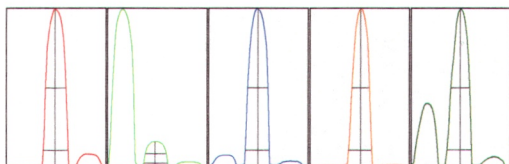
Integration Time [sec] 0.1

## Oxide/Doubly Charged Ratio

Oxide --

Doubly Charged 70 / 140 1.084 %

## Resolution/Axis



Mass	Peak Height	Axis	W-50%	W-10%
9	28975.47	9.00	0.63	0.761
24	10659.16	23.95	0.63	0.733
59	24590.01	59.00	0.61	0.722
115	44990.95	115.05	0.53	0.702
208	17528.73	208.00	0.57	0.734

Integration Time [sec] 0.1

Acquisition Time [sec] 37.4

Y Axis Linear

## Tune Parameters

### Plasma Parameters

# Tune Report

Plasma Mode	---	Nebulizer Gas	0.80 L/min	Dilution Gas	0.12 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	10.7 V	Deflect	3.0 V
Extract 2	-215.0 V	Cell Entrance	-30 V	Plate Bias	-80 V
Omega Bias	-100 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	0.9990	QP Bias	-13.0 V
Mass Offset	126	Axis Offset	0.10		

## Hardware Settings

### Torch

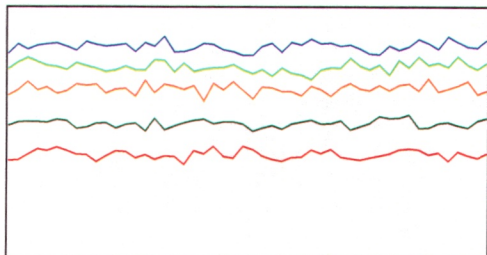
Torch H	-0.7 mm	Torch V	-0.4 mm
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### EM

Discriminator	5.2 mV	Analog HV	2346 V	Pulse HV	1801 V
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[He]

## Sensitivity



Mass	Range	Count	RSD%	Background
9	5000	2057	4.265	2.200
24	2000	1528	2.661	0.800
59	20000	16929	2.203	0.500
115	20000	13552	2.915	1.100
208	20000	10739	2.921	1.700

Sampling Period [sec] 0.514

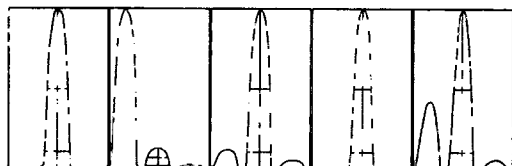
Integration Time [sec] 0.1

## Oxide/Doubly Charged Ratio

Oxide	---
Doubly Charged	70 / 140 1.086 %

## Resolution/Axis

# Tune Report



Mass	Peak Height	Axis	W-50%	W-10%
9	2056.47	9.00	0.62	0.761
24	1565.61	24.00	0.63	0.730
59	17180.02	59.00	0.60	0.719
115	13667.48	115.05	0.52	0.687
208	10733.58	208.00	0.53	0.710

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

## Tune Parameters

### Plasma Parameters

Plasma Mode	—	Nebulizer Gas	0.80 L/min	Dilution Gas	0.12 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	11.4 V	Deflect	0.8 V
Extract 2	-225.0 V	Cell Entrance	-30 V	Plate Bias	-80 V
Omega Bias	-85 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	0.9990	QP Bias	-13.0 V
Mass Offset	126	Axis Offset	0.10		

## Hardware Settings

### Torch

Torch H	-0.7 mm	Torch V	-0.4 mm
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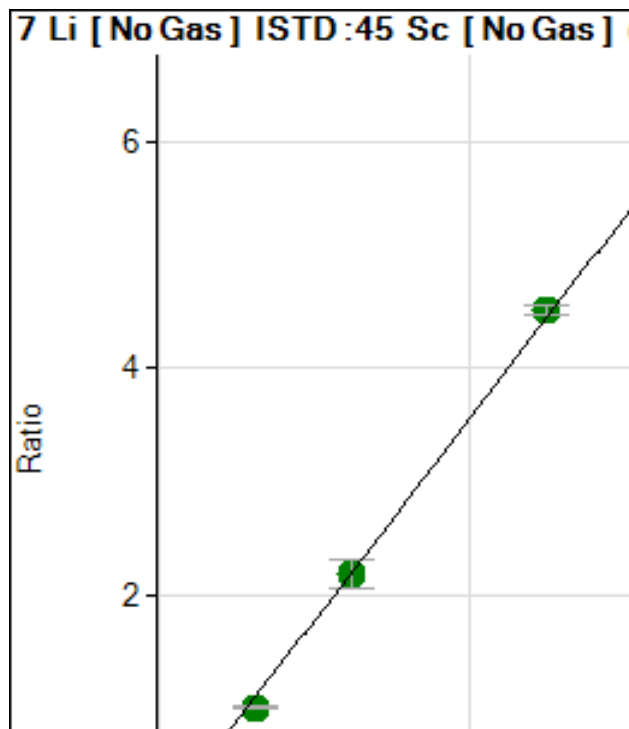
### EM

Discriminator	5.2 mV	Analog HV	2346 V	Pulse HV	1801 V
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Calibration for 016CAL.S.d

Batch Folder: D:\Agilent\ICPMH\1\DATA\220301ADoD.b\  
 Analysis File: 220301ADoD.batch.bin  
 DA Date-Time: 2022-03-01 13:39:15  
 Calibration Title:  
 Calibration Method: External Calibration  
 VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	006CALB.d	Cal Blk	2022-03-01 12:29:43
2	007CAL.S.d	0.025 ppb STD	2022-03-01 12:36:38
3	008CAL.S.d	0.05 ppb STD	2022-03-01 12:43:17
4	009CAL.S.d	0.10 ppb STD	2022-03-01 12:49:56
5	010CAL.S.d	0.5 ppb STD	2022-03-01 12:56:35
6	011CAL.S.d	1 ppb STD	2022-03-01 13:03:14
7	012CAL.S.d	10 ppb STD	2022-03-01 13:09:52
8	013CAL.S.d	50 ppb STD	2022-03-01 13:16:30
9	014CAL.S.d	100 ppb STD	2022-03-01 13:23:06
10	015CAL.S.d	1000 ppb STD	2022-03-01 13:29:39
11	016CAL.S.d	100 ppb Br STD	2022-03-01 13:36:07



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	17595.84	0.004		1.2	
2	<input type="checkbox"/>	0.313	0.247	19295.94	0.004		1.0	-21
3	<input type="checkbox"/>	0.625	0.577	22007.34	0.005		0.2	-7.7
4	<input type="checkbox"/>	1.250	1.159	25603.08	0.006		2.7	-7.3
5	<input type="checkbox"/>	6.250	6.040	59080.83	0.015		4.3	-3.4
6	<input type="checkbox"/>	12.500	11.558	95403.01	0.025		2.7	-7.5
7	<input type="checkbox"/>	125.00	115.71	853045.6	0.210		2.7	-7.4
8	<input type="checkbox"/>	625.00	560.81	3972459.	1.004		1.5	-10
9	<input type="checkbox"/>	1250.0	1225.2	9321960.	2.188		11.	-2.0
10	<input type="checkbox"/>	2500.0	2528.9	19453510	4.511		2.0	1.2
11	<input type="checkbox"/>			37176.16	0.009		17.	

$y = 0.0018 * x + 0.0044$

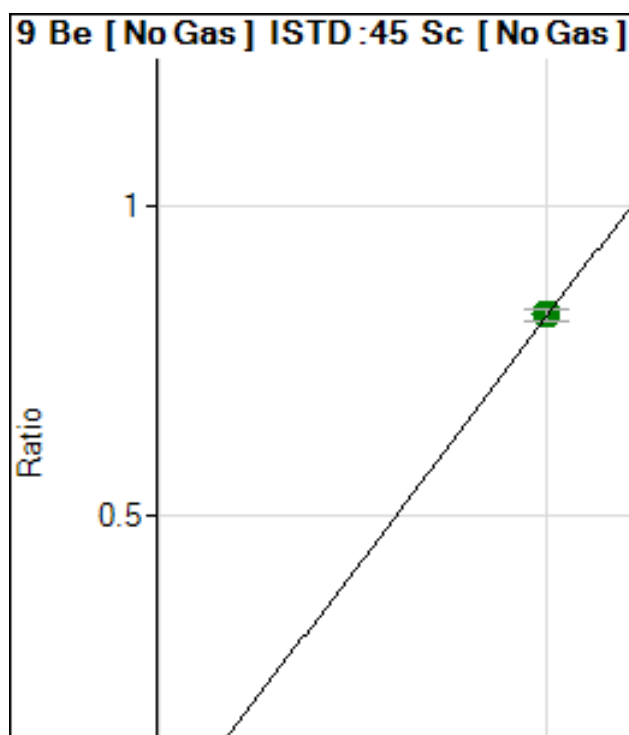
R = 0.9996

DL = 0.08754 ug/l

BEC = 2.491 ug/l

Weight: 1/y

Min Conc: <None>

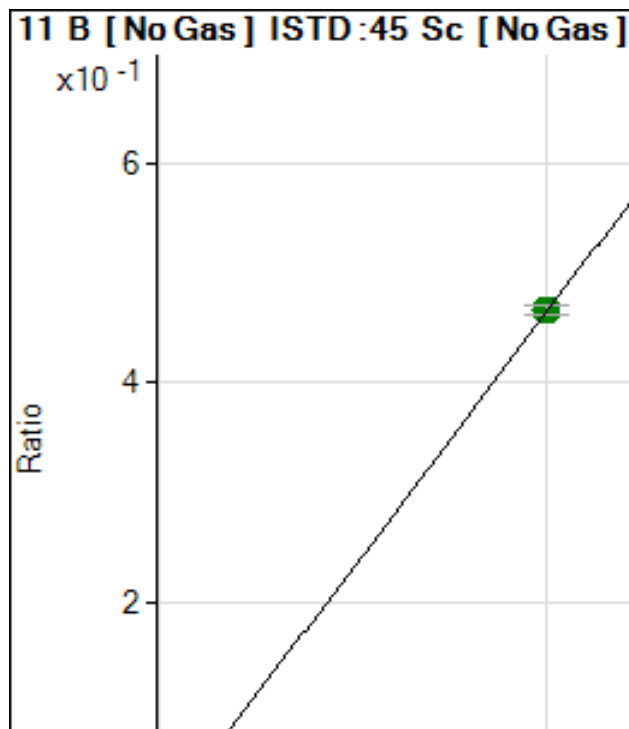


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	409.92	0.000		3.5	
2	<input type="checkbox"/>	0.025	0.010	440.25	0.000		2.7	-61
3	<input type="checkbox"/>	0.050	0.035	531.90	0.000		4.3	-30
4	<input type="checkbox"/>	0.100	0.089	695.88	0.000		4.0	-11
5	<input type="checkbox"/>	0.500	0.459	1871.08	0.000		6.7	-8.3
6	<input type="checkbox"/>	1.000	0.890	3191.04	0.000		3.4	-11
7	<input type="checkbox"/>	10.000	8.975	30397.35	0.007		1.1	-10
8	<input type="checkbox"/>	50.000	45.869	150089.5	0.037		2.5	-8.3
9	<input type="checkbox"/>	100.00	96.544	339669.8	0.079		11.	-3.5
10	<input type="checkbox"/>	1000.0	1000.5	3559368.	0.825		2.6	0.1
11	<input type="checkbox"/>			369.60	0.000		9.6	

$y = 8.2486E-004 * x + 1.0340E-004$

R = 1.0000





	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	623.60	0.000		6.8	
2	<input type="checkbox"/>			621.59	0.000		5.0	
3	<input type="checkbox"/>	0.050	0.014	659.62	0.000		4.9	-71
4	<input type="checkbox"/>	0.100	0.018	651.61	0.000		6.3	-82
5	<input type="checkbox"/>	0.500	0.460	1442.65	0.000		5.9	-7.9
6	<input type="checkbox"/>	1.000	0.890	2174.37	0.000		6.2	-11
7	<input type="checkbox"/>	10.000	9.651	18813.29	0.004		2.6	-3.5
8	<input type="checkbox"/>	50.000	48.260	89434.31	0.022		1.9	-3.5
9	<input type="checkbox"/>	100.00	99.376	197777.4	0.046		9.9	-0.6
10	<input type="checkbox"/>	1000.0	1000.1	2006733.	0.465		2.0	0.0
11	<input type="checkbox"/>			14395.95	0.003		14.	

$y = 4.6509E-004 * x + 1.5728E-004$

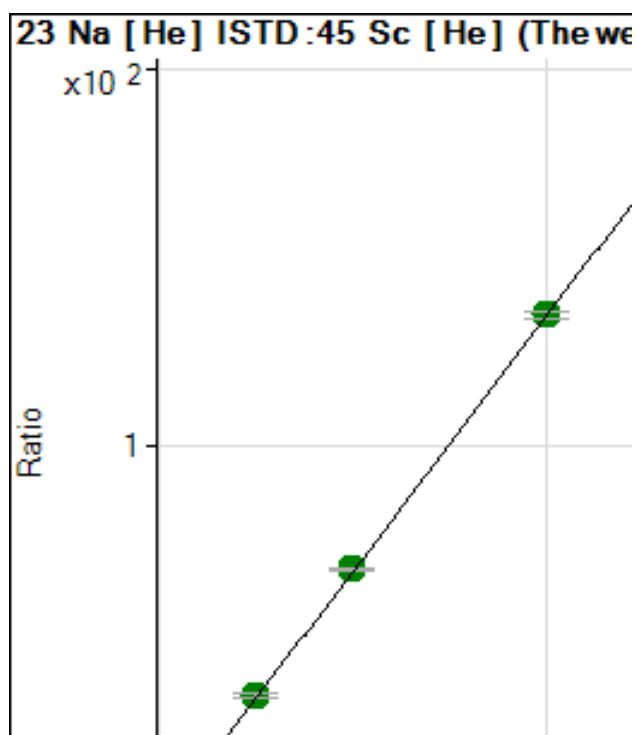
R = 1.0000

DL = 0.06892 ug/l

BEC = 0.3382 ug/l

Weight: 1/y

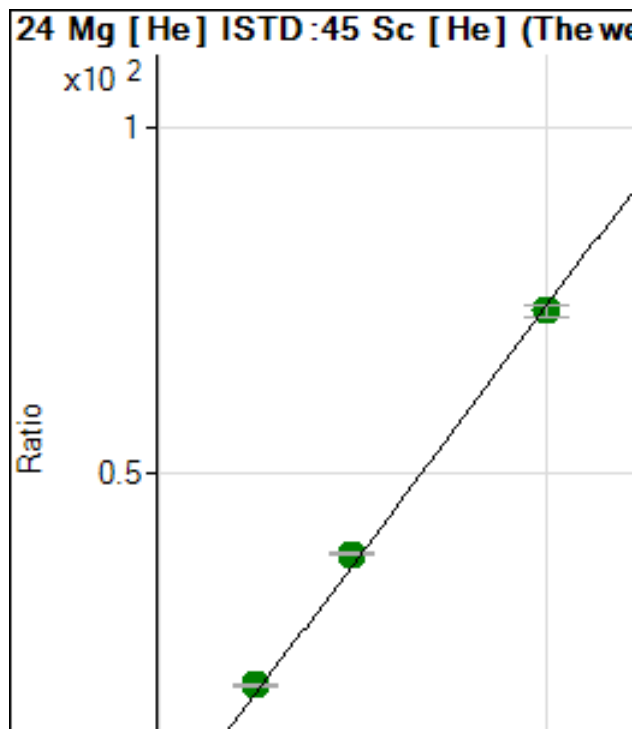
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	62310.41	0.225		0.7	
2	<input type="checkbox"/>	6.250	6.983	67355.36	0.243		1.8	11.7
3	<input type="checkbox"/>	12.500	14.156	72797.02	0.263		0.3	13.2
4	<input type="checkbox"/>	25.000	28.740	83117.83	0.302		2.3	15.0
5	<input type="checkbox"/>	125.00	142.01	163222.3	0.607		1.3	13.6
6	<input type="checkbox"/>	250.00	290.47	265936.9	1.008		1.9	16.2
7	<input type="checkbox"/>	2500.0	2777.9	2139958.	7.714		1.0	11.1
8	<input type="checkbox"/>	12500.	12637.	9934952.	34.29		3.0	1.1
9	<input type="checkbox"/>	25000.	24979.	21330069	67.56		1.1	-0.1
10	<input type="checkbox"/>	50000.	49961.	42561861	134.9		1.7	-0.1
11	<input type="checkbox"/>			64081.08	0.218		1.4	

$y = 0.0027 * x + 0.2250$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t.	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	1533.71	0.005		7.3	
2	<input type="checkbox"/>	6.250	7.880	4771.31	0.017		1.7	26.1
3	<input type="checkbox"/>	12.500	17.317	8662.00	0.031		3.2	38.5
4	<input type="checkbox"/>	25.000	33.273	15127.71	0.055		4.3	33.1
5	<input type="checkbox"/>	125.00	146.68	60134.40	0.223		2.1	17.3
6	<input type="checkbox"/>	250.00	301.88	120016.9	0.454		2.1	20.8
7	<input type="checkbox"/>	2500.0	2890.1	1194923.	4.307		2.6	15.6
8	<input type="checkbox"/>	12500.	13158.	5676705.	19.59		2.4	5.3
9	<input type="checkbox"/>	25000.	25874.	12160533	38.52		0.9	3.5
10	<input type="checkbox"/>	50000.	49378.	23188588	73.51		2.4	-1.2
11	<input type="checkbox"/>			1374.00	0.004		9.3	

$y = 0.0015 * x + 0.0055$

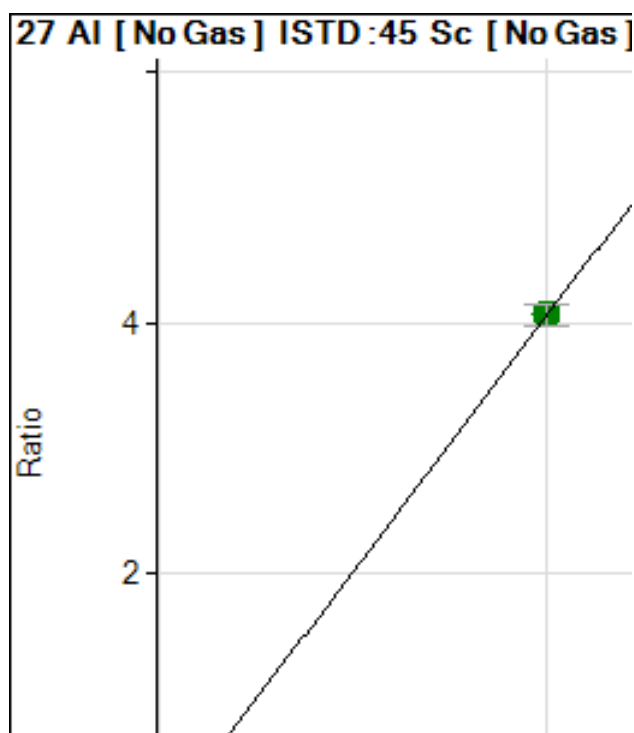
$R = 0.9997$

DL = 0.8178 ug/l

BEC = 3.72 ug/l

Weight: 1/y

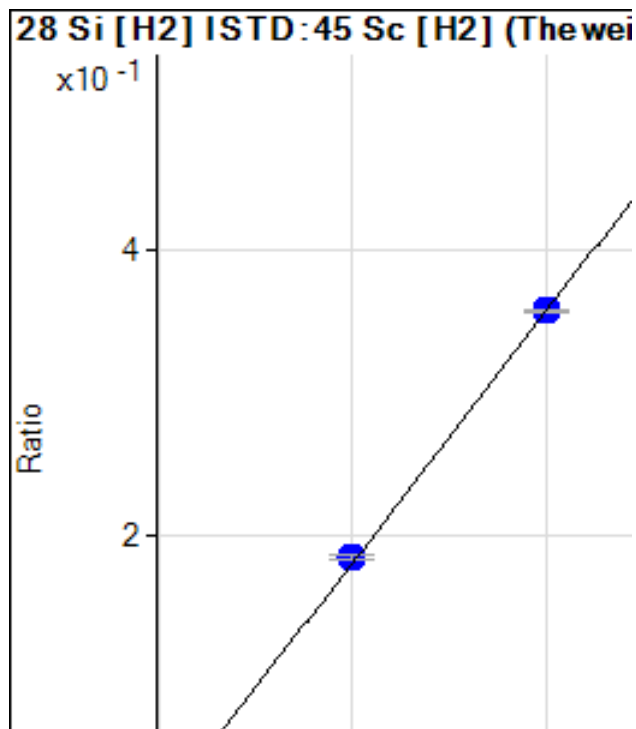
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t.	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	10193.52	0.002		2.1	
2	<input type="checkbox"/>			13212.54	0.003		1.8	
3	<input type="checkbox"/>	0.050	0.216	13877.58	0.003		1.4	331
4	<input type="checkbox"/>	0.100	0.273	14482.59	0.003		1.0	172
5	<input type="checkbox"/>	0.500	0.730	21514.37	0.005		4.5	46.0
6	<input type="checkbox"/>	1.000	1.312	30113.64	0.007		2.8	31.2
7	<input type="checkbox"/>	10.000	10.416	181792.7	0.044		1.8	4.2
8	<input type="checkbox"/>	50.000	50.776	826308.3	0.208		3.7	1.6
9	<input type="checkbox"/>	100.00	98.875	1721919.	0.404		12.	-1.1
10	<input type="checkbox"/>	1000.0	1000.0	17529291	4.066		4.4	0.0
11	<input type="checkbox"/>			12815.56	0.003		11.	

$y = 0.0041 * x + 0.0026$

$R = 1.0000$



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	16221.28	0.007		1.6	
2	<input type="checkbox"/>			17167.36	0.007		1.0	
3	<input type="checkbox"/>	0.200	0.584	17459.89	0.007		0.6	191
4	<input type="checkbox"/>	0.400	0.584	17218.15	0.007		0.4	46.0
5	<input type="checkbox"/>	2.000	2.384	20887.57	0.009		2.3	19.2
6	<input type="checkbox"/>	4.000	4.667	25179.22	0.011		2.3	16.7
7	<input type="checkbox"/>	40.000	42.064	100465.0	0.044		1.1	5.2
8	<input type="checkbox"/>	200.00	202.14	424423.6	0.184		1.2	1.1
9	<input type="checkbox"/>	400.00	398.71	852573.4	0.357		0.7	-0.3
10	<input type="checkbox"/>			21114.64	0.008		1.8	
11	<input type="checkbox"/>			19657.43	0.008		0.6	

$y = 8.7857E-004 * x + 0.0070$

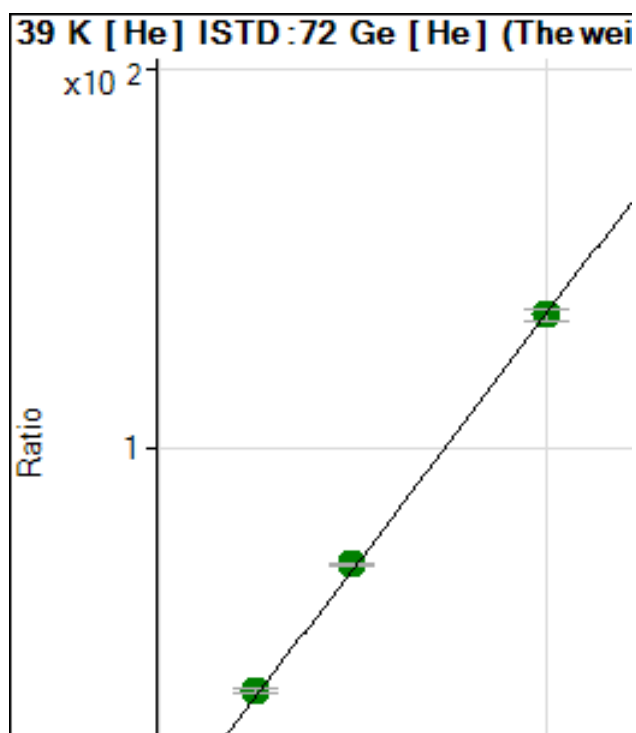
R = 1.0000

DL = 0.3738 ug/l

BEC = 8.007 ug/l

Weight: 1/y

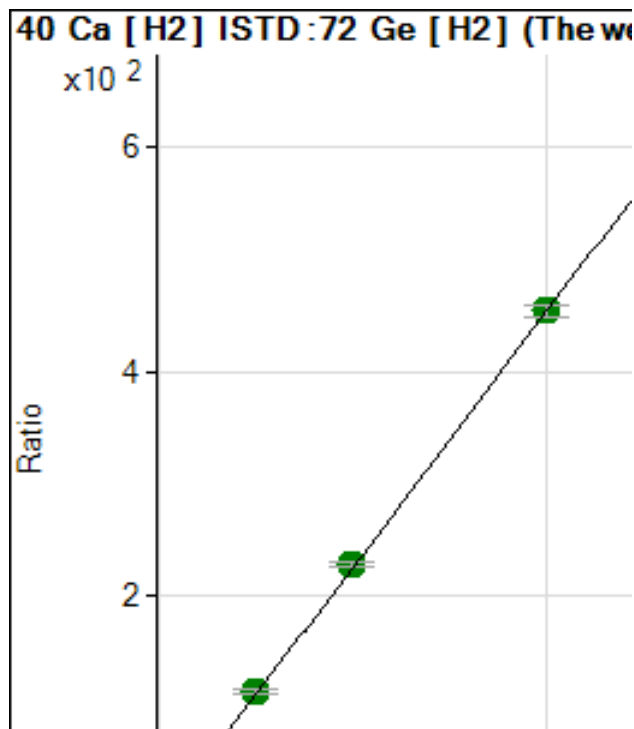
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	114747.1	0.690		1.2	
2	<input type="checkbox"/>	6.250	7.154	120254.8	0.710		2.3	14.5
3	<input type="checkbox"/>	12.500	12.685	121888.0	0.725		1.3	1.5
4	<input type="checkbox"/>	25.000	30.092	128066.5	0.772		1.0	20.4
5	<input type="checkbox"/>	125.00	134.15	171916.6	1.053		3.1	7.3
6	<input type="checkbox"/>	250.00	268.19	227932.1	1.415		0.1	7.3
7	<input type="checkbox"/>	2500.0	2844.8	1382170.	8.379		1.5	13.8
8	<input type="checkbox"/>	12500.	12912.	6252066.	35.58		3.2	3.3
9	<input type="checkbox"/>	25000.	25283.	12915486	69.02		0.4	1.1
10	<input type="checkbox"/>	50000.	49737.	25837122	135.1		2.2	-0.5
11	<input type="checkbox"/>			489193.0	2.796		1.3	

$y = 0.0027 * x + 0.6909$

R = 0.9999



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	162498.8	0.202		4.1	
2	<input type="checkbox"/>	6.250	9.598	228958.7	0.289		1.8	53.6
3	<input type="checkbox"/>	12.500	19.529	295449.5	0.379		1.6	56.2
4	<input type="checkbox"/>	25.000	34.829	398742.2	0.519		2.6	39.3
5	<input type="checkbox"/>	125.00	148.08	1185360.	1.549		2.1	18.5
6	<input type="checkbox"/>	250.00	290.51	2225017.	2.844		0.4	16.2
7	<input type="checkbox"/>	2500.0	2785.5	20031516	25.53		0.6	11.4
8	<input type="checkbox"/>	12500.	12594.	92035468	114.7		3.7	0.8
9	<input type="checkbox"/>	25000.	25079.	18918747	228.3		1.5	0.3
10	<input type="checkbox"/>	50000.	49921.	37278404	454.3		2.5	-0.2
11	<input type="checkbox"/>			179186.5	0.226		2.4	

$y = 0.0091 * x + 0.2022$

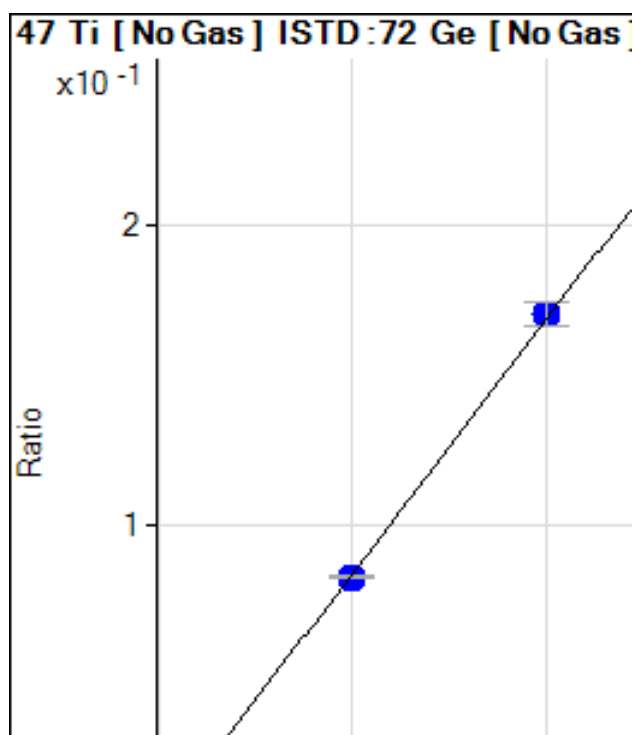
R = 1.0000

DL = 2.704 ug/l

BEC = 22.23 ug/l

Weight: 1/y

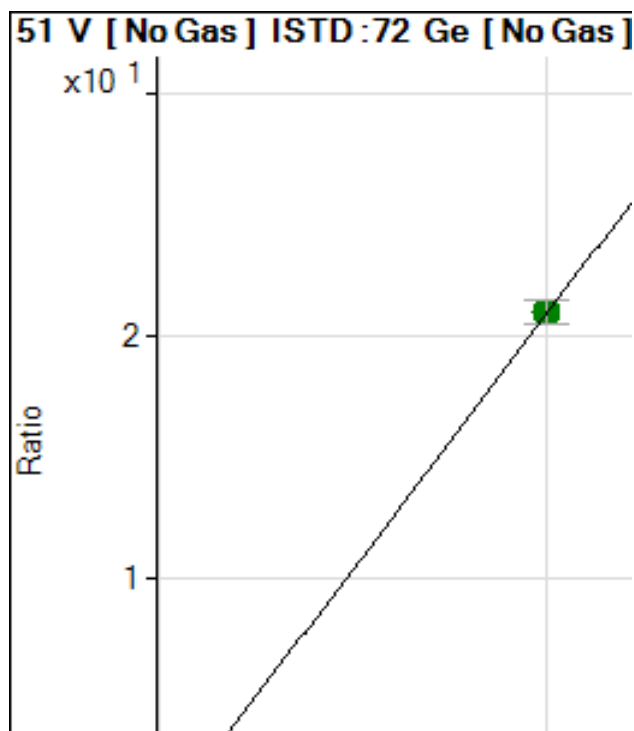
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	296.97	0.000		15.	
2	<input type="checkbox"/>	0.025	0.110	480.49	0.000		2.1	339
3	<input type="checkbox"/>	0.050	0.149	538.89	0.000		12.	198
4	<input type="checkbox"/>	0.100	0.173	582.27	0.000		8.7	73.3
5	<input type="checkbox"/>	0.500	0.600	1326.40	0.001		6.5	20.1
6	<input type="checkbox"/>	1.000	1.185	2242.43	0.002		2.2	18.5
7	<input type="checkbox"/>	10.000	10.714	18695.75	0.018		3.1	7.1
8	<input type="checkbox"/>	50.000	48.727	84348.42	0.082		1.2	-2.5
9	<input type="checkbox"/>	100.00	100.56	184623.1	0.169		4.6	0.6
10	<input type="checkbox"/>			12833.55	0.011		3.9	
11	<input type="checkbox"/>			542.22	0.000		16.	

$y = 0.0017 * x + 2.8545E-004$

R = 0.9999



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	-26350.68	-0.02		-10	
2	<input type="checkbox"/>	0.025	-1.031	-44786.96	-0.04		-21	-422
3	<input type="checkbox"/>	0.050	-0.986	-46094.81	-0.04		-18.	-207
4	<input type="checkbox"/>	0.100	-2.015	-67570.56	-0.06		-11	-211
5	<input type="checkbox"/>	0.500	0.092	-23536.58	-0.02		-14	-81
6	<input type="checkbox"/>	1.000	1.325	2905.35	0.002		147	32.5
7	<input type="checkbox"/>	10.000	9.557	179276.4	0.175		10.	-4.4
8	<input type="checkbox"/>	50.000	47.698	998391.3	0.976		9.9	-4.6
9	<input type="checkbox"/>	100.00	93.869	2117697.	1.945		3.3	-6.1
10	<input type="checkbox"/>	1000.0	1000.7	22780779	20.98		4.8	0.1
11	<input type="checkbox"/>			-22124.80	-0.02		-57.	

$y = 0.0210 * x - 0.0252$

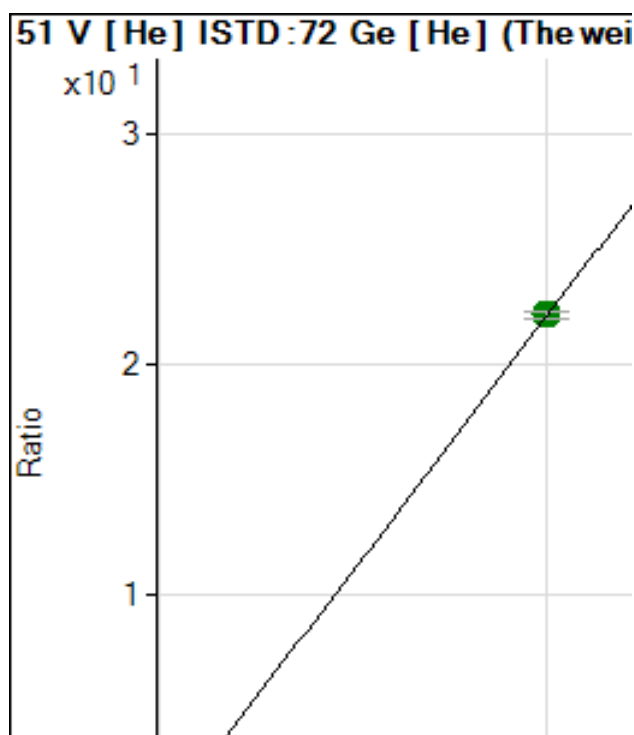
R = 1.0000

DL = 3.804 ug/l

BEC = -1.202 ug/l

Weight: 1/y

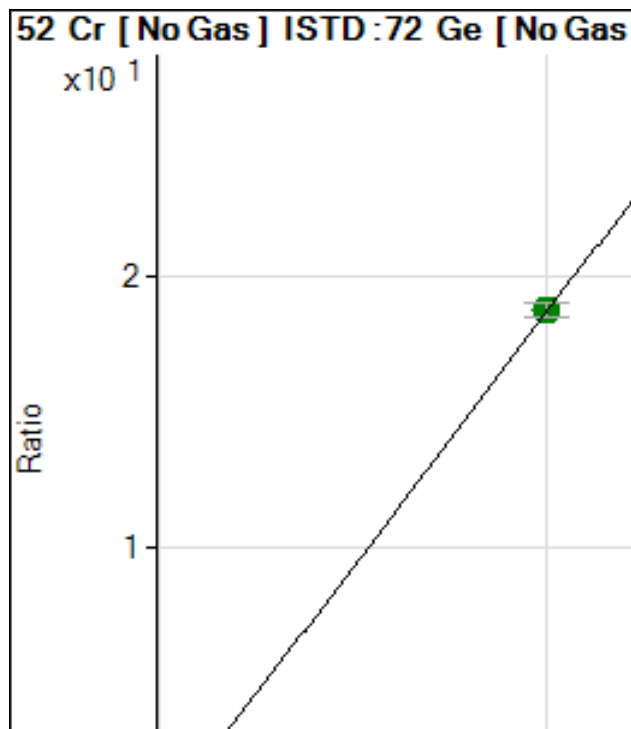
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	15371.48	0.092		0.9	
2	<input type="checkbox"/>	0.025	0.173	16320.27	0.096		1.6	591
3	<input type="checkbox"/>	0.050	0.321	16739.61	0.099		0.5	541
4	<input type="checkbox"/>	0.100	0.433	16927.60	0.102		0.8	333
5	<input type="checkbox"/>	0.500	0.549	17068.86	0.104		5.2	9.9
6	<input type="checkbox"/>	1.000	0.753	17568.40	0.109		3.4	-24
7	<input type="checkbox"/>	10.000	9.644	50291.49	0.304		2.1	-3.6
8	<input type="checkbox"/>	50.000	50.234	210569.7	1.198		4.0	0.5
9	<input type="checkbox"/>	100.00	97.318	418352.1	2.235		0.7	-2.7
10	<input type="checkbox"/>	1000.0	1000.2	4230116.	22.11		1.3	0.0
11	<input type="checkbox"/>			11622.42	0.066		3.1	

$y = 0.0220 * x + 0.0925$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	54890.84	0.052		2.0	
2	<input type="checkbox"/>	0.025	0.235	58319.88	0.057		4.4	840
3	<input type="checkbox"/>	0.050	0.308	58671.12	0.058		3.0	516
4	<input type="checkbox"/>	0.100	0.267	58243.79	0.057		1.5	167
5	<input type="checkbox"/>	0.500	0.692	67247.49	0.065		2.6	38.4
6	<input type="checkbox"/>	1.000	1.017	70438.85	0.071		1.9	1.7
7	<input type="checkbox"/>	10.000	10.737	257425.3	0.253		6.8	7.4
8	<input type="checkbox"/>	50.000	51.115	1029253.	1.006		1.9	2.2
9	<input type="checkbox"/>	100.00	98.025	2046065.	1.881		2.8	-2.0
10	<input type="checkbox"/>	1000.0	1000.1	20310813	18.70		2.9	0.0
11	<input type="checkbox"/>			57508.52	0.054		10.	

$y = 0.0187 * x + 0.0528$

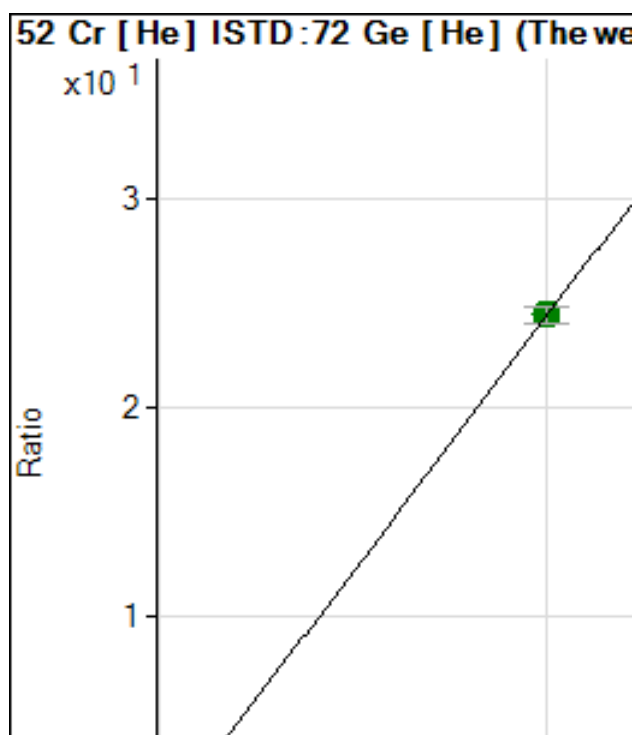
R = 1.0000

DL = 0.1721 ug/l

BEC = 2.831 ug/l

Weight: 1/y

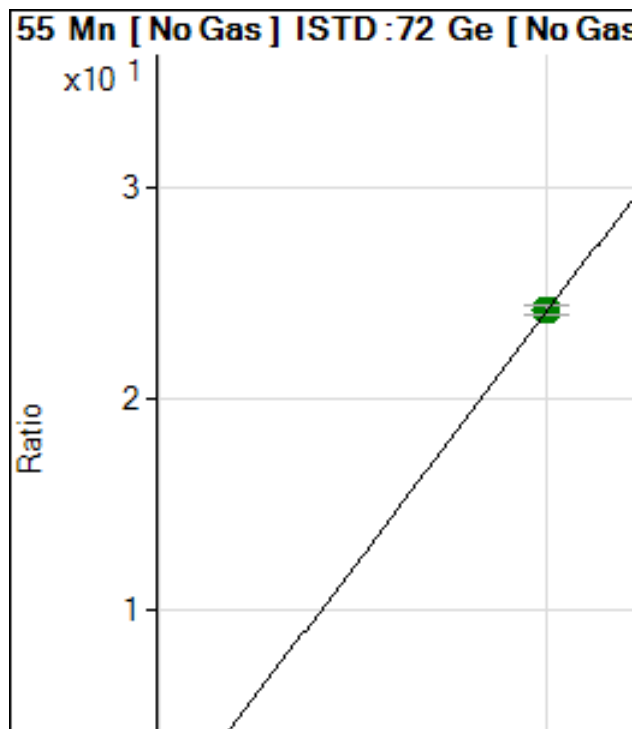
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	1044.49	0.006		6.1	
2	<input type="checkbox"/>	0.025	0.048	1264.51	0.007		4.9	92.7
3	<input type="checkbox"/>	0.050	0.067	1331.18	0.007		4.5	33.3
4	<input type="checkbox"/>	0.100	0.118	1521.20	0.009		2.9	18.0
5	<input type="checkbox"/>	0.500	0.579	3333.73	0.020		3.3	15.7
6	<input type="checkbox"/>	1.000	1.144	5515.51	0.034		2.0	14.4
7	<input type="checkbox"/>	10.000	11.070	45660.97	0.276		2.7	10.7
8	<input type="checkbox"/>	50.000	50.228	216811.8	1.234		2.8	0.5
9	<input type="checkbox"/>	100.00	100.72	461821.2	2.468		2.3	0.7
10	<input type="checkbox"/>	1000.0	999.90	4675300.	24.44		3.0	0.0
11	<input type="checkbox"/>			1336.73	0.007		3.0	

$y = 0.0244 * x + 0.0063$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	4801.29	0.004		1.6	
2	<input type="checkbox"/>	0.025	0.047	5866.22	0.005		3.2	87.1
3	<input type="checkbox"/>	0.050	0.077	6488.60	0.006		6.4	53.5
4	<input type="checkbox"/>	0.100	0.132	7883.17	0.007		6.3	32.3
5	<input type="checkbox"/>	0.500	0.553	18388.49	0.018		4.1	10.5
6	<input type="checkbox"/>	1.000	1.170	32304.77	0.032		2.3	17.0
7	<input type="checkbox"/>	10.000	11.124	278630.7	0.273		2.6	11.2
8	<input type="checkbox"/>	50.000	51.517	1278889.	1.250		1.0	3.0
9	<input type="checkbox"/>	100.00	101.44	2668917.	2.456		5.2	1.4
10	<input type="checkbox"/>	1000.0	999.76	26249339	24.17		2.0	0.0
11	<input type="checkbox"/>			12720.30	0.012		9.1	

$y = 0.0242 * x + 0.0046$

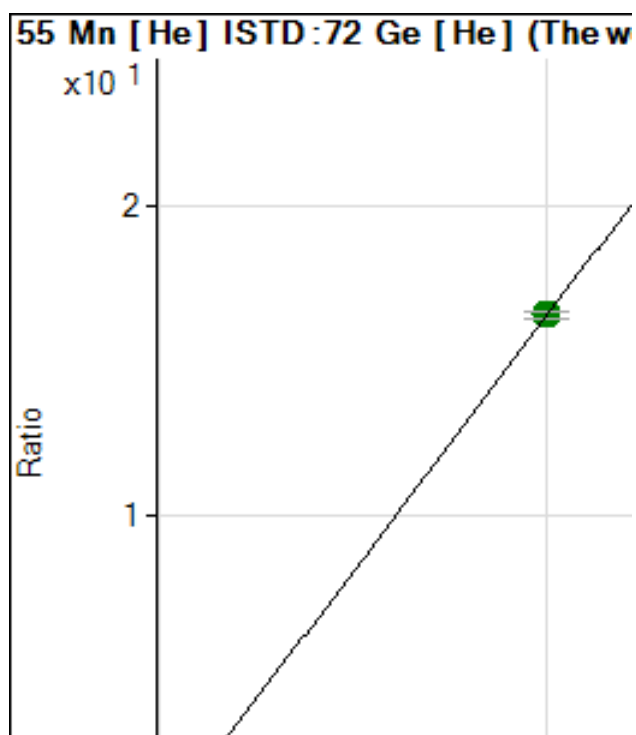
R = 1.0000

DL = 0.008905 ug/l

BEC = 0.1911 ug/l

Weight: 1/y

Min Conc: <None>

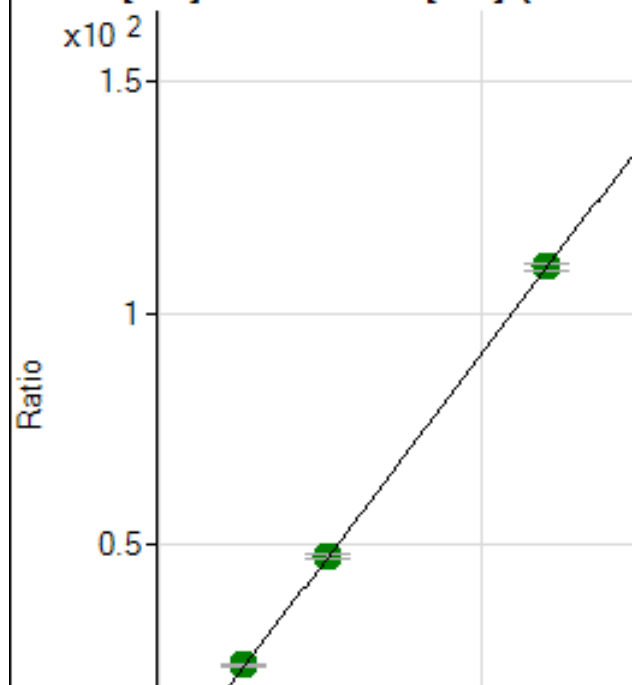


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	94.98	0.000		7.1	
2	<input type="checkbox"/>	0.025	0.028	175.97	0.001		10.	13.8
3	<input type="checkbox"/>	0.050	0.069	285.95	0.001		1.4	37.1
4	<input type="checkbox"/>	0.100	0.125	435.92	0.002		6.3	24.8
5	<input type="checkbox"/>	0.500	0.561	1602.10	0.009		2.6	12.2
6	<input type="checkbox"/>	1.000	1.176	3210.71	0.019		2.7	17.6
7	<input type="checkbox"/>	10.000	11.347	30927.88	0.187		1.9	13.5
8	<input type="checkbox"/>	50.000	52.150	151055.2	0.859		2.2	4.3
9	<input type="checkbox"/>	100.00	102.51	316144.5	1.689		0.5	2.5
10	<input type="checkbox"/>	1000.0	999.62	3149405.	16.46		1.5	0.0
11	<input type="checkbox"/>			167.30	0.001		18.	

$y = 0.0165 * x + 5.7176E-004$

R = 1.0000

56 Fe [H2] ISTD :72 Ge [H2] (The we



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	9746.40	0.012		2.4	
2	<input type="checkbox"/>	0.650	1.000	24097.26	0.030		3.8	53.9
3	<input type="checkbox"/>	1.300	1.767	34643.94	0.044		1.6	35.9
4	<input type="checkbox"/>	2.600	3.330	56253.76	0.073		2.7	28.1
5	<input type="checkbox"/>	13.000	14.906	218504.6	0.285		2.0	14.7
6	<input type="checkbox"/>	26.000	29.731	436111.7	0.557		1.9	14.4
7	<input type="checkbox"/>	260.00	291.39	4201743.	5.357		3.5	12.1
8	<input type="checkbox"/>	1300.0	1316.0	19374959	24.15		1.7	1.2
9	<input type="checkbox"/>	2600.0	2594.7	39451334	47.61		2.0	-0.2
10	<input type="checkbox"/>	6000.0	5997.4	90283549	110.0		1.2	0.0
11	<input type="checkbox"/>			19908.56	0.025		3.7	

$y = 0.0183 * x + 0.0121$

R = 1.0000

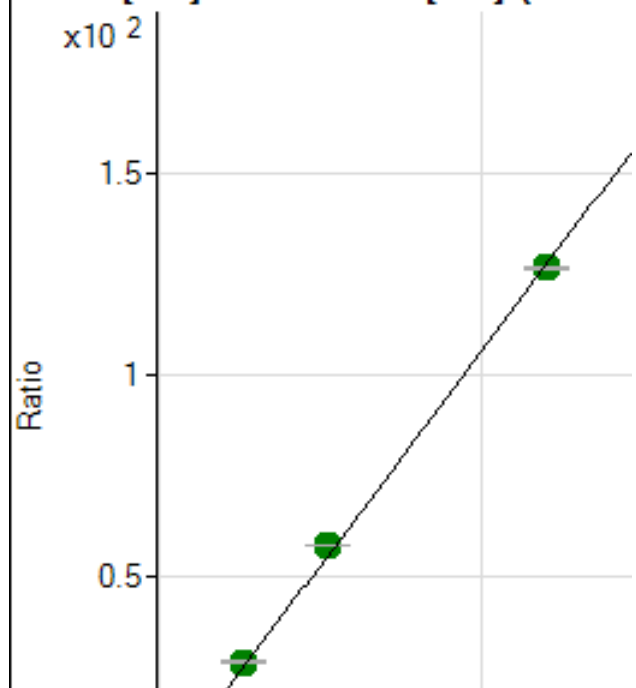
DL = 0.04678 ug/l

BEC = 0.661 ug/l

Weight: 1/y

Min Conc: <None>

56 Fe [He] ISTD :72 Ge [He] (The we

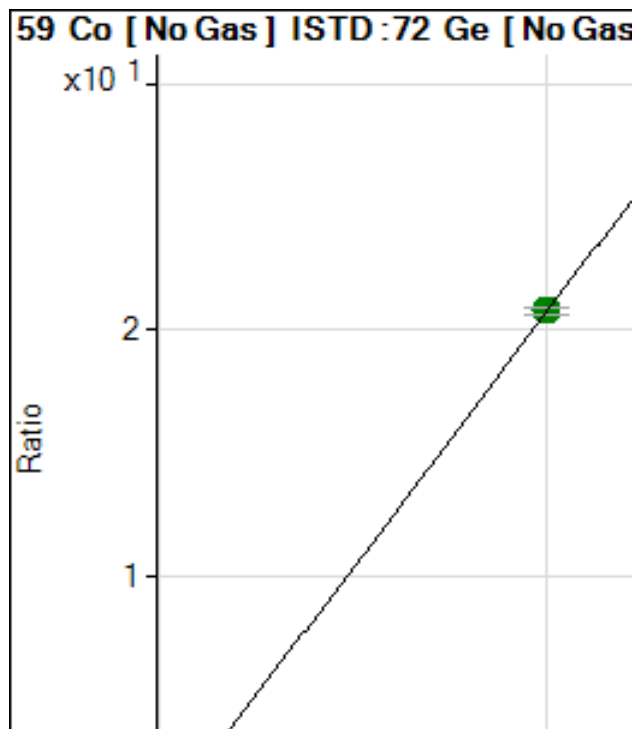


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	6022.31	0.036		2.3	
2	<input type="checkbox"/>	0.650	1.000	9748.07	0.057		2.3	53.8
3	<input type="checkbox"/>	1.300	1.858	12741.72	0.075		3.5	42.9
4	<input type="checkbox"/>	2.600	3.359	17877.24	0.107		0.7	29.2
5	<input type="checkbox"/>	13.000	14.859	57565.84	0.352		2.3	14.3
6	<input type="checkbox"/>	26.000	31.046	112285.7	0.697		1.2	19.4
7	<input type="checkbox"/>	260.00	305.16	1077849.	6.535		2.2	17.4
8	<input type="checkbox"/>	1300.0	1346.5	5044587.	28.71		2.8	3.6
9	<input type="checkbox"/>	2600.0	2704.2	10783869	57.62		0.6	4.0
10	<input type="checkbox"/>	6000.0	5942.7	24210333	126.5		0.6	-1.0
11	<input type="checkbox"/>			9606.15	0.054		1.6	

$y = 0.0213 * x + 0.0363$

R = 0.9998





	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t.	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	349.31	0.000		26.	
2	<input type="checkbox"/>	0.025	0.027	918.22	0.000		4.2	8.2
3	<input type="checkbox"/>	0.050	0.070	1783.24	0.001		5.5	39.1
4	<input type="checkbox"/>	0.100	0.120	2844.64	0.002		1.5	19.7
5	<input type="checkbox"/>	0.500	0.548	11974.58	0.011		6.3	9.5
6	<input type="checkbox"/>	1.000	1.146	23685.64	0.024		2.7	14.6
7	<input type="checkbox"/>	10.000	10.910	231092.4	0.226		2.9	9.1
8	<input type="checkbox"/>	50.000	50.842	1080596.	1.056		2.1	1.7
9	<input type="checkbox"/>	100.00	97.975	2212659.	2.035		2.7	-2.0
10	<input type="checkbox"/>	1000.0	1000.1	22553455	20.77		1.4	0.0
11	<input type="checkbox"/>			532.29	0.000		22.	

$y = 0.0208 * x + 3.3632E-004$

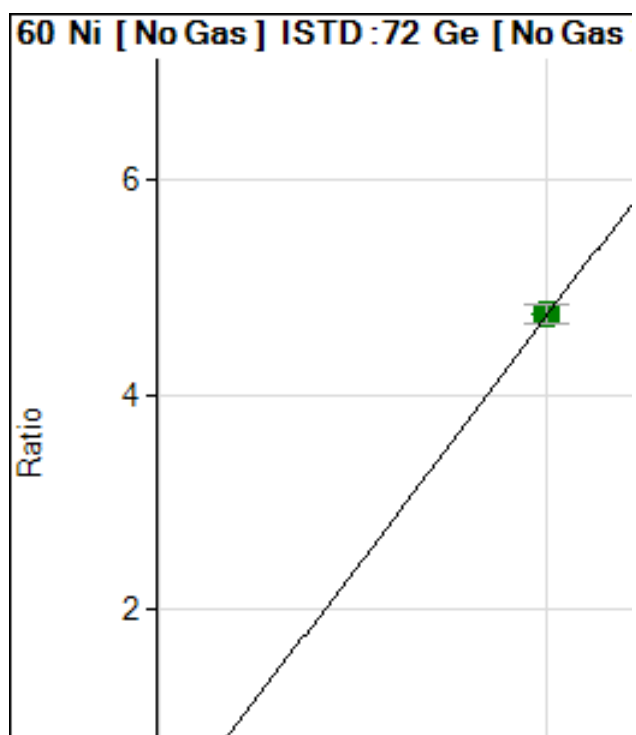
R = 1.0000

DL = 0.01277 ug/l

BEC = 0.01619 ug/l

Weight: 1/y

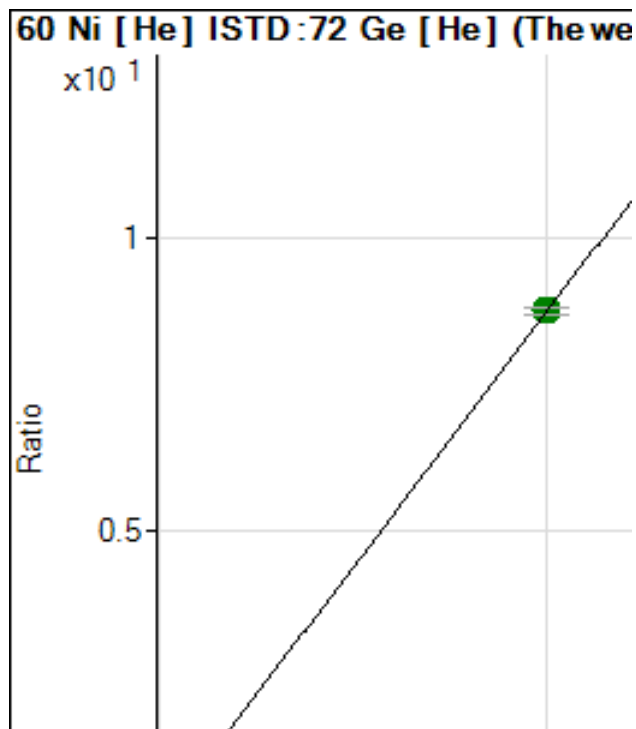
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t.	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	1187.70	0.001		4.1	
2	<input type="checkbox"/>	0.025	-0.015	1091.21	0.001		15.	-158
3	<input type="checkbox"/>	0.050	0.017	1227.63	0.001		14.	-65
4	<input type="checkbox"/>	0.100	0.073	1500.44	0.001		4.8	-27
5	<input type="checkbox"/>	0.500	0.514	3669.87	0.003		4.1	2.9
6	<input type="checkbox"/>	1.000	1.119	6335.56	0.006		1.9	11.9
7	<input type="checkbox"/>	10.000	10.371	51301.70	0.050		2.3	3.7
8	<input type="checkbox"/>	50.000	49.887	243372.5	0.237		1.8	-0.2
9	<input type="checkbox"/>	100.00	97.563	504438.7	0.464		5.2	-2.4
10	<input type="checkbox"/>	1000.0	1000.2	5155322.	4.748		3.7	0.0
11	<input type="checkbox"/>			1473.82	0.001		10.	

$y = 0.0047 * x + 0.0011$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	175.56	0.001		2.3	
2	<input type="checkbox"/>	0.025	0.056	261.12	0.001		22.	122
3	<input type="checkbox"/>	0.050	0.078	292.23	0.001		9.7	55.8
4	<input type="checkbox"/>	0.100	0.164	413.34	0.002		8.4	63.9
5	<input type="checkbox"/>	0.500	0.605	1037.82	0.006		3.9	21.1
6	<input type="checkbox"/>	1.000	1.154	1797.90	0.011		4.1	15.4
7	<input type="checkbox"/>	10.000	11.884	17339.27	0.105		4.5	18.8
8	<input type="checkbox"/>	50.000	54.096	83429.67	0.475		4.0	8.2
9	<input type="checkbox"/>	100.00	105.92	173845.3	0.929		2.3	5.9
10	<input type="checkbox"/>	1000.0	999.18	1674181.	8.754		1.1	-0.1
11	<input type="checkbox"/>			250.00	0.001		4.7	

$y = 0.0088 * x + 0.0011$

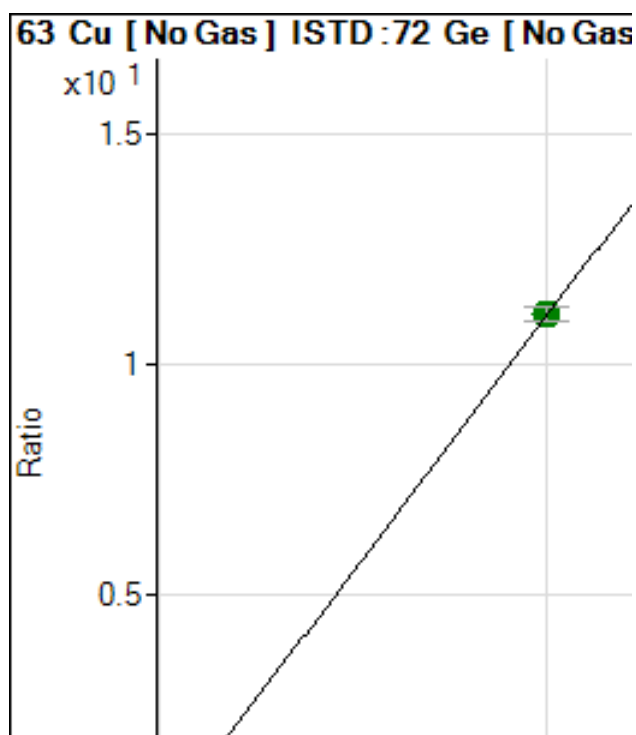
R = 1.0000

DL = 0.008223 ug/l

BEC = 0.1207 ug/l

Weight: 1/y

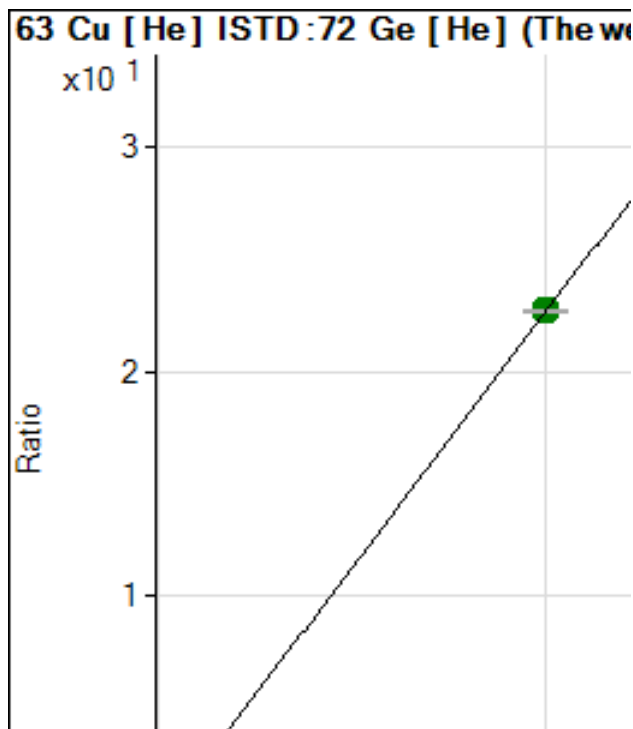
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	3381.09	0.003		5.4	
2	<input type="checkbox"/>	0.025	0.023	3578.55	0.003		4.8	-8.0
3	<input type="checkbox"/>	0.050	0.029	3587.22	0.003		3.8	-41
4	<input type="checkbox"/>	0.100	0.060	3946.12	0.003		4.9	-40
5	<input type="checkbox"/>	0.500	0.491	8894.29	0.008		2.9	-1.8
6	<input type="checkbox"/>	1.000	1.108	15244.74	0.015		3.0	10.8
7	<input type="checkbox"/>	10.000	11.447	132501.7	0.130		4.1	14.5
8	<input type="checkbox"/>	50.000	52.389	597501.6	0.584		1.4	4.8
9	<input type="checkbox"/>	100.00	101.82	1230197.	1.132		4.1	1.8
10	<input type="checkbox"/>	1000.0	999.68	12035979	11.08		2.7	0.0
11	<input type="checkbox"/>			4745.35	0.004		9.6	

$y = 0.0111 * x + 0.0033$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	556.23	0.003		1.4	
2	<input type="checkbox"/>	0.025	0.030	683.21	0.004		1.0	20.8
3	<input type="checkbox"/>	0.050	0.058	786.20	0.004		1.5	17.0
4	<input type="checkbox"/>	0.100	0.120	1008.84	0.006		5.1	20.4
5	<input type="checkbox"/>	0.500	0.602	2776.04	0.017		6.3	20.4
6	<input type="checkbox"/>	1.000	1.249	5107.88	0.031		0.2	24.9
7	<input type="checkbox"/>	10.000	12.142	46034.05	0.279		2.5	21.4
8	<input type="checkbox"/>	50.000	54.279	217157.7	1.236		3.3	8.6
9	<input type="checkbox"/>	100.00	104.21	443548.0	2.370		0.9	4.2
10	<input type="checkbox"/>	1000.0	999.34	4341301.	22.70		0.6	-0.1
11	<input type="checkbox"/>			789.53	0.004		6.9	

$y = 0.0227 * x + 0.0033$

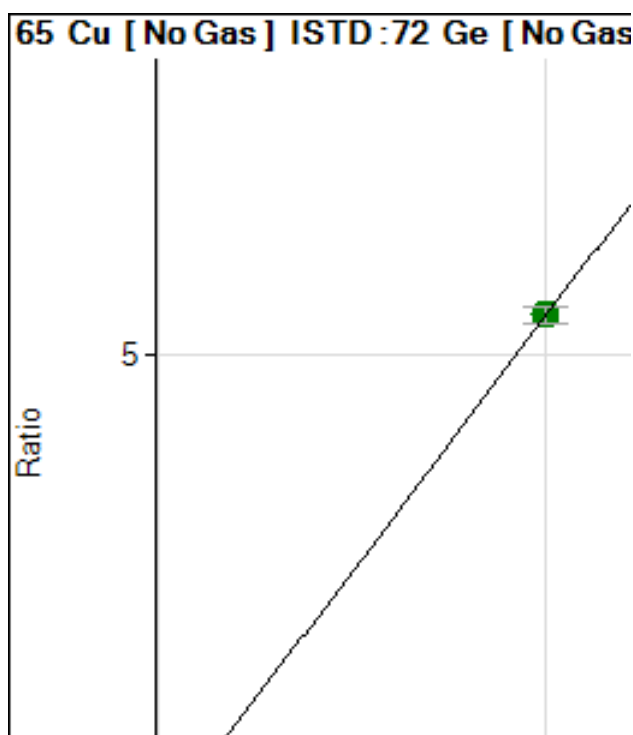
R = 1.0000

DL = 0.006179 ug/l

BEC = 0.1474 ug/l

Weight: 1/y

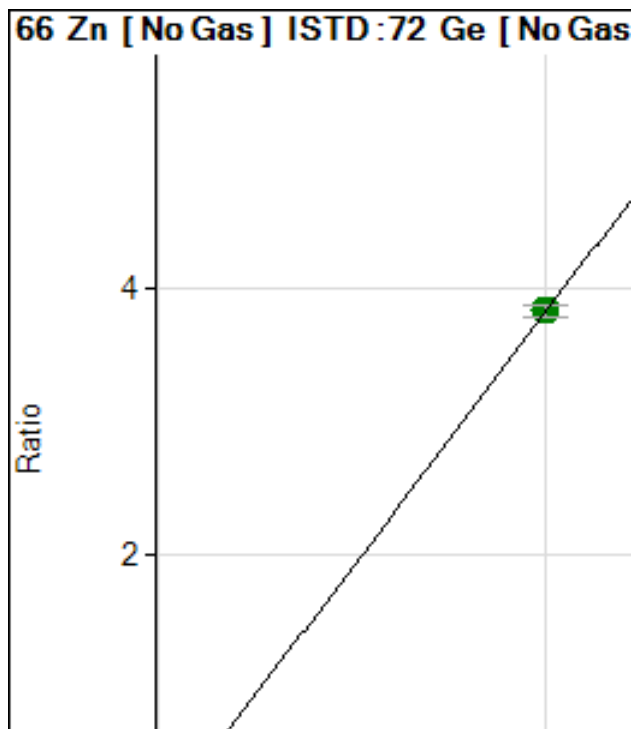
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	843.70	0.000		7.0	
2	<input type="checkbox"/>	0.025	0.037	1030.45	0.001		5.6	46.6
3	<input type="checkbox"/>	0.050	0.058	1126.50	0.001		4.8	15.3
4	<input type="checkbox"/>	0.100	0.121	1482.67	0.001		1.6	21.5
5	<input type="checkbox"/>	0.500	0.516	3688.62	0.003		2.8	3.1
6	<input type="checkbox"/>	1.000	1.167	7003.18	0.007		2.6	16.7
7	<input type="checkbox"/>	10.000	10.955	61274.81	0.060		4.4	9.5
8	<input type="checkbox"/>	50.000	51.127	284358.4	0.277		0.8	2.3
9	<input type="checkbox"/>	100.00	98.887	583750.5	0.536		3.5	-1.1
10	<input type="checkbox"/>	1000.0	1000.0	5886385.	5.421		3.1	0.0
11	<input type="checkbox"/>			1187.20	0.001		11.	

$y = 0.0054 * x + 8.1225E-004$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	780.51	0.000		11.	
2	<input type="checkbox"/>			1495.94	0.001		14.	
3	<input type="checkbox"/>	0.050	0.305	1925.27	0.001		4.3	510
4	<input type="checkbox"/>	0.100	0.306	1938.51	0.001		5.4	206
5	<input type="checkbox"/>	0.500	0.746	3691.77	0.003		3.7	49.3
6	<input type="checkbox"/>	1.000	1.546	6547.15	0.006		2.0	54.6
7	<input type="checkbox"/>	10.000	11.238	44557.89	0.043		5.3	12.4
8	<input type="checkbox"/>	50.000	52.218	205311.9	0.200		0.9	4.4
9	<input type="checkbox"/>	100.00	100.21	417692.6	0.384		4.9	0.2
10	<input type="checkbox"/>	1000.0	999.85	4157341.	3.828		2.2	0.0
11	<input type="checkbox"/>			3183.31	0.003		13.	

$y = 0.0038 * x + 7.5143E-004$

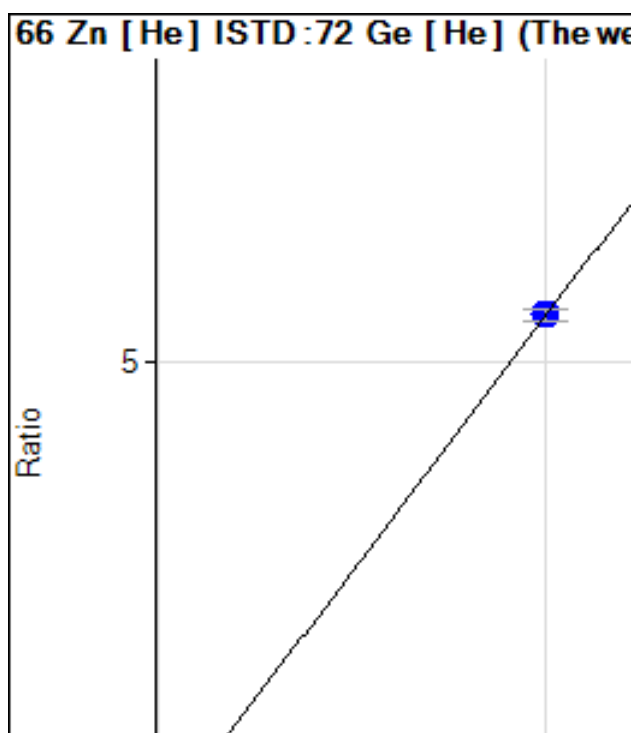
R = 1.0000

DL = 0.06545 ug/l

BEC = 0.1963 ug/l

Weight: 1/y

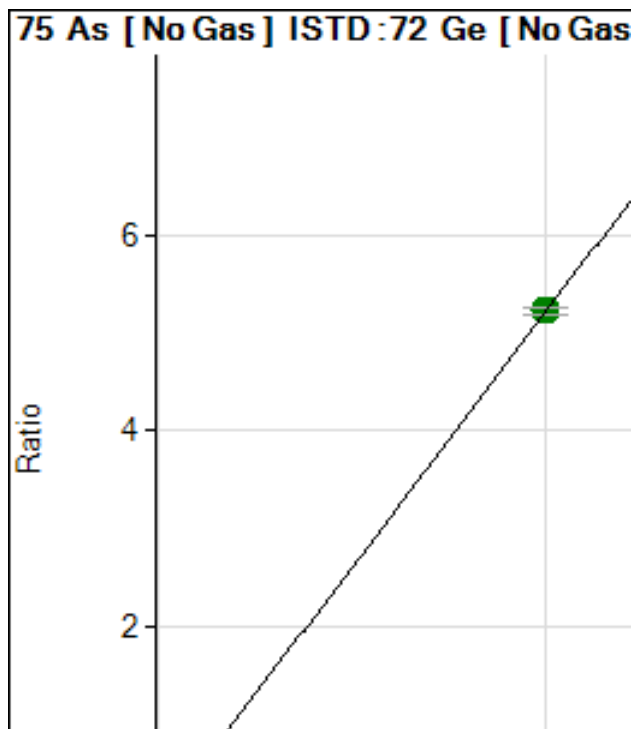
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	294.45	0.001		5.6	
2	<input type="checkbox"/>			390.01	0.002		0.3	
3	<input type="checkbox"/>	0.050	0.188	472.23	0.002		10.	275
4	<input type="checkbox"/>	0.100	0.236	510.01	0.003		10.	136
5	<input type="checkbox"/>	0.500	0.671	892.26	0.005		6.2	34.2
6	<input type="checkbox"/>	1.000	1.449	1570.10	0.009		1.5	44.9
7	<input type="checkbox"/>	10.000	11.280	10540.57	0.063		1.8	12.8
8	<input type="checkbox"/>	50.000	51.869	50492.01	0.287		4.4	3.7
9	<input type="checkbox"/>	100.00	101.23	104678.7	0.559		1.8	1.2
10	<input type="checkbox"/>	1000.0	999.77	1053398.	5.508		2.1	0.0
11	<input type="checkbox"/>			733.36	0.004		10.	

$y = 0.0055 * x + 0.0018$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	10900.36	0.010		44.	
2	<input type="checkbox"/>	0.025	0.140	11287.99	0.011		78.	461
3	<input type="checkbox"/>	0.050	-0.040	10264.37	0.010		30.	-180
4	<input type="checkbox"/>	0.100	0.812	14929.24	0.014		30.	711
5	<input type="checkbox"/>	0.500	0.387	12832.51	0.012		24.	-22
6	<input type="checkbox"/>	1.000	-0.144	9585.02	0.009		13.	-114
7	<input type="checkbox"/>	10.000	10.553	66747.27	0.065		8.5	5.5
8	<input type="checkbox"/>	50.000	50.813	282259.7	0.275		1.9	1.6
9	<input type="checkbox"/>	100.00	99.543	576485.2	0.530		4.4	-0.5
10	<input type="checkbox"/>	1000.0	1000.0	5682972.	5.233		1.7	0.0
11	<input type="checkbox"/>			12033.46	0.011		28.	

$y = 0.0052 * x + 0.0105$

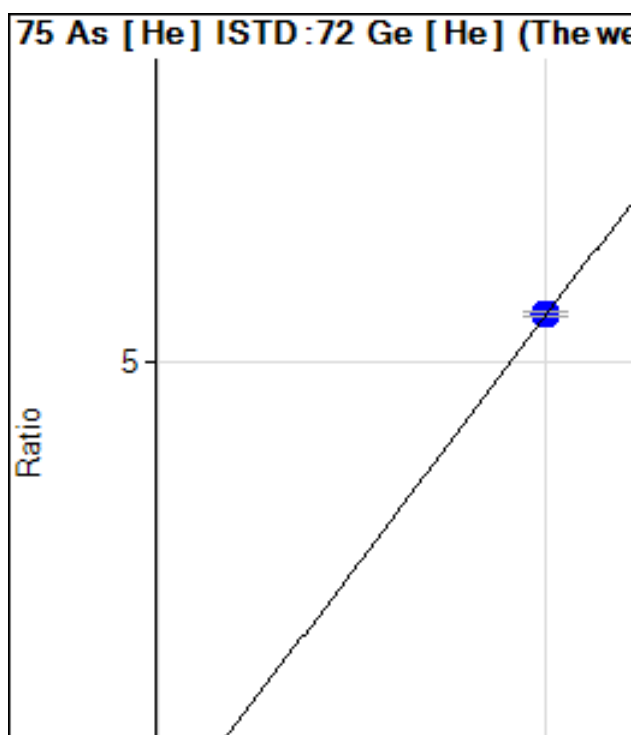
R = 1.0000

DL = 2.662 ug/l

BEC = 2.011 ug/l

Weight: 1/y

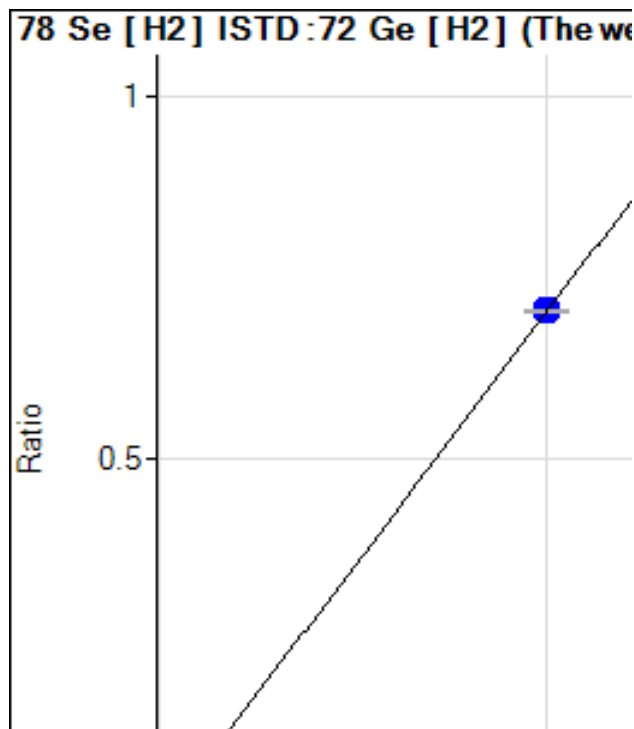
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	337.73	0.002		7.8	
2	<input type="checkbox"/>	0.025	0.035	377.07	0.002		2.4	39.6
3	<input type="checkbox"/>	0.050	0.069	406.07	0.002		3.7	38.3
4	<input type="checkbox"/>	0.100	0.128	454.00	0.002		3.3	27.7
5	<input type="checkbox"/>	0.500	0.552	827.74	0.005		5.7	10.4
6	<input type="checkbox"/>	1.000	1.108	1310.43	0.008		1.7	10.8
7	<input type="checkbox"/>	10.000	10.996	10328.31	0.062		1.6	10.0
8	<input type="checkbox"/>	50.000	51.166	49886.12	0.283		2.4	2.3
9	<input type="checkbox"/>	100.00	101.18	104697.9	0.559		0.4	1.2
10	<input type="checkbox"/>	1000.0	999.81	1053817.	5.510		0.8	0.0
11	<input type="checkbox"/>			460.87	0.002		2.0	

$y = 0.0055 * x + 0.0020$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	28.22	0.000		5.4	
2	<input type="checkbox"/>	0.025	0.021	39.33	0.000		12.	-16
3	<input type="checkbox"/>	0.050	0.051	55.56	0.000		6.4	3.0
4	<input type="checkbox"/>	0.100	0.111	87.00	0.000		0.7	10.7
5	<input type="checkbox"/>	0.500	0.548	322.67	0.000		5.1	9.6
6	<input type="checkbox"/>	1.000	1.102	635.35	0.000		0.6	10.2
7	<input type="checkbox"/>	10.000	10.892	6051.70	0.007		1.4	8.9
8	<input type="checkbox"/>	50.000	50.482	28582.54	0.035		1.8	1.0
9	<input type="checkbox"/>	100.00	101.02	59060.27	0.071		0.8	1.0
10	<input type="checkbox"/>	1000.0	999.86	578581.0	0.705		0.6	0.0
11	<input type="checkbox"/>			120.89	0.000		3.6	

$y = 7.0522E-004 * x + 3.5120E-005$

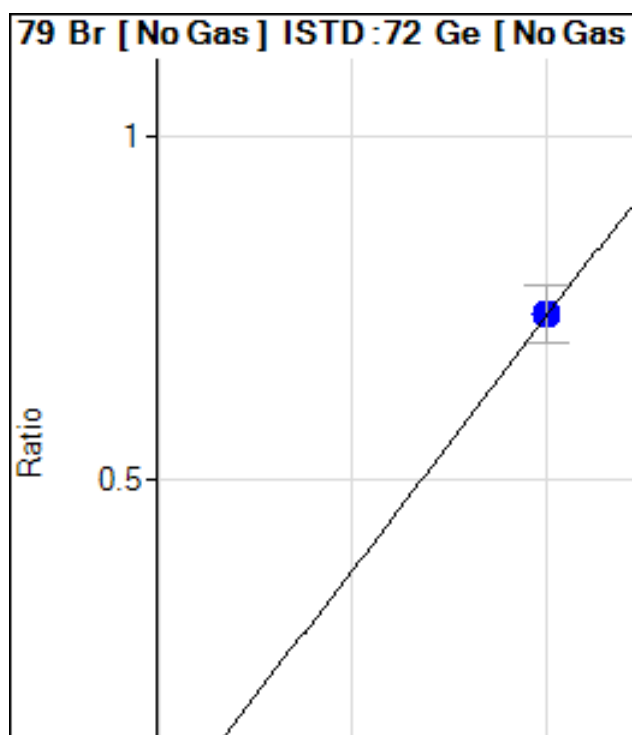
R = 1.0000

DL = 0.008079 ug/l

BEC = 0.0498 ug/l

Weight: 1/y

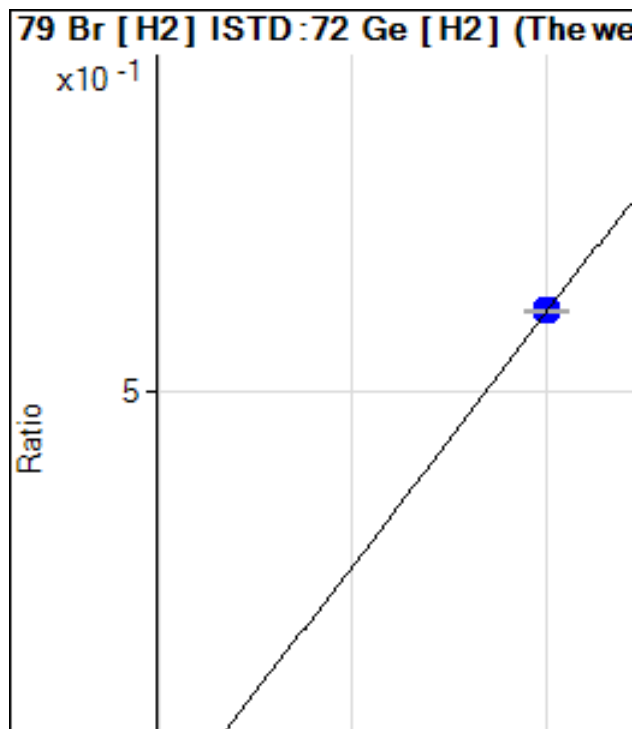
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	7899.88	0.007		2.6	
2	<input type="checkbox"/>			10499.66	0.010		5.8	
3	<input type="checkbox"/>			10726.11	0.010		4.0	
4	<input type="checkbox"/>			10752.72	0.010		5.0	
5	<input type="checkbox"/>			10706.11	0.010		9.4	
6	<input type="checkbox"/>			10659.50	0.010		3.2	
7	<input type="checkbox"/>			10190.09	0.010		3.4	
8	<input type="checkbox"/>			11062.38	0.010		5.6	
9	<input type="checkbox"/>			11555.13	0.010		6.7	
10	<input type="checkbox"/>			14172.23	0.013		1.2	
11	<input type="checkbox"/>	100.00	100.00	779216.8	0.739		11.	0.0

$y = 0.0073 * x + 0.0076$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	4584.99	0.005		5.4	
2	<input type="checkbox"/>			6232.33	0.007		3.1	
3	<input type="checkbox"/>			6202.42	0.008		3.1	
4	<input type="checkbox"/>			6352.15	0.008		2.0	
5	<input type="checkbox"/>			6042.62	0.007		6.1	
6	<input type="checkbox"/>			6049.28	0.007		4.6	
7	<input type="checkbox"/>			6305.56	0.008		4.6	
8	<input type="checkbox"/>			6844.75	0.008		3.3	
9	<input type="checkbox"/>			8052.95	0.009		1.6	
10	<input type="checkbox"/>			20164.17	0.024		2.6	
11	<input type="checkbox"/>	100.00	100.00	469226.8	0.594		0.8	0.0

$y = 0.0059 * x + 0.0057$

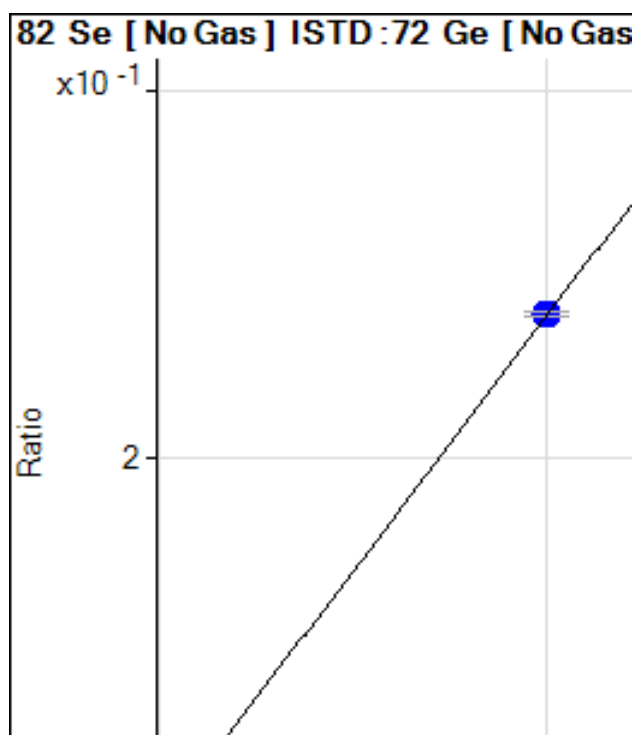
R = 1.0000

DL = 0.1562 ug/l

BEC = 0.9696 ug/l

Weight: 1/y

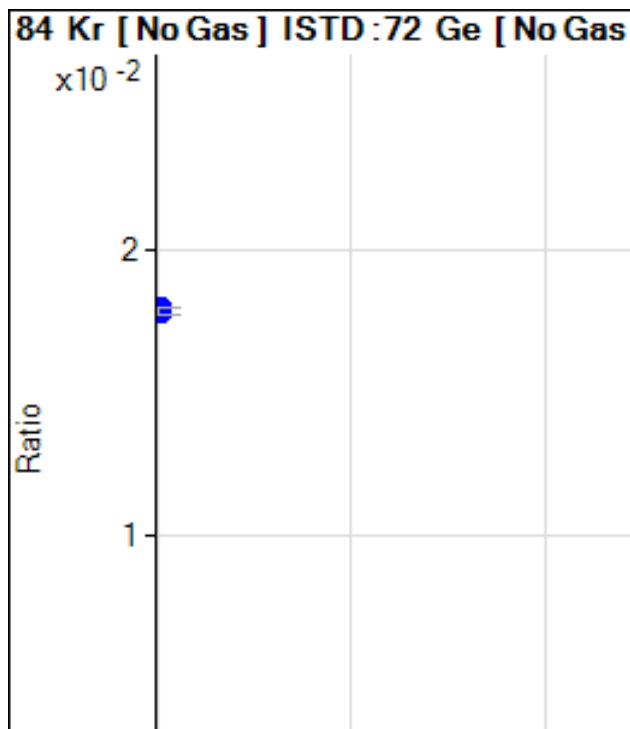
Min Conc: <None>



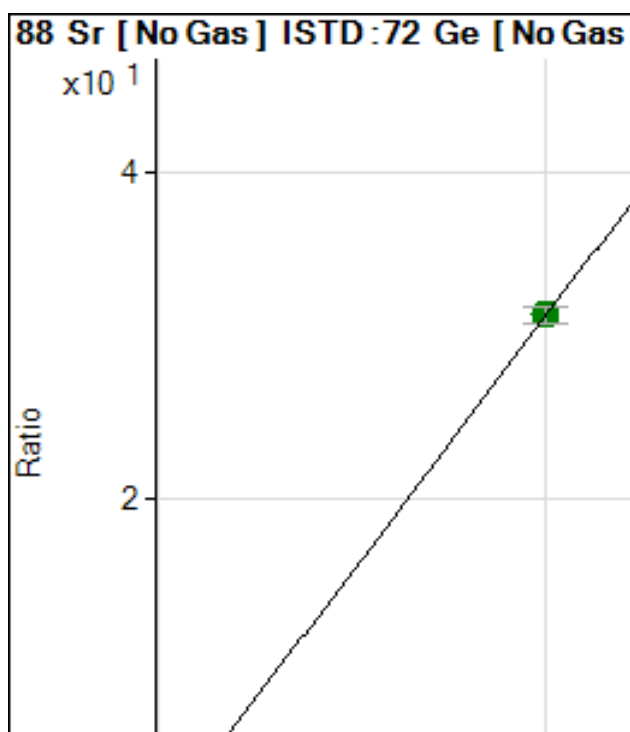
	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	630.74	0.000		25.	
2	<input type="checkbox"/>	0.025	-0.287	538.87	0.000		13.	-124
3	<input type="checkbox"/>	0.050	-0.068	591.27	0.000		9.6	-236
4	<input type="checkbox"/>	0.100	0.072	633.41	0.000		11.	-27
5	<input type="checkbox"/>	0.500	0.083	646.07	0.000		8.0	-83
6	<input type="checkbox"/>	1.000	0.992	867.02	0.000		2.1	-0.8
7	<input type="checkbox"/>	10.000	10.903	3691.34	0.003		8.3	9.0
8	<input type="checkbox"/>	50.000	52.373	15468.92	0.015		1.9	4.7
9	<input type="checkbox"/>	100.00	101.55	31258.49	0.028		4.9	1.6
10	<input type="checkbox"/>	1000.0	999.71	301487.8	0.277		1.0	0.0
11	<input type="checkbox"/>			1129.31	0.001		9.2	

$y = 2.7712E-004 * x + 6.0847E-004$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000		18568.53	0.017		1.4	
2	<input type="checkbox"/>			17988.86	0.017		5.2	
3	<input type="checkbox"/>			18032.26	0.018		8.3	
4	<input type="checkbox"/>			17732.39	0.017		6.2	
5	<input type="checkbox"/>			17615.84	0.017		5.3	
6	<input type="checkbox"/>			17316.02	0.017		0.6	
7	<input type="checkbox"/>			20147.39	0.019		4.8	
8	<input type="checkbox"/>			29085.03	0.028		3.2	
9	<input type="checkbox"/>			41224.04	0.037		3.6	
10	<input type="checkbox"/>			233320.4	0.214		3.0	
11	<input type="checkbox"/>			19094.79	0.018		9.0	



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	395.89	0.000		18.	
2	<input type="checkbox"/>	0.025	0.030	1357.38	0.001		9.4	21.6
3	<input type="checkbox"/>	0.050	0.067	2478.64	0.002		10.	33.9
4	<input type="checkbox"/>	0.100	0.121	4195.65	0.004		7.1	20.9
5	<input type="checkbox"/>	0.500	0.538	17652.65	0.017		4.0	7.7
6	<input type="checkbox"/>	1.000	1.134	35217.09	0.035		0.5	13.4
7	<input type="checkbox"/>	10.000	11.055	352812.8	0.346		4.1	10.5
8	<input type="checkbox"/>	50.000	50.682	1624301.	1.587		3.3	1.4
9	<input type="checkbox"/>	100.00	99.473	3387677.	3.115		2.9	-0.5
10	<input type="checkbox"/>	1000.0	1000.0	34001707	31.31		3.0	0.0
11	<input type="checkbox"/>			781.81	0.000		21.	

$y = 0.0313 * x + 3.8119E-004$

R = 1.0000

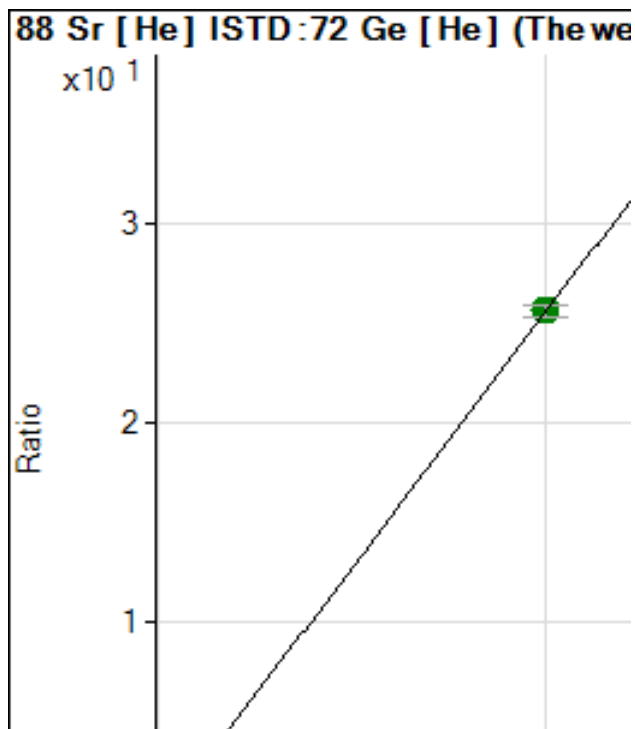
DL = 0.006594 ug/l

BEC = 0.01217 ug/l

Weight: 1/y

Min Conc: <None>





	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	138.89	0.000		14.	
2	<input type="checkbox"/>	0.025	0.029	268.90	0.001		17.	16.5
3	<input type="checkbox"/>	0.050	0.070	444.46	0.002		10.	40.9
4	<input type="checkbox"/>	0.100	0.127	676.69	0.004		6.6	26.5
5	<input type="checkbox"/>	0.500	0.567	2510.24	0.015		1.5	13.4
6	<input type="checkbox"/>	1.000	1.125	4779.72	0.029		2.9	12.5
7	<input type="checkbox"/>	10.000	11.096	47076.46	0.285		1.6	11.0
8	<input type="checkbox"/>	50.000	51.920	234036.0	1.332		4.0	3.8
9	<input type="checkbox"/>	100.00	102.63	492695.9	2.632		1.1	2.6
10	<input type="checkbox"/>	1000.0	999.62	4902527.	25.63		2.2	0.0
11	<input type="checkbox"/>			170.00	0.001		31.	

$y = 0.0256 * x + 8.3703E-004$

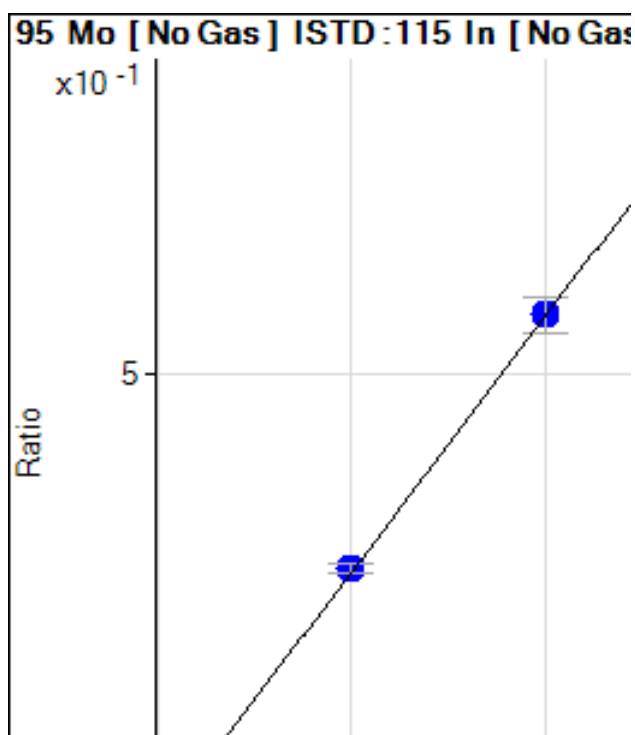
R = 1.0000

DL = 0.014 ug/l

BEC = 0.03264 ug/l

Weight: 1/y

Min Conc: <None>

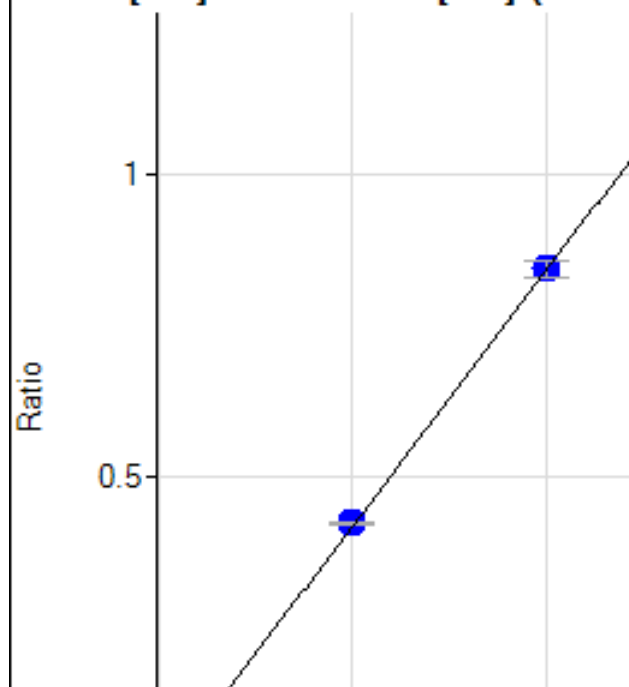


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	42.22	0.000		23.	
2	<input type="checkbox"/>	0.025	0.080	516.68	0.000		11.	219
3	<input type="checkbox"/>	0.050	0.055	382.23	0.000		6.8	10.3
4	<input type="checkbox"/>	0.100	0.118	746.69	0.000		9.9	18.3
5	<input type="checkbox"/>	0.500	0.512	3104.80	0.002		5.6	2.4
6	<input type="checkbox"/>	1.000	1.099	6380.35	0.006		4.5	9.9
7	<input type="checkbox"/>	10.000	10.479	64257.70	0.059		2.3	4.8
8	<input type="checkbox"/>	50.000	50.084	305603.4	0.283		3.6	0.2
9	<input type="checkbox"/>	100.00	99.909	638787.7	0.565		6.8	-0.1
10	<input type="checkbox"/>			725.58	0.000		8.7	
11	<input type="checkbox"/>			173.33	0.000		14.	

$y = 0.0057 * x + 3.9146E-005$

R = 1.0000

95 Mo [He] ISTD:115 In [He] (The



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	22.22	0.000		31.	
2	<input type="checkbox"/>	0.025	0.078	204.45	0.000		6.6	210
3	<input type="checkbox"/>	0.050	0.065	171.11	0.000		3.2	29.5
4	<input type="checkbox"/>	0.100	0.124	306.67	0.001		17.	24.0
5	<input type="checkbox"/>	0.500	0.500	1165.61	0.004		3.0	0.0
6	<input type="checkbox"/>	1.000	1.127	2544.69	0.009		4.3	12.7
7	<input type="checkbox"/>	10.000	10.460	24338.76	0.088		5.0	4.6
8	<input type="checkbox"/>	50.000	50.060	118520.5	0.423		1.3	0.1
9	<input type="checkbox"/>	100.00	99.923	255455.7	0.844		3.4	-0.1
10	<input type="checkbox"/>			240.00	0.000		11.	
11	<input type="checkbox"/>			63.34	0.000		9.4	

$y = 0.0085 * x + 8.0166E-005$

R = 1.0000

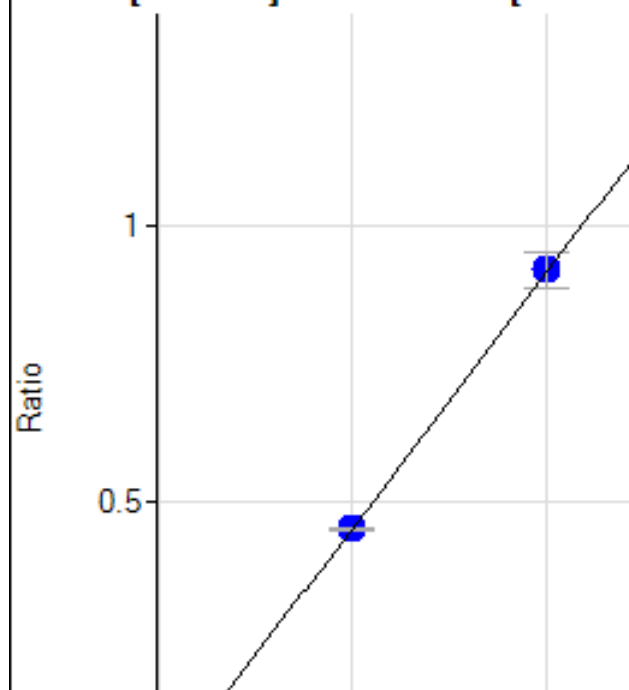
DL = 0.008892 ug/l

BEC = 0.009485 ug/l

Weight: 1/y

Min Conc: <None>

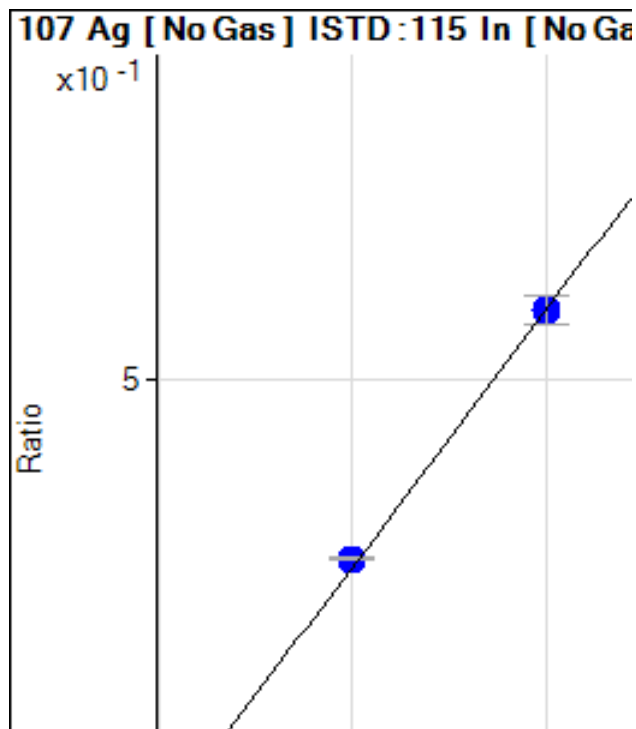
98 Mo [No Gas] ISTD:115 In [No Gas]



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	72.30	0.000		6.8	
2	<input type="checkbox"/>	0.025	0.078	820.59	0.000		1.4	211
3	<input type="checkbox"/>	0.050	0.054	610.09	0.000		5.9	7.5
4	<input type="checkbox"/>	0.100	0.115	1180.27	0.001		4.2	14.8
5	<input type="checkbox"/>	0.500	0.521	5124.71	0.004		5.4	4.2
6	<input type="checkbox"/>	1.000	1.110	10456.71	0.010		2.9	11.0
7	<input type="checkbox"/>	10.000	10.248	101924.5	0.094		1.6	2.5
8	<input type="checkbox"/>	50.000	49.347	488569.8	0.452		1.2	-1.3
9	<input type="checkbox"/>	100.00	100.30	1039552.	0.920		7.3	0.3
10	<input type="checkbox"/>			1406.76	0.001		6.8	
11	<input type="checkbox"/>			257.58	0.000		4.1	

$y = 0.0092 * x + 6.6989E-005$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	62.02	0.000		31.	
2	<input type="checkbox"/>	0.010	0.013	262.11	0.000		4.5	32.1
3	<input type="checkbox"/>	0.020	0.027	485.54	0.000		0.8	33.7
4	<input type="checkbox"/>	0.040	0.049	811.02	0.000		8.0	22.6
5	<input type="checkbox"/>	0.200	0.222	3465.83	0.003		2.5	10.8
6	<input type="checkbox"/>	0.400	0.469	6999.22	0.006		2.3	17.2
7	<input type="checkbox"/>	4.000	4.318	67956.79	0.062		3.3	7.9
8	<input type="checkbox"/>	20.000	20.401	319695.3	0.296		0.7	2.0
9	<input type="checkbox"/>	40.000	39.767	652919.9	0.577		5.5	-0.6
10	<input type="checkbox"/>			5304059.	4.645		3.7	
11	<input type="checkbox"/>			9749.35	0.008		18.	

$y = 0.0145 * x + 5.7502E-005$

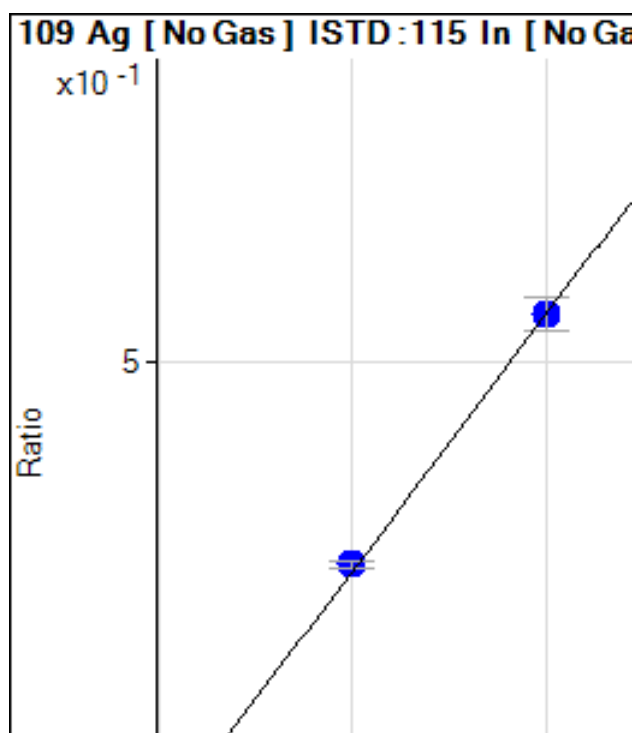
R = 0.9999

DL = 0.003745 ug/l

BEC = 0.003958 ug/l

Weight: 1/y

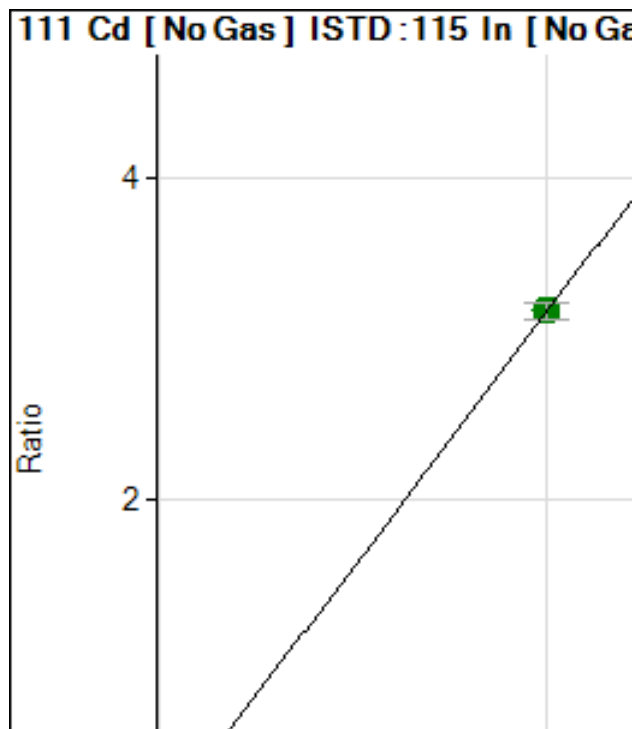
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	66.03	0.000		8.4	
2	<input type="checkbox"/>	0.010	0.013	252.77	0.000		9.1	29.9
3	<input type="checkbox"/>	0.020	0.025	444.19	0.000		4.0	25.6
4	<input type="checkbox"/>	0.040	0.051	813.02	0.000		3.9	28.5
5	<input type="checkbox"/>	0.200	0.221	3289.71	0.003		5.4	10.5
6	<input type="checkbox"/>	0.400	0.465	6609.54	0.006		1.7	16.3
7	<input type="checkbox"/>	4.000	4.308	64467.57	0.059		2.4	7.7
8	<input type="checkbox"/>	20.000	20.340	302895.1	0.280		2.4	1.7
9	<input type="checkbox"/>	40.000	39.799	620829.9	0.549		6.6	-0.5
10	<input type="checkbox"/>			4926626.	4.318		6.3	
11	<input type="checkbox"/>			9302.19	0.008		16.	

$y = 0.0138 * x + 6.1129E-005$

R = 0.9999



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	8.23	0.000		127	
2	<input type="checkbox"/>	0.025	0.025	90.20	0.000		17.	-1.4
3	<input type="checkbox"/>	0.050	0.065	231.17	0.000		7.8	29.1
4	<input type="checkbox"/>	0.100	0.124	420.67	0.000		9.8	23.5
5	<input type="checkbox"/>	0.500	0.546	1839.68	0.001		2.8	9.1
6	<input type="checkbox"/>	1.000	1.153	3739.99	0.003		4.6	15.3
7	<input type="checkbox"/>	10.000	10.667	36686.33	0.033		1.7	6.7
8	<input type="checkbox"/>	50.000	50.639	173385.3	0.160		2.7	1.3
9	<input type="checkbox"/>	100.00	100.72	361349.2	0.319		6.6	0.7
10	<input type="checkbox"/>	1000.0	999.88	3623558.	3.175		3.6	0.0
11	<input type="checkbox"/>			107.32	0.000		9.1	

$y = 0.0032 * x + 7.5814E-006$

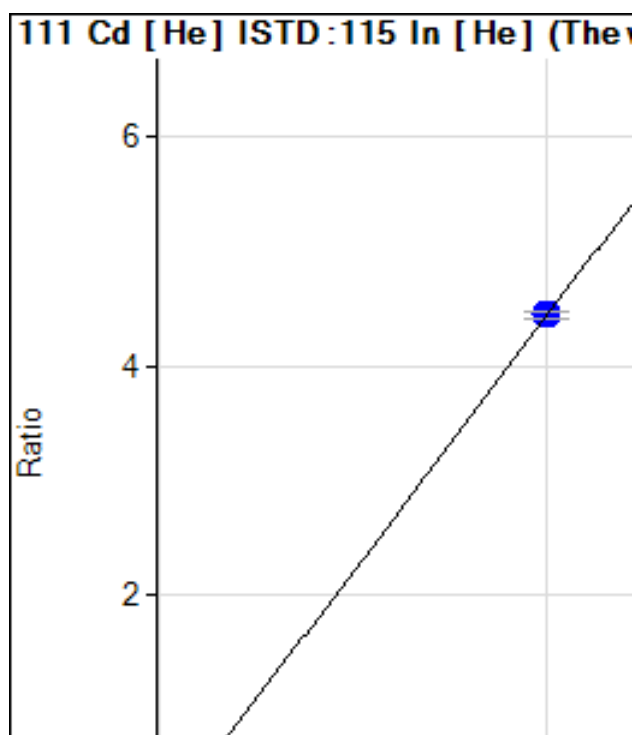
R = 1.0000

DL = 0.009104 ug/l

BEC = 0.002387 ug/l

Weight: 1/y

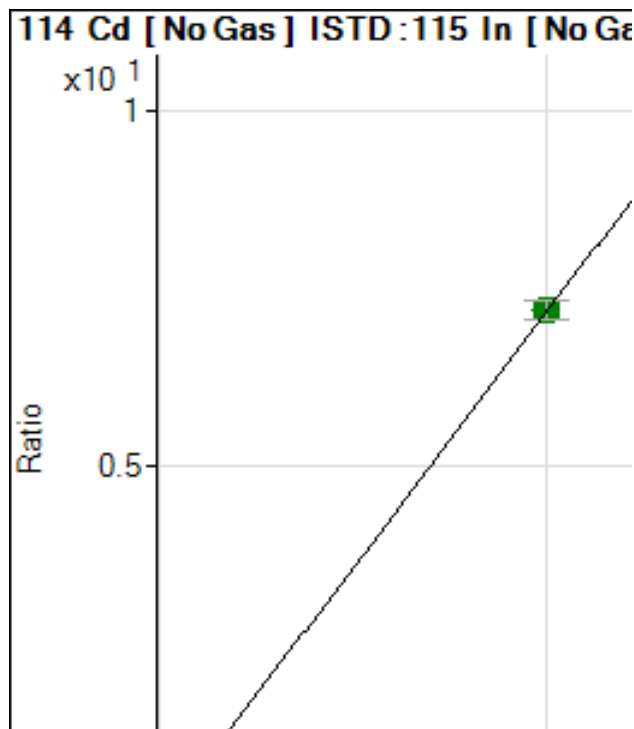
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	1.44	0.000		57.	
2	<input type="checkbox"/>	0.025	0.030	38.33	0.000		4.8	19.6
3	<input type="checkbox"/>	0.050	0.068	83.33	0.000		8.7	35.1
4	<input type="checkbox"/>	0.100	0.127	155.44	0.000		7.2	27.5
5	<input type="checkbox"/>	0.500	0.552	665.57	0.002		4.2	10.4
6	<input type="checkbox"/>	1.000	1.113	1312.84	0.005		2.0	11.3
7	<input type="checkbox"/>	10.000	10.812	13224.58	0.048		2.7	8.1
8	<input type="checkbox"/>	50.000	51.866	64568.70	0.230		1.4	3.7
9	<input type="checkbox"/>	100.00	99.992	134474.1	0.444		1.9	0.0
10	<input type="checkbox"/>	1000.0	999.89	1370104.	4.445		1.4	0.0
11	<input type="checkbox"/>			29.67	0.000		11.	

$y = 0.0044 * x + 5.2009E-006$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	-3.40	0.000		-54	
2	<input type="checkbox"/>	0.025	0.028	205.08	0.000		8.6	10.3
3	<input type="checkbox"/>	0.050	0.061	476.92	0.000		3.4	22.7
4	<input type="checkbox"/>	0.100	0.122	919.82	0.000		2.8	21.8
5	<input type="checkbox"/>	0.500	0.546	4148.38	0.003		1.7	9.2
6	<input type="checkbox"/>	1.000	1.118	8194.04	0.008		3.7	11.8
7	<input type="checkbox"/>	10.000	10.518	81901.36	0.075		2.4	5.2
8	<input type="checkbox"/>	50.000	50.057	388213.3	0.360		1.8	0.1
9	<input type="checkbox"/>	100.00	100.59	817355.9	0.723		6.2	0.6
10	<input type="checkbox"/>	1000.0	999.93	8207512.	7.192		3.6	0.0
11	<input type="checkbox"/>			198.47	0.000		16.	

$y = 0.0072 * x - 3.1414E-006$

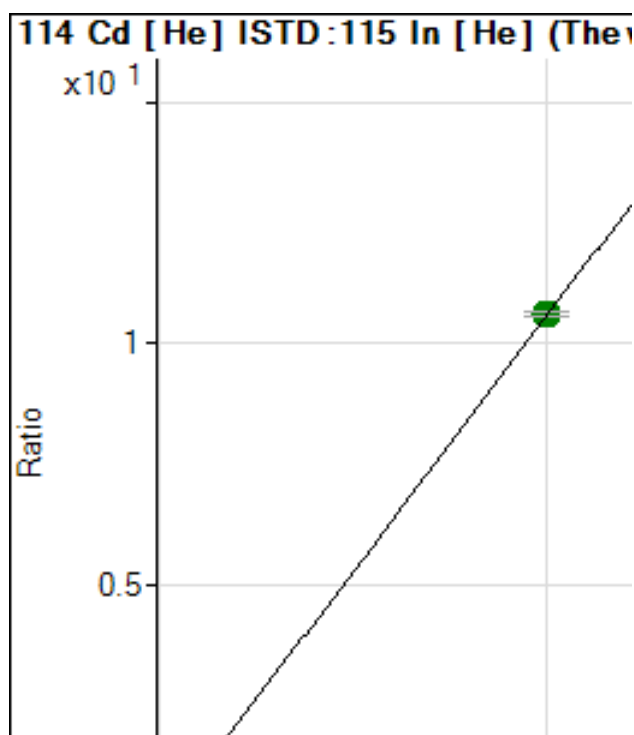
R = 1.0000

DL = 0.007085 ug/l

BEC = -0.0004368 ug/l

Weight: 1/y

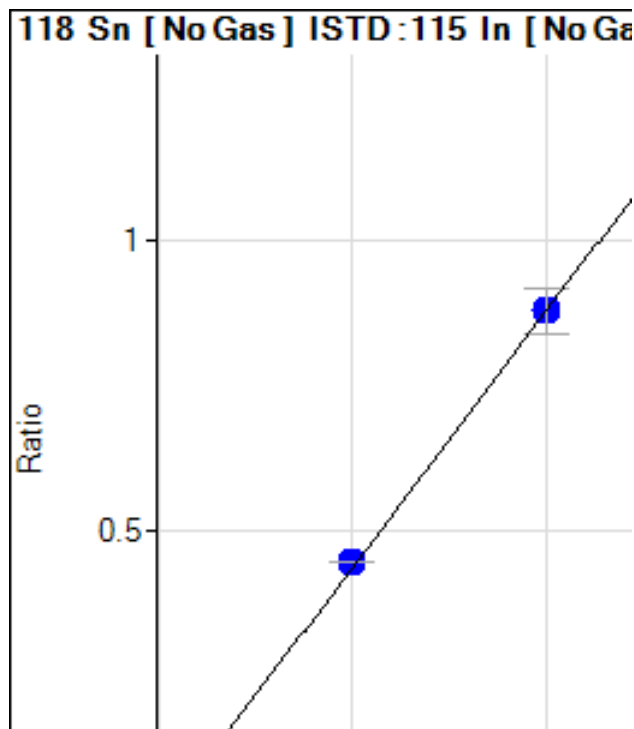
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	-0.25	0.000		-49	
2	<input type="checkbox"/>	0.025	0.029	85.29	0.000		2.0	16.2
3	<input type="checkbox"/>	0.050	0.064	184.88	0.000		5.9	28.0
4	<input type="checkbox"/>	0.100	0.121	348.35	0.001		4.2	20.9
5	<input type="checkbox"/>	0.500	0.544	1561.25	0.005		1.6	8.8
6	<input type="checkbox"/>	1.000	1.128	3169.33	0.012		1.8	12.8
7	<input type="checkbox"/>	10.000	10.959	31980.07	0.116		2.3	9.6
8	<input type="checkbox"/>	50.000	52.053	154600.6	0.552		1.4	4.1
9	<input type="checkbox"/>	100.00	102.52	328945.3	1.087		2.0	2.5
10	<input type="checkbox"/>	1000.0	999.63	3268131.	10.60		0.9	0.0
11	<input type="checkbox"/>			56.93	0.000		7.1	

$y = 0.0106 * x - 8.9153E-007$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	725.25	0.000		22.	
2	<input type="checkbox"/>	0.025	0.047	1141.13	0.001		1.6	88.2
3	<input type="checkbox"/>	0.050	0.079	1493.79	0.001		5.6	58.9
4	<input type="checkbox"/>	0.100	0.130	1916.34	0.001		6.9	29.9
5	<input type="checkbox"/>	0.500	0.561	5936.17	0.005		4.9	12.1
6	<input type="checkbox"/>	1.000	1.090	10476.47	0.010		2.5	9.0
7	<input type="checkbox"/>	10.000	10.147	97568.05	0.090		2.4	1.5
8	<input type="checkbox"/>	50.000	50.596	481789.5	0.446		0.8	1.2
9	<input type="checkbox"/>	100.00	99.686	992784.4	0.879		8.7	-0.3
10	<input type="checkbox"/>			2508.59	0.002		1.2	
11	<input type="checkbox"/>			3746.42	0.003		14.	

$y = 0.0088 * x + 6.7122E-004$

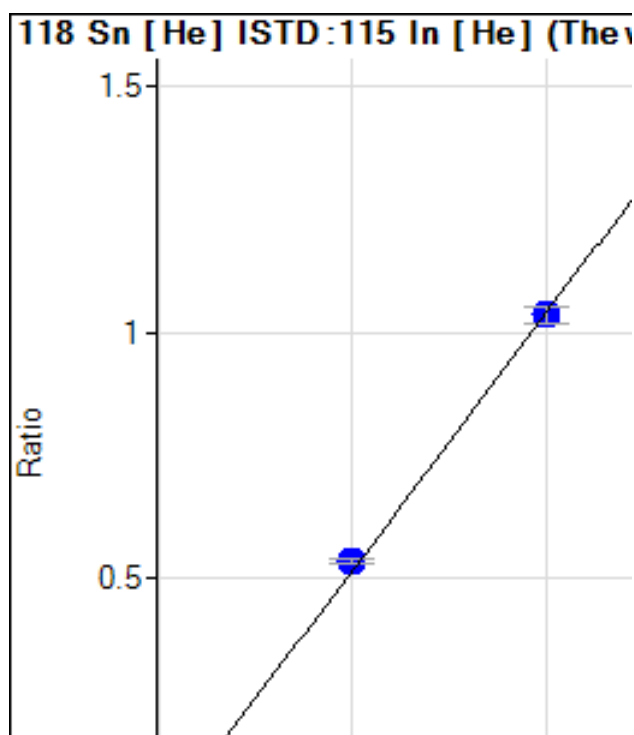
R = 1.0000

DL = 0.05121 ug/l

BEC = 0.07615 ug/l

Weight: 1/y

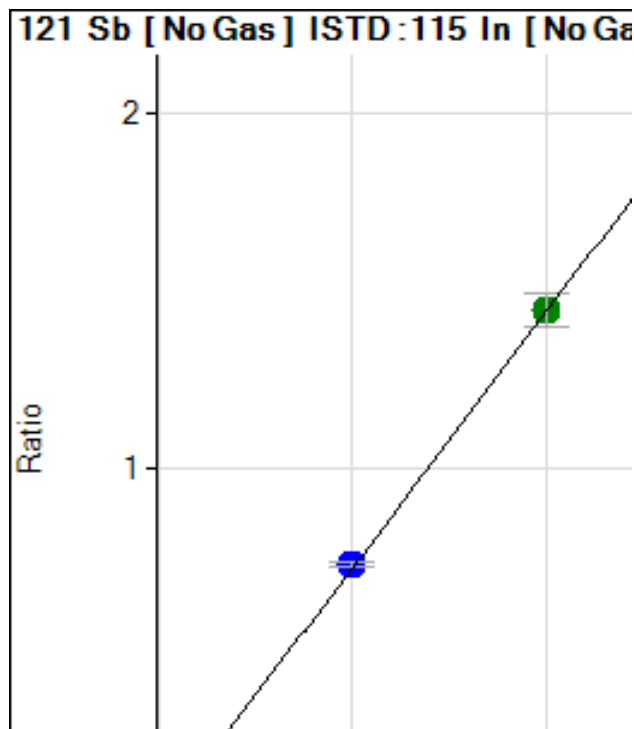
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	264.45	0.001		26.	
2	<input type="checkbox"/>	0.025	0.031	355.56	0.001		7.7	25.4
3	<input type="checkbox"/>	0.050	0.071	461.12	0.001		9.3	41.3
4	<input type="checkbox"/>	0.100	0.122	604.46	0.002		4.8	21.7
5	<input type="checkbox"/>	0.500	0.515	1710.12	0.006		4.1	2.9
6	<input type="checkbox"/>	1.000	1.086	3252.63	0.012		2.2	8.6
7	<input type="checkbox"/>	10.000	10.579	30623.48	0.111		2.5	5.8
8	<input type="checkbox"/>	50.000	51.391	150373.8	0.537		1.6	2.8
9	<input type="checkbox"/>	100.00	99.245	313429.0	1.036		3.0	-0.8
10	<input type="checkbox"/>			715.58	0.002		2.2	
11	<input type="checkbox"/>			1134.50	0.003		4.4	

$y = 0.0104 * x + 9.5366E-004$

R = 0.9999



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	817.11	0.000		6.5	
2	<input type="checkbox"/>	0.025	0.022	1132.50	0.001		1.6	-11
3	<input type="checkbox"/>	0.050	0.054	1669.60	0.001		2.9	7.4
4	<input type="checkbox"/>	0.100	0.103	2360.44	0.002		2.3	2.5
5	<input type="checkbox"/>	0.500	0.505	8518.10	0.008		2.6	1.0
6	<input type="checkbox"/>	1.000	1.093	16884.16	0.016		4.2	9.3
7	<input type="checkbox"/>	10.000	10.513	165420.9	0.152		2.5	5.1
8	<input type="checkbox"/>	50.000	50.355	786127.9	0.729		2.0	0.7
9	<input type="checkbox"/>	100.00	99.770	1630863.	1.443		6.5	-0.2
10	<input type="checkbox"/>			5824.47	0.005		9.6	
11	<input type="checkbox"/>			1829.31	0.001		7.5	

$y = 0.0145 * x + 7.5710E-004$

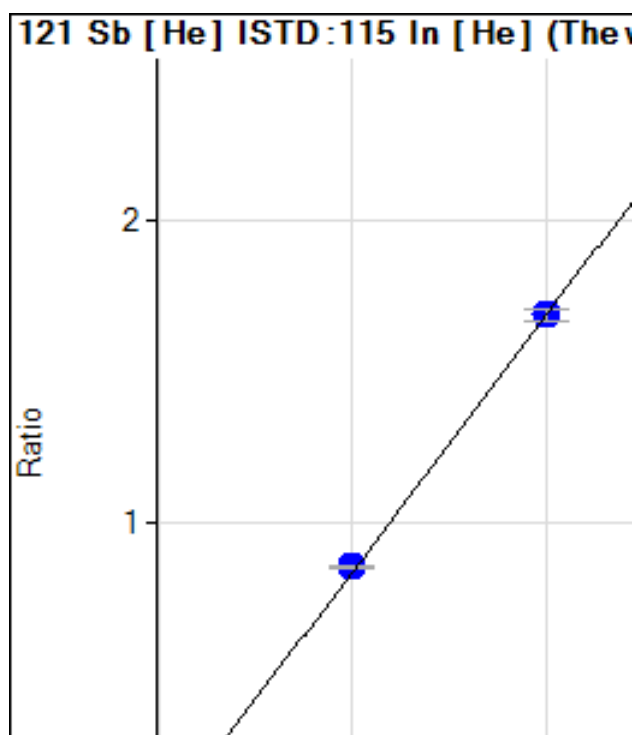
R = 1.0000

DL = 0.01023 ug/l

BEC = 0.05235 ug/l

Weight: 1/y

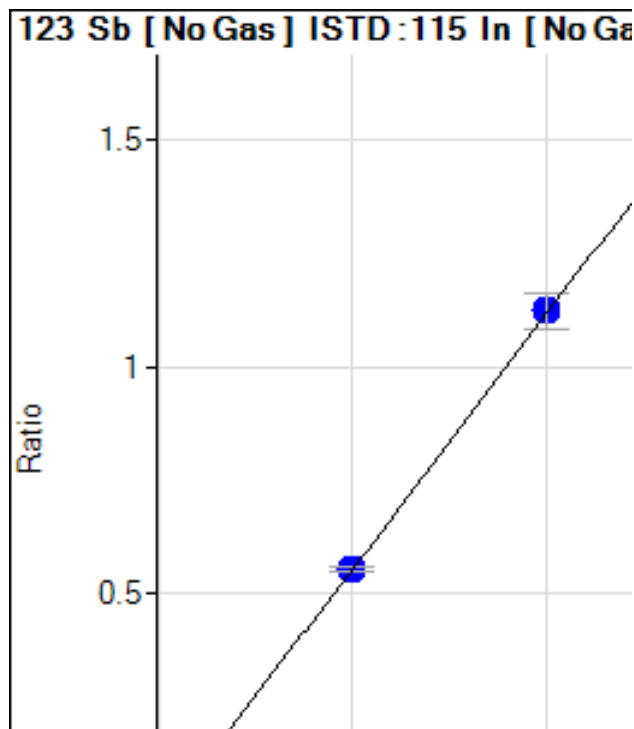
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	274.03	0.001		8.1	
2	<input type="checkbox"/>	0.025	0.024	388.04	0.001		5.0	-3.1
3	<input type="checkbox"/>	0.050	0.054	520.40	0.001		3.1	8.7
4	<input type="checkbox"/>	0.100	0.098	720.09	0.002		5.3	-1.8
5	<input type="checkbox"/>	0.500	0.502	2565.49	0.009		3.8	0.4
6	<input type="checkbox"/>	1.000	1.048	4958.05	0.018		1.9	4.8
7	<input type="checkbox"/>	10.000	10.358	48468.08	0.176		3.3	3.6
8	<input type="checkbox"/>	50.000	50.491	239471.1	0.855		0.5	1.0
9	<input type="checkbox"/>	100.00	99.718	510529.3	1.687		2.5	-0.3
10	<input type="checkbox"/>			1381.54	0.004		7.4	
11	<input type="checkbox"/>			506.06	0.001		4.3	

$y = 0.0169 * x + 9.8842E-004$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	620.75	0.000		2.0	
2	<input type="checkbox"/>	0.025	0.022	863.11	0.000		5.5	-12
3	<input type="checkbox"/>	0.050	0.052	1254.52	0.001		6.4	3.1
4	<input type="checkbox"/>	0.100	0.096	1743.29	0.001		5.3	-3.7
5	<input type="checkbox"/>	0.500	0.509	6634.91	0.006		1.2	1.7
6	<input type="checkbox"/>	1.000	1.078	12899.90	0.012		3.6	7.8
7	<input type="checkbox"/>	10.000	10.259	125126.1	0.115		2.1	2.6
8	<input type="checkbox"/>	50.000	49.344	597022.0	0.553		1.6	-1.3
9	<input type="checkbox"/>	100.00	100.30	1270290.	1.124		7.2	0.3
10	<input type="checkbox"/>			4644.91	0.004		8.2	
11	<input type="checkbox"/>			1398.21	0.001		8.3	

$y = 0.0112 * x + 5.7499E-004$

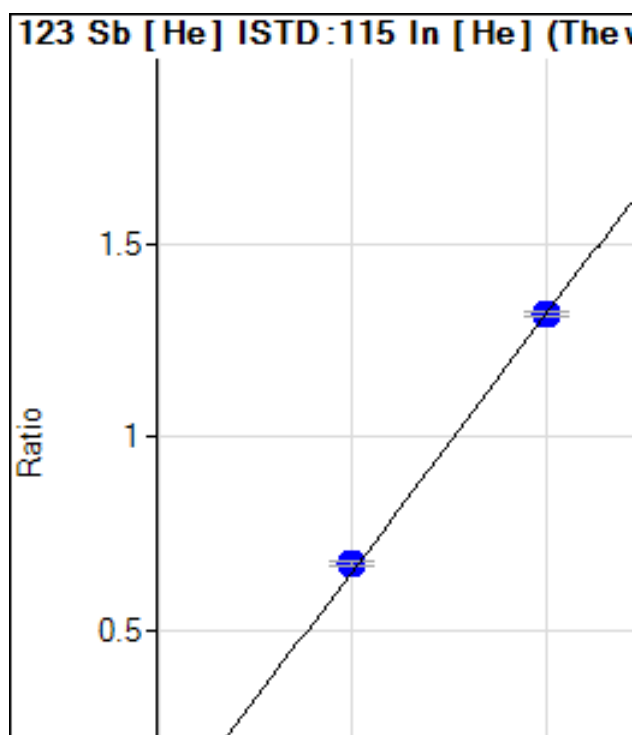
R = 1.0000

DL = 0.003137 ug/l

BEC = 0.0513 ug/l

Weight: 1/y

Min Conc: <None>

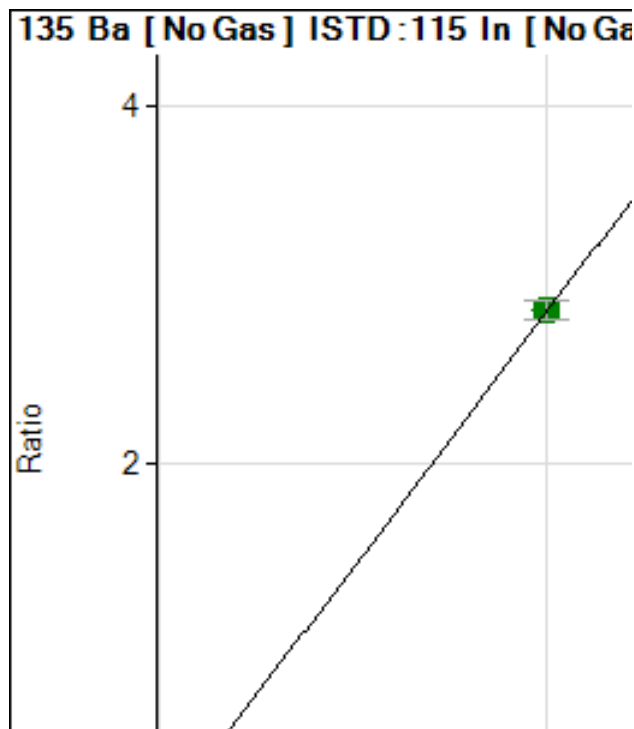


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	212.69	0.000		3.5	
2	<input type="checkbox"/>	0.025	0.018	280.37	0.001		9.6	-26
3	<input type="checkbox"/>	0.050	0.050	391.38	0.001		4.1	1.0
4	<input type="checkbox"/>	0.100	0.101	572.74	0.002		0.6	1.3
5	<input type="checkbox"/>	0.500	0.509	2028.02	0.007		0.4	1.7
6	<input type="checkbox"/>	1.000	1.079	3982.30	0.015		2.2	7.9
7	<input type="checkbox"/>	10.000	10.408	38062.51	0.138		3.1	4.1
8	<input type="checkbox"/>	50.000	50.939	188797.3	0.674		1.3	1.9
9	<input type="checkbox"/>	100.00	99.489	398182.5	1.316		1.1	-0.5
10	<input type="checkbox"/>			1106.16	0.003		5.5	
11	<input type="checkbox"/>			420.38	0.001		2.9	

$y = 0.0132 * x + 7.6715E-004$

R = 0.9999





	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	33.27	0.000		18.	
2	<input type="checkbox"/>	0.025	0.011	66.54	0.000		99.	-54
3	<input type="checkbox"/>	0.050	0.060	219.57	0.000		5.8	19.8
4	<input type="checkbox"/>	0.100	0.116	379.25	0.000		35.	16.0
5	<input type="checkbox"/>	0.500	0.508	1566.98	0.001		5.5	1.5
6	<input type="checkbox"/>	1.000	1.094	3214.01	0.003		5.8	9.4
7	<input type="checkbox"/>	10.000	10.507	32506.96	0.030		2.9	5.1
8	<input type="checkbox"/>	50.000	49.740	153150.8	0.142		2.2	-0.5
9	<input type="checkbox"/>	100.00	99.139	319984.5	0.283		6.3	-0.9
10	<input type="checkbox"/>	1000.0	1000.0	3258563.	2.855		3.7	0.0
11	<input type="checkbox"/>			73.19	0.000		20.	

$y = 0.0029 * x + 3.0835E-005$

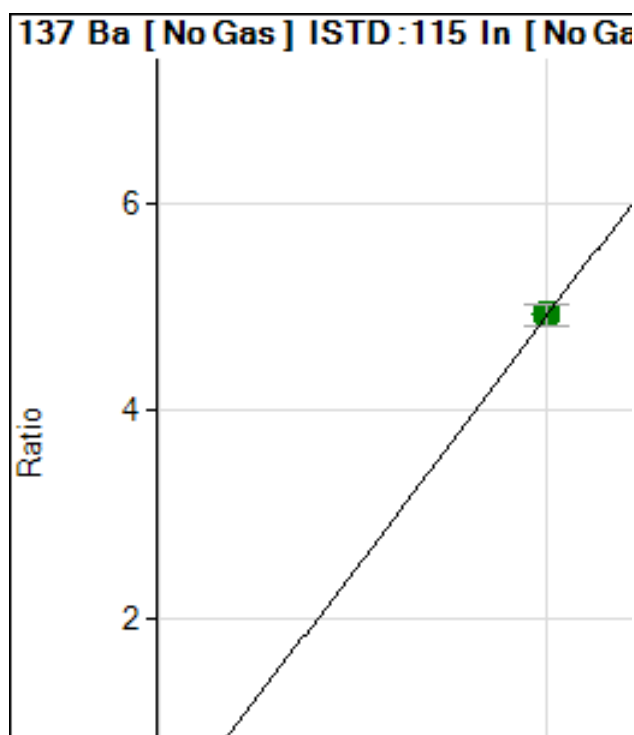
R = 1.0000

DL = 0.005834 ug/l

BEC = 0.0108 ug/l

Weight: 1/y

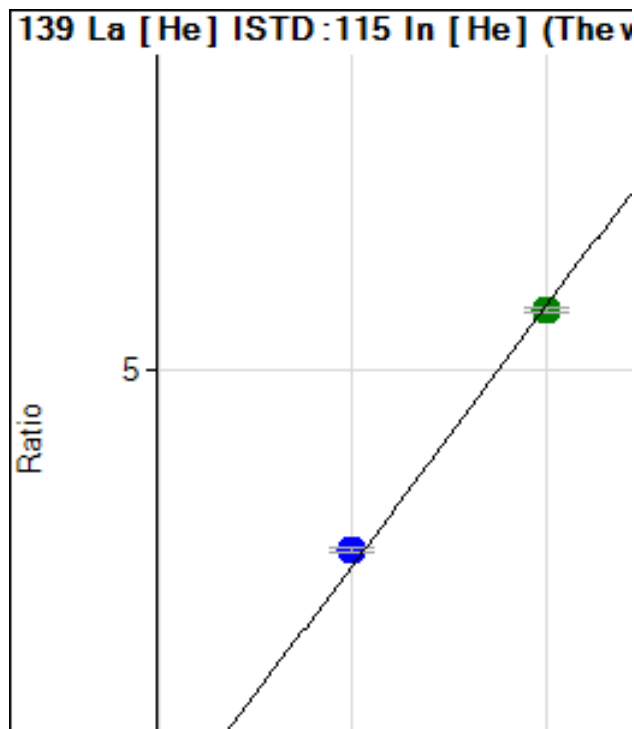
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	39.92	0.000		90.	
2	<input type="checkbox"/>	0.025	0.039	242.86	0.000		22.	57.8
3	<input type="checkbox"/>	0.050	0.056	342.66	0.000		29.	12.7
4	<input type="checkbox"/>	0.100	0.120	662.04	0.000		9.7	20.2
5	<input type="checkbox"/>	0.500	0.519	2738.17	0.002		1.3	3.7
6	<input type="checkbox"/>	1.000	1.069	5403.72	0.005		2.6	6.9
7	<input type="checkbox"/>	10.000	10.304	54913.24	0.050		3.8	3.0
8	<input type="checkbox"/>	50.000	49.911	264880.5	0.245		2.4	-0.2
9	<input type="checkbox"/>	100.00	97.466	541887.6	0.479		6.2	-2.5
10	<input type="checkbox"/>	1000.0	1000.2	5616620.	4.922		4.1	0.0
11	<input type="checkbox"/>			133.07	0.000		20.	

$y = 0.0049 * x + 3.6986E-005$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	8.89	0.000		77.	
2	<input type="checkbox"/>	0.025	0.026	426.68	0.001		1.9	5.3
3	<input type="checkbox"/>	0.050	0.063	986.71	0.003		9.6	25.4
4	<input type="checkbox"/>	0.100	0.118	1842.36	0.006		4.7	17.9
5	<input type="checkbox"/>	0.500	0.543	8415.93	0.031		2.2	8.7
6	<input type="checkbox"/>	1.000	1.159	17565.71	0.066		1.5	15.9
7	<input type="checkbox"/>	10.000	11.020	173336.7	0.630		3.6	10.2
8	<input type="checkbox"/>	50.000	52.372	838636.4	2.994		1.5	4.7
9	<input type="checkbox"/>	100.00	98.710	1707823.	5.644		0.9	-1.3
10	<input type="checkbox"/>			176.67	0.000		11.	
11	<input type="checkbox"/>			41.11	0.000		29.	

$y = 0.0572 * x + 3.2007E-005$

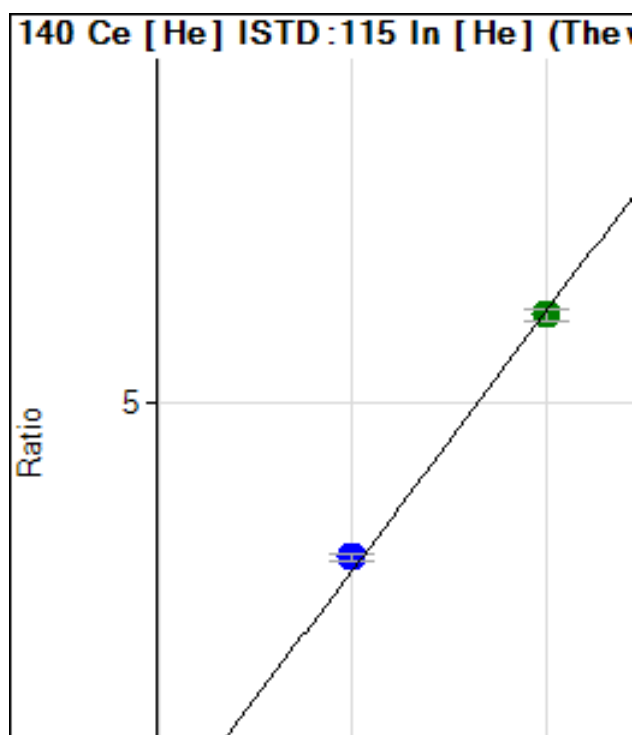
R = 0.9996

DL = 0.001304 ug/l

BEC = 0.0005597 ug/l

Weight: 1/y

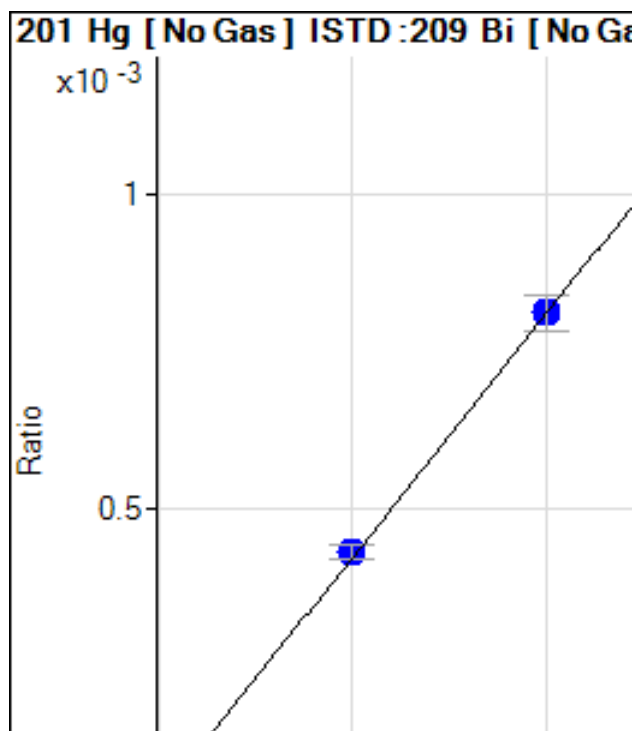
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	14.45	0.000		74.	
2	<input type="checkbox"/>	0.025	0.027	466.68	0.001		6.6	6.7
3	<input type="checkbox"/>	0.050	0.064	1082.27	0.004		2.9	28.2
4	<input type="checkbox"/>	0.100	0.118	1974.60	0.007		8.3	18.0
5	<input type="checkbox"/>	0.500	0.551	9127.51	0.033		0.9	10.2
6	<input type="checkbox"/>	1.000	1.099	17806.01	0.067		1.7	9.9
7	<input type="checkbox"/>	10.000	10.813	181722.0	0.660		4.1	8.1
8	<input type="checkbox"/>	50.000	51.909	887963.1	3.171		2.6	3.8
9	<input type="checkbox"/>	100.00	98.963	1828957.	6.045		2.2	-1.0
10	<input type="checkbox"/>			438.90	0.001		6.4	
11	<input type="checkbox"/>			53.33	0.000		28.	

$y = 0.0611 * x + 5.2213E-005$

R = 0.9997



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	190.30	0.000		13.	
2	<input type="checkbox"/>			197.96	0.000		10.	
3	<input type="checkbox"/>	0.001	-0.013	175.30	0.000		6.4	-137
4	<input type="checkbox"/>	0.002	-0.028	141.30	0.000		4.3	-148
5	<input type="checkbox"/>	0.010	0.000	190.30	0.000		7.3	-101
6	<input type="checkbox"/>	0.020	0.007	198.63	0.000		7.8	-66
7	<input type="checkbox"/>	0.200	0.188	517.91	0.000		1.1	-6.0
8	<input type="checkbox"/>	1.000	1.010	1949.42	0.000		5.3	1.0
9	<input type="checkbox"/>	2.000	1.997	3869.79	0.000		7.3	-0.2
10	<input type="checkbox"/>			174.30	0.000		8.3	
11	<input type="checkbox"/>			123.98	0.000		9.5	

$y = 3.8598E-004 * x + 4.0427E-005$

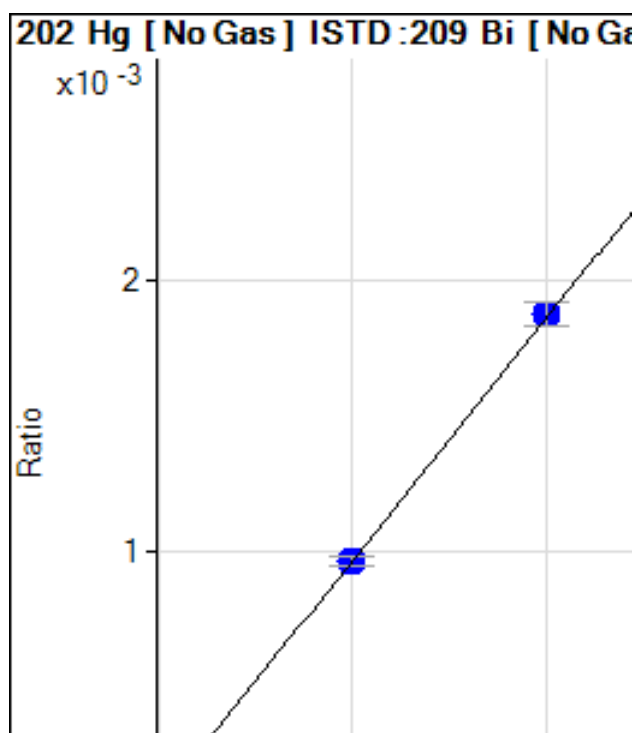
R = 0.9999

DL = 0.04093 ug/l

BEC = 0.1047 ug/l

Weight: 1/y

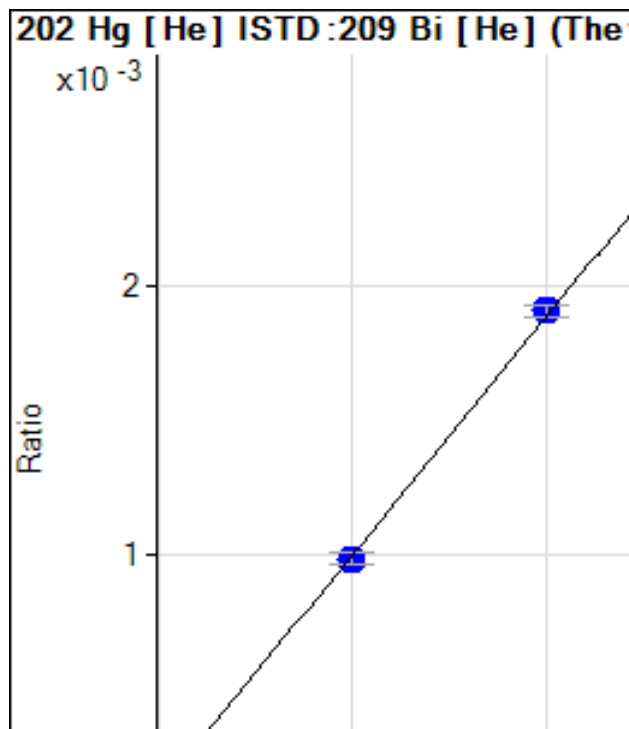
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	438.59	0.000		2.5	
2	<input type="checkbox"/>			420.92	0.000		5.1	
3	<input type="checkbox"/>	0.001	-0.012	410.26	0.000		7.0	-125
4	<input type="checkbox"/>	0.002	-0.028	324.27	0.000		5.6	-151
5	<input type="checkbox"/>	0.010	-0.006	415.92	0.000		14.	-155
6	<input type="checkbox"/>	0.020	0.011	475.91	0.000		8.5	-43
7	<input type="checkbox"/>	0.200	0.189	1194.48	0.000		5.5	-5.5
8	<input type="checkbox"/>	1.000	0.987	4383.85	0.001		3.0	-1.3
9	<input type="checkbox"/>	2.000	2.008	8936.21	0.001		4.7	0.4
10	<input type="checkbox"/>			434.59	0.000		14.	
11	<input type="checkbox"/>			304.27	0.000		13.	

$y = 8.8521E-004 * x + 9.3287E-005$

R = 0.9999



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	261.28	0.000		3.4	
2	<input type="checkbox"/>			245.62	0.000		5.8	
3	<input type="checkbox"/>	0.001	-0.006	260.28	0.000		15.	-654
4	<input type="checkbox"/>	0.002	-0.028	218.63	0.000		8.5	-150
5	<input type="checkbox"/>	0.010	-0.004	252.95	0.000		18.	-139
6	<input type="checkbox"/>	0.020	0.006	266.62	0.000		7.2	-67
7	<input type="checkbox"/>	0.200	0.151	546.24	0.000		4.2	-24
8	<input type="checkbox"/>	1.000	0.974	2137.08	0.001		5.3	-2.6
9	<input type="checkbox"/>	2.000	2.018	4326.17	0.001		2.5	0.9
10	<input type="checkbox"/>			277.28	0.000		11.	
11	<input type="checkbox"/>			152.30	0.000		10.	

$y = 8.8765E-004 * x + 1.1969E-004$

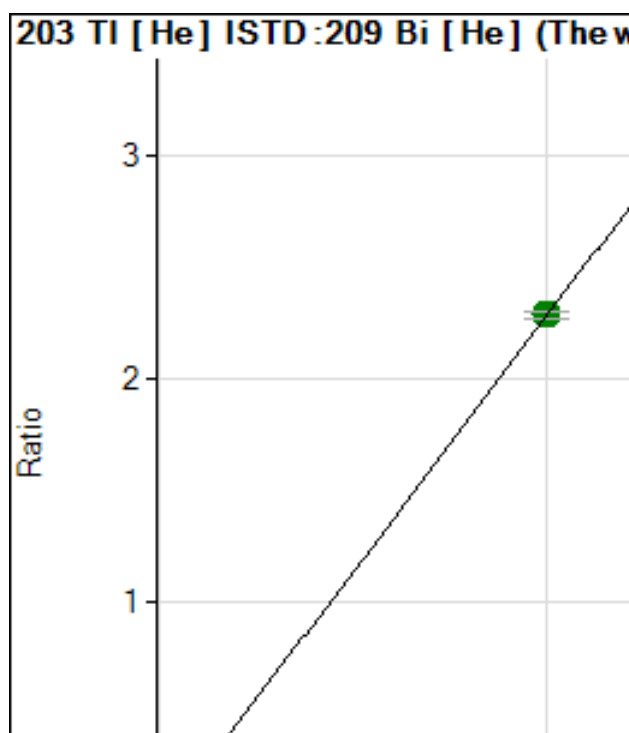
R = 0.9997

DL = 0.01376 ug/l

BEC = 0.1348 ug/l

Weight: 1/y

Min Conc: <None>

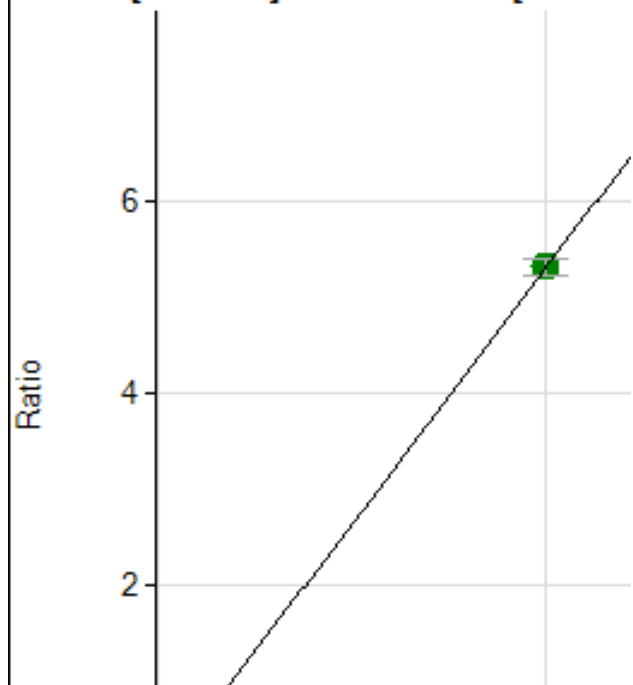


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	66.70	0.000		5.7	
2	<input type="checkbox"/>	0.025	0.024	188.74	0.000		3.2	-2.8
3	<input type="checkbox"/>	0.050	0.052	339.47	0.000		14.	4.3
4	<input type="checkbox"/>	0.100	0.102	608.26	0.000		5.1	1.9
5	<input type="checkbox"/>	0.500	0.504	2580.63	0.001		4.5	0.8
6	<input type="checkbox"/>	1.000	1.050	5167.76	0.002		4.3	5.0
7	<input type="checkbox"/>	10.000	10.230	50361.95	0.023		1.0	2.3
8	<input type="checkbox"/>	50.000	50.322	250333.9	0.115		1.2	0.6
9	<input type="checkbox"/>	100.00	100.72	521764.6	0.230		4.5	0.7
10	<input type="checkbox"/>	1000.0	999.90	5379705.	2.288		1.5	0.0
11	<input type="checkbox"/>			8086.40	0.003		11.	

$y = 0.0023 * x + 3.0543E-005$

R = 1.0000

205 Tl [ No Gas ] ISTD :209 Bi [ No Gas]



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	282.23	0.000		19.	
2	<input type="checkbox"/>	0.025	0.024	873.37	0.000		0.9	-5.9
3	<input type="checkbox"/>	0.050	0.053	1696.79	0.000		5.2	6.8
4	<input type="checkbox"/>	0.100	0.102	2864.78	0.000		4.1	2.4
5	<input type="checkbox"/>	0.500	0.500	12811.80	0.002		4.2	0.0
6	<input type="checkbox"/>	1.000	1.057	26175.97	0.005		2.2	5.7
7	<input type="checkbox"/>	10.000	10.472	255128.5	0.055		1.9	4.7
8	<input type="checkbox"/>	50.000	50.038	1204948.	0.265		4.1	0.1
9	<input type="checkbox"/>	100.00	97.333	2466931.	0.517		7.2	-2.7
10	<input type="checkbox"/>	1000.0	1000.2	25466792	5.312		3.5	0.0
11	<input type="checkbox"/>			31836.12	0.006		23.	

$y = 0.0053 * x + 5.9928E-005$

R = 1.0000

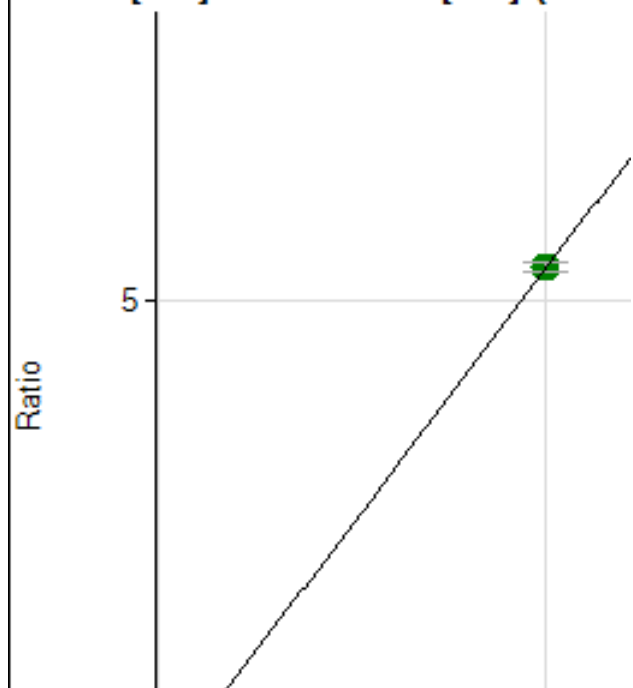
DL = 0.006421 ug/l

BEC = 0.01128 ug/l

Weight: 1/y

Min Conc: <None>

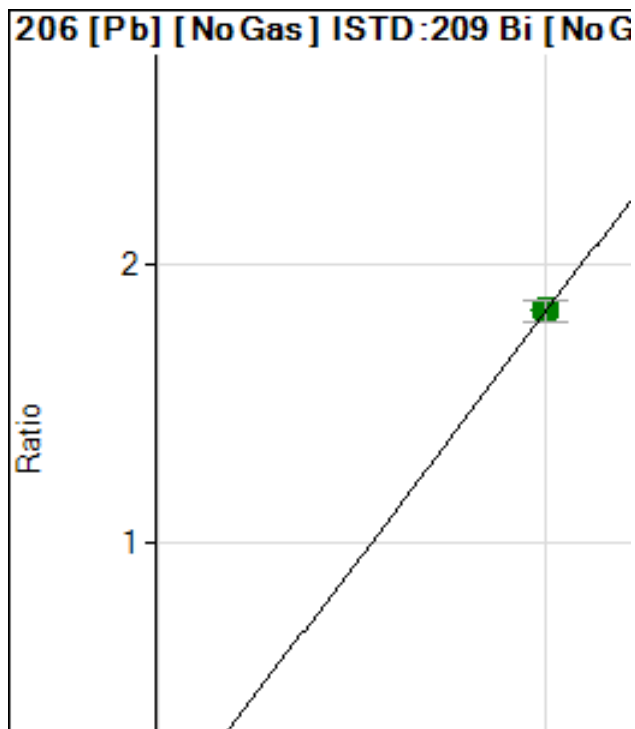
205 Tl [ He ] ISTD :209 Bi [ He ] (The



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	159.40	0.000		16.	
2	<input type="checkbox"/>	0.025	0.024	440.18	0.000		10.	-4.6
3	<input type="checkbox"/>	0.050	0.057	853.71	0.000		3.8	13.5
4	<input type="checkbox"/>	0.100	0.103	1444.00	0.000		5.7	3.4
5	<input type="checkbox"/>	0.500	0.510	6107.87	0.002		3.7	2.0
6	<input type="checkbox"/>	1.000	1.073	12352.05	0.005		1.0	7.3
7	<input type="checkbox"/>	10.000	10.399	119703.0	0.055		1.5	4.0
8	<input type="checkbox"/>	50.000	50.383	586136.9	0.269		2.0	0.8
9	<input type="checkbox"/>	100.00	103.36	1251864.	0.553		5.4	3.4
10	<input type="checkbox"/>	1000.0	999.64	12577277	5.349		2.0	0.0
11	<input type="checkbox"/>			20157.41	0.008		8.6	

$y = 0.0054 * x + 7.3000E-005$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	138.89	0.000		10.	
2	<input type="checkbox"/>	0.025	0.023	338.89	0.000		2.7	-7.9
3	<input type="checkbox"/>	0.050	0.057	661.13	0.000		4.2	13.7
4	<input type="checkbox"/>	0.100	0.113	1124.50	0.000		8.4	13.5
5	<input type="checkbox"/>	0.500	0.522	4653.08	0.001		3.4	4.4
6	<input type="checkbox"/>	1.000	1.032	8858.56	0.001		3.7	3.2
7	<input type="checkbox"/>	10.000	10.502	88378.67	0.019		3.4	5.0
8	<input type="checkbox"/>	50.000	49.967	415442.8	0.091		3.4	-0.1
9	<input type="checkbox"/>	100.00	100.01	875554.0	0.183		6.0	0.0
10	<input type="checkbox"/>	1000.0	999.99	8788017.	1.833		4.4	0.0
11	<input type="checkbox"/>			950.04	0.000		14.	

$y = 0.0018 * x + 2.9515E-005$

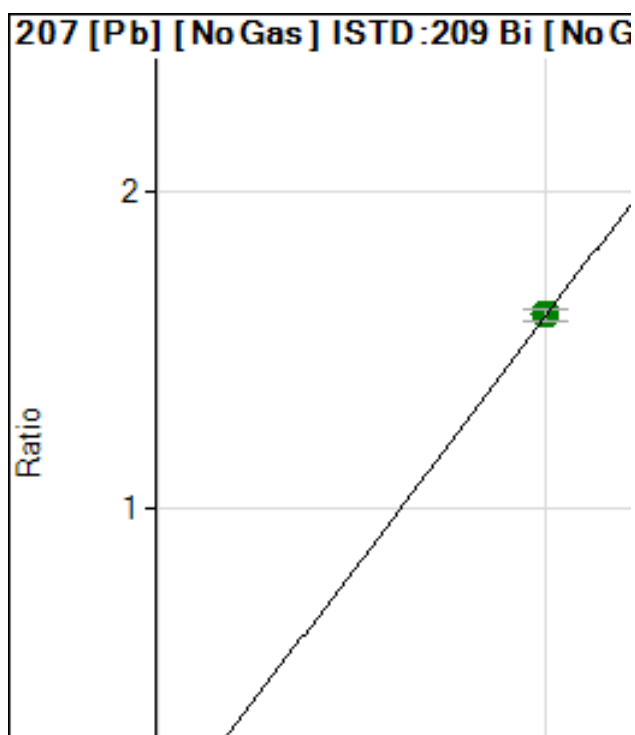
R = 1.0000

DL = 0.005083 ug/l

BEC = 0.0161 ug/l

Weight: 1/y

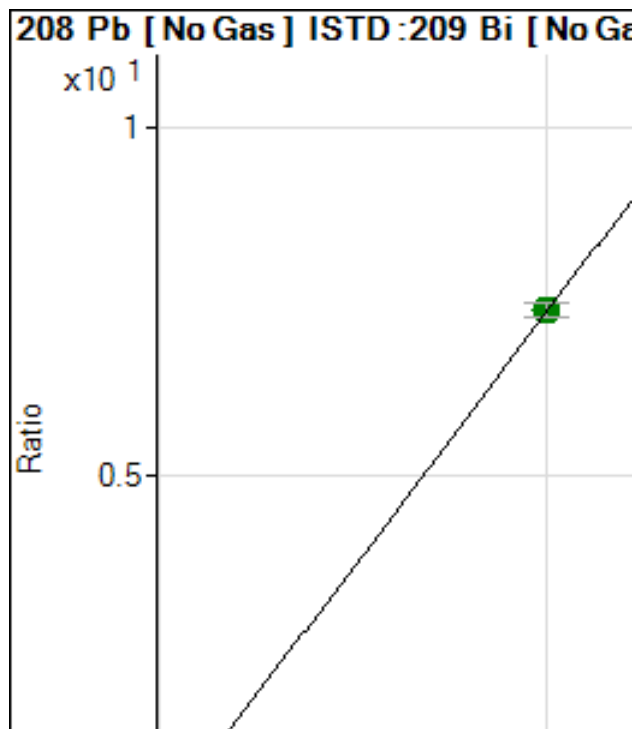
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	115.56	0.000		8.7	
2	<input type="checkbox"/>	0.025	0.023	294.45	0.000		10.	-6.4
3	<input type="checkbox"/>	0.050	0.057	578.90	0.000		2.8	15.0
4	<input type="checkbox"/>	0.100	0.107	928.93	0.000		5.5	6.5
5	<input type="checkbox"/>	0.500	0.515	4030.64	0.000		0.9	3.0
6	<input type="checkbox"/>	1.000	1.017	7665.59	0.001		4.0	1.7
7	<input type="checkbox"/>	10.000	10.471	77392.97	0.016		1.6	4.7
8	<input type="checkbox"/>	50.000	49.354	360399.7	0.079		2.7	-1.3
9	<input type="checkbox"/>	100.00	97.393	748337.8	0.156		7.6	-2.6
10	<input type="checkbox"/>	1000.0	1000.2	7722561.	1.610		2.6	0.0
11	<input type="checkbox"/>			830.03	0.000		11.	

$y = 0.0016 * x + 2.4559E-005$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	521.12	0.000		9.0	
2	<input type="checkbox"/>	0.025	0.024	1363.37	0.000		6.1	-3.5
3	<input type="checkbox"/>	0.050	0.057	2609.01	0.000		1.8	13.3
4	<input type="checkbox"/>	0.100	0.110	4353.65	0.000		5.7	9.8
5	<input type="checkbox"/>	0.500	0.511	18267.24	0.003		3.1	2.2
6	<input type="checkbox"/>	1.000	1.045	36003.01	0.007		1.7	4.5
7	<input type="checkbox"/>	10.000	10.458	353230.5	0.077		1.0	4.6
8	<input type="checkbox"/>	50.000	49.833	1663070.	0.366		3.2	-0.3
9	<input type="checkbox"/>	100.00	98.482	3461921.	0.724		5.9	-1.5
10	<input type="checkbox"/>	1000.0	1000.1	35291178	7.361		2.8	0.0
11	<input type="checkbox"/>			3668.00	0.000		11.	

$y = 0.0074 * x + 1.1075E-004$

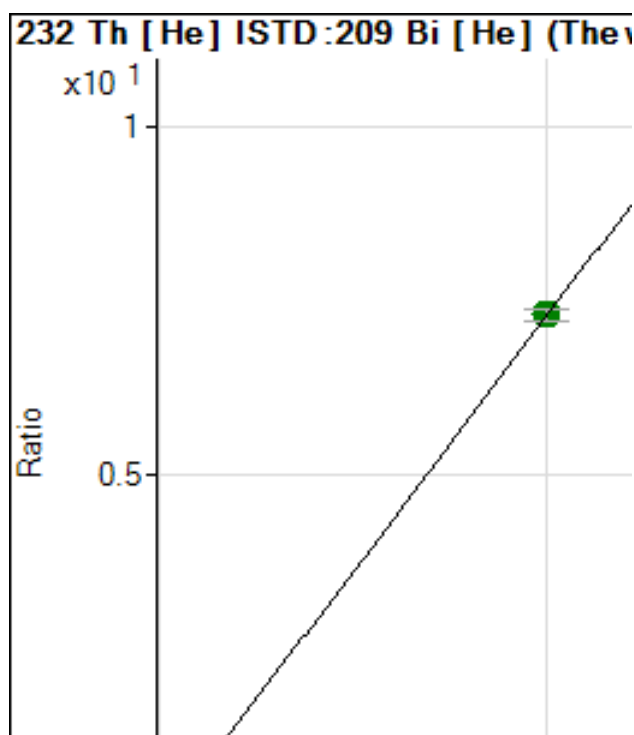
R = 1.0000

DL = 0.004042 ug/l

BEC = 0.01505 ug/l

Weight: 1/y

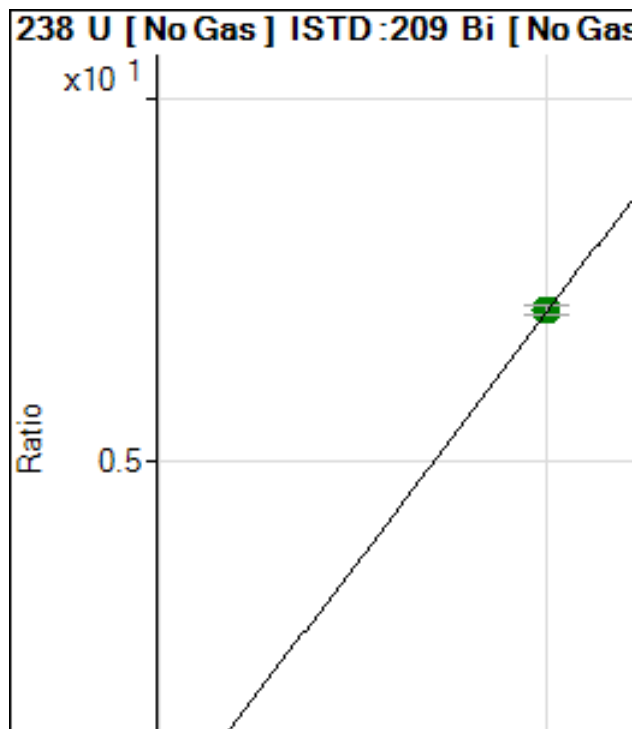
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	119.38	0.000		9.5	
2	<input type="checkbox"/>	0.025	0.011	292.12	0.000		9.8	-56
3	<input type="checkbox"/>	0.050	0.027	575.58	0.000		5.1	-45
4	<input type="checkbox"/>	0.100	0.058	1110.50	0.000		4.8	-41
5	<input type="checkbox"/>	0.500	0.342	5552.75	0.002		5.6	-31
6	<input type="checkbox"/>	1.000	0.858	13413.61	0.006		1.9	-14
7	<input type="checkbox"/>	10.000	9.938	155940.8	0.072		2.8	-0.6
8	<input type="checkbox"/>	50.000	49.533	786016.1	0.361		2.5	-0.9
9	<input type="checkbox"/>	100.00	100.31	1657577.	0.732		3.5	0.3
10	<input type="checkbox"/>	1000.0	999.99	17161668	7.300		2.5	0.0
11	<input type="checkbox"/>			5285.21	0.002		7.5	

$y = 0.0073 * x + 5.4669E-005$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	11.67	0.000		16.	
2	<input type="checkbox"/>	0.025	0.025	837.19	0.000		3.4	-1.1
3	<input type="checkbox"/>	0.050	0.055	1948.43	0.000		3.7	10.9
4	<input type="checkbox"/>	0.100	0.105	3519.11	0.000		4.7	4.7
5	<input type="checkbox"/>	0.500	0.489	16298.27	0.003		5.6	-2.2
6	<input type="checkbox"/>	1.000	0.995	32438.75	0.007		1.2	-0.5
7	<input type="checkbox"/>	10.000	10.198	330349.9	0.072		0.6	2.0
8	<input type="checkbox"/>	50.000	48.491	1553564.	0.342		3.1	-3.0
9	<input type="checkbox"/>	100.00	97.560	3292524.	0.689		5.4	-2.4
10	<input type="checkbox"/>	1000.0	1000.3	33899245	7.069		2.0	0.0
11	<input type="checkbox"/>			948.85	0.000		9.1	

$y = 0.0071 * x + 2.4779E-006$

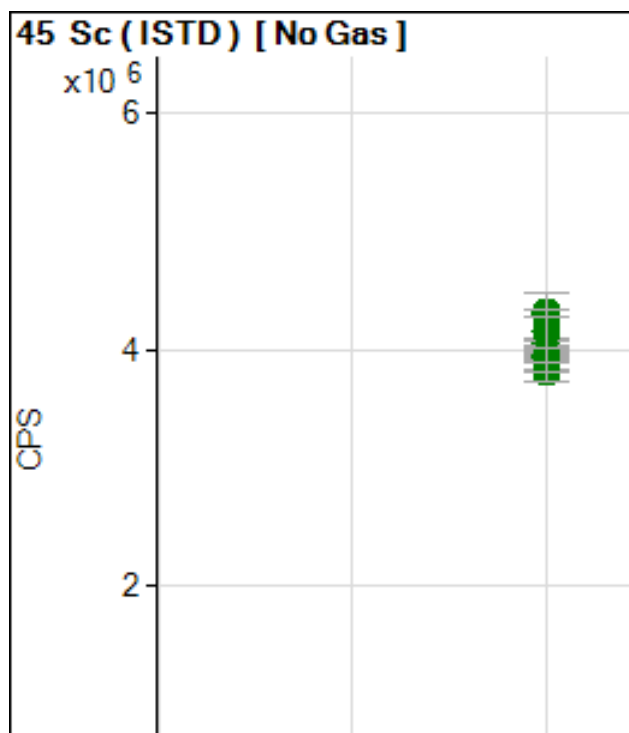
R = 1.0000

DL = 0.0001727 ug/l

BEC = 0.0003506 ug/l

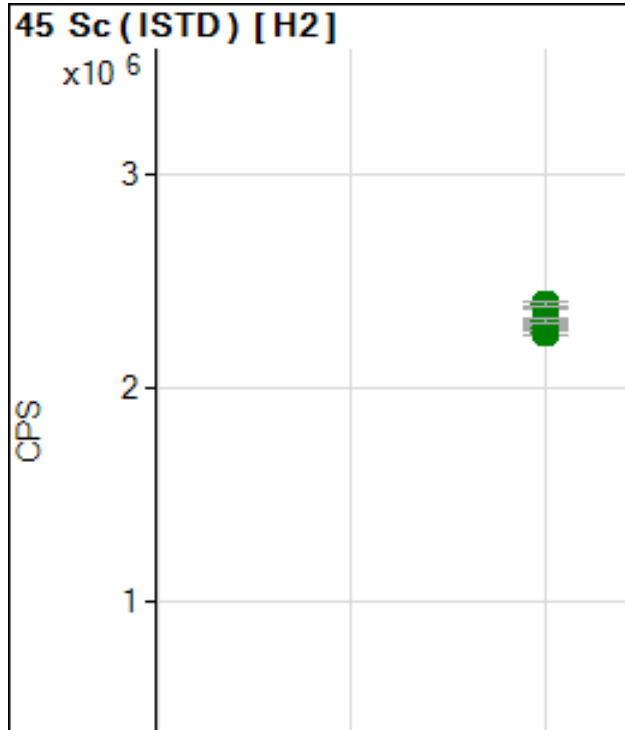
Weight: 1/y

Min Conc: <None>

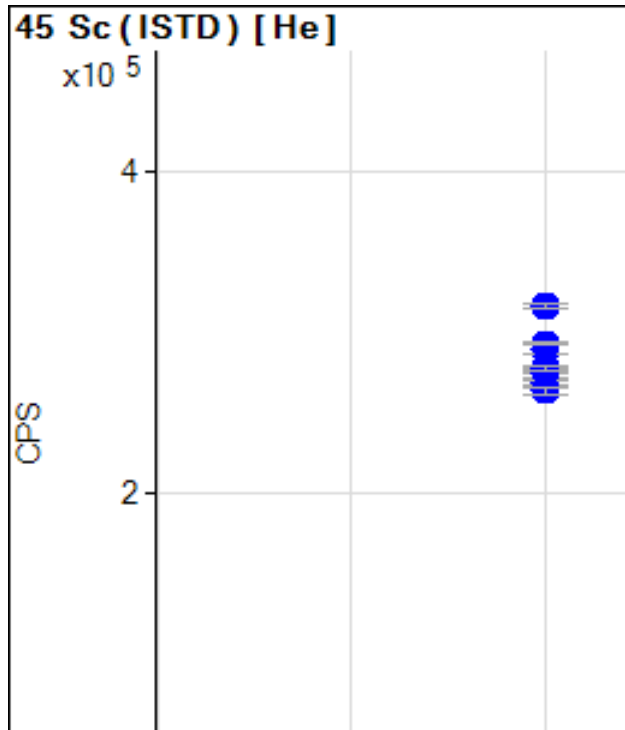


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		3963765.			1.6	
2	<input type="checkbox"/>	1.000		3954503.			0.8	
3	<input type="checkbox"/>	1.000		4025028.			0.5	
4	<input type="checkbox"/>	1.000		3936172.			1.3	
5	<input type="checkbox"/>	1.000		3888632.			2.9	
6	<input type="checkbox"/>	1.000		3812807.			4.0	
7	<input type="checkbox"/>	1.000		4049700.			1.1	
8	<input type="checkbox"/>	1.000		3957825.			3.3	
9	<input type="checkbox"/>	1.000		4290410.			9.3	
10	<input type="checkbox"/>	1.000		4312469.			1.5	
11	<input type="checkbox"/>	1.000		4150331.			16.	

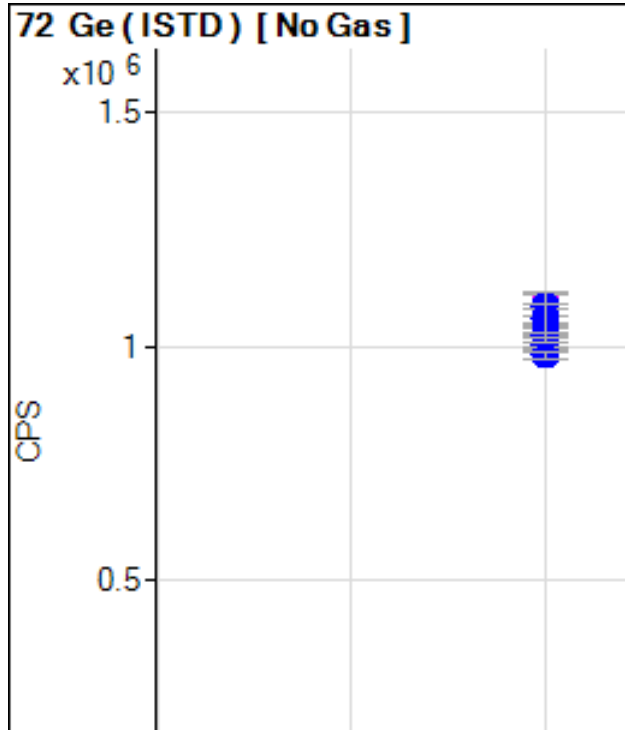




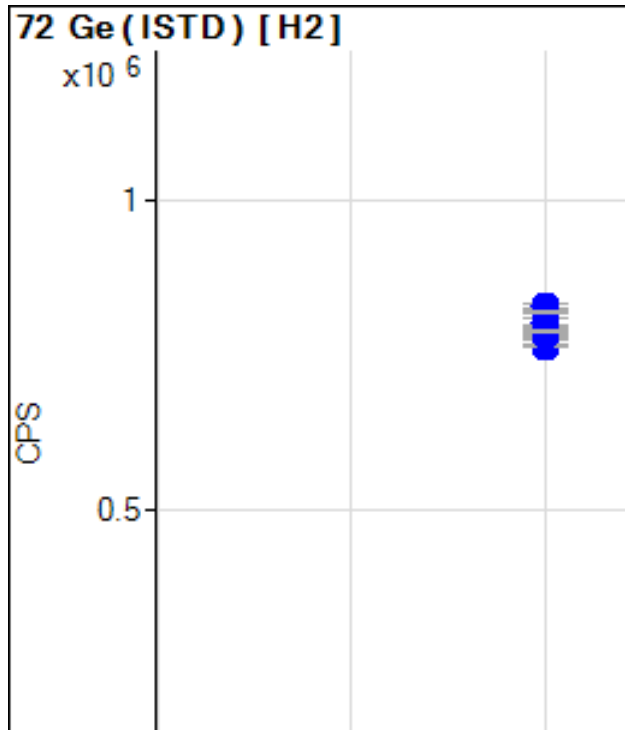
	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		2306117.			1.8	
2	<input type="checkbox"/>	1.000		2290535.			0.8	
3	<input type="checkbox"/>	1.000		2313260.			0.4	
4	<input type="checkbox"/>	1.000		2281064.			1.4	
5	<input type="checkbox"/>	1.000		2288366.			1.3	
6	<input type="checkbox"/>	1.000		2261548.			1.0	
7	<input type="checkbox"/>	1.000		2284000.			1.6	
8	<input type="checkbox"/>	1.000		2298672.			0.4	
9	<input type="checkbox"/>	1.000		2385820.			1.3	
10	<input type="checkbox"/>	1.000		2388582.			1.0	
11	<input type="checkbox"/>	1.000		2313394.			0.6	



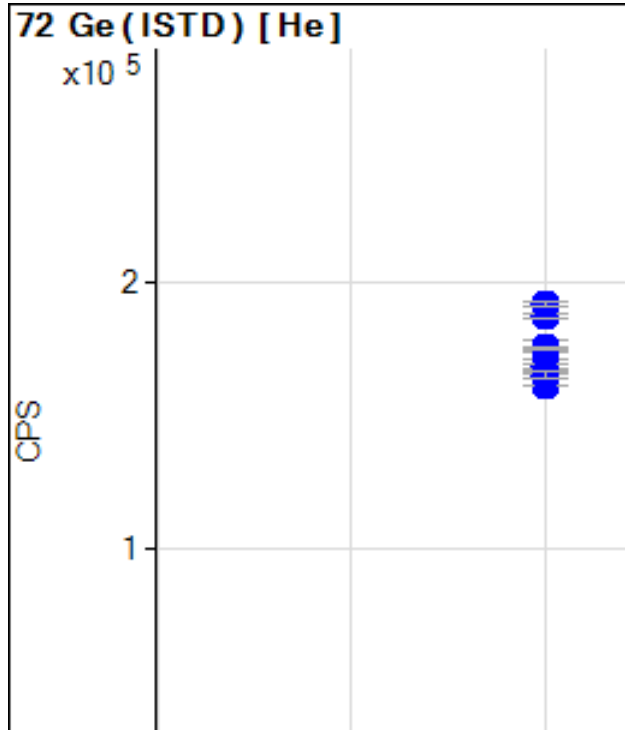
	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		276920.9			0.1	
2	<input type="checkbox"/>	1.000		276266.0			1.1	
3	<input type="checkbox"/>	1.000		276616.6			0.9	
4	<input type="checkbox"/>	1.000		274871.0			2.2	
5	<input type="checkbox"/>	1.000		268539.3			1.1	
6	<input type="checkbox"/>	1.000		263856.3			1.7	
7	<input type="checkbox"/>	1.000		277432.4			1.2	
8	<input type="checkbox"/>	1.000		289810.6			2.0	
9	<input type="checkbox"/>	1.000		315687.8			0.8	
10	<input type="checkbox"/>	1.000		315488.3			0.9	
11	<input type="checkbox"/>	1.000		292861.3			0.4	



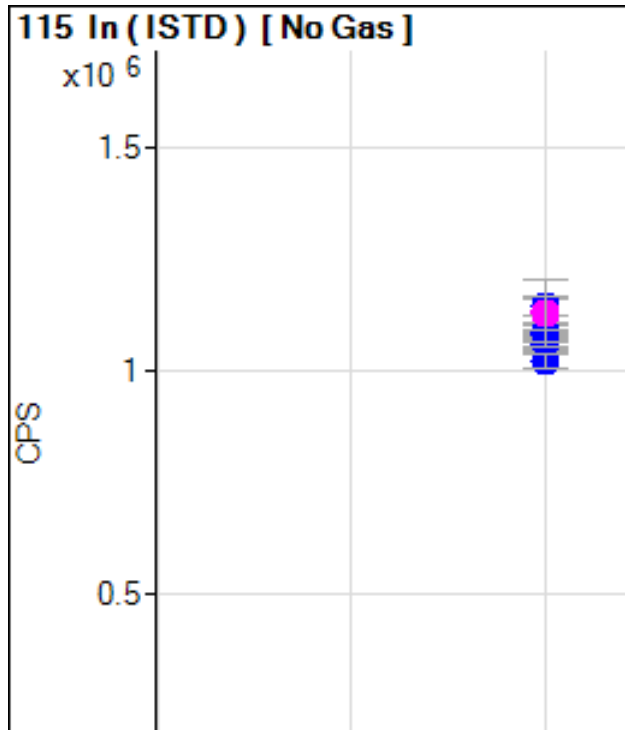
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	1.000		1039321.			1.8	
2	<input type="checkbox"/>	1.000		1020951.			4.5	
3	<input type="checkbox"/>	1.000		1002487.			3.0	
4	<input type="checkbox"/>	1.000		1008226.			3.2	
5	<input type="checkbox"/>	1.000		1023142.			2.6	
6	<input type="checkbox"/>	1.000		981586.3			1.5	
7	<input type="checkbox"/>	1.000		1019278.			4.5	
8	<input type="checkbox"/>	1.000		1023051.			0.9	
9	<input type="checkbox"/>	1.000		1088016.			4.4	
10	<input type="checkbox"/>	1.000		1085905.			0.7	
11	<input type="checkbox"/>	1.000		1061281.			10.	



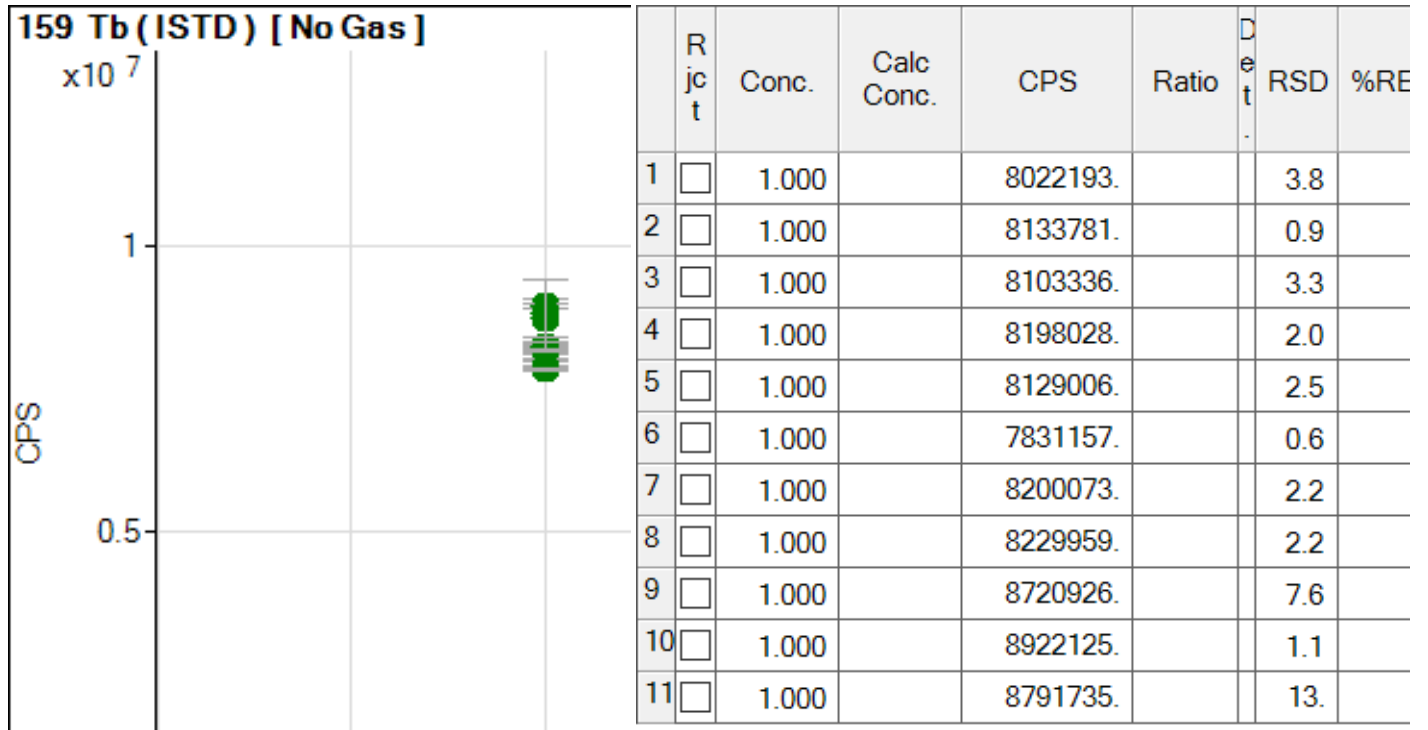
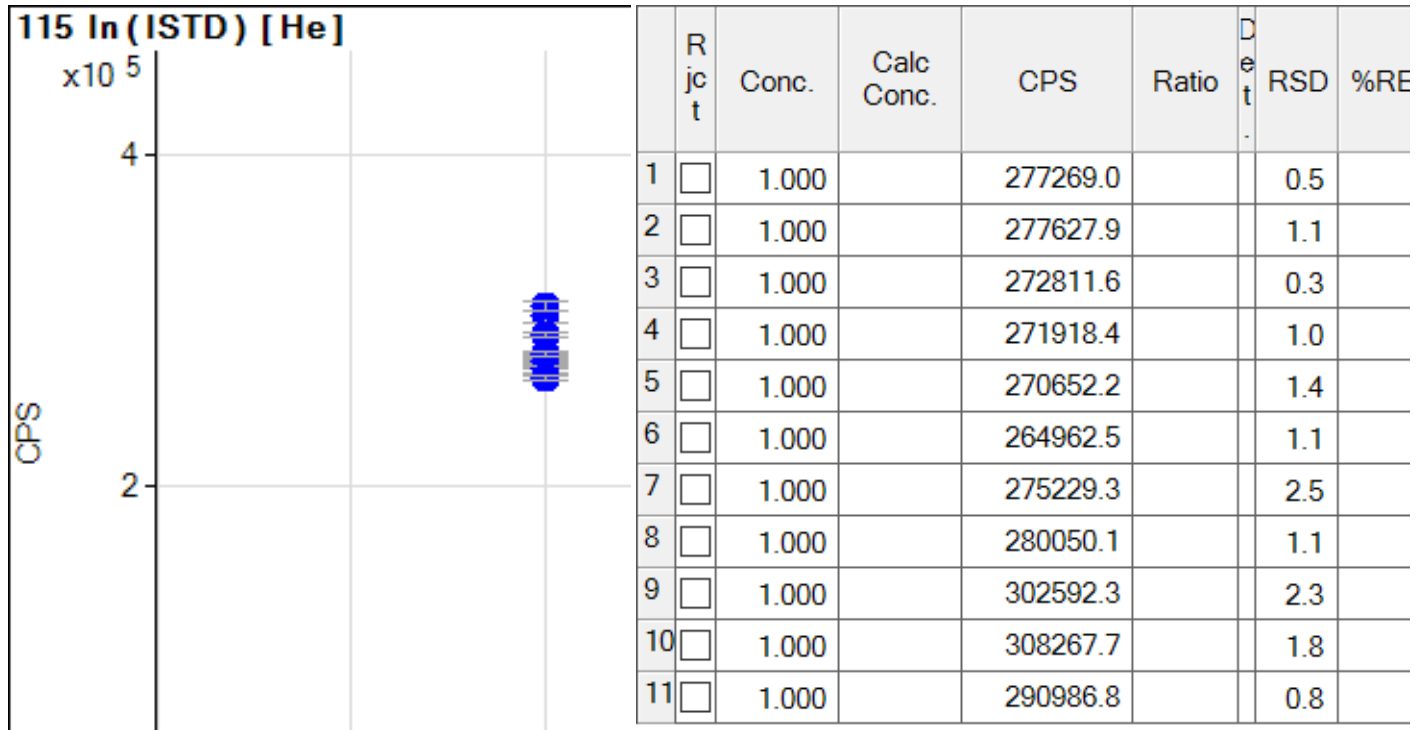
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	1.000		803850.9			1.2	
2	<input type="checkbox"/>	1.000		790954.7			1.9	
3	<input type="checkbox"/>	1.000		777784.1			0.3	
4	<input type="checkbox"/>	1.000		768419.9			1.4	
5	<input type="checkbox"/>	1.000		765160.8			0.5	
6	<input type="checkbox"/>	1.000		782130.9			0.9	
7	<input type="checkbox"/>	1.000		784306.7			0.7	
8	<input type="checkbox"/>	1.000		802210.3			1.6	
9	<input type="checkbox"/>	1.000		828596.3			0.9	
10	<input type="checkbox"/>	1.000		820508.2			0.5	
11	<input type="checkbox"/>	1.000		789761.5			0.3	

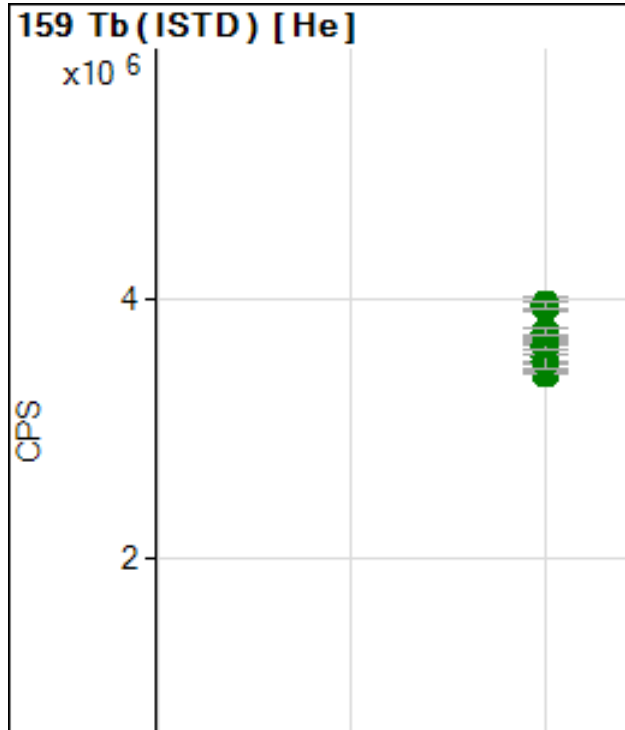


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	1.000		166097.5			1.2	
2	<input type="checkbox"/>	1.000		169362.1			2.0	
3	<input type="checkbox"/>	1.000		168068.1			1.3	
4	<input type="checkbox"/>	1.000		165832.7			0.6	
5	<input type="checkbox"/>	1.000		163288.2			3.0	
6	<input type="checkbox"/>	1.000		161000.0			0.2	
7	<input type="checkbox"/>	1.000		164979.9			2.1	
8	<input type="checkbox"/>	1.000		175761.1			2.2	
9	<input type="checkbox"/>	1.000		187125.1			0.7	
10	<input type="checkbox"/>	1.000		191247.4			0.8	
11	<input type="checkbox"/>	1.000		174940.0			0.9	

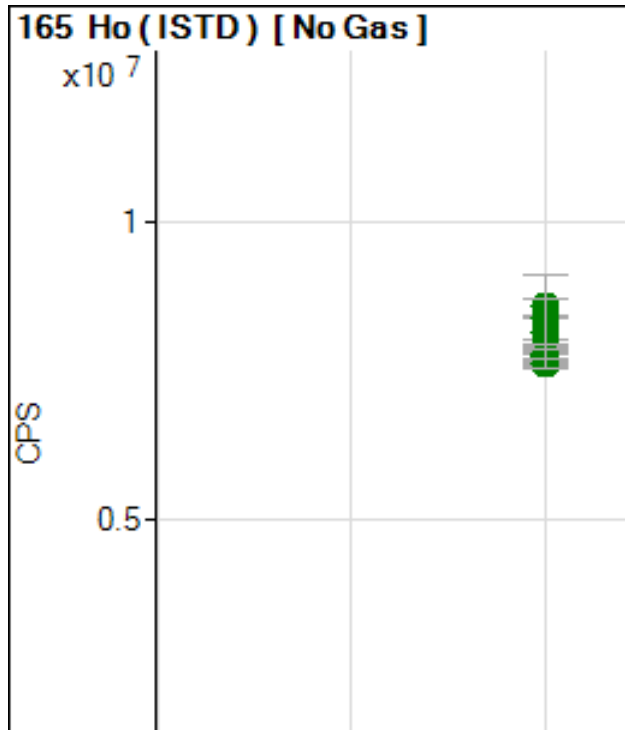


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	1.000		1079708.			1.0	
2	<input type="checkbox"/>	1.000		1050832.			0.3	
3	<input type="checkbox"/>	1.000		1088734.			2.1	
4	<input type="checkbox"/>	1.000		1053989.			2.9	
5	<input type="checkbox"/>	1.000		1057550.			2.8	
6	<input type="checkbox"/>	1.000		1019869.			2.9	
7	<input type="checkbox"/>	1.000		1083280.			3.9	
8	<input type="checkbox"/>	1.000		1078560.			2.5	
9	<input type="checkbox"/>	1.000		1131963.			5.0	
10	<input type="checkbox"/>	1.000		1142229.			3.9	
11	<input type="checkbox"/>	1.000		1129664.			13.	

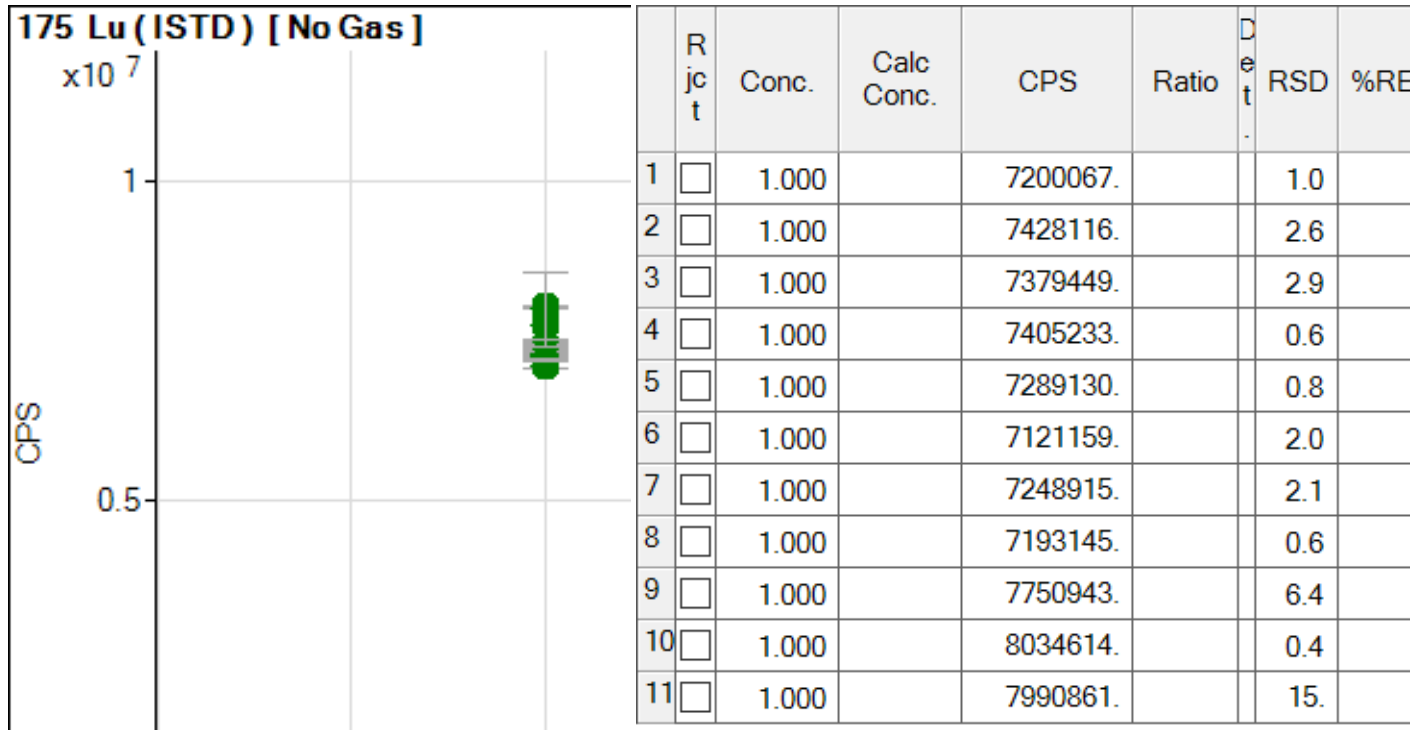
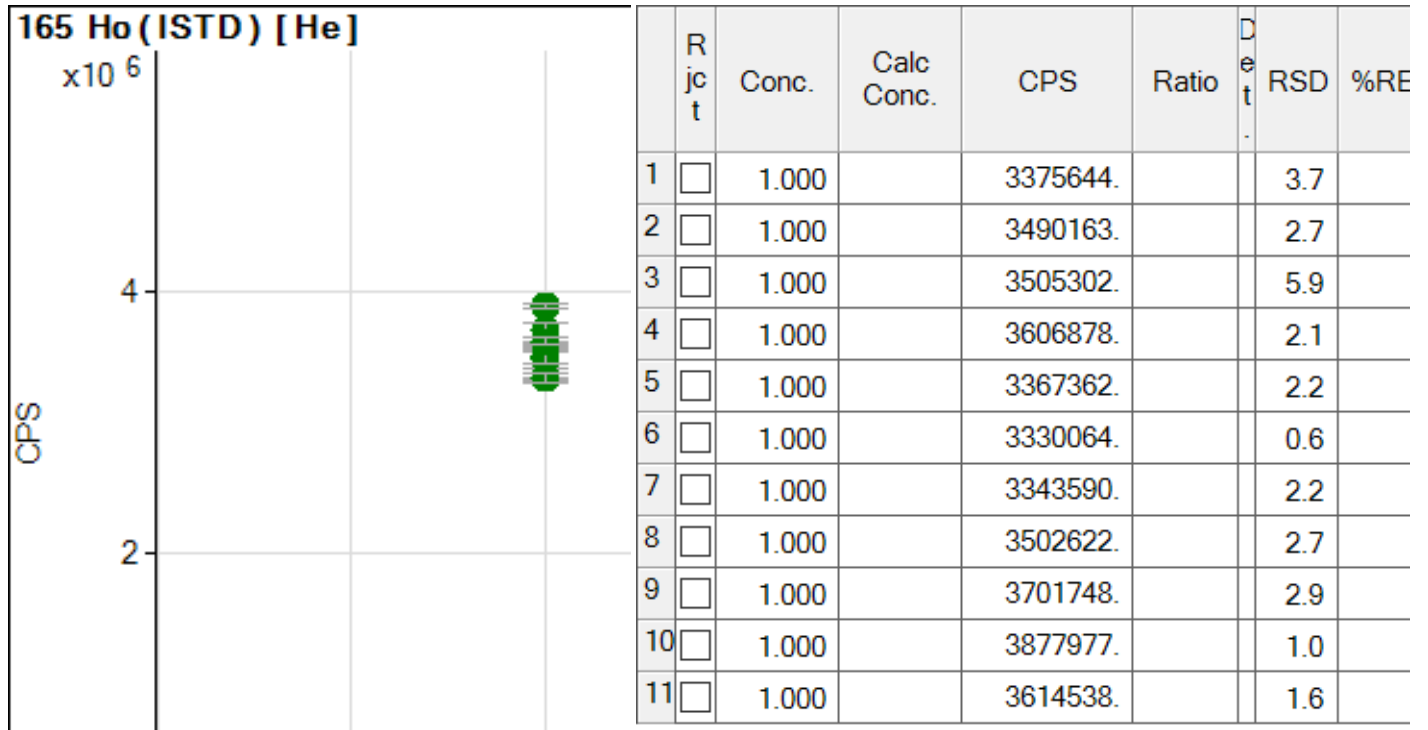


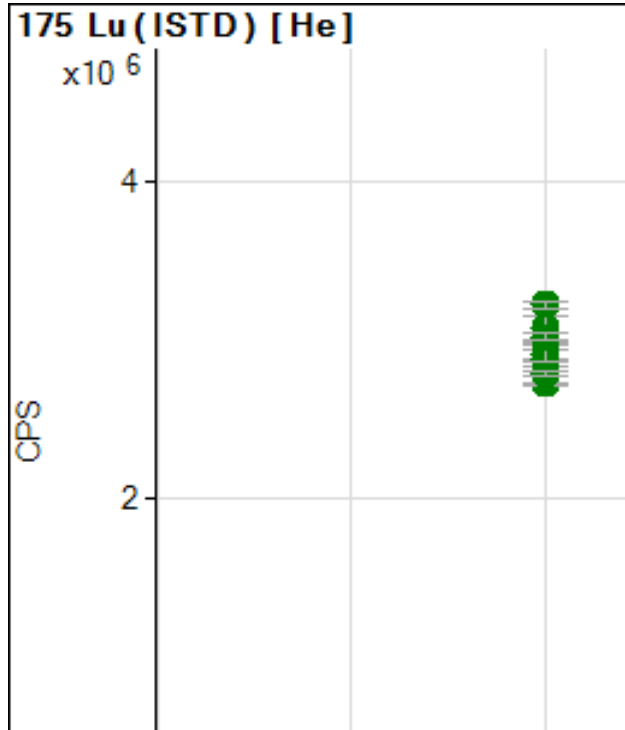


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		3500691.			0.2	
2	<input type="checkbox"/>	1.000		3574291.			2.6	
3	<input type="checkbox"/>	1.000		3690658.			0.6	
4	<input type="checkbox"/>	1.000		3626433.			2.7	
5	<input type="checkbox"/>	1.000		3564784.			5.5	
6	<input type="checkbox"/>	1.000		3439030.			0.2	
7	<input type="checkbox"/>	1.000		3526856.			2.8	
8	<input type="checkbox"/>	1.000		3657130.			1.9	
9	<input type="checkbox"/>	1.000		3965073.			2.8	
10	<input type="checkbox"/>	1.000		3953030.			1.4	
11	<input type="checkbox"/>	1.000		3754515.			1.7	

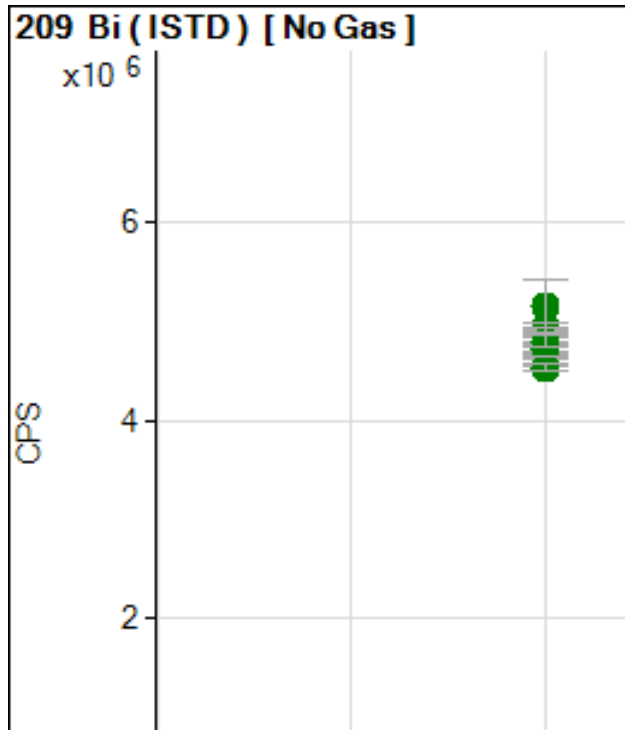


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		7701285.			2.6	
2	<input type="checkbox"/>	1.000		7941108.			2.3	
3	<input type="checkbox"/>	1.000		7672740.			2.5	
4	<input type="checkbox"/>	1.000		7771604.			3.1	
5	<input type="checkbox"/>	1.000		7769202.			3.9	
6	<input type="checkbox"/>	1.000		7618004.			0.8	
7	<input type="checkbox"/>	1.000		7747395.			2.5	
8	<input type="checkbox"/>	1.000		7632863.			2.1	
9	<input type="checkbox"/>	1.000		8163836.			5.2	
10	<input type="checkbox"/>	1.000		8574895.			3.1	
11	<input type="checkbox"/>	1.000		8392052.			16.	

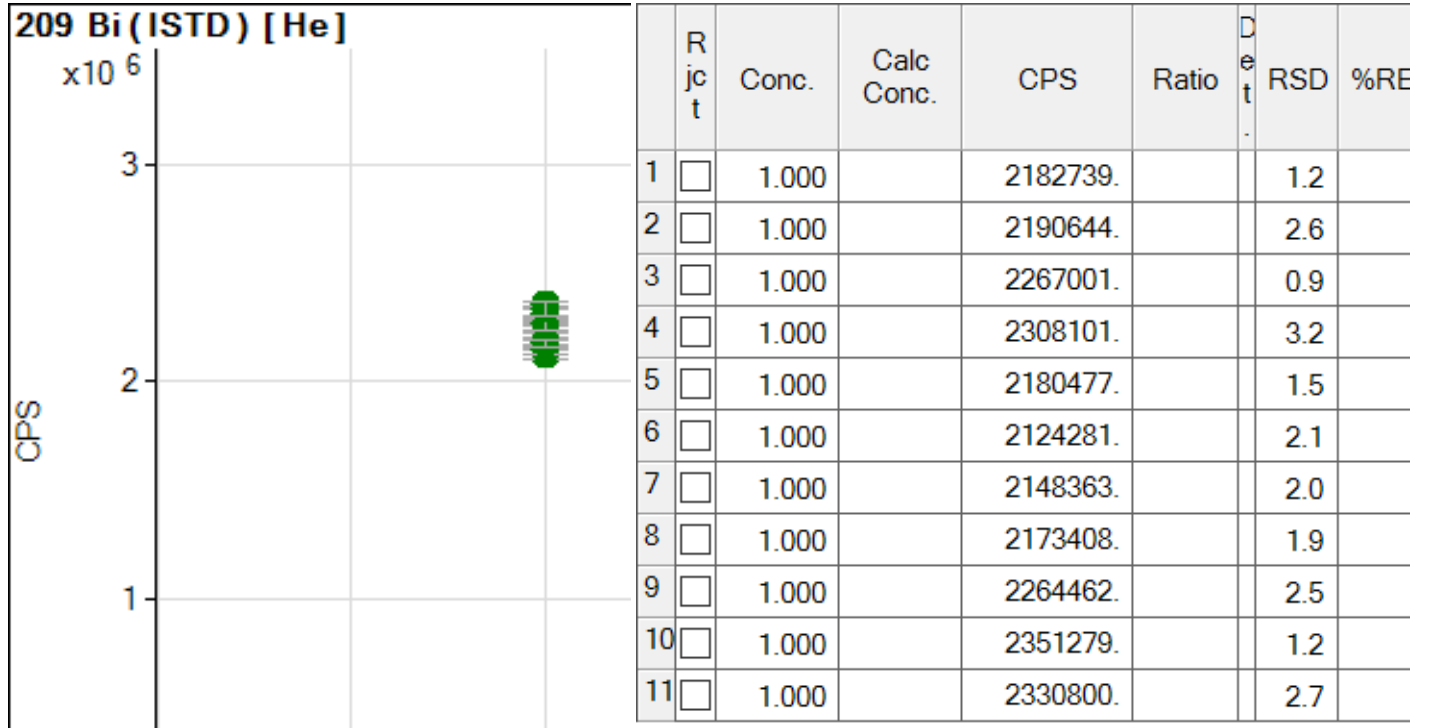




	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	1.000		2794064.			2.1	
2	<input type="checkbox"/>	1.000		2876020.			0.5	
3	<input type="checkbox"/>	1.000		2868822.			5.1	
4	<input type="checkbox"/>	1.000		2968173.			0.4	
5	<input type="checkbox"/>	1.000		2770923.			3.8	
6	<input type="checkbox"/>	1.000		2722497.			0.5	
7	<input type="checkbox"/>	1.000		2788719.			1.2	
8	<input type="checkbox"/>	1.000		2910772.			3.8	
9	<input type="checkbox"/>	1.000		3077178.			4.8	
10	<input type="checkbox"/>	1.000		3218105.			1.5	
11	<input type="checkbox"/>	1.000		3016058.			1.7	



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	1.000		4701204.			1.5	
2	<input type="checkbox"/>	1.000		4725971.			1.8	
3	<input type="checkbox"/>	1.000		4942173.			1.4	
4	<input type="checkbox"/>	1.000		4743568.			3.5	
5	<input type="checkbox"/>	1.000		4719056.			2.6	
6	<input type="checkbox"/>	1.000		4613367.			1.4	
7	<input type="checkbox"/>	1.000		4583135.			1.5	
8	<input type="checkbox"/>	1.000		4534599.			1.5	
9	<input type="checkbox"/>	1.000		4785157.			6.3	
10	<input type="checkbox"/>	1.000		4796546.			2.7	
11	<input type="checkbox"/>	1.000		5144117.			10.	

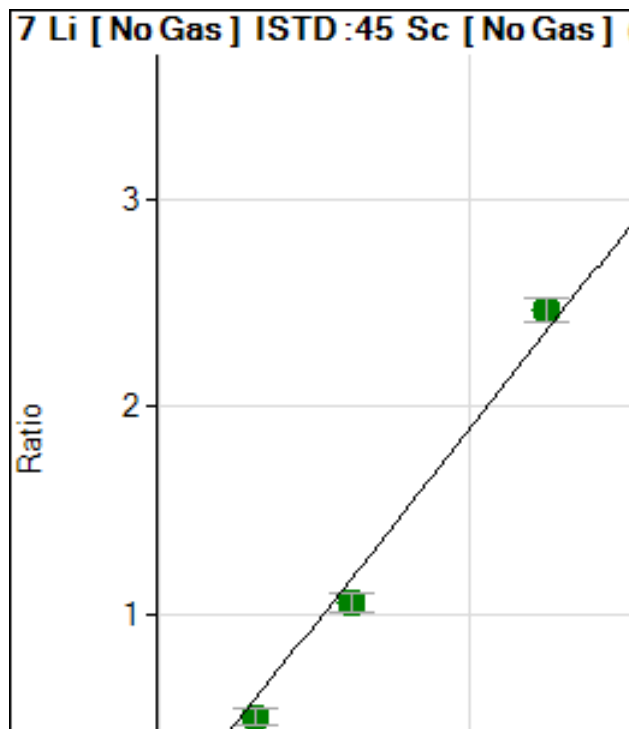




Calibration for 067\_QC1.d

Batch Folder: D:\Agilent\ICPMH\1\DATA\220301ADoD.b\  
 Analysis File: 220301ADoD.batch.bin  
 DA Date-Time: 2022-03-01 18:59:03  
 Calibration Title:  
 Calibration Method: External Calibration  
 VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	055CALB.d	Cal Blk	2022-03-01 17:39:36
2	056CALS.d	0.025 ppb STD	2022-03-01 17:45:59
3	057CALS.d	0.05 ppb STD	2022-03-01 17:52:22
4	058CALS.d	0.10 ppb STD	2022-03-01 17:58:45
5	059CALS.d	0.5 ppb STD	2022-03-01 18:05:08
6	060CALS.d	1 ppb STD	2022-03-01 18:11:31
7	061CALS.d	10 ppb STD	2022-03-01 18:17:54
8	062CALS.d	50 ppb STD	2022-03-01 18:24:17
9	063CALS.d	100 ppb STD	2022-03-01 18:30:40
10	064CALS.d	1000 ppb STD	2022-03-01 18:37:03
11	065CALS.d	100 ppb Br STD	2022-03-01 18:43:27



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	24443.37	0.010		1.4	
2	<input type="checkbox"/>	0.313	0.950	24885.59	0.011		3.4	204
3	<input type="checkbox"/>	0.625	2.488	26316.52	0.012		5.4	298
4	<input type="checkbox"/>	1.250	3.617	27380.16	0.013		1.2	189
5	<input type="checkbox"/>	6.250	8.508	36445.98	0.018		4.4	36.1
6	<input type="checkbox"/>	12.500	14.600	47790.49	0.024		1.3	16.8
7	<input type="checkbox"/>	125.00	114.28	232771.6	0.118		3.3	-8.6
8	<input type="checkbox"/>	625.00	522.63	1041166.	0.504		17.	-16
9	<input type="checkbox"/>	1250.0	1107.9	2559463.	1.057		8.4	-11
10	<input type="checkbox"/>	2500.0	2597.1	7217828.	2.465		4.7	3.9
11	<input type="checkbox"/>			36327.10	0.015		1.1	

$y = 9.4527E-004 * x + 0.0102$

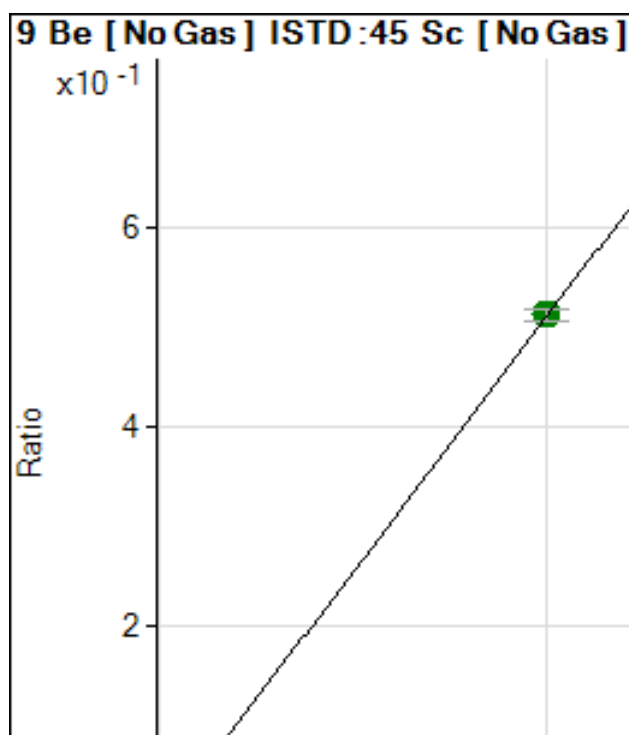
R = 0.9971

DL = 0.4551 ug/l

BEC = 10.77 ug/l

Weight: 1/y

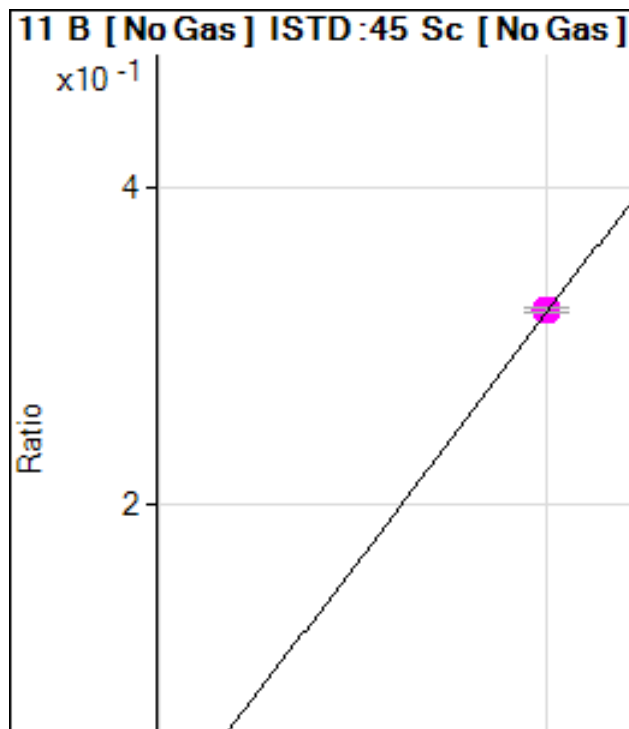
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	100.65	0.000		14.	
2	<input type="checkbox"/>	0.025	0.020	116.65	0.000		6.4	-21
3	<input type="checkbox"/>	0.050	0.068	160.64	0.000		13.	35.9
4	<input type="checkbox"/>	0.100	0.119	206.96	0.000		3.3	18.8
5	<input type="checkbox"/>	0.500	0.493	589.23	0.000		6.0	-1.3
6	<input type="checkbox"/>	1.000	0.985	1088.82	0.000		0.9	-1.5
7	<input type="checkbox"/>	10.000	9.313	9476.11	0.004		1.2	-6.9
8	<input type="checkbox"/>	50.000	46.030	48774.07	0.023		17.	-7.9
9	<input type="checkbox"/>	100.00	90.600	112402.2	0.046		6.3	-9.4
10	<input type="checkbox"/>	1000.0	1001.1	1500008.	0.512		2.5	0.1
11	<input type="checkbox"/>			281.62	0.000		4.7	

$y = 5.1201E-004 * x + 4.1909E-005$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	875.05	0.000		5.1	
2	<input type="checkbox"/>			540.89	0.000		9.9	
3	<input type="checkbox"/>	0.050	-0.311	556.90	0.000		5.1	-722
4	<input type="checkbox"/>	0.100	-0.307	534.89	0.000		10.	-406
5	<input type="checkbox"/>	0.500	0.055	765.00	0.000		1.7	-89
6	<input type="checkbox"/>	1.000	0.532	1067.80	0.000		1.5	-46
7	<input type="checkbox"/>	10.000	8.698	6223.80	0.003		4.9	-13
8	<input type="checkbox"/>	50.000	44.878	30478.66	0.014		19.	-10
9	<input type="checkbox"/>	100.00	88.192	69530.87	0.028		6.2	-11
10	<input type="checkbox"/>	1000.0	1001.4	942495.7	0.322		0.9	0.1
11	<input type="checkbox"/>			4305.69	0.001		2.0	

$y = 3.2157E-004 * x + 3.6444E-004$

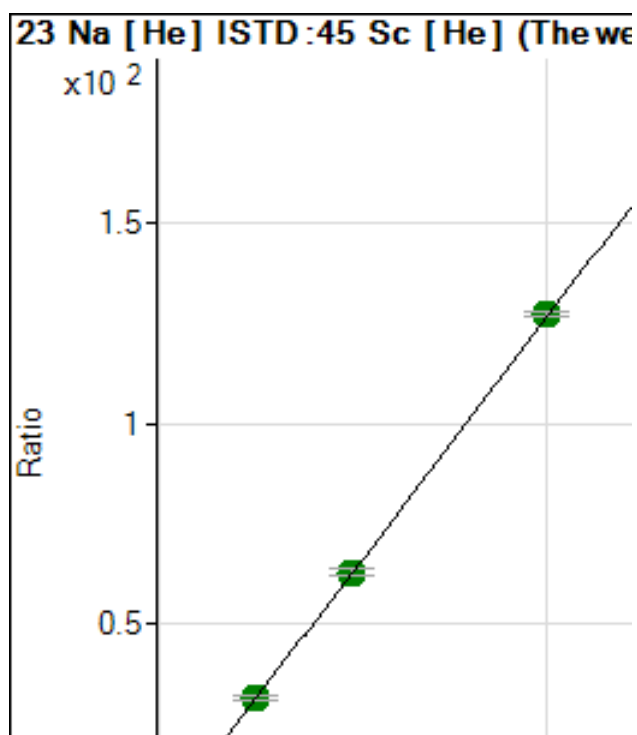
R = 0.9999

DL = 0.1723 ug/l

BEC = 1.133 ug/l

Weight: 1/y

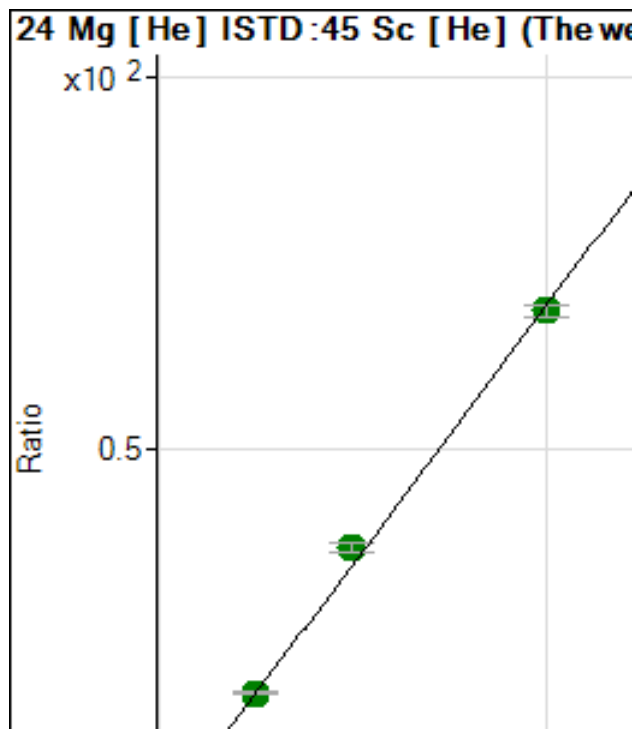
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	58369.19	0.400		1.3	
2	<input type="checkbox"/>	6.250	21.016	60670.43	0.453		1.3	236
3	<input type="checkbox"/>	12.500	36.628	62457.71	0.492		1.7	193
4	<input type="checkbox"/>	25.000	59.636	66532.83	0.550		2.2	138
5	<input type="checkbox"/>	125.00	167.37	99358.63	0.823		2.6	33.9
6	<input type="checkbox"/>	250.00	321.92	143076.9	1.213		1.9	28.8
7	<input type="checkbox"/>	2500.0	2798.2	903172.5	7.466		1.5	11.9
8	<input type="checkbox"/>	12500.	12455.	4335160.	31.85		3.6	-0.4
9	<input type="checkbox"/>	25000.	24751.	10620040	62.90		3.4	-1.0
10	<input type="checkbox"/>	50000.	50120.	26183696	126.9		0.9	0.2
11	<input type="checkbox"/>			54025.38	0.427		2.5	

$y = 0.0025 * x + 0.4003$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	1710.05	0.011		4.3	
2	<input type="checkbox"/>	6.250	7.569	2977.73	0.022		6.7	21.1
3	<input type="checkbox"/>	12.500	18.339	4721.41	0.037		1.9	46.7
4	<input type="checkbox"/>	25.000	35.924	7457.12	0.061		3.3	43.7
5	<input type="checkbox"/>	125.00	142.19	25324.80	0.209		3.3	13.8
6	<input type="checkbox"/>	250.00	294.95	49768.51	0.422		1.3	18.0
7	<input type="checkbox"/>	2500.0	2755.6	465316.9	3.845		2.3	10.2
8	<input type="checkbox"/>	12500.	12370.	2346189.	17.22		2.6	-1.0
9	<input type="checkbox"/>	25000.	26399.	6208127.	36.74		3.8	5.6
10	<input type="checkbox"/>	50000.	49319.	14155559	68.63		2.6	-1.4
11	<input type="checkbox"/>			1859.77	0.014		5.0	

$y = 0.0014 * x + 0.0117$

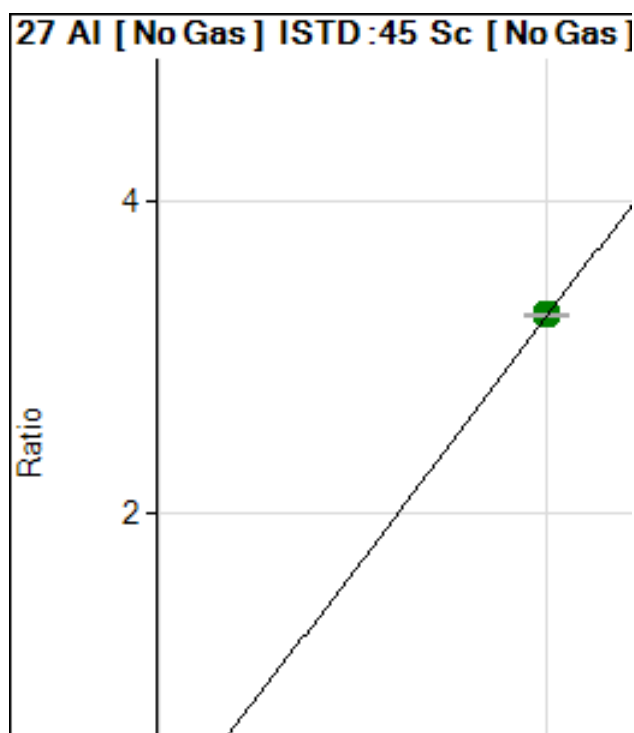
R = 0.9995

DL = 1.093 ug/l

BEC = 8.428 ug/l

Weight: 1/y

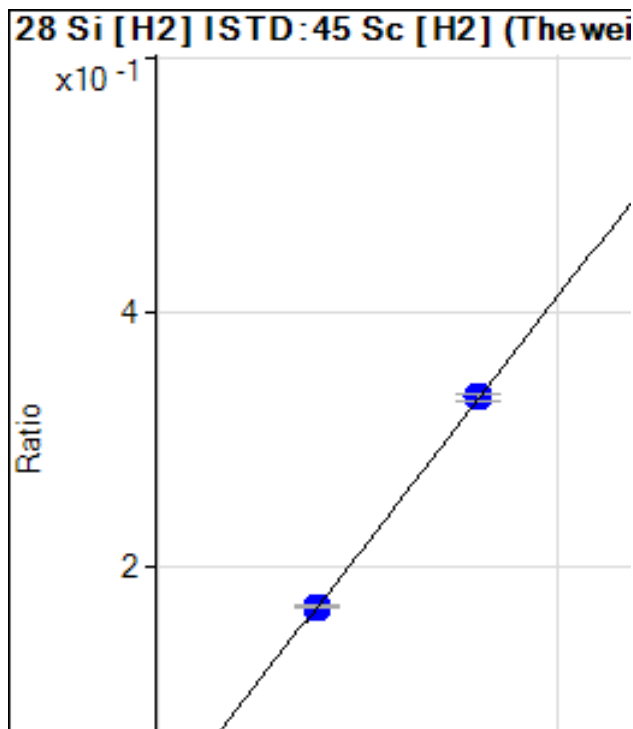
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	7908.80	0.003		1.0	
2	<input type="checkbox"/>			9540.85	0.004		1.7	
3	<input type="checkbox"/>	0.050	0.444	9957.79	0.004		4.2	787
4	<input type="checkbox"/>	0.100	0.604	10596.01	0.005		2.2	504
5	<input type="checkbox"/>	0.500	1.023	13259.23	0.006		4.5	104
6	<input type="checkbox"/>	1.000	1.513	16385.69	0.008		3.7	51.3
7	<input type="checkbox"/>	10.000	10.399	73285.85	0.037		2.2	4.0
8	<input type="checkbox"/>	50.000	47.771	328045.4	0.159		18.	-4.5
9	<input type="checkbox"/>	100.00	91.475	729873.2	0.301		5.5	-8.5
10	<input type="checkbox"/>	1000.0	1000.9	9549728.	3.266		0.6	0.1
11	<input type="checkbox"/>			9461.91	0.004		5.1	

$y = 0.0033 * x + 0.0033$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	15010.24	0.009		5.5	
2	<input type="checkbox"/>			13137.74	0.008		1.4	
3	<input type="checkbox"/>	0.200	-0.811	13034.95	0.008		2.1	-50%
4	<input type="checkbox"/>	0.400	-0.832	12989.54	0.008		0.8	-30%
5	<input type="checkbox"/>	2.000	0.290	13856.68	0.009		1.9	-85%
6	<input type="checkbox"/>	4.000	1.946	15884.84	0.010		1.1	-51%
7	<input type="checkbox"/>	40.000	39.509	59224.31	0.041		1.4	-1.2%
8	<input type="checkbox"/>	200.00	197.32	252705.8	0.168		1.1	-1.3%
9	<input type="checkbox"/>	400.00	401.41	545170.8	0.333		1.7	0.4%
10	<input type="checkbox"/>			16386.88	0.008		1.1	
11	<input type="checkbox"/>			14591.00	0.009		0.3	

$y = 8.0812E-004 * x + 0.0093$

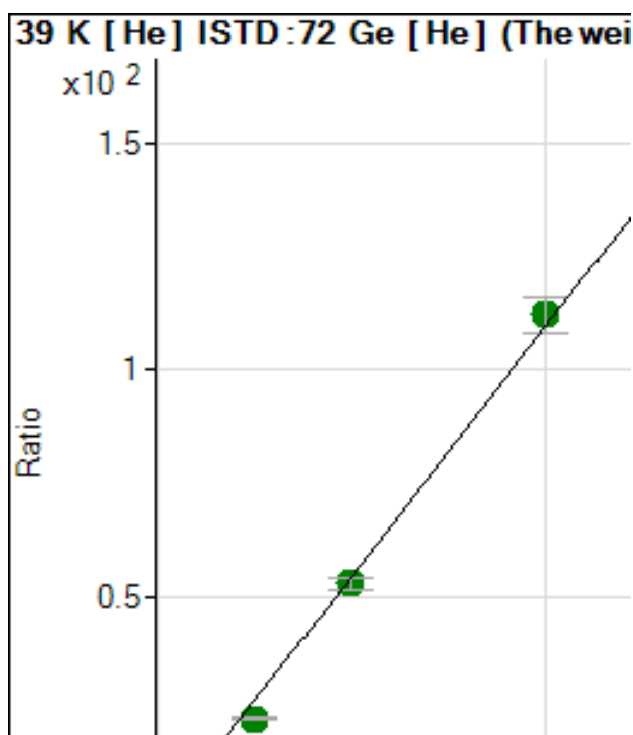
R = 1.0000

DL = 1.886 ug/l

BEC = 11.5 ug/l

Weight: 1/y

Min Conc: <None>

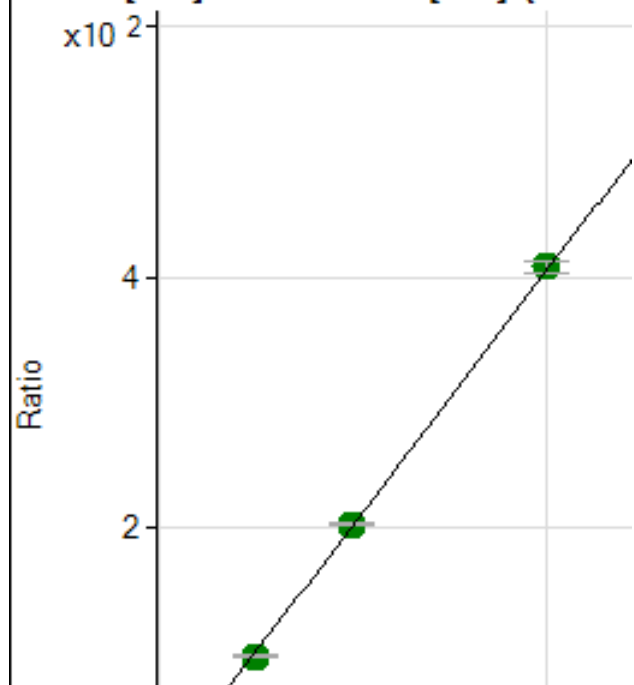


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	51788.57	0.462		2.8	
2	<input type="checkbox"/>	6.250	7.038	48673.29	0.478		3.5	12.6%
3	<input type="checkbox"/>	12.500	7.167	47616.60	0.478		2.2	-42%
4	<input type="checkbox"/>	25.000	21.112	49619.83	0.509		0.5	-15%
5	<input type="checkbox"/>	125.00	111.69	67775.46	0.707		1.2	-10%
6	<input type="checkbox"/>	250.00	241.18	91869.83	0.991		4.1	-3.5%
7	<input type="checkbox"/>	2500.0	2474.8	550462.0	5.883		2.8	-1.0%
8	<input type="checkbox"/>	12500.	10424.	2508259.	23.29		2.0	-16%
9	<input type="checkbox"/>	25000.	24002.	6409028.	53.03		4.5	-4.0%
10	<input type="checkbox"/>	50000.	51019.	15907120	112.2		6.9	2.0%
11	<input type="checkbox"/>			184228.2	1.901		4.1	

$y = 0.0022 * x + 0.4627$

R = 0.9989

40 Ca [H2] ISTD :72 Ge [H2] (The w



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	101620.9	0.169		4.0	
2	<input type="checkbox"/>	6.250	10.014	143111.7	0.250		3.2	60.2
3	<input type="checkbox"/>	12.500	18.487	182097.6	0.319		1.6	47.9
4	<input type="checkbox"/>	25.000	31.653	247703.9	0.426		2.6	26.6
5	<input type="checkbox"/>	125.00	135.60	709150.7	1.270		2.1	8.5
6	<input type="checkbox"/>	250.00	271.78	1330053.	2.375		2.7	8.7
7	<input type="checkbox"/>	2500.0	2653.2	12211660	21.71		1.9	6.1
8	<input type="checkbox"/>	12500.	11889.	57211345	96.69		1.2	-4.9
9	<input type="checkbox"/>	25000.	24801.	12762382	201.5		0.9	-0.8
10	<input type="checkbox"/>	50000.	50244.	27803131	408.0		2.1	0.5
11	<input type="checkbox"/>			116261.5	0.200		1.2	

$y = 0.0081 * x + 0.1692$

R = 0.9999

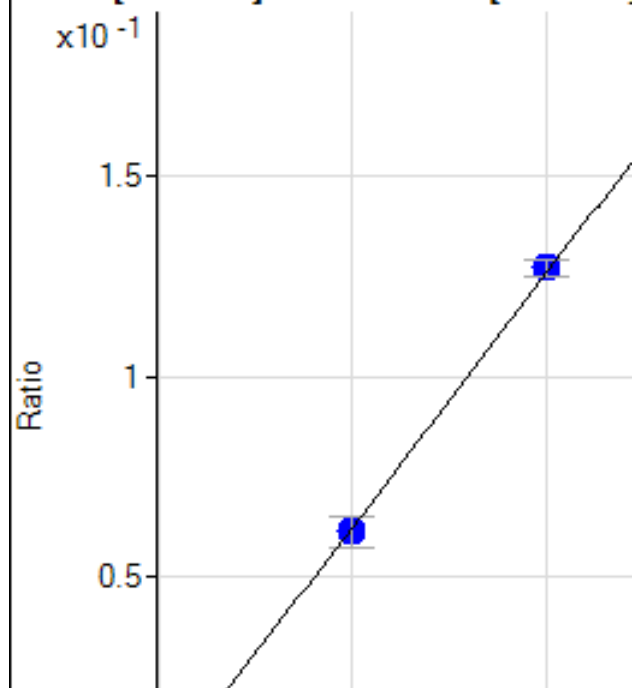
DL = 2.491 ug/l

BEC = 20.84 ug/l

Weight: 1/y

Min Conc: <None>

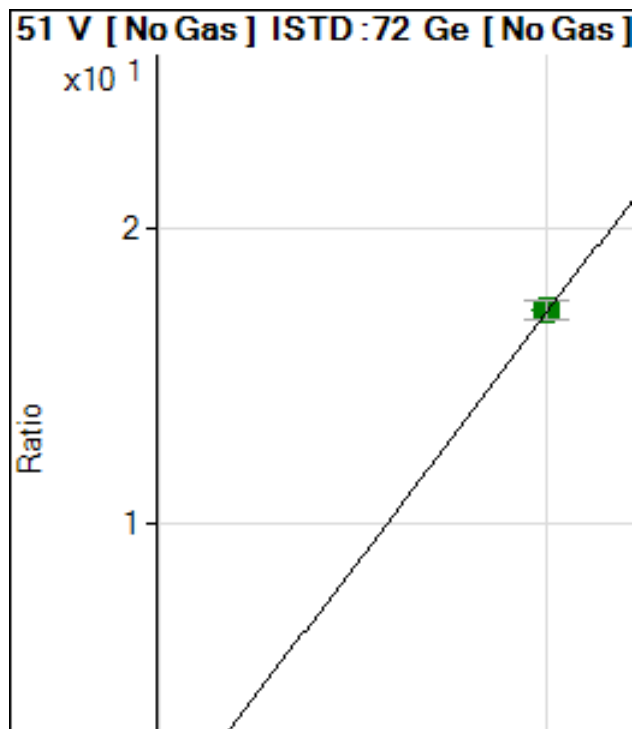
47 Ti [No Gas] ISTD :72 Ge [No Gas]



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	118.45	0.000		20.	
2	<input type="checkbox"/>	0.025	0.116	218.55	0.000		6.2	363
3	<input type="checkbox"/>	0.050	0.124	230.23	0.000		3.4	148
4	<input type="checkbox"/>	0.100	0.222	313.65	0.000		5.1	122
5	<input type="checkbox"/>	0.500	0.580	637.32	0.000		10.	16.1
6	<input type="checkbox"/>	1.000	1.140	1104.49	0.001		6.3	14.0
7	<input type="checkbox"/>	10.000	10.003	8794.84	0.012		6.0	0.0
8	<input type="checkbox"/>	50.000	48.549	45596.91	0.061		12.	-2.9
9	<input type="checkbox"/>	100.00	100.72	102369.7	0.127		3.5	0.7
10	<input type="checkbox"/>			7027.12	0.008		4.0	
11	<input type="checkbox"/>			210.21	0.000		16.	

$y = 0.0013 * x + 1.5489E-004$

R = 0.9999



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	-34268.89	-0.04		-14	
2	<input type="checkbox"/>	0.025	5.151	33290.47	0.045		92.	205
3	<input type="checkbox"/>	0.050	2.186	-4374.70	-0.00		-11	427
4	<input type="checkbox"/>	0.100	6.187	46275.55	0.063		103	608
5	<input type="checkbox"/>	0.500	-0.583	-38527.16	-0.05		-12	-216
6	<input type="checkbox"/>	1.000	1.462	-12812.51	-0.01		-43	46.2
7	<input type="checkbox"/>	10.000	12.168	114961.7	0.167		57.	21.7
8	<input type="checkbox"/>	50.000	49.167	597063.0	0.806		17.	-1.7
9	<input type="checkbox"/>	100.00	86.400	1166481.	1.449		11.	-13
10	<input type="checkbox"/>	1000.0	1001.3	15235595	17.26		3.7	0.1
11	<input type="checkbox"/>			-11700.99	-0.01		-14	

$y = 0.0173 * x - 0.0433$

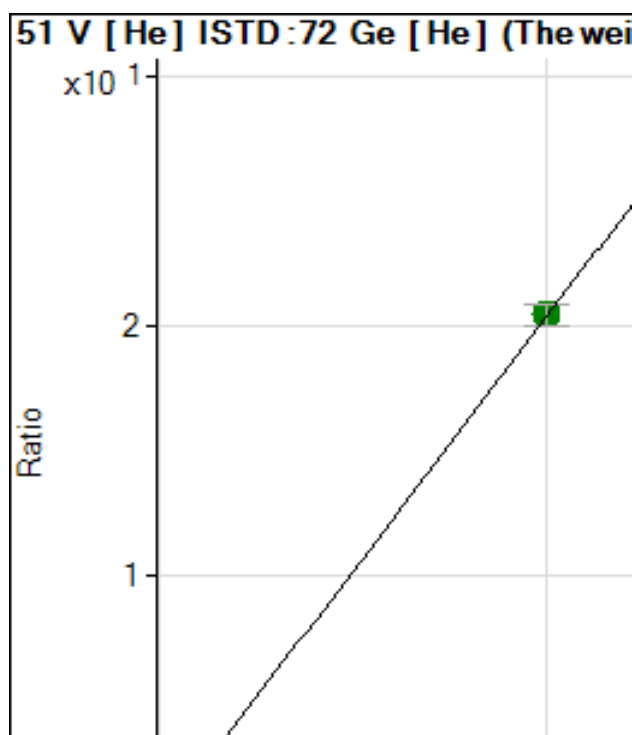
R = 0.9999

DL = 11.22 ug/l

BEC = -2.504 ug/l

Weight: 1/y

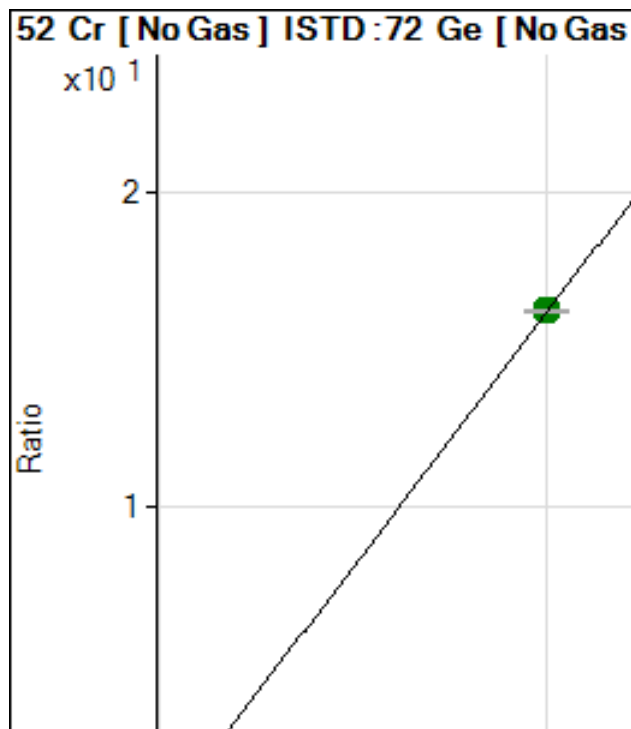
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	8388.03	0.074		2.4	
2	<input type="checkbox"/>	0.025	0.079	7794.35	0.076		1.0	214
3	<input type="checkbox"/>	0.050	0.111	7684.33	0.077		6.4	121
4	<input type="checkbox"/>	0.100	0.055	7417.49	0.076		2.3	-44
5	<input type="checkbox"/>	0.500	0.498	8151.22	0.085		1.6	-0.5
6	<input type="checkbox"/>	1.000	0.863	8580.35	0.092		2.4	-13
7	<input type="checkbox"/>	10.000	9.836	25756.46	0.275		2.2	-1.6
8	<input type="checkbox"/>	50.000	44.038	104629.8	0.971		2.8	-11
9	<input type="checkbox"/>	100.00	96.725	247134.6	2.044		1.6	-3.3
10	<input type="checkbox"/>	1000.0	1000.6	2902181.	20.45		4.1	0.1
11	<input type="checkbox"/>			4275.10	0.044		4.5	

$y = 0.0204 * x + 0.0749$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	32311.94	0.042		3.0	
2	<input type="checkbox"/>	0.025	0.083	31548.40	0.043		3.0	230
3	<input type="checkbox"/>	0.050	0.052	31698.32	0.042		1.9	3.4
4	<input type="checkbox"/>	0.100	0.070	31188.25	0.043		3.1	-29
5	<input type="checkbox"/>	0.500	0.442	35439.55	0.049		4.1	-11
6	<input type="checkbox"/>	1.000	0.896	39251.54	0.056		0.9	-10
7	<input type="checkbox"/>	10.000	10.017	140760.0	0.204		5.1	0.2
8	<input type="checkbox"/>	50.000	47.908	607067.3	0.817		13.	-4.2
9	<input type="checkbox"/>	100.00	94.246	1261877.	1.567		2.2	-5.8
10	<input type="checkbox"/>	1000.0	1000.6	14325218	16.23		0.8	0.1
11	<input type="checkbox"/>			33298.73	0.042		1.1	

$y = 0.0162 * x + 0.0421$

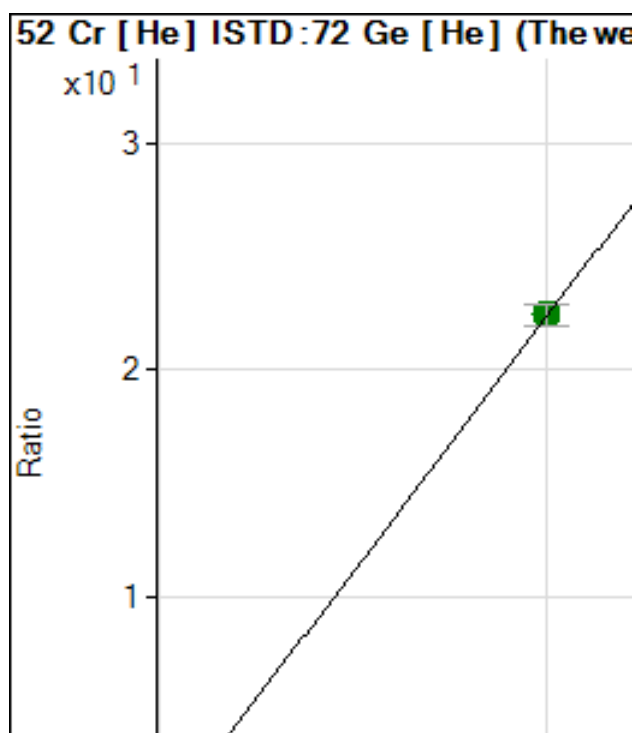
R = 1.0000

DL = 0.2308 ug/l

BEC = 2.6 ug/l

Weight: 1/y

Min Conc: <None>

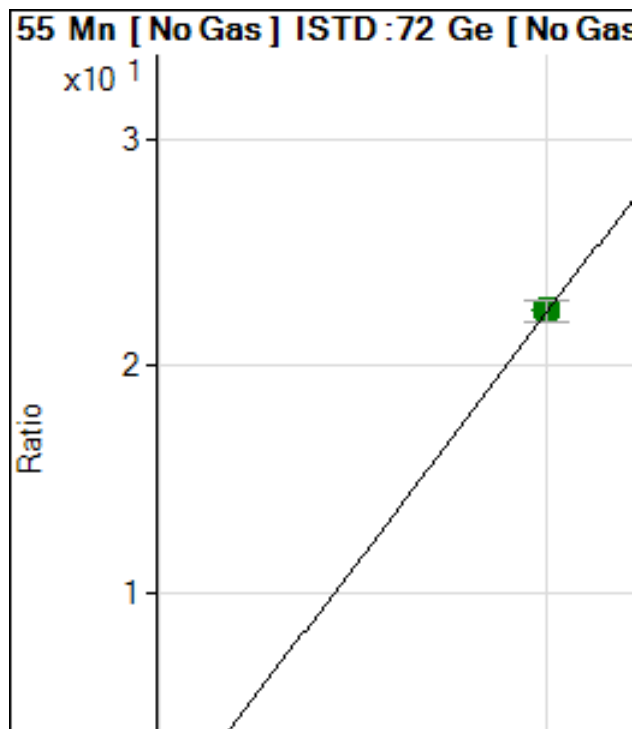


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	873.36	0.007		16.	
2	<input type="checkbox"/>	0.025	0.051	913.37	0.009		1.7	105
3	<input type="checkbox"/>	0.050	0.105	1011.15	0.010		5.9	109
4	<input type="checkbox"/>	0.100	0.156	1103.38	0.011		1.6	56.2
5	<input type="checkbox"/>	0.500	0.528	1882.36	0.019		4.0	5.5
6	<input type="checkbox"/>	1.000	1.187	3193.70	0.034		1.6	18.7
7	<input type="checkbox"/>	10.000	10.548	22863.61	0.244		3.6	5.5
8	<input type="checkbox"/>	50.000	46.362	112763.4	1.047		2.3	-7.3
9	<input type="checkbox"/>	100.00	96.175	261440.2	2.164		3.5	-3.8
10	<input type="checkbox"/>	1000.0	1000.5	3184131.	22.44		4.1	0.1
11	<input type="checkbox"/>			1110.05	0.011		4.7	

$y = 0.0224 * x + 0.0078$

R = 1.0000





	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	5716.47	0.007		2.8	
2	<input type="checkbox"/>	0.025	0.008	5533.41	0.007		4.9	-69
3	<input type="checkbox"/>	0.050	0.045	6242.32	0.008		3.2	-10
4	<input type="checkbox"/>	0.100	0.091	6851.37	0.009		2.1	-8.7
5	<input type="checkbox"/>	0.500	0.531	13929.10	0.019		1.3	6.3
6	<input type="checkbox"/>	1.000	1.074	21860.00	0.031		0.8	7.4
7	<input type="checkbox"/>	10.000	10.822	172282.8	0.250		1.7	8.2
8	<input type="checkbox"/>	50.000	48.908	820364.8	1.103		12.	-2.2
9	<input type="checkbox"/>	100.00	95.116	1722772.	2.139		4.3	-4.9
10	<input type="checkbox"/>	1000.0	1000.5	19790645	22.43		4.4	0.1
11	<input type="checkbox"/>			7886.49	0.010		1.7	

$y = 0.0224 * x + 0.0074$

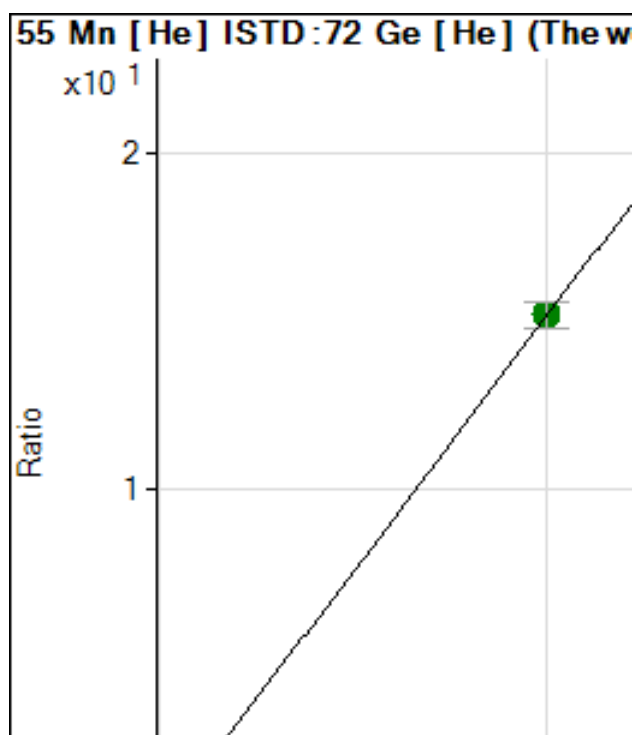
R = 1.0000

DL = 0.02744 ug/l

BEC = 0.3322 ug/l

Weight: 1/y

Min Conc: <None>

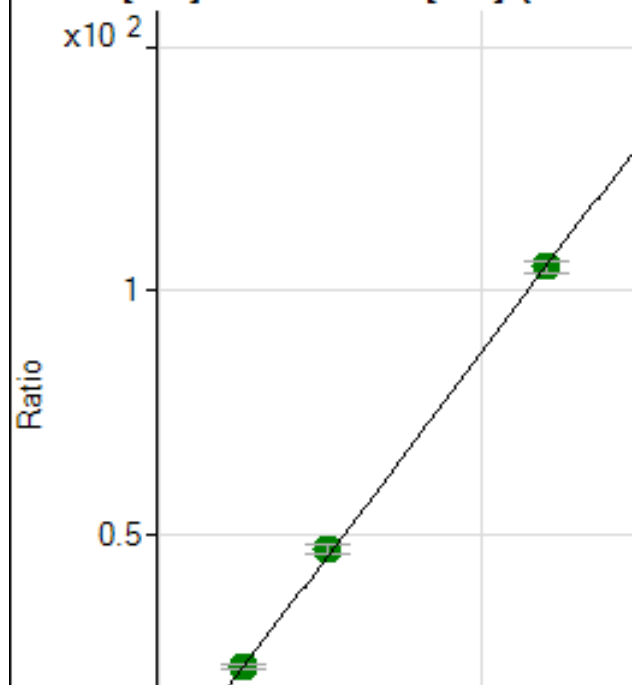


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	54.66	0.000		34.	
2	<input type="checkbox"/>	0.025	0.035	103.65	0.001		14.	40.2
3	<input type="checkbox"/>	0.050	0.066	148.64	0.001		7.1	32.5
4	<input type="checkbox"/>	0.100	0.113	215.29	0.002		2.5	13.3
5	<input type="checkbox"/>	0.500	0.525	810.53	0.008		3.6	5.1
6	<input type="checkbox"/>	1.000	1.118	1619.44	0.017		3.5	11.8
7	<input type="checkbox"/>	10.000	10.683	15220.22	0.162		0.4	6.8
8	<input type="checkbox"/>	50.000	46.722	76422.39	0.709		2.5	-6.6
9	<input type="checkbox"/>	100.00	101.55	186314.3	1.542		4.5	1.6
10	<input type="checkbox"/>	1000.0	1000.0	2153102.	15.18		5.4	0.0
11	<input type="checkbox"/>			90.31	0.000		3.7	

$y = 0.0152 * x + 4.8732E-004$

R = 1.0000

56 Fe [H2] ISTD :72 Ge [H2] (The we



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	8990.14	0.015		3.4	
2	<input type="checkbox"/>	0.650	0.972	18296.52	0.032		4.4	49.6
3	<input type="checkbox"/>	1.300	1.774	26293.41	0.046		1.9	36.5
4	<input type="checkbox"/>	2.600	3.197	41309.67	0.071		2.6	22.9
5	<input type="checkbox"/>	13.000	14.098	146450.3	0.262		4.2	8.4
6	<input type="checkbox"/>	26.000	29.373	296881.7	0.530		5.7	13.0
7	<input type="checkbox"/>	260.00	283.35	2805276.	4.988		3.3	9.0
8	<input type="checkbox"/>	1300.0	1289.1	13377385	22.64		4.8	-0.8
9	<input type="checkbox"/>	2600.0	2667.3	29653626	46.82		3.5	2.6
10	<input type="checkbox"/>	6000.0	5972.1	71426429	104.8		2.1	-0.5
11	<input type="checkbox"/>			15675.96	0.027		3.3	

$y = 0.0176 * x + 0.0150$

R = 0.9999

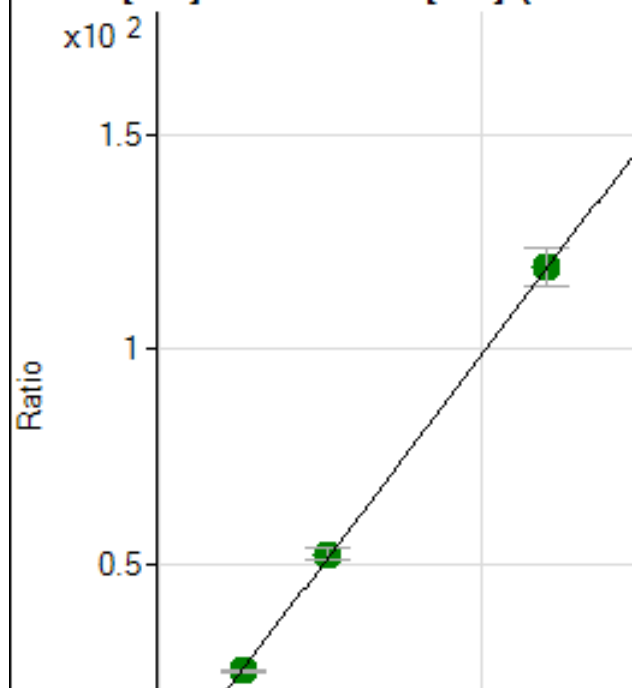
DL = 0.08604 ug/l

BEC = 0.8527 ug/l

Weight: 1/y

Min Conc: <None>

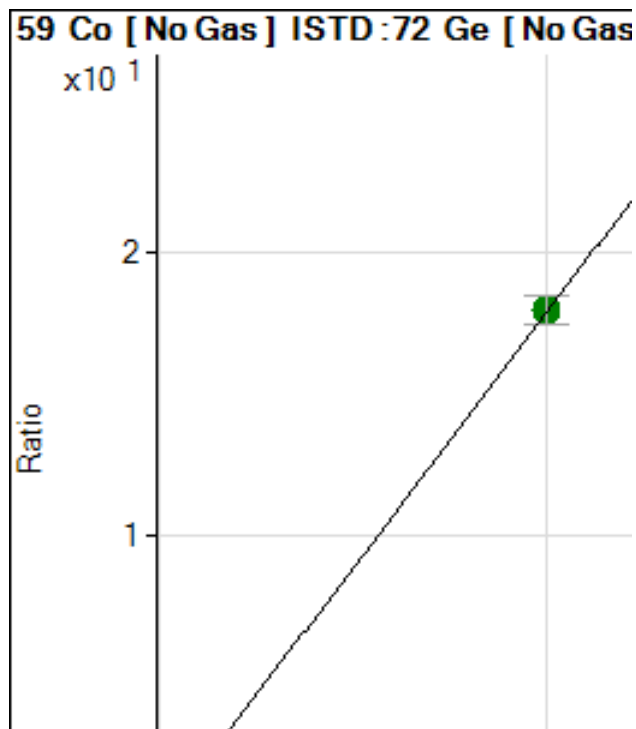
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	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	3854.40	0.034		2.8	
2	<input type="checkbox"/>	0.650	1.012	5549.99	0.054		0.8	55.6
3	<input type="checkbox"/>	1.300	1.720	6823.49	0.068		3.6	32.3
4	<input type="checkbox"/>	2.600	3.358	9853.29	0.101		1.1	29.2
5	<input type="checkbox"/>	13.000	14.586	31039.50	0.323		3.6	12.2
6	<input type="checkbox"/>	26.000	29.930	58221.56	0.628		4.9	15.1
7	<input type="checkbox"/>	260.00	296.31	553295.9	5.913		1.1	14.0
8	<input type="checkbox"/>	1300.0	1258.5	2692126.	25.00		1.1	-3.2
9	<input type="checkbox"/>	2600.0	2623.1	6289257.	52.07		5.4	0.9
10	<input type="checkbox"/>	6000.0	5997.3	16866460	119.0		7.6	0.0
11	<input type="checkbox"/>			4742.22	0.048		0.6	

$y = 0.0198 * x + 0.0344$

R = 0.9999



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	645.90	0.000		102	
2	<input type="checkbox"/>	0.025	0.008	695.31	0.001		18.	-69
3	<input type="checkbox"/>	0.050	0.039	1127.81	0.001		12.	-21
4	<input type="checkbox"/>	0.100	0.095	1823.17	0.002		7.1	-4.7
5	<input type="checkbox"/>	0.500	0.503	7074.45	0.009		6.4	0.6
6	<input type="checkbox"/>	1.000	1.127	14575.13	0.021		1.7	12.7
7	<input type="checkbox"/>	10.000	11.116	137837.2	0.200		2.9	11.2
8	<input type="checkbox"/>	50.000	50.972	679496.1	0.914		12.	1.9
9	<input type="checkbox"/>	100.00	96.064	1386395.	1.722		3.8	-3.9
10	<input type="checkbox"/>	1000.0	1000.3	15818021	17.92		5.7	0.0
11	<input type="checkbox"/>			345.99	0.000		26.	

$y = 0.0179 * x + 8.2129E-004$

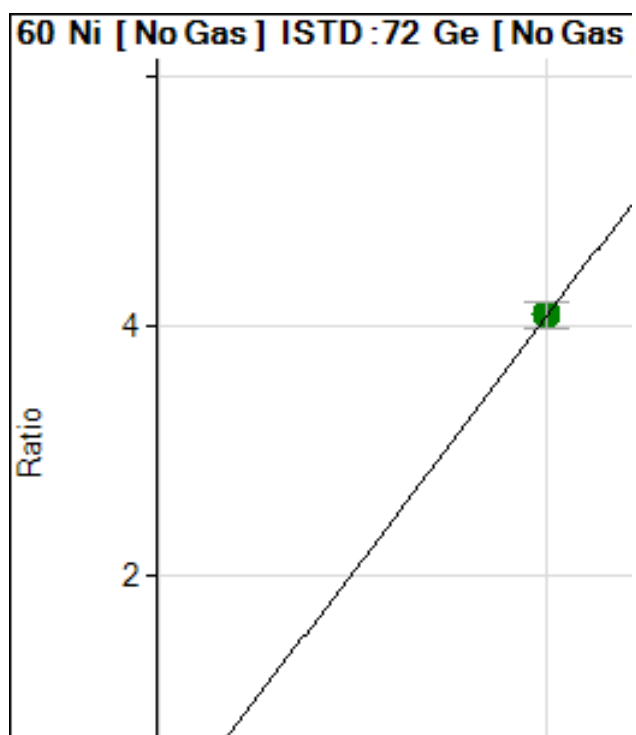
R = 1.0000

DL = 0.1402 ug/l

BEC = 0.04583 ug/l

Weight: 1/y

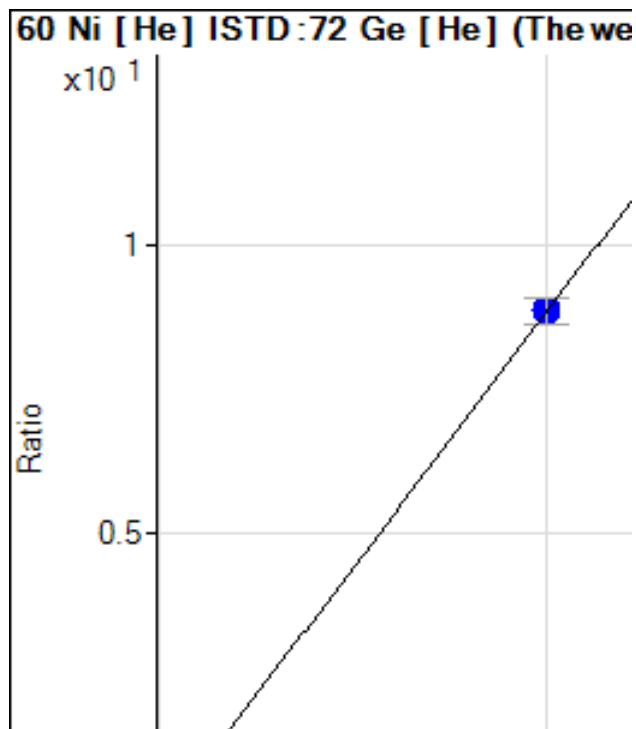
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	449.12	0.000		9.8	
2	<input type="checkbox"/>	0.025	0.033	522.31	0.000		10.	32.4
3	<input type="checkbox"/>	0.050	0.094	715.27	0.001		10.	88.9
4	<input type="checkbox"/>	0.100	0.138	828.38	0.001		8.8	38.5
5	<input type="checkbox"/>	0.500	0.531	1979.55	0.002		3.1	6.2
6	<input type="checkbox"/>	1.000	1.129	3603.31	0.005		5.0	12.9
7	<input type="checkbox"/>	10.000	10.803	30808.54	0.044		6.0	8.0
8	<input type="checkbox"/>	50.000	49.297	149954.2	0.201		13.	-1.4
9	<input type="checkbox"/>	100.00	97.350	320638.4	0.398		1.4	-2.6
10	<input type="checkbox"/>	1000.0	1000.2	3605112.	4.086		5.4	0.0
11	<input type="checkbox"/>			688.65	0.000		18.	

$y = 0.0041 * x + 5.8331E-004$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	132.22	0.001		4.8	
2	<input type="checkbox"/>	0.025	0.059	173.34	0.001		8.4	136
3	<input type="checkbox"/>	0.050	0.042	154.45	0.001		5.0	-16
4	<input type="checkbox"/>	0.100	0.115	214.45	0.002		15.	15.5
5	<input type="checkbox"/>	0.500	0.571	597.79	0.006		1.5	14.3
6	<input type="checkbox"/>	1.000	1.199	1093.38	0.011		6.8	19.9
7	<input type="checkbox"/>	10.000	11.984	10031.32	0.107		2.4	19.8
8	<input type="checkbox"/>	50.000	49.870	47641.69	0.442		2.7	-0.3
9	<input type="checkbox"/>	100.00	101.30	108444.3	0.897		3.2	1.3
10	<input type="checkbox"/>	1000.0	999.85	1255233.	8.848		4.9	0.0
11	<input type="checkbox"/>			167.78	0.001		10.	

$y = 0.0088 * x + 0.0012$

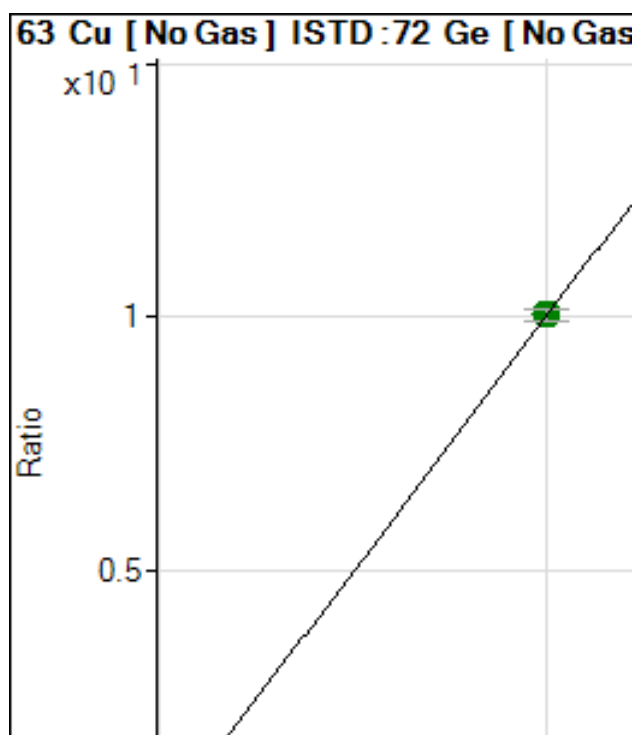
R = 1.0000

DL = 0.01916 ug/l

BEC = 0.1335 ug/l

Weight: 1/y

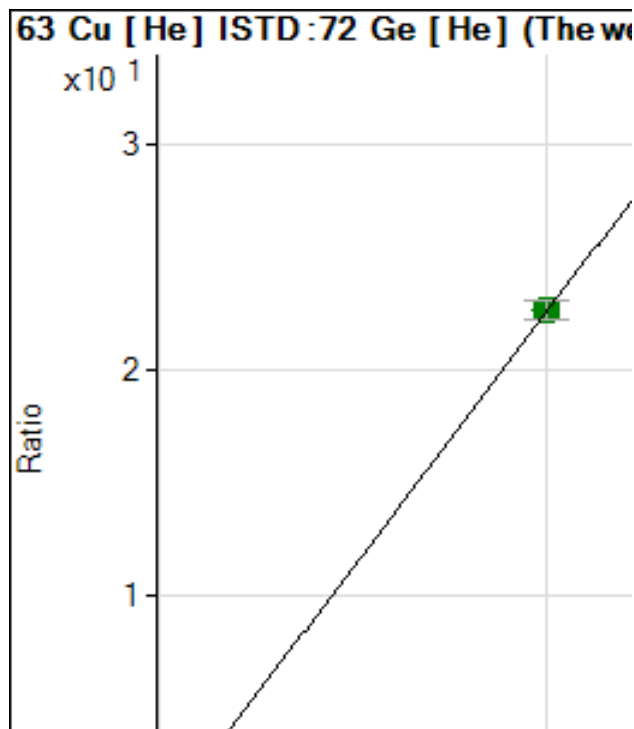
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	903.73	0.001		3.0	
2	<input type="checkbox"/>	0.025	0.058	1277.24	0.001		3.5	131
3	<input type="checkbox"/>	0.050	0.068	1375.95	0.001		6.2	36.4
4	<input type="checkbox"/>	0.100	0.171	2088.33	0.002		2.6	70.8
5	<input type="checkbox"/>	0.500	0.597	5167.67	0.007		0.8	19.5
6	<input type="checkbox"/>	1.000	1.206	9221.97	0.013		2.8	20.6
7	<input type="checkbox"/>	10.000	11.189	78327.90	0.113		1.1	11.9
8	<input type="checkbox"/>	50.000	50.123	374759.3	0.505		13.	0.2
9	<input type="checkbox"/>	100.00	100.18	811980.2	1.008		1.8	0.2
10	<input type="checkbox"/>	1000.0	999.96	8869997.	10.05		2.3	0.0
11	<input type="checkbox"/>			1400.63	0.001		7.5	

$y = 0.0101 * x + 0.0012$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	261.28	0.002		7.0	
2	<input type="checkbox"/>	0.025	0.047	345.94	0.003		1.9	88.0
3	<input type="checkbox"/>	0.050	0.077	405.59	0.004		8.2	53.9
4	<input type="checkbox"/>	0.100	0.138	531.23	0.005		1.8	37.7
5	<input type="checkbox"/>	0.500	0.630	1590.10	0.016		3.2	26.0
6	<input type="checkbox"/>	1.000	1.321	2983.38	0.032		7.4	32.1
7	<input type="checkbox"/>	10.000	12.511	26697.83	0.285		0.9	25.1
8	<input type="checkbox"/>	50.000	52.804	128849.9	1.196		0.6	5.6
9	<input type="checkbox"/>	100.00	106.49	291245.6	2.411		4.5	6.5
10	<input type="checkbox"/>	1000.0	999.18	3207511.	22.60		3.8	-0.1
11	<input type="checkbox"/>			374.60	0.003		3.0	

$y = 0.0226 * x + 0.0023$

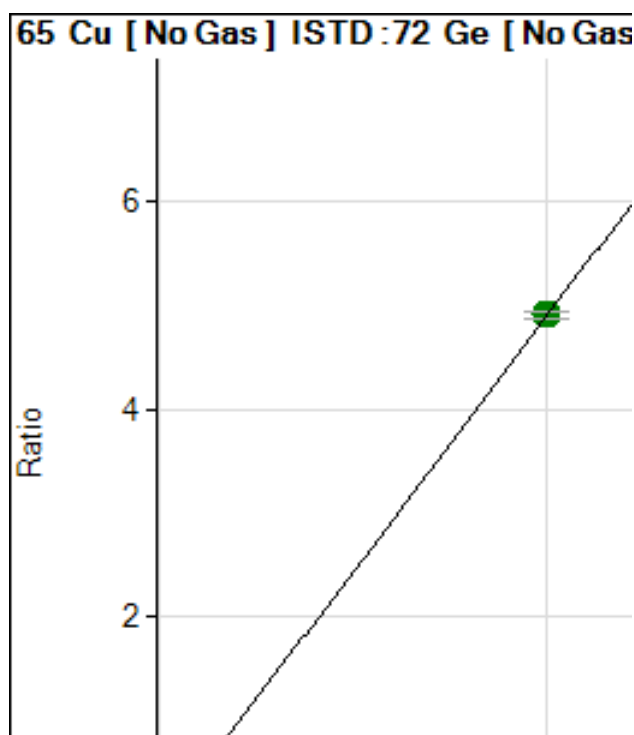
R = 1.0000

DL = 0.02175 ug/l

BEC = 0.1032 ug/l

Weight: 1/y

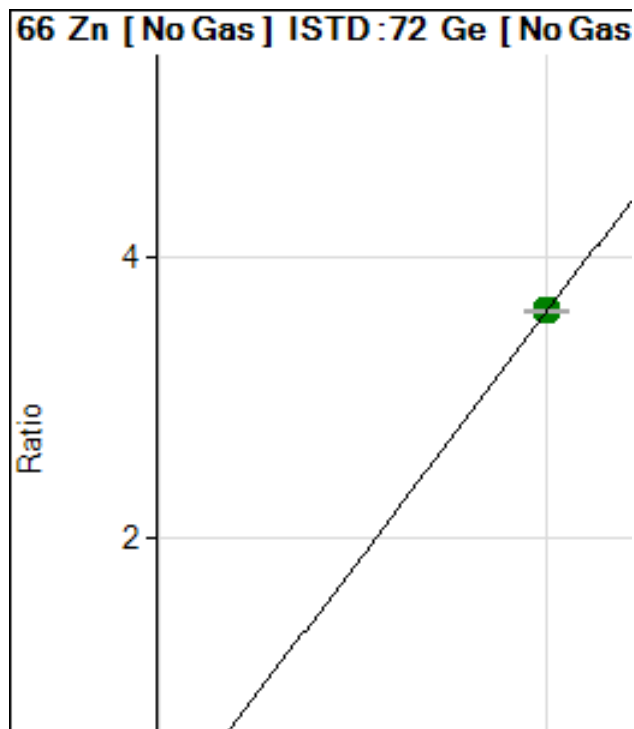
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	340.81	0.000		7.5	
2	<input type="checkbox"/>	0.025	0.041	467.53	0.000		4.0	62.7
3	<input type="checkbox"/>	0.050	0.084	631.60	0.000		2.1	67.6
4	<input type="checkbox"/>	0.100	0.141	819.02	0.001		3.5	40.9
5	<input type="checkbox"/>	0.500	0.530	2190.38	0.003		0.5	5.9
6	<input type="checkbox"/>	1.000	1.159	4254.34	0.006		1.4	15.9
7	<input type="checkbox"/>	10.000	11.208	38218.51	0.055		2.1	12.1
8	<input type="checkbox"/>	50.000	49.223	179650.8	0.242		13.	-1.6
9	<input type="checkbox"/>	100.00	97.833	387018.0	0.480		2.2	-2.2
10	<input type="checkbox"/>	1000.0	1000.2	4331833.	4.910		1.2	0.0
11	<input type="checkbox"/>			603.59	0.000		6.9	

$y = 0.0049 * x + 4.4392E-004$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	398.50	0.000		12.	
2	<input type="checkbox"/>			964.12	0.001		12.	
3	<input type="checkbox"/>	0.050	0.328	1260.09	0.001		2.4	555
4	<input type="checkbox"/>	0.100	0.303	1167.05	0.001		4.7	203
5	<input type="checkbox"/>	0.500	0.733	2284.82	0.003		9.8	46.7
6	<input type="checkbox"/>	1.000	1.539	4221.38	0.006		5.5	53.9
7	<input type="checkbox"/>	10.000	11.529	29075.64	0.042		4.3	15.3
8	<input type="checkbox"/>	50.000	51.192	137729.5	0.185		13.	2.4
9	<input type="checkbox"/>	100.00	101.96	297285.1	0.369		3.4	2.0
10	<input type="checkbox"/>	1000.0	999.72	3189176.	3.614		0.4	0.0
11	<input type="checkbox"/>			2165.49	0.002		11.	

$y = 0.0036 * x + 5.2015E-004$

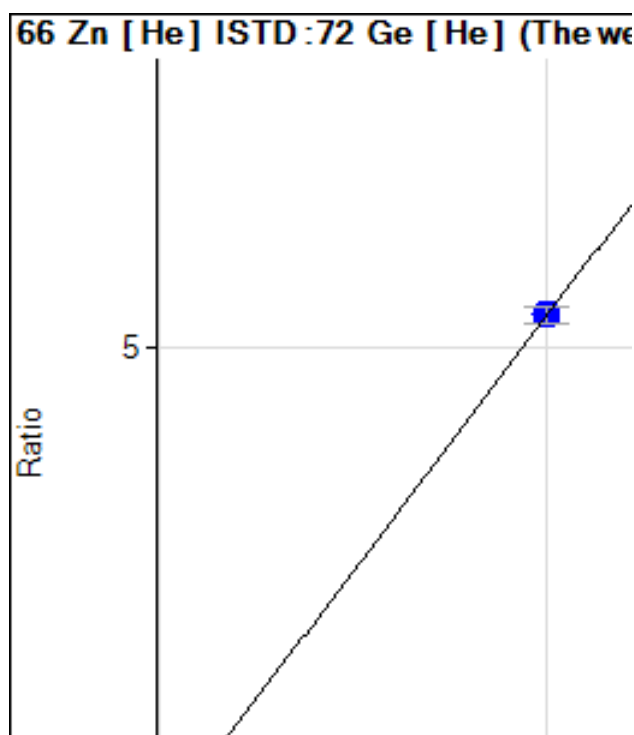
R = 1.0000

DL = 0.05187 ug/l

BEC = 0.1439 ug/l

Weight: 1/y

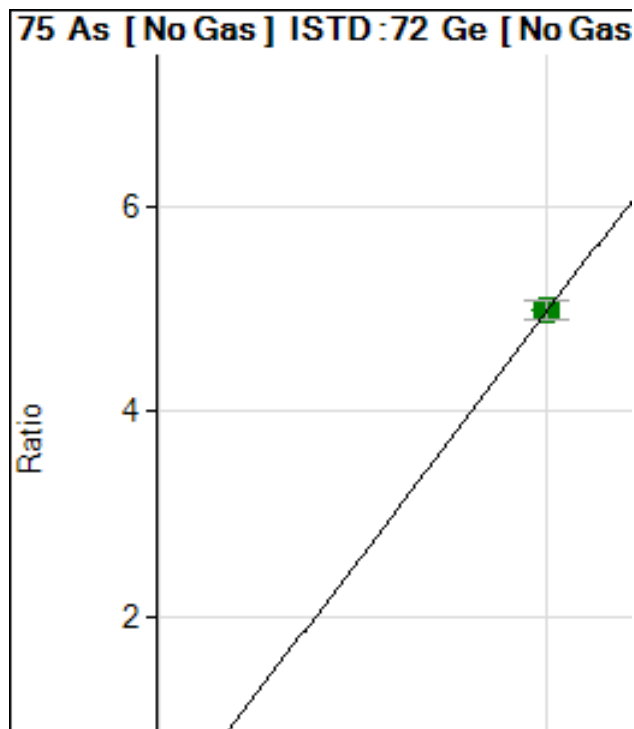
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	101.11	0.000		29.	
2	<input type="checkbox"/>			204.45	0.002		13.	
3	<input type="checkbox"/>	0.050	0.360	282.23	0.002		6.6	620
4	<input type="checkbox"/>	0.100	0.387	290.01	0.003		22.	286
5	<input type="checkbox"/>	0.500	0.761	477.79	0.005		6.4	52.2
6	<input type="checkbox"/>	1.000	1.660	908.93	0.009		1.0	66.0
7	<input type="checkbox"/>	10.000	11.917	6057.97	0.064		2.8	19.2
8	<input type="checkbox"/>	50.000	50.378	29148.34	0.270		2.4	0.8
9	<input type="checkbox"/>	100.00	105.68	68524.09	0.566		3.4	5.7
10	<input type="checkbox"/>	1000.0	999.39	759853.0	5.353		3.3	-0.1
11	<input type="checkbox"/>			432.23	0.004		5.4	

$y = 0.0054 * x + 9.0565E-004$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	9509.82	0.012		47.	
2	<input type="checkbox"/>	0.025	0.270	9964.77	0.013		30.	980
3	<input type="checkbox"/>	0.050	-0.061	8920.06	0.012		36.	-222
4	<input type="checkbox"/>	0.100	-0.056	8749.38	0.012		21.	-156
5	<input type="checkbox"/>	0.500	1.189	13167.55	0.018		29.	137
6	<input type="checkbox"/>	1.000	1.340	13184.32	0.019		20.	34.0
7	<input type="checkbox"/>	10.000	11.095	46505.16	0.067		1.6	11.0
8	<input type="checkbox"/>	50.000	50.927	196694.1	0.265		14.	1.9
9	<input type="checkbox"/>	100.00	99.597	408085.0	0.506		2.8	-0.4
10	<input type="checkbox"/>	1000.0	999.98	4392035.	4.977		3.7	0.0
11	<input type="checkbox"/>			10474.08	0.013		19.	

$y = 0.0050 * x + 0.0124$

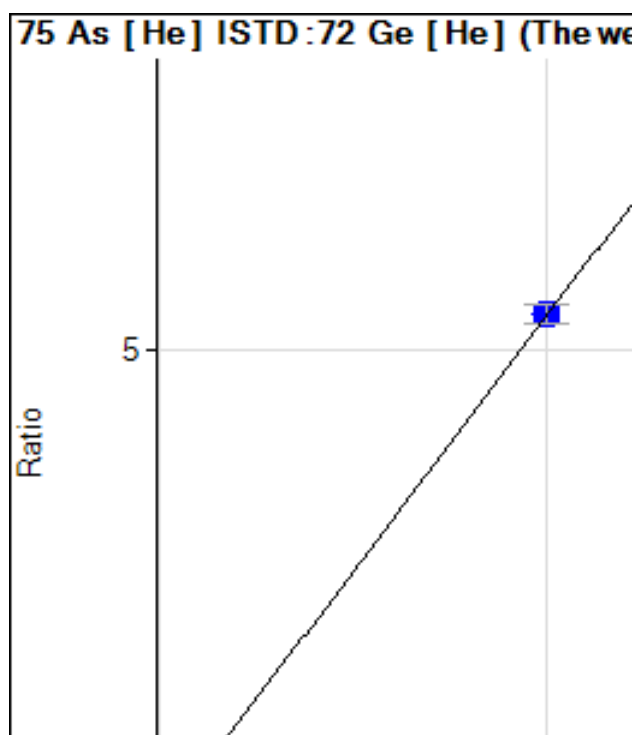
R = 1.0000

DL = 3.554 ug/l

BEC = 2.492 ug/l

Weight: 1/y

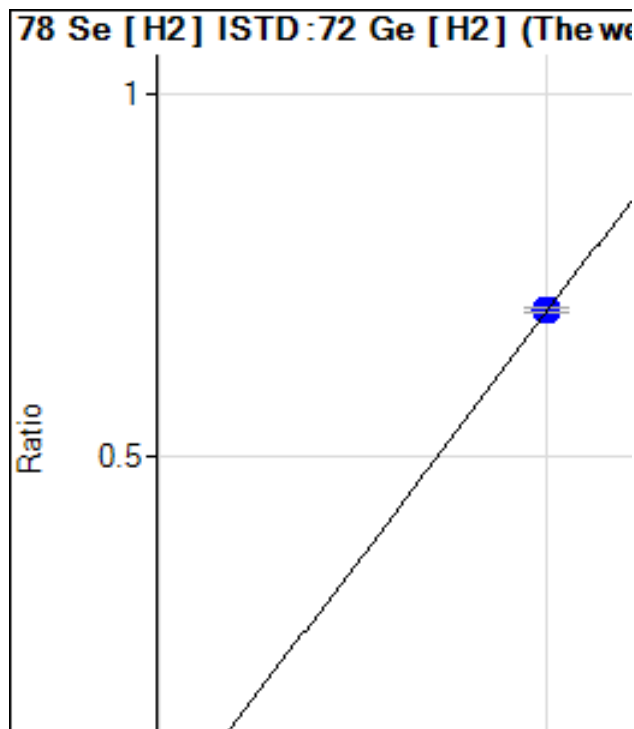
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	137.40	0.001		2.5	
2	<input type="checkbox"/>	0.025	0.030	141.07	0.001		5.1	18.2
3	<input type="checkbox"/>	0.050	0.058	152.93	0.001		3.1	15.2
4	<input type="checkbox"/>	0.100	0.116	180.47	0.001		6.1	16.4
5	<input type="checkbox"/>	0.500	0.532	390.93	0.004		2.3	6.3
6	<input type="checkbox"/>	1.000	1.140	680.20	0.007		8.7	14.0
7	<input type="checkbox"/>	10.000	11.249	5761.62	0.061		0.2	12.5
8	<input type="checkbox"/>	50.000	49.649	28811.03	0.267		0.8	-0.7
9	<input type="checkbox"/>	100.00	103.05	66937.61	0.554		3.8	3.1
10	<input type="checkbox"/>	1000.0	999.70	761197.9	5.364		3.9	0.0
11	<input type="checkbox"/>			173.93	0.001		5.0	

$y = 0.0054 * x + 0.0012$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	19.55	0.000		5.2	
2	<input type="checkbox"/>	0.025	0.025	28.44	0.000		16.	-1.3
3	<input type="checkbox"/>	0.050	0.054	40.11	0.000		5.2	7.8
4	<input type="checkbox"/>	0.100	0.102	60.34	0.000		1.7	1.6
5	<input type="checkbox"/>	0.500	0.538	228.89	0.000		5.0	7.7
6	<input type="checkbox"/>	1.000	1.116	456.45	0.000		3.2	11.6
7	<input type="checkbox"/>	10.000	10.865	4304.30	0.007		3.3	8.7
8	<input type="checkbox"/>	50.000	50.705	21039.31	0.035		3.6	1.4
9	<input type="checkbox"/>	100.00	100.64	44713.26	0.070		2.7	0.6
10	<input type="checkbox"/>	1000.0	999.89	477880.6	0.701		0.9	0.0
11	<input type="checkbox"/>			98.67	0.000		5.3	

$y = 7.0140E-004 * x + 3.2540E-005$

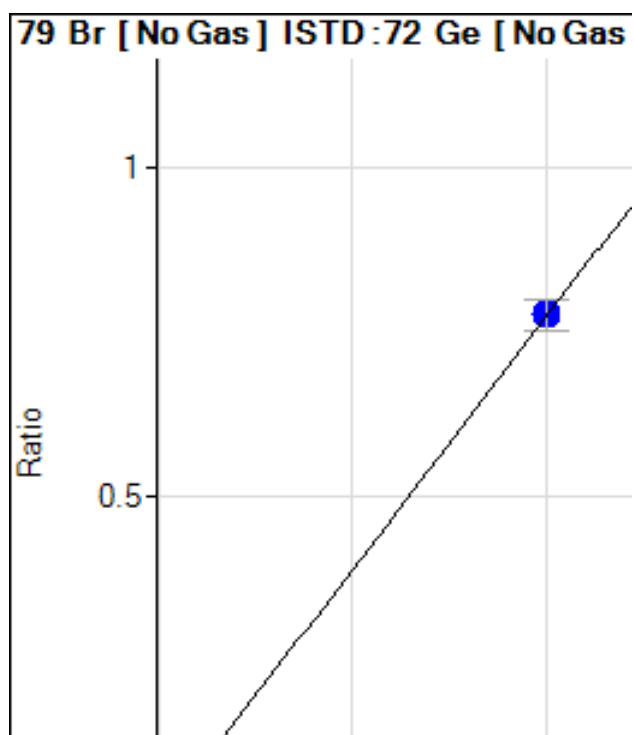
R = 1.0000

DL = 0.007247 ug/l

BEC = 0.04639 ug/l

Weight: 1/y

Min Conc: <None>

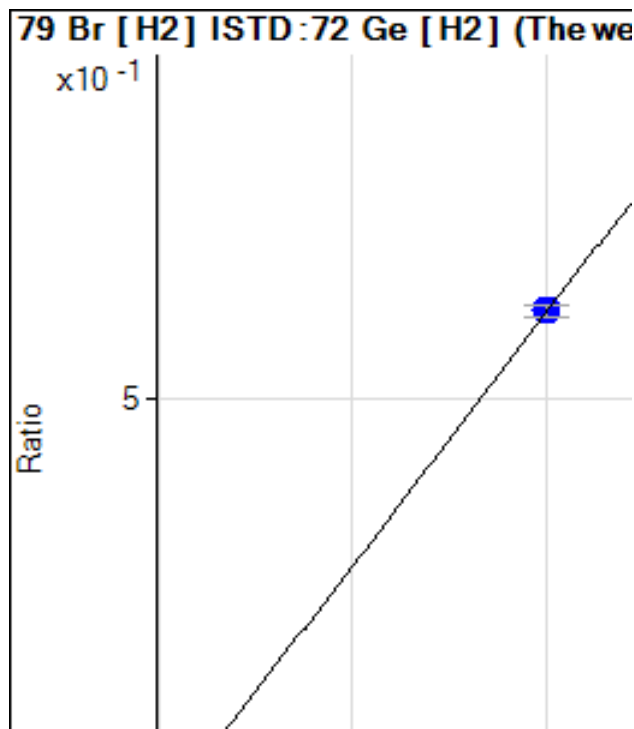


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	6714.95	0.008		9.3	
2	<input type="checkbox"/>			8149.49	0.011		6.5	
3	<input type="checkbox"/>			7653.55	0.010		2.9	
4	<input type="checkbox"/>			8066.32	0.011		8.7	
5	<input type="checkbox"/>			7743.42	0.010		2.2	
6	<input type="checkbox"/>			7626.91	0.011		2.2	
7	<input type="checkbox"/>			8016.33	0.011		6.8	
8	<input type="checkbox"/>			9144.85	0.012		10.	
9	<input type="checkbox"/>			9034.98	0.011		5.3	
10	<input type="checkbox"/>			11222.16	0.012		1.4	
11	<input type="checkbox"/>	100.00	100.00	600980.8	0.775		6.1	0.0

$y = 0.0077 * x + 0.0088$

R = 1.0000





	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	3822.93	0.006		3.7	
2	<input type="checkbox"/>			4688.16	0.008		3.9	
3	<input type="checkbox"/>			4541.73	0.008		1.2	
4	<input type="checkbox"/>			4841.24	0.008		4.1	
5	<input type="checkbox"/>			4654.86	0.008		8.4	
6	<input type="checkbox"/>			4488.47	0.008		4.2	
7	<input type="checkbox"/>			4501.79	0.008		5.6	
8	<input type="checkbox"/>			5450.25	0.009		6.3	
9	<input type="checkbox"/>			5716.50	0.009		2.4	
10	<input type="checkbox"/>			14631.87	0.021		2.3	
11	<input type="checkbox"/>	100.00	100.00	350352.6	0.604		2.2	0.0

$y = 0.0060 * x + 0.0064$

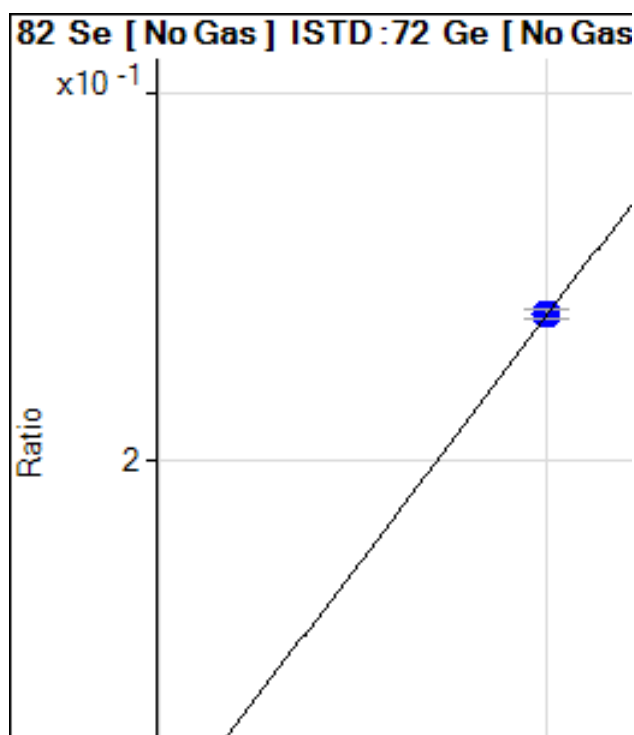
R = 1.0000

DL = 0.1165 ug/l

BEC = 1.063 ug/l

Weight: 1/y

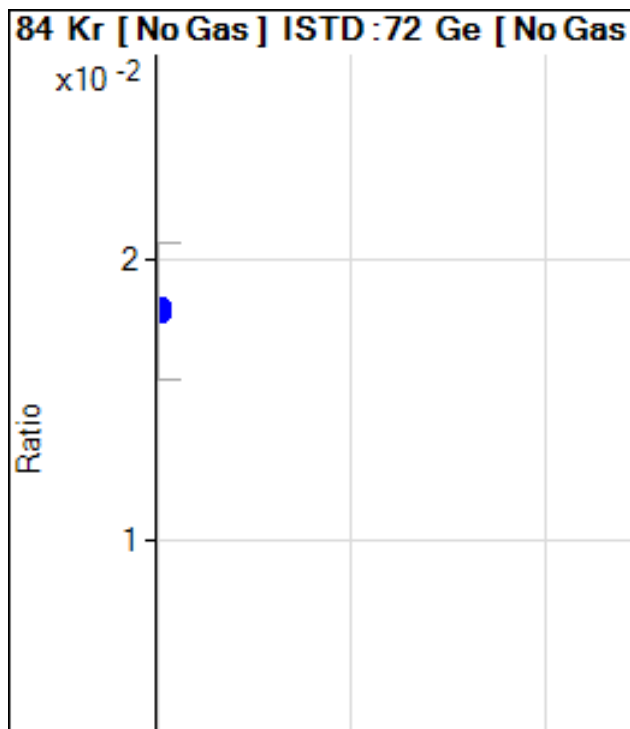
Min Conc: <None>



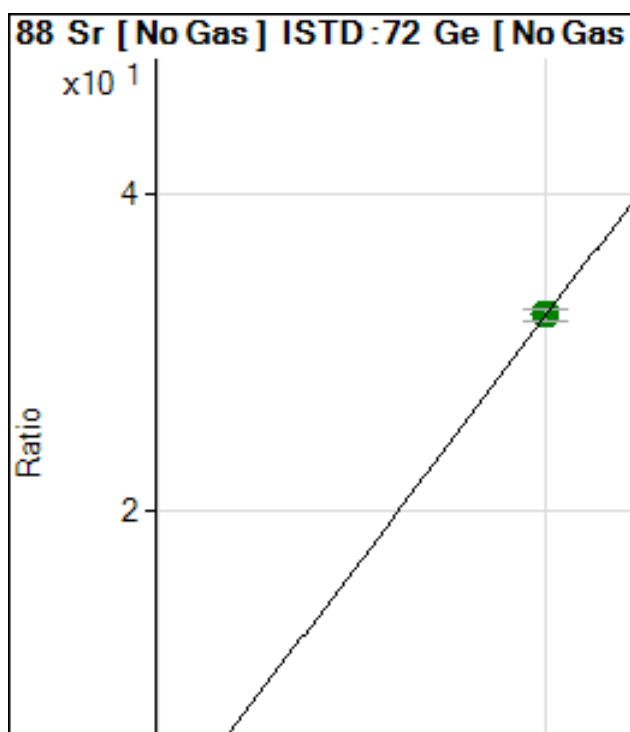
	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	516.75	0.000		49.	
2	<input type="checkbox"/>	0.025	-0.074	471.27	0.000		4.8	-39%
3	<input type="checkbox"/>	0.050	-0.459	399.42	0.000		25.	-101%
4	<input type="checkbox"/>	0.100	-0.276	428.08	0.000		20.	-37%
5	<input type="checkbox"/>	0.500	0.186	520.22	0.000		32.	-62%
6	<input type="checkbox"/>	1.000	0.854	629.27	0.000		3.8	-14%
7	<input type="checkbox"/>	10.000	11.195	2610.05	0.003		2.7	12.0%
8	<input type="checkbox"/>	50.000	52.550	11354.33	0.015		14.	5.1%
9	<input type="checkbox"/>	100.00	101.35	23263.23	0.028		3.0	1.4%
10	<input type="checkbox"/>	1000.0	999.72	246221.2	0.279		2.0	0.0%
11	<input type="checkbox"/>			761.95	0.001		8.2	

$y = 2.7848E-004 * x + 6.6940E-004$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000		13956.13	0.018		26.	
2	<input type="checkbox"/>			12484.37	0.017		21.	
3	<input type="checkbox"/>			12421.15	0.016		26.	
4	<input type="checkbox"/>			12727.48	0.017		24.	
5	<input type="checkbox"/>			12853.93	0.017		22.	
6	<input type="checkbox"/>			12767.22	0.018		12.	
7	<input type="checkbox"/>			13726.23	0.019		17.	
8	<input type="checkbox"/>			20720.92	0.028		23.	
9	<input type="checkbox"/>			31042.13	0.038		8.1	
10	<input type="checkbox"/>			191753.9	0.217		2.0	
11	<input type="checkbox"/>			13456.53	0.017		19.	



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	302.74	0.000		18.	
2	<input type="checkbox"/>	0.025	0.033	1064.60	0.001		5.1	32.4
3	<input type="checkbox"/>	0.050	0.073	2026.14	0.002		6.3	45.2
4	<input type="checkbox"/>	0.100	0.140	3560.07	0.004		6.8	40.4
5	<input type="checkbox"/>	0.500	0.584	13889.28	0.019		2.4	16.9
6	<input type="checkbox"/>	1.000	1.220	27665.27	0.039		5.3	22.0
7	<input type="checkbox"/>	10.000	12.078	269678.7	0.391		1.0	20.8
8	<input type="checkbox"/>	50.000	53.340	1280786.	1.726		14.	6.7
9	<input type="checkbox"/>	100.00	100.53	2620753.	3.254		1.3	0.5
10	<input type="checkbox"/>	1000.0	999.75	28544170	32.35		2.1	0.0
11	<input type="checkbox"/>			552.25	0.000		13.	

$y = 0.0324 * x + 3.9250E-004$

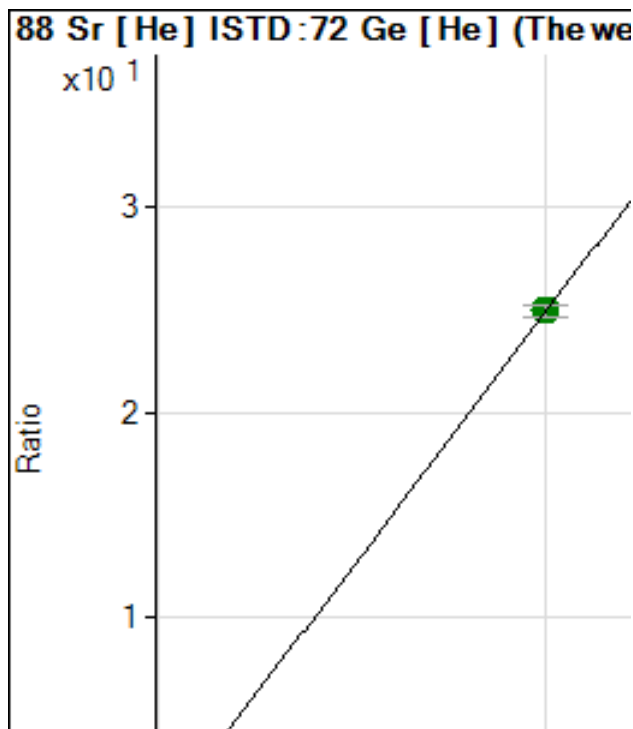
R = 1.0000

DL = 0.006552 ug/l

BEC = 0.01213 ug/l

Weight: 1/y

Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	87.78	0.000		12.	
2	<input type="checkbox"/>	0.025	0.032	162.22	0.001		17.	29.7
3	<input type="checkbox"/>	0.050	0.064	237.78	0.002		6.2	28.6
4	<input type="checkbox"/>	0.100	0.130	392.23	0.004		12.	29.9
5	<input type="checkbox"/>	0.500	0.563	1421.19	0.014		2.2	12.5
6	<input type="checkbox"/>	1.000	1.208	2871.42	0.031		1.2	20.8
7	<input type="checkbox"/>	10.000	11.497	26935.65	0.287		1.9	15.0
8	<input type="checkbox"/>	50.000	48.844	131394.9	1.220		4.3	-2.3
9	<input type="checkbox"/>	100.00	103.66	312949.4	2.589		4.9	3.7
10	<input type="checkbox"/>	1000.0	999.67	3544655.	24.96		2.1	0.0
11	<input type="checkbox"/>			85.55	0.000		30.	

$y = 0.0250 * x + 7.8338E-004$

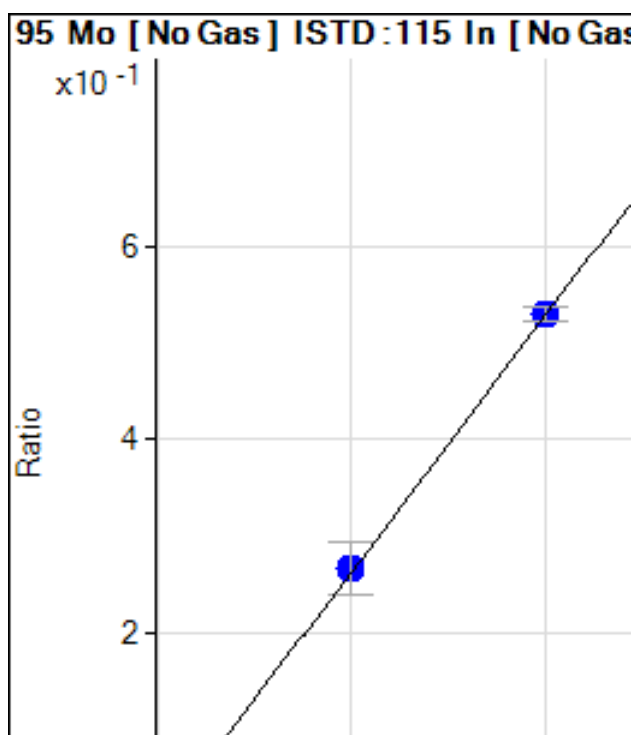
R = 1.0000

DL = 0.01131 ug/l

BEC = 0.03137 ug/l

Weight: 1/y

Min Conc: <None>

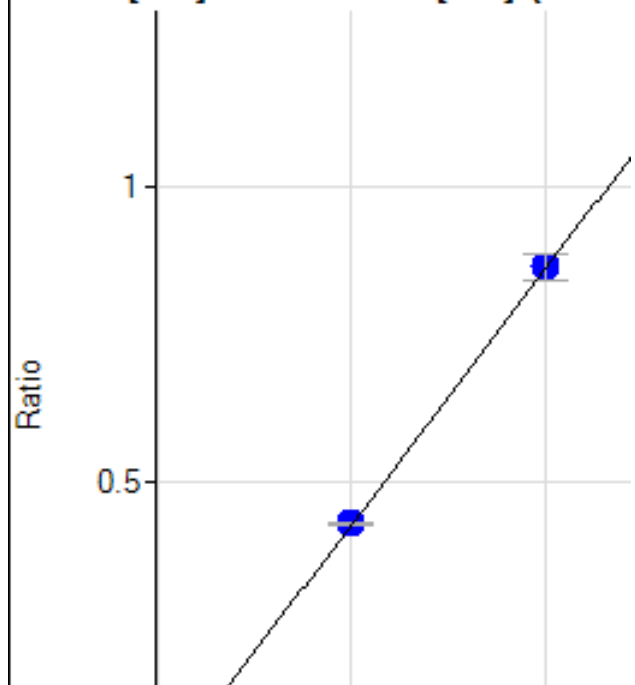


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	44.44	0.000		22.	
2	<input type="checkbox"/>	0.025	0.081	452.23	0.000		12.	222
3	<input type="checkbox"/>	0.050	0.068	393.34	0.000		5.7	36.5
4	<input type="checkbox"/>	0.100	0.111	591.13	0.000		1.2	11.3
5	<input type="checkbox"/>	0.500	0.498	2545.80	0.002		2.1	-0.3
6	<input type="checkbox"/>	1.000	1.002	5074.28	0.005		2.3	0.2
7	<input type="checkbox"/>	10.000	10.180	49822.95	0.054		1.7	1.8
8	<input type="checkbox"/>	50.000	50.300	250348.9	0.266		20.	0.6
9	<input type="checkbox"/>	100.00	99.832	519184.6	0.528		3.0	-0.2
10	<input type="checkbox"/>			577.79	0.000		8.0	
11	<input type="checkbox"/>			121.11	0.000		15.	

$y = 0.0053 * x + 4.6609E-005$

R = 1.0000

95 Mo [He] ISTD:115 In [He] (The



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	21.11	0.000		25.	
2	<input type="checkbox"/>	0.025	0.069	133.33	0.000		10.	177
3	<input type="checkbox"/>	0.050	0.062	116.67	0.000		20.	23.2
4	<input type="checkbox"/>	0.100	0.113	200.00	0.001		10.	12.7
5	<input type="checkbox"/>	0.500	0.502	817.81	0.004		6.5	0.4
6	<input type="checkbox"/>	1.000	1.092	1741.23	0.009		3.2	9.2
7	<input type="checkbox"/>	10.000	10.733	16929.09	0.092		2.4	7.3
8	<input type="checkbox"/>	50.000	49.683	82680.24	0.428		1.3	-0.6
9	<input type="checkbox"/>	100.00	100.08	185458.8	0.862		5.0	0.1
10	<input type="checkbox"/>			191.11	0.000		3.3	
11	<input type="checkbox"/>			48.89	0.000		31.	

$y = 0.0086 * x + 1.0234E-004$

R = 1.0000

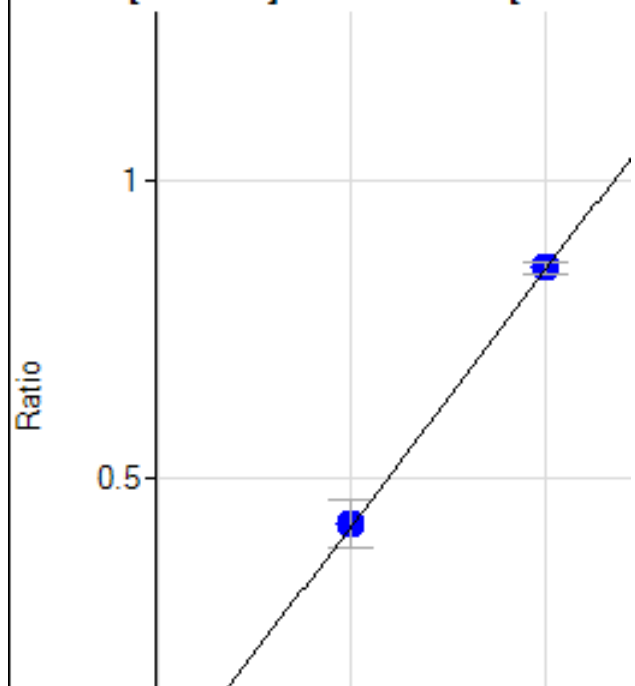
DL = 0.009106 ug/l

BEC = 0.01187 ug/l

Weight: 1/y

Min Conc: <None>

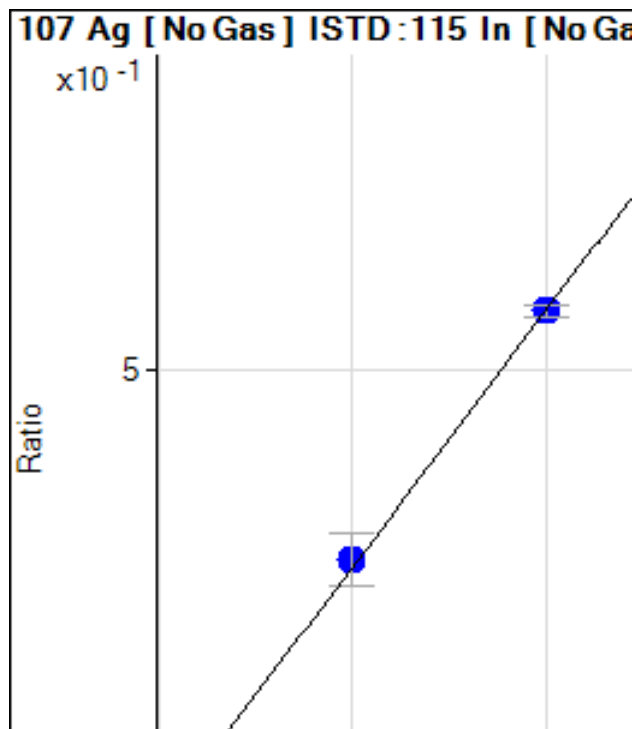
98 Mo [No Gas] ISTD:115 In [No Gas]



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	118.89	0.000		4.3	
2	<input type="checkbox"/>	0.025	0.077	751.76	0.000		9.5	209
3	<input type="checkbox"/>	0.050	0.052	544.46	0.000		7.4	3.2
4	<input type="checkbox"/>	0.100	0.099	898.93	0.001		1.8	-1.2
5	<input type="checkbox"/>	0.500	0.507	4220.66	0.004		4.2	1.5
6	<input type="checkbox"/>	1.000	1.013	8305.33	0.008		4.0	1.3
7	<input type="checkbox"/>	10.000	10.435	82296.36	0.089		2.7	4.3
8	<input type="checkbox"/>	50.000	49.786	400041.7	0.424		18.	-0.4
9	<input type="checkbox"/>	100.00	100.06	838744.5	0.853		2.5	0.1
10	<input type="checkbox"/>			995.67	0.001		9.7	
11	<input type="checkbox"/>			195.07	0.000		4.2	

$y = 0.0085 * x + 1.2462E-004$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	106.71	0.000		13.	
2	<input type="checkbox"/>	0.010	0.010	248.10	0.000		5.8	3.6
3	<input type="checkbox"/>	0.020	0.026	460.86	0.000		9.9	28.7
4	<input type="checkbox"/>	0.040	0.049	748.99	0.000		3.7	21.9
5	<input type="checkbox"/>	0.200	0.212	2957.51	0.003		3.1	5.8
6	<input type="checkbox"/>	0.400	0.437	5989.04	0.006		3.5	9.2
7	<input type="checkbox"/>	4.000	4.258	56003.13	0.060		3.0	6.5
8	<input type="checkbox"/>	20.000	20.352	272145.1	0.289		19.	1.8
9	<input type="checkbox"/>	40.000	39.798	555848.7	0.566		2.3	-0.5
10	<input type="checkbox"/>			4394803.	4.406		3.1	
11	<input type="checkbox"/>			7383.59	0.007		15.	

$y = 0.0142 * x + 1.1202E-004$

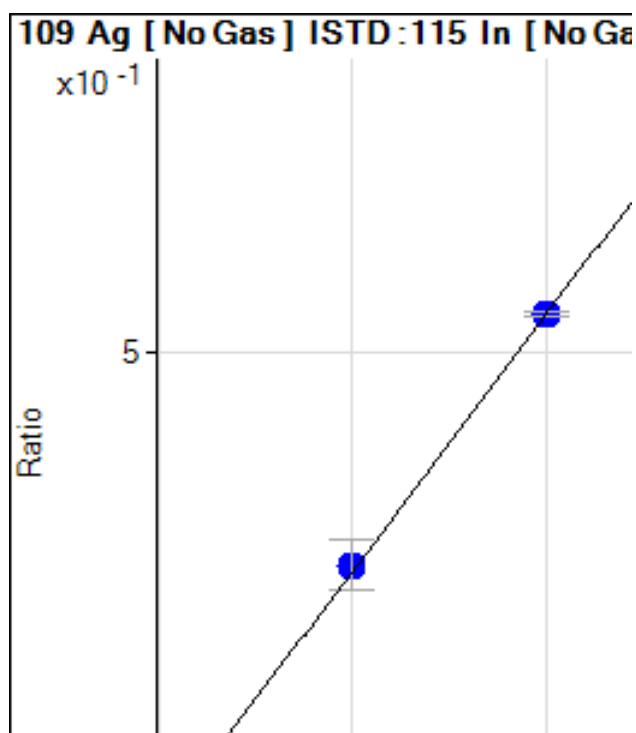
R = 0.9999

DL = 0.003103 ug/l

BEC = 0.007876 ug/l

Weight: 1/y

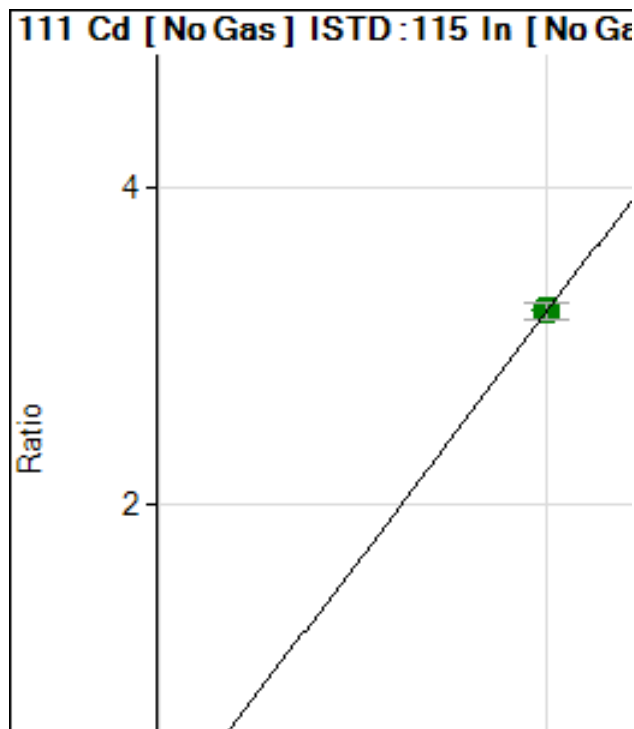
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	100.71	0.000		17.	
2	<input type="checkbox"/>	0.010	0.011	244.77	0.000		3.9	11.1
3	<input type="checkbox"/>	0.020	0.025	428.18	0.000		5.6	25.2
4	<input type="checkbox"/>	0.040	0.047	692.96	0.000		4.0	18.2
5	<input type="checkbox"/>	0.200	0.221	2937.49	0.003		2.7	10.6
6	<input type="checkbox"/>	0.400	0.437	5710.13	0.006		3.4	9.4
7	<input type="checkbox"/>	4.000	4.287	53656.22	0.058		5.7	7.2
8	<input type="checkbox"/>	20.000	20.300	258607.4	0.274		19.	1.5
9	<input type="checkbox"/>	40.000	39.821	529430.2	0.539		0.8	-0.4
10	<input type="checkbox"/>			4262054.	4.270		2.7	
11	<input type="checkbox"/>			7132.04	0.007		16.	

$y = 0.0135 * x + 1.0569E-004$

R = 0.9999



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	14.23	0.000		126	
2	<input type="checkbox"/>	0.025	0.025	90.94	0.000		7.9	-0.8
3	<input type="checkbox"/>	0.050	0.063	210.78	0.000		3.9	26.5
4	<input type="checkbox"/>	0.100	0.121	377.60	0.000		9.0	21.4
5	<input type="checkbox"/>	0.500	0.527	1623.47	0.001		2.9	5.3
6	<input type="checkbox"/>	1.000	1.101	3374.74	0.003		1.2	10.1
7	<input type="checkbox"/>	10.000	10.612	31582.41	0.034		1.5	6.1
8	<input type="checkbox"/>	50.000	50.493	152997.3	0.162		19.	1.0
9	<input type="checkbox"/>	100.00	100.02	316545.1	0.322		1.3	0.0
10	<input type="checkbox"/>	1000.0	999.96	3213704.	3.222		3.4	0.0
11	<input type="checkbox"/>			74.08	0.000		20.	

$y = 0.0032 * x + 1.5018E-005$

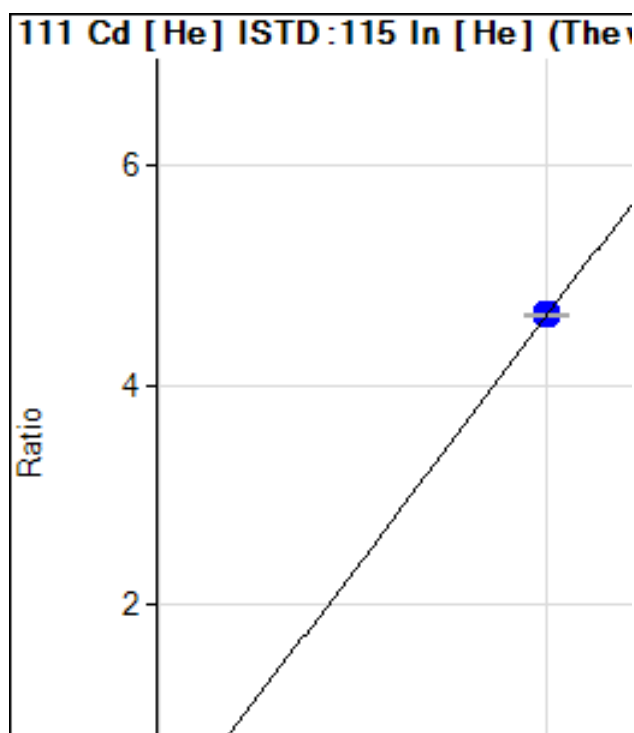
R = 1.0000

DL = 0.01768 ug/l

BEC = 0.00466 ug/l

Weight: 1/y

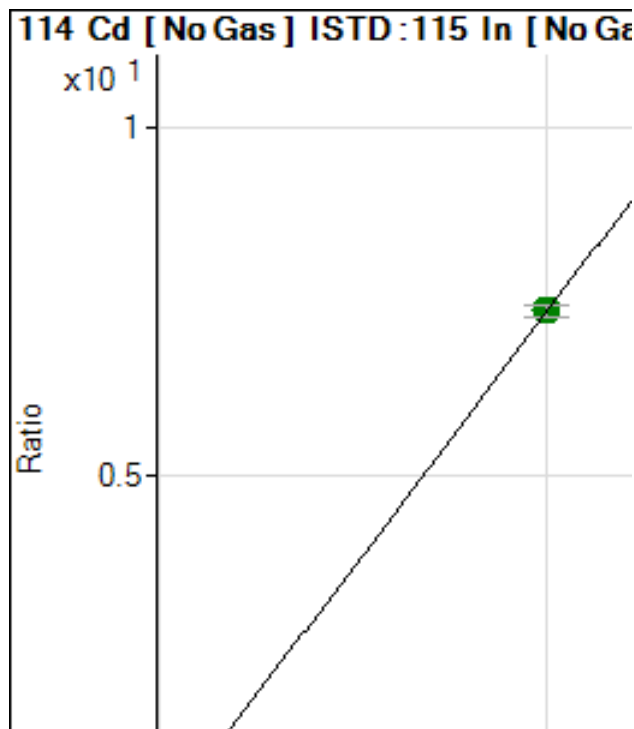
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	2.22	0.000		52.	
2	<input type="checkbox"/>	0.025	0.026	25.11	0.000		6.1	4.5
3	<input type="checkbox"/>	0.050	0.065	57.89	0.000		10.	30.5
4	<input type="checkbox"/>	0.100	0.118	104.00	0.000		11.	18.0
5	<input type="checkbox"/>	0.500	0.565	485.34	0.002		2.9	12.9
6	<input type="checkbox"/>	1.000	1.163	989.15	0.005		2.4	16.3
7	<input type="checkbox"/>	10.000	11.241	9535.98	0.052		1.9	12.4
8	<input type="checkbox"/>	50.000	52.410	46938.15	0.243		0.9	4.8
9	<input type="checkbox"/>	100.00	102.26	101993.2	0.474		1.8	2.3
10	<input type="checkbox"/>	1000.0	999.64	1084933.	4.637		0.3	0.0
11	<input type="checkbox"/>			15.89	0.000		31.	

$y = 0.0046 * x + 1.0750E-005$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	-0.67	0.000		-22	
2	<input type="checkbox"/>	0.025	0.024	169.18	0.000		14.	-3.9
3	<input type="checkbox"/>	0.050	0.064	451.22	0.000		6.5	27.5
4	<input type="checkbox"/>	0.100	0.120	821.17	0.000		3.1	20.1
5	<input type="checkbox"/>	0.500	0.523	3649.44	0.003		2.3	4.6
6	<input type="checkbox"/>	1.000	1.070	7459.74	0.007		0.4	7.0
7	<input type="checkbox"/>	10.000	10.483	71246.22	0.077		2.4	4.8
8	<input type="checkbox"/>	50.000	50.172	347338.1	0.369		19.	0.3
9	<input type="checkbox"/>	100.00	98.999	715788.8	0.728		1.6	-1.0
10	<input type="checkbox"/>	1000.0	1000.0	7344892.	7.363		2.5	0.0
11	<input type="checkbox"/>			162.99	0.000		9.7	

$y = 0.0074 * x - 6.1700E-007$

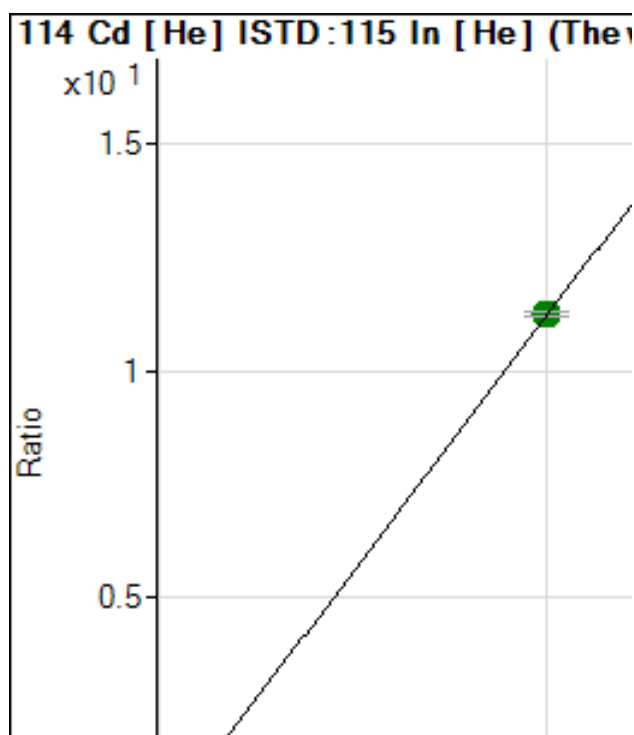
R = 1.0000

DL = 0.005753 ug/l

BEC = -8.38E-05 ug/l

Weight: 1/y

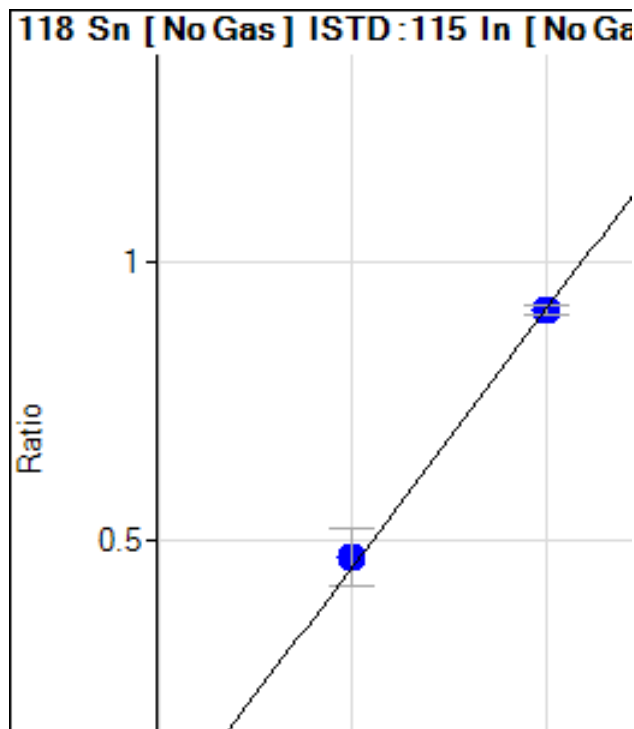
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	0.90	0.000		170	
2	<input type="checkbox"/>	0.025	0.028	60.79	0.000		9.4	12.2
3	<input type="checkbox"/>	0.050	0.062	129.12	0.000		5.6	23.7
4	<input type="checkbox"/>	0.100	0.125	262.45	0.001		4.3	24.9
5	<input type="checkbox"/>	0.500	0.560	1162.48	0.006		2.8	12.1
6	<input type="checkbox"/>	1.000	1.178	2422.37	0.013		3.0	17.8
7	<input type="checkbox"/>	10.000	11.491	23605.52	0.129		2.1	14.9
8	<input type="checkbox"/>	50.000	53.073	115133.0	0.596		1.0	6.1
9	<input type="checkbox"/>	100.00	102.98	248789.0	1.157		1.3	3.0
10	<input type="checkbox"/>	1000.0	999.53	2627500.	11.23		0.8	0.0
11	<input type="checkbox"/>			32.74	0.000		15.	

$y = 0.0112 * x + 4.3545E-006$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	738.56	0.000		39.	
2	<input type="checkbox"/>	0.025	0.041	1104.53	0.001		5.5	65.0
3	<input type="checkbox"/>	0.050	0.062	1297.49	0.001		2.3	24.1
4	<input type="checkbox"/>	0.100	0.153	2026.16	0.002		3.6	52.9
5	<input type="checkbox"/>	0.500	0.550	5516.87	0.005		6.8	10.0
6	<input type="checkbox"/>	1.000	1.059	9943.89	0.010		1.3	5.9
7	<input type="checkbox"/>	10.000	10.109	86297.82	0.093		4.1	1.1
8	<input type="checkbox"/>	50.000	51.276	441805.3	0.471		21.	2.6
9	<input type="checkbox"/>	100.00	99.350	895400.3	0.912		2.0	-0.6
10	<input type="checkbox"/>			1989.53	0.002		1.8	
11	<input type="checkbox"/>			3187.38	0.003		3.9	

$y = 0.0092 * x + 7.7770E-004$

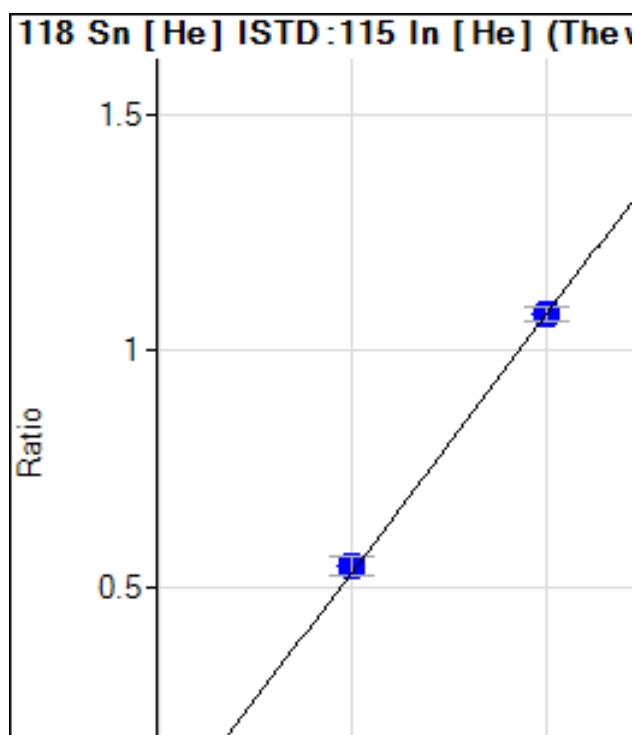
R = 0.9999

DL = 0.1004 ug/l

BEC = 0.08479 ug/l

Weight: 1/y

Min Conc: <None>

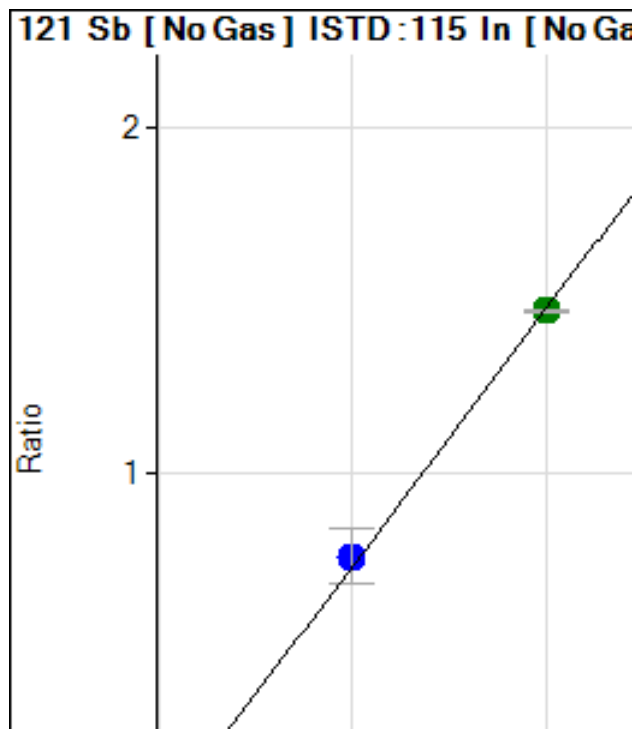


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	176.67	0.000		9.9	
2	<input type="checkbox"/>	0.025	0.041	246.67	0.001		11.	63.5
3	<input type="checkbox"/>	0.050	0.106	370.01	0.002		5.4	112
4	<input type="checkbox"/>	0.100	0.127	415.56	0.002		10.	27.0
5	<input type="checkbox"/>	0.500	0.559	1272.29	0.006		4.5	11.9
6	<input type="checkbox"/>	1.000	1.118	2364.66	0.012		6.6	11.8
7	<input type="checkbox"/>	10.000	10.994	21862.73	0.119		5.4	9.9
8	<input type="checkbox"/>	50.000	50.597	105605.5	0.547		7.3	1.2
9	<input type="checkbox"/>	100.00	99.601	231458.2	1.076		2.9	-0.4
10	<input type="checkbox"/>			562.24	0.002		8.9	
11	<input type="checkbox"/>			824.48	0.004		4.7	

$y = 0.0108 * x + 8.5517E-004$

R = 0.9999





	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t.	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	1252.19	0.001		4.6	
2	<input type="checkbox"/>	0.025	-0.009	1128.16	0.001		3.5	-13%
3	<input type="checkbox"/>	0.050	0.021	1561.91	0.001		7.0	-58
4	<input type="checkbox"/>	0.100	0.070	2183.73	0.002		2.9	-30
5	<input type="checkbox"/>	0.500	0.478	7945.72	0.008		1.7	-4.5
6	<input type="checkbox"/>	1.000	1.040	15828.16	0.016		1.7	4.0
7	<input type="checkbox"/>	10.000	10.555	145467.5	0.157		3.2	5.5
8	<input type="checkbox"/>	50.000	51.464	716235.2	0.763		21.	2.9
9	<input type="checkbox"/>	100.00	99.212	1443886.	1.470		0.3	-0.8
10	<input type="checkbox"/>			5219.84	0.005		10.	
11	<input type="checkbox"/>			1834.31	0.001		3.4	

$y = 0.0148 * x + 0.0013$

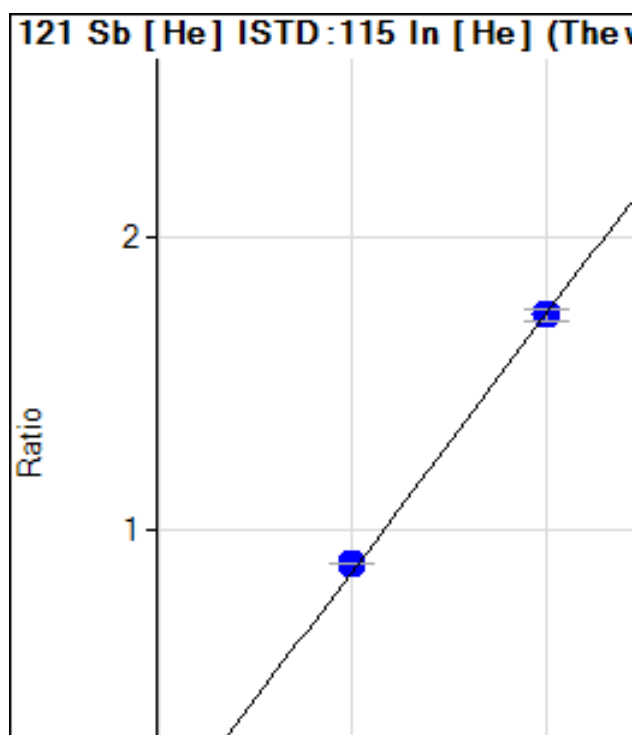
R = 0.9999

DL = 0.01232 ug/l

BEC = 0.08868 ug/l

Weight: 1/y

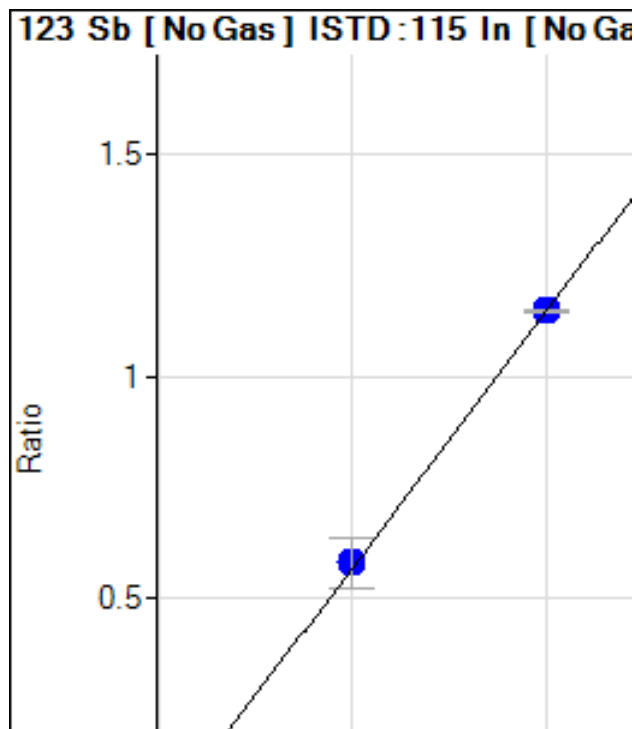
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t.	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	266.03	0.001		6.1	
2	<input type="checkbox"/>	0.025	0.014	291.03	0.001		5.2	-44
3	<input type="checkbox"/>	0.050	0.045	383.38	0.002		7.7	-9.2
4	<input type="checkbox"/>	0.100	0.095	548.40	0.002		2.8	-5.0
5	<input type="checkbox"/>	0.500	0.499	1840.64	0.010		1.1	-0.2
6	<input type="checkbox"/>	1.000	1.091	3713.87	0.020		2.3	9.1
7	<input type="checkbox"/>	10.000	10.787	34582.31	0.189		2.6	7.9
8	<input type="checkbox"/>	50.000	50.899	171405.0	0.887		0.5	1.8
9	<input type="checkbox"/>	100.00	99.471	372766.6	1.734		2.1	-0.5
10	<input type="checkbox"/>			1080.82	0.004		3.3	
11	<input type="checkbox"/>			426.72	0.002		4.3	

$y = 0.0174 * x + 0.0013$

R = 0.9999



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	980.14	0.001		7.6	
2	<input type="checkbox"/>	0.025	-0.013	837.44	0.000		1.5	-153
3	<input type="checkbox"/>	0.050	0.016	1167.83	0.001		5.6	-67
4	<input type="checkbox"/>	0.100	0.070	1701.94	0.001		1.3	-30
5	<input type="checkbox"/>	0.500	0.471	6111.95	0.006		0.7	-5.7
6	<input type="checkbox"/>	1.000	1.001	11880.54	0.012		2.1	0.1
7	<input type="checkbox"/>	10.000	10.433	111692.3	0.121		1.8	4.3
8	<input type="checkbox"/>	50.000	50.430	546035.1	0.580		19.	0.9
9	<input type="checkbox"/>	100.00	99.742	1127219.	1.147		0.6	-0.3
10	<input type="checkbox"/>			4113.02	0.004		11.	
11	<input type="checkbox"/>			1406.88	0.001		6.5	

$y = 0.0115 * x + 0.0010$

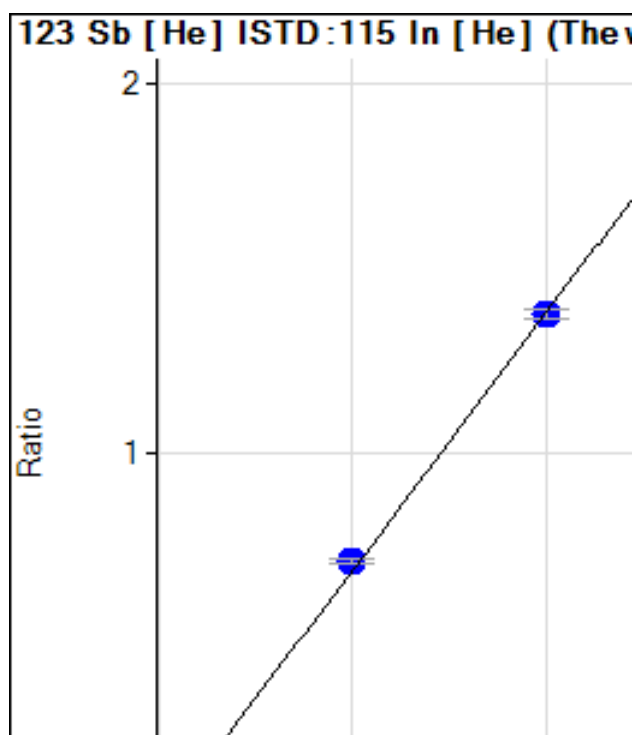
R = 1.0000

DL = 0.02035 ug/l

BEC = 0.08942 ug/l

Weight: 1/y

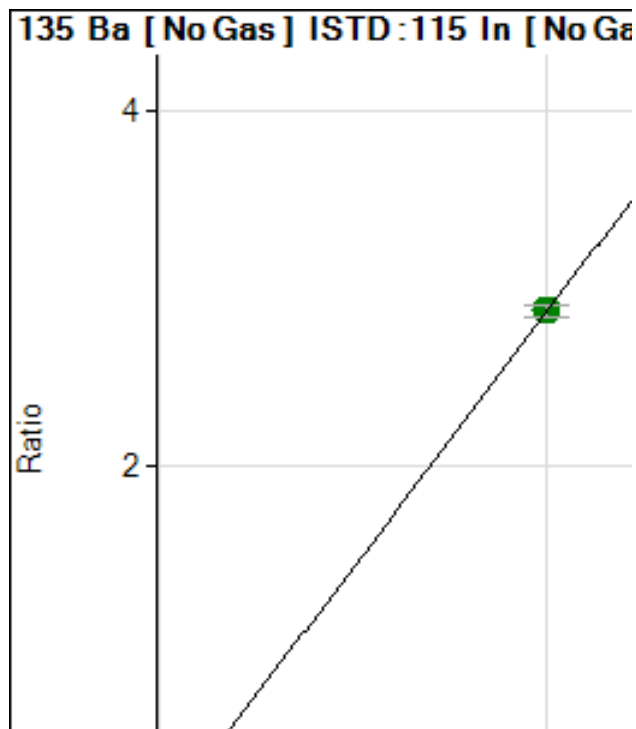
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	218.02	0.001		7.2	
2	<input type="checkbox"/>	0.025	0.006	217.02	0.001		8.3	-75
3	<input type="checkbox"/>	0.050	0.033	279.70	0.001		2.8	-33
4	<input type="checkbox"/>	0.100	0.088	424.72	0.002		3.8	-11
5	<input type="checkbox"/>	0.500	0.503	1481.56	0.008		0.9	0.7
6	<input type="checkbox"/>	1.000	1.087	2949.28	0.016		0.7	8.7
7	<input type="checkbox"/>	10.000	10.873	27733.13	0.151		1.2	8.7
8	<input type="checkbox"/>	50.000	51.394	137648.1	0.713		1.9	2.8
9	<input type="checkbox"/>	100.00	99.215	295720.2	1.375		1.8	-0.8
10	<input type="checkbox"/>			875.78	0.003		5.3	
11	<input type="checkbox"/>			346.37	0.001		9.8	

$y = 0.0139 * x + 0.0011$

R = 0.9998



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	19.96	0.000		86.	
2	<input type="checkbox"/>	0.025	0.033	109.78	0.000		20.	30.7
3	<input type="checkbox"/>	0.050	0.065	199.61	0.000		16.	29.1
4	<input type="checkbox"/>	0.100	0.116	329.35	0.000		10.	15.9
5	<input type="checkbox"/>	0.500	0.569	1570.31	0.001		8.6	13.7
6	<input type="checkbox"/>	1.000	1.158	3177.41	0.003		6.8	15.8
7	<input type="checkbox"/>	10.000	11.177	29726.34	0.032		1.7	11.8
8	<input type="checkbox"/>	50.000	51.736	140464.0	0.149		17.	3.5
9	<input type="checkbox"/>	100.00	101.58	287201.4	0.292		0.9	1.6
10	<input type="checkbox"/>	1000.0	999.74	2872716.	2.878		2.2	0.0
11	<input type="checkbox"/>			73.19	0.000		10.	

$y = 0.0029 * x + 2.1105E-005$

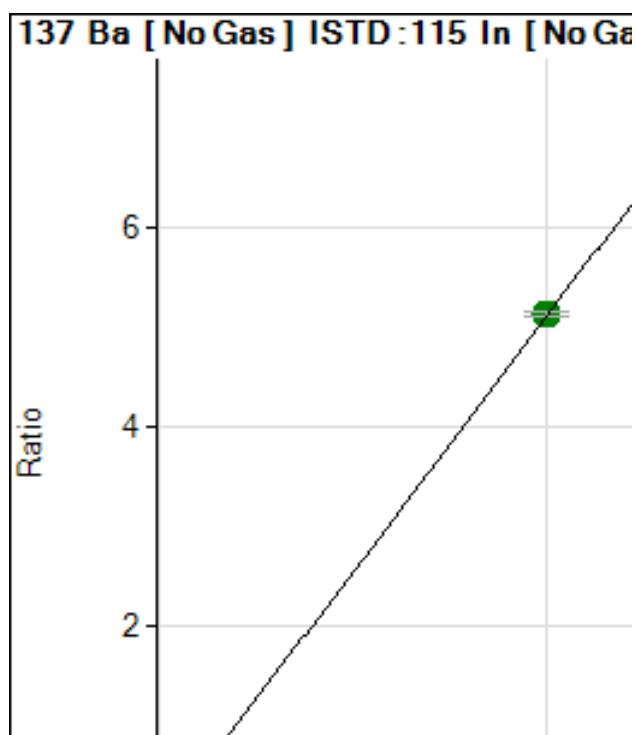
R = 1.0000

DL = 0.01905 ug/l

BEC = 0.007331 ug/l

Weight: 1/y

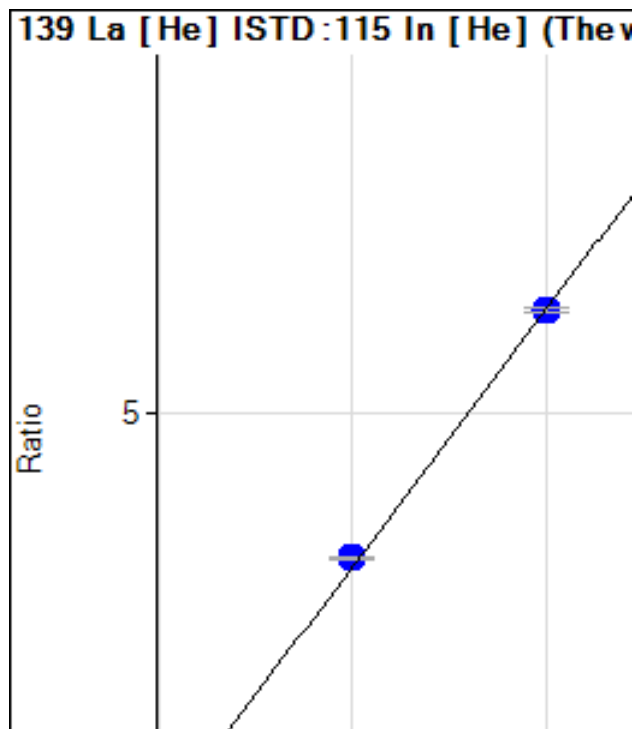
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	43.25	0.000		34.	
2	<input type="checkbox"/>	0.025	0.022	149.70	0.000		13.	-13
3	<input type="checkbox"/>	0.050	0.072	399.21	0.000		21.	44.4
4	<input type="checkbox"/>	0.100	0.106	545.60	0.000		5.0	5.8
5	<input type="checkbox"/>	0.500	0.520	2568.50	0.002		8.3	3.9
6	<input type="checkbox"/>	1.000	1.076	5260.58	0.005		7.2	7.6
7	<input type="checkbox"/>	10.000	10.558	49954.84	0.054		4.0	5.6
8	<input type="checkbox"/>	50.000	48.962	235959.9	0.250		18.	-2.1
9	<input type="checkbox"/>	100.00	97.591	490719.8	0.499		2.3	-2.4
10	<input type="checkbox"/>	1000.0	1000.2	5111919.	5.122		0.8	0.0
11	<input type="checkbox"/>			116.43	0.000		10.	

$y = 0.0051 * x + 4.5227E-005$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	11.11	0.000		16.	
2	<input type="checkbox"/>	0.025	0.027	333.34	0.001		9.3	7.9
3	<input type="checkbox"/>	0.050	0.064	750.03	0.004		6.5	27.3
4	<input type="checkbox"/>	0.100	0.120	1424.53	0.007		4.1	20.4
5	<input type="checkbox"/>	0.500	0.551	6420.43	0.034		1.4	10.3
6	<input type="checkbox"/>	1.000	1.110	12807.11	0.070		2.3	11.0
7	<input type="checkbox"/>	10.000	10.886	125413.7	0.686		1.8	8.9
8	<input type="checkbox"/>	50.000	51.161	622237.3	3.223		0.9	2.3
9	<input type="checkbox"/>	100.00	99.329	1345489.	6.258		0.9	-0.7
10	<input type="checkbox"/>			125.56	0.000		7.7	
11	<input type="checkbox"/>			26.67	0.000		33.	

$y = 0.0630 * x + 5.3706E-005$

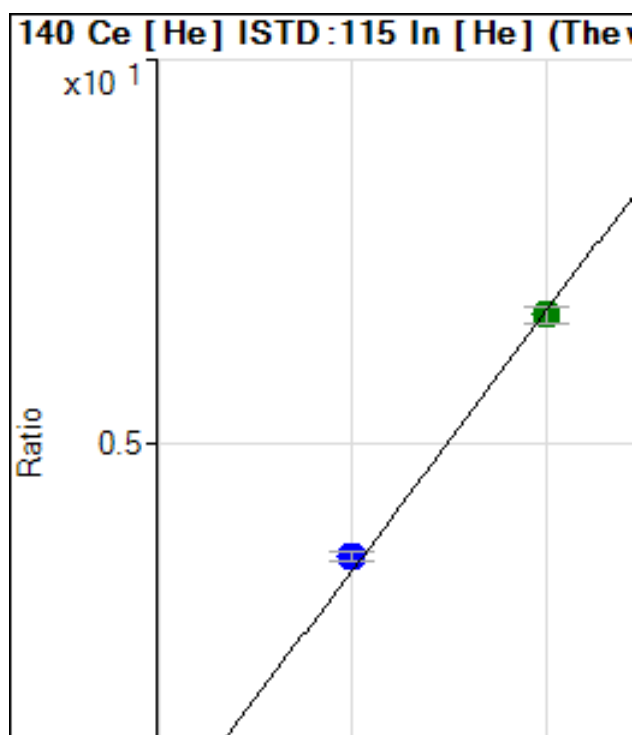
R = 0.9999

DL = 0.0004282 ug/l

BEC = 0.0008524 ug/l

Weight: 1/y

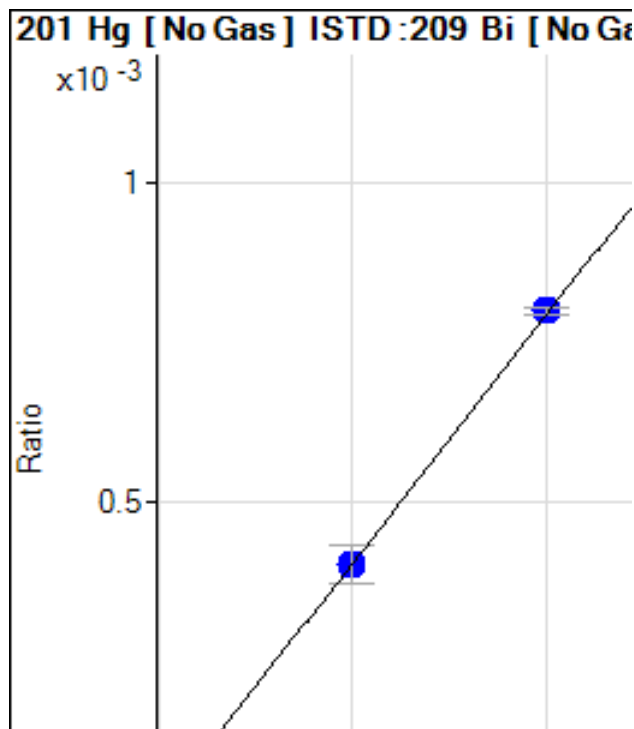
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	11.11	0.000		61.	
2	<input type="checkbox"/>	0.025	0.028	367.79	0.001		9.2	11.5
3	<input type="checkbox"/>	0.050	0.070	878.92	0.004		8.5	39.7
4	<input type="checkbox"/>	0.100	0.128	1622.33	0.008		1.5	28.3
5	<input type="checkbox"/>	0.500	0.563	7008.49	0.038		1.3	12.5
6	<input type="checkbox"/>	1.000	1.146	14143.98	0.077		1.8	14.6
7	<input type="checkbox"/>	10.000	11.351	139920.5	0.765		1.4	13.5
8	<input type="checkbox"/>	50.000	51.891	675347.9	3.498		3.5	3.8
9	<input type="checkbox"/>	100.00	98.917	1433714.	6.669		3.0	-1.1
10	<input type="checkbox"/>			341.12	0.001		12.	
11	<input type="checkbox"/>			47.78	0.000		8.8	

$y = 0.0674 * x + 5.3414E-005$

R = 0.9997



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	109.65	0.000		7.2	
2	<input type="checkbox"/>			67.99	0.000		12.	
3	<input type="checkbox"/>	0.001	-0.011	84.32	0.000		18.	-117
4	<input type="checkbox"/>	0.002	-0.018	72.32	0.000		5.1	-100
5	<input type="checkbox"/>	0.010	-0.005	96.98	0.000		16.	-154
6	<input type="checkbox"/>	0.020	0.005	120.31	0.000		6.9	-73
7	<input type="checkbox"/>	0.200	0.179	485.24	0.000		5.1	-10
8	<input type="checkbox"/>	1.000	0.984	2036.42	0.000		15.	-1.6
9	<input type="checkbox"/>	2.000	2.010	4031.14	0.000		1.5	0.5
10	<input type="checkbox"/>			82.32	0.000		10.	
11	<input type="checkbox"/>			62.99	0.000		2.4	

$y = 3.8727E-004 * x + 2.0472E-005$

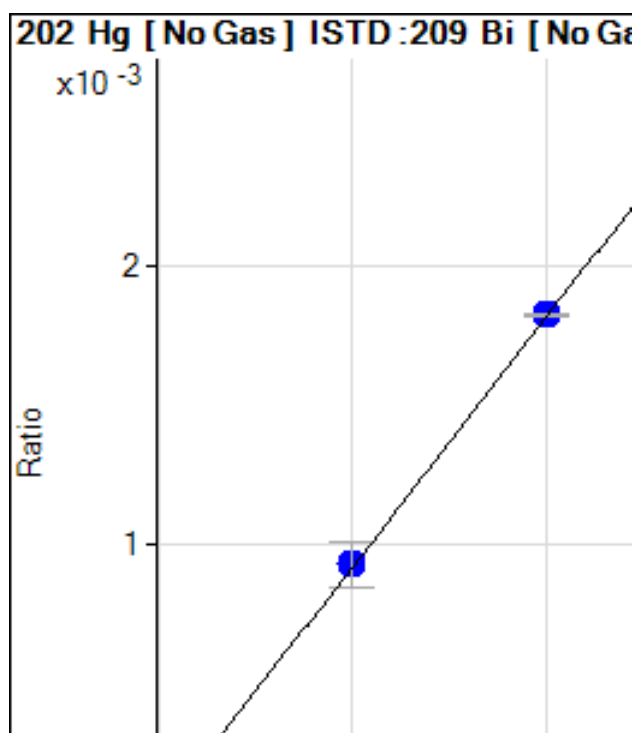
R = 0.9999

DL = 0.01148 ug/l

BEC = 0.05286 ug/l

Weight: 1/y

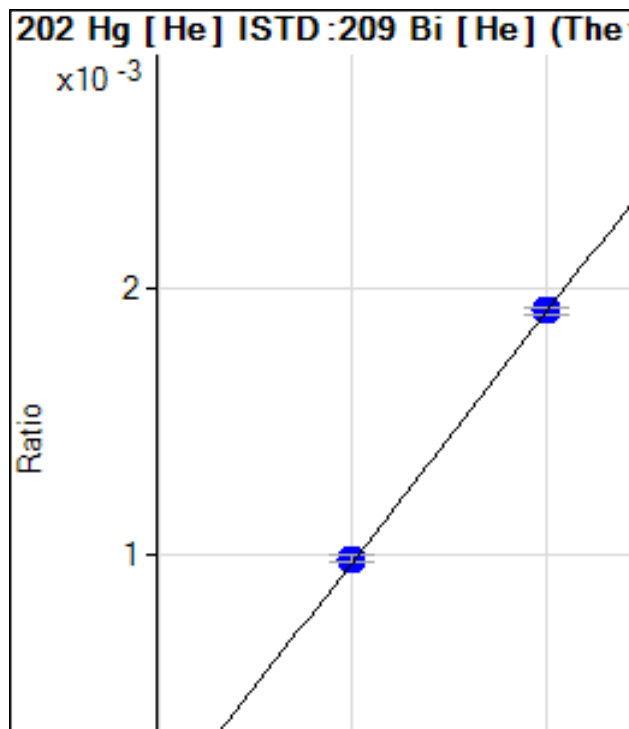
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	221.96	0.000		2.5	
2	<input type="checkbox"/>			169.97	0.000		1.6	
3	<input type="checkbox"/>	0.001	-0.006	185.30	0.000		4.7	-743
4	<input type="checkbox"/>	0.002	-0.005	196.30	0.000		6.2	-372
5	<input type="checkbox"/>	0.010	0.008	256.28	0.000		2.4	-19
6	<input type="checkbox"/>	0.020	0.013	282.61	0.000		5.3	-35
7	<input type="checkbox"/>	0.200	0.184	1110.50	0.000		1.2	-7.9
8	<input type="checkbox"/>	1.000	0.999	4711.90	0.000		16.	-0.1
9	<input type="checkbox"/>	2.000	2.002	9203.67	0.001		0.7	0.1
10	<input type="checkbox"/>			208.63	0.000		3.6	
11	<input type="checkbox"/>			176.30	0.000		8.3	

$y = 8.9035E-004 * x + 4.1445E-005$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t.	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	106.31	0.000		10.	
2	<input type="checkbox"/>			75.98	0.000		25.	
3	<input type="checkbox"/>	0.001	-0.008	82.65	0.000		0.7	-94%
4	<input type="checkbox"/>	0.002	-0.004	91.98	0.000		7.7	-28%
5	<input type="checkbox"/>	0.010	0.003	106.31	0.000		5.8	-72%
6	<input type="checkbox"/>	0.020	0.019	135.64	0.000		8.6	-6.2%
7	<input type="checkbox"/>	0.200	0.202	485.25	0.000		5.5	1.0%
8	<input type="checkbox"/>	1.000	1.002	2025.09	0.001		2.6	0.2%
9	<input type="checkbox"/>	2.000	1.999	3986.81	0.001		1.4	0.0%
10	<input type="checkbox"/>			81.98	0.000		16.	
11	<input type="checkbox"/>			65.66	0.000		6.8	

$y = 9.3496E-004 * x + 4.8259E-005$

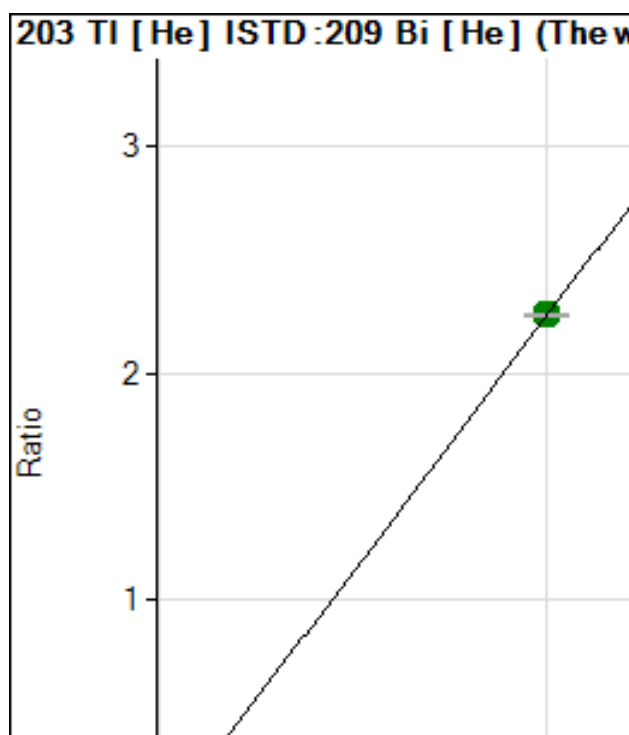
R = 1.0000

DL = 0.01586 ug/l

BEC = 0.05162 ug/l

Weight: 1/y

Min Conc: <None>

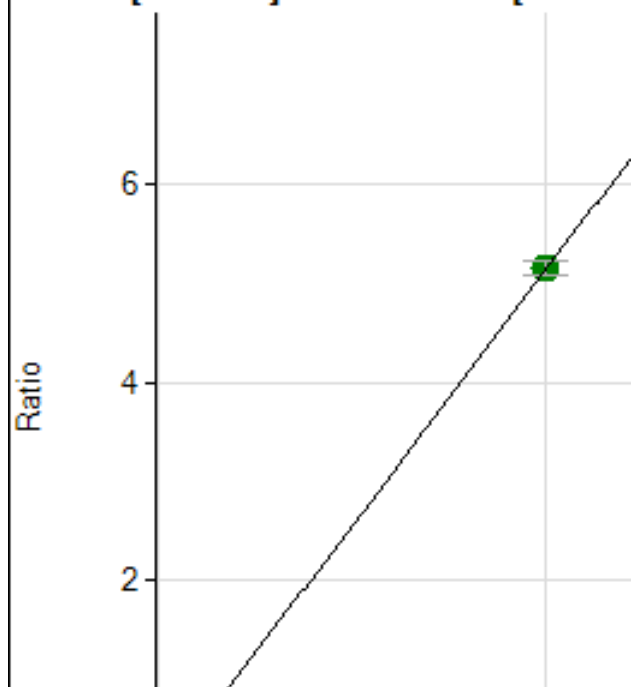


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t.	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	222.76	0.000		10.	
2	<input type="checkbox"/>	0.025	0.007	246.77	0.000		2.3	-71%
3	<input type="checkbox"/>	0.050	0.046	418.84	0.000		8.4	-8.3%
4	<input type="checkbox"/>	0.100	0.090	624.94	0.000		10.	-10%
5	<input type="checkbox"/>	0.500	0.458	2371.84	0.001		2.4	-8.4%
6	<input type="checkbox"/>	1.000	1.039	5044.32	0.002		2.9	3.9%
7	<input type="checkbox"/>	10.000	10.245	47563.90	0.023		0.7	2.5%
8	<input type="checkbox"/>	50.000	49.622	230530.4	0.112		1.9	-0.8%
9	<input type="checkbox"/>	100.00	98.701	463475.4	0.222		1.9	-1.3%
10	<input type="checkbox"/>	1000.0	1000.1	4693739.	2.257		0.7	0.0%
11	<input type="checkbox"/>			9644.09	0.005		8.2	

$y = 0.0023 * x + 1.0099E-004$

R = 1.0000

205 Tl [ No Gas ] ISTD :209 Bi [ No Gas]



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	987.82	0.000		28.	
2	<input type="checkbox"/>	0.025	0.009	1202.29	0.000		13.	-62
3	<input type="checkbox"/>	0.050	0.043	2102.40	0.000		9.9	-13
4	<input type="checkbox"/>	0.100	0.092	3512.71	0.000		5.2	-8.5
5	<input type="checkbox"/>	0.500	0.507	14723.87	0.002		4.2	1.4
6	<input type="checkbox"/>	1.000	1.029	29311.52	0.005		3.4	2.9
7	<input type="checkbox"/>	10.000	10.021	280241.5	0.051		1.7	0.2
8	<input type="checkbox"/>	50.000	52.316	1366110.	0.269		17.	4.6
9	<input type="checkbox"/>	100.00	99.760	2595739.	0.514		1.3	-0.2
10	<input type="checkbox"/>	1000.0	999.90	25195050	5.154		3.0	0.0
11	<input type="checkbox"/>			43405.81	0.008		26.	

$y = 0.0052 * x + 1.8329E-004$

R = 1.0000

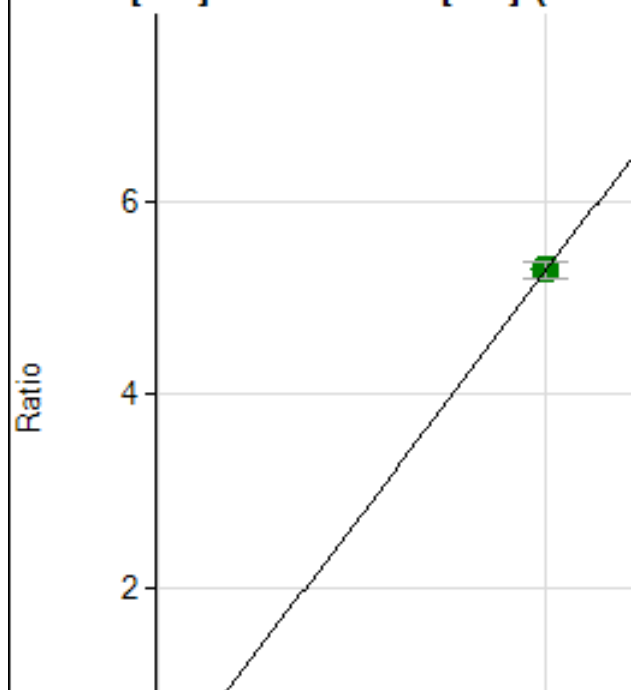
DL = 0.03069 ug/l

BEC = 0.03555 ug/l

Weight: 1/y

Min Conc: <None>

205 Tl [ He ] ISTD :209 Bi [ He ] (The

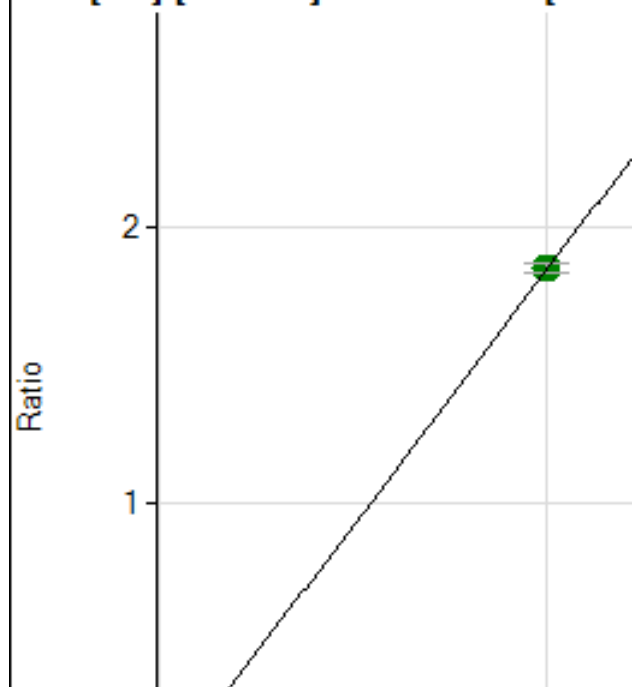


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	572.24	0.000		1.8	
2	<input type="checkbox"/>	0.025	0.007	624.27	0.000		4.4	-72
3	<input type="checkbox"/>	0.050	0.044	1004.44	0.000		6.2	-12
4	<input type="checkbox"/>	0.100	0.088	1497.36	0.000		4.2	-11
5	<input type="checkbox"/>	0.500	0.466	5699.53	0.002		5.3	-6.8
6	<input type="checkbox"/>	1.000	1.043	11932.86	0.005		1.6	4.3
7	<input type="checkbox"/>	10.000	10.604	115557.7	0.056		1.8	6.0
8	<input type="checkbox"/>	50.000	49.870	543763.3	0.264		4.0	-0.3
9	<input type="checkbox"/>	100.00	101.96	1123856.	0.540		1.1	2.0
10	<input type="checkbox"/>	1000.0	999.80	11010771	5.297		3.4	0.0
11	<input type="checkbox"/>			23241.76	0.012		3.8	

$y = 0.0053 * x + 2.5932E-004$

R = 1.0000

206 [Pb] [No Gas] ISTD : 209 Bi [No G



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	167.78	0.000		25.	
2	<input type="checkbox"/>	0.025	0.023	380.01	0.000		6.9	-10
3	<input type="checkbox"/>	0.050	0.051	648.91	0.000		7.1	1.4
4	<input type="checkbox"/>	0.100	0.107	1227.85	0.000		7.8	7.1
5	<input type="checkbox"/>	0.500	0.495	4979.86	0.000		2.3	-0.9
6	<input type="checkbox"/>	1.000	1.009	10118.37	0.001		2.0	0.9
7	<input type="checkbox"/>	10.000	9.728	97204.28	0.018		3.3	-2.7
8	<input type="checkbox"/>	50.000	47.964	449221.3	0.088		14.	-4.1
9	<input type="checkbox"/>	100.00	99.200	923865.6	0.183		1.8	-0.8
10	<input type="checkbox"/>	1000.0	1000.1	9024549.	1.846		1.8	0.0
11	<input type="checkbox"/>			714.47	0.000		12.	

$y = 0.0018 * x + 3.1585E-005$

R = 1.0000

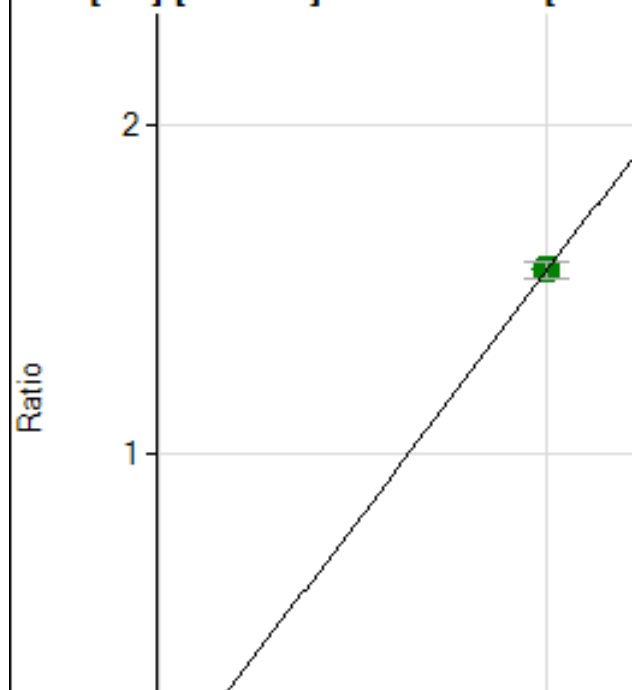
DL = 0.01329 ug/l

BEC = 0.01711 ug/l

Weight: 1/y

Min Conc: <None>

207 [Pb] [No Gas] ISTD : 209 Bi [No G

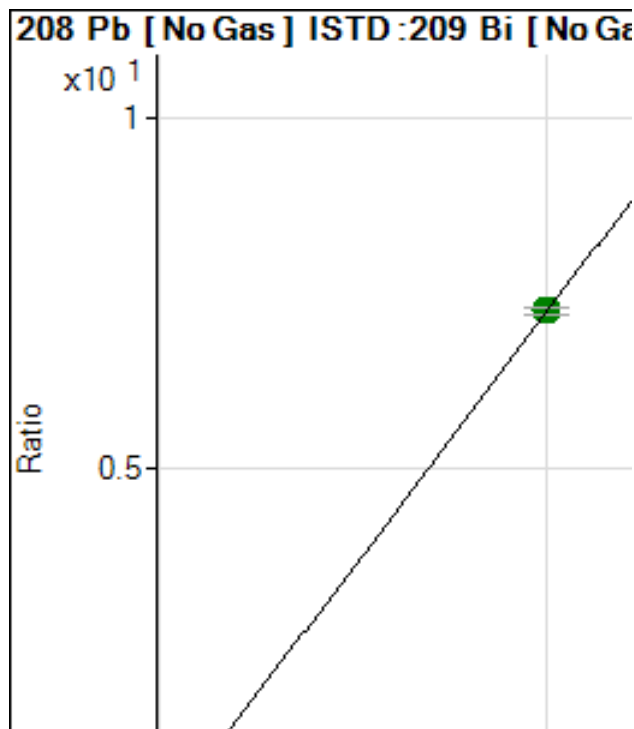


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	128.89	0.000		23.	
2	<input type="checkbox"/>	0.025	0.030	372.23	0.000		10.	21.6
3	<input type="checkbox"/>	0.050	0.065	648.91	0.000		6.1	29.6
4	<input type="checkbox"/>	0.100	0.105	1007.83	0.000		6.6	5.1
5	<input type="checkbox"/>	0.500	0.539	4553.04	0.000		0.5	7.7
6	<input type="checkbox"/>	1.000	1.090	9213.28	0.001		5.4	9.0
7	<input type="checkbox"/>	10.000	10.229	86407.78	0.016		2.3	2.3
8	<input type="checkbox"/>	50.000	51.482	406107.7	0.080		18.	3.0
9	<input type="checkbox"/>	100.00	101.87	802333.6	0.159		1.7	1.9
10	<input type="checkbox"/>	1000.0	999.73	7623923.	1.560		3.3	0.0
11	<input type="checkbox"/>			673.35	0.000		11.	

$y = 0.0016 * x + 2.4183E-005$

R = 1.0000





	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	597.79	0.000		18.	
2	<input type="checkbox"/>	0.025	0.026	1577.83	0.000		4.4	5.6
3	<input type="checkbox"/>	0.050	0.059	2809.03	0.000		7.5	18.7
4	<input type="checkbox"/>	0.100	0.108	4789.27	0.000		2.5	7.8
5	<input type="checkbox"/>	0.500	0.514	20186.12	0.003		2.7	2.7
6	<input type="checkbox"/>	1.000	1.037	40727.93	0.007		2.9	3.7
7	<input type="checkbox"/>	10.000	9.983	391615.8	0.072		2.1	-0.2
8	<input type="checkbox"/>	50.000	50.147	1841103.	0.363		16.	0.3
9	<input type="checkbox"/>	100.00	100.44	3673122.	0.728		1.4	0.4
10	<input type="checkbox"/>	1000.0	999.94	35425735	7.246		1.1	0.0
11	<input type="checkbox"/>			3031.27	0.000		7.5	

$y = 0.0072 * x + 1.1227E-004$

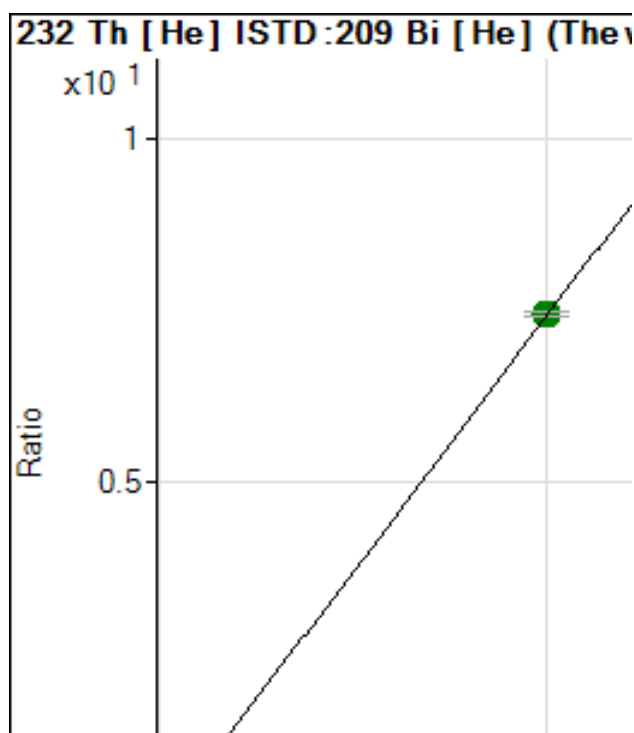
R = 1.0000

DL = 0.008484 ug/l

BEC = 0.01549 ug/l

Weight: 1/y

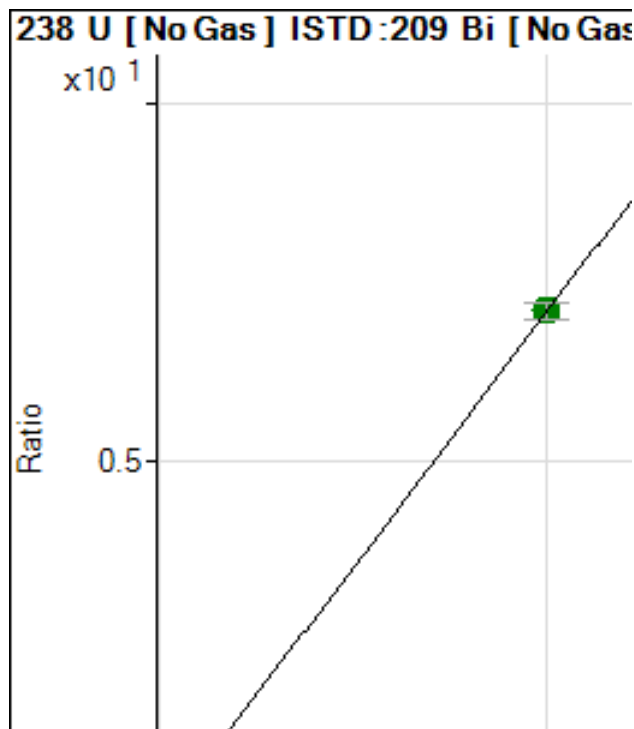
Min Conc: <None>



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	312.80	0.000		6.8	
2	<input type="checkbox"/>	0.025	0.008	422.85	0.000		4.7	-68
3	<input type="checkbox"/>	0.050	0.026	680.29	0.000		3.3	-48
4	<input type="checkbox"/>	0.100	0.054	1114.50	0.000		5.9	-46
5	<input type="checkbox"/>	0.500	0.346	5670.85	0.002		0.7	-30
6	<input type="checkbox"/>	1.000	0.840	13172.61	0.006		3.4	-16
7	<input type="checkbox"/>	10.000	10.178	155179.5	0.075		3.6	1.8
8	<input type="checkbox"/>	50.000	49.317	754218.7	0.366		2.2	-1.4
9	<input type="checkbox"/>	100.00	98.407	1521555.	0.731		1.7	-1.6
10	<input type="checkbox"/>	1000.0	1000.1	15461080	7.435		1.1	0.0
11	<input type="checkbox"/>			4547.97	0.002		6.9	

$y = 0.0074 * x + 1.4190E-004$

R = 1.0000



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	0.000	0.000	24.33	0.000		6.3	
2	<input type="checkbox"/>	0.025	0.025	957.51	0.000		2.4	1.0
3	<input type="checkbox"/>	0.050	0.057	2115.75	0.000		3.1	13.5
4	<input type="checkbox"/>	0.100	0.107	4105.50	0.000		2.3	7.0
5	<input type="checkbox"/>	0.500	0.505	18916.92	0.003		5.0	1.0
6	<input type="checkbox"/>	1.000	1.038	39433.52	0.007		4.3	3.8
7	<input type="checkbox"/>	10.000	9.952	382552.1	0.070		2.3	-0.5
8	<input type="checkbox"/>	50.000	50.600	1822921.	0.359		16.	1.2
9	<input type="checkbox"/>	100.00	98.970	3550804.	0.703		0.8	-1.0
10	<input type="checkbox"/>	1000.0	1000.0	34754178	7.111		3.3	0.0
11	<input type="checkbox"/>			922.18	0.000		12.	

$y = 0.0071 * x + 4.5492E-006$

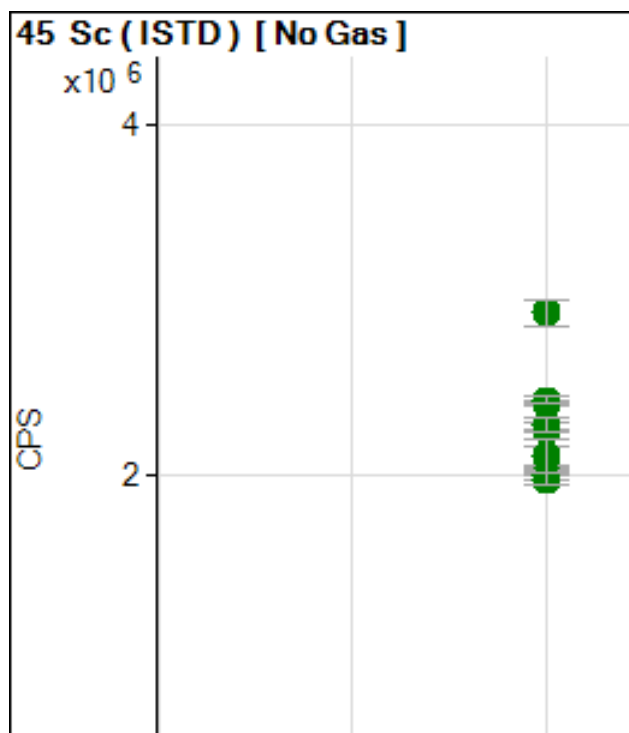
R = 1.0000

DL = 0.0001213 ug/l

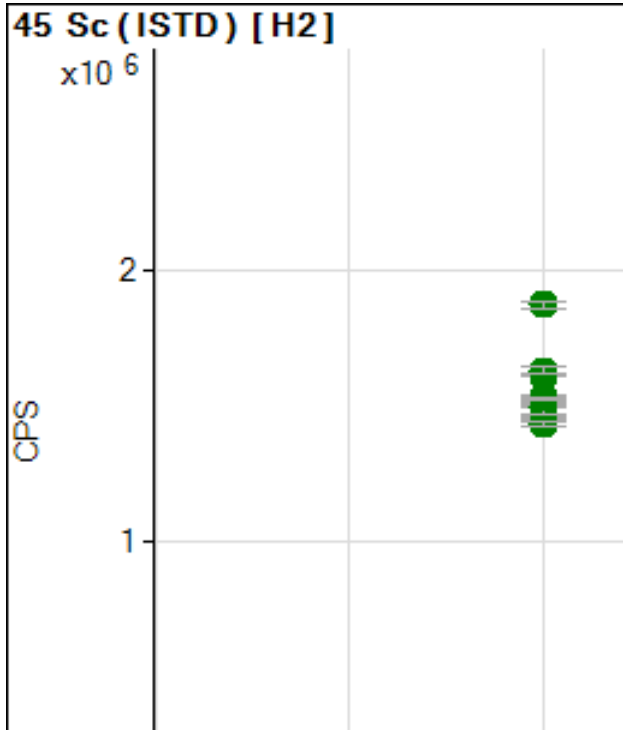
BEC = 0.0006398 ug/l

Weight: 1/y

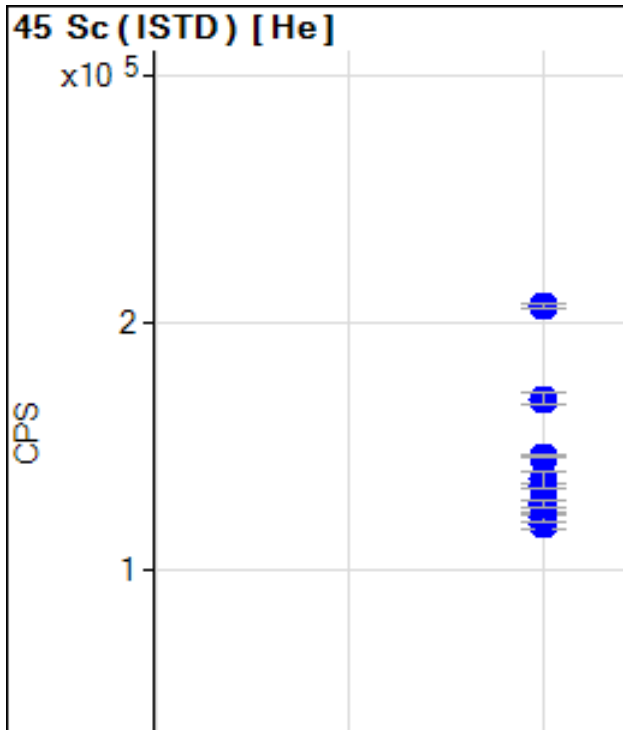
Min Conc: <None>



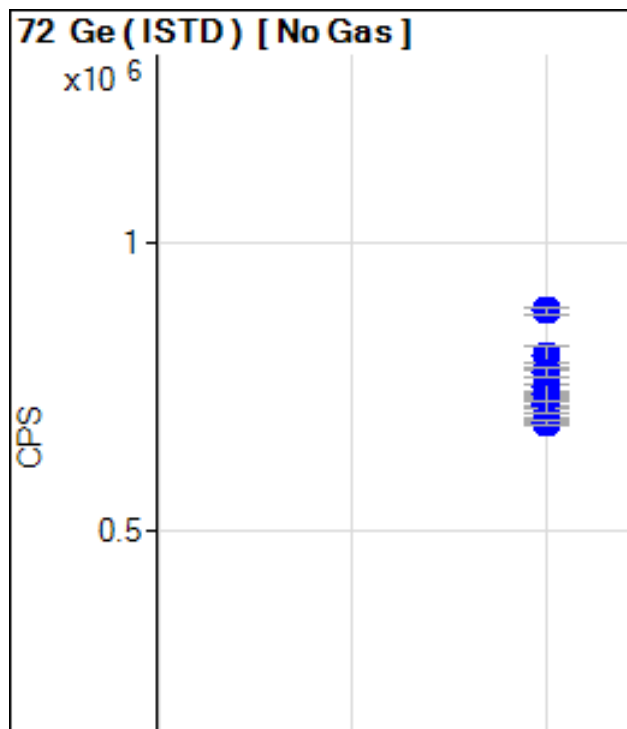
	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		2401562.			1.0	
2	<input type="checkbox"/>	1.000		2248556.			3.9	
3	<input type="checkbox"/>	1.000		2104190.			5.5	
4	<input type="checkbox"/>	1.000		2013925.			2.0	
5	<input type="checkbox"/>	1.000		2002702.			4.3	
6	<input type="checkbox"/>	1.000		1993316.			3.1	
7	<input type="checkbox"/>	1.000		1970117.			3.3	
8	<input type="checkbox"/>	1.000		2101370.			15.	
9	<input type="checkbox"/>	1.000		2421515.			1.8	
10	<input type="checkbox"/>	1.000		2923704.			4.9	
11	<input type="checkbox"/>	1.000		2279250.			3.8	



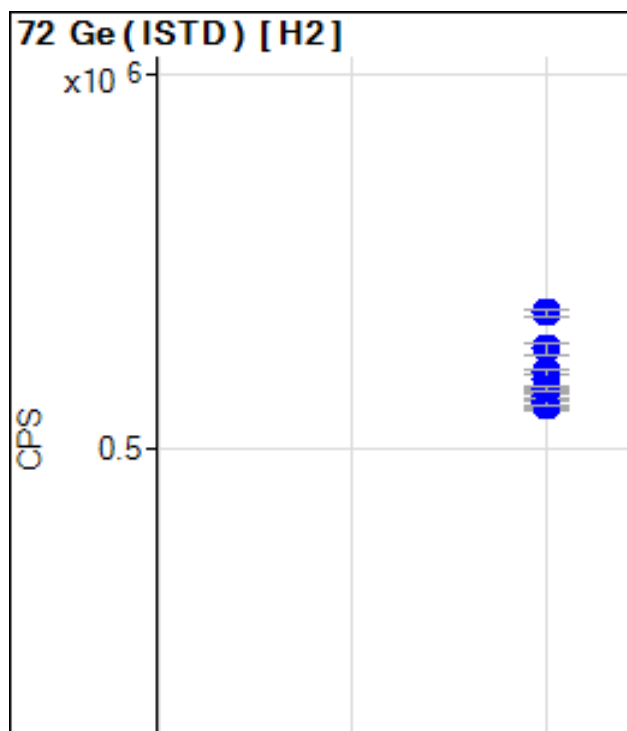
	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		1615001.			0.6	
2	<input type="checkbox"/>	1.000		1534697.			0.7	
3	<input type="checkbox"/>	1.000		1508860.			1.6	
4	<input type="checkbox"/>	1.000		1506289.			0.6	
5	<input type="checkbox"/>	1.000		1453786.			0.6	
6	<input type="checkbox"/>	1.000		1461518.			0.3	
7	<input type="checkbox"/>	1.000		1436760.			1.2	
8	<input type="checkbox"/>	1.000		1497145.			3.0	
9	<input type="checkbox"/>	1.000		1634042.			1.8	
10	<input type="checkbox"/>	1.000		1873516.			1.6	
11	<input type="checkbox"/>	1.000		1531748.			0.6	



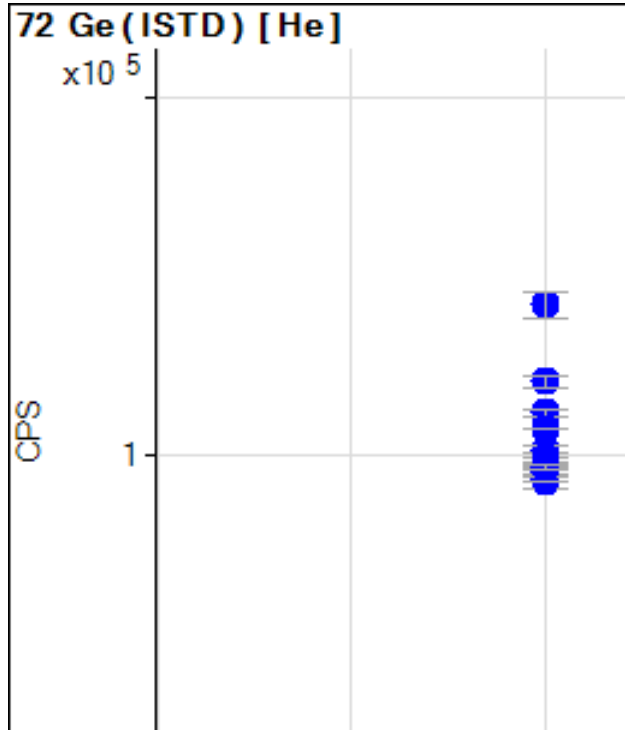
	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		145819.8			0.4	
2	<input type="checkbox"/>	1.000		133831.1			0.8	
3	<input type="checkbox"/>	1.000		126772.3			2.1	
4	<input type="checkbox"/>	1.000		120805.5			2.1	
5	<input type="checkbox"/>	1.000		120777.5			2.1	
6	<input type="checkbox"/>	1.000		117898.9			2.0	
7	<input type="checkbox"/>	1.000		120987.7			3.1	
8	<input type="checkbox"/>	1.000		136253.2			4.7	
9	<input type="checkbox"/>	1.000		168942.6			3.1	
10	<input type="checkbox"/>	1.000		206212.8			0.9	
11	<input type="checkbox"/>	1.000		126372.9			2.3	



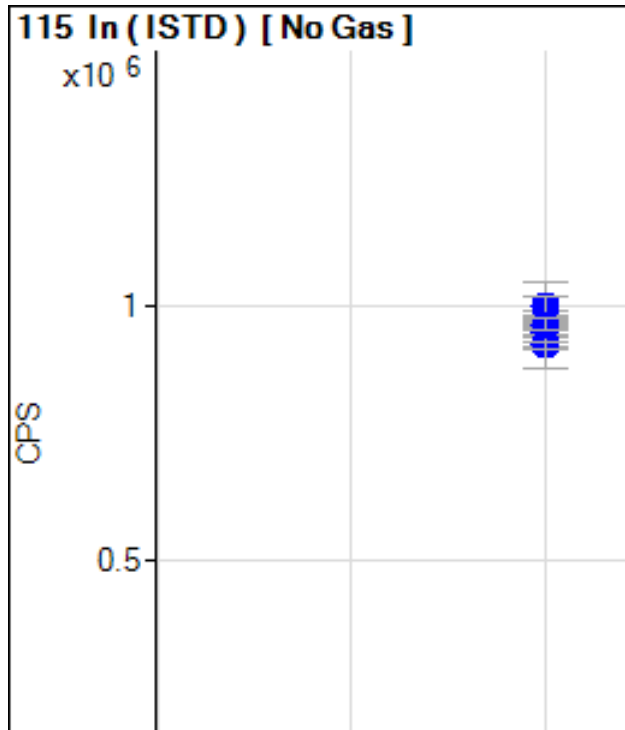
	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		768188.8			3.6	
2	<input type="checkbox"/>	1.000		727010.4			3.0	
3	<input type="checkbox"/>	1.000		738650.8			1.2	
4	<input type="checkbox"/>	1.000		721736.1			2.3	
5	<input type="checkbox"/>	1.000		719651.2			1.7	
6	<input type="checkbox"/>	1.000		693773.4			1.1	
7	<input type="checkbox"/>	1.000		689248.4			1.2	
8	<input type="checkbox"/>	1.000		750196.3			11.	
9	<input type="checkbox"/>	1.000		805469.3			3.5	
10	<input type="checkbox"/>	1.000		882296.3			1.3	
11	<input type="checkbox"/>	1.000		775920.4			2.3	



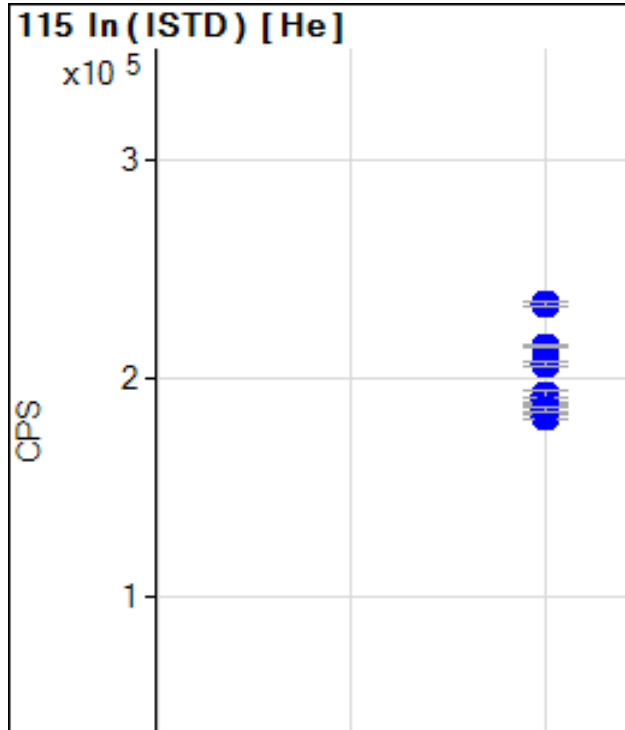
	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		600857.5			1.0	
2	<input type="checkbox"/>	1.000		571637.7			2.3	
3	<input type="checkbox"/>	1.000		570448.8			1.3	
4	<input type="checkbox"/>	1.000		581337.8			0.8	
5	<input type="checkbox"/>	1.000		558534.7			2.7	
6	<input type="checkbox"/>	1.000		560069.0			2.1	
7	<input type="checkbox"/>	1.000		562618.3			1.9	
8	<input type="checkbox"/>	1.000		591666.7			4.4	
9	<input type="checkbox"/>	1.000		633374.2			2.3	
10	<input type="checkbox"/>	1.000		681414.2			1.2	
11	<input type="checkbox"/>	1.000		579496.7			0.7	



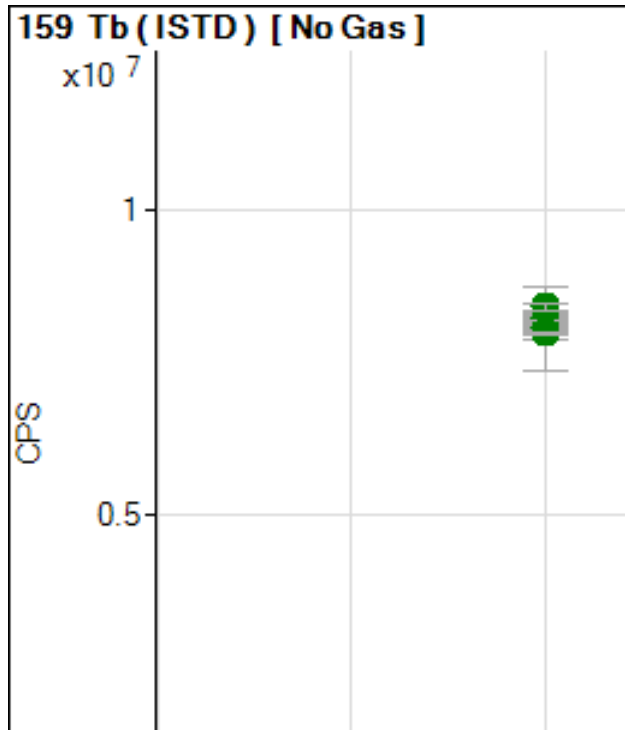
	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		111934.7			1.3	
2	<input type="checkbox"/>	1.000		101834.8			1.8	
3	<input type="checkbox"/>	1.000		99525.47			0.2	
4	<input type="checkbox"/>	1.000		97489.19			1.4	
5	<input type="checkbox"/>	1.000		95829.01			2.1	
6	<input type="checkbox"/>	1.000		92787.55			3.6	
7	<input type="checkbox"/>	1.000		93573.40			1.0	
8	<input type="checkbox"/>	1.000		107669.8			0.3	
9	<input type="checkbox"/>	1.000		120887.4			2.8	
10	<input type="checkbox"/>	1.000		142093.0			5.2	
11	<input type="checkbox"/>	1.000		96891.41			1.8	



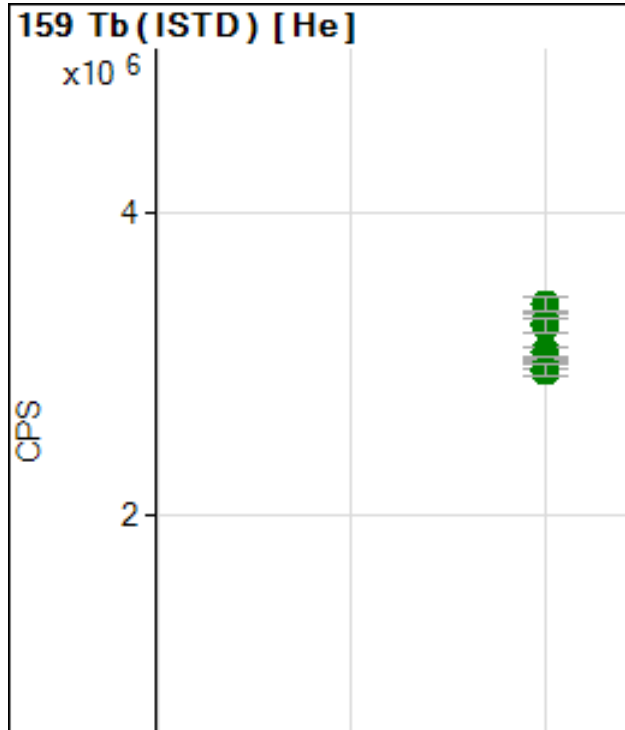
	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		954134.2			1.9	
2	<input type="checkbox"/>	1.000		956892.3			4.2	
3	<input type="checkbox"/>	1.000		963255.8			1.2	
4	<input type="checkbox"/>	1.000		929315.1			2.3	
5	<input type="checkbox"/>	1.000		947946.5			2.2	
6	<input type="checkbox"/>	1.000		947345.9			1.3	
7	<input type="checkbox"/>	1.000		923246.5			1.3	
8	<input type="checkbox"/>	1.000		961701.5			17.	
9	<input type="checkbox"/>	1.000		981950.4			2.0	
10	<input type="checkbox"/>	1.000		998059.3			3.9	
11	<input type="checkbox"/>	1.000		963813.0			2.6	



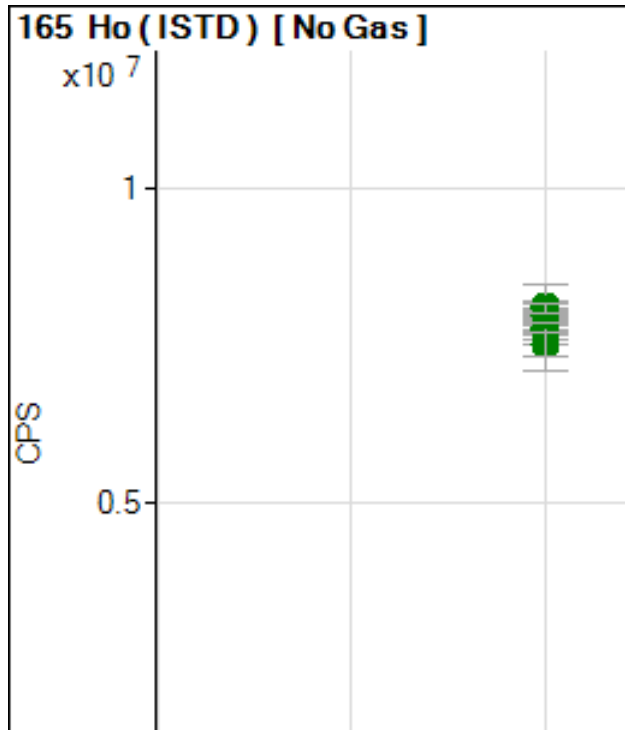
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	1.000		206762.6			1.5	
2	<input type="checkbox"/>	1.000		190309.7			1.6	
3	<input type="checkbox"/>	1.000		184805.6			3.3	
4	<input type="checkbox"/>	1.000		186435.9			1.4	
5	<input type="checkbox"/>	1.000		184503.8			0.8	
6	<input type="checkbox"/>	1.000		182981.0			1.1	
7	<input type="checkbox"/>	1.000		182832.9			1.5	
8	<input type="checkbox"/>	1.000		193037.8			1.3	
9	<input type="checkbox"/>	1.000		214980.3			0.5	
10	<input type="checkbox"/>	1.000		233929.5			1.1	
11	<input type="checkbox"/>	1.000		185544.5			1.3	



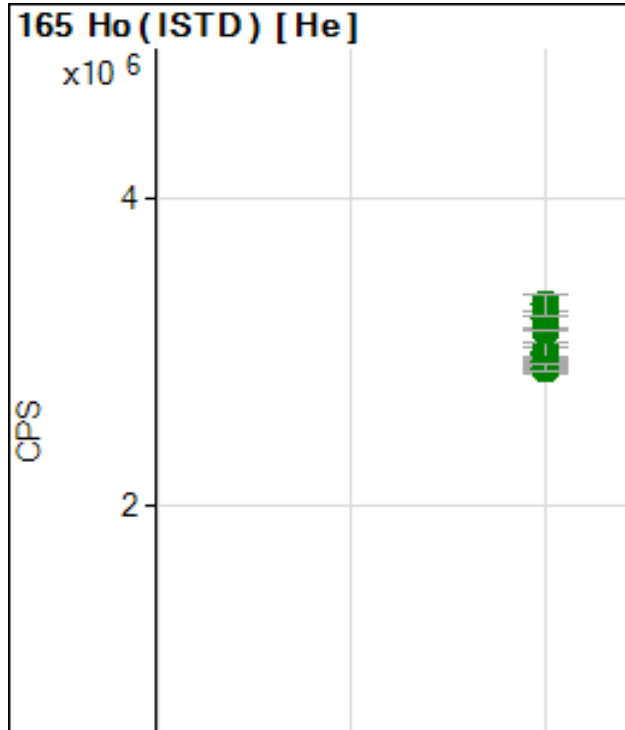
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	1.000		8208438.			0.9	
2	<input type="checkbox"/>	1.000		8128086.			2.0	
3	<input type="checkbox"/>	1.000		8234380.			3.3	
4	<input type="checkbox"/>	1.000		8228662.			3.2	
5	<input type="checkbox"/>	1.000		8270703.			0.3	
6	<input type="checkbox"/>	1.000		7999637.			2.5	
7	<input type="checkbox"/>	1.000		8194316.			2.8	
8	<input type="checkbox"/>	1.000		8060782.			17.	
9	<input type="checkbox"/>	1.000		8240211.			1.5	
10	<input type="checkbox"/>	1.000		8421893.			1.2	
11	<input type="checkbox"/>	1.000		7991620.			0.6	



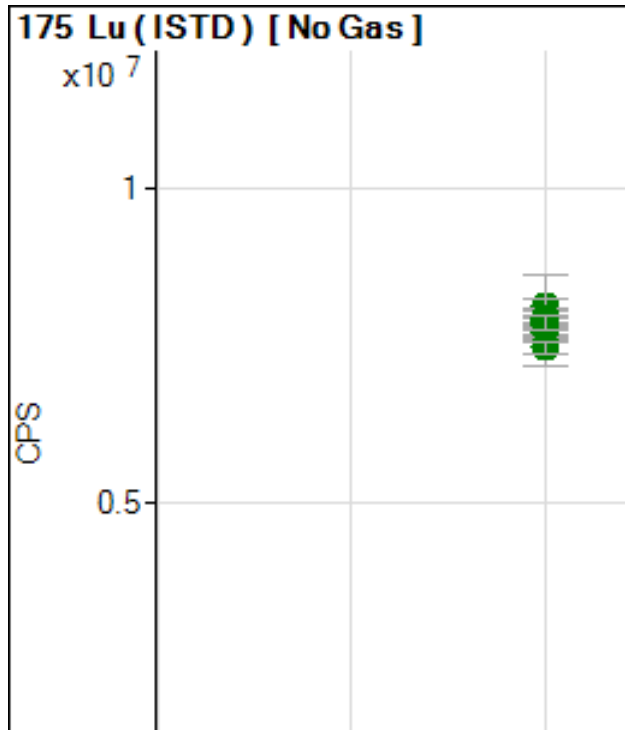
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	1.000		3263156.			3.8	
2	<input type="checkbox"/>	1.000		3022975.			1.4	
3	<input type="checkbox"/>	1.000		3077840.			1.9	
4	<input type="checkbox"/>	1.000		3000318.			2.0	
5	<input type="checkbox"/>	1.000		2965964.			3.2	
6	<input type="checkbox"/>	1.000		2962935.			3.4	
7	<input type="checkbox"/>	1.000		2970550.			3.6	
8	<input type="checkbox"/>	1.000		3039826.			0.5	
9	<input type="checkbox"/>	1.000		3251586.			3.0	
10	<input type="checkbox"/>	1.000		3389729.			2.7	
11	<input type="checkbox"/>	1.000		2955513.			2.4	



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD	%RE
1	<input type="checkbox"/>	1.000		8110663.			1.9	
2	<input type="checkbox"/>	1.000		7776095.			1.1	
3	<input type="checkbox"/>	1.000		7925781.			1.6	
4	<input type="checkbox"/>	1.000		7742077.			2.0	
5	<input type="checkbox"/>	1.000		7969824.			1.6	
6	<input type="checkbox"/>	1.000		7721236.			3.0	
7	<input type="checkbox"/>	1.000		7715230.			5.7	
8	<input type="checkbox"/>	1.000		7788310.			17.	
9	<input type="checkbox"/>	1.000		7981789.			2.8	
10	<input type="checkbox"/>	1.000		8080536.			2.0	
11	<input type="checkbox"/>	1.000		7509923.			4.8	

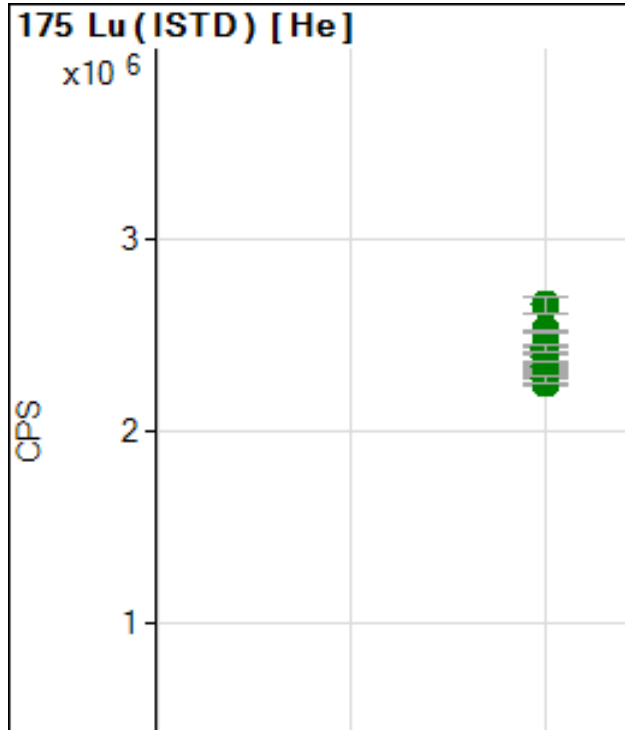


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		3218819.			3.4	
2	<input type="checkbox"/>	1.000		3004471.			1.7	
3	<input type="checkbox"/>	1.000		2929515.			2.5	
4	<input type="checkbox"/>	1.000		2929312.			2.5	
5	<input type="checkbox"/>	1.000		2903448.			2.6	
6	<input type="checkbox"/>	1.000		2936388.			1.0	
7	<input type="checkbox"/>	1.000		2886297.			1.8	
8	<input type="checkbox"/>	1.000		2982107.			5.3	
9	<input type="checkbox"/>	1.000		3144644.			0.2	
10	<input type="checkbox"/>	1.000		3308821.			4.2	
11	<input type="checkbox"/>	1.000		2900455.			2.0	

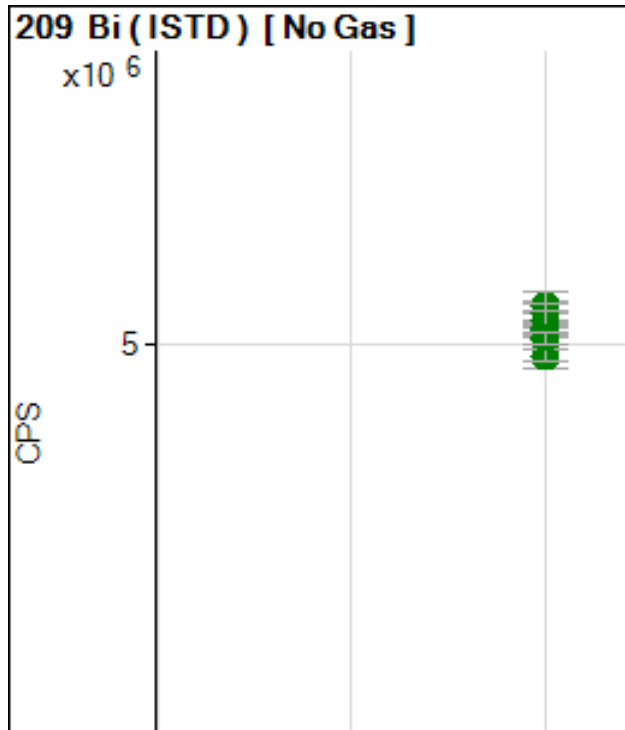


	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		8131531.			3.5	
2	<input type="checkbox"/>	1.000		7728079.			1.8	
3	<input type="checkbox"/>	1.000		7892161.			1.6	
4	<input type="checkbox"/>	1.000		7851697.			5.7	
5	<input type="checkbox"/>	1.000		7948553.			3.6	
6	<input type="checkbox"/>	1.000		7829227.			3.7	
7	<input type="checkbox"/>	1.000		7769834.			2.9	
8	<input type="checkbox"/>	1.000		7913644.			18.	
9	<input type="checkbox"/>	1.000		7935524.			1.7	
10	<input type="checkbox"/>	1.000		7863700.			2.8	
11	<input type="checkbox"/>	1.000		7484633.			2.6	

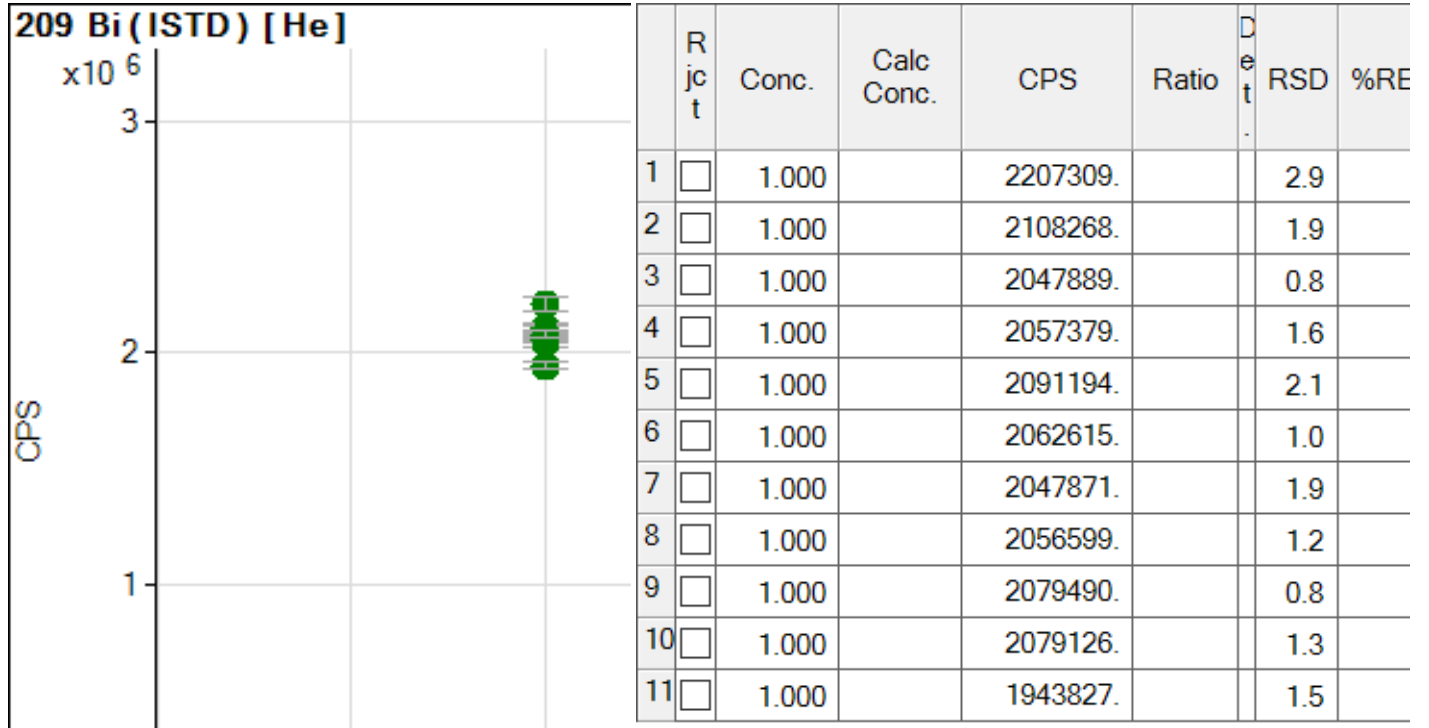




	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		2517762.			0.4	
2	<input type="checkbox"/>	1.000		2421515.			1.5	
3	<input type="checkbox"/>	1.000		2318852.			0.9	
4	<input type="checkbox"/>	1.000		2254632.			1.8	
5	<input type="checkbox"/>	1.000		2290043.			4.0	
6	<input type="checkbox"/>	1.000		2330738.			1.9	
7	<input type="checkbox"/>	1.000		2274184.			1.9	
8	<input type="checkbox"/>	1.000		2382313.			1.3	
9	<input type="checkbox"/>	1.000		2431442.			1.2	
10	<input type="checkbox"/>	1.000		2657037.			3.3	
11	<input type="checkbox"/>	1.000		2271446.			1.6	



	R j c t	Conc.	Calc Conc.	CPS	Ratio	D e t	RSD	%RE
1	<input type="checkbox"/>	1.000		5352032.			4.4	
2	<input type="checkbox"/>	1.000		5198725.			0.8	
3	<input type="checkbox"/>	1.000		5187398.			3.3	
4	<input type="checkbox"/>	1.000		5364018.			3.3	
5	<input type="checkbox"/>	1.000		5266475.			2.6	
6	<input type="checkbox"/>	1.000		5345718.			3.9	
7	<input type="checkbox"/>	1.000		5405995.			1.2	
8	<input type="checkbox"/>	1.000		5152369.			15.	
9	<input type="checkbox"/>	1.000		5045968.			1.3	
10	<input type="checkbox"/>	1.000		4889736.			2.3	
11	<input type="checkbox"/>	1.000		5075749.			2.4	



# ICPMS207-B Analytical Data

**Sample Name** Rinse  
**File Name** 005BLKV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 12:23:29  
**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	17983.15
Be	9	45	1	No Gas		ug/l	399.59
B	11	45	1	No Gas		ug/l	648.94
Na	23	45	3	He		ug/l	63555.64
Mg	24	45	3	He		ug/l	1603.58
Al	27	45	1	No Gas		ug/l	10314.69
Si	28	45	2	H2		ug/l	15778.64
K	39	72	3	He		ug/l	112398.59
Ca	40	72	2	H2		ug/l	164713.00
Ti	47	72	1	No Gas		ug/l	286.96
V	51	72	1	No Gas		ug/l	-45236.16
V	51	72	3	He		ug/l	15205.69
Cr	52	72	1	No Gas		ug/l	52733.51
Cr	52	72	3	He		ug/l	1045.60
Mn	55	72	1	No Gas		ug/l	5077.51
Mn	55	72	3	He		ug/l	97.98
Fe	56	72	2	H2		ug/l	9773.10
Fe	56	72	3	He		ug/l	6212.58
Co	59	72	1	No Gas		ug/l	342.66
Ni	60	72	1	No Gas		ug/l	1091.22
Ni	60	72	3	He		ug/l	214.45
Cu	63	72	1	No Gas		ug/l	3684.62
Cu	63	72	3	He		ug/l	567.90
Cu	65	72	1	No Gas		ug/l	877.72
Zn	66	72	1	No Gas		ug/l	857.11
Zn	66	72	3	He		ug/l	215.56
As	75	72	1	No Gas		ug/l	9823.36
As	75	72	3	He		ug/l	331.00
Se	78	72	2	H2		ug/l	27.22
Br	79	72	1	No Gas		ug/l	7976.42
Br	79	72	2	H2		ug/l	4628.24
Se	82	72	1	No Gas		ug/l	566.08
Kr	84	72	1	No Gas		ug/l	17649.13
Sr	88	72	1	No Gas		ug/l	532.29
Sr	88	72	3	He		ug/l	167.78
Mo	95	115	1	No Gas		ug/l	26.67
Mo	95	115	3	He		ug/l	13.33
Mo	98	115	1	No Gas		ug/l	61.19
Ag	107	115	1	No Gas		ug/l	70.03
Ag	109	115	1	No Gas		ug/l	72.69
Cd	111	115	1	No Gas		ug/l	14.34

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He		ug/l	1.22
Cd	114	115	1	No Gas		ug/l	-3.40
Cd	114	115	3	He		ug/l	1.50
Sn	118	115	1	No Gas		ug/l	765.17
Sn	118	115	3	He		ug/l	248.89
Sb	121	115	1	No Gas		ug/l	849.45
Sb	121	115	3	He		ug/l	281.70
Sb	123	115	1	No Gas		ug/l	627.41
Sb	123	115	3	He		ug/l	216.35
Ba	135	115	1	No Gas		ug/l	29.94
Ba	137	115	1	No Gas		ug/l	53.23
La	139	115	3	He		ug/l	6.67
Ce	140	115	3	He		ug/l	15.55
Hg	201	209	1	No Gas		ug/l	153.97
Hg	202	209	1	No Gas		ug/l	363.27
Hg	202	209	3	He		ug/l	220.96
Tl	203	209	3	He		ug/l	65.36
Tl	205	209	1	No Gas		ug/l	248.89
Tl	205	209	3	He		ug/l	154.73
[Pb]	206	209	1	No Gas		ug/l	141.11
[Pb]	207	209	1	No Gas		ug/l	108.89
Pb	208	209	1	No Gas		ug/l	483.34
Th	232	209	3	He		ug/l	111.38
U	238	209	1	No Gas		ug/l	10.00

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3980288.61	
Sc	45	2	H2	2368647.82	
Sc	45	3	He	275411.25	
Ge	72	1	No Gas	997654.74	
Ge	72	2	H2	771634.95	
Ge	72	3	He	165980.62	
In	115	1	No Gas	1034021.82	
In	115	3	He	272110.62	
Tb	159	1	No Gas	7938494.88	
Tb	159	3	He	3627523.52	
Ho	165	1	No Gas	7633732.00	
Ho	165	3	He	3352359.64	
Lu	175	1	No Gas	7170600.04	
Lu	175	3	He	2880499.56	
Bi	209	1	No Gas	5247722.85	
Bi	209	3	He	2305520.95	

# ICPMS207-B Analytical Data

**Sample Name** Cal Blk  
**File Name** 006CALB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 12:29:43  
**Sample Type** CalBlk  
**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	17595.84
Be	9	45	1	No Gas	0.000	ug/l	409.92
B	11	45	1	No Gas	0.000	ug/l	623.60
Na	23	45	3	He	0.000	ug/l	62310.41
Mg	24	45	3	He	0.000	ug/l	1533.71
Al	27	45	1	No Gas	0.000	ug/l	10193.52
Si	28	45	2	H2	0.000	ug/l	16221.28
K	39	72	3	He	0.000	ug/l	114747.18
Ca	40	72	2	H2	0.000	ug/l	162498.82
Ti	47	72	1	No Gas	0.000	ug/l	296.97
V	51	72	1	No Gas	0.000	ug/l	-26350.68
V	51	72	3	He	0.000	ug/l	15371.48
Cr	52	72	1	No Gas	0.000	ug/l	54890.84
Cr	52	72	3	He	0.000	ug/l	1044.49
Mn	55	72	1	No Gas	0.000	ug/l	4801.29
Mn	55	72	3	He	0.000	ug/l	94.98
Fe	56	72	2	H2	0.000	ug/l	9746.40
Fe	56	72	3	He	0.000	ug/l	6022.31
Co	59	72	1	No Gas	0.000	ug/l	349.31
Ni	60	72	1	No Gas	0.000	ug/l	1187.70
Ni	60	72	3	He	0.000	ug/l	175.56
Cu	63	72	1	No Gas	0.000	ug/l	3381.09
Cu	63	72	3	He	0.000	ug/l	556.23
Cu	65	72	1	No Gas	0.000	ug/l	843.70
Zn	66	72	1	No Gas	0.000	ug/l	780.51
Zn	66	72	3	He	0.000	ug/l	294.45
As	75	72	1	No Gas	0.000	ug/l	10900.36
As	75	72	3	He	0.000	ug/l	337.73
Se	78	72	2	H2	0.000	ug/l	28.22
Br	79	72	1	No Gas	0.000	ug/l	7899.88
Br	79	72	2	H2	0.000	ug/l	4584.99
Se	82	72	1	No Gas	0.000	ug/l	630.74
Kr	84	72	1	No Gas		ug/l	18568.53
Sr	88	72	1	No Gas	0.000	ug/l	395.89
Sr	88	72	3	He	0.000	ug/l	138.89
Mo	95	115	1	No Gas	0.000	ug/l	42.22
Mo	95	115	3	He	0.000	ug/l	22.22
Mo	98	115	1	No Gas	0.000	ug/l	72.30
Ag	107	115	1	No Gas	0.000	ug/l	62.02
Ag	109	115	1	No Gas	0.000	ug/l	66.03
Cd	111	115	1	No Gas	0.000	ug/l	8.23

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.000	ug/l	1.44
Cd	114	115	1	No Gas	0.000	ug/l	-3.40
Cd	114	115	3	He	0.000	ug/l	-0.25
Sn	118	115	1	No Gas	0.000	ug/l	725.25
Sn	118	115	3	He	0.000	ug/l	264.45
Sb	121	115	1	No Gas	0.000	ug/l	817.11
Sb	121	115	3	He	0.000	ug/l	274.03
Sb	123	115	1	No Gas	0.000	ug/l	620.75
Sb	123	115	3	He	0.000	ug/l	212.69
Ba	135	115	1	No Gas	0.000	ug/l	33.27
Ba	137	115	1	No Gas	0.000	ug/l	39.92
La	139	115	3	He	0.000	ug/l	8.89
Ce	140	115	3	He	0.000	ug/l	14.45
Hg	201	209	1	No Gas	0.000	ug/l	190.30
Hg	202	209	1	No Gas	0.000	ug/l	438.59
Hg	202	209	3	He	0.000	ug/l	261.28
Tl	203	209	3	He	0.000	ug/l	66.70
Tl	205	209	1	No Gas	0.000	ug/l	282.23
Tl	205	209	3	He	0.000	ug/l	159.40
[Pb]	206	209	1	No Gas	0.000	ug/l	138.89
[Pb]	207	209	1	No Gas	0.000	ug/l	115.56
Pb	208	209	1	No Gas	0.000	ug/l	521.12
Th	232	209	3	He	0.000	ug/l	119.38
U	238	209	1	No Gas	0.000	ug/l	11.67

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3963765.72	100.0
Sc	45	2	H2	2306117.60	100.0
Sc	45	3	He	276920.98	100.0
Ge	72	1	No Gas	1039321.08	100.0
Ge	72	2	H2	803850.97	100.0
Ge	72	3	He	166097.57	100.0
In	115	1	No Gas	1079708.67	100.0
In	115	3	He	277269.08	100.0
Tb	159	1	No Gas	8022193.06	100.0
Tb	159	3	He	3500691.17	100.0
Ho	165	1	No Gas	7701285.91	100.0
Ho	165	3	He	3375644.14	100.0
Lu	175	1	No Gas	7200067.31	100.0
Lu	175	3	He	2794064.54	100.0
Bi	209	1	No Gas	4701204.42	100.0
Bi	209	3	He	2182739.09	100.0

# ICPMS207-B Analytical Data

**Sample Name** 0.025 ppb STD  
**File Name** 007CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 12:36:38  
**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	0.247	ug/l	19295.94
Be	9	45	1	No Gas	0.010	ug/l	440.25
B	11	45	1	No Gas	0.000	ug/l	621.59
Na	23	45	3	He	6.983	ug/l	67355.36
Mg	24	45	3	He	7.880	ug/l	4771.31
Al	27	45	1	No Gas	0.189	ug/l	13212.54
Si	28	45	2	H2	0.524	ug/l	17167.36
K	39	72	3	He	7.154	ug/l	120254.81
Ca	40	72	2	H2	9.598	ug/l	228958.73
Ti	47	72	1	No Gas	0.110	ug/l	480.49
V	51	72	1	No Gas	-1.031	ug/l	-44786.96
V	51	72	3	He	0.173	ug/l	16320.27
Cr	52	72	1	No Gas	0.235	ug/l	58319.88
Cr	52	72	3	He	0.048	ug/l	1264.51
Mn	55	72	1	No Gas	0.047	ug/l	5866.22
Mn	55	72	3	He	0.028	ug/l	175.97
Fe	56	72	2	H2	1.000	ug/l	24097.26
Fe	56	72	3	He	1.000	ug/l	9748.07
Co	59	72	1	No Gas	0.027	ug/l	918.22
Ni	60	72	1	No Gas	-0.015	ug/l	1091.21
Ni	60	72	3	He	0.056	ug/l	261.12
Cu	63	72	1	No Gas	0.023	ug/l	3578.55
Cu	63	72	3	He	0.030	ug/l	683.21
Cu	65	72	1	No Gas	0.037	ug/l	1030.45
Zn	66	72	1	No Gas	0.188	ug/l	1495.94
Zn	66	72	3	He	0.096	ug/l	390.01
As	75	72	1	No Gas	0.140	ug/l	11287.99
As	75	72	3	He	0.035	ug/l	377.07
Se	78	72	2	H2	0.021	ug/l	39.33
Br	79	72	1	No Gas	0.367	ug/l	10499.66
Br	79	72	2	H2	0.370	ug/l	6232.33
Se	82	72	1	No Gas	-0.287	ug/l	538.87
Kr	84	72	1	No Gas		ug/l	17988.86
Sr	88	72	1	No Gas	0.030	ug/l	1357.38
Sr	88	72	3	He	0.029	ug/l	268.90
Mo	95	115	1	No Gas	0.080	ug/l	516.68
Mo	95	115	3	He	0.078	ug/l	204.45
Mo	98	115	1	No Gas	0.078	ug/l	820.59
Ag	107	115	1	No Gas	0.013	ug/l	262.11
Ag	109	115	1	No Gas	0.013	ug/l	252.77
Cd	111	115	1	No Gas	0.025	ug/l	90.20

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.030	ug/l	38.33
Cd	114	115	1	No Gas	0.028	ug/l	205.08
Cd	114	115	3	He	0.029	ug/l	85.29
Sn	118	115	1	No Gas	0.047	ug/l	1141.13
Sn	118	115	3	He	0.031	ug/l	355.56
Sb	121	115	1	No Gas	0.022	ug/l	1132.50
Sb	121	115	3	He	0.024	ug/l	388.04
Sb	123	115	1	No Gas	0.022	ug/l	863.11
Sb	123	115	3	He	0.018	ug/l	280.37
Ba	135	115	1	No Gas	0.011	ug/l	66.54
Ba	137	115	1	No Gas	0.039	ug/l	242.86
La	139	115	3	He	0.026	ug/l	426.68
Ce	140	115	3	He	0.027	ug/l	466.68
Hg	201	209	1	No Gas	0.004	ug/l	197.96
Hg	202	209	1	No Gas	-0.005	ug/l	420.92
Hg	202	209	3	He	-0.008	ug/l	245.62
Tl	203	209	3	He	0.024	ug/l	188.74
Tl	205	209	1	No Gas	0.024	ug/l	873.37
Tl	205	209	3	He	0.024	ug/l	440.18
[Pb]	206	209	1	No Gas	0.023	ug/l	338.89
[Pb]	207	209	1	No Gas	0.023	ug/l	294.45
Pb	208	209	1	No Gas	0.024	ug/l	1363.37
Th	232	209	3	He	0.011	ug/l	292.12
U	238	209	1	No Gas	0.025	ug/l	837.19

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3954503.67	99.8
Sc	45	2	H2	2290535.56	99.3
Sc	45	3	He	276266.01	99.8
Ge	72	1	No Gas	1020951.43	98.2
Ge	72	2	H2	790954.73	98.4
Ge	72	3	He	169362.19	102.0
In	115	1	No Gas	1050832.41	97.3
In	115	3	He	277627.94	100.1
Tb	159	1	No Gas	8133781.05	101.4
Tb	159	3	He	3574291.54	102.1
Ho	165	1	No Gas	7941108.64	103.1
Ho	165	3	He	3490163.74	103.4
Lu	175	1	No Gas	7428116.71	103.2
Lu	175	3	He	2876020.37	102.9
Bi	209	1	No Gas	4725971.31	100.5
Bi	209	3	He	2190644.25	100.4



# ICPMS207-B Analytical Data

**Sample Name** 0.05 ppb STD  
**File Name** 008CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 12:43:17  
**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	0.577	ug/l	22007.34
Be	9	45	1	No Gas	0.035	ug/l	531.90
B	11	45	1	No Gas	0.014	ug/l	659.62
Na	23	45	3	He	14.156	ug/l	72797.02
Mg	24	45	3	He	17.317	ug/l	8662.00
Al	27	45	1	No Gas	0.216	ug/l	13877.58
Si	28	45	2	H2	0.584	ug/l	17459.89
K	39	72	3	He	12.685	ug/l	121888.06
Ca	40	72	2	H2	19.529	ug/l	295449.55
Ti	47	72	1	No Gas	0.149	ug/l	538.89
V	51	72	1	No Gas	-0.986	ug/l	-46094.81
V	51	72	3	He	0.321	ug/l	16739.61
Cr	52	72	1	No Gas	0.308	ug/l	58671.12
Cr	52	72	3	He	0.067	ug/l	1331.18
Mn	55	72	1	No Gas	0.077	ug/l	6488.60
Mn	55	72	3	He	0.069	ug/l	285.95
Fe	56	72	2	H2	1.767	ug/l	34643.94
Fe	56	72	3	He	1.858	ug/l	12741.72
Co	59	72	1	No Gas	0.070	ug/l	1783.24
Ni	60	72	1	No Gas	0.017	ug/l	1227.63
Ni	60	72	3	He	0.078	ug/l	292.23
Cu	63	72	1	No Gas	0.029	ug/l	3587.22
Cu	63	72	3	He	0.058	ug/l	786.20
Cu	65	72	1	No Gas	0.058	ug/l	1126.50
Zn	66	72	1	No Gas	0.305	ug/l	1925.27
Zn	66	72	3	He	0.188	ug/l	472.23
As	75	72	1	No Gas	-0.040	ug/l	10264.37
As	75	72	3	He	0.069	ug/l	406.07
Se	78	72	2	H2	0.051	ug/l	55.56
Br	79	72	1	No Gas	0.424	ug/l	10726.11
Br	79	72	2	H2	0.386	ug/l	6202.42
Se	82	72	1	No Gas	-0.068	ug/l	591.27
Kr	84	72	1	No Gas		ug/l	18032.26
Sr	88	72	1	No Gas	0.067	ug/l	2478.64
Sr	88	72	3	He	0.070	ug/l	444.46
Mo	95	115	1	No Gas	0.055	ug/l	382.23
Mo	95	115	3	He	0.065	ug/l	171.11
Mo	98	115	1	No Gas	0.054	ug/l	610.09
Ag	107	115	1	No Gas	0.027	ug/l	485.54
Ag	109	115	1	No Gas	0.025	ug/l	444.19
Cd	111	115	1	No Gas	0.065	ug/l	231.17

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.068	ug/l	83.33
Cd	114	115	1	No Gas	0.061	ug/l	476.92
Cd	114	115	3	He	0.064	ug/l	184.88
Sn	118	115	1	No Gas	0.079	ug/l	1493.79
Sn	118	115	3	He	0.071	ug/l	461.12
Sb	121	115	1	No Gas	0.054	ug/l	1669.60
Sb	121	115	3	He	0.054	ug/l	520.40
Sb	123	115	1	No Gas	0.052	ug/l	1254.52
Sb	123	115	3	He	0.050	ug/l	391.38
Ba	135	115	1	No Gas	0.060	ug/l	219.57
Ba	137	115	1	No Gas	0.056	ug/l	342.66
La	139	115	3	He	0.063	ug/l	986.71
Ce	140	115	3	He	0.064	ug/l	1082.27
Hg	201	209	1	No Gas	-0.013	ug/l	175.30
Hg	202	209	1	No Gas	-0.012	ug/l	410.26
Hg	202	209	3	He	-0.006	ug/l	260.28
Tl	203	209	3	He	0.052	ug/l	339.47
Tl	205	209	1	No Gas	0.053	ug/l	1696.79
Tl	205	209	3	He	0.057	ug/l	853.71
[Pb]	206	209	1	No Gas	0.057	ug/l	661.13
[Pb]	207	209	1	No Gas	0.057	ug/l	578.90
Pb	208	209	1	No Gas	0.057	ug/l	2609.01
Th	232	209	3	He	0.027	ug/l	575.58
U	238	209	1	No Gas	0.055	ug/l	1948.43

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4025028.22	101.5
Sc	45	2	H2	2313260.42	100.3
Sc	45	3	He	276616.69	99.9
Ge	72	1	No Gas	1002487.94	96.5
Ge	72	2	H2	777784.15	96.8
Ge	72	3	He	168068.11	101.2
In	115	1	No Gas	1088734.66	100.8
In	115	3	He	272811.67	98.4
Tb	159	1	No Gas	8103336.91	101.0
Tb	159	3	He	3690658.42	105.4
Ho	165	1	No Gas	7672740.12	99.6
Ho	165	3	He	3505302.11	103.8
Lu	175	1	No Gas	7379449.71	102.5
Lu	175	3	He	2868822.03	102.7
Bi	209	1	No Gas	4942173.67	105.1
Bi	209	3	He	2267001.45	103.9

# ICPMS207-B Analytical Data

**Sample Name** 0.10 ppb STD  
**File Name** 009CAL5.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 12:49:56  
**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	1.159	ug/l	25603.08
Be	9	45	1	No Gas	0.089	ug/l	695.88
B	11	45	1	No Gas	0.018	ug/l	651.61
Na	23	45	3	He	28.740	ug/l	83117.83
Mg	24	45	3	He	33.273	ug/l	15127.71
Al	27	45	1	No Gas	0.273	ug/l	14482.59
Si	28	45	2	H2	0.584	ug/l	17218.15
K	39	72	3	He	30.092	ug/l	128066.54
Ca	40	72	2	H2	34.829	ug/l	398742.29
Ti	47	72	1	No Gas	0.173	ug/l	582.27
V	51	72	1	No Gas	-2.015	ug/l	-67570.56
V	51	72	3	He	0.433	ug/l	16927.60
Cr	52	72	1	No Gas	0.267	ug/l	58243.79
Cr	52	72	3	He	0.118	ug/l	1521.20
Mn	55	72	1	No Gas	0.132	ug/l	7883.17
Mn	55	72	3	He	0.125	ug/l	435.92
Fe	56	72	2	H2	3.330	ug/l	56253.76
Fe	56	72	3	He	3.359	ug/l	17877.24
Co	59	72	1	No Gas	0.120	ug/l	2844.64
Ni	60	72	1	No Gas	0.073	ug/l	1500.44
Ni	60	72	3	He	0.164	ug/l	413.34
Cu	63	72	1	No Gas	0.060	ug/l	3946.12
Cu	63	72	3	He	0.120	ug/l	1008.84
Cu	65	72	1	No Gas	0.121	ug/l	1482.67
Zn	66	72	1	No Gas	0.306	ug/l	1938.51
Zn	66	72	3	He	0.236	ug/l	510.01
As	75	72	1	No Gas	0.812	ug/l	14929.24
As	75	72	3	He	0.128	ug/l	454.00
Se	78	72	2	H2	0.111	ug/l	87.00
Br	79	72	1	No Gas	0.420	ug/l	10752.72
Br	79	72	2	H2	0.435	ug/l	6352.15
Se	82	72	1	No Gas	0.072	ug/l	633.41
Kr	84	72	1	No Gas		ug/l	17732.39
Sr	88	72	1	No Gas	0.121	ug/l	4195.65
Sr	88	72	3	He	0.127	ug/l	676.69
Mo	95	115	1	No Gas	0.118	ug/l	746.69
Mo	95	115	3	He	0.124	ug/l	306.67
Mo	98	115	1	No Gas	0.115	ug/l	1180.27
Ag	107	115	1	No Gas	0.049	ug/l	811.02
Ag	109	115	1	No Gas	0.051	ug/l	813.02
Cd	111	115	1	No Gas	0.124	ug/l	420.67

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.127	ug/l	155.44
Cd	114	115	1	No Gas	0.122	ug/l	919.82
Cd	114	115	3	He	0.121	ug/l	348.35
Sn	118	115	1	No Gas	0.130	ug/l	1916.34
Sn	118	115	3	He	0.122	ug/l	604.46
Sb	121	115	1	No Gas	0.103	ug/l	2360.44
Sb	121	115	3	He	0.098	ug/l	720.09
Sb	123	115	1	No Gas	0.096	ug/l	1743.29
Sb	123	115	3	He	0.101	ug/l	572.74
Ba	135	115	1	No Gas	0.116	ug/l	379.25
Ba	137	115	1	No Gas	0.120	ug/l	662.04
La	139	115	3	He	0.118	ug/l	1842.36
Ce	140	115	3	He	0.118	ug/l	1974.60
Hg	201	209	1	No Gas	-0.028	ug/l	141.30
Hg	202	209	1	No Gas	-0.028	ug/l	324.27
Hg	202	209	3	He	-0.028	ug/l	218.63
Tl	203	209	3	He	0.102	ug/l	608.26
Tl	205	209	1	No Gas	0.102	ug/l	2864.78
Tl	205	209	3	He	0.103	ug/l	1444.00
[Pb]	206	209	1	No Gas	0.113	ug/l	1124.50
[Pb]	207	209	1	No Gas	0.107	ug/l	928.93
Pb	208	209	1	No Gas	0.110	ug/l	4353.65
Th	232	209	3	He	0.058	ug/l	1110.50
U	238	209	1	No Gas	0.105	ug/l	3519.11

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3936172.86	99.3
Sc	45	2	H2	2281064.73	98.9
Sc	45	3	He	274871.07	99.3
Ge	72	1	No Gas	1008226.55	97.0
Ge	72	2	H2	768419.93	95.6
Ge	72	3	He	165832.79	99.8
In	115	1	No Gas	1053989.91	97.6
In	115	3	He	271918.44	98.1
Tb	159	1	No Gas	8198028.78	102.2
Tb	159	3	He	3626433.65	103.6
Ho	165	1	No Gas	7771604.04	100.9
Ho	165	3	He	3606878.58	106.9
Lu	175	1	No Gas	7405233.77	102.8
Lu	175	3	He	2968173.67	106.2
Bi	209	1	No Gas	4743568.31	100.9
Bi	209	3	He	2308101.66	105.7

# ICPMS207-B Analytical Data

**Sample Name** 0.5 ppb STD  
**File Name** 010CAL5.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 12:56:35  
**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	6.040	ug/l	59080.83
Be	9	45	1	No Gas	0.459	ug/l	1871.08
B	11	45	1	No Gas	0.460	ug/l	1442.65
Na	23	45	3	He	142.017	ug/l	163222.37
Mg	24	45	3	He	146.685	ug/l	60134.40
Al	27	45	1	No Gas	0.730	ug/l	21514.37
Si	28	45	2	H2	2.384	ug/l	20887.57
K	39	72	3	He	134.158	ug/l	171916.64
Ca	40	72	2	H2	148.089	ug/l	1185360.50
Ti	47	72	1	No Gas	0.600	ug/l	1326.40
V	51	72	1	No Gas	0.092	ug/l	-23536.58
V	51	72	3	He	0.549	ug/l	17068.86
Cr	52	72	1	No Gas	0.692	ug/l	67247.49
Cr	52	72	3	He	0.579	ug/l	3333.73
Mn	55	72	1	No Gas	0.553	ug/l	18388.49
Mn	55	72	3	He	0.561	ug/l	1602.10
Fe	56	72	2	H2	14.906	ug/l	218504.63
Fe	56	72	3	He	14.859	ug/l	57565.84
Co	59	72	1	No Gas	0.548	ug/l	11974.58
Ni	60	72	1	No Gas	0.514	ug/l	3669.87
Ni	60	72	3	He	0.605	ug/l	1037.82
Cu	63	72	1	No Gas	0.491	ug/l	8894.29
Cu	63	72	3	He	0.602	ug/l	2776.04
Cu	65	72	1	No Gas	0.516	ug/l	3688.62
Zn	66	72	1	No Gas	0.746	ug/l	3691.77
Zn	66	72	3	He	0.671	ug/l	892.26
As	75	72	1	No Gas	0.387	ug/l	12832.51
As	75	72	3	He	0.552	ug/l	827.74
Se	78	72	2	H2	0.548	ug/l	322.67
Br	79	72	1	No Gas	0.393	ug/l	10706.11
Br	79	72	2	H2	0.372	ug/l	6042.62
Se	82	72	1	No Gas	0.083	ug/l	646.07
Kr	84	72	1	No Gas		ug/l	17615.84
Sr	88	72	1	No Gas	0.538	ug/l	17652.65
Sr	88	72	3	He	0.567	ug/l	2510.24
Mo	95	115	1	No Gas	0.512	ug/l	3104.80
Mo	95	115	3	He	0.500	ug/l	1165.61
Mo	98	115	1	No Gas	0.521	ug/l	5124.71
Ag	107	115	1	No Gas	0.222	ug/l	3465.83
Ag	109	115	1	No Gas	0.221	ug/l	3289.71
Cd	111	115	1	No Gas	0.546	ug/l	1839.68

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.552	ug/l	665.57
Cd	114	115	1	No Gas	0.546	ug/l	4148.38
Cd	114	115	3	He	0.544	ug/l	1561.25
Sn	118	115	1	No Gas	0.561	ug/l	5936.17
Sn	118	115	3	He	0.515	ug/l	1710.12
Sb	121	115	1	No Gas	0.505	ug/l	8518.10
Sb	121	115	3	He	0.502	ug/l	2565.49
Sb	123	115	1	No Gas	0.509	ug/l	6634.91
Sb	123	115	3	He	0.509	ug/l	2028.02
Ba	135	115	1	No Gas	0.508	ug/l	1566.98
Ba	137	115	1	No Gas	0.519	ug/l	2738.17
La	139	115	3	He	0.543	ug/l	8415.93
Ce	140	115	3	He	0.551	ug/l	9127.51
Hg	201	209	1	No Gas	0.000	ug/l	190.30
Hg	202	209	1	No Gas	-0.006	ug/l	415.92
Hg	202	209	3	He	-0.004	ug/l	252.95
Tl	203	209	3	He	0.504	ug/l	2580.63
Tl	205	209	1	No Gas	0.500	ug/l	12811.80
Tl	205	209	3	He	0.510	ug/l	6107.87
[Pb]	206	209	1	No Gas	0.522	ug/l	4653.08
[Pb]	207	209	1	No Gas	0.515	ug/l	4030.64
Pb	208	209	1	No Gas	0.511	ug/l	18267.24
Th	232	209	3	He	0.342	ug/l	5552.75
U	238	209	1	No Gas	0.489	ug/l	16298.27

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3888632.70	98.1
Sc	45	2	H2	2288366.53	99.2
Sc	45	3	He	268539.30	97.0
Ge	72	1	No Gas	1023142.32	98.4
Ge	72	2	H2	765160.81	95.2
Ge	72	3	He	163288.20	98.3
In	115	1	No Gas	1057550.61	97.9
In	115	3	He	270652.23	97.6
Tb	159	1	No Gas	8129006.64	101.3
Tb	159	3	He	3564784.03	101.8
Ho	165	1	No Gas	7769202.42	100.9
Ho	165	3	He	3367362.50	99.8
Lu	175	1	No Gas	7289130.54	101.2
Lu	175	3	He	2770923.45	99.2
Bi	209	1	No Gas	4719056.35	100.4
Bi	209	3	He	2180477.23	99.9

# ICPMS207-B Analytical Data

**Sample Name** 1 ppb STD  
**File Name** 011CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 13:03:14  
**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	11.558	ug/l	95403.01
Be	9	45	1	No Gas	0.890	ug/l	3191.04
B	11	45	1	No Gas	0.890	ug/l	2174.37
Na	23	45	3	He	290.471	ug/l	265936.94
Mg	24	45	3	He	301.887	ug/l	120016.92
Al	27	45	1	No Gas	1.312	ug/l	30113.64
Si	28	45	2	H2	4.667	ug/l	25179.22
K	39	72	3	He	268.194	ug/l	227932.13
Ca	40	72	2	H2	290.514	ug/l	2225017.26
Ti	47	72	1	No Gas	1.185	ug/l	2242.43
V	51	72	1	No Gas	1.325	ug/l	2905.35
V	51	72	3	He	0.753	ug/l	17568.40
Cr	52	72	1	No Gas	1.017	ug/l	70438.85
Cr	52	72	3	He	1.144	ug/l	5515.51
Mn	55	72	1	No Gas	1.170	ug/l	32304.77
Mn	55	72	3	He	1.176	ug/l	3210.71
Fe	56	72	2	H2	29.731	ug/l	436111.70
Fe	56	72	3	He	31.046	ug/l	112285.78
Co	59	72	1	No Gas	1.146	ug/l	23685.64
Ni	60	72	1	No Gas	1.119	ug/l	6335.56
Ni	60	72	3	He	1.154	ug/l	1797.90
Cu	63	72	1	No Gas	1.108	ug/l	15244.74
Cu	63	72	3	He	1.249	ug/l	5107.88
Cu	65	72	1	No Gas	1.167	ug/l	7003.18
Zn	66	72	1	No Gas	1.546	ug/l	6547.15
Zn	66	72	3	He	1.449	ug/l	1570.10
As	75	72	1	No Gas	-0.144	ug/l	9585.02
As	75	72	3	He	1.108	ug/l	1310.43
Se	78	72	2	H2	1.102	ug/l	635.35
Br	79	72	1	No Gas	0.445	ug/l	10659.50
Br	79	72	2	H2	0.345	ug/l	6049.28
Se	82	72	1	No Gas	0.992	ug/l	867.02
Kr	84	72	1	No Gas		ug/l	17316.02
Sr	88	72	1	No Gas	1.134	ug/l	35217.09
Sr	88	72	3	He	1.125	ug/l	4779.72
Mo	95	115	1	No Gas	1.099	ug/l	6380.35
Mo	95	115	3	He	1.127	ug/l	2544.69
Mo	98	115	1	No Gas	1.110	ug/l	10456.71
Ag	107	115	1	No Gas	0.469	ug/l	6999.22
Ag	109	115	1	No Gas	0.465	ug/l	6609.54
Cd	111	115	1	No Gas	1.153	ug/l	3739.99

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	1.113	ug/l	1312.84
Cd	114	115	1	No Gas	1.118	ug/l	8194.04
Cd	114	115	3	He	1.128	ug/l	3169.33
Sn	118	115	1	No Gas	1.090	ug/l	10476.47
Sn	118	115	3	He	1.086	ug/l	3252.63
Sb	121	115	1	No Gas	1.093	ug/l	16884.16
Sb	121	115	3	He	1.048	ug/l	4958.05
Sb	123	115	1	No Gas	1.078	ug/l	12899.90
Sb	123	115	3	He	1.079	ug/l	3982.30
Ba	135	115	1	No Gas	1.094	ug/l	3214.01
Ba	137	115	1	No Gas	1.069	ug/l	5403.72
La	139	115	3	He	1.159	ug/l	17565.71
Ce	140	115	3	He	1.099	ug/l	17806.01
Hg	201	209	1	No Gas	0.007	ug/l	198.63
Hg	202	209	1	No Gas	0.011	ug/l	475.91
Hg	202	209	3	He	0.006	ug/l	266.62
Tl	203	209	3	He	1.050	ug/l	5167.76
Tl	205	209	1	No Gas	1.057	ug/l	26175.97
Tl	205	209	3	He	1.073	ug/l	12352.05
[Pb]	206	209	1	No Gas	1.032	ug/l	8858.56
[Pb]	207	209	1	No Gas	1.017	ug/l	7665.59
Pb	208	209	1	No Gas	1.045	ug/l	36003.01
Th	232	209	3	He	0.858	ug/l	13413.61
U	238	209	1	No Gas	0.995	ug/l	32438.75

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3812807.19	96.2
Sc	45	2	H2	2261548.01	98.1
Sc	45	3	He	263856.31	95.3
Ge	72	1	No Gas	981586.35	94.4
Ge	72	2	H2	782130.92	97.3
Ge	72	3	He	161000.02	96.9
In	115	1	No Gas	1019869.32	94.5
In	115	3	He	264962.55	95.6
Tb	159	1	No Gas	7831157.18	97.6
Tb	159	3	He	3439030.58	98.2
Ho	165	1	No Gas	7618004.82	98.9
Ho	165	3	He	3330064.95	98.6
Lu	175	1	No Gas	7121159.08	98.9
Lu	175	3	He	2722497.97	97.4
Bi	209	1	No Gas	4613367.45	98.1
Bi	209	3	He	2124281.17	97.3



# ICPMS207-B Analytical Data

**Sample Name** 10 ppb STD  
**File Name** 012CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 13:09:52  
**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	115.712	ug/l	853045.68
Be	9	45	1	No Gas	8.975	ug/l	30397.35
B	11	45	1	No Gas	9.651	ug/l	18813.29
Na	23	45	3	He	2777.929	ug/l	2139958.96
Mg	24	45	3	He	2890.156	ug/l	1194923.64
Al	27	45	1	No Gas	10.416	ug/l	181792.77
Si	28	45	2	H2	42.064	ug/l	100465.08
K	39	72	3	He	2844.851	ug/l	1382170.24
Ca	40	72	2	H2	2785.515	ug/l	20031516.02
Ti	47	72	1	No Gas	10.714	ug/l	18695.75
V	51	72	1	No Gas	9.557	ug/l	179276.42
V	51	72	3	He	9.644	ug/l	50291.49
Cr	52	72	1	No Gas	10.737	ug/l	257425.30
Cr	52	72	3	He	11.070	ug/l	45660.97
Mn	55	72	1	No Gas	11.124	ug/l	278630.78
Mn	55	72	3	He	11.347	ug/l	30927.88
Fe	56	72	2	H2	291.391	ug/l	4201743.21
Fe	56	72	3	He	305.166	ug/l	1077849.28
Co	59	72	1	No Gas	10.910	ug/l	231092.44
Ni	60	72	1	No Gas	10.371	ug/l	51301.70
Ni	60	72	3	He	11.884	ug/l	17339.27
Cu	63	72	1	No Gas	11.447	ug/l	132501.75
Cu	63	72	3	He	12.142	ug/l	46034.05
Cu	65	72	1	No Gas	10.955	ug/l	61274.81
Zn	66	72	1	No Gas	11.238	ug/l	44557.89
Zn	66	72	3	He	11.280	ug/l	10540.57
As	75	72	1	No Gas	10.553	ug/l	66747.27
As	75	72	3	He	10.996	ug/l	10328.31
Se	78	72	2	H2	10.892	ug/l	6051.70
Br	79	72	1	No Gas	0.328	ug/l	10190.09
Br	79	72	2	H2	0.397	ug/l	6305.56
Se	82	72	1	No Gas	10.903	ug/l	3691.34
Kr	84	72	1	No Gas		ug/l	20147.39
Sr	88	72	1	No Gas	11.055	ug/l	352812.89
Sr	88	72	3	He	11.096	ug/l	47076.46
Mo	95	115	1	No Gas	10.479	ug/l	64257.70
Mo	95	115	3	He	10.460	ug/l	24338.76
Mo	98	115	1	No Gas	10.248	ug/l	101924.53
Ag	107	115	1	No Gas	4.318	ug/l	67956.79
Ag	109	115	1	No Gas	4.308	ug/l	64467.57
Cd	111	115	1	No Gas	10.667	ug/l	36686.33

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	10.812	ug/l	13224.58
Cd	114	115	1	No Gas	10.518	ug/l	81901.36
Cd	114	115	3	He	10.959	ug/l	31980.07
Sn	118	115	1	No Gas	10.147	ug/l	97568.05
Sn	118	115	3	He	10.579	ug/l	30623.48
Sb	121	115	1	No Gas	10.513	ug/l	165420.94
Sb	121	115	3	He	10.358	ug/l	48468.08
Sb	123	115	1	No Gas	10.259	ug/l	125126.10
Sb	123	115	3	He	10.408	ug/l	38062.51
Ba	135	115	1	No Gas	10.507	ug/l	32506.96
Ba	137	115	1	No Gas	10.304	ug/l	54913.24
La	139	115	3	He	11.020	ug/l	173336.74
Ce	140	115	3	He	10.813	ug/l	181722.02
Hg	201	209	1	No Gas	0.188	ug/l	517.91
Hg	202	209	1	No Gas	0.189	ug/l	1194.48
Hg	202	209	3	He	0.151	ug/l	546.24
Tl	203	209	3	He	10.230	ug/l	50361.95
Tl	205	209	1	No Gas	10.472	ug/l	255128.59
Tl	205	209	3	He	10.399	ug/l	119703.09
[Pb]	206	209	1	No Gas	10.502	ug/l	88378.67
[Pb]	207	209	1	No Gas	10.471	ug/l	77392.97
Pb	208	209	1	No Gas	10.458	ug/l	353230.57
Th	232	209	3	He	9.938	ug/l	155940.88
U	238	209	1	No Gas	10.198	ug/l	330349.93

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4049700.86	102.2
Sc	45	2	H2	2284000.46	99.0
Sc	45	3	He	277432.48	100.2
Ge	72	1	No Gas	1019278.51	98.1
Ge	72	2	H2	784306.72	97.6
Ge	72	3	He	164979.98	99.3
In	115	1	No Gas	1083280.26	100.3
In	115	3	He	275229.32	99.3
Tb	159	1	No Gas	8200073.27	102.2
Tb	159	3	He	3526856.89	100.7
Ho	165	1	No Gas	7747395.30	100.6
Ho	165	3	He	3343590.56	99.1
Lu	175	1	No Gas	7248915.33	100.7
Lu	175	3	He	2788719.06	99.8
Bi	209	1	No Gas	4583135.64	97.5
Bi	209	3	He	2148363.17	98.4

# ICPMS207-B Analytical Data

**Sample Name** 50 ppb STD  
**File Name** 013CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 13:16:30  
**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	560.816	ug/l	3972459.39
Be	9	45	1	No Gas	45.869	ug/l	150089.57
B	11	45	1	No Gas	48.260	ug/l	89434.31
Na	23	45	3	He	12637.065	ug/l	9934952.56
Mg	24	45	3	He	13158.901	ug/l	5676705.95
Al	27	45	1	No Gas	50.776	ug/l	826308.39
Si	28	45	2	H2	202.144	ug/l	424423.67
K	39	72	3	He	12912.600	ug/l	6252066.99
Ca	40	72	2	H2	12594.053	ug/l	92035468.89
Ti	47	72	1	No Gas	48.727	ug/l	84348.42
V	51	72	1	No Gas	47.698	ug/l	998391.36
V	51	72	3	He	50.234	ug/l	210569.70
Cr	52	72	1	No Gas	51.115	ug/l	1029253.32
Cr	52	72	3	He	50.228	ug/l	216811.87
Mn	55	72	1	No Gas	51.517	ug/l	1278889.87
Mn	55	72	3	He	52.150	ug/l	151055.26
Fe	56	72	2	H2	1316.010	ug/l	19374959.28
Fe	56	72	3	He	1346.555	ug/l	5044587.69
Co	59	72	1	No Gas	50.842	ug/l	1080596.95
Ni	60	72	1	No Gas	49.887	ug/l	243372.52
Ni	60	72	3	He	54.096	ug/l	83429.67
Cu	63	72	1	No Gas	52.389	ug/l	597501.67
Cu	63	72	3	He	54.279	ug/l	217157.74
Cu	65	72	1	No Gas	51.127	ug/l	284358.48
Zn	66	72	1	No Gas	52.218	ug/l	205311.98
Zn	66	72	3	He	51.869	ug/l	50492.01
As	75	72	1	No Gas	50.813	ug/l	282259.77
As	75	72	3	He	51.166	ug/l	49886.12
Se	78	72	2	H2	50.482	ug/l	28582.54
Br	79	72	1	No Gas	0.439	ug/l	11062.38
Br	79	72	2	H2	0.481	ug/l	6844.75
Se	82	72	1	No Gas	52.373	ug/l	15468.92
Kr	84	72	1	No Gas		ug/l	29085.03
Sr	88	72	1	No Gas	50.682	ug/l	1624301.10
Sr	88	72	3	He	51.920	ug/l	234036.07
Mo	95	115	1	No Gas	50.084	ug/l	305603.44
Mo	95	115	3	He	50.060	ug/l	118520.52
Mo	98	115	1	No Gas	49.347	ug/l	488569.81
Ag	107	115	1	No Gas	20.401	ug/l	319695.38
Ag	109	115	1	No Gas	20.340	ug/l	302895.15
Cd	111	115	1	No Gas	50.639	ug/l	173385.34

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.866	ug/l	64568.70
Cd	114	115	1	No Gas	50.057	ug/l	388213.39
Cd	114	115	3	He	52.053	ug/l	154600.60
Sn	118	115	1	No Gas	50.596	ug/l	481789.55
Sn	118	115	3	He	51.391	ug/l	150373.80
Sb	121	115	1	No Gas	50.355	ug/l	786127.95
Sb	121	115	3	He	50.491	ug/l	239471.15
Sb	123	115	1	No Gas	49.344	ug/l	597022.05
Sb	123	115	3	He	50.939	ug/l	188797.35
Ba	135	115	1	No Gas	49.740	ug/l	153150.89
Ba	137	115	1	No Gas	49.911	ug/l	264880.50
La	139	115	3	He	52.372	ug/l	838636.44
Ce	140	115	3	He	51.909	ug/l	887963.10
Hg	201	209	1	No Gas	1.010	ug/l	1949.42
Hg	202	209	1	No Gas	0.987	ug/l	4383.85
Hg	202	209	3	He	0.974	ug/l	2137.08
Tl	203	209	3	He	50.322	ug/l	250333.92
Tl	205	209	1	No Gas	50.038	ug/l	1204948.48
Tl	205	209	3	He	50.383	ug/l	586136.93
[Pb]	206	209	1	No Gas	49.967	ug/l	415442.83
[Pb]	207	209	1	No Gas	49.354	ug/l	360399.73
Pb	208	209	1	No Gas	49.833	ug/l	1663070.83
Th	232	209	3	He	49.533	ug/l	786016.16
U	238	209	1	No Gas	48.491	ug/l	1553564.77

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3957825.07	99.9
Sc	45	2	H2	2298672.10	99.7
Sc	45	3	He	289810.65	104.7
Ge	72	1	No Gas	1023051.40	98.4
Ge	72	2	H2	802210.39	99.8
Ge	72	3	He	175761.13	105.8
In	115	1	No Gas	1078560.16	99.9
In	115	3	He	280050.10	101.0
Tb	159	1	No Gas	8229959.77	102.6
Tb	159	3	He	3657130.00	104.5
Ho	165	1	No Gas	7632863.95	99.1
Ho	165	3	He	3502622.34	103.8
Lu	175	1	No Gas	7193145.34	99.9
Lu	175	3	He	2910772.70	104.2
Bi	209	1	No Gas	4534599.98	96.5
Bi	209	3	He	2173408.33	99.6

# ICPMS207-B Analytical Data

**Sample Name** 100 ppb STD  
**File Name** 014CAL5.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 13:23:06  
**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	1225.227	ug/l	9321960.49
Be	9	45	1	No Gas	96.544	ug/l	339669.84
B	11	45	1	No Gas	99.376	ug/l	197777.48
Na	23	45	3	He	24979.506	ug/l	21330069.54
Mg	24	45	3	He	25874.371	ug/l	12160533.83
Al	27	45	1	No Gas	98.875	ug/l	1721919.82
Si	28	45	2	H2	398.713	ug/l	852573.45
K	39	72	3	He	25283.548	ug/l	12915486.06
Ca	40	72	2	H2	25079.968	ug/l	189187474.14
Ti	47	72	1	No Gas	100.563	ug/l	184623.10
V	51	72	1	No Gas	93.869	ug/l	2117697.68
V	51	72	3	He	97.318	ug/l	418352.19
Cr	52	72	1	No Gas	98.025	ug/l	2046065.02
Cr	52	72	3	He	100.724	ug/l	461821.20
Mn	55	72	1	No Gas	101.440	ug/l	2668917.55
Mn	55	72	3	He	102.514	ug/l	316144.58
Fe	56	72	2	H2	2594.729	ug/l	39451334.95
Fe	56	72	3	He	2704.271	ug/l	10783869.53
Co	59	72	1	No Gas	97.975	ug/l	2212659.50
Ni	60	72	1	No Gas	97.563	ug/l	504438.73
Ni	60	72	3	He	105.923	ug/l	173845.38
Cu	63	72	1	No Gas	101.823	ug/l	1230197.62
Cu	63	72	3	He	104.217	ug/l	443548.09
Cu	65	72	1	No Gas	98.887	ug/l	583750.59
Zn	66	72	1	No Gas	100.218	ug/l	417692.67
Zn	66	72	3	He	101.237	ug/l	104678.71
As	75	72	1	No Gas	99.543	ug/l	576485.23
As	75	72	3	He	101.186	ug/l	104697.95
Se	78	72	2	H2	101.026	ug/l	59060.27
Br	79	72	1	No Gas	0.415	ug/l	11555.13
Br	79	72	2	H2	0.682	ug/l	8052.95
Se	82	72	1	No Gas	101.556	ug/l	31258.49
Kr	84	72	1	No Gas		ug/l	41224.04
Sr	88	72	1	No Gas	99.473	ug/l	3387677.10
Sr	88	72	3	He	102.635	ug/l	492695.97
Mo	95	115	1	No Gas	99.909	ug/l	638787.78
Mo	95	115	3	He	99.923	ug/l	255455.79
Mo	98	115	1	No Gas	100.300	ug/l	1039552.50
Ag	107	115	1	No Gas	39.767	ug/l	652919.94
Ag	109	115	1	No Gas	39.799	ug/l	620829.90
Cd	111	115	1	No Gas	100.723	ug/l	361349.22

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	99.992	ug/l	134474.15
Cd	114	115	1	No Gas	100.590	ug/l	817355.92
Cd	114	115	3	He	102.520	ug/l	328945.31
Sn	118	115	1	No Gas	99.686	ug/l	992784.48
Sn	118	115	3	He	99.245	ug/l	313429.02
Sb	121	115	1	No Gas	99.770	ug/l	1630863.02
Sb	121	115	3	He	99.718	ug/l	510529.39
Sb	123	115	1	No Gas	100.301	ug/l	1270290.17
Sb	123	115	3	He	99.489	ug/l	398182.53
Ba	135	115	1	No Gas	99.139	ug/l	319984.58
Ba	137	115	1	No Gas	97.466	ug/l	541887.68
La	139	115	3	He	98.710	ug/l	1707823.27
Ce	140	115	3	He	98.963	ug/l	1828957.33
Hg	201	209	1	No Gas	1.997	ug/l	3869.79
Hg	202	209	1	No Gas	2.008	ug/l	8936.21
Hg	202	209	3	He	2.018	ug/l	4326.17
Tl	203	209	3	He	100.724	ug/l	521764.60
Tl	205	209	1	No Gas	97.333	ug/l	2466931.86
Tl	205	209	3	He	103.366	ug/l	1251864.13
[Pb]	206	209	1	No Gas	100.019	ug/l	875554.03
[Pb]	207	209	1	No Gas	97.393	ug/l	748337.80
Pb	208	209	1	No Gas	98.482	ug/l	3461921.26
Th	232	209	3	He	100.314	ug/l	1657577.49
U	238	209	1	No Gas	97.560	ug/l	3292524.82

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4290410.75	108.2
Sc	45	2	H2	2385820.04	103.5
Sc	45	3	He	315687.86	114.0
Ge	72	1	No Gas	1088016.20	104.7
Ge	72	2	H2	828596.39	103.1
Ge	72	3	He	187125.14	112.7
In	115	1	No Gas	1131963.61	104.8
In	115	3	He	302592.33	109.1
Tb	159	1	No Gas	8720926.82	108.7
Tb	159	3	He	3965073.86	113.3
Ho	165	1	No Gas	8163836.72	106.0
Ho	165	3	He	3701748.94	109.7
Lu	175	1	No Gas	7750943.38	107.7
Lu	175	3	He	3077178.74	110.1
Bi	209	1	No Gas	4785157.06	101.8
Bi	209	3	He	2264462.57	103.7

# ICPMS207-B Analytical Data

**Sample Name** 1000 ppb STD  
**File Name** 015CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 13:29:39  
**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	2528.902	ug/l	19453510.95
Be	9	45	1	No Gas	1000.563	ug/l	3559368.64
B	11	45	1	No Gas	1000.153	ug/l	2006733.82
Na	23	45	3	He	49961.837	ug/l	42561861.31
Mg	24	45	3	He	49378.263	ug/l	23188588.42
Al	27	45	1	No Gas	1000.069	ug/l	17529291.13
Si	28	45	2	H2	2.054	ug/l	21114.64
K	39	72	3	He	49737.717	ug/l	25837122.95
Ca	40	72	2	H2	49921.960	ug/l	372784047.59
Ti	47	72	1	No Gas	6.839	ug/l	12833.55
V	51	72	1	No Gas	1000.733	ug/l	22780779.82
V	51	72	3	He	1000.260	ug/l	4230116.64
Cr	52	72	1	No Gas	1000.134	ug/l	20310813.27
Cr	52	72	3	He	999.905	ug/l	4675300.21
Mn	55	72	1	No Gas	999.769	ug/l	26249339.50
Mn	55	72	3	He	999.627	ug/l	3149405.99
Fe	56	72	2	H2	5997.434	ug/l	90283549.54
Fe	56	72	3	He	5942.745	ug/l	24210333.02
Co	59	72	1	No Gas	1000.151	ug/l	22553455.13
Ni	60	72	1	No Gas	1000.246	ug/l	5155322.46
Ni	60	72	3	He	999.184	ug/l	1674181.75
Cu	63	72	1	No Gas	999.684	ug/l	12035979.28
Cu	63	72	3	He	999.343	ug/l	4341301.26
Cu	65	72	1	No Gas	1000.045	ug/l	5886385.63
Zn	66	72	1	No Gas	999.854	ug/l	4157341.32
Zn	66	72	3	He	999.770	ug/l	1053398.63
As	75	72	1	No Gas	1000.001	ug/l	5682972.43
As	75	72	3	He	999.813	ug/l	1053817.12
Se	78	72	2	H2	999.864	ug/l	578581.03
Br	79	72	1	No Gas	0.744	ug/l	14172.23
Br	79	72	2	H2	3.207	ug/l	20164.17
Se	82	72	1	No Gas	999.717	ug/l	301487.85
Kr	84	72	1	No Gas		ug/l	233320.42
Sr	88	72	1	No Gas	1000.008	ug/l	34001707.05
Sr	88	72	3	He	999.629	ug/l	4902527.88
Mo	95	115	1	No Gas	0.105	ug/l	725.58
Mo	95	115	3	He	0.083	ug/l	240.00
Mo	98	115	1	No Gas	0.127	ug/l	1406.76
Ag	107	115	1	No Gas	319.784	ug/l	5304059.75
Ag	109	115	1	No Gas	312.763	ug/l	4926626.29
Cd	111	115	1	No Gas	999.889	ug/l	3623558.63

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	999.899	ug/l	1370104.01
Cd	114	115	1	No Gas	999.933	ug/l	8207512.95
Cd	114	115	3	He	999.636	ug/l	3268131.87
Sn	118	115	1	No Gas	0.173	ug/l	2508.59
Sn	118	115	3	He	0.131	ug/l	715.58
Sb	121	115	1	No Gas	0.301	ug/l	5824.47
Sb	121	115	3	He	0.207	ug/l	1381.54
Sb	123	115	1	No Gas	0.312	ug/l	4644.91
Sb	123	115	3	He	0.214	ug/l	1106.16
Ba	135	115	1	No Gas	1000.094	ug/l	3258563.92
Ba	137	115	1	No Gas	1000.255	ug/l	5616620.70
La	139	115	3	He	0.009	ug/l	176.67
Ce	140	115	3	He	0.022	ug/l	438.90
Hg	201	209	1	No Gas	-0.011	ug/l	174.30
Hg	202	209	1	No Gas	-0.003	ug/l	434.59
Hg	202	209	3	He	-0.002	ug/l	277.28
Tl	203	209	3	He	999.909	ug/l	5379705.88
Tl	205	209	1	No Gas	1000.260	ug/l	25466792.40
Tl	205	209	3	He	999.640	ug/l	12577277.12
[Pb]	206	209	1	No Gas	999.995	ug/l	8788017.86
[Pb]	207	209	1	No Gas	1000.288	ug/l	7722561.34
Pb	208	209	1	No Gas	1000.156	ug/l	35291178.23
Th	232	209	3	He	999.993	ug/l	17161668.94
U	238	209	1	No Gas	1000.317	ug/l	33899245.03

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4312469.91	108.8
Sc	45	2	H2	2388582.34	103.6
Sc	45	3	He	315488.30	113.9
Ge	72	1	No Gas	1085905.39	104.5
Ge	72	2	H2	820508.23	102.1
Ge	72	3	He	191247.42	115.1
In	115	1	No Gas	1142229.85	105.8
In	115	3	He	308267.71	111.2
Tb	159	1	No Gas	8922125.14	111.2
Tb	159	3	He	3953030.21	112.9
Ho	165	1	No Gas	8574895.33	111.3
Ho	165	3	He	3877977.74	114.9
Lu	175	1	No Gas	8034614.59	111.6
Lu	175	3	He	3218105.99	115.2
Bi	209	1	No Gas	4796546.05	102.0
Bi	209	3	He	2351279.42	107.7



# ICPMS207-B Analytical Data

**Sample Name** 100 ppb Br STD  
**File Name** 016CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 13:36:07  
**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	2.628	ug/l	37176.16
Be	9	45	1	No Gas	-0.016	ug/l	369.60
B	11	45	1	No Gas	7.235	ug/l	14395.95
Na	23	45	3	He	-2.297	ug/l	64081.08
Mg	24	45	3	He	-0.568	ug/l	1374.00
Al	27	45	1	No Gas	0.137	ug/l	12815.56
Si	28	45	2	H2	1.664	ug/l	19657.43
K	39	72	3	He	779.081	ug/l	489193.05
Ca	40	72	2	H2	2.712	ug/l	179186.50
Ti	47	72	1	No Gas	0.137	ug/l	542.22
V	51	72	1	No Gas	0.237	ug/l	-22124.80
V	51	72	3	He	-1.185	ug/l	11622.42
Cr	52	72	1	No Gas	0.093	ug/l	57508.52
Cr	52	72	3	He	0.055	ug/l	1336.73
Mn	55	72	1	No Gas	0.308	ug/l	12720.30
Mn	55	72	3	He	0.023	ug/l	167.30
Fe	56	72	2	H2	0.713	ug/l	19908.56
Fe	56	72	3	He	0.876	ug/l	9606.15
Co	59	72	1	No Gas	0.008	ug/l	532.29
Ni	60	72	1	No Gas	0.054	ug/l	1473.82
Ni	60	72	3	He	0.042	ug/l	250.00
Cu	63	72	1	No Gas	0.112	ug/l	4745.35
Cu	63	72	3	He	0.051	ug/l	789.53
Cu	65	72	1	No Gas	0.058	ug/l	1187.20
Zn	66	72	1	No Gas	0.593	ug/l	3183.31
Zn	66	72	3	He	0.440	ug/l	733.36
As	75	72	1	No Gas	0.184	ug/l	12033.46
As	75	72	3	He	0.109	ug/l	460.87
Se	78	72	2	H2	0.167	ug/l	120.89
Br	79	72	1	No Gas	100.000	ug/l	779216.87
Br	79	72	2	H2	100.000	ug/l	469226.82
Se	82	72	1	No Gas	1.668	ug/l	1129.31
Kr	84	72	1	No Gas		ug/l	19094.79
Sr	88	72	1	No Gas	0.012	ug/l	781.81
Sr	88	72	3	He	0.005	ug/l	170.00
Mo	95	115	1	No Gas	0.020	ug/l	173.33
Mo	95	115	3	He	0.016	ug/l	63.34
Mo	98	115	1	No Gas	0.018	ug/l	257.58
Ag	107	115	1	No Gas	0.597	ug/l	9749.35
Ag	109	115	1	No Gas	0.598	ug/l	9302.19
Cd	111	115	1	No Gas	0.028	ug/l	107.32

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.022	ug/l	29.67
Cd	114	115	1	No Gas	0.025	ug/l	198.47
Cd	114	115	3	He	0.019	ug/l	56.93
Sn	118	115	1	No Gas	0.305	ug/l	3746.42
Sn	118	115	3	He	0.282	ug/l	1134.50
Sb	121	115	1	No Gas	0.060	ug/l	1829.31
Sb	121	115	3	He	0.044	ug/l	506.06
Sb	123	115	1	No Gas	0.060	ug/l	1398.21
Sb	123	115	3	He	0.051	ug/l	420.38
Ba	135	115	1	No Gas	0.012	ug/l	73.19
Ba	137	115	1	No Gas	0.016	ug/l	133.07
La	139	115	3	He	0.002	ug/l	41.11
Ce	140	115	3	He	0.002	ug/l	53.33
Hg	201	209	1	No Gas	-0.042	ug/l	123.98
Hg	202	209	1	No Gas	-0.038	ug/l	304.27
Hg	202	209	3	He	-0.061	ug/l	152.30
Tl	203	209	3	He	1.506	ug/l	8086.40
Tl	205	209	1	No Gas	1.166	ug/l	31836.12
Tl	205	209	3	He	1.605	ug/l	20157.41
[Pb]	206	209	1	No Gas	0.085	ug/l	950.04
[Pb]	207	209	1	No Gas	0.085	ug/l	830.03
Pb	208	209	1	No Gas	0.082	ug/l	3668.00
Th	232	209	3	He	0.304	ug/l	5285.21
U	238	209	1	No Gas	0.026	ug/l	948.85

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4150331.79	104.7
Sc	45	2	H2	2313394.93	100.3
Sc	45	3	He	292861.35	105.8
Ge	72	1	No Gas	1061281.13	102.1
Ge	72	2	H2	789761.57	98.2
Ge	72	3	He	174940.02	105.3
In	115	1	No Gas	1129664.98	104.6
In	115	3	He	290986.83	104.9
Tb	159	1	No Gas	8791735.44	109.6
Tb	159	3	He	3754515.92	107.3
Ho	165	1	No Gas	8392052.59	109.0
Ho	165	3	He	3614538.61	107.1
Lu	175	1	No Gas	7990861.93	111.0
Lu	175	3	He	3016058.37	107.9
Bi	209	1	No Gas	5144117.33	109.4
Bi	209	3	He	2330800.63	106.8

# ICPMS207-B Analytical Data

**Sample Name** Rinse  
**File Name** 017BLKV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 13:42:30  
**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	0.927	ug/l	25476.11
Be	9	45	1	No Gas	-0.048	ug/l	266.62
B	11	45	1	No Gas	4.710	ug/l	9817.14
Na	23	45	3	He	-11.703	ug/l	56196.54
Mg	24	45	3	He	-1.041	ug/l	1157.76
Al	27	45	1	No Gas	-0.118	ug/l	8755.95
Si	28	45	2	H2	-0.066	ug/l	16213.94
K	39	72	3	He	13.039	ug/l	126808.46
Ca	40	72	2	H2	-0.755	ug/l	154389.51
Ti	47	72	1	No Gas	-0.003	ug/l	291.96
V	51	72	1	No Gas	0.665	ug/l	-11595.67
V	51	72	3	He	-1.862	ug/l	8997.25
Cr	52	72	1	No Gas	-0.523	ug/l	44842.78
Cr	52	72	3	He	-0.042	ug/l	917.81
Mn	55	72	1	No Gas	0.160	ug/l	8838.47
Mn	55	72	3	He	0.004	ug/l	110.31
Fe	56	72	2	H2	0.025	ug/l	9945.07
Fe	56	72	3	He	0.039	ug/l	6474.62
Co	59	72	1	No Gas	0.002	ug/l	385.91
Ni	60	72	1	No Gas	-0.028	ug/l	1051.29
Ni	60	72	3	He	-0.002	ug/l	182.23
Cu	63	72	1	No Gas	-0.014	ug/l	3232.33
Cu	63	72	3	He	-0.015	ug/l	524.91
Cu	65	72	1	No Gas	-0.008	ug/l	802.34
Zn	66	72	1	No Gas	-0.021	ug/l	697.95
Zn	66	72	3	He	-0.092	ug/l	221.11
As	75	72	1	No Gas	0.287	ug/l	12461.90
As	75	72	3	He	-0.026	ug/l	330.13
Se	78	72	2	H2	0.048	ug/l	54.44
Br	79	72	1	No Gas	1.410	ug/l	18668.46
Br	79	72	2	H2	1.183	ug/l	10010.29
Se	82	72	1	No Gas	-0.083	ug/l	610.47
Kr	84	72	1	No Gas		ug/l	19028.15
Sr	88	72	1	No Gas	0.001	ug/l	419.18
Sr	88	72	3	He	0.001	ug/l	148.89
Mo	95	115	1	No Gas	0.008	ug/l	94.44
Mo	95	115	3	He	0.008	ug/l	43.34
Mo	98	115	1	No Gas	0.006	ug/l	140.77
Ag	107	115	1	No Gas	0.007	ug/l	175.40
Ag	109	115	1	No Gas	0.007	ug/l	172.74
Cd	111	115	1	No Gas	0.006	ug/l	31.22

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.009	ug/l	13.44
Cd	114	115	1	No Gas	0.007	ug/l	54.94
Cd	114	115	3	He	0.009	ug/l	26.94
Sn	118	115	1	No Gas	0.023	ug/l	984.76
Sn	118	115	3	He	0.009	ug/l	306.67
Sb	121	115	1	No Gas	0.025	ug/l	1259.18
Sb	121	115	3	He	0.023	ug/l	403.38
Sb	123	115	1	No Gas	0.023	ug/l	941.46
Sb	123	115	3	He	0.025	ug/l	319.70
Ba	135	115	1	No Gas	-0.001	ug/l	29.94
Ba	137	115	1	No Gas	0.004	ug/l	63.21
La	139	115	3	He	0.000	ug/l	6.67
Ce	140	115	3	He	0.000	ug/l	12.22
Hg	201	209	1	No Gas	-0.038	ug/l	135.64
Hg	202	209	1	No Gas	-0.042	ug/l	292.95
Hg	202	209	3	He	-0.055	ug/l	166.30
Tl	203	209	3	He	0.802	ug/l	4371.15
Tl	205	209	1	No Gas	0.430	ug/l	12293.81
Tl	205	209	3	He	0.803	ug/l	10236.07
[Pb]	206	209	1	No Gas	0.032	ug/l	462.23
[Pb]	207	209	1	No Gas	0.027	ug/l	355.56
Pb	208	209	1	No Gas	0.031	ug/l	1785.62
Th	232	209	3	He	0.057	ug/l	1105.83
U	238	209	1	No Gas	0.004	ug/l	174.97

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4181669.43	105.5
Sc	45	2	H2	2323983.94	100.8
Sc	45	3	He	290542.29	104.9
Ge	72	1	No Gas	1041695.00	100.2
Ge	72	2	H2	790323.50	98.3
Ge	72	3	He	174620.43	105.1
In	115	1	No Gas	1123215.09	104.0
In	115	3	He	292417.16	105.5
Tb	159	1	No Gas	8645349.31	107.8
Tb	159	3	He	3809514.07	108.8
Ho	165	1	No Gas	8426191.52	109.4
Ho	165	3	He	3733620.31	110.6
Lu	175	1	No Gas	7858306.36	109.1
Lu	175	3	He	3068385.46	109.8
Bi	209	1	No Gas	5262265.03	111.9
Bi	209	3	He	2343168.10	107.3

# ICPMS207-B Analytical Data

**Sample Name** QCS  
**File Name** 018\_QC1.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 13:48:44  
**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	49.977	ug/l	372871.51
Be	9	45	1	No Gas	23.658	ug/l	78224.12
B	11	45	1	No Gas	55.798	ug/l	104109.16
Na	23	45	3	He	2604.877	ug/l	2064461.45
Mg	24	45	3	He	2626.005	ug/l	1115081.43
Al	27	45	1	No Gas	255.351	ug/l	4147978.34
Si	28	45	2	H2	492.960	ug/l	1013368.38
K	39	72	3	He	2498.809	ug/l	1318818.76
Ca	40	72	2	H2	2523.240	ug/l	18437552.95
Ti	47	72	1	No Gas	49.435	ug/l	86303.27
V	51	72	1	No Gas	53.026	ug/l	1123237.88
V	51	72	3	He	47.975	ug/l	203555.60
Cr	52	72	1	No Gas	52.367	ug/l	1062796.35
Cr	52	72	3	He	50.179	ug/l	218418.26
Mn	55	72	1	No Gas	264.318	ug/l	6599257.49
Mn	55	72	3	He	258.597	ug/l	754851.15
Fe	56	72	2	H2	257.867	ug/l	3776860.63
Fe	56	72	3	He	269.506	ug/l	1023121.31
Co	59	72	1	No Gas	52.438	ug/l	1124394.75
Ni	60	72	1	No Gas	51.532	ug/l	253617.56
Ni	60	72	3	He	53.515	ug/l	83246.68
Cu	63	72	1	No Gas	54.427	ug/l	626096.01
Cu	63	72	3	He	55.265	ug/l	222938.37
Cu	65	72	1	No Gas	52.556	ug/l	294838.58
Zn	66	72	1	No Gas	53.089	ug/l	210669.27
Zn	66	72	3	He	50.771	ug/l	49859.75
As	75	72	1	No Gas	50.450	ug/l	282875.93
As	75	72	3	He	49.822	ug/l	48988.46
Se	78	72	2	H2	51.501	ug/l	28949.27
Br	79	72	1	No Gas	0.921	ug/l	14801.68
Br	79	72	2	H2	0.967	ug/l	9074.87
Se	82	72	1	No Gas	51.647	ug/l	15399.78
Kr	84	72	1	No Gas		ug/l	29761.68
Sr	88	72	1	No Gas	53.477	ug/l	1729222.30
Sr	88	72	3	He	50.857	ug/l	231197.01
Mo	95	115	1	No Gas	49.817	ug/l	307827.58
Mo	95	115	3	He	47.532	ug/l	118365.29
Mo	98	115	1	No Gas	50.412	ug/l	504786.78
Ag	107	115	1	No Gas	26.236	ug/l	415743.68
Ag	109	115	1	No Gas	26.354	ug/l	397194.62
Cd	111	115	1	No Gas	26.440	ug/l	91608.24

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	25.124	ug/l	32902.39
Cd	114	115	1	No Gas	26.264	ug/l	206093.09
Cd	114	115	3	He	25.535	ug/l	79779.38
Sn	118	115	1	No Gas	50.863	ug/l	490343.42
Sn	118	115	3	He	48.575	ug/l	149530.59
Sb	121	115	1	No Gas	50.752	ug/l	801618.58
Sb	121	115	3	He	48.172	ug/l	240331.99
Sb	123	115	1	No Gas	49.715	ug/l	608432.13
Sb	123	115	3	He	48.504	ug/l	189121.80
Ba	135	115	1	No Gas	52.756	ug/l	164381.79
Ba	137	115	1	No Gas	51.718	ug/l	277700.19
La	139	115	3	He	49.567	ug/l	834920.26
Ce	140	115	3	He	50.059	ug/l	900824.92
Hg	201	209	1	No Gas	0.918	ug/l	2017.09
Hg	202	209	1	No Gas	0.914	ug/l	4616.55
Hg	202	209	3	He	0.935	ug/l	2211.08
Tl	203	209	3	He	48.847	ug/l	260316.88
Tl	205	209	1	No Gas	49.189	ug/l	1336936.56
Tl	205	209	3	He	50.498	ug/l	629409.07
[Pb]	206	209	1	No Gas	47.082	ug/l	441435.50
[Pb]	207	209	1	No Gas	48.174	ug/l	396843.72
Pb	208	209	1	No Gas	47.675	ug/l	1795318.69
Th	232	209	3	He	47.830	ug/l	813116.70
U	238	209	1	No Gas	49.988	ug/l	1806960.41

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3988278.21	100.6
Sc	45	2	H2	2302612.05	99.8
Sc	45	3	He	284853.51	102.9
Ge	72	1	No Gas	1032653.96	99.4
Ge	72	2	H2	796325.46	99.1
Ge	72	3	He	177162.81	106.7
In	115	1	No Gas	1093352.79	101.3
In	115	3	He	294566.00	106.2
Tb	159	1	No Gas	8658500.70	107.9
Tb	159	3	He	3704383.24	105.8
Ho	165	1	No Gas	8271532.86	107.4
Ho	165	3	He	3657327.09	108.3
Lu	175	1	No Gas	7820635.36	108.6
Lu	175	3	He	3042483.42	108.9
Bi	209	1	No Gas	5123563.55	109.0
Bi	209	3	He	2328856.37	106.7

# ICPMS207-B Analytical Data

**Sample Name** ICB  
**File Name** 019\_CCB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 13:54:59  
**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	0.456	ug/l	20203.48
Be	9	45	1	No Gas	-0.050	ug/l	238.62
B	11	45	1	No Gas	3.373	ug/l	6631.46
Na	23	45	3	He	-12.503	ug/l	52715.22
Mg	24	45	3	He	-0.625	ug/l	1270.87
Al	27	45	1	No Gas	-0.083	ug/l	8605.86
Si	28	45	2	H2	-1.050	ug/l	14003.52
K	39	72	3	He	2.070	ug/l	117870.52
Ca	40	72	2	H2	-0.567	ug/l	155685.75
Ti	47	72	1	No Gas	-0.031	ug/l	240.24
V	51	72	1	No Gas	1.024	ug/l	-4006.22
V	51	72	3	He	-1.917	ug/l	8523.64
Cr	52	72	1	No Gas	-0.519	ug/l	44435.63
Cr	52	72	3	He	-0.021	ug/l	977.82
Mn	55	72	1	No Gas	0.095	ug/l	7124.27
Mn	55	72	3	He	0.002	ug/l	102.31
Fe	56	72	2	H2	0.027	ug/l	9975.10
Fe	56	72	3	He	0.100	ug/l	6496.33
Co	59	72	1	No Gas	0.000	ug/l	342.66
Ni	60	72	1	No Gas	-0.031	ug/l	1024.67
Ni	60	72	3	He	0.017	ug/l	203.34
Cu	63	72	1	No Gas	-0.069	ug/l	2565.26
Cu	63	72	3	He	-0.026	ug/l	465.58
Cu	65	72	1	No Gas	-0.026	ug/l	690.96
Zn	66	72	1	No Gas	-0.038	ug/l	628.01
Zn	66	72	3	He	-0.179	ug/l	133.33
As	75	72	1	No Gas	-0.005	ug/l	10737.28
As	75	72	3	He	-0.082	ug/l	267.53
Se	78	72	2	H2	0.018	ug/l	37.89
Br	79	72	1	No Gas	0.215	ug/l	9454.43
Br	79	72	2	H2	0.155	ug/l	5227.28
Se	82	72	1	No Gas	0.157	ug/l	669.01
Kr	84	72	1	No Gas		ug/l	17745.76
Sr	88	72	1	No Gas	0.001	ug/l	422.50
Sr	88	72	3	He	0.003	ug/l	153.34
Mo	95	115	1	No Gas	0.032	ug/l	243.34
Mo	95	115	3	He	0.018	ug/l	65.56
Mo	98	115	1	No Gas	0.027	ug/l	355.22
Ag	107	115	1	No Gas	0.003	ug/l	120.05
Ag	109	115	1	No Gas	0.002	ug/l	106.71
Cd	111	115	1	No Gas	0.001	ug/l	13.18

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.002	ug/l	4.45
Cd	114	115	1	No Gas	0.003	ug/l	18.71
Cd	114	115	3	He	0.003	ug/l	7.65
Sn	118	115	1	No Gas	0.058	ug/l	1337.42
Sn	118	115	3	He	0.019	ug/l	325.56
Sb	121	115	1	No Gas	0.132	ug/l	3005.30
Sb	121	115	3	He	0.092	ug/l	717.76
Sb	123	115	1	No Gas	0.126	ug/l	2246.08
Sb	123	115	3	He	0.094	ug/l	566.07
Ba	135	115	1	No Gas	0.005	ug/l	53.23
Ba	137	115	1	No Gas	0.002	ug/l	53.23
La	139	115	3	He	0.000	ug/l	12.22
Ce	140	115	3	He	0.000	ug/l	16.67
Hg	201	209	1	No Gas	-0.035	ug/l	137.31
Hg	202	209	1	No Gas	-0.027	ug/l	351.27
Hg	202	209	3	He	-0.057	ug/l	160.97
Tl	203	209	3	He	0.244	ug/l	1372.63
Tl	205	209	1	No Gas	0.157	ug/l	4537.50
Tl	205	209	3	He	0.256	ug/l	3363.12
[Pb]	206	209	1	No Gas	0.023	ug/l	368.90
[Pb]	207	209	1	No Gas	0.028	ug/l	350.01
Pb	208	209	1	No Gas	0.026	ug/l	1542.27
Th	232	209	3	He	0.041	ug/l	830.36
U	238	209	1	No Gas	0.003	ug/l	128.98

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3909973.46	98.6
Sc	45	2	H2	2290875.28	99.3
Sc	45	3	He	275686.59	99.6
Ge	72	1	No Gas	1035575.86	99.6
Ge	72	2	H2	790192.04	98.3
Ge	72	3	He	169337.04	102.0
In	115	1	No Gas	1132336.09	104.9
In	115	3	He	281747.06	101.6
Tb	159	1	No Gas	8756958.42	109.2
Tb	159	3	He	3838074.55	109.6
Ho	165	1	No Gas	8375956.13	108.8
Ho	165	3	He	3616185.46	107.1
Lu	175	1	No Gas	7989384.36	111.0
Lu	175	3	He	2957574.76	105.9
Bi	209	1	No Gas	5119142.27	108.9
Bi	209	3	He	2331044.29	106.8



# ICPMS207-B Analytical Data

**Sample Name** CCV  
**File Name** 020\_CCV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 14:01:13  
**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	567.268	ug/l	3938742.12
Be	9	45	1	No Gas	46.612	ug/l	149555.87
B	11	45	1	No Gas	50.390	ug/l	91531.11
Na	23	45	3	He	12905.239	ug/l	9878939.09
Mg	24	45	3	He	13123.665	ug/l	5512337.55
Al	27	45	1	No Gas	50.917	ug/l	812504.59
Si	28	45	2	H2	197.835	ug/l	416398.27
K	39	72	3	He	12562.376	ug/l	5963331.79
Ca	40	72	2	H2	12168.101	ug/l	87669075.15
Ti	47	72	1	No Gas	49.260	ug/l	84769.88
V	51	72	1	No Gas	48.250	ug/l	1004813.99
V	51	72	3	He	49.394	ug/l	203224.63
Cr	52	72	1	No Gas	50.942	ug/l	1019705.08
Cr	52	72	3	He	50.084	ug/l	211853.47
Mn	55	72	1	No Gas	52.238	ug/l	1288830.91
Mn	55	72	3	He	51.569	ug/l	146357.53
Fe	56	72	2	H2	1305.189	ug/l	18941667.87
Fe	56	72	3	He	1359.946	ug/l	4993131.24
Co	59	72	1	No Gas	52.095	ug/l	1099886.45
Ni	60	72	1	No Gas	52.113	ug/l	252675.88
Ni	60	72	3	He	54.552	ug/l	82468.68
Cu	63	72	1	No Gas	52.647	ug/l	596613.18
Cu	63	72	3	He	53.924	ug/l	211427.31
Cu	65	72	1	No Gas	51.013	ug/l	281923.49
Zn	66	72	1	No Gas	52.431	ug/l	204756.70
Zn	66	72	3	He	51.185	ug/l	48840.71
As	75	72	1	No Gas	50.293	ug/l	277601.44
As	75	72	3	He	51.098	ug/l	48825.00
Se	78	72	2	H2	50.759	ug/l	28331.39
Br	79	72	1	No Gas	0.703	ug/l	12973.49
Br	79	72	2	H2	0.711	ug/l	7816.63
Se	82	72	1	No Gas	51.745	ug/l	15190.44
Kr	84	72	1	No Gas		ug/l	28708.27
Sr	88	72	1	No Gas	51.422	ug/l	1637763.27
Sr	88	72	3	He	51.411	ug/l	227185.56
Mo	95	115	1	No Gas	52.677	ug/l	306574.64
Mo	95	115	3	He	50.362	ug/l	118829.95
Mo	98	115	1	No Gas	52.791	ug/l	498668.83
Ag	107	115	1	No Gas	21.506	ug/l	321268.93
Ag	109	115	1	No Gas	21.233	ug/l	301849.79
Cd	111	115	1	No Gas	54.100	ug/l	176684.20

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.436	ug/l	63829.11
Cd	114	115	1	No Gas	53.787	ug/l	397905.55
Cd	114	115	3	He	52.184	ug/l	154500.58
Sn	118	115	1	No Gas	53.259	ug/l	483186.25
Sn	118	115	3	He	49.736	ug/l	145055.50
Sb	121	115	1	No Gas	54.012	ug/l	803969.00
Sb	121	115	3	He	50.540	ug/l	238904.29
Sb	123	115	1	No Gas	53.314	ug/l	614927.05
Sb	123	115	3	He	51.070	ug/l	188670.58
Ba	135	115	1	No Gas	53.329	ug/l	156689.96
Ba	137	115	1	No Gas	52.964	ug/l	268041.87
La	139	115	3	He	52.861	ug/l	843621.43
Ce	140	115	3	He	51.584	ug/l	879893.43
Hg	201	209	1	No Gas	0.966	ug/l	1947.43
Hg	202	209	1	No Gas	0.983	ug/l	4534.20
Hg	202	209	3	He	0.931	ug/l	2137.08
Tl	203	209	3	He	48.342	ug/l	249768.40
Tl	205	209	1	No Gas	50.426	ug/l	1261314.80
Tl	205	209	3	He	49.903	ug/l	603053.79
[Pb]	206	209	1	No Gas	50.243	ug/l	434360.13
[Pb]	207	209	1	No Gas	49.455	ug/l	375674.93
Pb	208	209	1	No Gas	49.627	ug/l	1721212.83
Th	232	209	3	He	49.595	ug/l	817428.02
U	238	209	1	No Gas	48.183	ug/l	1604082.53

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3881983.68	97.9
Sc	45	2	H2	2302598.01	99.8
Sc	45	3	He	282133.42	101.9
Ge	72	1	No Gas	1017933.56	97.9
Ge	72	2	H2	790734.78	98.4
Ge	72	3	He	172204.41	103.7
In	115	1	No Gas	1033720.42	95.7
In	115	3	He	279194.97	100.7
Tb	159	1	No Gas	8068098.86	100.6
Tb	159	3	He	3688788.45	105.4
Ho	165	1	No Gas	7886795.37	102.4
Ho	165	3	He	3469674.55	102.8
Lu	175	1	No Gas	7337696.86	101.9
Lu	175	3	He	2797155.23	100.1
Bi	209	1	No Gas	4739016.50	100.8
Bi	209	3	He	2258647.49	103.5

# ICPMS207-B Analytical Data

**Sample Name** CCB  
**File Name** 021\_CCB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 14:07:27  
**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	0.560	ug/l	20690.99
Be	9	45	1	No Gas	-0.063	ug/l	196.63
B	11	45	1	No Gas	2.518	ug/l	5062.22
Na	23	45	3	He	-8.561	ug/l	53742.14
Mg	24	45	3	He	-0.235	ug/l	1380.66
Al	27	45	1	No Gas	-0.080	ug/l	8549.14
Si	28	45	2	H2	-0.719	ug/l	14437.42
K	39	72	3	He	2.170	ug/l	112624.62
Ca	40	72	2	H2	-1.264	ug/l	150610.34
Ti	47	72	1	No Gas	-0.014	ug/l	265.27
V	51	72	1	No Gas	-1.036	ug/l	-48522.12
V	51	72	3	He	-1.074	ug/l	11134.26
Cr	52	72	1	No Gas	-0.417	ug/l	45810.75
Cr	52	72	3	He	-0.008	ug/l	986.71
Mn	55	72	1	No Gas	0.077	ug/l	6605.10
Mn	55	72	3	He	-0.003	ug/l	85.32
Fe	56	72	2	H2	0.050	ug/l	10303.99
Fe	56	72	3	He	0.214	ug/l	6601.50
Co	59	72	1	No Gas	0.000	ug/l	345.99
Ni	60	72	1	No Gas	-0.032	ug/l	1008.04
Ni	60	72	3	He	0.018	ug/l	196.67
Cu	63	72	1	No Gas	-0.087	ug/l	2338.47
Cu	63	72	3	He	-0.034	ug/l	418.26
Cu	65	72	1	No Gas	-0.041	ug/l	598.25
Zn	66	72	1	No Gas	-0.049	ug/l	571.25
Zn	66	72	3	He	-0.173	ug/l	132.22
As	75	72	1	No Gas	0.095	ug/l	11196.55
As	75	72	3	He	-0.054	ug/l	280.53
Se	78	72	2	H2	0.014	ug/l	35.44
Br	79	72	1	No Gas	0.134	ug/l	8715.38
Br	79	72	2	H2	0.039	ug/l	4688.14
Se	82	72	1	No Gas	0.180	ug/l	666.88
Kr	84	72	1	No Gas		ug/l	17948.90
Sr	88	72	1	No Gas	0.000	ug/l	392.56
Sr	88	72	3	He	0.000	ug/l	135.56
Mo	95	115	1	No Gas	0.038	ug/l	274.45
Mo	95	115	3	He	0.030	ug/l	90.00
Mo	98	115	1	No Gas	0.034	ug/l	408.41
Ag	107	115	1	No Gas	0.003	ug/l	108.71
Ag	109	115	1	No Gas	0.003	ug/l	104.04
Cd	111	115	1	No Gas	0.002	ug/l	14.99

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.002	ug/l	3.44
Cd	114	115	1	No Gas	0.004	ug/l	28.86
Cd	114	115	3	He	0.003	ug/l	7.56
Sn	118	115	1	No Gas	0.068	ug/l	1364.04
Sn	118	115	3	He	0.031	ug/l	345.56
Sb	121	115	1	No Gas	0.151	ug/l	3163.69
Sb	121	115	3	He	0.102	ug/l	738.09
Sb	123	115	1	No Gas	0.145	ug/l	2363.44
Sb	123	115	3	He	0.097	ug/l	557.40
Ba	135	115	1	No Gas	-0.003	ug/l	23.29
Ba	137	115	1	No Gas	0.002	ug/l	46.57
La	139	115	3	He	0.001	ug/l	16.67
Ce	140	115	3	He	0.000	ug/l	10.00
Hg	201	209	1	No Gas	-0.032	ug/l	135.97
Hg	202	209	1	No Gas	-0.031	ug/l	318.94
Hg	202	209	3	He	-0.046	ug/l	178.97
Tl	203	209	3	He	0.201	ug/l	1112.50
Tl	205	209	1	No Gas	0.129	ug/l	3618.32
Tl	205	209	3	He	0.213	ug/l	2760.74
[Pb]	206	209	1	No Gas	0.020	ug/l	318.90
[Pb]	207	209	1	No Gas	0.021	ug/l	287.78
Pb	208	209	1	No Gas	0.019	ug/l	1226.70
Th	232	209	3	He	0.045	ug/l	875.05
U	238	209	1	No Gas	0.002	ug/l	92.31

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3819890.45	96.4
Sc	45	2	H2	2254899.57	97.8
Sc	45	3	He	266158.45	96.1
Ge	72	1	No Gas	1019412.12	98.1
Ge	72	2	H2	789808.43	98.3
Ge	72	3	He	161683.64	97.3
In	115	1	No Gas	1076493.82	99.7
In	115	3	He	271567.49	97.9
Tb	159	1	No Gas	8183802.63	102.0
Tb	159	3	He	3639343.38	104.0
Ho	165	1	No Gas	7850962.30	101.9
Ho	165	3	He	3529731.77	104.6
Lu	175	1	No Gas	7410003.70	102.9
Lu	175	3	He	2880632.25	103.1
Bi	209	1	No Gas	4863740.03	103.5
Bi	209	3	He	2272953.99	104.1

# ICPMS207-B Analytical Data

**Sample Name** Rinse  
**File Name** 022BLKV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 14:13:42  
**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	0.142	ug/l	18055.92
Be	9	45	1	No Gas	-0.067	ug/l	185.96
B	11	45	1	No Gas	1.887	ug/l	3980.13
Na	23	45	3	He	-9.607	ug/l	52103.15
Mg	24	45	3	He	-0.361	ug/l	1307.46
Al	27	45	1	No Gas	-0.084	ug/l	8586.95
Si	28	45	2	H2	-1.333	ug/l	13311.93
K	39	72	3	He	-6.706	ug/l	107485.81
Ca	40	72	2	H2	-0.568	ug/l	151174.58
Ti	47	72	1	No Gas	-0.038	ug/l	221.89
V	51	72	1	No Gas	-0.480	ug/l	-35486.24
V	51	72	3	He	-1.528	ug/l	9408.62
Cr	52	72	1	No Gas	-0.534	ug/l	42997.64
Cr	52	72	3	He	0.010	ug/l	1044.49
Mn	55	72	1	No Gas	0.073	ug/l	6398.70
Mn	55	72	3	He	-0.002	ug/l	86.31
Fe	56	72	2	H2	0.025	ug/l	9656.25
Fe	56	72	3	He	0.044	ug/l	5943.86
Co	59	72	1	No Gas	-0.001	ug/l	319.37
Ni	60	72	1	No Gas	-0.036	ug/l	974.77
Ni	60	72	3	He	0.009	ug/l	181.11
Cu	63	72	1	No Gas	-0.107	ug/l	2074.99
Cu	63	72	3	He	-0.038	ug/l	395.93
Cu	65	72	1	No Gas	-0.033	ug/l	637.60
Zn	66	72	1	No Gas	-0.048	ug/l	568.01
Zn	66	72	3	He	-0.157	ug/l	145.56
As	75	72	1	No Gas	-0.371	ug/l	8594.46
As	75	72	3	He	-0.082	ug/l	253.27
Se	78	72	2	H2	0.003	ug/l	28.56
Br	79	72	1	No Gas	0.093	ug/l	8315.91
Br	79	72	2	H2	0.000	ug/l	4378.67
Se	82	72	1	No Gas	-0.066	ug/l	592.07
Kr	84	72	1	No Gas		ug/l	17379.35
Sr	88	72	1	No Gas	0.002	ug/l	435.81
Sr	88	72	3	He	0.003	ug/l	146.67
Mo	95	115	1	No Gas	0.007	ug/l	83.33
Mo	95	115	3	He	0.005	ug/l	32.22
Mo	98	115	1	No Gas	0.004	ug/l	107.29
Ag	107	115	1	No Gas	0.003	ug/l	110.71
Ag	109	115	1	No Gas	0.002	ug/l	94.70
Cd	111	115	1	No Gas	0.000	ug/l	7.07

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.002	ug/l	4.11
Cd	114	115	1	No Gas	0.001	ug/l	7.17
Cd	114	115	3	He	0.002	ug/l	5.02
Sn	118	115	1	No Gas	0.029	ug/l	974.77
Sn	118	115	3	He	-0.009	ug/l	225.56
Sb	121	115	1	No Gas	0.028	ug/l	1220.51
Sb	121	115	3	He	0.003	ug/l	272.70
Sb	123	115	1	No Gas	0.025	ug/l	895.12
Sb	123	115	3	He	0.003	ug/l	212.02
Ba	135	115	1	No Gas	-0.004	ug/l	19.96
Ba	137	115	1	No Gas	0.001	ug/l	46.57
La	139	115	3	He	0.000	ug/l	11.11
Ce	140	115	3	He	0.000	ug/l	11.11
Hg	201	209	1	No Gas	-0.036	ug/l	129.64
Hg	202	209	1	No Gas	-0.033	ug/l	312.28
Hg	202	209	3	He	-0.063	ug/l	138.64
Tl	203	209	3	He	0.109	ug/l	611.59
Tl	205	209	1	No Gas	0.066	ug/l	2009.06
Tl	205	209	3	He	0.109	ug/l	1425.32
[Pb]	206	209	1	No Gas	0.010	ug/l	234.45
[Pb]	207	209	1	No Gas	0.012	ug/l	213.34
Pb	208	209	1	No Gas	0.011	ug/l	954.47
Th	232	209	3	He	0.016	ug/l	379.49
U	238	209	1	No Gas	0.001	ug/l	43.66

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3851074.90	97.2
Sc	45	2	H2	2270077.50	98.4
Sc	45	3	He	261719.33	94.5
Ge	72	1	No Gas	1003536.70	96.6
Ge	72	2	H2	767355.54	95.5
Ge	72	3	He	159763.70	96.2
In	115	1	No Gas	1053869.52	97.6
In	115	3	He	263586.35	95.1
Tb	159	1	No Gas	8403689.96	104.8
Tb	159	3	He	3683580.66	105.2
Ho	165	1	No Gas	7878544.73	102.3
Ho	165	3	He	3479969.61	103.1
Lu	175	1	No Gas	7573247.98	105.2
Lu	175	3	He	2765118.07	99.0
Bi	209	1	No Gas	4906479.12	104.4
Bi	209	3	He	2177762.36	99.8

# ICPMS207-B Analytical Data

**Sample Name** LRB  
**File Name** 023MBLK.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 14:19:56  
**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	0.301	ug/l	17355.48
Be	9	45	1	No Gas	-0.055	ug/l	202.63
B	11	45	1	No Gas	0.954	ug/l	2098.33
Na	23	45	3	He	0.590	ug/l	55479.48
Mg	24	45	3	He	0.687	ug/l	1606.91
Al	27	45	1	No Gas	0.333	ug/l	13690.77
Si	28	45	2	H2	25.126	ug/l	60625.03
K	39	72	3	He	-5.393	ug/l	103025.15
Ca	40	72	2	H2	5.908	ug/l	184204.71
Ti	47	72	1	No Gas	-0.014	ug/l	238.58
V	51	72	1	No Gas	0.255	ug/l	-18414.27
V	51	72	3	He	-1.499	ug/l	9068.40
Cr	52	72	1	No Gas	-0.462	ug/l	40355.52
Cr	52	72	3	He	0.035	ug/l	1090.04
Mn	55	72	1	No Gas	0.085	ug/l	6099.18
Mn	55	72	3	He	0.008	ug/l	106.98
Fe	56	72	2	H2	0.349	ug/l	13364.90
Fe	56	72	3	He	0.339	ug/l	6626.52
Co	59	72	1	No Gas	0.001	ug/l	319.37
Ni	60	72	1	No Gas	-0.036	ug/l	888.27
Ni	60	72	3	He	0.021	ug/l	188.89
Cu	63	72	1	No Gas	-0.088	ug/l	2078.32
Cu	63	72	3	He	-0.028	ug/l	414.59
Cu	65	72	1	No Gas	-0.032	ug/l	584.92
Zn	66	72	1	No Gas	1.722	ug/l	6704.29
Zn	66	72	3	He	1.525	ug/l	1550.09
As	75	72	1	No Gas	0.665	ug/l	12794.32
As	75	72	3	He	-0.062	ug/l	257.73
Se	78	72	2	H2	0.004	ug/l	27.11
Br	79	72	1	No Gas	1.088	ug/l	14218.86
Br	79	72	2	H2	0.874	ug/l	7806.65
Se	82	72	1	No Gas	-0.064	ug/l	539.94
Kr	84	72	1	No Gas		ug/l	16739.97
Sr	88	72	1	No Gas	0.013	ug/l	705.29
Sr	88	72	3	He	0.007	ug/l	153.34
Mo	95	115	1	No Gas	0.001	ug/l	45.56
Mo	95	115	3	He	-0.002	ug/l	15.55
Mo	98	115	1	No Gas	0.002	ug/l	85.07
Ag	107	115	1	No Gas	0.002	ug/l	84.70
Ag	109	115	1	No Gas	0.000	ug/l	67.36
Cd	111	115	1	No Gas	0.004	ug/l	19.30

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.003	ug/l	4.22
Cd	114	115	1	No Gas	0.003	ug/l	20.13
Cd	114	115	3	He	0.002	ug/l	4.46
Sn	118	115	1	No Gas	0.061	ug/l	1201.02
Sn	118	115	3	He	0.044	ug/l	353.34
Sb	121	115	1	No Gas	-0.005	ug/l	670.75
Sb	121	115	3	He	-0.001	ug/l	242.03
Sb	123	115	1	No Gas	-0.003	ug/l	534.40
Sb	123	115	3	He	-0.003	ug/l	183.69
Ba	135	115	1	No Gas	0.073	ug/l	236.20
Ba	137	115	1	No Gas	0.054	ug/l	299.41
La	139	115	3	He	0.001	ug/l	21.11
Ce	140	115	3	He	0.001	ug/l	21.11
Hg	201	209	1	No Gas	-0.057	ug/l	83.31
Hg	202	209	1	No Gas	-0.053	ug/l	210.96
Hg	202	209	3	He	-0.074	ug/l	115.31
Tl	203	209	3	He	0.060	ug/l	354.81
Tl	205	209	1	No Gas	0.026	ug/l	902.26
Tl	205	209	3	He	0.064	ug/l	877.72
[Pb]	206	209	1	No Gas	0.015	ug/l	261.12
[Pb]	207	209	1	No Gas	0.015	ug/l	221.12
Pb	208	209	1	No Gas	0.014	ug/l	973.36
Th	232	209	3	He	0.009	ug/l	256.77
U	238	209	1	No Gas	0.001	ug/l	30.99

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3488607.61	88.0
Sc	45	2	H2	2083442.70	90.3
Sc	45	3	He	244840.67	88.4
Ge	72	1	No Gas	913240.00	87.9
Ge	72	2	H2	719782.33	89.5
Ge	72	3	He	152384.97	91.7
In	115	1	No Gas	989111.52	91.6
In	115	3	He	250768.99	90.4
Tb	159	1	No Gas	7564371.66	94.3
Tb	159	3	He	3435579.89	98.1
Ho	165	1	No Gas	7532162.84	97.8
Ho	165	3	He	3253938.98	96.4
Lu	175	1	No Gas	7181772.61	99.7
Lu	175	3	He	2620104.54	93.8
Bi	209	1	No Gas	4523370.64	96.2
Bi	209	3	He	2114383.92	96.9



# ICPMS207-B Analytical Data

**Sample Name** LFB  
**File Name** 024\_LFB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 14:26:10  
**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	2066.544	ug/l	13057806.16
Be	9	45	1	No Gas	44.639	ug/l	130763.06
B	11	45	1	No Gas	49.294	ug/l	81757.82
Na	23	45	3	He	48502.175	ug/l	34555867.26
Mg	24	45	3	He	48781.163	ug/l	19153277.90
Al	27	45	1	No Gas	50.921	ug/l	742041.45
Si	28	45	2	H2	220.688	ug/l	429831.31
K	39	72	3	He	47595.095	ug/l	21113469.55
Ca	40	72	2	H2	46755.894	ug/l	318689985.43
Ti	47	72	1	No Gas	53.183	ug/l	88709.87
V	51	72	1	No Gas	46.237	ug/l	932034.35
V	51	72	3	He	49.617	ug/l	193896.05
Cr	52	72	1	No Gas	50.373	ug/l	980468.57
Cr	52	72	3	He	49.446	ug/l	198312.81
Mn	55	72	1	No Gas	50.126	ug/l	1199208.28
Mn	55	72	3	He	51.286	ug/l	138020.01
Fe	56	72	2	H2	4756.566	ug/l	65375918.62
Fe	56	72	3	He	4967.228	ug/l	17266896.50
Co	59	72	1	No Gas	49.125	ug/l	1006698.01
Ni	60	72	1	No Gas	47.722	ug/l	224612.26
Ni	60	72	3	He	52.904	ug/l	75849.36
Cu	63	72	1	No Gas	49.498	ug/l	544432.27
Cu	63	72	3	He	53.452	ug/l	198693.40
Cu	65	72	1	No Gas	49.137	ug/l	263561.33
Zn	66	72	1	No Gas	50.202	ug/l	190335.11
Zn	66	72	3	He	53.456	ug/l	48354.77
As	75	72	1	No Gas	48.383	ug/l	259856.39
As	75	72	3	He	51.242	ug/l	46415.93
Se	78	72	2	H2	50.596	ug/l	26758.43
Br	79	72	1	No Gas	1.460	ug/l	18248.73
Br	79	72	2	H2	1.360	ug/l	10396.50
Se	82	72	1	No Gas	49.957	ug/l	14270.62
Kr	84	72	1	No Gas		ug/l	28865.10
Sr	88	72	1	No Gas	50.710	ug/l	1566797.58
Sr	88	72	3	He	51.331	ug/l	215071.76
Mo	95	115	1	No Gas	49.593	ug/l	287788.83
Mo	95	115	3	He	51.496	ug/l	114374.59
Mo	98	115	1	No Gas	49.488	ug/l	465886.49
Ag	107	115	1	No Gas	20.183	ug/l	300816.06
Ag	109	115	1	No Gas	20.034	ug/l	283723.86
Cd	111	115	1	No Gas	50.947	ug/l	165883.04

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.551	ug/l	60217.75
Cd	114	115	1	No Gas	50.510	ug/l	372520.08
Cd	114	115	3	He	52.474	ug/l	146215.52
Sn	118	115	1	No Gas	50.268	ug/l	454944.71
Sn	118	115	3	He	50.153	ug/l	137702.78
Sb	121	115	1	No Gas	50.444	ug/l	748784.91
Sb	121	115	3	He	50.060	ug/l	222754.98
Sb	123	115	1	No Gas	49.351	ug/l	567776.26
Sb	123	115	3	He	50.722	ug/l	176398.83
Ba	135	115	1	No Gas	49.859	ug/l	146004.58
Ba	137	115	1	No Gas	50.377	ug/l	254297.10
La	139	115	3	He	54.302	ug/l	815720.45
Ce	140	115	3	He	53.116	ug/l	852614.97
Hg	201	209	1	No Gas	1.020	ug/l	1892.43
Hg	202	209	1	No Gas	0.994	ug/l	4242.17
Hg	202	209	3	He	0.944	ug/l	2022.08
Tl	203	209	3	He	49.312	ug/l	237464.54
Tl	205	209	1	No Gas	50.976	ug/l	1177848.85
Tl	205	209	3	He	50.390	ug/l	567566.20
[Pb]	206	209	1	No Gas	50.483	ug/l	402491.33
[Pb]	207	209	1	No Gas	50.008	ug/l	350302.01
Pb	208	209	1	No Gas	50.391	ug/l	1613090.59
Th	232	209	3	He	50.660	ug/l	778232.77
U	238	209	1	No Gas	50.867	ug/l	1563214.45

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3647636.04	92.0
Sc	45	2	H2	2201308.35	95.5
Sc	45	3	He	271806.06	98.2
Ge	72	1	No Gas	1015906.61	97.7
Ge	72	2	H2	771777.99	96.0
Ge	72	3	He	168137.59	101.2
In	115	1	No Gas	1056410.38	97.8
In	115	3	He	270633.08	97.6
Tb	159	1	No Gas	8430951.70	105.1
Tb	159	3	He	3586273.75	102.4
Ho	165	1	No Gas	8022837.66	104.2
Ho	165	3	He	3537519.40	104.8
Lu	175	1	No Gas	7423327.08	103.1
Lu	175	3	He	2891228.99	103.5
Bi	209	1	No Gas	4480716.48	95.3
Bi	209	3	He	2166925.76	99.3

# ICPMS207-B Analytical Data

**Sample Name** ICSA  
**File Name** 025ICSA.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 14:32:25  
**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	1.200	ug/l	27122.31
Be	9	45	1	No Gas	-0.086	ug/l	134.64
B	11	45	1	No Gas	1.320	ug/l	3178.95
Na	23	45	3	He	102532.133	ug/l	75599706.10
Mg	24	45	3	He	42158.409	ug/l	17152439.11
Al	27	45	1	No Gas	40341.310	ug/l	675724909.93
Si	28	45	2	H2	1.800	ug/l	19169.42
K	39	72	3	He	40574.339	ug/l	18807027.36
Ca	40	72	2	H2	124646.013	ug/l	871928110.73
Ti	47	72	1	No Gas	826.889	ug/l	1501547.86
V	51	72	1	No Gas	1.671	ug/l	10571.88
V	51	72	3	He	-3.604	ug/l	2246.86
Cr	52	72	1	No Gas	0.732	ug/l	71563.04
Cr	52	72	3	He	1.872	ug/l	8870.50
Mn	55	72	1	No Gas	0.429	ug/l	16146.91
Mn	55	72	3	He	0.298	ug/l	934.51
Fe	56	72	2	H2	106168.233	ug/l	1497798425.66
Fe	56	72	3	He	107447.417	ug/l	390007066.66
Co	59	72	1	No Gas	0.199	ug/l	4807.95
Ni	60	72	1	No Gas	0.761	ug/l	5117.44
Ni	60	72	3	He	0.146	ug/l	398.89
Cu	63	72	1	No Gas	2.439	ug/l	32613.29
Cu	63	72	3	He	0.077	ug/l	867.19
Cu	65	72	1	No Gas	0.675	ug/l	4816.74
Zn	66	72	1	No Gas	2.383	ug/l	10634.01
Zn	66	72	3	He	1.849	ug/l	2037.93
As	75	72	1	No Gas	-0.149	ug/l	10480.31
As	75	72	3	He	-0.088	ug/l	264.60
Se	78	72	2	H2	0.179	ug/l	124.22
Br	79	72	1	No Gas	1.010	ug/l	16153.82
Br	79	72	2	H2	0.603	ug/l	7117.67
Se	82	72	1	No Gas	0.033	ug/l	665.01
Kr	84	72	1	No Gas		ug/l	19071.52
Sr	88	72	1	No Gas	1.085	ug/l	36987.92
Sr	88	72	3	He	1.097	ug/l	4938.67
Mo	95	115	1	No Gas	879.433	ug/l	5600048.15
Mo	95	115	3	He	851.424	ug/l	2059248.65
Mo	98	115	1	No Gas	865.346	ug/l	8940996.19
Ag	107	115	1	No Gas	0.016	ug/l	332.81
Ag	109	115	1	No Gas	0.018	ug/l	349.48
Cd	111	115	1	No Gas	0.036	ug/l	137.31

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.246	ug/l	314.56
Cd	114	115	1	No Gas	0.057	ug/l	460.50
Cd	114	115	3	He	0.187	ug/l	566.80
Sn	118	115	1	No Gas	0.445	ug/l	5164.07
Sn	118	115	3	He	0.414	ug/l	1510.09
Sb	121	115	1	No Gas	0.221	ug/l	4433.15
Sb	121	115	3	He	0.144	ug/l	980.80
Sb	123	115	1	No Gas	0.218	ug/l	3391.76
Sb	123	115	3	He	0.153	ug/l	798.43
Ba	135	115	1	No Gas	0.203	ug/l	685.33
Ba	137	115	1	No Gas	0.215	ug/l	1227.63
La	139	115	3	He	0.006	ug/l	110.00
Ce	140	115	3	He	0.010	ug/l	184.45
Hg	201	209	1	No Gas	-0.040	ug/l	126.31
Hg	202	209	1	No Gas	-0.039	ug/l	298.28
Hg	202	209	3	He	-0.071	ug/l	132.64
Tl	203	209	3	He	0.087	ug/l	540.23
Tl	205	209	1	No Gas	0.067	ug/l	2127.97
Tl	205	209	3	He	0.089	ug/l	1286.58
[Pb]	206	209	1	No Gas	0.056	ug/l	672.24
[Pb]	207	209	1	No Gas	0.047	ug/l	511.12
Pb	208	209	1	No Gas	0.051	ug/l	2465.66
Th	232	209	3	He	0.060	ug/l	1153.19
U	238	209	1	No Gas	0.023	ug/l	833.53

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	4122988.25	104.0
Sc	45	2	H2	2224811.85	96.5
Sc	45	3	He	273269.82	98.7
Ge	72	1	No Gas	1076777.46	103.6
Ge	72	2	H2	769028.90	95.7
Ge	72	3	He	170436.37	102.6
In	115	1	No Gas	1125667.11	104.3
In	115	3	He	286200.60	103.2
Tb	159	1	No Gas	9353001.73	116.6
Tb	159	3	He	4046269.75	115.6
Ho	165	1	No Gas	8941969.99	116.1
Ho	165	3	He	3945508.84	116.9
Lu	175	1	No Gas	8445118.67	117.3
Lu	175	3	He	3207489.90	114.8
Bi	209	1	No Gas	5089524.01	108.3
Bi	209	3	He	2345815.25	107.5

# ICPMS207-B Analytical Data

**Sample Name** ICSAB  
**File Name** 026ICSB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 14:38:42  
**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	0.603	ug/l	21272.71
Be	9	45	1	No Gas	-0.094	ug/l	101.31
B	11	45	1	No Gas	0.802	ug/l	2044.97
Na	23	45	3	He	100369.232	ug/l	69658997.29
Mg	24	45	3	He	41758.509	ug/l	15991964.61
Al	27	45	1	No Gas	38070.983	ug/l	597030986.66
Si	28	45	2	H2	0.723	ug/l	16338.13
K	39	72	3	He	38878.413	ug/l	17191676.69
Ca	40	72	2	H2	121192.468	ug/l	816324302.21
Ti	47	72	1	No Gas	786.893	ug/l	1357504.40
V	51	72	1	No Gas	22.042	ug/l	447978.71
V	51	72	3	He	16.229	ug/l	73174.98
Cr	52	72	1	No Gas	19.854	ug/l	433027.01
Cr	52	72	3	He	21.512	ug/l	86520.69
Mn	55	72	1	No Gas	20.655	ug/l	515438.15
Mn	55	72	3	He	20.701	ug/l	55539.30
Fe	56	72	2	H2	103121.164	ug/l	1400768265.59
Fe	56	72	3	He	104618.606	ug/l	362177538.12
Co	59	72	1	No Gas	19.757	ug/l	420005.56
Ni	60	72	1	No Gas	20.039	ug/l	98452.23
Ni	60	72	3	He	21.370	ug/l	30617.69
Cu	63	72	1	No Gas	22.032	ug/l	253155.93
Cu	63	72	3	He	21.443	ug/l	79717.29
Cu	65	72	1	No Gas	19.922	ug/l	111280.60
Zn	66	72	1	No Gas	11.785	ug/l	46921.67
Zn	66	72	3	He	11.413	ug/l	10506.08
As	75	72	1	No Gas	9.874	ug/l	63477.28
As	75	72	3	He	10.201	ug/l	9467.68
Se	78	72	2	H2	10.645	ug/l	5584.29
Br	79	72	1	No Gas	1.207	ug/l	16816.46
Br	79	72	2	H2	0.869	ug/l	8006.37
Se	82	72	1	No Gas	10.320	ug/l	3548.79
Kr	84	72	1	No Gas		ug/l	18635.21
Sr	88	72	1	No Gas	1.047	ug/l	33956.16
Sr	88	72	3	He	1.085	ug/l	4657.45
Mo	95	115	1	No Gas	851.327	ug/l	5114465.79
Mo	95	115	3	He	839.281	ug/l	1906024.55
Mo	98	115	1	No Gas	856.536	ug/l	8347734.25
Ag	107	115	1	No Gas	5.259	ug/l	81190.58
Ag	109	115	1	No Gas	5.190	ug/l	76190.50
Cd	111	115	1	No Gas	10.592	ug/l	35729.32

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	10.766	ug/l	12861.81
Cd	114	115	1	No Gas	10.513	ug/l	80310.18
Cd	114	115	3	He	10.876	ug/l	30997.19
Sn	118	115	1	No Gas	0.722	ug/l	7473.85
Sn	118	115	3	He	0.709	ug/l	2243.54
Sb	121	115	1	No Gas	0.101	ug/l	2362.11
Sb	121	115	3	He	0.100	ug/l	719.09
Sb	123	115	1	No Gas	0.099	ug/l	1794.63
Sb	123	115	3	He	0.101	ug/l	565.07
Ba	135	115	1	No Gas	0.181	ug/l	582.20
Ba	137	115	1	No Gas	0.171	ug/l	934.85
La	139	115	3	He	0.006	ug/l	103.33
Ce	140	115	3	He	0.009	ug/l	163.34
Hg	201	209	1	No Gas	-0.057	ug/l	89.31
Hg	202	209	1	No Gas	-0.059	ug/l	201.63
Hg	202	209	3	He	-0.078	ug/l	112.31
Tl	203	209	3	He	0.067	ug/l	409.51
Tl	205	209	1	No Gas	0.027	ug/l	983.38
Tl	205	209	3	He	0.065	ug/l	939.08
[Pb]	206	209	1	No Gas	0.053	ug/l	612.24
[Pb]	207	209	1	No Gas	0.049	ug/l	504.46
Pb	208	209	1	No Gas	0.050	ug/l	2317.87
Th	232	209	3	He	0.029	ug/l	590.25
U	238	209	1	No Gas	0.021	ug/l	726.21

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3861500.92	97.4
Sc	45	2	H2	2130160.89	92.4
Sc	45	3	He	257225.72	92.9
Ge	72	1	No Gas	1023328.99	98.5
Ge	72	2	H2	740465.00	92.1
Ge	72	3	He	162712.27	98.0
In	115	1	No Gas	1062635.55	98.4
In	115	3	He	268707.95	96.9
Tb	159	1	No Gas	8759823.99	109.2
Tb	159	3	He	3902721.62	111.5
Ho	165	1	No Gas	8522474.99	110.7
Ho	165	3	He	3778830.00	111.9
Lu	175	1	No Gas	8253670.78	114.6
Lu	175	3	He	3034889.29	108.6
Bi	209	1	No Gas	4859530.18	103.4
Bi	209	3	He	2219791.49	101.7

# ICPMS207-B Analytical Data

**Sample Name** Rinse  
**File Name** 027BLKV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 14:44:59  
**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	0.669	ug/l	21911.84
Be	9	45	1	No Gas	-0.083	ug/l	135.97
B	11	45	1	No Gas	0.918	ug/l	2272.42
Na	23	45	3	He	12.910	ug/l	68180.08
Mg	24	45	3	He	-0.748	ug/l	1161.08
Al	27	45	1	No Gas	0.132	ug/l	12088.25
Si	28	45	2	H2	-0.607	ug/l	14245.83
K	39	72	3	He	-8.498	ug/l	112631.29
Ca	40	72	2	H2	-0.881	ug/l	149790.10
Ti	47	72	1	No Gas	0.257	ug/l	727.42
V	51	72	1	No Gas	1.383	ug/l	3779.65
V	51	72	3	He	-3.416	ug/l	2919.20
Cr	52	72	1	No Gas	-1.611	ug/l	23002.54
Cr	52	72	3	He	-0.056	ug/l	830.03
Mn	55	72	1	No Gas	0.209	ug/l	9777.25
Mn	55	72	3	He	-0.002	ug/l	91.65
Fe	56	72	2	H2	1.165	ug/l	25848.66
Fe	56	72	3	He	0.898	ug/l	9340.72
Co	59	72	1	No Gas	0.001	ug/l	369.27
Ni	60	72	1	No Gas	-0.048	ug/l	924.87
Ni	60	72	3	He	-0.035	ug/l	126.67
Cu	63	72	1	No Gas	0.273	ug/l	6343.27
Cu	63	72	3	He	-0.050	ug/l	372.26
Cu	65	72	1	No Gas	-0.038	ug/l	611.60
Zn	66	72	1	No Gas	-0.030	ug/l	641.84
Zn	66	72	3	He	-0.161	ug/l	150.00
As	75	72	1	No Gas	0.168	ug/l	11572.22
As	75	72	3	He	-0.135	ug/l	217.53
Se	78	72	2	H2	0.019	ug/l	37.44
Br	79	72	1	No Gas	0.158	ug/l	8848.56
Br	79	72	2	H2	0.005	ug/l	4425.26
Se	82	72	1	No Gas	-0.208	ug/l	558.21
Kr	84	72	1	No Gas		ug/l	18225.52
Sr	88	72	1	No Gas	0.000	ug/l	399.22
Sr	88	72	3	He	-0.004	ug/l	124.45
Mo	95	115	1	No Gas	0.401	ug/l	2662.49
Mo	95	115	3	He	0.280	ug/l	694.47
Mo	98	115	1	No Gas	0.379	ug/l	4080.27
Ag	107	115	1	No Gas	0.002	ug/l	104.04
Ag	109	115	1	No Gas	0.002	ug/l	106.71
Cd	111	115	1	No Gas	-0.002	ug/l	-0.69

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.001	ug/l	2.78
Cd	114	115	1	No Gas	-0.001	ug/l	-11.78
Cd	114	115	3	He	0.002	ug/l	5.50
Sn	118	115	1	No Gas	0.017	ug/l	951.48
Sn	118	115	3	He	-0.002	ug/l	265.56
Sb	121	115	1	No Gas	0.051	ug/l	1725.28
Sb	121	115	3	He	0.047	ug/l	505.39
Sb	123	115	1	No Gas	0.051	ug/l	1328.87
Sb	123	115	3	He	0.044	ug/l	381.71
Ba	135	115	1	No Gas	-0.003	ug/l	26.61
Ba	137	115	1	No Gas	-0.003	ug/l	23.29
La	139	115	3	He	0.000	ug/l	10.00
Ce	140	115	3	He	0.000	ug/l	8.89
Hg	201	209	1	No Gas	-0.050	ug/l	113.31
Hg	202	209	1	No Gas	-0.049	ug/l	264.95
Hg	202	209	3	He	-0.059	ug/l	162.64
Tl	203	209	3	He	0.077	ug/l	498.21
Tl	205	209	1	No Gas	0.036	ug/l	1342.30
Tl	205	209	3	He	0.077	ug/l	1177.86
[Pb]	206	209	1	No Gas	0.004	ug/l	201.12
[Pb]	207	209	1	No Gas	0.006	ug/l	185.56
Pb	208	209	1	No Gas	0.006	ug/l	816.69
Th	232	209	3	He	0.011	ug/l	329.47
U	238	209	1	No Gas	0.000	ug/l	25.66

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3891771.32	98.2
Sc	45	2	H2	2191454.49	95.0
Sc	45	3	He	262415.59	94.8
Ge	72	1	No Gas	1011293.75	97.3
Ge	72	2	H2	771314.68	96.0
Ge	72	3	He	168636.19	101.5
In	115	1	No Gas	1155828.54	107.1
In	115	3	He	283497.06	102.2
Tb	159	1	No Gas	8893524.15	110.9
Tb	159	3	He	3804552.15	108.7
Ho	165	1	No Gas	8687885.81	112.8
Ho	165	3	He	3710570.33	109.9
Lu	175	1	No Gas	8288667.70	115.1
Lu	175	3	He	3131803.44	112.1
Bi	209	1	No Gas	5349774.60	113.8
Bi	209	3	He	2422921.17	111.0



# ICPMS207-B Analytical Data

**Sample Name** Rinse  
**File Name** 028BLKV.d  
**Data Path Name** D:\Agilent\ICPMH1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 14:51:12  
**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	0.594	ug/l	20597.47
Be	9	45	1	No Gas	-0.089	ug/l	111.98
B	11	45	1	No Gas	0.410	ug/l	1304.58
Na	23	45	3	He	10.879	ug/l	62127.41
Mg	24	45	3	He	-0.518	ug/l	1164.41
Al	27	45	1	No Gas	0.063	ug/l	10592.69
Si	28	45	2	H2	-2.062	ug/l	11213.39
K	39	72	3	He	-11.797	ug/l	103182.81
Ca	40	72	2	H2	-1.357	ug/l	146283.21
Ti	47	72	1	No Gas	0.030	ug/l	337.01
V	51	72	1	No Gas	1.301	ug/l	2108.55
V	51	72	3	He	-3.457	ug/l	2569.13
Cr	52	72	1	No Gas	-1.609	ug/l	22832.51
Cr	52	72	3	He	-0.031	ug/l	865.58
Mn	55	72	1	No Gas	0.174	ug/l	8838.48
Mn	55	72	3	He	-0.004	ug/l	79.65
Fe	56	72	2	H2	0.364	ug/l	14496.75
Fe	56	72	3	He	0.277	ug/l	6603.15
Co	59	72	1	No Gas	-0.004	ug/l	256.16
Ni	60	72	1	No Gas	-0.071	ug/l	808.42
Ni	60	72	3	He	-0.041	ug/l	108.89
Cu	63	72	1	No Gas	0.098	ug/l	4345.73
Cu	63	72	3	He	-0.050	ug/l	345.27
Cu	65	72	1	No Gas	-0.057	ug/l	505.55
Zn	66	72	1	No Gas	-0.016	ug/l	691.79
Zn	66	72	3	He	-0.121	ug/l	173.34
As	75	72	1	No Gas	0.234	ug/l	11745.53
As	75	72	3	He	-0.176	ug/l	166.60
Se	78	72	2	H2	-0.002	ug/l	25.89
Br	79	72	1	No Gas	-0.004	ug/l	7586.98
Br	79	72	2	H2	-0.019	ug/l	4312.11
Se	82	72	1	No Gas	0.002	ug/l	609.94
Kr	84	72	1	No Gas		ug/l	17755.84
Sr	88	72	1	No Gas	0.001	ug/l	405.87
Sr	88	72	3	He	-0.003	ug/l	121.11
Mo	95	115	1	No Gas	0.061	ug/l	437.79
Mo	95	115	3	He	0.053	ug/l	138.89
Mo	98	115	1	No Gas	0.052	ug/l	613.97
Ag	107	115	1	No Gas	0.002	ug/l	98.71
Ag	109	115	1	No Gas	0.001	ug/l	90.03
Cd	111	115	1	No Gas	-0.002	ug/l	1.02

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.001	ug/l	2.44
Cd	114	115	1	No Gas	-0.001	ug/l	-8.40
Cd	114	115	3	He	0.002	ug/l	5.70
Sn	118	115	1	No Gas	0.003	ug/l	791.79
Sn	118	115	3	He	-0.017	ug/l	204.45
Sb	121	115	1	No Gas	-0.002	ug/l	825.78
Sb	121	115	3	He	-0.009	ug/l	222.02
Sb	123	115	1	No Gas	-0.001	ug/l	639.75
Sb	123	115	3	He	-0.014	ug/l	154.02
Ba	135	115	1	No Gas	0.001	ug/l	39.92
Ba	137	115	1	No Gas	0.000	ug/l	39.92
La	139	115	3	He	0.000	ug/l	11.11
Ce	140	115	3	He	0.000	ug/l	13.33
Hg	201	209	1	No Gas	-0.057	ug/l	100.31
Hg	202	209	1	No Gas	-0.054	ug/l	245.28
Hg	202	209	3	He	-0.084	ug/l	107.31
Tl	203	209	3	He	0.033	ug/l	251.44
Tl	205	209	1	No Gas	0.015	ug/l	761.14
Tl	205	209	3	He	0.033	ug/l	581.58
[Pb]	206	209	1	No Gas	0.003	ug/l	191.11
[Pb]	207	209	1	No Gas	0.004	ug/l	164.45
Pb	208	209	1	No Gas	0.005	ug/l	808.90
Th	232	209	3	He	0.004	ug/l	192.75
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	3747888.75	94.6
Sc	45	2	H2	2146812.61	93.1
Sc	45	3	He	244279.28	88.2
Ge	72	1	No Gas	1001361.00	96.3
Ge	72	2	H2	770738.04	95.9
Ge	72	3	He	156656.90	94.3
In	115	1	No Gas	1138714.49	105.5
In	115	3	He	264340.97	95.3
Tb	159	1	No Gas	8835402.80	110.1
Tb	159	3	He	3701172.89	105.7
Ho	165	1	No Gas	8630412.50	112.1
Ho	165	3	He	3548593.18	105.1
Lu	175	1	No Gas	8383997.03	116.4
Lu	175	3	He	2909946.95	104.1
Bi	209	1	No Gas	5437464.37	115.7
Bi	209	3	He	2357366.22	108.0

# ICPMS207-B Analytical Data

**Sample Name** CCV  
**File Name** 029\_CCV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 14:57:25  
**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	479.451	ug/l	2821687.11
Be	9	45	1	No Gas	39.869	ug/l	108429.47
B	11	45	1	No Gas	43.334	ug/l	66765.22
Na	23	45	3	He	12773.064	ug/l	8083635.71
Mg	24	45	3	He	13199.133	ug/l	4583823.77
Al	27	45	1	No Gas	47.888	ug/l	647852.60
Si	28	45	2	H2	193.366	ug/l	359035.56
K	39	72	3	He	11397.500	ug/l	4824167.39
Ca	40	72	2	H2	11843.215	ug/l	78091432.02
Ti	47	72	1	No Gas	46.684	ug/l	73672.50
V	51	72	1	No Gas	46.051	ug/l	877895.58
V	51	72	3	He	46.425	ug/l	170816.34
Cr	52	72	1	No Gas	47.622	ug/l	877599.71
Cr	52	72	3	He	47.621	ug/l	179229.53
Mn	55	72	1	No Gas	51.854	ug/l	1173009.26
Mn	55	72	3	He	49.497	ug/l	125014.73
Fe	56	72	2	H2	1292.364	ug/l	17165008.36
Fe	56	72	3	He	1289.202	ug/l	4210631.05
Co	59	72	1	No Gas	48.650	ug/l	942708.67
Ni	60	72	1	No Gas	48.094	ug/l	214053.72
Ni	60	72	3	He	53.913	ug/l	72491.75
Cu	63	72	1	No Gas	51.160	ug/l	532042.75
Cu	63	72	3	He	53.829	ug/l	187798.39
Cu	65	72	1	No Gas	49.463	ug/l	250664.88
Zn	66	72	1	No Gas	52.676	ug/l	188643.64
Zn	66	72	3	He	51.709	ug/l	43891.92
As	75	72	1	No Gas	49.571	ug/l	251413.94
As	75	72	3	He	49.614	ug/l	42178.62
Se	78	72	2	H2	50.886	ug/l	25992.27
Br	79	72	1	No Gas	0.404	ug/l	9827.21
Br	79	72	2	H2	0.267	ug/l	5263.88
Se	82	72	1	No Gas	50.901	ug/l	13729.77
Kr	84	72	1	No Gas		ug/l	27041.89
Sr	88	72	1	No Gas	52.000	ug/l	1519809.87
Sr	88	72	3	He	50.365	ug/l	197986.19
Mo	95	115	1	No Gas	50.891	ug/l	291755.90
Mo	95	115	3	He	50.854	ug/l	108956.76
Mo	98	115	1	No Gas	50.014	ug/l	465006.05
Ag	107	115	1	No Gas	20.554	ug/l	302559.04
Ag	109	115	1	No Gas	20.731	ug/l	289973.47
Cd	111	115	1	No Gas	52.640	ug/l	169300.07

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.909	ug/l	58496.07
Cd	114	115	1	No Gas	52.024	ug/l	378978.75
Cd	114	115	3	He	52.980	ug/l	142436.03
Sn	118	115	1	No Gas	50.498	ug/l	451539.51
Sn	118	115	3	He	49.967	ug/l	132355.98
Sb	121	115	1	No Gas	52.199	ug/l	765375.89
Sb	121	115	3	He	49.794	ug/l	213796.16
Sb	123	115	1	No Gas	51.628	ug/l	586626.62
Sb	123	115	3	He	50.408	ug/l	169129.63
Ba	135	115	1	No Gas	51.998	ug/l	150382.03
Ba	137	115	1	No Gas	50.566	ug/l	252029.52
La	139	115	3	He	52.412	ug/l	759816.31
Ce	140	115	3	He	52.313	ug/l	810224.22
Hg	201	209	1	No Gas	0.925	ug/l	1930.42
Hg	202	209	1	No Gas	0.926	ug/l	4438.19
Hg	202	209	3	He	0.945	ug/l	2017.42
Tl	203	209	3	He	50.190	ug/l	241699.87
Tl	205	209	1	No Gas	48.894	ug/l	1261556.58
Tl	205	209	3	He	50.915	ug/l	573373.61
[Pb]	206	209	1	No Gas	47.624	ug/l	424159.35
[Pb]	207	209	1	No Gas	47.795	ug/l	373924.24
Pb	208	209	1	No Gas	48.169	ug/l	1722234.19
Th	232	209	3	He	51.233	ug/l	786915.59
U	238	209	1	No Gas	47.950	ug/l	1646447.09

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3287787.51	82.9
Sc	45	2	H2	2029374.06	88.0
Sc	45	3	He	233244.20	84.2
Ge	72	1	No Gas	933091.04	89.8
Ge	72	2	H2	723619.55	90.0
Ge	72	3	He	153211.39	92.2
In	115	1	No Gas	1012862.67	93.8
In	115	3	He	253503.15	91.4
Tb	159	1	No Gas	8220538.01	102.5
Tb	159	3	He	3399308.90	97.1
Ho	165	1	No Gas	7805777.12	101.4
Ho	165	3	He	3339601.83	98.9
Lu	175	1	No Gas	7572298.91	105.2
Lu	175	3	He	2692262.85	96.4
Bi	209	1	No Gas	4859136.41	103.4
Bi	209	3	He	2103997.17	96.4

# ICPMS207-B Analytical Data

**Sample Name** CCB  
**File Name** 030\_CCB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 15:03:40  
**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	1.264	ug/l	22823.51
Be	9	45	1	No Gas	-0.083	ug/l	119.31
B	11	45	1	No Gas	0.716	ug/l	1672.77
Na	23	45	3	He	16.822	ug/l	58978.22
Mg	24	45	3	He	0.245	ug/l	1287.50
Al	27	45	1	No Gas	0.150	ug/l	10850.62
Si	28	45	2	H2	-0.971	ug/l	12570.35
K	39	72	3	He	-24.875	ug/l	90729.66
Ca	40	72	2	H2	-1.021	ug/l	136542.48
Ti	47	72	1	No Gas	-0.002	ug/l	266.94
V	51	72	1	No Gas	0.523	ug/l	-13687.63
V	51	72	3	He	-2.898	ug/l	4177.29
Cr	52	72	1	No Gas	-1.263	ug/l	27701.37
Cr	52	72	3	He	-0.015	ug/l	862.25
Mn	55	72	1	No Gas	0.180	ug/l	8502.29
Mn	55	72	3	He	-0.006	ug/l	69.99
Fe	56	72	2	H2	0.265	ug/l	12020.35
Fe	56	72	3	He	0.220	ug/l	5955.56
Co	59	72	1	No Gas	0.001	ug/l	342.66
Ni	60	72	1	No Gas	-0.104	ug/l	615.46
Ni	60	72	3	He	-0.021	ug/l	126.67
Cu	63	72	1	No Gas	0.007	ug/l	3160.95
Cu	63	72	3	He	-0.045	ug/l	336.94
Cu	65	72	1	No Gas	-0.053	ug/l	498.21
Zn	66	72	1	No Gas	-0.048	ug/l	538.65
Zn	66	72	3	He	-0.120	ug/l	161.11
As	75	72	1	No Gas	-0.547	ug/l	7238.87
As	75	72	3	He	-0.154	ug/l	172.27
Se	78	72	2	H2	0.011	ug/l	30.45
Br	79	72	1	No Gas	0.093	ug/l	7839.95
Br	79	72	2	H2	0.026	ug/l	4145.72
Se	82	72	1	No Gas	0.410	ug/l	684.75
Kr	84	72	1	No Gas		ug/l	16403.58
Sr	88	72	1	No Gas	0.002	ug/l	422.50
Sr	88	72	3	He	-0.003	ug/l	108.89
Mo	95	115	1	No Gas	0.055	ug/l	383.34
Mo	95	115	3	He	0.043	ug/l	110.00
Mo	98	115	1	No Gas	0.051	ug/l	579.53
Ag	107	115	1	No Gas	0.004	ug/l	119.38
Ag	109	115	1	No Gas	0.002	ug/l	95.37
Cd	111	115	1	No Gas	0.003	ug/l	19.32

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.003	ug/l	4.22
Cd	114	115	1	No Gas	0.005	ug/l	31.74
Cd	114	115	3	He	0.002	ug/l	5.60
Sn	118	115	1	No Gas	0.053	ug/l	1244.26
Sn	118	115	3	He	0.033	ug/l	323.34
Sb	121	115	1	No Gas	0.133	ug/l	2915.60
Sb	121	115	3	He	0.091	ug/l	632.74
Sb	123	115	1	No Gas	0.133	ug/l	2251.08
Sb	123	115	3	He	0.087	ug/l	478.72
Ba	135	115	1	No Gas	0.000	ug/l	33.27
Ba	137	115	1	No Gas	0.001	ug/l	43.25
La	139	115	3	He	0.000	ug/l	4.44
Ce	140	115	3	He	0.000	ug/l	15.55
Hg	201	209	1	No Gas	-0.044	ug/l	122.98
Hg	202	209	1	No Gas	-0.045	ug/l	279.61
Hg	202	209	3	He	-0.057	ug/l	156.30
Tl	203	209	3	He	0.094	ug/l	557.57
Tl	205	209	1	No Gas	0.067	ug/l	2187.98
Tl	205	209	3	He	0.107	ug/l	1471.34
[Pb]	206	209	1	No Gas	0.006	ug/l	208.89
[Pb]	207	209	1	No Gas	0.009	ug/l	206.67
Pb	208	209	1	No Gas	0.009	ug/l	923.35
Th	232	209	3	He	0.036	ug/l	722.31
U	238	209	1	No Gas	0.002	ug/l	92.65

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3411899.78	86.1
Sc	45	2	H2	2033439.97	88.2
Sc	45	3	He	218219.40	78.8
Ge	72	1	No Gas	947322.13	91.1
Ge	72	2	H2	707728.06	88.0
Ge	72	3	He	145464.48	87.6
In	115	1	No Gas	1089442.41	100.9
In	115	3	He	249638.82	90.0
Tb	159	1	No Gas	8537362.17	106.4
Tb	159	3	He	3393928.23	97.0
Ho	165	1	No Gas	8346992.64	108.4
Ho	165	3	He	3381731.12	100.2
Lu	175	1	No Gas	7925731.39	110.1
Lu	175	3	He	2814090.01	100.7
Bi	209	1	No Gas	5240231.16	111.5
Bi	209	3	He	2269339.37	104.0

# ICPMS207-B Analytical Data

**Sample Name** MB-164029  
**File Name** 031ARef.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 15:09:55  
**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	2.138	ug/l	24239.59
Be	9	45	1	No Gas	-0.076	ug/l	118.64
B	11	45	1	No Gas	0.516	ug/l	1169.19
Na	23	45	3	He	57.712	ug/l	67581.88
Mg	24	45	3	He	1.960	ug/l	1500.44
Al	27	45	1	No Gas	1.790	ug/l	28899.04
Si	28	45	2	H2	17.468	ug/l	40679.50
K	39	72	3	He	-35.644	ug/l	72210.04
Ca	40	72	2	H2	7.949	ug/l	177837.30
Ti	47	72	1	No Gas	0.401	ug/l	837.54
V	51	72	1	No Gas	1.843	ug/l	11429.46
V	51	72	3	He	-2.710	ug/l	3995.03
Cr	52	72	1	No Gas	-0.883	ug/l	31614.89
Cr	52	72	3	He	0.071	ug/l	977.82
Mn	55	72	1	No Gas	0.801	ug/l	20860.17
Mn	55	72	3	He	0.039	ug/l	146.64
Fe	56	72	2	H2	1.160	ug/l	21644.43
Fe	56	72	3	He	1.258	ug/l	7664.75
Co	59	72	1	No Gas	0.041	ug/l	1031.33
Ni	60	72	1	No Gas	-0.034	ug/l	858.33
Ni	60	72	3	He	0.053	ug/l	183.34
Cu	63	72	1	No Gas	0.810	ug/l	10673.53
Cu	63	72	3	He	0.281	ug/l	1181.81
Cu	65	72	1	No Gas	0.239	ug/l	1835.52
Zn	66	72	1	No Gas	0.212	ug/l	1360.41
Zn	66	72	3	He	0.098	ug/l	281.12
As	75	72	1	No Gas	0.228	ug/l	10136.93
As	75	72	3	He	-0.087	ug/l	189.13
Se	78	72	2	H2	0.009	ug/l	26.78
Br	79	72	1	No Gas	0.609	ug/l	10509.71
Br	79	72	2	H2	0.613	ug/l	6029.33
Se	82	72	1	No Gas	0.225	ug/l	583.54
Kr	84	72	1	No Gas		ug/l	16083.88
Sr	88	72	1	No Gas	0.019	ug/l	838.37
Sr	88	72	3	He	0.014	ug/l	143.34
Mo	95	115	1	No Gas	0.054	ug/l	345.56
Mo	95	115	3	He	0.049	ug/l	106.67
Mo	98	115	1	No Gas	0.054	ug/l	560.64
Ag	107	115	1	No Gas	0.001	ug/l	72.69
Ag	109	115	1	No Gas	0.002	ug/l	84.03
Cd	111	115	1	No Gas	0.002	ug/l	12.94

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.001	ug/l	2.55
Cd	114	115	1	No Gas	0.001	ug/l	5.51
Cd	114	115	3	He	0.003	ug/l	6.48
Sn	118	115	1	No Gas	0.217	ug/l	2575.14
Sn	118	115	3	He	0.207	ug/l	677.80
Sb	121	115	1	No Gas	0.031	ug/l	1197.51
Sb	121	115	3	He	0.019	ug/l	284.70
Sb	123	115	1	No Gas	0.028	ug/l	881.45
Sb	123	115	3	He	0.020	ug/l	224.69
Ba	135	115	1	No Gas	0.165	ug/l	499.02
Ba	137	115	1	No Gas	0.182	ug/l	924.87
La	139	115	3	He	0.000	ug/l	10.00
Ce	140	115	3	He	0.001	ug/l	20.00
Hg	201	209	1	No Gas	-0.015	ug/l	169.30
Hg	202	209	1	No Gas	-0.017	ug/l	383.60
Hg	202	209	3	He	-0.033	ug/l	181.97
Tl	203	209	3	He	0.025	ug/l	179.41
Tl	205	209	1	No Gas	0.019	ug/l	786.70
Tl	205	209	3	He	0.024	ug/l	402.83
[Pb]	206	209	1	No Gas	0.021	ug/l	336.67
[Pb]	207	209	1	No Gas	0.022	ug/l	297.78
Pb	208	209	1	No Gas	0.023	ug/l	1393.37
Th	232	209	3	He	0.100	ug/l	1590.07
U	238	209	1	No Gas	0.001	ug/l	57.66

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2947492.59	74.4
Sc	45	2	H2	1817700.35	78.8
Sc	45	3	He	177617.18	64.1
Ge	72	1	No Gas	871158.14	83.8
Ge	72	2	H2	647742.55	80.6
Ge	72	3	He	121543.60	73.2
In	115	1	No Gas	995662.28	92.2
In	115	3	He	217832.94	78.6
Tb	159	1	No Gas	8037018.98	100.2
Tb	159	3	He	3062606.66	87.5
Ho	165	1	No Gas	7715861.69	100.2
Ho	165	3	He	3025888.88	89.6
Lu	175	1	No Gas	7392084.38	102.7
Lu	175	3	He	2469090.25	88.4
Bi	209	1	No Gas	4916151.82	104.6
Bi	209	3	He	2020661.66	92.6



# ICPMS207-B Analytical Data

**Sample Name** MB-164095  
**File Name** 032ARef.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 15:16:09  
**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	2.311	ug/l	23187.57
Be	9	45	1	No Gas	-0.065	ug/l	133.97
B	11	45	1	No Gas	0.457	ug/l	1001.11
Na	23	45	3	He	64.766	ug/l	66895.58
Mg	24	45	3	He	2.429	ug/l	1530.39
Al	27	45	1	No Gas	1.871	ug/l	27553.11
Si	28	45	2	H2	24.540	ug/l	49073.50
K	39	72	3	He	-54.668	ug/l	64115.38
Ca	40	72	2	H2	15.614	ug/l	213112.59
Ti	47	72	1	No Gas	0.338	ug/l	670.70
V	51	72	1	No Gas	2.476	ug/l	20734.85
V	51	72	3	He	-2.872	ug/l	3464.89
Cr	52	72	1	No Gas	-0.828	ug/l	29294.96
Cr	52	72	3	He	0.151	ug/l	1180.06
Mn	55	72	1	No Gas	0.789	ug/l	18581.58
Mn	55	72	3	He	0.042	ug/l	148.64
Fe	56	72	2	H2	1.844	ug/l	28456.30
Fe	56	72	3	He	1.775	ug/l	8743.12
Co	59	72	1	No Gas	0.029	ug/l	738.56
Ni	60	72	1	No Gas	0.023	ug/l	981.43
Ni	60	72	3	He	0.047	ug/l	173.34
Cu	63	72	1	No Gas	1.057	ug/l	11744.78
Cu	63	72	3	He	0.292	ug/l	1179.15
Cu	65	72	1	No Gas	0.253	ug/l	1711.46
Zn	66	72	1	No Gas	0.284	ug/l	1440.27
Zn	66	72	3	He	0.182	ug/l	326.67
As	75	72	1	No Gas	0.144	ug/l	8789.06
As	75	72	3	He	-0.095	ug/l	178.27
Se	78	72	2	H2	0.013	ug/l	27.67
Br	79	72	1	No Gas	0.894	ug/l	11115.64
Br	79	72	2	H2	0.677	ug/l	5992.73
Se	82	72	1	No Gas	0.092	ug/l	498.88
Kr	84	72	1	No Gas		ug/l	15394.44
Sr	88	72	1	No Gas	0.023	ug/l	851.68
Sr	88	72	3	He	0.016	ug/l	147.78
Mo	95	115	1	No Gas	0.349	ug/l	1905.70
Mo	95	115	3	He	0.388	ug/l	701.13
Mo	98	115	1	No Gas	0.354	ug/l	3129.39
Ag	107	115	1	No Gas	0.001	ug/l	70.70
Ag	109	115	1	No Gas	0.000	ug/l	63.36
Cd	111	115	1	No Gas	0.001	ug/l	11.11

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.000	ug/l	1.11
Cd	114	115	1	No Gas	0.003	ug/l	15.03
Cd	114	115	3	He	0.001	ug/l	1.88
Sn	118	115	1	No Gas	0.194	ug/l	2245.77
Sn	118	115	3	He	0.179	ug/l	588.90
Sb	121	115	1	No Gas	0.034	ug/l	1174.84
Sb	121	115	3	He	0.042	ug/l	355.04
Sb	123	115	1	No Gas	0.033	ug/l	890.45
Sb	123	115	3	He	0.033	ug/l	249.70
Ba	135	115	1	No Gas	0.027	ug/l	99.80
Ba	137	115	1	No Gas	0.026	ug/l	156.36
La	139	115	3	He	0.023	ug/l	276.67
Ce	140	115	3	He	0.002	ug/l	38.89
Hg	201	209	1	No Gas	0.038	ug/l	255.62
Hg	202	209	1	No Gas	0.031	ug/l	558.57
Hg	202	209	3	He	0.095	ug/l	392.26
Tl	203	209	3	He	0.031	ug/l	196.08
Tl	205	209	1	No Gas	0.014	ug/l	616.69
Tl	205	209	3	He	0.030	ug/l	447.52
[Pb]	206	209	1	No Gas	0.024	ug/l	340.01
[Pb]	207	209	1	No Gas	0.023	ug/l	284.45
Pb	208	209	1	No Gas	0.024	ug/l	1346.71
Th	232	209	3	He	0.069	ug/l	1069.81
U	238	209	1	No Gas	0.001	ug/l	34.99

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2709187.27	68.3
Sc	45	2	H2	1716178.24	74.4
Sc	45	3	He	167563.96	60.5
Ge	72	1	No Gas	784700.03	75.5
Ge	72	2	H2	619217.75	77.0
Ge	72	3	He	118160.43	71.1
In	115	1	No Gas	945307.16	87.6
In	115	3	He	208410.81	75.2
Tb	159	1	No Gas	7491104.12	93.4
Tb	159	3	He	3097037.09	88.5
Ho	165	1	No Gas	7191766.36	93.4
Ho	165	3	He	2996344.73	88.8
Lu	175	1	No Gas	7120281.75	98.9
Lu	175	3	He	2418747.77	86.6
Bi	209	1	No Gas	4632003.97	98.5
Bi	209	3	He	1925149.34	88.2

# ICPMS207-B Analytical Data

**Sample Name** LCS4-164029  
**File Name** 033LCS4.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 15:22:24  
**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	58.712	ug/l	297108.30
Be	9	45	1	No Gas	30.127	ug/l	67994.10
B	11	45	1	No Gas	68.463	ug/l	87174.53
Na	23	45	3	He	4981.781	ug/l	2337809.10
Mg	24	45	3	He	4820.792	ug/l	1229418.93
Al	27	45	1	No Gas	395.095	ug/l	4387530.98
Si	28	45	2	H2	943.962	ug/l	1436799.23
K	39	72	3	He	4122.616	ug/l	1444689.77
Ca	40	72	2	H2	4481.690	ug/l	26866530.79
Ti	47	72	1	No Gas	83.614	ug/l	117621.10
V	51	72	1	No Gas	82.259	ug/l	1415832.64
V	51	72	3	He	88.970	ug/l	250521.90
Cr	52	72	1	No Gas	84.671	ug/l	1358943.87
Cr	52	72	3	He	95.787	ug/l	286661.53
Mn	55	72	1	No Gas	482.663	ug/l	9722385.48
Mn	55	72	3	He	476.546	ug/l	958652.10
Fe	56	72	2	H2	484.890	ug/l	5841201.67
Fe	56	72	3	He	501.442	ug/l	1308231.14
Co	59	72	1	No Gas	94.004	ug/l	1625391.78
Ni	60	72	1	No Gas	89.812	ug/l	355762.12
Ni	60	72	3	He	106.535	ug/l	114092.16
Cu	63	72	1	No Gas	97.830	ug/l	905810.38
Cu	63	72	3	He	111.146	ug/l	308652.19
Cu	65	72	1	No Gas	95.262	ug/l	430540.36
Zn	66	72	1	No Gas	97.554	ug/l	311655.96
Zn	66	72	3	He	100.127	ug/l	67555.27
As	75	72	1	No Gas	95.266	ug/l	423106.46
As	75	72	3	He	98.469	ug/l	66489.04
Se	78	72	2	H2	98.081	ug/l	45376.87
Br	79	72	1	No Gas	0.655	ug/l	10323.24
Br	79	72	2	H2	0.662	ug/l	6295.55
Se	82	72	1	No Gas	105.554	ug/l	24868.24
Kr	84	72	1	No Gas		ug/l	33923.10
Sr	88	72	1	No Gas	107.330	ug/l	2798193.50
Sr	88	72	3	He	103.061	ug/l	322806.12
Mo	95	115	1	No Gas	92.849	ug/l	531787.15
Mo	95	115	3	He	101.843	ug/l	187103.84
Mo	98	115	1	No Gas	92.189	ug/l	855179.75
Ag	107	115	1	No Gas	9.488	ug/l	139542.15
Ag	109	115	1	No Gas	9.440	ug/l	131982.45
Cd	111	115	1	No Gas	48.338	ug/l	155219.76

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	52.289	ug/l	50538.91
Cd	114	115	1	No Gas	47.831	ug/l	347775.82
Cd	114	115	3	He	53.573	ug/l	123542.16
Sn	118	115	1	No Gas	101.156	ug/l	903172.90
Sn	118	115	3	He	104.675	ug/l	237614.39
Sb	121	115	1	No Gas	98.112	ug/l	1436068.56
Sb	121	115	3	He	102.013	ug/l	375351.25
Sb	123	115	1	No Gas	98.680	ug/l	1119435.18
Sb	123	115	3	He	104.191	ug/l	299615.91
Ba	135	115	1	No Gas	93.679	ug/l	270581.68
Ba	137	115	1	No Gas	90.951	ug/l	452152.01
La	139	115	3	He	110.401	ug/l	1372543.08
Ce	140	115	3	He	110.861	ug/l	1472502.01
Hg	201	209	1	No Gas	0.113	ug/l	399.26
Hg	202	209	1	No Gas	0.128	ug/l	981.18
Hg	202	209	3	He	0.204	ug/l	601.56
Tl	203	209	3	He	101.153	ug/l	463229.43
Tl	205	209	1	No Gas	99.698	ug/l	2537216.06
Tl	205	209	3	He	102.844	ug/l	1101356.79
[Pb]	206	209	1	No Gas	98.080	ug/l	859347.18
[Pb]	207	209	1	No Gas	96.287	ug/l	743932.50
Pb	208	209	1	No Gas	97.457	ug/l	3434257.26
Th	232	209	3	He	99.561	ug/l	1454278.81
U	238	209	1	No Gas	98.533	ug/l	3333206.63

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2731135.07	68.9
Sc	45	2	H2	1717851.14	74.5
Sc	45	3	He	171204.41	61.8
Ge	72	1	No Gas	833112.99	80.2
Ge	72	2	H2	655881.44	81.6
Ge	72	3	He	122104.65	73.5
In	115	1	No Gas	1017546.99	94.2
In	115	3	He	217480.04	78.4
Tb	159	1	No Gas	8023240.72	100.0
Tb	159	3	He	3156782.71	90.2
Ho	165	1	No Gas	7774499.17	101.0
Ho	165	3	He	3034842.84	89.9
Lu	175	1	No Gas	7570906.79	105.2
Lu	175	3	He	2437385.89	87.2
Bi	209	1	No Gas	4816743.46	102.5
Bi	209	3	He	2001030.63	91.7

# ICPMS207-B Analytical Data

**Sample Name** LCS4-164095  
**File Name** 034LCS4.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 15:28:37  
**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	58.805	ug/l	303735.63
Be	9	45	1	No Gas	31.476	ug/l	72479.43
B	11	45	1	No Gas	69.203	ug/l	89930.19
Na	23	45	3	He	4917.632	ug/l	2323641.37
Mg	24	45	3	He	4909.869	ug/l	1260892.32
Al	27	45	1	No Gas	407.264	ug/l	4609103.99
Si	28	45	2	H2	952.361	ug/l	1459170.31
K	39	72	3	He	4055.594	ug/l	1437481.95
Ca	40	72	2	H2	4447.189	ug/l	26337751.62
Ti	47	72	1	No Gas	80.969	ug/l	118589.14
V	51	72	1	No Gas	81.458	ug/l	1459761.66
V	51	72	3	He	90.036	ug/l	255991.14
Cr	52	72	1	No Gas	87.297	ug/l	1456746.62
Cr	52	72	3	He	92.880	ug/l	280874.35
Mn	55	72	1	No Gas	457.105	ug/l	9584966.46
Mn	55	72	3	He	478.534	ug/l	972730.96
Fe	56	72	2	H2	494.892	ug/l	5889748.19
Fe	56	72	3	He	490.969	ug/l	1294580.42
Co	59	72	1	No Gas	90.977	ug/l	1638521.25
Ni	60	72	1	No Gas	90.929	ug/l	375090.05
Ni	60	72	3	He	108.179	ug/l	117073.74
Cu	63	72	1	No Gas	96.422	ug/l	929297.06
Cu	63	72	3	He	110.419	ug/l	309835.83
Cu	65	72	1	No Gas	94.250	ug/l	443668.31
Zn	66	72	1	No Gas	95.073	ug/l	316190.18
Zn	66	72	3	He	100.031	ug/l	68201.05
As	75	72	1	No Gas	95.469	ug/l	441370.40
As	75	72	3	He	98.295	ug/l	67070.58
Se	78	72	2	H2	100.934	ug/l	46127.10
Br	79	72	1	No Gas	0.586	ug/l	10316.60
Br	79	72	2	H2	0.761	ug/l	6601.75
Se	82	72	1	No Gas	100.919	ug/l	24766.56
Kr	84	72	1	No Gas		ug/l	33966.21
Sr	88	72	1	No Gas	107.473	ug/l	2918407.40
Sr	88	72	3	He	101.626	ug/l	321670.59
Mo	95	115	1	No Gas	92.461	ug/l	539755.28
Mo	95	115	3	He	102.614	ug/l	191749.54
Mo	98	115	1	No Gas	94.971	ug/l	899225.39
Ag	107	115	1	No Gas	9.350	ug/l	140213.39
Ag	109	115	1	No Gas	9.410	ug/l	134094.96
Cd	111	115	1	No Gas	48.899	ug/l	160192.78

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.790	ug/l	50895.56
Cd	114	115	1	No Gas	48.425	ug/l	359321.46
Cd	114	115	3	He	53.026	ug/l	124324.42
Sn	118	115	1	No Gas	104.979	ug/l	955350.29
Sn	118	115	3	He	101.330	ug/l	233867.12
Sb	121	115	1	No Gas	99.586	ug/l	1486525.48
Sb	121	115	3	He	100.881	ug/l	377450.33
Sb	123	115	1	No Gas	102.104	ug/l	1181275.18
Sb	123	115	3	He	105.118	ug/l	307379.69
Ba	135	115	1	No Gas	94.191	ug/l	277407.25
Ba	137	115	1	No Gas	95.149	ug/l	483175.52
La	139	115	3	He	109.267	ug/l	1381093.28
Ce	140	115	3	He	106.998	ug/l	1444892.50
Hg	201	209	1	No Gas	0.022	ug/l	237.62
Hg	202	209	1	No Gas	0.024	ug/l	557.90
Hg	202	209	3	He	0.002	ug/l	246.29
Tl	203	209	3	He	101.380	ug/l	470955.35
Tl	205	209	1	No Gas	100.561	ug/l	2598435.01
Tl	205	209	3	He	104.134	ug/l	1130874.93
[Pb]	206	209	1	No Gas	99.555	ug/l	888476.73
[Pb]	207	209	1	No Gas	99.351	ug/l	778105.96
Pb	208	209	1	No Gas	99.738	ug/l	3572856.78
Th	232	209	3	He	100.476	ug/l	1488497.55
U	238	209	1	No Gas	102.490	ug/l	3523808.04

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2781571.59	70.2
Sc	45	2	H2	1729386.82	75.0
Sc	45	3	He	172359.95	62.2
Ge	72	1	No Gas	867261.79	83.4
Ge	72	2	H2	647818.43	80.6
Ge	72	3	He	123391.37	74.3
In	115	1	No Gas	1031828.20	95.6
In	115	3	He	221057.59	79.7
Tb	159	1	No Gas	8224810.72	102.5
Tb	159	3	He	3237612.27	92.5
Ho	165	1	No Gas	7632334.83	99.1
Ho	165	3	He	3159124.30	93.6
Lu	175	1	No Gas	7524579.00	104.5
Lu	175	3	He	2463414.63	88.2
Bi	209	1	No Gas	4869056.72	103.6
Bi	209	3	He	2031311.88	93.1

# ICPMS207-B Analytical Data

**Sample Name** Rinse  
**File Name** 035BLKV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 15:34:50  
**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	1.223	ug/l	19176.40
Be	9	45	1	No Gas	-0.071	ug/l	130.31
B	11	45	1	No Gas	0.452	ug/l	1066.47
Na	23	45	3	He	21.802	ug/l	54243.81
Mg	24	45	3	He	1.482	ug/l	1480.48
Al	27	45	1	No Gas	0.379	ug/l	11918.13
Si	28	45	2	H2	-0.920	ug/l	11477.71
K	39	72	3	He	-53.261	ug/l	71757.45
Ca	40	72	2	H2	-2.411	ug/l	123276.14
Ti	47	72	1	No Gas	-0.063	ug/l	156.83
V	51	72	1	No Gas	1.077	ug/l	-2401.31
V	51	72	3	He	-2.961	ug/l	3583.80
Cr	52	72	1	No Gas	-1.336	ug/l	24518.62
Cr	52	72	3	He	0.025	ug/l	904.48
Mn	55	72	1	No Gas	0.133	ug/l	6891.28
Mn	55	72	3	He	0.008	ug/l	91.65
Fe	56	72	2	H2	0.152	ug/l	10192.14
Fe	56	72	3	He	0.055	ug/l	4905.77
Co	59	72	1	No Gas	0.004	ug/l	369.27
Ni	60	72	1	No Gas	-0.125	ug/l	485.71
Ni	60	72	3	He	-0.008	ug/l	130.00
Cu	63	72	1	No Gas	-0.100	ug/l	1882.88
Cu	63	72	3	He	-0.030	ug/l	350.60
Cu	65	72	1	No Gas	-0.048	ug/l	484.20
Zn	66	72	1	No Gas	0.004	ug/l	671.75
Zn	66	72	3	He	-0.124	ug/l	143.34
As	75	72	1	No Gas	-0.289	ug/l	7909.80
As	75	72	3	He	-0.172	ug/l	142.73
Se	78	72	2	H2	0.001	ug/l	24.56
Br	79	72	1	No Gas	-0.067	ug/l	6245.67
Br	79	72	2	H2	-0.112	ug/l	3450.26
Se	82	72	1	No Gas	0.049	ug/l	546.48
Kr	84	72	1	No Gas		ug/l	15567.63
Sr	88	72	1	No Gas	-0.002	ug/l	292.76
Sr	88	72	3	He	0.002	ug/l	115.56
Mo	95	115	1	No Gas	0.030	ug/l	218.89
Mo	95	115	3	He	0.021	ug/l	60.00
Mo	98	115	1	No Gas	0.025	ug/l	312.23
Ag	107	115	1	No Gas	0.002	ug/l	94.04
Ag	109	115	1	No Gas	0.001	ug/l	74.70
Cd	111	115	1	No Gas	0.000	ug/l	6.26

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.002	ug/l	3.11
Cd	114	115	1	No Gas	0.002	ug/l	12.17
Cd	114	115	3	He	0.003	ug/l	6.70
Sn	118	115	1	No Gas	0.020	ug/l	881.62
Sn	118	115	3	He	0.000	ug/l	221.11
Sb	121	115	1	No Gas	0.247	ug/l	4485.52
Sb	121	115	3	He	0.174	ug/l	906.79
Sb	123	115	1	No Gas	0.240	ug/l	3384.76
Sb	123	115	3	He	0.171	ug/l	699.76
Ba	135	115	1	No Gas	-0.005	ug/l	16.63
Ba	137	115	1	No Gas	0.002	ug/l	46.57
La	139	115	3	He	0.000	ug/l	13.33
Ce	140	115	3	He	0.000	ug/l	12.22
Hg	201	209	1	No Gas	-0.030	ug/l	151.30
Hg	202	209	1	No Gas	-0.028	ug/l	357.27
Hg	202	209	3	He	-0.031	ug/l	201.96
Tl	203	209	3	He	0.213	ug/l	1134.51
Tl	205	209	1	No Gas	0.165	ug/l	4897.65
Tl	205	209	3	He	0.224	ug/l	2788.09
[Pb]	206	209	1	No Gas	0.014	ug/l	287.78
[Pb]	207	209	1	No Gas	0.020	ug/l	293.34
Pb	208	209	1	No Gas	0.016	ug/l	1197.81
Th	232	209	3	He	0.070	ug/l	1235.89
U	238	209	1	No Gas	0.003	ug/l	113.65

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2900299.45	73.2
Sc	45	2	H2	1843221.02	79.9
Sc	45	3	He	191154.34	69.0
Ge	72	1	No Gas	879202.16	84.6
Ge	72	2	H2	683828.48	85.1
Ge	72	3	He	131199.03	79.0
In	115	1	No Gas	1037414.64	96.1
In	115	3	He	231070.00	83.3
Tb	159	1	No Gas	8349281.23	104.1
Tb	159	3	He	3356105.60	95.9
Ho	165	1	No Gas	7987529.23	103.7
Ho	165	3	He	3319766.89	98.3
Lu	175	1	No Gas	7737740.59	107.5
Lu	175	3	He	2650540.11	94.9
Bi	209	1	No Gas	5208653.08	110.8
Bi	209	3	He	2196193.77	100.6



# ICPMS207-B Analytical Data

**Sample Name** B22021627-001A  
**File Name** 036SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 15:41:04  
**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	-0.092	ug/l	16356.66
Be	9	45	1	No Gas	-0.092	ug/l	105.31
B	11	45	1	No Gas	46.755	ug/l	83782.48
Na	23	45	3	He	50130.758	ug/l	33720561.72
Mg	24	45	3	He	21051.555	ug/l	7807785.83
Al	27	45	1	No Gas	1.927	ug/l	39853.91
Si	28	45	2	H2	20263.554	ug/l	38754621.62
K	39	72	3	He	2544.082	ug/l	1209974.29
Ca	40	72	2	H2	20406.847	ug/l	141320800.82
Ti	47	72	1	No Gas	1.390	ug/l	2669.61
V	51	72	1	No Gas	15.836	ug/l	311579.36
V	51	72	3	He	11.759	ug/l	56205.22
Cr	52	72	1	No Gas	0.483	ug/l	62675.91
Cr	52	72	3	He	1.933	ug/l	8560.31
Mn	55	72	1	No Gas	1.479	ug/l	40972.75
Mn	55	72	3	He	1.476	ug/l	3979.75
Fe	56	72	2	H2	2.648	ug/l	46173.38
Fe	56	72	3	He	2.253	ug/l	13469.82
Co	59	72	1	No Gas	0.037	ug/l	1117.83
Ni	60	72	1	No Gas	0.153	ug/l	1899.70
Ni	60	72	3	He	0.206	ug/l	456.68
Cu	63	72	1	No Gas	0.327	ug/l	6973.14
Cu	63	72	3	He	0.175	ug/l	1169.81
Cu	65	72	1	No Gas	0.219	ug/l	2026.29
Zn	66	72	1	No Gas	3.862	ug/l	15764.17
Zn	66	72	3	He	3.829	ug/l	3653.81
As	75	72	1	No Gas	-0.123	ug/l	10016.96
As	75	72	3	He	-0.226	ug/l	126.27
Se	78	72	2	H2	0.291	ug/l	182.89
Br	79	72	1	No Gas	39.289	ug/l	299344.10
Br	79	72	2	H2	38.356	ug/l	175939.47
Se	82	72	1	No Gas	1.289	ug/l	979.56
Kr	84	72	1	No Gas		ug/l	49450.09
Sr	88	72	1	No Gas	169.067	ug/l	5369293.68
Sr	88	72	3	He	163.494	ug/l	670371.71
Mo	95	115	1	No Gas	0.313	ug/l	2043.50
Mo	95	115	3	He	0.307	ug/l	718.91
Mo	98	115	1	No Gas	0.301	ug/l	3191.00
Ag	107	115	1	No Gas	0.002	ug/l	91.37
Ag	109	115	1	No Gas	0.001	ug/l	83.37
Cd	111	115	1	No Gas	0.007	ug/l	35.01

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.012	ug/l	15.78
Cd	114	115	1	No Gas	0.009	ug/l	69.59
Cd	114	115	3	He	0.012	ug/l	32.65
Sn	118	115	1	No Gas	-0.034	ug/l	422.50
Sn	118	115	3	He	-0.055	ug/l	103.33
Sb	121	115	1	No Gas	0.218	ug/l	4422.48
Sb	121	115	3	He	0.205	ug/l	1201.17
Sb	123	115	1	No Gas	0.214	ug/l	3359.08
Sb	123	115	3	He	0.222	ug/l	997.14
Ba	135	115	1	No Gas	8.214	ug/l	26539.69
Ba	137	115	1	No Gas	8.131	ug/l	45237.54
La	139	115	3	He	0.000	ug/l	14.44
Ce	140	115	3	He	0.002	ug/l	43.33
Hg	201	209	1	No Gas	-0.013	ug/l	192.96
Hg	202	209	1	No Gas	-0.012	ug/l	448.25
Hg	202	209	3	He	0.005	ug/l	296.28
Tl	203	209	3	He	0.128	ug/l	773.00
Tl	205	209	1	No Gas	0.077	ug/l	2545.83
Tl	205	209	3	He	0.131	ug/l	1853.55
[Pb]	206	209	1	No Gas	0.037	ug/l	531.12
[Pb]	207	209	1	No Gas	0.033	ug/l	421.12
Pb	208	209	1	No Gas	0.037	ug/l	2080.08
Th	232	209	3	He	0.014	ug/l	373.49
U	238	209	1	No Gas	0.027	ug/l	1058.17

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3827140.50	96.6
Sc	45	2	H2	2176113.42	94.4
Sc	45	3	He	249177.52	90.0
Ge	72	1	No Gas	1014658.48	97.6
Ge	72	2	H2	760487.25	94.6
Ge	72	3	He	159902.00	96.3
In	115	1	No Gas	1129898.20	104.6
In	115	3	He	269142.29	97.1
Tb	159	1	No Gas	9160217.81	114.2
Tb	159	3	He	3795415.41	108.4
Ho	165	1	No Gas	8764565.82	113.8
Ho	165	3	He	3750021.90	111.1
Lu	175	1	No Gas	8596522.89	119.4
Lu	175	3	He	2972585.50	106.4
Bi	209	1	No Gas	5440022.21	115.7
Bi	209	3	He	2394306.14	109.7

# ICPMS207-B Analytical Data

**Sample Name** B22021627-001ADIL  
**File Name** 037ARef.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 15:47:18  
**Sample Type** AIRRef  
**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	5.972	ug/l	20018.49
Be	9	45	1	No Gas	-0.417	ug/l	105.31
B	11	45	1	No Gas	47.509	ug/l	13960.83
Na	23	45	3	He	49857.837	ug/l	5394584.99
Mg	24	45	3	He	21474.930	ug/l	1273050.22
Al	27	45	1	No Gas	11.057	ug/l	35230.12
Si	28	45	2	H2	20121.984	ug/l	6766518.37
K	39	72	3	He	2106.872	ug/l	253982.94
Ca	40	72	2	H2	20510.427	ug/l	25688621.88
Ti	47	72	1	No Gas	1.427	ug/l	682.37
V	51	72	1	No Gas	17.537	ug/l	42795.98
V	51	72	3	He	6.683	ug/l	16920.99
Cr	52	72	1	No Gas	-2.453	ug/l	38887.77
Cr	52	72	3	He	2.081	ug/l	2285.75
Mn	55	72	1	No Gas	2.318	ug/l	14095.50
Mn	55	72	3	He	1.584	ug/l	803.53
Fe	56	72	2	H2	4.099	ug/l	18600.54
Fe	56	72	3	He	3.374	ug/l	7032.12
Co	59	72	1	No Gas	0.032	ug/l	415.85
Ni	60	72	1	No Gas	-0.001	ug/l	1018.02
Ni	60	72	3	He	0.444	ug/l	254.45
Cu	63	72	1	No Gas	0.236	ug/l	3363.08
Cu	63	72	3	He	0.482	ug/l	769.20
Cu	65	72	1	No Gas	0.540	ug/l	1244.56
Zn	66	72	1	No Gas	10.364	ug/l	7732.35
Zn	66	72	3	He	9.824	ug/l	1746.78
As	75	72	1	No Gas	1.548	ug/l	10754.97
As	75	72	3	He	-0.766	ug/l	165.13
Se	78	72	2	H2	0.270	ug/l	50.11
Br	79	72	1	No Gas	41.800	ug/l	61321.84
Br	79	72	2	H2	38.283	ug/l	34759.66
Se	82	72	1	No Gas	1.644	ug/l	624.61
Kr	84	72	1	No Gas		ug/l	22043.20
Sr	88	72	1	No Gas	173.588	ug/l	968171.05
Sr	88	72	3	He	161.478	ug/l	115072.33
Mo	95	115	1	No Gas	0.353	ug/l	481.12
Mo	95	115	3	He	0.299	ug/l	143.34
Mo	98	115	1	No Gas	0.365	ug/l	807.46
Ag	107	115	1	No Gas	0.011	ug/l	97.37
Ag	109	115	1	No Gas	0.004	ug/l	80.03
Cd	111	115	1	No Gas	0.032	ug/l	30.50

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.022	ug/l	6.00
Cd	114	115	1	No Gas	0.026	ug/l	38.03
Cd	114	115	3	He	0.028	ug/l	14.39
Sn	118	115	1	No Gas	0.169	ug/l	1061.27
Sn	118	115	3	He	0.111	ug/l	290.01
Sb	121	115	1	No Gas	0.357	ug/l	1961.67
Sb	121	115	3	He	0.240	ug/l	440.72
Sb	123	115	1	No Gas	0.343	ug/l	1470.89
Sb	123	115	3	He	0.260	ug/l	356.04
Ba	135	115	1	No Gas	8.386	ug/l	5280.57
Ba	137	115	1	No Gas	8.528	ug/l	9228.12
La	139	115	3	He	0.005	ug/l	21.11
Ce	140	115	3	He	0.011	ug/l	44.44
Hg	201	209	1	No Gas	-0.107	ug/l	172.30
Hg	202	209	1	No Gas	-0.099	ug/l	405.93
Hg	202	209	3	He	-0.257	ug/l	174.30
Tl	203	209	3	He	0.190	ug/l	276.78
Tl	205	209	1	No Gas	0.116	ug/l	980.05
Tl	205	209	3	He	0.218	ug/l	721.65
[Pb]	206	209	1	No Gas	0.095	ug/l	344.45
[Pb]	207	209	1	No Gas	0.087	ug/l	282.23
Pb	208	209	1	No Gas	0.099	ug/l	1375.59
Th	232	209	3	He	0.064	ug/l	349.48
U	238	209	1	No Gas	0.032	ug/l	254.62

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3050684.70	77.0
Sc	45	2	H2	1909961.35	82.8
Sc	45	3	He	199022.73	71.9
Ge	72	1	No Gas	890927.66	85.7
Ge	72	2	H2	684803.88	85.2
Ge	72	3	He	138853.23	83.6
In	115	1	No Gas	1095374.35	101.5
In	115	3	He	244798.81	88.3
Tb	159	1	No Gas	8759000.57	109.2
Tb	159	3	He	3615607.82	103.3
Ho	165	1	No Gas	8549197.75	111.0
Ho	165	3	He	3622392.92	107.3
Lu	175	1	No Gas	8323679.01	115.6
Lu	175	3	He	2872171.16	102.8
Bi	209	1	No Gas	5359210.94	114.0
Bi	209	3	He	2350651.42	107.7

# ICPMS207-B Analytical Data

**Sample Name** B22021627-001AMS  
**File Name** 038MS.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 15:53:32  
**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	1550.216	ug/l	8664953.95
Be	9	45	1	No Gas	35.529	ug/l	92097.21
B	11	45	1	No Gas	82.110	ug/l	120059.40
Na	23	45	3	He	93335.473	ug/l	54293180.86
Mg	24	45	3	He	68289.981	ug/l	21915692.72
Al	27	45	1	No Gas	45.221	ug/l	583669.23
Si	28	45	2	H2	20418.472	ug/l	33376337.44
K	39	72	3	He	44600.841	ug/l	17322542.80
Ca	40	72	2	H2	63159.196	ug/l	390543212.79
Ti	47	72	1	No Gas	48.058	ug/l	73845.91
V	51	72	1	No Gas	52.904	ug/l	984637.75
V	51	72	3	He	61.225	ug/l	206231.12
Cr	52	72	1	No Gas	47.855	ug/l	859865.27
Cr	52	72	3	He	48.727	ug/l	171086.17
Mn	55	72	1	No Gas	48.427	ug/l	1066782.99
Mn	55	72	3	He	49.444	ug/l	116461.22
Fe	56	72	2	H2	4789.157	ug/l	59701921.07
Fe	56	72	3	He	4685.072	ug/l	14259730.27
Co	59	72	1	No Gas	44.859	ug/l	845787.36
Ni	60	72	1	No Gas	45.383	ug/l	196480.70
Ni	60	72	3	He	50.463	ug/l	63310.98
Cu	63	72	1	No Gas	47.889	ug/l	484812.48
Cu	63	72	3	He	51.431	ug/l	167384.06
Cu	65	72	1	No Gas	46.610	ug/l	230002.20
Zn	66	72	1	No Gas	52.338	ug/l	182401.17
Zn	66	72	3	He	55.162	ug/l	43668.93
As	75	72	1	No Gas	48.618	ug/l	240108.12
As	75	72	3	He	50.384	ug/l	39958.97
Se	78	72	2	H2	50.981	ug/l	24455.94
Br	79	72	1	No Gas	42.335	ug/l	288059.52
Br	79	72	2	H2	40.738	ug/l	166878.46
Se	82	72	1	No Gas	52.130	ug/l	13673.07
Kr	84	72	1	No Gas		ug/l	54659.22
Sr	88	72	1	No Gas	219.794	ug/l	6245465.22
Sr	88	72	3	He	206.176	ug/l	755478.63
Mo	95	115	1	No Gas	48.983	ug/l	279577.28
Mo	95	115	3	He	50.561	ug/l	102013.96
Mo	98	115	1	No Gas	48.866	ug/l	452319.13
Ag	107	115	1	No Gas	19.891	ug/l	291398.76
Ag	109	115	1	No Gas	20.025	ug/l	278877.35
Cd	111	115	1	No Gas	51.190	ug/l	163908.41

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.827	ug/l	54993.96
Cd	114	115	1	No Gas	51.060	ug/l	370272.85
Cd	114	115	3	He	52.911	ug/l	133936.64
Sn	118	115	1	No Gas	50.664	ug/l	450869.89
Sn	118	115	3	He	50.509	ug/l	125950.56
Sb	121	115	1	No Gas	46.290	ug/l	675827.64
Sb	121	115	3	He	45.402	ug/l	183571.27
Sb	123	115	1	No Gas	45.869	ug/l	519005.89
Sb	123	115	3	He	46.155	ug/l	145818.48
Ba	135	115	1	No Gas	59.843	ug/l	172332.29
Ba	137	115	1	No Gas	59.056	ug/l	293025.36
La	139	115	3	He	54.303	ug/l	741093.15
Ce	140	115	3	He	55.201	ug/l	804991.39
Hg	201	209	1	No Gas	1.004	ug/l	2046.75
Hg	202	209	1	No Gas	0.978	ug/l	4589.88
Hg	202	209	3	He	0.966	ug/l	2006.08
Tl	203	209	3	He	50.524	ug/l	236518.02
Tl	205	209	1	No Gas	50.611	ug/l	1282305.88
Tl	205	209	3	He	51.015	ug/l	558503.07
[Pb]	206	209	1	No Gas	50.218	ug/l	439250.31
[Pb]	207	209	1	No Gas	50.002	ug/l	384138.33
Pb	208	209	1	No Gas	50.131	ug/l	1760531.95
Th	232	209	3	He	52.151	ug/l	778707.84
U	238	209	1	No Gas	51.108	ug/l	1722954.79

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3224344.55	81.3
Sc	45	2	H2	1915935.58	83.1
Sc	45	3	He	222069.01	80.2
Ge	72	1	No Gas	935661.16	90.0
Ge	72	2	H2	700104.14	87.1
Ge	72	3	He	147157.30	88.6
In	115	1	No Gas	1038703.78	96.2
In	115	3	He	245905.62	88.7
Tb	159	1	No Gas	8558514.57	106.7
Tb	159	3	He	3507691.97	100.2
Ho	165	1	No Gas	8168857.58	106.1
Ho	165	3	He	3368104.10	99.8
Lu	175	1	No Gas	7926962.31	110.1
Lu	175	3	He	2774614.52	99.3
Bi	209	1	No Gas	4914465.65	104.5
Bi	209	3	He	2106514.21	96.5

# ICPMS207-B Analytical Data

**Sample Name** B22021627-001AMSD  
**File Name** 039MSD.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 15:59:46  
**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	1591.847	ug/l	9840195.52
Be	9	45	1	No Gas	34.793	ug/l	99717.93
B	11	45	1	No Gas	81.427	ug/l	131674.17
Na	23	45	3	He	92274.396	ug/l	56917445.82
Mg	24	45	3	He	67182.190	ug/l	22869433.18
Al	27	45	1	No Gas	44.590	ug/l	636185.82
Si	28	45	2	H2	20068.031	ug/l	34970126.58
K	39	72	3	He	45012.990	ug/l	18224666.67
Ca	40	72	2	H2	65058.282	ug/l	425094736.43
Ti	47	72	1	No Gas	50.552	ug/l	81368.05
V	51	72	1	No Gas	57.294	ug/l	1117598.91
V	51	72	3	He	62.826	ug/l	220230.67
Cr	52	72	1	No Gas	48.345	ug/l	910058.91
Cr	52	72	3	He	49.514	ug/l	181222.22
Mn	55	72	1	No Gas	49.691	ug/l	1148896.53
Mn	55	72	3	He	49.866	ug/l	122436.25
Fe	56	72	2	H2	4738.583	ug/l	62409794.68
Fe	56	72	3	He	4841.151	ug/l	15360506.94
Co	59	72	1	No Gas	46.342	ug/l	916250.15
Ni	60	72	1	No Gas	44.856	ug/l	203656.36
Ni	60	72	3	He	51.059	ug/l	66777.31
Cu	63	72	1	No Gas	48.948	ug/l	519728.22
Cu	63	72	3	He	52.871	ug/l	179345.39
Cu	65	72	1	No Gas	47.693	ug/l	246822.70
Zn	66	72	1	No Gas	53.321	ug/l	195036.29
Zn	66	72	3	He	55.286	ug/l	45619.47
As	75	72	1	No Gas	50.014	ug/l	258913.08
As	75	72	3	He	50.777	ug/l	41976.50
Se	78	72	2	H2	50.926	ug/l	25816.07
Br	79	72	1	No Gas	42.432	ug/l	303170.61
Br	79	72	2	H2	40.659	ug/l	176080.69
Se	82	72	1	No Gas	52.458	ug/l	14437.38
Kr	84	72	1	No Gas		ug/l	58052.29
Sr	88	72	1	No Gas	218.336	ug/l	6506441.71
Sr	88	72	3	He	211.524	ug/l	807973.50
Mo	95	115	1	No Gas	50.005	ug/l	292555.10
Mo	95	115	3	He	49.957	ug/l	105284.76
Mo	98	115	1	No Gas	49.732	ug/l	471567.96
Ag	107	115	1	No Gas	20.074	ug/l	301336.16
Ag	109	115	1	No Gas	20.105	ug/l	286896.05
Cd	111	115	1	No Gas	51.761	ug/l	169840.09

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	51.981	ug/l	57608.53
Cd	114	115	1	No Gas	51.543	ug/l	383083.01
Cd	114	115	3	He	52.797	ug/l	139600.94
Sn	118	115	1	No Gas	51.698	ug/l	471522.84
Sn	118	115	3	He	51.006	ug/l	132859.42
Sb	121	115	1	No Gas	48.507	ug/l	725689.84
Sb	121	115	3	He	47.690	ug/l	201357.60
Sb	123	115	1	No Gas	47.748	ug/l	553546.76
Sb	123	115	3	He	47.299	ug/l	156083.18
Ba	135	115	1	No Gas	61.241	ug/l	180636.57
Ba	137	115	1	No Gas	60.652	ug/l	308435.48
La	139	115	3	He	55.619	ug/l	792842.27
Ce	140	115	3	He	54.398	ug/l	828435.08
Hg	201	209	1	No Gas	0.993	ug/l	2026.08
Hg	202	209	1	No Gas	0.972	ug/l	4556.21
Hg	202	209	3	He	0.966	ug/l	2040.75
Tl	203	209	3	He	50.232	ug/l	239192.68
Tl	205	209	1	No Gas	50.963	ug/l	1289224.31
Tl	205	209	3	He	51.438	ug/l	572874.94
[Pb]	206	209	1	No Gas	50.591	ug/l	442273.74
[Pb]	207	209	1	No Gas	49.896	ug/l	382944.31
Pb	208	209	1	No Gas	50.594	ug/l	1775893.80
Th	232	209	3	He	52.277	ug/l	794157.48
U	238	209	1	No Gas	50.421	ug/l	1698416.97

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3564586.02	89.9
Sc	45	2	H2	2042111.07	88.6
Sc	45	3	He	235556.88	85.1
Ge	72	1	No Gas	980850.24	94.4
Ge	72	2	H2	740052.38	92.1
Ge	72	3	He	153398.47	92.4
In	115	1	No Gas	1064207.90	98.6
In	115	3	He	256768.29	92.6
Tb	159	1	No Gas	8803020.94	109.7
Tb	159	3	He	3596963.14	102.8
Ho	165	1	No Gas	8333469.22	108.2
Ho	165	3	He	3521483.31	104.3
Lu	175	1	No Gas	8106673.73	112.6
Lu	175	3	He	2829027.47	101.3
Bi	209	1	No Gas	4915438.81	104.6
Bi	209	3	He	2143547.79	98.2



# ICPMS207-B Analytical Data

**Sample Name** Rinse  
**File Name** 040BLKV.d  
**Data Path Name** D:\Agilent\ICPMH1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 16:06:00  
**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	3.262	ug/l	33698.63
Be	9	45	1	No Gas	-0.092	ug/l	89.65
B	11	45	1	No Gas	1.160	ug/l	2284.43
Na	23	45	3	He	35.534	ug/l	64816.41
Mg	24	45	3	He	2.018	ug/l	1726.68
Al	27	45	1	No Gas	0.029	ug/l	8869.35
Si	28	45	2	H2	1.506	ug/l	16177.26
K	39	72	3	He	-46.305	ug/l	77948.68
Ca	40	72	2	H2	-1.767	ug/l	131145.06
Ti	47	72	1	No Gas	0.061	ug/l	363.70
V	51	72	1	No Gas	-1.162	ug/l	-51174.23
V	51	72	3	He	0.060	ug/l	12926.89
Cr	52	72	1	No Gas	-0.229	ug/l	45560.48
Cr	52	72	3	He	0.029	ug/l	964.48
Mn	55	72	1	No Gas	0.230	ug/l	9554.23
Mn	55	72	3	He	0.001	ug/l	80.98
Fe	56	72	2	H2	0.234	ug/l	11571.23
Fe	56	72	3	He	0.251	ug/l	5731.92
Co	59	72	1	No Gas	-0.001	ug/l	289.43
Ni	60	72	1	No Gas	-0.137	ug/l	469.08
Ni	60	72	3	He	-0.020	ug/l	121.11
Cu	63	72	1	No Gas	-0.179	ug/l	1183.86
Cu	63	72	3	He	-0.045	ug/l	319.94
Cu	65	72	1	No Gas	-0.055	ug/l	478.87
Zn	66	72	1	No Gas	-0.032	ug/l	594.24
Zn	66	72	3	He	-0.116	ug/l	156.67
As	75	72	1	No Gas	-0.059	ug/l	9749.25
As	75	72	3	He	-0.081	ug/l	218.73
Se	78	72	2	H2	0.009	ug/l	29.11
Br	79	72	1	No Gas	0.431	ug/l	10180.15
Br	79	72	2	H2	0.311	ug/l	5310.47
Se	82	72	1	No Gas	0.451	ug/l	693.81
Kr	84	72	1	No Gas		ug/l	16733.54
Sr	88	72	1	No Gas	0.002	ug/l	425.83
Sr	88	72	3	He	-0.001	ug/l	110.00
Mo	95	115	1	No Gas	0.069	ug/l	464.46
Mo	95	115	3	He	0.064	ug/l	146.67
Mo	98	115	1	No Gas	0.067	ug/l	737.95
Ag	107	115	1	No Gas	0.004	ug/l	121.38
Ag	109	115	1	No Gas	0.003	ug/l	117.38
Cd	111	115	1	No Gas	0.000	ug/l	6.66

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.001	ug/l	2.11
Cd	114	115	1	No Gas	0.001	ug/l	5.72
Cd	114	115	3	He	0.003	ug/l	7.83
Sn	118	115	1	No Gas	0.135	ug/l	2006.18
Sn	118	115	3	He	0.095	ug/l	458.90
Sb	121	115	1	No Gas	1.775	ug/l	28468.68
Sb	121	115	3	He	1.665	ug/l	6892.73
Sb	123	115	1	No Gas	1.740	ug/l	21589.78
Sb	123	115	3	He	1.649	ug/l	5336.22
Ba	135	115	1	No Gas	0.001	ug/l	36.59
Ba	137	115	1	No Gas	-0.002	ug/l	26.61
La	139	115	3	He	0.000	ug/l	6.67
Ce	140	115	3	He	0.000	ug/l	13.33
Hg	201	209	1	No Gas	-0.052	ug/l	111.31
Hg	202	209	1	No Gas	-0.050	ug/l	263.28
Hg	202	209	3	He	-0.063	ug/l	140.64
Tl	203	209	3	He	0.089	ug/l	523.56
Tl	205	209	1	No Gas	0.054	ug/l	1849.03
Tl	205	209	3	He	0.090	ug/l	1235.89
[Pb]	206	209	1	No Gas	0.003	ug/l	196.67
[Pb]	207	209	1	No Gas	0.004	ug/l	172.23
Pb	208	209	1	No Gas	0.005	ug/l	798.91
Th	232	209	3	He	0.052	ug/l	961.76
U	238	209	1	No Gas	0.003	ug/l	129.64

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3354096.79	84.6
Sc	45	2	H2	1935495.01	83.9
Sc	45	3	He	202099.62	73.0
Ge	72	1	No Gas	948987.04	91.3
Ge	72	2	H2	704673.32	87.7
Ge	72	3	He	137756.71	82.9
In	115	1	No Gas	1088655.84	100.8
In	115	3	He	236554.36	85.3
Tb	159	1	No Gas	8758779.93	109.2
Tb	159	3	He	3401111.95	97.2
Ho	165	1	No Gas	8341429.31	108.3
Ho	165	3	He	3334772.16	98.8
Lu	175	1	No Gas	8088707.85	112.3
Lu	175	3	He	2681445.75	96.0
Bi	209	1	No Gas	5476324.18	116.5
Bi	209	3	He	2220798.52	101.7

# ICPMS207-B Analytical Data

**Sample Name** B22021627-001B  
**File Name** 041SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 16:12:14  
**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	4.053	ug/l	32431.39
Be	9	45	1	No Gas	-0.085	ug/l	92.31
B	11	45	1	No Gas	37.921	ug/l	49467.98
Na	23	45	3	He	46173.940	ug/l	21783936.34
Mg	24	45	3	He	20624.309	ug/l	5364413.24
Al	27	45	1	No Gas	4.643	ug/l	59609.17
Si	28	45	2	H2	19573.398	ug/l	29507245.55
K	39	72	3	He	2225.686	ug/l	817595.45
Ca	40	72	2	H2	19652.693	ug/l	112517154.86
Ti	47	72	1	No Gas	1.623	ug/l	2537.79
V	51	72	1	No Gas	10.441	ug/l	162555.81
V	51	72	3	He	14.698	ug/l	50713.16
Cr	52	72	1	No Gas	2.152	ug/l	78053.89
Cr	52	72	3	He	2.088	ug/l	6988.37
Mn	55	72	1	No Gas	5.949	ug/l	124587.70
Mn	55	72	3	He	4.982	ug/l	10074.78
Fe	56	72	2	H2	23.372	ug/l	277105.71
Fe	56	72	3	He	23.147	ug/l	64519.38
Co	59	72	1	No Gas	0.072	ug/l	1530.38
Ni	60	72	1	No Gas	0.309	ug/l	2189.16
Ni	60	72	3	He	0.335	ug/l	486.68
Cu	63	72	1	No Gas	0.630	ug/l	8600.01
Cu	63	72	3	He	0.419	ug/l	1567.11
Cu	65	72	1	No Gas	0.454	ug/l	2747.37
Zn	66	72	1	No Gas	3.529	ug/l	11977.75
Zn	66	72	3	He	3.762	ug/l	2742.50
As	75	72	1	No Gas	0.630	ug/l	11571.83
As	75	72	3	He	0.065	ug/l	291.60
Se	78	72	2	H2	0.343	ug/l	174.11
Br	79	72	1	No Gas	10.257	ug/l	69442.67
Br	79	72	2	H2	10.033	ug/l	40696.77
Se	82	72	1	No Gas	0.556	ug/l	639.41
Kr	84	72	1	No Gas		ug/l	42862.79
Sr	88	72	1	No Gas	172.280	ug/l	4529582.62
Sr	88	72	3	He	168.016	ug/l	525466.19
Mo	95	115	1	No Gas	0.359	ug/l	2012.38
Mo	95	115	3	He	0.379	ug/l	716.69
Mo	98	115	1	No Gas	0.362	ug/l	3294.99
Ag	107	115	1	No Gas	0.004	ug/l	108.04
Ag	109	115	1	No Gas	0.003	ug/l	98.71
Cd	111	115	1	No Gas	0.004	ug/l	19.79

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.008	ug/l	8.56
Cd	114	115	1	No Gas	0.005	ug/l	29.77
Cd	114	115	3	He	0.008	ug/l	18.56
Sn	118	115	1	No Gas	0.382	ug/l	3926.09
Sn	118	115	3	He	0.321	ug/l	942.26
Sb	121	115	1	No Gas	1.808	ug/l	26171.97
Sb	121	115	3	He	1.406	ug/l	5407.27
Sb	123	115	1	No Gas	1.806	ug/l	20245.96
Sb	123	115	3	He	1.420	ug/l	4268.75
Ba	135	115	1	No Gas	8.802	ug/l	24459.85
Ba	137	115	1	No Gas	8.428	ug/l	40355.25
La	139	115	3	He	0.004	ug/l	60.00
Ce	140	115	3	He	0.004	ug/l	68.89
Hg	201	209	1	No Gas	0.050	ug/l	300.28
Hg	202	209	1	No Gas	0.044	ug/l	663.89
Hg	202	209	3	He	0.095	ug/l	436.25
Tl	203	209	3	He	0.052	ug/l	317.47
Tl	205	209	1	No Gas	0.031	ug/l	1132.28
Tl	205	209	3	He	0.051	ug/l	735.65
[Pb]	206	209	1	No Gas	0.234	ug/l	2305.77
[Pb]	207	209	1	No Gas	0.191	ug/l	1666.78
Pb	208	209	1	No Gas	0.216	ug/l	8547.82
Th	232	209	3	He	0.154	ug/l	2517.26
U	238	209	1	No Gas	0.030	ug/l	1083.50

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2780926.52	70.2
Sc	45	2	H2	1715273.63	74.4
Sc	45	3	He	174681.83	63.1
Ge	72	1	No Gas	839714.07	80.8
Ge	72	2	H2	628959.97	78.2
Ge	72	3	He	121988.36	73.4
In	115	1	No Gas	972416.00	90.1
In	115	3	He	218624.04	78.8
Tb	159	1	No Gas	8207649.13	102.3
Tb	159	3	He	3347773.96	95.6
Ho	165	1	No Gas	8011542.14	104.0
Ho	165	3	He	3294252.13	97.6
Lu	175	1	No Gas	7773143.75	108.0
Lu	175	3	He	2549726.41	91.3
Bi	209	1	No Gas	5020012.57	106.8
Bi	209	3	He	2135821.76	97.9

# ICPMS207-B Analytical Data

**Sample Name** B22021627-001BDIL  
**File Name** 042SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 16:18:28  
**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	12.147	ug/l	25885.62
Be	9	45	1	No Gas	-0.441	ug/l	89.65
B	11	45	1	No Gas	39.741	ug/l	11379.57
Na	23	45	3	He	48599.598	ug/l	4576130.04
Mg	24	45	3	He	20977.435	ug/l	1082598.11
Al	27	45	1	No Gas	9.505	ug/l	30374.16
Si	28	45	2	H2	19721.741	ug/l	6170674.79
K	39	72	3	He	1985.856	ug/l	217202.86
Ca	40	72	2	H2	19871.567	ug/l	23769144.14
Ti	47	72	1	No Gas	1.462	ug/l	674.03
V	51	72	1	No Gas	-5.278	ug/l	-41280.87
V	51	72	3	He	11.744	ug/l	17756.45
Cr	52	72	1	No Gas	-0.405	ug/l	44392.65
Cr	52	72	3	He	2.293	ug/l	2153.51
Mn	55	72	1	No Gas	6.756	ug/l	32275.02
Mn	55	72	3	He	5.289	ug/l	2215.40
Fe	56	72	2	H2	26.049	ug/l	70402.21
Fe	56	72	3	He	24.605	ug/l	17361.13
Co	59	72	1	No Gas	0.094	ug/l	628.77
Ni	60	72	1	No Gas	-0.100	ug/l	908.23
Ni	60	72	3	He	0.328	ug/l	201.11
Cu	63	72	1	No Gas	0.082	ug/l	2977.51
Cu	63	72	3	He	0.477	ug/l	678.55
Cu	65	72	1	No Gas	0.398	ug/l	1077.14
Zn	66	72	1	No Gas	27.420	ug/l	18820.46
Zn	66	72	3	He	28.295	ug/l	4052.81
As	75	72	1	No Gas	3.999	ug/l	12652.82
As	75	72	3	He	-0.477	ug/l	185.67
Se	78	72	2	H2	0.314	ug/l	51.89
Br	79	72	1	No Gas	15.185	ug/l	25855.34
Br	79	72	2	H2	14.513	ug/l	14898.23
Se	82	72	1	No Gas	-0.251	ug/l	518.88
Kr	84	72	1	No Gas		ug/l	20367.80
Sr	88	72	1	No Gas	172.526	ug/l	935776.13
Sr	88	72	3	He	165.493	ug/l	104599.91
Mo	95	115	1	No Gas	0.331	ug/l	448.90
Mo	95	115	3	He	0.415	ug/l	174.45
Mo	98	115	1	No Gas	0.304	ug/l	679.53
Ag	107	115	1	No Gas	0.010	ug/l	94.04
Ag	109	115	1	No Gas	0.009	ug/l	92.04
Cd	111	115	1	No Gas	0.026	ug/l	25.91

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.037	ug/l	8.56
Cd	114	115	1	No Gas	0.027	ug/l	37.80
Cd	114	115	3	He	0.033	ug/l	15.22
Sn	118	115	1	No Gas	0.398	ug/l	1487.14
Sn	118	115	3	He	0.382	ug/l	391.12
Sb	121	115	1	No Gas	1.438	ug/l	5338.89
Sb	121	115	3	He	1.423	ug/l	1295.19
Sb	123	115	1	No Gas	1.413	ug/l	4058.34
Sb	123	115	3	He	1.470	ug/l	1039.14
Ba	135	115	1	No Gas	8.416	ug/l	5237.28
Ba	137	115	1	No Gas	8.222	ug/l	8815.36
La	139	115	3	He	0.077	ug/l	204.45
Ce	140	115	3	He	0.043	ug/l	127.78
Hg	201	209	1	No Gas	-0.135	ug/l	165.97
Hg	202	209	1	No Gas	-0.097	ug/l	420.92
Hg	202	209	3	He	-0.196	ug/l	196.29
Tl	203	209	3	He	0.094	ug/l	170.07
Tl	205	209	1	No Gas	0.055	ug/l	651.13
Tl	205	209	3	He	0.088	ug/l	387.49
[Pb]	206	209	1	No Gas	0.280	ug/l	731.14
[Pb]	207	209	1	No Gas	0.265	ug/l	610.02
Pb	208	209	1	No Gas	0.266	ug/l	2781.24
Th	232	209	3	He	0.066	ug/l	348.81
U	238	209	1	No Gas	0.041	ug/l	337.27

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2961881.91	74.7
Sc	45	2	H2	1777051.09	77.1
Sc	45	3	He	173202.00	62.5
Ge	72	1	No Gas	866173.44	83.3
Ge	72	2	H2	653737.57	81.3
Ge	72	3	He	123108.71	74.1
In	115	1	No Gas	1085890.53	100.6
In	115	3	He	223338.59	80.5
Tb	159	1	No Gas	8769150.51	109.3
Tb	159	3	He	3448591.57	98.5
Ho	165	1	No Gas	8538433.60	110.9
Ho	165	3	He	3332350.49	98.7
Lu	175	1	No Gas	8542009.21	118.6
Lu	175	3	He	2652764.39	94.9
Bi	209	1	No Gas	5546010.69	118.0
Bi	209	3	He	2313471.97	106.0

# ICPMS207-B Analytical Data

**Sample Name** CCV  
**File Name** 043\_CCV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 16:24:42  
**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	389.209	ug/l	1994346.94
Be	9	45	1	No Gas	34.499	ug/l	81587.06
B	11	45	1	No Gas	38.315	ug/l	51341.62
Na	23	45	3	He	12219.526	ug/l	6353563.38
Mg	24	45	3	He	12200.362	ug/l	3480850.73
Al	27	45	1	No Gas	43.147	ug/l	508141.52
Si	28	45	2	H2	197.348	ug/l	332629.89
K	39	72	3	He	10362.262	ug/l	3805797.76
Ca	40	72	2	H2	11110.241	ug/l	69884122.50
Ti	47	72	1	No Gas	41.293	ug/l	63611.11
V	51	72	1	No Gas	40.191	ug/l	744404.14
V	51	72	3	He	45.944	ug/l	146438.65
Cr	52	72	1	No Gas	43.958	ug/l	793927.23
Cr	52	72	3	He	47.412	ug/l	154502.94
Mn	55	72	1	No Gas	47.172	ug/l	1042099.15
Mn	55	72	3	He	48.563	ug/l	106162.35
Fe	56	72	2	H2	1244.429	ug/l	15768943.49
Fe	56	72	3	He	1288.235	ug/l	3644728.32
Co	59	72	1	No Gas	45.571	ug/l	861341.29
Ni	60	72	1	No Gas	44.082	ug/l	191308.20
Ni	60	72	3	He	54.128	ug/l	63009.68
Cu	63	72	1	No Gas	47.455	ug/l	481624.78
Cu	63	72	3	He	55.062	ug/l	166284.83
Cu	65	72	1	No Gas	45.933	ug/l	227273.95
Zn	66	72	1	No Gas	49.289	ug/l	172329.66
Zn	66	72	3	He	52.404	ug/l	38505.53
As	75	72	1	No Gas	47.757	ug/l	236527.36
As	75	72	3	He	50.893	ug/l	37449.93
Se	78	72	2	H2	50.617	ug/l	24666.97
Br	79	72	1	No Gas	0.707	ug/l	11628.34
Br	79	72	2	H2	0.680	ug/l	6701.63
Se	82	72	1	No Gas	51.761	ug/l	13606.50
Kr	84	72	1	No Gas		ug/l	25359.32
Sr	88	72	1	No Gas	53.602	ug/l	1527398.76
Sr	88	72	3	He	51.578	ug/l	175489.88
Mo	95	115	1	No Gas	47.290	ug/l	288518.11
Mo	95	115	3	He	51.377	ug/l	102404.71
Mo	98	115	1	No Gas	46.615	ug/l	460867.42
Ag	107	115	1	No Gas	19.728	ug/l	308808.72
Ag	109	115	1	No Gas	19.813	ug/l	294794.04
Cd	111	115	1	No Gas	50.551	ug/l	172937.80

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	53.451	ug/l	56025.97
Cd	114	115	1	No Gas	50.225	ug/l	389106.76
Cd	114	115	3	He	54.800	ug/l	137033.45
Sn	118	115	1	No Gas	49.916	ug/l	474662.55
Sn	118	115	3	He	51.102	ug/l	125887.49
Sb	121	115	1	No Gas	51.236	ug/l	799101.42
Sb	121	115	3	He	52.092	ug/l	207993.51
Sb	123	115	1	No Gas	51.097	ug/l	617593.93
Sb	123	115	3	He	51.681	ug/l	161274.19
Ba	135	115	1	No Gas	50.284	ug/l	154684.23
Ba	137	115	1	No Gas	50.726	ug/l	268948.93
La	139	115	3	He	54.701	ug/l	737435.92
Ce	140	115	3	He	55.177	ug/l	794640.92
Hg	201	209	1	No Gas	0.976	ug/l	2249.07
Hg	202	209	1	No Gas	0.987	ug/l	5218.65
Hg	202	209	3	He	1.008	ug/l	2248.74
Tl	203	209	3	He	49.714	ug/l	252329.88
Tl	205	209	1	No Gas	51.021	ug/l	1461752.88
Tl	205	209	3	He	50.911	ug/l	604303.92
[Pb]	206	209	1	No Gas	49.942	ug/l	493905.10
[Pb]	207	209	1	No Gas	48.583	ug/l	422149.23
Pb	208	209	1	No Gas	49.794	ug/l	1976776.92
Th	232	209	3	He	51.013	ug/l	825926.93
U	238	209	1	No Gas	50.182	ug/l	1912444.01

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2857741.23	72.1
Sc	45	2	H2	1843584.08	79.9
Sc	45	3	He	191626.66	69.2
Ge	72	1	No Gas	910362.98	87.6
Ge	72	2	H2	690465.69	85.9
Ge	72	3	He	132647.41	79.9
In	115	1	No Gas	1077637.20	99.8
In	115	3	He	235805.95	85.0
Tb	159	1	No Gas	8662270.82	108.0
Tb	159	3	He	3463997.42	99.0
Ho	165	1	No Gas	8417217.23	109.3
Ho	165	3	He	3350206.70	99.2
Lu	175	1	No Gas	8481777.10	117.8
Lu	175	3	He	2652728.29	94.9
Bi	209	1	No Gas	5395149.17	114.8
Bi	209	3	He	2218232.58	101.6



# ICPMS207-B Analytical Data

**Sample Name** CCB  
**File Name** 044\_CCB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 16:30:57  
**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	2.916	ug/l	26153.53
Be	9	45	1	No Gas	-0.074	ug/l	114.98
B	11	45	1	No Gas	0.663	ug/l	1263.23
Na	23	45	3	He	40.124	ug/l	57294.07
Mg	24	45	3	He	2.646	ug/l	1630.19
Al	27	45	1	No Gas	0.225	ug/l	9464.14
Si	28	45	2	H2	1.279	ug/l	14186.43
K	39	72	3	He	-65.055	ug/l	62584.03
Ca	40	72	2	H2	-3.334	ug/l	111223.19
Ti	47	72	1	No Gas	-0.033	ug/l	196.87
V	51	72	1	No Gas	-0.707	ug/l	-35108.79
V	51	72	3	He	-0.479	ug/l	9960.11
Cr	52	72	1	No Gas	-0.431	ug/l	38370.93
Cr	52	72	3	He	0.043	ug/l	892.26
Mn	55	72	1	No Gas	0.148	ug/l	7024.43
Mn	55	72	3	He	0.001	ug/l	71.66
Fe	56	72	2	H2	0.172	ug/l	9888.28
Fe	56	72	3	He	0.138	ug/l	4762.25
Co	59	72	1	No Gas	0.000	ug/l	286.10
Ni	60	72	1	No Gas	-0.139	ug/l	412.52
Ni	60	72	3	He	-0.018	ug/l	108.89
Cu	63	72	1	No Gas	-0.181	ug/l	1067.14
Cu	63	72	3	He	-0.034	ug/l	313.61
Cu	65	72	1	No Gas	-0.061	ug/l	412.84
Zn	66	72	1	No Gas	-0.058	ug/l	454.75
Zn	66	72	3	He	-0.182	ug/l	93.33
As	75	72	1	No Gas	0.091	ug/l	9412.24
As	75	72	3	He	-0.122	ug/l	165.67
Se	78	72	2	H2	-0.009	ug/l	18.78
Br	79	72	1	No Gas	0.241	ug/l	8023.00
Br	79	72	2	H2	0.119	ug/l	4145.71
Se	82	72	1	No Gas	0.010	ug/l	524.21
Kr	84	72	1	No Gas		ug/l	15228.36
Sr	88	72	1	No Gas	-0.002	ug/l	266.14
Sr	88	72	3	He	-0.007	ug/l	81.11
Mo	95	115	1	No Gas	0.036	ug/l	250.00
Mo	95	115	3	He	0.024	ug/l	62.22
Mo	98	115	1	No Gas	0.030	ug/l	351.12
Ag	107	115	1	No Gas	0.003	ug/l	108.04
Ag	109	115	1	No Gas	0.003	ug/l	102.04
Cd	111	115	1	No Gas	0.006	ug/l	28.01

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.001	ug/l	2.56
Cd	114	115	1	No Gas	0.003	ug/l	18.73
Cd	114	115	3	He	0.001	ug/l	3.04
Sn	118	115	1	No Gas	0.070	ug/l	1327.44
Sn	118	115	3	He	0.037	ug/l	298.89
Sb	121	115	1	No Gas	0.273	ug/l	4857.68
Sb	121	115	3	He	0.214	ug/l	1025.14
Sb	123	115	1	No Gas	0.269	ug/l	3705.54
Sb	123	115	3	He	0.220	ug/l	818.44
Ba	135	115	1	No Gas	0.002	ug/l	36.59
Ba	137	115	1	No Gas	0.000	ug/l	36.59
La	139	115	3	He	0.000	ug/l	11.11
Ce	140	115	3	He	0.000	ug/l	13.33
Hg	201	209	1	No Gas	-0.045	ug/l	128.64
Hg	202	209	1	No Gas	-0.043	ug/l	304.28
Hg	202	209	3	He	-0.057	ug/l	155.30
Tl	203	209	3	He	0.084	ug/l	500.21
Tl	205	209	1	No Gas	0.052	ug/l	1882.37
Tl	205	209	3	He	0.080	ug/l	1131.84
[Pb]	206	209	1	No Gas	0.002	ug/l	188.89
[Pb]	207	209	1	No Gas	0.008	ug/l	205.56
Pb	208	209	1	No Gas	0.005	ug/l	821.12
Th	232	209	3	He	0.041	ug/l	803.02
U	238	209	1	No Gas	0.002	ug/l	96.98

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2717225.96	68.6
Sc	45	2	H2	1739000.68	75.4
Sc	45	3	He	172002.61	62.1
Ge	72	1	No Gas	856777.54	82.4
Ge	72	2	H2	647099.95	80.5
Ge	72	3	He	121509.64	73.2
In	115	1	No Gas	1034685.31	95.8
In	115	3	He	222833.44	80.4
Tb	159	1	No Gas	8555405.73	106.6
Tb	159	3	He	3331279.62	95.2
Ho	165	1	No Gas	8157759.45	105.9
Ho	165	3	He	3212282.69	95.2
Lu	175	1	No Gas	8294887.41	115.2
Lu	175	3	He	2597299.76	93.0
Bi	209	1	No Gas	5559372.00	118.3
Bi	209	3	He	2251144.35	103.1

# ICPMS207-B Analytical Data

**Sample Name** B22021627-001BPDS1  
**File Name** 045ARef.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 16:37:11  
**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	1253.154	ug/l	5661810.89
Be	9	45	1	No Gas	30.264	ug/l	63385.09
B	11	45	1	No Gas	73.956	ug/l	87378.21
Na	23	45	3	He	89840.685	ug/l	41849196.88
Mg	24	45	3	He	64741.661	ug/l	16648133.54
Al	27	45	1	No Gas	43.046	ug/l	448708.71
Si	28	45	2	H2	19884.836	ug/l	28449302.40
K	39	72	3	He	41710.601	ug/l	13682716.32
Ca	40	72	2	H2	61833.723	ug/l	349889754.10
Ti	47	72	1	No Gas	45.488	ug/l	62246.56
V	51	72	1	No Gas	53.235	ug/l	882689.05
V	51	72	3	He	62.902	ug/l	178590.86
Cr	52	72	1	No Gas	45.587	ug/l	731212.41
Cr	52	72	3	He	48.748	ug/l	144497.08
Mn	55	72	1	No Gas	51.306	ug/l	1006028.43
Mn	55	72	3	He	51.996	ug/l	103359.01
Fe	56	72	2	H2	4650.452	ug/l	53052592.81
Fe	56	72	3	He	4854.230	ug/l	12472510.61
Co	59	72	1	No Gas	43.976	ug/l	738475.95
Ni	60	72	1	No Gas	43.398	ug/l	167465.47
Ni	60	72	3	He	51.931	ug/l	55003.06
Cu	63	72	1	No Gas	46.224	ug/l	416913.38
Cu	63	72	3	He	53.823	ug/l	147820.21
Cu	65	72	1	No Gas	44.170	ug/l	194189.03
Zn	66	72	1	No Gas	49.223	ug/l	152932.08
Zn	66	72	3	He	52.444	ug/l	35053.64
As	75	72	1	No Gas	48.441	ug/l	213312.22
As	75	72	3	He	50.545	ug/l	33833.87
Se	78	72	2	H2	49.900	ug/l	21901.90
Br	79	72	1	No Gas	10.939	ug/l	71074.09
Br	79	72	2	H2	10.462	ug/l	41934.34
Se	82	72	1	No Gas	51.198	ug/l	11971.81
Kr	84	72	1	No Gas		ug/l	50545.66
Sr	88	72	1	No Gas	222.382	ug/l	5627859.27
Sr	88	72	3	He	214.751	ug/l	664111.57
Mo	95	115	1	No Gas	48.102	ug/l	259686.78
Mo	95	115	3	He	51.462	ug/l	93814.13
Mo	98	115	1	No Gas	47.430	ug/l	415254.55
Ag	107	115	1	No Gas	19.251	ug/l	266647.08
Ag	109	115	1	No Gas	19.220	ug/l	253038.47
Cd	111	115	1	No Gas	49.636	ug/l	150252.95

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	52.135	ug/l	49984.68
Cd	114	115	1	No Gas	49.478	ug/l	339199.11
Cd	114	115	3	He	53.231	ug/l	121769.91
Sn	118	115	1	No Gas	51.301	ug/l	431757.01
Sn	118	115	3	He	52.134	ug/l	117506.84
Sb	121	115	1	No Gas	47.834	ug/l	660240.23
Sb	121	115	3	He	47.769	ug/l	174489.44
Sb	123	115	1	No Gas	46.812	ug/l	500672.72
Sb	123	115	3	He	48.548	ug/l	138584.65
Ba	135	115	1	No Gas	58.403	ug/l	158977.08
Ba	137	115	1	No Gas	58.398	ug/l	274206.92
La	139	115	3	He	54.429	ug/l	671141.77
Ce	140	115	3	He	56.195	ug/l	740399.36
Hg	201	209	1	No Gas	0.961	ug/l	1961.76
Hg	202	209	1	No Gas	0.991	ug/l	4629.55
Hg	202	209	3	He	0.969	ug/l	2010.42
Tl	203	209	3	He	48.589	ug/l	227215.76
Tl	205	209	1	No Gas	49.554	ug/l	1251785.61
Tl	205	209	3	He	49.195	ug/l	537858.46
[Pb]	206	209	1	No Gas	49.009	ug/l	427447.40
[Pb]	207	209	1	No Gas	47.558	ug/l	364274.38
Pb	208	209	1	No Gas	48.825	ug/l	1709575.50
Th	232	209	3	He	50.726	ug/l	756785.38
U	238	209	1	No Gas	50.387	ug/l	1693658.63

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2603093.80	65.7
Sc	45	2	H2	1676559.46	72.7
Sc	45	3	He	177777.93	64.2
Ge	72	1	No Gas	832427.45	80.1
Ge	72	2	H2	640458.09	79.7
Ge	72	3	He	124234.41	74.8
In	115	1	No Gas	982220.90	91.0
In	115	3	He	222155.60	80.1
Tb	159	1	No Gas	8087538.71	100.8
Tb	159	3	He	3244179.85	92.7
Ho	165	1	No Gas	7823351.10	101.6
Ho	165	3	He	3128827.52	92.7
Lu	175	1	No Gas	7639769.66	106.1
Lu	175	3	He	2492551.87	89.2
Bi	209	1	No Gas	4900059.59	104.2
Bi	209	3	He	2104639.69	96.4

# ICPMS207-B Analytical Data

**Sample Name** B22021627-001BMS4  
**File Name** 046MS4.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 16:43:25  
**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	55.206	ug/l	286177.17
Be	9	45	1	No Gas	29.822	ug/l	68744.34
B	11	45	1	No Gas	102.724	ug/l	133399.36
Na	23	45	3	He	50573.320	ug/l	23264489.65
Mg	24	45	3	He	24412.414	ug/l	6190085.98
Al	27	45	1	No Gas	384.954	ug/l	4360078.72
Si	28	45	2	H2	19873.223	ug/l	29706422.55
K	39	72	3	He	5861.218	ug/l	2044097.64
Ca	40	72	2	H2	23750.174	ug/l	140461546.60
Ti	47	72	1	No Gas	82.239	ug/l	117553.24
V	51	72	1	No Gas	90.406	ug/l	1581331.96
V	51	72	3	He	103.176	ug/l	292345.45
Cr	52	72	1	No Gas	87.083	ug/l	1417274.60
Cr	52	72	3	He	92.755	ug/l	281168.37
Mn	55	72	1	No Gas	448.228	ug/l	9166651.83
Mn	55	72	3	He	460.181	ug/l	937771.32
Fe	56	72	2	H2	498.297	ug/l	5942607.76
Fe	56	72	3	He	501.146	ug/l	1324645.90
Co	59	72	1	No Gas	87.740	ug/l	1540551.08
Ni	60	72	1	No Gas	88.348	ug/l	355264.19
Ni	60	72	3	He	98.535	ug/l	106801.59
Cu	63	72	1	No Gas	94.495	ug/l	888486.27
Cu	63	72	3	He	104.964	ug/l	295246.79
Cu	65	72	1	No Gas	92.883	ug/l	426325.65
Zn	66	72	1	No Gas	100.206	ug/l	325032.92
Zn	66	72	3	He	101.562	ug/l	69411.50
As	75	72	1	No Gas	95.353	ug/l	430136.31
As	75	72	3	He	97.235	ug/l	66505.85
Se	78	72	2	H2	99.049	ug/l	45379.47
Br	79	72	1	No Gas	9.269	ug/l	63825.04
Br	79	72	2	H2	8.836	ug/l	37461.01
Se	82	72	1	No Gas	103.279	ug/l	24724.77
Kr	84	72	1	No Gas		ug/l	59690.14
Sr	88	72	1	No Gas	278.597	ug/l	7373954.05
Sr	88	72	3	He	264.457	ug/l	838764.72
Mo	95	115	1	No Gas	92.409	ug/l	529701.68
Mo	95	115	3	He	102.503	ug/l	186697.65
Mo	98	115	1	No Gas	93.615	ug/l	870680.31
Ag	107	115	1	No Gas	9.243	ug/l	136040.99
Ag	109	115	1	No Gas	9.331	ug/l	130547.62
Cd	111	115	1	No Gas	49.034	ug/l	157709.48

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	52.684	ug/l	50471.38
Cd	114	115	1	No Gas	48.393	ug/l	352525.24
Cd	114	115	3	He	53.998	ug/l	123408.42
Sn	118	115	1	No Gas	103.425	ug/l	924132.35
Sn	118	115	3	He	106.252	ug/l	239013.17
Sb	121	115	1	No Gas	101.627	ug/l	1489427.82
Sb	121	115	3	He	103.936	ug/l	379040.89
Sb	123	115	1	No Gas	104.419	ug/l	1186070.60
Sb	123	115	3	He	107.691	ug/l	306943.25
Ba	135	115	1	No Gas	102.709	ug/l	297060.07
Ba	137	115	1	No Gas	100.305	ug/l	500213.77
La	139	115	3	He	109.971	ug/l	1355001.54
Ce	140	115	3	He	111.682	ug/l	1470002.65
Hg	201	209	1	No Gas	0.044	ug/l	282.95
Hg	202	209	1	No Gas	0.052	ug/l	684.88
Hg	202	209	3	He	0.091	ug/l	417.26
Tl	203	209	3	He	96.179	ug/l	458448.97
Tl	205	209	1	No Gas	96.247	ug/l	2513478.00
Tl	205	209	3	He	100.742	ug/l	1123313.79
[Pb]	206	209	1	No Gas	97.418	ug/l	878509.00
[Pb]	207	209	1	No Gas	95.519	ug/l	756505.08
Pb	208	209	1	No Gas	97.537	ug/l	3531168.46
Th	232	209	3	He	98.545	ug/l	1498202.17
U	238	209	1	No Gas	99.133	ug/l	3444978.14

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2782919.75	70.2
Sc	45	2	H2	1700794.44	73.8
Sc	45	3	He	170335.62	61.5
Ge	72	1	No Gas	846190.62	81.4
Ge	72	2	H2	649571.04	80.8
Ge	72	3	He	123743.13	74.5
In	115	1	No Gas	1012976.38	93.8
In	115	3	He	215482.38	77.7
Tb	159	1	No Gas	8242597.93	102.7
Tb	159	3	He	3335095.11	95.3
Ho	165	1	No Gas	8048528.82	104.5
Ho	165	3	He	3154888.55	93.5
Lu	175	1	No Gas	7778337.28	108.0
Lu	175	3	He	2496217.93	89.3
Bi	209	1	No Gas	4917625.68	104.6
Bi	209	3	He	2083344.52	95.4

# ICPMS207-B Analytical Data

**Sample Name** B22021627-001BMSD4  
**File Name** 047MSD4.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 16:49:40  
**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	54.347	ug/l	280771.49
Be	9	45	1	No Gas	29.907	ug/l	68655.84
B	11	45	1	No Gas	104.783	ug/l	135517.86
Na	23	45	3	He	50931.952	ug/l	23411379.93
Mg	24	45	3	He	25011.727	ug/l	6341024.00
Al	27	45	1	No Gas	373.761	ug/l	4216482.72
Si	28	45	2	H2	20409.306	ug/l	30519176.30
K	39	72	3	He	6030.067	ug/l	2110283.73
Ca	40	72	2	H2	23388.982	ug/l	138428465.26
Ti	47	72	1	No Gas	76.586	ug/l	114612.40
V	51	72	1	No Gas	82.075	ug/l	1502604.34
V	51	72	3	He	105.673	ug/l	300506.04
Cr	52	72	1	No Gas	83.148	ug/l	1419927.23
Cr	52	72	3	He	93.060	ug/l	283387.60
Mn	55	72	1	No Gas	444.346	ug/l	9514277.42
Mn	55	72	3	He	467.725	ug/l	957237.28
Fe	56	72	2	H2	497.782	ug/l	5943954.32
Fe	56	72	3	He	477.330	ug/l	1267044.92
Co	59	72	1	No Gas	82.217	ug/l	1512043.86
Ni	60	72	1	No Gas	82.226	ug/l	346629.66
Ni	60	72	3	He	104.609	ug/l	113958.01
Cu	63	72	1	No Gas	89.153	ug/l	877994.69
Cu	63	72	3	He	107.073	ug/l	302421.53
Cu	65	72	1	No Gas	87.721	ug/l	421725.10
Zn	66	72	1	No Gas	93.446	ug/l	317467.16
Zn	66	72	3	He	101.969	ug/l	69979.08
As	75	72	1	No Gas	92.470	ug/l	437069.16
As	75	72	3	He	98.777	ug/l	67852.41
Se	78	72	2	H2	99.853	ug/l	45792.73
Br	79	72	1	No Gas	9.195	ug/l	66351.41
Br	79	72	2	H2	9.108	ug/l	38545.13
Se	82	72	1	No Gas	99.519	ug/l	24955.81
Kr	84	72	1	No Gas		ug/l	61400.47
Sr	88	72	1	No Gas	270.511	ug/l	7499046.37
Sr	88	72	3	He	273.877	ug/l	872542.68
Mo	95	115	1	No Gas	92.255	ug/l	540785.07
Mo	95	115	3	He	100.021	ug/l	190498.57
Mo	98	115	1	No Gas	92.152	ug/l	876532.74
Ag	107	115	1	No Gas	9.207	ug/l	138646.07
Ag	109	115	1	No Gas	9.383	ug/l	134310.69
Cd	111	115	1	No Gas	49.116	ug/l	161637.79

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	52.357	ug/l	52446.31
Cd	114	115	1	No Gas	48.839	ug/l	363974.21
Cd	114	115	3	He	53.456	ug/l	127750.58
Sn	118	115	1	No Gas	105.719	ug/l	966257.87
Sn	118	115	3	He	106.248	ug/l	249926.43
Sb	121	115	1	No Gas	99.938	ug/l	1498491.17
Sb	121	115	3	He	103.647	ug/l	395276.76
Sb	123	115	1	No Gas	103.465	ug/l	1202098.15
Sb	123	115	3	He	106.456	ug/l	317293.36
Ba	135	115	1	No Gas	104.020	ug/l	307797.02
Ba	137	115	1	No Gas	102.568	ug/l	523163.41
La	139	115	3	He	108.866	ug/l	1402664.99
Ce	140	115	3	He	112.114	ug/l	1543214.91
Hg	201	209	1	No Gas	0.069	ug/l	356.27
Hg	202	209	1	No Gas	0.082	ug/l	880.52
Hg	202	209	3	He	0.130	ug/l	495.24
Tl	203	209	3	He	102.158	ug/l	491294.95
Tl	205	209	1	No Gas	94.908	ug/l	2670709.32
Tl	205	209	3	He	105.545	ug/l	1187383.63
[Pb]	206	209	1	No Gas	95.823	ug/l	931106.62
[Pb]	207	209	1	No Gas	93.952	ug/l	802068.76
Pb	208	209	1	No Gas	95.115	ug/l	3710883.64
Th	232	209	3	He	106.462	ug/l	1633802.67
U	238	209	1	No Gas	97.271	ug/l	3642843.89

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2771686.20	69.9
Sc	45	2	H2	1701274.14	73.8
Sc	45	3	He	170253.44	61.5
Ge	72	1	No Gas	885568.33	85.2
Ge	72	2	H2	649986.75	80.9
Ge	72	3	He	124218.24	74.8
In	115	1	No Gas	1036531.74	96.0
In	115	3	He	225315.23	81.3
Tb	159	1	No Gas	8337480.05	103.9
Tb	159	3	He	3415159.05	97.6
Ho	165	1	No Gas	8214391.39	106.7
Ho	165	3	He	3309369.85	98.0
Lu	175	1	No Gas	8208891.05	114.0
Lu	175	3	He	2624709.77	93.9
Bi	209	1	No Gas	5303517.90	112.8
Bi	209	3	He	2103411.94	96.4



# ICPMS207-B Analytical Data

**Sample Name** Rinse  
**File Name** 048BLKV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 16:55:53  
**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	2.130	ug/l	24613.00
Be	9	45	1	No Gas	-0.085	ug/l	99.98
B	11	45	1	No Gas	0.778	ug/l	1550.71
Na	23	45	3	He	52.356	ug/l	69848.83
Mg	24	45	3	He	2.910	ug/l	1879.73
Al	27	45	1	No Gas	0.032	ug/l	8082.22
Si	28	45	2	H2	12.364	ug/l	33425.37
K	39	72	3	He	-65.017	ug/l	67697.77
Ca	40	72	2	H2	-3.348	ug/l	118093.23
Ti	47	72	1	No Gas	-0.059	ug/l	168.50
V	51	72	1	No Gas	-0.053	ug/l	-24271.30
V	51	72	3	He	-1.258	ug/l	8518.09
Cr	52	72	1	No Gas	-0.773	ug/l	34852.52
Cr	52	72	3	He	0.030	ug/l	924.48
Mn	55	72	1	No Gas	0.149	ug/l	7467.13
Mn	55	72	3	He	0.005	ug/l	86.31
Fe	56	72	2	H2	0.126	ug/l	9926.68
Fe	56	72	3	He	-0.005	ug/l	4750.57
Co	59	72	1	No Gas	-0.002	ug/l	272.80
Ni	60	72	1	No Gas	-0.137	ug/l	445.79
Ni	60	72	3	He	-0.013	ug/l	123.33
Cu	63	72	1	No Gas	-0.188	ug/l	1062.47
Cu	63	72	3	He	-0.038	ug/l	327.94
Cu	65	72	1	No Gas	-0.063	ug/l	430.18
Zn	66	72	1	No Gas	0.002	ug/l	691.32
Zn	66	72	3	He	-0.096	ug/l	163.34
As	75	72	1	No Gas	0.210	ug/l	10472.10
As	75	72	3	He	-0.129	ug/l	173.93
Se	78	72	2	H2	-0.001	ug/l	23.78
Br	79	72	1	No Gas	0.318	ug/l	9011.67
Br	79	72	2	H2	0.282	ug/l	5067.52
Se	82	72	1	No Gas	-0.570	ug/l	405.01
Kr	84	72	1	No Gas		ug/l	15194.87
Sr	88	72	1	No Gas	0.004	ug/l	445.79
Sr	88	72	3	He	-0.007	ug/l	85.56
Mo	95	115	1	No Gas	0.019	ug/l	167.78
Mo	95	115	3	He	0.018	ug/l	55.55
Mo	98	115	1	No Gas	0.015	ug/l	232.36
Ag	107	115	1	No Gas	0.003	ug/l	105.37
Ag	109	115	1	No Gas	0.001	ug/l	87.37
Cd	111	115	1	No Gas	0.002	ug/l	15.68

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.003	ug/l	4.44
Cd	114	115	1	No Gas	0.002	ug/l	15.21
Cd	114	115	3	He	0.004	ug/l	10.15
Sn	118	115	1	No Gas	0.009	ug/l	838.36
Sn	118	115	3	He	-0.009	ug/l	204.45
Sb	121	115	1	No Gas	0.308	ug/l	5845.82
Sb	121	115	3	He	0.239	ug/l	1196.84
Sb	123	115	1	No Gas	0.308	ug/l	4519.53
Sb	123	115	3	He	0.232	ug/l	914.13
Ba	135	115	1	No Gas	0.000	ug/l	33.27
Ba	137	115	1	No Gas	-0.001	ug/l	36.59
La	139	115	3	He	0.000	ug/l	6.67
Ce	140	115	3	He	0.000	ug/l	14.44
Hg	201	209	1	No Gas	-0.043	ug/l	133.97
Hg	202	209	1	No Gas	-0.039	ug/l	330.61
Hg	202	209	3	He	-0.066	ug/l	138.64
Tl	203	209	3	He	0.154	ug/l	873.71
Tl	205	209	1	No Gas	0.123	ug/l	4011.78
Tl	205	209	3	He	0.163	ug/l	2156.38
[Pb]	206	209	1	No Gas	0.010	ug/l	265.56
[Pb]	207	209	1	No Gas	0.007	ug/l	202.23
Pb	208	209	1	No Gas	0.010	ug/l	1026.69
Th	232	209	3	He	0.063	ug/l	1165.85
U	238	209	1	No Gas	0.002	ug/l	101.65

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2988891.77	75.4
Sc	45	2	H2	1867671.94	81.0
Sc	45	3	He	190889.13	68.9
Ge	72	1	No Gas	908363.34	87.4
Ge	72	2	H2	687735.93	85.6
Ge	72	3	He	131406.53	79.1
In	115	1	No Gas	1122310.12	103.9
In	115	3	He	237859.15	85.8
Tb	159	1	No Gas	9062280.82	113.0
Tb	159	3	He	3519528.75	100.5
Ho	165	1	No Gas	8713793.28	113.1
Ho	165	3	He	3544095.38	105.0
Lu	175	1	No Gas	8612481.34	119.6
Lu	175	3	He	2789534.15	99.8
Bi	209	1	No Gas	5620990.14	119.6
Bi	209	3	He	2287361.46	104.8

# ICPMS207-B Analytical Data

**Sample Name** B22021627-006A  
**File Name** 049SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 17:02:07  
**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	0.659	ug/l	19434.82
Be	9	45	1	No Gas	-0.098	ug/l	79.32
B	11	45	1	No Gas	47.576	ug/l	77141.65
Na	23	45	3	He	55713.415	ug/l	33727890.61
Mg	24	45	3	He	22867.116	ug/l	7633486.25
Al	27	45	1	No Gas	6.268	ug/l	97077.88
Si	28	45	2	H2	19624.775	ug/l	35162156.05
K	39	72	3	He	2429.341	ug/l	1069686.71
Ca	40	72	2	H2	22864.061	ug/l	151893137.79
Ti	47	72	1	No Gas	1.327	ug/l	2415.98
V	51	72	1	No Gas	14.587	ug/l	269255.14
V	51	72	3	He	10.009	ug/l	46142.64
Cr	52	72	1	No Gas	-0.101	ug/l	48788.00
Cr	52	72	3	He	1.568	ug/l	6574.85
Mn	55	72	1	No Gas	17.981	ug/l	420781.96
Mn	55	72	3	He	17.564	ug/l	42750.45
Fe	56	72	2	H2	21.488	ug/l	296351.28
Fe	56	72	3	He	21.292	ug/l	72198.88
Co	59	72	1	No Gas	0.078	ug/l	1879.74
Ni	60	72	1	No Gas	0.813	ug/l	4787.96
Ni	60	72	3	He	0.955	ug/l	1387.85
Cu	63	72	1	No Gas	0.767	ug/l	11259.55
Cu	63	72	3	He	0.567	ug/l	2393.39
Cu	65	72	1	No Gas	0.601	ug/l	3898.09
Zn	66	72	1	No Gas	3.749	ug/l	14471.62
Zn	66	72	3	He	3.817	ug/l	3362.64
As	75	72	1	No Gas	-0.063	ug/l	9746.72
As	75	72	3	He	-0.122	ug/l	200.93
Se	78	72	2	H2	0.373	ug/l	217.34
Br	79	72	1	No Gas	39.348	ug/l	283327.26
Br	79	72	2	H2	38.556	ug/l	169657.13
Se	82	72	1	No Gas	0.945	ug/l	833.56
Kr	84	72	1	No Gas		ug/l	52118.59
Sr	88	72	1	No Gas	198.983	ug/l	5969110.53
Sr	88	72	3	He	182.340	ug/l	689922.99
Mo	95	115	1	No Gas	0.347	ug/l	2145.73
Mo	95	115	3	He	0.366	ug/l	781.14
Mo	98	115	1	No Gas	0.354	ug/l	3555.54
Ag	107	115	1	No Gas	0.001	ug/l	82.70
Ag	109	115	1	No Gas	0.002	ug/l	95.37
Cd	111	115	1	No Gas	0.013	ug/l	50.13

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.015	ug/l	17.89
Cd	114	115	1	No Gas	0.015	ug/l	110.78
Cd	114	115	3	He	0.017	ug/l	44.62
Sn	118	115	1	No Gas	-0.043	ug/l	316.05
Sn	118	115	3	He	-0.056	ug/l	92.22
Sb	121	115	1	No Gas	0.141	ug/l	3000.29
Sb	121	115	3	He	0.132	ug/l	793.44
Sb	123	115	1	No Gas	0.144	ug/l	2338.43
Sb	123	115	3	He	0.133	ug/l	623.74
Ba	135	115	1	No Gas	21.900	ug/l	66971.86
Ba	137	115	1	No Gas	21.784	ug/l	114843.42
La	139	115	3	He	0.004	ug/l	71.11
Ce	140	115	3	He	0.012	ug/l	187.78
Hg	201	209	1	No Gas	-0.048	ug/l	116.98
Hg	202	209	1	No Gas	-0.044	ug/l	291.28
Hg	202	209	3	He	-0.054	ug/l	159.30
Tl	203	209	3	He	0.106	ug/l	609.59
Tl	205	209	1	No Gas	0.070	ug/l	2290.23
Tl	205	209	3	He	0.115	ug/l	1532.04
[Pb]	206	209	1	No Gas	0.220	ug/l	2306.88
[Pb]	207	209	1	No Gas	0.205	ug/l	1890.14
Pb	208	209	1	No Gas	0.212	ug/l	8892.33
Th	232	209	3	He	0.039	ug/l	751.66
U	238	209	1	No Gas	0.027	ug/l	1013.84

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3462009.79	87.3
Sc	45	2	H2	2038824.38	88.4
Sc	45	3	He	224249.84	81.0
Ge	72	1	No Gas	958030.11	92.2
Ge	72	2	H2	729608.36	90.8
Ge	72	3	He	147514.84	88.8
In	115	1	No Gas	1072029.40	99.3
In	115	3	He	246648.54	89.0
Tb	159	1	No Gas	9344152.99	116.5
Tb	159	3	He	3586329.69	102.4
Ho	165	1	No Gas	8706902.43	113.1
Ho	165	3	He	3488647.92	103.3
Lu	175	1	No Gas	8347763.93	115.9
Lu	175	3	He	2902056.28	103.9
Bi	209	1	No Gas	5331905.94	113.4
Bi	209	3	He	2225271.22	101.9

# ICPMS207-B Analytical Data

**Sample Name** B22021627-006B  
**File Name** 050SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 17:08:22  
**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	4.207	ug/l	29010.47
Be	9	45	1	No Gas	-0.079	ug/l	92.31
B	11	45	1	No Gas	36.642	ug/l	41777.69
Na	23	45	3	He	53150.938	ug/l	19353240.83
Mg	24	45	3	He	21797.273	ug/l	4376303.65
Al	27	45	1	No Gas	44.544	ug/l	445591.32
Si	28	45	2	H2	19099.460	ug/l	26102516.90
K	39	72	3	He	1961.091	ug/l	633567.44
Ca	40	72	2	H2	22008.090	ug/l	114352058.03
Ti	47	72	1	No Gas	4.485	ug/l	5897.15
V	51	72	1	No Gas	7.497	ug/l	98975.37
V	51	72	3	He	12.454	ug/l	38819.80
Cr	52	72	1	No Gas	2.299	ug/l	71884.73
Cr	52	72	3	He	2.061	ug/l	5990.16
Mn	55	72	1	No Gas	19.450	ug/l	356617.22
Mn	55	72	3	He	18.452	ug/l	32213.40
Fe	56	72	2	H2	217.206	ug/l	2280572.31
Fe	56	72	3	He	202.566	ug/l	459823.73
Co	59	72	1	No Gas	0.143	ug/l	2475.31
Ni	60	72	1	No Gas	1.086	ug/l	4728.09
Ni	60	72	3	He	1.156	ug/l	1183.39
Cu	63	72	1	No Gas	1.646	ug/l	16152.20
Cu	63	72	3	He	1.589	ug/l	4172.43
Cu	65	72	1	No Gas	1.446	ug/l	6495.41
Zn	66	72	1	No Gas	7.076	ug/l	20918.23
Zn	66	72	3	He	7.358	ug/l	4475.17
As	75	72	1	No Gas	1.815	ug/l	14982.10
As	75	72	3	He	0.217	ug/l	341.73
Se	78	72	2	H2	0.386	ug/l	175.33
Br	79	72	1	No Gas	7.530	ug/l	47133.81
Br	79	72	2	H2	7.333	ug/l	27881.84
Se	82	72	1	No Gas	0.808	ug/l	624.48
Kr	84	72	1	No Gas		ug/l	42142.13
Sr	88	72	1	No Gas	207.784	ug/l	4885572.16
Sr	88	72	3	He	186.090	ug/l	504746.57
Mo	95	115	1	No Gas	0.419	ug/l	2237.97
Mo	95	115	3	He	0.464	ug/l	775.58
Mo	98	115	1	No Gas	0.409	ug/l	3547.69
Ag	107	115	1	No Gas	0.005	ug/l	122.05
Ag	109	115	1	No Gas	0.004	ug/l	103.38
Cd	111	115	1	No Gas	0.024	ug/l	79.32

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.028	ug/l	25.56
Cd	114	115	1	No Gas	0.027	ug/l	178.37
Cd	114	115	3	He	0.031	ug/l	64.41
Sn	118	115	1	No Gas	0.234	ug/l	2541.87
Sn	118	115	3	He	0.233	ug/l	655.58
Sb	121	115	1	No Gas	0.305	ug/l	4801.31
Sb	121	115	3	He	0.310	ug/l	1209.51
Sb	123	115	1	No Gas	0.313	ug/l	3790.57
Sb	123	115	3	He	0.301	ug/l	921.46
Ba	135	115	1	No Gas	20.724	ug/l	54969.77
Ba	137	115	1	No Gas	20.836	ug/l	95265.49
La	139	115	3	He	0.037	ug/l	413.34
Ce	140	115	3	He	0.072	ug/l	861.14
Hg	201	209	1	No Gas	0.023	ug/l	250.29
Hg	202	209	1	No Gas	0.030	ug/l	607.89
Hg	202	209	3	He	0.090	ug/l	381.59
Tl	203	209	3	He	0.067	ug/l	354.81
Tl	205	209	1	No Gas	0.036	ug/l	1264.52
Tl	205	209	3	He	0.064	ug/l	801.02
[Pb]	206	209	1	No Gas	1.434	ug/l	13514.80
[Pb]	207	209	1	No Gas	1.375	ug/l	11373.82
Pb	208	209	1	No Gas	1.385	ug/l	52369.45
Th	232	209	3	He	0.147	ug/l	2157.05
U	238	209	1	No Gas	0.029	ug/l	1048.84

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2438521.02	61.5
Sc	45	2	H2	1554334.59	67.4
Sc	45	3	He	134814.22	48.7
Ge	72	1	No Gas	751262.58	72.3
Ge	72	2	H2	570666.49	71.0
Ge	72	3	He	105808.51	63.7
In	115	1	No Gas	929692.14	86.1
In	115	3	He	193937.24	69.9
Tb	159	1	No Gas	7962149.74	99.3
Tb	159	3	He	3069277.68	87.7
Ho	165	1	No Gas	7874838.31	102.3
Ho	165	3	He	3036732.22	90.0
Lu	175	1	No Gas	7683204.97	106.7
Lu	175	3	He	2391715.28	85.6
Bi	209	1	No Gas	5097277.42	108.4
Bi	209	3	He	1917405.64	87.8

# ICPMS207-B Analytical Data

**Sample Name** B22021627-011A  
**File Name** 051SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 17:14:38  
**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	0.787	ug/l	19990.43
Be	9	45	1	No Gas	-0.106	ug/l	54.99
B	11	45	1	No Gas	38.056	ug/l	61087.34
Na	23	45	3	He	47434.605	ug/l	27819058.47
Mg	24	45	3	He	20255.664	ug/l	6547420.69
Al	27	45	1	No Gas	0.872	ug/l	20919.12
Si	28	45	2	H2	19568.335	ug/l	36039601.34
K	39	72	3	He	2417.157	ug/l	1060215.87
Ca	40	72	2	H2	19866.582	ug/l	132062551.23
Ti	47	72	1	No Gas	1.045	ug/l	1953.77
V	51	72	1	No Gas	15.586	ug/l	288122.32
V	51	72	3	He	11.227	ug/l	49849.23
Cr	52	72	1	No Gas	0.293	ug/l	55598.35
Cr	52	72	3	He	1.814	ug/l	7430.81
Mn	55	72	1	No Gas	0.758	ug/l	21906.31
Mn	55	72	3	He	0.773	ug/l	1952.74
Fe	56	72	2	H2	0.796	ug/l	19515.93
Fe	56	72	3	He	0.615	ug/l	7239.14
Co	59	72	1	No Gas	0.019	ug/l	705.29
Ni	60	72	1	No Gas	0.118	ug/l	1623.54
Ni	60	72	3	He	0.126	ug/l	316.67
Cu	63	72	1	No Gas	0.326	ug/l	6551.44
Cu	63	72	3	He	0.132	ug/l	932.18
Cu	65	72	1	No Gas	0.167	ug/l	1638.09
Zn	66	72	1	No Gas	0.353	ug/l	2006.73
Zn	66	72	3	He	0.282	ug/l	487.79
As	75	72	1	No Gas	-0.434	ug/l	7838.68
As	75	72	3	He	-0.246	ug/l	99.80
Se	78	72	2	H2	0.286	ug/l	172.89
Br	79	72	1	No Gas	38.533	ug/l	276444.42
Br	79	72	2	H2	37.633	ug/l	165806.66
Se	82	72	1	No Gas	0.567	ug/l	729.67
Kr	84	72	1	No Gas		ug/l	47888.69
Sr	88	72	1	No Gas	170.583	ug/l	5096162.96
Sr	88	72	3	He	160.933	ug/l	605564.35
Mo	95	115	1	No Gas	0.288	ug/l	1851.24
Mo	95	115	3	He	0.293	ug/l	633.35
Mo	98	115	1	No Gas	0.287	ug/l	2994.93
Ag	107	115	1	No Gas	0.000	ug/l	70.70
Ag	109	115	1	No Gas	0.000	ug/l	70.03
Cd	111	115	1	No Gas	0.004	ug/l	22.02

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.002	ug/l	3.56
Cd	114	115	1	No Gas	0.003	ug/l	21.58
Cd	114	115	3	He	0.003	ug/l	6.46
Sn	118	115	1	No Gas	-0.044	ug/l	312.72
Sn	118	115	3	He	-0.052	ug/l	102.22
Sb	121	115	1	No Gas	0.001	ug/l	848.45
Sb	121	115	3	He	-0.011	ug/l	198.69
Sb	123	115	1	No Gas	0.000	ug/l	637.75
Sb	123	115	3	He	-0.006	ug/l	168.69
Ba	135	115	1	No Gas	7.630	ug/l	24159.91
Ba	137	115	1	No Gas	7.739	ug/l	42214.39
La	139	115	3	He	0.000	ug/l	7.78
Ce	140	115	3	He	0.001	ug/l	25.55
Hg	201	209	1	No Gas	-0.036	ug/l	142.97
Hg	202	209	1	No Gas	-0.034	ug/l	337.94
Hg	202	209	3	He	-0.046	ug/l	173.97
Tl	203	209	3	He	0.040	ug/l	268.11
Tl	205	209	1	No Gas	0.024	ug/l	1003.38
Tl	205	209	3	He	0.038	ug/l	610.26
[Pb]	206	209	1	No Gas	0.009	ug/l	248.89
[Pb]	207	209	1	No Gas	0.008	ug/l	203.34
Pb	208	209	1	No Gas	0.010	ug/l	980.02
Th	232	209	3	He	0.001	ug/l	136.05
U	238	209	1	No Gas	0.026	ug/l	1013.51

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	3421283.67	86.3
Sc	45	2	H2	2095411.03	90.9
Sc	45	3	He	217183.78	78.4
Ge	72	1	No Gas	954423.55	91.8
Ge	72	2	H2	729958.89	90.8
Ge	72	3	He	146802.21	88.4
In	115	1	No Gas	1107360.14	102.6
In	115	3	He	247390.72	89.2
Tb	159	1	No Gas	9066824.21	113.0
Tb	159	3	He	3569585.53	102.0
Ho	165	1	No Gas	8743794.21	113.5
Ho	165	3	He	3470108.84	102.8
Lu	175	1	No Gas	8571152.52	119.0
Lu	175	3	He	2821001.45	101.0
Bi	209	1	No Gas	5362345.04	114.1
Bi	209	3	He	2215090.63	101.5



# ICPMS207-B Analytical Data

**Sample Name** B22021627-011B  
**File Name** 052SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 17:20:52  
**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	3.866	ug/l	27706.22
Be	9	45	1	No Gas	-0.085	ug/l	81.98
B	11	45	1	No Gas	33.040	ug/l	37955.23
Na	23	45	3	He	46233.021	ug/l	17756852.37
Mg	24	45	3	He	20009.707	ug/l	4236732.79
Al	27	45	1	No Gas	2.532	ug/l	31443.25
Si	28	45	2	H2	19096.404	ug/l	26205551.95
K	39	72	3	He	1984.621	ug/l	650308.21
Ca	40	72	2	H2	19268.521	ug/l	100860181.63
Ti	47	72	1	No Gas	1.273	ug/l	1843.65
V	51	72	1	No Gas	12.016	ug/l	172336.75
V	51	72	3	He	13.785	ug/l	42543.71
Cr	52	72	1	No Gas	2.012	ug/l	68447.65
Cr	52	72	3	He	2.029	ug/l	6002.39
Mn	55	72	1	No Gas	3.178	ug/l	61735.32
Mn	55	72	3	He	2.561	ug/l	4593.14
Fe	56	72	2	H2	12.473	ug/l	138496.21
Fe	56	72	3	He	11.786	ug/l	30855.58
Co	59	72	1	No Gas	0.051	ug/l	1057.95
Ni	60	72	1	No Gas	0.171	ug/l	1480.48
Ni	60	72	3	He	0.245	ug/l	344.45
Cu	63	72	1	No Gas	0.443	ug/l	6187.14
Cu	63	72	3	He	0.275	ug/l	1029.85
Cu	65	72	1	No Gas	0.286	ug/l	1792.17
Zn	66	72	1	No Gas	0.474	ug/l	1946.86
Zn	66	72	3	He	0.382	ug/l	416.68
As	75	72	1	No Gas	0.695	ug/l	10712.34
As	75	72	3	He	0.052	ug/l	249.20
Se	78	72	2	H2	0.339	ug/l	157.66
Br	79	72	1	No Gas	9.059	ug/l	56045.02
Br	79	72	2	H2	9.035	ug/l	33836.06
Se	82	72	1	No Gas	0.643	ug/l	596.35
Kr	84	72	1	No Gas		ug/l	38885.80
Sr	88	72	1	No Gas	176.037	ug/l	4178235.02
Sr	88	72	3	He	159.708	ug/l	440004.26
Mo	95	115	1	No Gas	0.368	ug/l	1931.26
Mo	95	115	3	He	0.410	ug/l	695.58
Mo	98	115	1	No Gas	0.369	ug/l	3143.70
Ag	107	115	1	No Gas	0.002	ug/l	84.04
Ag	109	115	1	No Gas	0.001	ug/l	73.36
Cd	111	115	1	No Gas	0.004	ug/l	18.32

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	4.67
Cd	114	115	1	No Gas	0.004	ug/l	23.55
Cd	114	115	3	He	0.002	ug/l	4.03
Sn	118	115	1	No Gas	0.190	ug/l	2135.94
Sn	118	115	3	He	0.226	ug/l	648.91
Sb	121	115	1	No Gas	0.090	ug/l	1872.65
Sb	121	115	3	He	0.089	ug/l	489.06
Sb	123	115	1	No Gas	0.090	ug/l	1441.22
Sb	123	115	3	He	0.094	ug/l	395.71
Ba	135	115	1	No Gas	8.050	ug/l	20967.80
Ba	137	115	1	No Gas	8.117	ug/l	36425.93
La	139	115	3	He	0.001	ug/l	20.00
Ce	140	115	3	He	0.004	ug/l	63.33
Hg	201	209	1	No Gas	-0.007	ug/l	181.30
Hg	202	209	1	No Gas	-0.002	ug/l	441.92
Hg	202	209	3	He	0.033	ug/l	303.94
Tl	203	209	3	He	0.022	ug/l	166.73
Tl	205	209	1	No Gas	0.012	ug/l	585.57
Tl	205	209	3	He	0.024	ug/l	412.84
[Pb]	206	209	1	No Gas	0.045	ug/l	543.35
[Pb]	207	209	1	No Gas	0.045	ug/l	470.01
Pb	208	209	1	No Gas	0.043	ug/l	2071.19
Th	232	209	3	He	0.061	ug/l	1018.45
U	238	209	1	No Gas	0.028	ug/l	980.51

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2445922.96	61.7
Sc	45	2	H2	1561209.43	67.7
Sc	45	3	He	142209.07	51.4
Ge	72	1	No Gas	757907.40	72.9
Ge	72	2	H2	574846.01	71.5
Ge	72	3	He	107413.15	64.7
In	115	1	No Gas	911376.88	84.4
In	115	3	He	196134.31	70.7
Tb	159	1	No Gas	7783056.95	97.0
Tb	159	3	He	3069258.66	87.7
Ho	165	1	No Gas	7631176.01	99.1
Ho	165	3	He	3014802.48	89.3
Lu	175	1	No Gas	7506106.83	104.3
Lu	175	3	He	2380418.38	85.2
Bi	209	1	No Gas	4839216.63	102.9
Bi	209	3	He	2038748.38	93.4

# ICPMS207-B Analytical Data

**Sample Name** CCV  
**File Name** 053\_CCV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 17:27:05  
**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	357.024	ug/l	1744935.89
Be	9	45	1	No Gas	31.697	ug/l	71471.05
B	11	45	1	No Gas	35.837	ug/l	45808.20
Na	23	45	3	He	12364.052	ug/l	6314607.34
Mg	24	45	3	He	12686.453	ug/l	3554296.91
Al	27	45	1	No Gas	40.794	ug/l	458267.61
Si	28	45	2	H2	205.259	ug/l	341014.68
K	39	72	3	He	10358.430	ug/l	3805168.97
Ca	40	72	2	H2	10995.834	ug/l	68622770.35
Ti	47	72	1	No Gas	41.965	ug/l	61269.31
V	51	72	1	No Gas	37.075	ug/l	649075.67
V	51	72	3	He	46.237	ug/l	147400.83
Cr	52	72	1	No Gas	43.283	ug/l	741968.32
Cr	52	72	3	He	47.532	ug/l	154932.51
Mn	55	72	1	No Gas	47.996	ug/l	1004138.53
Mn	55	72	3	He	47.909	ug/l	104837.63
Fe	56	72	2	H2	1237.600	ug/l	15554418.24
Fe	56	72	3	He	1246.054	ug/l	3527991.04
Co	59	72	1	No Gas	45.844	ug/l	820689.09
Ni	60	72	1	No Gas	45.649	ug/l	187604.70
Ni	60	72	3	He	52.417	ug/l	61058.95
Cu	63	72	1	No Gas	48.720	ug/l	468330.07
Cu	63	72	3	He	54.805	ug/l	165686.41
Cu	65	72	1	No Gas	46.846	ug/l	219618.50
Zn	66	72	1	No Gas	49.628	ug/l	164382.83
Zn	66	72	3	He	51.491	ug/l	37901.89
As	75	72	1	No Gas	49.391	ug/l	231432.63
As	75	72	3	He	50.120	ug/l	36906.92
Se	78	72	2	H2	50.168	ug/l	24248.50
Br	79	72	1	No Gas	0.958	ug/l	12600.53
Br	79	72	2	H2	0.868	ug/l	7403.92
Se	82	72	1	No Gas	52.159	ug/l	12984.03
Kr	84	72	1	No Gas		ug/l	24026.44
Sr	88	72	1	No Gas	54.744	ug/l	1477944.32
Sr	88	72	3	He	51.726	ug/l	175824.90
Mo	95	115	1	No Gas	46.092	ug/l	274691.10
Mo	95	115	3	He	49.562	ug/l	99291.80
Mo	98	115	1	No Gas	47.875	ug/l	462364.35
Ag	107	115	1	No Gas	19.586	ug/l	299559.03
Ag	109	115	1	No Gas	20.004	ug/l	290739.21
Cd	111	115	1	No Gas	51.133	ug/l	170905.21

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	52.929	ug/l	55761.37
Cd	114	115	1	No Gas	50.256	ug/l	380426.43
Cd	114	115	3	He	53.743	ug/l	135082.38
Sn	118	115	1	No Gas	50.640	ug/l	470460.11
Sn	118	115	3	He	50.698	ug/l	125532.96
Sb	121	115	1	No Gas	51.379	ug/l	782901.92
Sb	121	115	3	He	51.023	ug/l	204762.50
Sb	123	115	1	No Gas	51.031	ug/l	602571.01
Sb	123	115	3	He	52.180	ug/l	163654.52
Ba	135	115	1	No Gas	48.992	ug/l	147289.93
Ba	137	115	1	No Gas	50.321	ug/l	260643.65
La	139	115	3	He	54.581	ug/l	739648.38
Ce	140	115	3	He	54.426	ug/l	787957.55
Hg	201	209	1	No Gas	0.963	ug/l	2199.41
Hg	202	209	1	No Gas	0.958	ug/l	5019.95
Hg	202	209	3	He	0.974	ug/l	2220.75
Tl	203	209	3	He	49.060	ug/l	253253.93
Tl	205	209	1	No Gas	49.815	ug/l	1413090.41
Tl	205	209	3	He	50.142	ug/l	605342.43
[Pb]	206	209	1	No Gas	49.330	ug/l	483180.26
[Pb]	207	209	1	No Gas	48.796	ug/l	419299.84
Pb	208	209	1	No Gas	49.184	ug/l	1933171.86
Th	232	209	3	He	50.848	ug/l	837149.25
U	238	209	1	No Gas	50.117	ug/l	1891431.34

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2722320.64	68.7
Sc	45	2	H2	1820084.99	78.9
Sc	45	3	He	188233.78	68.0
Ge	72	1	No Gas	862170.40	83.0
Ge	72	2	H2	684712.76	85.2
Ge	72	3	He	132828.75	80.0
In	115	1	No Gas	1052700.66	97.5
In	115	3	He	236978.66	85.5
Tb	159	1	No Gas	8650190.62	107.8
Tb	159	3	He	3515798.23	100.4
Ho	165	1	No Gas	8544927.75	111.0
Ho	165	3	He	3402243.37	100.8
Lu	175	1	No Gas	8399316.21	116.7
Lu	175	3	He	2748561.25	98.4
Bi	209	1	No Gas	5344064.93	113.7
Bi	209	3	He	2255898.24	103.4

# ICPMS207-B Analytical Data

**Sample Name** CCB  
**File Name** 054\_CCB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 17:33:20  
**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	2.952	ug/l	24624.38
Be	9	45	1	No Gas	-0.083	ug/l	89.31
B	11	45	1	No Gas	0.637	ug/l	1149.84
Na	23	45	3	He	65.252	ug/l	61995.75
Mg	24	45	3	He	3.675	ug/l	1703.38
Al	27	45	1	No Gas	0.136	ug/l	7927.69
Si	28	45	2	H2	3.752	ug/l	17124.03
K	39	72	3	He	-77.687	ug/l	54368.65
Ca	40	72	2	H2	-3.739	ug/l	105361.72
Ti	47	72	1	No Gas	-0.058	ug/l	153.49
V	51	72	1	No Gas	-0.138	ug/l	-23627.72
V	51	72	3	He	-0.605	ug/l	8957.29
Cr	52	72	1	No Gas	-0.550	ug/l	34882.47
Cr	52	72	3	He	0.051	ug/l	851.14
Mn	55	72	1	No Gas	0.122	ug/l	6199.05
Mn	55	72	3	He	0.000	ug/l	63.99
Fe	56	72	2	H2	0.147	ug/l	9285.61
Fe	56	72	3	He	0.014	ug/l	4134.76
Co	59	72	1	No Gas	-0.003	ug/l	232.87
Ni	60	72	1	No Gas	-0.098	ug/l	555.58
Ni	60	72	3	He	0.007	ug/l	126.67
Cu	63	72	1	No Gas	-0.190	ug/l	938.41
Cu	63	72	3	He	-0.037	ug/l	283.28
Cu	65	72	1	No Gas	-0.062	ug/l	388.16
Zn	66	72	1	No Gas	-0.056	ug/l	441.41
Zn	66	72	3	He	-0.172	ug/l	93.33
As	75	72	1	No Gas	1.171	ug/l	13611.91
As	75	72	3	He	-0.131	ug/l	148.47
Se	78	72	2	H2	-0.005	ug/l	19.78
Br	79	72	1	No Gas	0.292	ug/l	7983.11
Br	79	72	2	H2	0.199	ug/l	4305.46
Se	82	72	1	No Gas	-0.170	ug/l	459.95
Kr	84	72	1	No Gas		ug/l	14482.40
Sr	88	72	1	No Gas	0.001	ug/l	329.35
Sr	88	72	3	He	-0.005	ug/l	78.89
Mo	95	115	1	No Gas	0.025	ug/l	185.56
Mo	95	115	3	He	0.021	ug/l	53.33
Mo	98	115	1	No Gas	0.024	ug/l	292.23
Ag	107	115	1	No Gas	0.004	ug/l	112.05
Ag	109	115	1	No Gas	0.003	ug/l	100.71
Cd	111	115	1	No Gas	0.003	ug/l	16.43

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.002	ug/l	2.56
Cd	114	115	1	No Gas	0.003	ug/l	18.79
Cd	114	115	3	He	0.002	ug/l	4.76
Sn	118	115	1	No Gas	0.060	ug/l	1217.64
Sn	118	115	3	He	0.035	ug/l	272.23
Sb	121	115	1	No Gas	0.148	ug/l	2949.61
Sb	121	115	3	He	0.116	ug/l	607.74
Sb	123	115	1	No Gas	0.143	ug/l	2213.07
Sb	123	115	3	He	0.100	ug/l	431.72
Ba	135	115	1	No Gas	0.002	ug/l	36.59
Ba	137	115	1	No Gas	0.002	ug/l	49.90
La	139	115	3	He	0.001	ug/l	13.33
Ce	140	115	3	He	0.000	ug/l	10.00
Hg	201	209	1	No Gas	-0.056	ug/l	103.31
Hg	202	209	1	No Gas	-0.053	ug/l	252.62
Hg	202	209	3	He	-0.065	ug/l	130.97
Tl	203	209	3	He	0.107	ug/l	584.91
Tl	205	209	1	No Gas	0.071	ug/l	2390.25
Tl	205	209	3	He	0.116	ug/l	1469.34
[Pb]	206	209	1	No Gas	0.000	ug/l	164.45
[Pb]	207	209	1	No Gas	0.002	ug/l	151.11
Pb	208	209	1	No Gas	0.003	ug/l	707.79
Th	232	209	3	He	0.042	ug/l	762.99
U	238	209	1	No Gas	0.002	ug/l	88.31

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2543138.08	64.2
Sc	45	2	H2	1658015.54	71.9
Sc	45	3	He	154728.28	55.9
Ge	72	1	No Gas	820250.81	78.9
Ge	72	2	H2	626402.31	77.9
Ge	72	3	He	113056.94	68.1
In	115	1	No Gas	1017406.80	94.2
In	115	3	He	206338.61	74.4
Tb	159	1	No Gas	8399194.94	104.7
Tb	159	3	He	3257319.44	93.0
Ho	165	1	No Gas	8186075.63	106.3
Ho	165	3	He	3125503.10	92.6
Lu	175	1	No Gas	8096734.36	112.5
Lu	175	3	He	2505859.81	89.7
Bi	209	1	No Gas	5438419.96	115.7
Bi	209	3	He	2118359.91	97.1

# ICPMS207-B Analytical Data

**Sample Name** Cal Blk  
**File Name** 055CALB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 17:39:36  
**Sample Type** CalBlk  
**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	24443.37
Be	9	45	1	No Gas	0.000	ug/l	100.65
B	11	45	1	No Gas	0.000	ug/l	875.05
Na	23	45	3	He	0.000	ug/l	58369.19
Mg	24	45	3	He	0.000	ug/l	1710.05
Al	27	45	1	No Gas	0.000	ug/l	7908.80
Si	28	45	2	H2	0.000	ug/l	15010.24
K	39	72	3	He	0.000	ug/l	51788.57
Ca	40	72	2	H2	0.000	ug/l	101620.94
Ti	47	72	1	No Gas	0.000	ug/l	118.45
V	51	72	1	No Gas	0.000	ug/l	-34268.89
V	51	72	3	He	0.000	ug/l	8388.03
Cr	52	72	1	No Gas	0.000	ug/l	32311.94
Cr	52	72	3	He	0.000	ug/l	873.36
Mn	55	72	1	No Gas	0.000	ug/l	5716.47
Mn	55	72	3	He	0.000	ug/l	54.66
Fe	56	72	2	H2	0.000	ug/l	8990.14
Fe	56	72	3	He	0.000	ug/l	3854.40
Co	59	72	1	No Gas	0.000	ug/l	645.90
Ni	60	72	1	No Gas	0.000	ug/l	449.12
Ni	60	72	3	He	0.000	ug/l	132.22
Cu	63	72	1	No Gas	0.000	ug/l	903.73
Cu	63	72	3	He	0.000	ug/l	261.28
Cu	65	72	1	No Gas	0.000	ug/l	340.81
Zn	66	72	1	No Gas	0.000	ug/l	398.50
Zn	66	72	3	He	0.000	ug/l	101.11
As	75	72	1	No Gas	0.000	ug/l	9509.82
As	75	72	3	He	0.000	ug/l	137.40
Se	78	72	2	H2	0.000	ug/l	19.55
Br	79	72	1	No Gas	0.000	ug/l	6714.95
Br	79	72	2	H2	0.000	ug/l	3822.93
Se	82	72	1	No Gas	0.000	ug/l	516.75
Kr	84	72	1	No Gas		ug/l	13956.13
Sr	88	72	1	No Gas	0.000	ug/l	302.74
Sr	88	72	3	He	0.000	ug/l	87.78
Mo	95	115	1	No Gas	0.000	ug/l	44.44
Mo	95	115	3	He	0.000	ug/l	21.11
Mo	98	115	1	No Gas	0.000	ug/l	118.89
Ag	107	115	1	No Gas	0.000	ug/l	106.71
Ag	109	115	1	No Gas	0.000	ug/l	100.71
Cd	111	115	1	No Gas	0.000	ug/l	14.23

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.000	ug/l	2.22
Cd	114	115	1	No Gas	0.000	ug/l	-0.67
Cd	114	115	3	He	0.000	ug/l	0.90
Sn	118	115	1	No Gas	0.000	ug/l	738.56
Sn	118	115	3	He	0.000	ug/l	176.67
Sb	121	115	1	No Gas	0.000	ug/l	1252.19
Sb	121	115	3	He	0.000	ug/l	266.03
Sb	123	115	1	No Gas	0.000	ug/l	980.14
Sb	123	115	3	He	0.000	ug/l	218.02
Ba	135	115	1	No Gas	0.000	ug/l	19.96
Ba	137	115	1	No Gas	0.000	ug/l	43.25
La	139	115	3	He	0.000	ug/l	11.11
Ce	140	115	3	He	0.000	ug/l	11.11
Hg	201	209	1	No Gas	0.000	ug/l	109.65
Hg	202	209	1	No Gas	0.000	ug/l	221.96
Hg	202	209	3	He	0.000	ug/l	106.31
Tl	203	209	3	He	0.000	ug/l	222.76
Tl	205	209	1	No Gas	0.000	ug/l	987.82
Tl	205	209	3	He	0.000	ug/l	572.24
[Pb]	206	209	1	No Gas	0.000	ug/l	167.78
[Pb]	207	209	1	No Gas	0.000	ug/l	128.89
Pb	208	209	1	No Gas	0.000	ug/l	597.79
Th	232	209	3	He	0.000	ug/l	312.80
U	238	209	1	No Gas	0.000	ug/l	24.33

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2401562.74	100.0
Sc	45	2	H2	1615001.82	100.0
Sc	45	3	He	145819.82	100.0
Ge	72	1	No Gas	768188.85	100.0
Ge	72	2	H2	600857.55	100.0
Ge	72	3	He	111934.70	100.0
In	115	1	No Gas	954134.20	100.0
In	115	3	He	206762.63	100.0
Tb	159	1	No Gas	8208438.15	100.0
Tb	159	3	He	3263156.35	100.0
Ho	165	1	No Gas	8110663.51	100.0
Ho	165	3	He	3218819.51	100.0
Lu	175	1	No Gas	8131531.09	100.0
Lu	175	3	He	2517762.10	100.0
Bi	209	1	No Gas	5352032.85	100.0
Bi	209	3	He	2207309.48	100.0



# ICPMS207-B Analytical Data

**Sample Name** 0.025 ppb STD  
**File Name** 056CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 17:45:59  
**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	0.950	ug/l	24885.59
Be	9	45	1	No Gas	0.020	ug/l	116.65
B	11	45	1	No Gas	-0.384	ug/l	540.89
Na	23	45	3	He	21.016	ug/l	60670.43
Mg	24	45	3	He	7.569	ug/l	2977.73
Al	27	45	1	No Gas	0.291	ug/l	9540.85
Si	28	45	2	H2	-0.910	ug/l	13137.74
K	39	72	3	He	7.038	ug/l	48673.29
Ca	40	72	2	H2	10.014	ug/l	143111.77
Ti	47	72	1	No Gas	0.116	ug/l	218.55
V	51	72	1	No Gas	5.151	ug/l	33290.47
V	51	72	3	He	0.079	ug/l	7794.35
Cr	52	72	1	No Gas	0.083	ug/l	31548.40
Cr	52	72	3	He	0.051	ug/l	913.37
Mn	55	72	1	No Gas	0.008	ug/l	5533.41
Mn	55	72	3	He	0.035	ug/l	103.65
Fe	56	72	2	H2	0.972	ug/l	18296.52
Fe	56	72	3	He	1.012	ug/l	5549.99
Co	59	72	1	No Gas	0.008	ug/l	695.31
Ni	60	72	1	No Gas	0.033	ug/l	522.31
Ni	60	72	3	He	0.059	ug/l	173.34
Cu	63	72	1	No Gas	0.058	ug/l	1277.24
Cu	63	72	3	He	0.047	ug/l	345.94
Cu	65	72	1	No Gas	0.041	ug/l	467.53
Zn	66	72	1	No Gas	0.224	ug/l	964.12
Zn	66	72	3	He	0.206	ug/l	204.45
As	75	72	1	No Gas	0.270	ug/l	9964.77
As	75	72	3	He	0.030	ug/l	141.07
Se	78	72	2	H2	0.025	ug/l	28.44
Br	79	72	1	No Gas	0.322	ug/l	8149.49
Br	79	72	2	H2	0.308	ug/l	4688.16
Se	82	72	1	No Gas	-0.074	ug/l	471.27
Kr	84	72	1	No Gas		ug/l	12484.37
Sr	88	72	1	No Gas	0.033	ug/l	1064.60
Sr	88	72	3	He	0.032	ug/l	162.22
Mo	95	115	1	No Gas	0.081	ug/l	452.23
Mo	95	115	3	He	0.069	ug/l	133.33
Mo	98	115	1	No Gas	0.077	ug/l	751.76
Ag	107	115	1	No Gas	0.010	ug/l	248.10
Ag	109	115	1	No Gas	0.011	ug/l	244.77
Cd	111	115	1	No Gas	0.025	ug/l	90.94

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.026	ug/l	25.11
Cd	114	115	1	No Gas	0.024	ug/l	169.18
Cd	114	115	3	He	0.028	ug/l	60.79
Sn	118	115	1	No Gas	0.041	ug/l	1104.53
Sn	118	115	3	He	0.041	ug/l	246.67
Sb	121	115	1	No Gas	-0.009	ug/l	1128.16
Sb	121	115	3	He	0.014	ug/l	291.03
Sb	123	115	1	No Gas	-0.013	ug/l	837.44
Sb	123	115	3	He	0.006	ug/l	217.02
Ba	135	115	1	No Gas	0.033	ug/l	109.78
Ba	137	115	1	No Gas	0.022	ug/l	149.70
La	139	115	3	He	0.027	ug/l	333.34
Ce	140	115	3	He	0.028	ug/l	367.79
Hg	201	209	1	No Gas	-0.019	ug/l	67.99
Hg	202	209	1	No Gas	-0.010	ug/l	169.97
Hg	202	209	3	He	-0.013	ug/l	75.98
Tl	203	209	3	He	0.007	ug/l	246.77
Tl	205	209	1	No Gas	0.009	ug/l	1202.29
Tl	205	209	3	He	0.007	ug/l	624.27
[Pb]	206	209	1	No Gas	0.023	ug/l	380.01
[Pb]	207	209	1	No Gas	0.030	ug/l	372.23
Pb	208	209	1	No Gas	0.026	ug/l	1577.83
Th	232	209	3	He	0.008	ug/l	422.85
U	238	209	1	No Gas	0.025	ug/l	957.51

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2248556.70	93.6
Sc	45	2	H2	1534697.08	95.0
Sc	45	3	He	133831.10	91.8
Ge	72	1	No Gas	727010.48	94.6
Ge	72	2	H2	571637.76	95.1
Ge	72	3	He	101834.88	91.0
In	115	1	No Gas	956892.30	100.3
In	115	3	He	190309.77	92.0
Tb	159	1	No Gas	8128086.24	99.0
Tb	159	3	He	3022975.48	92.6
Ho	165	1	No Gas	7776095.87	95.9
Ho	165	3	He	3004471.29	93.3
Lu	175	1	No Gas	7728079.21	95.0
Lu	175	3	He	2421515.91	96.2
Bi	209	1	No Gas	5198725.29	97.1
Bi	209	3	He	2108268.94	95.5

# ICPMS207-B Analytical Data

**Sample Name** 0.05 ppb STD  
**File Name** 057CAL5.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 17:52:22  
**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	2.488	ug/l	26316.52
Be	9	45	1	No Gas	0.068	ug/l	160.64
B	11	45	1	No Gas	-0.311	ug/l	556.90
Na	23	45	3	He	36.628	ug/l	62457.71
Mg	24	45	3	He	18.339	ug/l	4721.41
Al	27	45	1	No Gas	0.444	ug/l	9957.79
Si	28	45	2	H2	-0.811	ug/l	13034.95
K	39	72	3	He	7.167	ug/l	47616.60
Ca	40	72	2	H2	18.487	ug/l	182097.61
Ti	47	72	1	No Gas	0.124	ug/l	230.23
V	51	72	1	No Gas	2.186	ug/l	-4374.70
V	51	72	3	He	0.111	ug/l	7684.33
Cr	52	72	1	No Gas	0.052	ug/l	31698.32
Cr	52	72	3	He	0.105	ug/l	1011.15
Mn	55	72	1	No Gas	0.045	ug/l	6242.32
Mn	55	72	3	He	0.066	ug/l	148.64
Fe	56	72	2	H2	1.774	ug/l	26293.41
Fe	56	72	3	He	1.720	ug/l	6823.49
Co	59	72	1	No Gas	0.039	ug/l	1127.81
Ni	60	72	1	No Gas	0.094	ug/l	715.27
Ni	60	72	3	He	0.042	ug/l	154.45
Cu	63	72	1	No Gas	0.068	ug/l	1375.95
Cu	63	72	3	He	0.077	ug/l	405.59
Cu	65	72	1	No Gas	0.084	ug/l	631.60
Zn	66	72	1	No Gas	0.328	ug/l	1260.09
Zn	66	72	3	He	0.360	ug/l	282.23
As	75	72	1	No Gas	-0.061	ug/l	8920.06
As	75	72	3	He	0.058	ug/l	152.93
Se	78	72	2	H2	0.054	ug/l	40.11
Br	79	72	1	No Gas	0.209	ug/l	7653.55
Br	79	72	2	H2	0.267	ug/l	4541.73
Se	82	72	1	No Gas	-0.459	ug/l	399.42
Kr	84	72	1	No Gas		ug/l	12421.15
Sr	88	72	1	No Gas	0.073	ug/l	2026.14
Sr	88	72	3	He	0.064	ug/l	237.78
Mo	95	115	1	No Gas	0.068	ug/l	393.34
Mo	95	115	3	He	0.062	ug/l	116.67
Mo	98	115	1	No Gas	0.052	ug/l	544.46
Ag	107	115	1	No Gas	0.026	ug/l	460.86
Ag	109	115	1	No Gas	0.025	ug/l	428.18
Cd	111	115	1	No Gas	0.063	ug/l	210.78

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.065	ug/l	57.89
Cd	114	115	1	No Gas	0.064	ug/l	451.22
Cd	114	115	3	He	0.062	ug/l	129.12
Sn	118	115	1	No Gas	0.062	ug/l	1297.49
Sn	118	115	3	He	0.106	ug/l	370.01
Sb	121	115	1	No Gas	0.021	ug/l	1561.91
Sb	121	115	3	He	0.045	ug/l	383.38
Sb	123	115	1	No Gas	0.016	ug/l	1167.83
Sb	123	115	3	He	0.033	ug/l	279.70
Ba	135	115	1	No Gas	0.065	ug/l	199.61
Ba	137	115	1	No Gas	0.072	ug/l	399.21
La	139	115	3	He	0.064	ug/l	750.03
Ce	140	115	3	He	0.070	ug/l	878.92
Hg	201	209	1	No Gas	-0.011	ug/l	84.32
Hg	202	209	1	No Gas	-0.006	ug/l	185.30
Hg	202	209	3	He	-0.008	ug/l	82.65
Tl	203	209	3	He	0.046	ug/l	418.84
Tl	205	209	1	No Gas	0.043	ug/l	2102.40
Tl	205	209	3	He	0.044	ug/l	1004.44
[Pb]	206	209	1	No Gas	0.051	ug/l	648.91
[Pb]	207	209	1	No Gas	0.065	ug/l	648.91
Pb	208	209	1	No Gas	0.059	ug/l	2809.03
Th	232	209	3	He	0.026	ug/l	680.29
U	238	209	1	No Gas	0.057	ug/l	2115.75

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2104190.12	87.6
Sc	45	2	H2	1508860.34	93.4
Sc	45	3	He	126772.39	86.9
Ge	72	1	No Gas	738650.87	96.2
Ge	72	2	H2	570448.83	94.9
Ge	72	3	He	99525.47	88.9
In	115	1	No Gas	963255.84	101.0
In	115	3	He	184805.61	89.4
Tb	159	1	No Gas	8234380.18	100.3
Tb	159	3	He	3077840.65	94.3
Ho	165	1	No Gas	7925781.39	97.7
Ho	165	3	He	2929515.69	91.0
Lu	175	1	No Gas	7892161.73	97.1
Lu	175	3	He	2318852.34	92.1
Bi	209	1	No Gas	5187398.58	96.9
Bi	209	3	He	2047889.61	92.8

# ICPMS207-B Analytical Data

**Sample Name** 0.10 ppb STD  
**File Name** 058CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 17:58:45  
**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	3.617	ug/l	27380.16
Be	9	45	1	No Gas	0.119	ug/l	206.96
B	11	45	1	No Gas	-0.307	ug/l	534.89
Na	23	45	3	He	59.636	ug/l	66532.83
Mg	24	45	3	He	35.924	ug/l	7457.12
Al	27	45	1	No Gas	0.604	ug/l	10596.01
Si	28	45	2	H2	-0.832	ug/l	12989.54
K	39	72	3	He	21.112	ug/l	49619.83
Ca	40	72	2	H2	31.653	ug/l	247703.91
Ti	47	72	1	No Gas	0.222	ug/l	313.65
V	51	72	1	No Gas	6.187	ug/l	46275.55
V	51	72	3	He	0.055	ug/l	7417.49
Cr	52	72	1	No Gas	0.070	ug/l	31188.25
Cr	52	72	3	He	0.156	ug/l	1103.38
Mn	55	72	1	No Gas	0.091	ug/l	6851.37
Mn	55	72	3	He	0.113	ug/l	215.29
Fe	56	72	2	H2	3.197	ug/l	41309.67
Fe	56	72	3	He	3.358	ug/l	9853.29
Co	59	72	1	No Gas	0.095	ug/l	1823.17
Ni	60	72	1	No Gas	0.138	ug/l	828.38
Ni	60	72	3	He	0.115	ug/l	214.45
Cu	63	72	1	No Gas	0.171	ug/l	2088.33
Cu	63	72	3	He	0.138	ug/l	531.23
Cu	65	72	1	No Gas	0.141	ug/l	819.02
Zn	66	72	1	No Gas	0.303	ug/l	1167.05
Zn	66	72	3	He	0.387	ug/l	290.01
As	75	72	1	No Gas	-0.056	ug/l	8749.38
As	75	72	3	He	0.116	ug/l	180.47
Se	78	72	2	H2	0.102	ug/l	60.34
Br	79	72	1	No Gas	0.317	ug/l	8066.32
Br	79	72	2	H2	0.329	ug/l	4841.24
Se	82	72	1	No Gas	-0.276	ug/l	428.08
Kr	84	72	1	No Gas		ug/l	12727.48
Sr	88	72	1	No Gas	0.140	ug/l	3560.07
Sr	88	72	3	He	0.130	ug/l	392.23
Mo	95	115	1	No Gas	0.111	ug/l	591.13
Mo	95	115	3	He	0.113	ug/l	200.00
Mo	98	115	1	No Gas	0.099	ug/l	898.93
Ag	107	115	1	No Gas	0.049	ug/l	748.99
Ag	109	115	1	No Gas	0.047	ug/l	692.96
Cd	111	115	1	No Gas	0.121	ug/l	377.60

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.118	ug/l	104.00
Cd	114	115	1	No Gas	0.120	ug/l	821.17
Cd	114	115	3	He	0.125	ug/l	262.45
Sn	118	115	1	No Gas	0.153	ug/l	2026.16
Sn	118	115	3	He	0.127	ug/l	415.56
Sb	121	115	1	No Gas	0.070	ug/l	2183.73
Sb	121	115	3	He	0.095	ug/l	548.40
Sb	123	115	1	No Gas	0.070	ug/l	1701.94
Sb	123	115	3	He	0.088	ug/l	424.72
Ba	135	115	1	No Gas	0.116	ug/l	329.35
Ba	137	115	1	No Gas	0.106	ug/l	545.60
La	139	115	3	He	0.120	ug/l	1424.53
Ce	140	115	3	He	0.128	ug/l	1622.33
Hg	201	209	1	No Gas	-0.018	ug/l	72.32
Hg	202	209	1	No Gas	-0.005	ug/l	196.30
Hg	202	209	3	He	-0.004	ug/l	91.98
Tl	203	209	3	He	0.090	ug/l	624.94
Tl	205	209	1	No Gas	0.092	ug/l	3512.71
Tl	205	209	3	He	0.088	ug/l	1497.36
[Pb]	206	209	1	No Gas	0.107	ug/l	1227.85
[Pb]	207	209	1	No Gas	0.105	ug/l	1007.83
Pb	208	209	1	No Gas	0.108	ug/l	4789.27
Th	232	209	3	He	0.054	ug/l	1114.50
U	238	209	1	No Gas	0.107	ug/l	4105.50

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2013925.23	83.9
Sc	45	2	H2	1506289.22	93.3
Sc	45	3	He	120805.55	82.8
Ge	72	1	No Gas	721736.19	94.0
Ge	72	2	H2	581337.85	96.8
Ge	72	3	He	97489.19	87.1
In	115	1	No Gas	929315.13	97.4
In	115	3	He	186435.97	90.2
Tb	159	1	No Gas	8228662.80	100.2
Tb	159	3	He	3000318.39	91.9
Ho	165	1	No Gas	7742077.38	95.5
Ho	165	3	He	2929312.80	91.0
Lu	175	1	No Gas	7851697.88	96.6
Lu	175	3	He	2254632.63	89.5
Bi	209	1	No Gas	5364018.87	100.2
Bi	209	3	He	2057379.71	93.2

# ICPMS207-B Analytical Data

**Sample Name** 0.5 ppb STD  
**File Name** 059CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 18:05:08  
**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	8.508	ug/l	36445.98
Be	9	45	1	No Gas	0.493	ug/l	589.23
B	11	45	1	No Gas	0.055	ug/l	765.00
Na	23	45	3	He	167.371	ug/l	99358.63
Mg	24	45	3	He	142.199	ug/l	25324.80
Al	27	45	1	No Gas	1.023	ug/l	13259.23
Si	28	45	2	H2	0.290	ug/l	13856.68
K	39	72	3	He	111.696	ug/l	67775.46
Ca	40	72	2	H2	135.609	ug/l	709150.75
Ti	47	72	1	No Gas	0.580	ug/l	637.32
V	51	72	1	No Gas	-0.583	ug/l	-38527.16
V	51	72	3	He	0.498	ug/l	8151.22
Cr	52	72	1	No Gas	0.442	ug/l	35439.55
Cr	52	72	3	He	0.528	ug/l	1882.36
Mn	55	72	1	No Gas	0.531	ug/l	13929.10
Mn	55	72	3	He	0.525	ug/l	810.53
Fe	56	72	2	H2	14.098	ug/l	146450.35
Fe	56	72	3	He	14.586	ug/l	31039.50
Co	59	72	1	No Gas	0.503	ug/l	7074.45
Ni	60	72	1	No Gas	0.531	ug/l	1979.55
Ni	60	72	3	He	0.571	ug/l	597.79
Cu	63	72	1	No Gas	0.597	ug/l	5167.67
Cu	63	72	3	He	0.630	ug/l	1590.10
Cu	65	72	1	No Gas	0.530	ug/l	2190.38
Zn	66	72	1	No Gas	0.733	ug/l	2284.82
Zn	66	72	3	He	0.761	ug/l	477.79
As	75	72	1	No Gas	1.189	ug/l	13167.55
As	75	72	3	He	0.532	ug/l	390.93
Se	78	72	2	H2	0.538	ug/l	228.89
Br	79	72	1	No Gas	0.261	ug/l	7743.42
Br	79	72	2	H2	0.331	ug/l	4654.86
Se	82	72	1	No Gas	0.186	ug/l	520.22
Kr	84	72	1	No Gas		ug/l	12853.93
Sr	88	72	1	No Gas	0.584	ug/l	13889.28
Sr	88	72	3	He	0.563	ug/l	1421.19
Mo	95	115	1	No Gas	0.498	ug/l	2545.80
Mo	95	115	3	He	0.502	ug/l	817.81
Mo	98	115	1	No Gas	0.507	ug/l	4220.66
Ag	107	115	1	No Gas	0.212	ug/l	2957.51
Ag	109	115	1	No Gas	0.221	ug/l	2937.49
Cd	111	115	1	No Gas	0.527	ug/l	1623.47

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.565	ug/l	485.34
Cd	114	115	1	No Gas	0.523	ug/l	3649.44
Cd	114	115	3	He	0.560	ug/l	1162.48
Sn	118	115	1	No Gas	0.550	ug/l	5516.87
Sn	118	115	3	He	0.559	ug/l	1272.29
Sb	121	115	1	No Gas	0.478	ug/l	7945.72
Sb	121	115	3	He	0.499	ug/l	1840.64
Sb	123	115	1	No Gas	0.471	ug/l	6111.95
Sb	123	115	3	He	0.503	ug/l	1481.56
Ba	135	115	1	No Gas	0.569	ug/l	1570.31
Ba	137	115	1	No Gas	0.520	ug/l	2568.50
La	139	115	3	He	0.551	ug/l	6420.43
Ce	140	115	3	He	0.563	ug/l	7008.49
Hg	201	209	1	No Gas	-0.005	ug/l	96.98
Hg	202	209	1	No Gas	0.008	ug/l	256.28
Hg	202	209	3	He	0.003	ug/l	106.31
Tl	203	209	3	He	0.458	ug/l	2371.84
Tl	205	209	1	No Gas	0.507	ug/l	14723.87
Tl	205	209	3	He	0.466	ug/l	5699.53
[Pb]	206	209	1	No Gas	0.495	ug/l	4979.86
[Pb]	207	209	1	No Gas	0.539	ug/l	4553.04
Pb	208	209	1	No Gas	0.514	ug/l	20186.12
Th	232	209	3	He	0.346	ug/l	5670.85
U	238	209	1	No Gas	0.505	ug/l	18916.92

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2002702.87	83.4
Sc	45	2	H2	1453786.50	90.0
Sc	45	3	He	120777.58	82.8
Ge	72	1	No Gas	719651.24	93.7
Ge	72	2	H2	558534.75	93.0
Ge	72	3	He	95829.01	85.6
In	115	1	No Gas	947946.58	99.4
In	115	3	He	184503.88	89.2
Tb	159	1	No Gas	8270703.90	100.8
Tb	159	3	He	2965964.40	90.9
Ho	165	1	No Gas	7969824.23	98.3
Ho	165	3	He	2903448.68	90.2
Lu	175	1	No Gas	7948553.74	97.7
Lu	175	3	He	2290043.27	91.0
Bi	209	1	No Gas	5266475.88	98.4
Bi	209	3	He	2091194.42	94.7



# ICPMS207-B Analytical Data

**Sample Name** 1 ppb STD  
**File Name** 060CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 18:11:31  
**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	14.600	ug/l	47790.49
Be	9	45	1	No Gas	0.985	ug/l	1088.82
B	11	45	1	No Gas	0.532	ug/l	1067.80
Na	23	45	3	He	321.924	ug/l	143076.99
Mg	24	45	3	He	294.956	ug/l	49768.51
Al	27	45	1	No Gas	1.513	ug/l	16385.69
Si	28	45	2	H2	1.946	ug/l	15884.84
K	39	72	3	He	241.189	ug/l	91869.83
Ca	40	72	2	H2	271.784	ug/l	1330053.43
Ti	47	72	1	No Gas	1.140	ug/l	1104.49
V	51	72	1	No Gas	1.462	ug/l	-12812.51
V	51	72	3	He	0.863	ug/l	8580.35
Cr	52	72	1	No Gas	0.896	ug/l	39251.54
Cr	52	72	3	He	1.187	ug/l	3193.70
Mn	55	72	1	No Gas	1.074	ug/l	21860.00
Mn	55	72	3	He	1.118	ug/l	1619.44
Fe	56	72	2	H2	29.373	ug/l	296881.78
Fe	56	72	3	He	29.930	ug/l	58221.56
Co	59	72	1	No Gas	1.127	ug/l	14575.13
Ni	60	72	1	No Gas	1.129	ug/l	3603.31
Ni	60	72	3	He	1.199	ug/l	1093.38
Cu	63	72	1	No Gas	1.206	ug/l	9221.97
Cu	63	72	3	He	1.321	ug/l	2983.38
Cu	65	72	1	No Gas	1.159	ug/l	4254.34
Zn	66	72	1	No Gas	1.539	ug/l	4221.38
Zn	66	72	3	He	1.660	ug/l	908.93
As	75	72	1	No Gas	1.340	ug/l	13184.32
As	75	72	3	He	1.140	ug/l	680.20
Se	78	72	2	H2	1.116	ug/l	456.45
Br	79	72	1	No Gas	0.292	ug/l	7626.91
Br	79	72	2	H2	0.277	ug/l	4488.47
Se	82	72	1	No Gas	0.854	ug/l	629.27
Kr	84	72	1	No Gas		ug/l	12767.22
Sr	88	72	1	No Gas	1.220	ug/l	27665.27
Sr	88	72	3	He	1.208	ug/l	2871.42
Mo	95	115	1	No Gas	1.002	ug/l	5074.28
Mo	95	115	3	He	1.092	ug/l	1741.23
Mo	98	115	1	No Gas	1.013	ug/l	8305.33
Ag	107	115	1	No Gas	0.437	ug/l	5989.04
Ag	109	115	1	No Gas	0.437	ug/l	5710.13
Cd	111	115	1	No Gas	1.101	ug/l	3374.74

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	1.163	ug/l	989.15
Cd	114	115	1	No Gas	1.070	ug/l	7459.74
Cd	114	115	3	He	1.178	ug/l	2422.37
Sn	118	115	1	No Gas	1.059	ug/l	9943.89
Sn	118	115	3	He	1.118	ug/l	2364.66
Sb	121	115	1	No Gas	1.040	ug/l	15828.16
Sb	121	115	3	He	1.091	ug/l	3713.87
Sb	123	115	1	No Gas	1.001	ug/l	11880.54
Sb	123	115	3	He	1.087	ug/l	2949.28
Ba	135	115	1	No Gas	1.158	ug/l	3177.41
Ba	137	115	1	No Gas	1.076	ug/l	5260.58
La	139	115	3	He	1.110	ug/l	12807.11
Ce	140	115	3	He	1.146	ug/l	14143.98
Hg	201	209	1	No Gas	0.005	ug/l	120.31
Hg	202	209	1	No Gas	0.013	ug/l	282.61
Hg	202	209	3	He	0.019	ug/l	135.64
Tl	203	209	3	He	1.039	ug/l	5044.32
Tl	205	209	1	No Gas	1.029	ug/l	29311.52
Tl	205	209	3	He	1.043	ug/l	11932.86
[Pb]	206	209	1	No Gas	1.009	ug/l	10118.37
[Pb]	207	209	1	No Gas	1.090	ug/l	9213.28
Pb	208	209	1	No Gas	1.037	ug/l	40727.93
Th	232	209	3	He	0.840	ug/l	13172.61
U	238	209	1	No Gas	1.038	ug/l	39433.52

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	1993316.84	83.0
Sc	45	2	H2	1461518.24	90.5
Sc	45	3	He	117898.98	80.9
Ge	72	1	No Gas	693773.45	90.3
Ge	72	2	H2	560069.09	93.2
Ge	72	3	He	92787.55	82.9
In	115	1	No Gas	947345.98	99.3
In	115	3	He	182981.01	88.5
Tb	159	1	No Gas	7999637.27	97.5
Tb	159	3	He	2962935.46	90.8
Ho	165	1	No Gas	7721236.22	95.2
Ho	165	3	He	2936388.42	91.2
Lu	175	1	No Gas	7829227.96	96.3
Lu	175	3	He	2330738.36	92.6
Bi	209	1	No Gas	5345718.11	99.9
Bi	209	3	He	2062615.81	93.4

# ICPMS207-B Analytical Data

**Sample Name** 10 ppb STD  
**File Name** 061CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 18:17:54  
**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	114.281	ug/l	232771.69
Be	9	45	1	No Gas	9.313	ug/l	9476.11
B	11	45	1	No Gas	8.698	ug/l	6223.80
Na	23	45	3	He	2798.285	ug/l	903172.57
Mg	24	45	3	He	2755.610	ug/l	465316.94
Al	27	45	1	No Gas	10.399	ug/l	73285.85
Si	28	45	2	H2	39.509	ug/l	59224.31
K	39	72	3	He	2474.866	ug/l	550462.09
Ca	40	72	2	H2	2653.273	ug/l	12211660.19
Ti	47	72	1	No Gas	10.003	ug/l	8794.84
V	51	72	1	No Gas	12.168	ug/l	114961.72
V	51	72	3	He	9.836	ug/l	25756.46
Cr	52	72	1	No Gas	10.017	ug/l	140760.06
Cr	52	72	3	He	10.548	ug/l	22863.61
Mn	55	72	1	No Gas	10.822	ug/l	172282.85
Mn	55	72	3	He	10.683	ug/l	15220.22
Fe	56	72	2	H2	283.354	ug/l	2805276.40
Fe	56	72	3	He	296.319	ug/l	553295.98
Co	59	72	1	No Gas	11.116	ug/l	137837.23
Ni	60	72	1	No Gas	10.803	ug/l	30808.54
Ni	60	72	3	He	11.984	ug/l	10031.32
Cu	63	72	1	No Gas	11.189	ug/l	78327.90
Cu	63	72	3	He	12.511	ug/l	26697.83
Cu	65	72	1	No Gas	11.208	ug/l	38218.51
Zn	66	72	1	No Gas	11.529	ug/l	29075.64
Zn	66	72	3	He	11.917	ug/l	6057.97
As	75	72	1	No Gas	11.095	ug/l	46505.16
As	75	72	3	He	11.249	ug/l	5761.62
Se	78	72	2	H2	10.865	ug/l	4304.30
Br	79	72	1	No Gas	0.375	ug/l	8016.33
Br	79	72	2	H2	0.275	ug/l	4501.79
Se	82	72	1	No Gas	11.195	ug/l	2610.05
Kr	84	72	1	No Gas		ug/l	13726.23
Sr	88	72	1	No Gas	12.078	ug/l	269678.75
Sr	88	72	3	He	11.497	ug/l	26935.65
Mo	95	115	1	No Gas	10.180	ug/l	49822.95
Mo	95	115	3	He	10.733	ug/l	16929.09
Mo	98	115	1	No Gas	10.435	ug/l	82296.36
Ag	107	115	1	No Gas	4.258	ug/l	56003.13
Ag	109	115	1	No Gas	4.287	ug/l	53656.22
Cd	111	115	1	No Gas	10.612	ug/l	31582.41

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	11.241	ug/l	9535.98
Cd	114	115	1	No Gas	10.483	ug/l	71246.22
Cd	114	115	3	He	11.491	ug/l	23605.52
Sn	118	115	1	No Gas	10.109	ug/l	86297.82
Sn	118	115	3	He	10.994	ug/l	21862.73
Sb	121	115	1	No Gas	10.555	ug/l	145467.52
Sb	121	115	3	He	10.787	ug/l	34582.31
Sb	123	115	1	No Gas	10.433	ug/l	111692.34
Sb	123	115	3	He	10.873	ug/l	27733.13
Ba	135	115	1	No Gas	11.177	ug/l	29726.34
Ba	137	115	1	No Gas	10.558	ug/l	49954.84
La	139	115	3	He	10.886	ug/l	125413.79
Ce	140	115	3	He	11.351	ug/l	139920.51
Hg	201	209	1	No Gas	0.179	ug/l	485.24
Hg	202	209	1	No Gas	0.184	ug/l	1110.50
Hg	202	209	3	He	0.202	ug/l	485.25
Tl	203	209	3	He	10.245	ug/l	47563.90
Tl	205	209	1	No Gas	10.021	ug/l	280241.54
Tl	205	209	3	He	10.604	ug/l	115557.74
[Pb]	206	209	1	No Gas	9.728	ug/l	97204.28
[Pb]	207	209	1	No Gas	10.229	ug/l	86407.78
Pb	208	209	1	No Gas	9.983	ug/l	391615.80
Th	232	209	3	He	10.178	ug/l	155179.58
U	238	209	1	No Gas	9.952	ug/l	382552.19

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	1970117.76	82.0
Sc	45	2	H2	1436760.64	89.0
Sc	45	3	He	120987.79	83.0
Ge	72	1	No Gas	689248.47	89.7
Ge	72	2	H2	562618.37	93.6
Ge	72	3	He	93573.40	83.6
In	115	1	No Gas	923246.53	96.8
In	115	3	He	182832.97	88.4
Tb	159	1	No Gas	8194316.94	99.8
Tb	159	3	He	2970550.97	91.0
Ho	165	1	No Gas	7715230.17	95.1
Ho	165	3	He	2886297.86	89.7
Lu	175	1	No Gas	7769834.56	95.6
Lu	175	3	He	2274184.99	90.3
Bi	209	1	No Gas	5405995.11	101.0
Bi	209	3	He	2047871.91	92.8

# ICPMS207-B Analytical Data

**Sample Name** 50 ppb STD  
**File Name** 062CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 18:24:17  
**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	522.634	ug/l	1041166.09
Be	9	45	1	No Gas	46.030	ug/l	48774.07
B	11	45	1	No Gas	44.878	ug/l	30478.66
Na	23	45	3	He	12455.147	ug/l	4335160.60
Mg	24	45	3	He	12370.031	ug/l	2346189.92
Al	27	45	1	No Gas	47.771	ug/l	328045.42
Si	28	45	2	H2	197.325	ug/l	252705.81
K	39	72	3	He	10424.642	ug/l	2508259.93
Ca	40	72	2	H2	11889.015	ug/l	57211345.58
Ti	47	72	1	No Gas	48.549	ug/l	45596.91
V	51	72	1	No Gas	49.167	ug/l	597063.05
V	51	72	3	He	44.038	ug/l	104629.86
Cr	52	72	1	No Gas	47.908	ug/l	607067.37
Cr	52	72	3	He	46.362	ug/l	112763.44
Mn	55	72	1	No Gas	48.908	ug/l	820364.85
Mn	55	72	3	He	46.722	ug/l	76422.39
Fe	56	72	2	H2	1289.183	ug/l	13377385.25
Fe	56	72	3	He	1258.596	ug/l	2692126.04
Co	59	72	1	No Gas	50.972	ug/l	679496.12
Ni	60	72	1	No Gas	49.297	ug/l	149954.27
Ni	60	72	3	He	49.870	ug/l	47641.69
Cu	63	72	1	No Gas	50.123	ug/l	374759.38
Cu	63	72	3	He	52.804	ug/l	128849.92
Cu	65	72	1	No Gas	49.223	ug/l	179650.85
Zn	66	72	1	No Gas	51.192	ug/l	137729.51
Zn	66	72	3	He	50.378	ug/l	29148.34
As	75	72	1	No Gas	50.927	ug/l	196694.12
As	75	72	3	He	49.649	ug/l	28811.03
Se	78	72	2	H2	50.705	ug/l	21039.31
Br	79	72	1	No Gas	0.461	ug/l	9144.85
Br	79	72	2	H2	0.478	ug/l	5450.25
Se	82	72	1	No Gas	52.550	ug/l	11354.33
Kr	84	72	1	No Gas		ug/l	20720.92
Sr	88	72	1	No Gas	53.340	ug/l	1280786.76
Sr	88	72	3	He	48.844	ug/l	131394.99
Mo	95	115	1	No Gas	50.300	ug/l	250348.96
Mo	95	115	3	He	49.683	ug/l	82680.24
Mo	98	115	1	No Gas	49.786	ug/l	400041.73
Ag	107	115	1	No Gas	20.352	ug/l	272145.19
Ag	109	115	1	No Gas	20.300	ug/l	258607.45
Cd	111	115	1	No Gas	50.493	ug/l	152997.37

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	52.410	ug/l	46938.15
Cd	114	115	1	No Gas	50.172	ug/l	347338.10
Cd	114	115	3	He	53.073	ug/l	115133.02
Sn	118	115	1	No Gas	51.276	ug/l	441805.34
Sn	118	115	3	He	50.597	ug/l	105605.50
Sb	121	115	1	No Gas	51.464	ug/l	716235.21
Sb	121	115	3	He	50.899	ug/l	171405.04
Sb	123	115	1	No Gas	50.430	ug/l	546035.19
Sb	123	115	3	He	51.394	ug/l	137648.16
Ba	135	115	1	No Gas	51.736	ug/l	140464.04
Ba	137	115	1	No Gas	48.962	ug/l	235959.92
La	139	115	3	He	51.161	ug/l	622237.33
Ce	140	115	3	He	51.891	ug/l	675347.93
Hg	201	209	1	No Gas	0.984	ug/l	2036.42
Hg	202	209	1	No Gas	0.999	ug/l	4711.90
Hg	202	209	3	He	1.002	ug/l	2025.09
Tl	203	209	3	He	49.622	ug/l	230530.43
Tl	205	209	1	No Gas	52.316	ug/l	1366110.71
Tl	205	209	3	He	49.870	ug/l	543763.35
[Pb]	206	209	1	No Gas	47.964	ug/l	449221.30
[Pb]	207	209	1	No Gas	51.482	ug/l	406107.72
Pb	208	209	1	No Gas	50.147	ug/l	1841103.35
Th	232	209	3	He	49.317	ug/l	754218.74
U	238	209	1	No Gas	50.600	ug/l	1822921.52

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2101370.14	87.5
Sc	45	2	H2	1497145.78	92.7
Sc	45	3	He	136253.20	93.4
Ge	72	1	No Gas	750196.38	97.7
Ge	72	2	H2	591666.74	98.5
Ge	72	3	He	107669.81	96.2
In	115	1	No Gas	961701.50	100.8
In	115	3	He	193037.82	93.4
Tb	159	1	No Gas	8060782.06	98.2
Tb	159	3	He	3039826.65	93.2
Ho	165	1	No Gas	7788310.22	96.0
Ho	165	3	He	2982107.68	92.6
Lu	175	1	No Gas	7913644.46	97.3
Lu	175	3	He	2382313.53	94.6
Bi	209	1	No Gas	5152369.24	96.3
Bi	209	3	He	2056599.79	93.2

# ICPMS207-B Analytical Data

**Sample Name** 100 ppb STD  
**File Name** 063CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 18:30:40  
**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	1107.918	ug/l	2559463.66
Be	9	45	1	No Gas	90.600	ug/l	112402.27
B	11	45	1	No Gas	88.192	ug/l	69530.87
Na	23	45	3	He	24751.081	ug/l	10620040.47
Mg	24	45	3	He	26399.724	ug/l	6208127.91
Al	27	45	1	No Gas	91.475	ug/l	729873.22
Si	28	45	2	H2	401.417	ug/l	545170.80
K	39	72	3	He	24002.255	ug/l	6409028.93
Ca	40	72	2	H2	24801.548	ug/l	127623825.16
Ti	47	72	1	No Gas	100.723	ug/l	102369.73
V	51	72	1	No Gas	86.400	ug/l	1166481.22
V	51	72	3	He	96.725	ug/l	247134.62
Cr	52	72	1	No Gas	94.246	ug/l	1261877.94
Cr	52	72	3	He	96.175	ug/l	261440.29
Mn	55	72	1	No Gas	95.116	ug/l	1722772.95
Mn	55	72	3	He	101.553	ug/l	186314.39
Fe	56	72	2	H2	2667.346	ug/l	29653626.33
Fe	56	72	3	He	2623.162	ug/l	6289257.58
Co	59	72	1	No Gas	96.064	ug/l	1386395.64
Ni	60	72	1	No Gas	97.350	ug/l	320638.46
Ni	60	72	3	He	101.307	ug/l	108444.38
Cu	63	72	1	No Gas	100.181	ug/l	811980.26
Cu	63	72	3	He	106.491	ug/l	291245.62
Cu	65	72	1	No Gas	97.833	ug/l	387018.05
Zn	66	72	1	No Gas	101.967	ug/l	297285.16
Zn	66	72	3	He	105.682	ug/l	68524.09
As	75	72	1	No Gas	99.597	ug/l	408085.06
As	75	72	3	He	103.053	ug/l	66937.61
Se	78	72	2	H2	100.644	ug/l	44713.26
Br	79	72	1	No Gas	0.322	ug/l	9034.98
Br	79	72	2	H2	0.445	ug/l	5716.50
Se	82	72	1	No Gas	101.359	ug/l	23263.23
Kr	84	72	1	No Gas		ug/l	31042.13
Sr	88	72	1	No Gas	100.538	ug/l	2620753.74
Sr	88	72	3	He	103.666	ug/l	312949.40
Mo	95	115	1	No Gas	99.832	ug/l	519184.67
Mo	95	115	3	He	100.084	ug/l	185458.85
Mo	98	115	1	No Gas	100.064	ug/l	838744.55
Ag	107	115	1	No Gas	39.798	ug/l	555848.71
Ag	109	115	1	No Gas	39.821	ug/l	529430.20
Cd	111	115	1	No Gas	100.025	ug/l	316545.10

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	102.260	ug/l	101993.27
Cd	114	115	1	No Gas	98.999	ug/l	715788.84
Cd	114	115	3	He	102.983	ug/l	248789.02
Sn	118	115	1	No Gas	99.350	ug/l	895400.34
Sn	118	115	3	He	99.601	ug/l	231458.23
Sb	121	115	1	No Gas	99.212	ug/l	1443886.14
Sb	121	115	3	He	99.471	ug/l	372766.60
Sb	123	115	1	No Gas	99.742	ug/l	1127219.72
Sb	123	115	3	He	99.215	ug/l	295720.23
Ba	135	115	1	No Gas	101.589	ug/l	287201.48
Ba	137	115	1	No Gas	97.591	ug/l	490719.84
La	139	115	3	He	99.329	ug/l	1345489.12
Ce	140	115	3	He	98.917	ug/l	1433714.70
Hg	201	209	1	No Gas	2.010	ug/l	4031.14
Hg	202	209	1	No Gas	2.002	ug/l	9203.67
Hg	202	209	3	He	1.999	ug/l	3986.81
Tl	203	209	3	He	98.701	ug/l	463475.44
Tl	205	209	1	No Gas	99.760	ug/l	2595739.10
Tl	205	209	3	He	101.963	ug/l	1123856.65
[Pb]	206	209	1	No Gas	99.200	ug/l	923865.68
[Pb]	207	209	1	No Gas	101.878	ug/l	802333.67
Pb	208	209	1	No Gas	100.445	ug/l	3673122.66
Th	232	209	3	He	98.407	ug/l	1521555.77
U	238	209	1	No Gas	98.970	ug/l	3550804.22

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2421515.52	100.8
Sc	45	2	H2	1634042.91	101.2
Sc	45	3	He	168942.63	115.9
Ge	72	1	No Gas	805469.36	104.9
Ge	72	2	H2	633374.27	105.4
Ge	72	3	He	120887.40	108.0
In	115	1	No Gas	981950.44	102.9
In	115	3	He	214980.33	104.0
Tb	159	1	No Gas	8240211.38	100.4
Tb	159	3	He	3251586.94	99.6
Ho	165	1	No Gas	7981789.06	98.4
Ho	165	3	He	3144644.75	97.7
Lu	175	1	No Gas	7935524.52	97.6
Lu	175	3	He	2431442.16	96.6
Bi	209	1	No Gas	5045968.17	94.3
Bi	209	3	He	2079490.34	94.2



# ICPMS207-B Analytical Data

**Sample Name** 1000 ppb STD  
**File Name** 064CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 18:37:03  
**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	2597.151	ug/l	7217828.71
Be	9	45	1	No Gas	1001.145	ug/l	1500008.19
B	11	45	1	No Gas	1001.451	ug/l	942495.77
Na	23	45	3	He	50120.268	ug/l	26183696.28
Mg	24	45	3	He	49319.575	ug/l	14155559.45
Al	27	45	1	No Gas	1000.959	ug/l	9549728.19
Si	28	45	2	H2	-0.679	ug/l	16386.88
K	39	72	3	He	51019.049	ug/l	15907120.60
Ca	40	72	2	H2	50244.168	ug/l	278031311.52
Ti	47	72	1	No Gas	6.198	ug/l	7027.12
V	51	72	1	No Gas	1001.379	ug/l	15235595.96
V	51	72	3	He	1000.627	ug/l	2902181.76
Cr	52	72	1	No Gas	1000.680	ug/l	14325218.89
Cr	52	72	3	He	1000.559	ug/l	3184131.17
Mn	55	72	1	No Gas	1000.535	ug/l	19790645.68
Mn	55	72	3	He	1000.002	ug/l	2153102.12
Fe	56	72	2	H2	5972.131	ug/l	71426429.75
Fe	56	72	3	He	5997.339	ug/l	16866460.87
Co	59	72	1	No Gas	1000.334	ug/l	15818021.03
Ni	60	72	1	No Gas	1000.292	ug/l	3605112.11
Ni	60	72	3	He	999.856	ug/l	1255233.16
Cu	63	72	1	No Gas	999.964	ug/l	8869997.46
Cu	63	72	3	He	999.185	ug/l	3207511.56
Cu	65	72	1	No Gas	1000.243	ug/l	4331833.01
Zn	66	72	1	No Gas	999.728	ug/l	3189176.80
Zn	66	72	3	He	999.393	ug/l	759853.01
As	75	72	1	No Gas	999.982	ug/l	4392035.53
As	75	72	3	He	999.700	ug/l	761197.95
Se	78	72	2	H2	999.892	ug/l	477880.65
Br	79	72	1	No Gas	0.517	ug/l	11222.16
Br	79	72	2	H2	2.526	ug/l	14631.87
Se	82	72	1	No Gas	999.725	ug/l	246221.24
Kr	84	72	1	No Gas		ug/l	191753.99
Sr	88	72	1	No Gas	999.758	ug/l	28544170.52
Sr	88	72	3	He	999.676	ug/l	3544655.89
Mo	95	115	1	No Gas	0.101	ug/l	577.79
Mo	95	115	3	He	0.083	ug/l	191.11
Mo	98	115	1	No Gas	0.103	ug/l	995.67
Ag	107	115	1	No Gas	309.851	ug/l	4394803.44
Ag	109	115	1	No Gas	315.450	ug/l	4262054.10
Cd	111	115	1	No Gas	999.967	ug/l	3213704.24

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	999.641	ug/l	1084933.29
Cd	114	115	1	No Gas	1000.087	ug/l	7344892.74
Cd	114	115	3	He	999.533	ug/l	2627500.35
Sn	118	115	1	No Gas	0.133	ug/l	1989.53
Sn	118	115	3	He	0.143	ug/l	562.24
Sb	121	115	1	No Gas	0.265	ug/l	5219.84
Sb	121	115	3	He	0.191	ug/l	1080.82
Sb	123	115	1	No Gas	0.270	ug/l	4113.02
Sb	123	115	3	He	0.194	ug/l	875.78
Ba	135	115	1	No Gas	999.742	ug/l	2872716.18
Ba	137	115	1	No Gas	1000.287	ug/l	5111919.89
La	139	115	3	He	0.008	ug/l	125.56
Ce	140	115	3	He	0.021	ug/l	341.12
Hg	201	209	1	No Gas	-0.009	ug/l	82.32
Hg	202	209	1	No Gas	0.001	ug/l	208.63
Hg	202	209	3	He	-0.009	ug/l	81.98
Tl	203	209	3	He	1000.146	ug/l	4693739.06
Tl	205	209	1	No Gas	999.908	ug/l	25195050.74
Tl	205	209	3	He	999.804	ug/l	11010771.47
[Pb]	206	209	1	No Gas	1000.184	ug/l	9024549.03
[Pb]	207	209	1	No Gas	999.736	ug/l	7623923.01
Pb	208	209	1	No Gas	999.948	ug/l	35425735.38
Th	232	209	3	He	1000.192	ug/l	15461080.07
U	238	209	1	No Gas	1000.073	ug/l	34754178.01

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2923704.38	121.7
Sc	45	2	H2	1873516.36	116.0
Sc	45	3	He	206212.89	141.4
Ge	72	1	No Gas	882296.35	114.9
Ge	72	2	H2	681414.28	113.4
Ge	72	3	He	142093.00	126.9
In	115	1	No Gas	998059.35	104.6
In	115	3	He	233929.51	113.1
Tb	159	1	No Gas	8421893.99	102.6
Tb	159	3	He	3389729.43	103.9
Ho	165	1	No Gas	8080536.35	99.6
Ho	165	3	He	3308821.57	102.8
Lu	175	1	No Gas	7863700.25	96.7
Lu	175	3	He	2657037.42	105.5
Bi	209	1	No Gas	4889736.05	91.4
Bi	209	3	He	2079126.85	94.2

# ICPMS207-B Analytical Data

**Sample Name** 100 ppb Br STD  
**File Name** 065CAL.S.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 18:43:27  
**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	6.097	ug/l	36327.10
Be	9	45	1	No Gas	0.160	ug/l	281.62
B	11	45	1	No Gas	4.739	ug/l	4305.69
Na	23	45	3	He	10.839	ug/l	54025.38
Mg	24	45	3	He	2.141	ug/l	1859.77
Al	27	45	1	No Gas	0.265	ug/l	9461.91
Si	28	45	2	H2	0.284	ug/l	14591.00
K	39	72	3	He	657.026	ug/l	184228.28
Ca	40	72	2	H2	3.874	ug/l	116261.52
Ti	47	72	1	No Gas	0.092	ug/l	210.21
V	51	72	1	No Gas	1.638	ug/l	-11700.99
V	51	72	3	He	-1.515	ug/l	4275.10
Cr	52	72	1	No Gas	0.052	ug/l	33298.73
Cr	52	72	3	He	0.162	ug/l	1110.05
Mn	55	72	1	No Gas	0.121	ug/l	7886.49
Mn	55	72	3	He	0.029	ug/l	90.31
Fe	56	72	2	H2	0.688	ug/l	15675.96
Fe	56	72	3	He	0.731	ug/l	4742.22
Co	59	72	1	No Gas	-0.021	ug/l	345.99
Ni	60	72	1	No Gas	0.074	ug/l	688.65
Ni	60	72	3	He	0.062	ug/l	167.78
Cu	63	72	1	No Gas	0.063	ug/l	1400.63
Cu	63	72	3	He	0.068	ug/l	374.60
Cu	65	72	1	No Gas	0.068	ug/l	603.59
Zn	66	72	1	No Gas	0.628	ug/l	2165.49
Zn	66	72	3	He	0.663	ug/l	432.23
As	75	72	1	No Gas	0.220	ug/l	10474.08
As	75	72	3	He	0.106	ug/l	173.93
Se	78	72	2	H2	0.196	ug/l	98.67
Br	79	72	1	No Gas	100.000	ug/l	600980.89
Br	79	72	2	H2	100.000	ug/l	350352.62
Se	82	72	1	No Gas	1.125	ug/l	761.95
Kr	84	72	1	No Gas		ug/l	13456.53
Sr	88	72	1	No Gas	0.010	ug/l	552.25
Sr	88	72	3	He	0.004	ug/l	85.55
Mo	95	115	1	No Gas	0.015	ug/l	121.11
Mo	95	115	3	He	0.019	ug/l	48.89
Mo	98	115	1	No Gas	0.009	ug/l	195.07
Ag	107	115	1	No Gas	0.532	ug/l	7383.59
Ag	109	115	1	No Gas	0.540	ug/l	7132.04
Cd	111	115	1	No Gas	0.019	ug/l	74.08

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.016	ug/l	15.89
Cd	114	115	1	No Gas	0.023	ug/l	162.99
Cd	114	115	3	He	0.015	ug/l	32.74
Sn	118	115	1	No Gas	0.276	ug/l	3187.38
Sn	118	115	3	He	0.332	ug/l	824.48
Sb	121	115	1	No Gas	0.040	ug/l	1834.31
Sb	121	115	3	He	0.058	ug/l	426.72
Sb	123	115	1	No Gas	0.038	ug/l	1406.88
Sb	123	115	3	He	0.059	ug/l	346.37
Ba	135	115	1	No Gas	0.019	ug/l	73.19
Ba	137	115	1	No Gas	0.015	ug/l	116.43
La	139	115	3	He	0.001	ug/l	26.67
Ce	140	115	3	He	0.003	ug/l	47.78
Hg	201	209	1	No Gas	-0.021	ug/l	62.99
Hg	202	209	1	No Gas	-0.008	ug/l	176.30
Hg	202	209	3	He	-0.015	ug/l	65.66
Tl	203	209	3	He	2.152	ug/l	9644.09
Tl	205	209	1	No Gas	1.622	ug/l	43405.81
Tl	205	209	3	He	2.207	ug/l	23241.76
[Pb]	206	209	1	No Gas	0.059	ug/l	714.47
[Pb]	207	209	1	No Gas	0.070	ug/l	673.35
Pb	208	209	1	No Gas	0.067	ug/l	3031.27
Th	232	209	3	He	0.295	ug/l	4547.97
U	238	209	1	No Gas	0.025	ug/l	922.18

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2279250.39	94.9
Sc	45	2	H2	1531748.92	94.8
Sc	45	3	He	126372.99	86.7
Ge	72	1	No Gas	775920.46	101.0
Ge	72	2	H2	579496.73	96.4
Ge	72	3	He	96891.41	86.6
In	115	1	No Gas	963813.00	101.0
In	115	3	He	185544.55	89.7
Tb	159	1	No Gas	7991620.24	97.4
Tb	159	3	He	2955513.41	90.6
Ho	165	1	No Gas	7509923.51	92.6
Ho	165	3	He	2900455.04	90.1
Lu	175	1	No Gas	7484633.33	92.0
Lu	175	3	He	2271446.89	90.2
Bi	209	1	No Gas	5075749.17	94.8
Bi	209	3	He	1943827.54	88.1

# ICPMS207-B Analytical Data

**Sample Name** Rinse  
**File Name** 066BLKV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 18:49:49  
**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	1.780	ug/l	25336.49
Be	9	45	1	No Gas	0.090	ug/l	186.63
B	11	45	1	No Gas	2.069	ug/l	2191.04
Na	23	45	3	He	11.951	ug/l	52070.65
Mg	24	45	3	He	1.336	ug/l	1643.50
Al	27	45	1	No Gas	0.145	ug/l	8057.75
Si	28	45	2	H2	-3.508	ug/l	9437.68
K	39	72	3	He	-9.425	ug/l	43163.01
Ca	40	72	2	H2	0.585	ug/l	96491.21
Ti	47	72	1	No Gas	0.018	ug/l	130.13
V	51	72	1	No Gas	3.045	ug/l	6949.91
V	51	72	3	He	-2.129	ug/l	3083.69
Cr	52	72	1	No Gas	-0.684	ug/l	22526.17
Cr	52	72	3	He	0.022	ug/l	811.14
Mn	55	72	1	No Gas	-0.017	ug/l	5117.45
Mn	55	72	3	He	0.009	ug/l	61.32
Fe	56	72	2	H2	0.008	ug/l	8384.18
Fe	56	72	3	He	-0.051	ug/l	3261.99
Co	59	72	1	No Gas	-0.026	ug/l	252.84
Ni	60	72	1	No Gas	0.034	ug/l	522.31
Ni	60	72	3	He	0.022	ug/l	134.44
Cu	63	72	1	No Gas	0.067	ug/l	1346.61
Cu	63	72	3	He	0.024	ug/l	279.95
Cu	65	72	1	No Gas	0.007	ug/l	344.14
Zn	66	72	1	No Gas	0.049	ug/l	508.69
Zn	66	72	3	He	0.013	ug/l	95.56
As	75	72	1	No Gas	-0.570	ug/l	6855.40
As	75	72	3	He	-0.034	ug/l	101.93
Se	78	72	2	H2	0.031	ug/l	30.11
Br	79	72	1	No Gas	1.487	ug/l	14658.49
Br	79	72	2	H2	1.220	ug/l	7586.99
Se	82	72	1	No Gas	0.069	ug/l	494.61
Kr	84	72	1	No Gas		ug/l	12560.76
Sr	88	72	1	No Gas	0.003	ug/l	362.62
Sr	88	72	3	He	0.005	ug/l	87.78
Mo	95	115	1	No Gas	0.003	ug/l	55.56
Mo	95	115	3	He	0.000	ug/l	18.89
Mo	98	115	1	No Gas	-0.001	ug/l	107.78
Ag	107	115	1	No Gas	0.006	ug/l	186.08
Ag	109	115	1	No Gas	0.006	ug/l	174.74
Cd	111	115	1	No Gas	0.004	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	5.22
Cd	114	115	1	No Gas	0.007	ug/l	43.56
Cd	114	115	3	He	0.004	ug/l	9.73
Sn	118	115	1	No Gas	0.003	ug/l	748.54
Sn	118	115	3	He	0.012	ug/l	178.89
Sb	121	115	1	No Gas	-0.019	ug/l	944.46
Sb	121	115	3	He	-0.003	ug/l	222.69
Sb	123	115	1	No Gas	-0.021	ug/l	719.42
Sb	123	115	3	He	-0.009	ug/l	167.69
Ba	135	115	1	No Gas	0.003	ug/l	26.61
Ba	137	115	1	No Gas	-0.001	ug/l	36.59
La	139	115	3	He	0.000	ug/l	8.89
Ce	140	115	3	He	0.000	ug/l	8.89
Hg	201	209	1	No Gas	-0.022	ug/l	60.66
Hg	202	209	1	No Gas	-0.012	ug/l	157.64
Hg	202	209	3	He	-0.013	ug/l	71.32
Tl	203	209	3	He	0.855	ug/l	3982.88
Tl	205	209	1	No Gas	0.537	ug/l	15004.52
Tl	205	209	3	He	0.907	ug/l	9937.74
[Pb]	206	209	1	No Gas	0.021	ug/l	358.90
[Pb]	207	209	1	No Gas	0.021	ug/l	295.56
Pb	208	209	1	No Gas	0.023	ug/l	1425.60
Th	232	209	3	He	0.035	ug/l	787.01
U	238	209	1	No Gas	0.003	ug/l	139.30

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2168094.45	90.3
Sc	45	2	H2	1461533.90	90.5
Sc	45	3	He	121011.00	83.0
Ge	72	1	No Gas	729315.91	94.9
Ge	72	2	H2	555053.19	92.4
Ge	72	3	He	97669.25	87.3
In	115	1	No Gas	923126.00	96.8
In	115	3	He	181497.58	87.8
Tb	159	1	No Gas	7765360.14	94.6
Tb	159	3	He	2923342.28	89.6
Ho	165	1	No Gas	7599165.10	93.7
Ho	165	3	He	2799902.93	87.0
Lu	175	1	No Gas	7293184.86	89.7
Lu	175	3	He	2189034.19	86.9
Bi	209	1	No Gas	5139964.63	96.0
Bi	209	3	He	1962493.27	88.9

# ICPMS207-B Analytical Data

**Sample Name** QCS  
**File Name** 067\_QC1.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 18:56:03  
**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	43.157	ug/l	102037.86
Be	9	45	1	No Gas	21.529	ug/l	22149.79
B	11	45	1	No Gas	45.164	ug/l	29798.89
Na	23	45	3	He	2505.671	ug/l	796761.54
Mg	24	45	3	He	2536.610	ug/l	419232.65
Al	27	45	1	No Gas	229.241	ug/l	1502364.02
Si	28	45	2	H2	484.731	ug/l	583629.30
K	39	72	3	He	2133.915	ug/l	482976.50
Ca	40	72	2	H2	2399.873	ug/l	11283578.18
Ti	47	72	1	No Gas	46.920	ug/l	42707.20
V	51	72	1	No Gas	46.403	ug/l	544949.21
V	51	72	3	He	44.345	ug/l	91960.88
Cr	52	72	1	No Gas	47.965	ug/l	588365.04
Cr	52	72	3	He	49.826	ug/l	105738.41
Mn	55	72	1	No Gas	240.299	ug/l	3884399.66
Mn	55	72	3	He	246.734	ug/l	352185.46
Fe	56	72	2	H2	247.598	ug/l	2502982.53
Fe	56	72	3	He	256.081	ug/l	480915.29
Co	59	72	1	No Gas	49.892	ug/l	644545.55
Ni	60	72	1	No Gas	50.287	ug/l	148245.66
Ni	60	72	3	He	52.348	ug/l	43648.67
Cu	63	72	1	No Gas	52.150	ug/l	378109.67
Cu	63	72	3	He	57.315	ug/l	122108.16
Cu	65	72	1	No Gas	52.402	ug/l	185463.35
Zn	66	72	1	No Gas	51.016	ug/l	133181.30
Zn	66	72	3	He	54.448	ug/l	27495.21
As	75	72	1	No Gas	50.327	ug/l	188691.38
As	75	72	3	He	52.760	ug/l	26725.58
Se	78	72	2	H2	50.873	ug/l	20501.42
Br	79	72	1	No Gas	0.767	ug/l	10542.98
Br	79	72	2	H2	0.781	ug/l	6332.23
Se	82	72	1	No Gas	52.558	ug/l	11011.36
Kr	84	72	1	No Gas		ug/l	20424.27
Sr	88	72	1	No Gas	53.882	ug/l	1256173.54
Sr	88	72	3	He	54.968	ug/l	129093.41
Mo	95	115	1	No Gas	47.814	ug/l	235818.48
Mo	95	115	3	He	49.348	ug/l	77990.57
Mo	98	115	1	No Gas	47.647	ug/l	378566.82
Ag	107	115	1	No Gas	25.032	ug/l	331514.97
Ag	109	115	1	No Gas	25.339	ug/l	319396.35
Cd	111	115	1	No Gas	24.814	ug/l	74445.25

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	26.238	ug/l	22323.40
Cd	114	115	1	No Gas	24.552	ug/l	168263.56
Cd	114	115	3	He	26.611	ug/l	54837.90
Sn	118	115	1	No Gas	49.841	ug/l	426264.27
Sn	118	115	3	He	50.557	ug/l	100330.05
Sb	121	115	1	No Gas	48.698	ug/l	672472.57
Sb	121	115	3	He	49.858	ug/l	159505.20
Sb	123	115	1	No Gas	47.627	ug/l	510715.01
Sb	123	115	3	He	49.346	ug/l	125567.57
Ba	135	115	1	No Gas	51.096	ug/l	136926.23
Ba	137	115	1	No Gas	49.486	ug/l	235931.98
La	139	115	3	He	48.599	ug/l	561334.62
Ce	140	115	3	He	51.991	ug/l	642963.33
Hg	201	209	1	No Gas	0.919	ug/l	1882.43
Hg	202	209	1	No Gas	0.943	ug/l	4405.52
Hg	202	209	3	He	0.988	ug/l	1835.43
Tl	203	209	3	He	51.390	ug/l	219197.39
Tl	205	209	1	No Gas	50.459	ug/l	1302068.39
Tl	205	209	3	He	52.558	ug/l	526198.57
[Pb]	206	209	1	No Gas	48.623	ug/l	449208.62
[Pb]	207	209	1	No Gas	49.539	ug/l	386683.84
Pb	208	209	1	No Gas	49.149	ug/l	1781968.42
Th	232	209	3	He	49.919	ug/l	701012.39
U	238	209	1	No Gas	51.151	ug/l	1819051.59

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2002048.61	83.4
Sc	45	2	H2	1455397.47	90.1
Sc	45	3	He	118443.77	81.2
Ge	72	1	No Gas	720824.83	93.8
Ge	72	2	H2	574218.63	95.6
Ge	72	3	He	94030.41	84.0
In	115	1	No Gas	930799.85	97.6
In	115	3	He	183402.56	88.7
Tb	159	1	No Gas	7767407.60	94.6
Tb	159	3	He	2787282.68	85.4
Ho	165	1	No Gas	7727153.81	95.3
Ho	165	3	He	2649753.25	82.3
Lu	175	1	No Gas	7511653.89	92.4
Lu	175	3	He	2218955.44	88.1
Bi	209	1	No Gas	5003319.24	93.5
Bi	209	3	He	1888540.63	85.6



# ICPMS207-B Analytical Data

**Sample Name** Rinse  
**File Name** 068BLKV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 19:02:18  
**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	1.636	ug/l	23616.37
Be	9	45	1	No Gas	0.040	ug/l	125.31
B	11	45	1	No Gas	0.826	ug/l	1268.56
Na	23	45	3	He	21.933	ug/l	51325.96
Mg	24	45	3	He	3.491	ug/l	1869.74
Al	27	45	1	No Gas	0.221	ug/l	8084.45
Si	28	45	2	H2	-3.918	ug/l	8587.93
K	39	72	3	He	-13.998	ug/l	39158.54
Ca	40	72	2	H2	0.334	ug/l	93835.65
Ti	47	72	1	No Gas	-0.001	ug/l	106.78
V	51	72	1	No Gas	-0.600	ug/l	-37560.59
V	51	72	3	He	-2.137	ug/l	2846.97
Cr	52	72	1	No Gas	-0.620	ug/l	22319.58
Cr	52	72	3	He	0.083	ug/l	875.59
Mn	55	72	1	No Gas	-0.043	ug/l	4518.43
Mn	55	72	3	He	0.014	ug/l	63.99
Fe	56	72	2	H2	0.021	ug/l	8369.15
Fe	56	72	3	He	0.027	ug/l	3168.54
Co	59	72	1	No Gas	-0.022	ug/l	296.08
Ni	60	72	1	No Gas	0.023	ug/l	472.41
Ni	60	72	3	He	0.028	ug/l	128.89
Cu	63	72	1	No Gas	0.039	ug/l	1091.15
Cu	63	72	3	He	0.013	ug/l	237.62
Cu	65	72	1	No Gas	0.010	ug/l	344.14
Zn	66	72	1	No Gas	0.021	ug/l	415.60
Zn	66	72	3	He	-0.023	ug/l	71.11
As	75	72	1	No Gas	0.237	ug/l	9443.68
As	75	72	3	He	-0.055	ug/l	84.60
Se	78	72	2	H2	0.012	ug/l	22.45
Br	79	72	1	No Gas	0.185	ug/l	7087.71
Br	79	72	2	H2	0.165	ug/l	4009.30
Se	82	72	1	No Gas	-0.360	ug/l	397.81
Kr	84	72	1	No Gas		ug/l	12600.58
Sr	88	72	1	No Gas	0.000	ug/l	272.80
Sr	88	72	3	He	0.003	ug/l	78.89
Mo	95	115	1	No Gas	0.027	ug/l	173.33
Mo	95	115	3	He	0.027	ug/l	57.78
Mo	98	115	1	No Gas	0.024	ug/l	297.30
Ag	107	115	1	No Gas	0.002	ug/l	122.72
Ag	109	115	1	No Gas	0.001	ug/l	108.71
Cd	111	115	1	No Gas	-0.001	ug/l	12.19

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.001	ug/l	3.00
Cd	114	115	1	No Gas	0.003	ug/l	20.44
Cd	114	115	3	He	0.003	ug/l	6.22
Sn	118	115	1	No Gas	0.039	ug/l	1037.98
Sn	118	115	3	He	0.034	ug/l	210.00
Sb	121	115	1	No Gas	0.102	ug/l	2571.16
Sb	121	115	3	He	0.095	ug/l	503.39
Sb	123	115	1	No Gas	0.103	ug/l	2020.35
Sb	123	115	3	He	0.087	ug/l	386.05
Ba	135	115	1	No Gas	0.013	ug/l	53.23
Ba	137	115	1	No Gas	0.000	ug/l	39.92
La	139	115	3	He	0.000	ug/l	8.89
Ce	140	115	3	He	0.000	ug/l	13.33
Hg	201	209	1	No Gas	-0.016	ug/l	69.66
Hg	202	209	1	No Gas	-0.010	ug/l	159.30
Hg	202	209	3	He	-0.013	ug/l	69.66
Tl	203	209	3	He	0.296	ug/l	1467.34
Tl	205	209	1	No Gas	0.171	ug/l	5277.83
Tl	205	209	3	He	0.308	ug/l	3606.61
[Pb]	206	209	1	No Gas	0.015	ug/l	290.00
[Pb]	207	209	1	No Gas	0.021	ug/l	281.11
Pb	208	209	1	No Gas	0.019	ug/l	1223.36
Th	232	209	3	He	0.031	ug/l	705.64
U	238	209	1	No Gas	0.003	ug/l	113.98

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2015505.94	83.9
Sc	45	2	H2	1401318.22	86.8
Sc	45	3	He	112658.76	77.3
Ge	72	1	No Gas	696508.56	90.7
Ge	72	2	H2	545897.52	90.9
Ge	72	3	He	90625.40	81.0
In	115	1	No Gas	913607.28	95.8
In	115	3	He	170932.21	82.7
Tb	159	1	No Gas	7646473.23	93.2
Tb	159	3	He	2739545.28	84.0
Ho	165	1	No Gas	7398412.42	91.2
Ho	165	3	He	2661861.38	82.7
Lu	175	1	No Gas	7219685.37	88.8
Lu	175	3	He	2071657.08	82.3
Bi	209	1	No Gas	4934259.77	92.2
Bi	209	3	He	1908882.96	86.5

# ICPMS207-B Analytical Data

**Sample Name** CCV  
**File Name** 069\_CC.V.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 19:08:31  
**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	467.824	ug/l	956512.04
Be	9	45	1	No Gas	40.500	ug/l	43930.18
B	11	45	1	No Gas	40.089	ug/l	28020.89
Na	23	45	3	He	12574.754	ug/l	4014582.79
Mg	24	45	3	He	12388.224	ug/l	2152542.63
Al	27	45	1	No Gas	43.651	ug/l	307822.01
Si	28	45	2	H2	198.118	ug/l	247203.43
K	39	72	3	He	10291.662	ug/l	2335179.59
Ca	40	72	2	H2	12130.070	ug/l	55093044.44
Ti	47	72	1	No Gas	49.316	ug/l	43689.35
V	51	72	1	No Gas	45.374	ug/l	518954.20
V	51	72	3	He	44.567	ug/l	99741.33
Cr	52	72	1	No Gas	47.764	ug/l	571571.98
Cr	52	72	3	He	45.703	ug/l	104790.10
Mn	55	72	1	No Gas	50.876	ug/l	806630.09
Mn	55	72	3	He	46.040	ug/l	70998.43
Fe	56	72	2	H2	1347.033	ug/l	13209975.14
Fe	56	72	3	He	1248.919	ug/l	2518825.43
Co	59	72	1	No Gas	51.502	ug/l	648326.26
Ni	60	72	1	No Gas	49.023	ug/l	140720.36
Ni	60	72	3	He	50.043	ug/l	45070.23
Cu	63	72	1	No Gas	50.857	ug/l	359460.33
Cu	63	72	3	He	53.914	ug/l	124014.25
Cu	65	72	1	No Gas	50.229	ug/l	173335.44
Zn	66	72	1	No Gas	54.422	ug/l	138287.63
Zn	66	72	3	He	52.733	ug/l	28760.94
As	75	72	1	No Gas	51.444	ug/l	187739.22
As	75	72	3	He	50.295	ug/l	27510.82
Se	78	72	2	H2	52.267	ug/l	20487.29
Br	79	72	1	No Gas	0.503	ug/l	8828.56
Br	79	72	2	H2	0.419	ug/l	4947.73
Se	82	72	1	No Gas	53.593	ug/l	10929.90
Kr	84	72	1	No Gas		ug/l	20750.59
Sr	88	72	1	No Gas	55.247	ug/l	1253913.45
Sr	88	72	3	He	50.222	ug/l	127357.51
Mo	95	115	1	No Gas	47.941	ug/l	229646.98
Mo	95	115	3	He	50.564	ug/l	78919.08
Mo	98	115	1	No Gas	49.331	ug/l	380838.31
Ag	107	115	1	No Gas	20.189	ug/l	259708.56
Ag	109	115	1	No Gas	20.183	ug/l	247125.97
Cd	111	115	1	No Gas	49.546	ug/l	144394.58

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	52.746	ug/l	44285.99
Cd	114	115	1	No Gas	49.190	ug/l	327446.46
Cd	114	115	3	He	53.002	ug/l	107797.36
Sn	118	115	1	No Gas	48.444	ug/l	402665.32
Sn	118	115	3	He	50.528	ug/l	98931.87
Sb	121	115	1	No Gas	50.309	ug/l	674772.67
Sb	121	115	3	He	51.052	ug/l	161181.50
Sb	123	115	1	No Gas	49.493	ug/l	515398.98
Sb	123	115	3	He	50.902	ug/l	127809.86
Ba	135	115	1	No Gas	50.522	ug/l	131516.35
Ba	137	115	1	No Gas	49.588	ug/l	229678.28
La	139	115	3	He	50.700	ug/l	578090.12
Ce	140	115	3	He	52.307	ug/l	638196.24
Hg	201	209	1	No Gas	0.962	ug/l	1904.09
Hg	202	209	1	No Gas	0.981	ug/l	4431.19
Hg	202	209	3	He	1.008	ug/l	1834.43
Tl	203	209	3	He	50.864	ug/l	212815.63
Tl	205	209	1	No Gas	49.954	ug/l	1248828.00
Tl	205	209	3	He	51.790	ug/l	508756.83
[Pb]	206	209	1	No Gas	47.940	ug/l	428912.30
[Pb]	207	209	1	No Gas	48.443	ug/l	366348.09
Pb	208	209	1	No Gas	48.493	ug/l	1703345.33
Th	232	209	3	He	50.136	ug/l	690736.68
U	238	209	1	No Gas	48.061	ug/l	1655883.52

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2113852.95	88.0
Sc	45	2	H2	1459598.79	90.4
Sc	45	3	He	124893.81	85.6
Ge	72	1	No Gas	701973.61	91.4
Ge	72	2	H2	558519.16	93.0
Ge	72	3	He	101507.67	90.7
In	115	1	No Gas	904922.21	94.8
In	115	3	He	180983.43	87.5
Tb	159	1	No Gas	7606169.34	92.7
Tb	159	3	He	2862862.50	87.7
Ho	165	1	No Gas	7395829.43	91.2
Ho	165	3	He	2825193.22	87.8
Lu	175	1	No Gas	7195938.29	88.5
Lu	175	3	He	2220677.01	88.2
Bi	209	1	No Gas	4846394.82	90.6
Bi	209	3	He	1853238.85	84.0

# ICPMS207-B Analytical Data

**Sample Name** CCB  
**File Name** 070\_CCB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 19:14:46  
**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	1.287	ug/l	23607.68
Be	9	45	1	No Gas	0.030	ug/l	118.64
B	11	45	1	No Gas	0.537	ug/l	1116.49
Na	23	45	3	He	12.789	ug/l	50847.69
Mg	24	45	3	He	2.470	ug/l	1783.24
Al	27	45	1	No Gas	0.196	ug/l	8138.91
Si	28	45	2	H2	-4.147	ug/l	8567.25
K	39	72	3	He	-5.043	ug/l	42586.83
Ca	40	72	2	H2	-0.149	ug/l	94312.64
Ti	47	72	1	No Gas	-0.004	ug/l	108.44
V	51	72	1	No Gas	1.316	ug/l	-15047.32
V	51	72	3	He	-1.716	ug/l	3772.74
Cr	52	72	1	No Gas	-0.541	ug/l	24218.86
Cr	52	72	3	He	0.073	ug/l	892.26
Mn	55	72	1	No Gas	-0.065	ug/l	4345.39
Mn	55	72	3	He	0.006	ug/l	54.66
Fe	56	72	2	H2	0.009	ug/l	8494.37
Fe	56	72	3	He	0.057	ug/l	3352.10
Co	59	72	1	No Gas	-0.023	ug/l	296.09
Ni	60	72	1	No Gas	0.011	ug/l	455.77
Ni	60	72	3	He	0.010	ug/l	118.89
Cu	63	72	1	No Gas	-0.013	ug/l	758.99
Cu	63	72	3	He	-0.001	ug/l	217.29
Cu	65	72	1	No Gas	0.002	ug/l	331.47
Zn	66	72	1	No Gas	-0.015	ug/l	338.95
Zn	66	72	3	He	-0.018	ug/l	76.67
As	75	72	1	No Gas	-0.189	ug/l	8323.93
As	75	72	3	He	-0.045	ug/l	93.13
Se	78	72	2	H2	0.013	ug/l	23.44
Br	79	72	1	No Gas	-0.025	ug/l	6222.38
Br	79	72	2	H2	0.050	ug/l	3746.41
Se	82	72	1	No Gas	-0.389	ug/l	408.08
Kr	84	72	1	No Gas		ug/l	12923.71
Sr	88	72	1	No Gas	0.004	ug/l	382.58
Sr	88	72	3	He	-0.002	ug/l	68.89
Mo	95	115	1	No Gas	0.027	ug/l	168.89
Mo	95	115	3	He	0.026	ug/l	58.89
Mo	98	115	1	No Gas	0.020	ug/l	264.59
Ag	107	115	1	No Gas	-0.001	ug/l	84.70
Ag	109	115	1	No Gas	-0.001	ug/l	89.37
Cd	111	115	1	No Gas	0.000	ug/l	13.71

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.002	ug/l	3.56
Cd	114	115	1	No Gas	0.002	ug/l	13.07
Cd	114	115	3	He	0.003	ug/l	6.23
Sn	118	115	1	No Gas	0.055	ug/l	1151.10
Sn	118	115	3	He	0.025	ug/l	205.56
Sb	121	115	1	No Gas	0.102	ug/l	2550.49
Sb	121	115	3	He	0.081	ug/l	491.73
Sb	123	115	1	No Gas	0.102	ug/l	1983.01
Sb	123	115	3	He	0.075	ug/l	381.04
Ba	135	115	1	No Gas	0.002	ug/l	23.29
Ba	137	115	1	No Gas	0.006	ug/l	66.53
La	139	115	3	He	0.000	ug/l	13.34
Ce	140	115	3	He	0.000	ug/l	8.89
Hg	201	209	1	No Gas	-0.025	ug/l	54.66
Hg	202	209	1	No Gas	-0.014	ug/l	147.30
Hg	202	209	3	He	-0.020	ug/l	57.99
Tl	203	209	3	He	0.213	ug/l	1141.18
Tl	205	209	1	No Gas	0.128	ug/l	4269.67
Tl	205	209	3	He	0.222	ug/l	2820.77
[Pb]	206	209	1	No Gas	0.011	ug/l	264.45
[Pb]	207	209	1	No Gas	0.013	ug/l	221.12
Pb	208	209	1	No Gas	0.012	ug/l	1013.35
Th	232	209	3	He	0.033	ug/l	767.00
U	238	209	1	No Gas	0.002	ug/l	95.98

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2076363.99	86.5
Sc	45	2	H2	1441217.01	89.2
Sc	45	3	He	117589.12	80.6
Ge	72	1	No Gas	726564.06	94.6
Ge	72	2	H2	562145.88	93.6
Ge	72	3	He	94336.01	84.3
In	115	1	No Gas	907981.46	95.2
In	115	3	He	182441.81	88.2
Tb	159	1	No Gas	7871419.11	95.9
Tb	159	3	He	2886774.43	88.5
Ho	165	1	No Gas	7493615.59	92.4
Ho	165	3	He	2798216.32	86.9
Lu	175	1	No Gas	7438308.98	91.5
Lu	175	3	He	2118828.99	84.2
Bi	209	1	No Gas	5030080.24	94.0
Bi	209	3	He	1961843.43	88.9

# ICPMS207-B Analytical Data

**Sample Name** B22021763-001A  
**File Name** 071SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 19:21:00  
**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	-0.895	ug/l	27421.60
Be	9	45	1	No Gas	-0.021	ug/l	91.65
B	11	45	1	No Gas	42.986	ug/l	41685.30
Na	23	45	3	He	32769.150	ug/l	15657982.82
Mg	24	45	3	He	9751.416	ug/l	2557301.56
Al	27	45	1	No Gas	10.852	ug/l	113588.01
Si	28	45	2	H2	22043.392	ug/l	33379261.94
K	39	72	3	He	3913.524	ug/l	1183907.59
Ca	40	72	2	H2	10362.909	ug/l	58036013.13
Ti	47	72	1	No Gas	2.729	ug/l	3100.74
V	51	72	1	No Gas	20.140	ug/l	263476.07
V	51	72	3	He	13.360	ug/l	45477.35
Cr	52	72	1	No Gas	1.344	ug/l	55197.94
Cr	52	72	3	He	2.290	ug/l	7750.99
Mn	55	72	1	No Gas	0.160	ug/l	9540.88
Mn	55	72	3	He	0.322	ug/l	705.21
Fe	56	72	2	H2	12.635	ug/l	163032.36
Fe	56	72	3	He	13.828	ug/l	40461.71
Co	59	72	1	No Gas	0.025	ug/l	1087.89
Ni	60	72	1	No Gas	0.839	ug/l	3466.87
Ni	60	72	3	He	0.740	ug/l	1013.37
Cu	63	72	1	No Gas	1.060	ug/l	10235.73
Cu	63	72	3	He	0.817	ug/l	2728.72
Cu	65	72	1	No Gas	0.824	ug/l	3881.42
Zn	66	72	1	No Gas	16.208	ug/l	51134.12
Zn	66	72	3	He	16.001	ug/l	11348.96
As	75	72	1	No Gas	-0.219	ug/l	9780.36
As	75	72	3	He	0.015	ug/l	171.40
Se	78	72	2	H2	0.123	ug/l	81.78
Br	79	72	1	No Gas	11.940	ug/l	86741.68
Br	79	72	2	H2	12.432	ug/l	55583.13
Se	82	72	1	No Gas	0.030	ug/l	586.34
Kr	84	72	1	No Gas		ug/l	27475.23
Sr	88	72	1	No Gas	73.854	ug/l	2067049.08
Sr	88	72	3	He	70.820	ug/l	231845.39
Mo	95	115	1	No Gas	0.225	ug/l	1238.95
Mo	95	115	3	He	0.206	ug/l	416.67
Mo	98	115	1	No Gas	0.209	ug/l	1907.92
Ag	107	115	1	No Gas	0.001	ug/l	127.39
Ag	109	115	1	No Gas	-0.001	ug/l	98.04
Cd	111	115	1	No Gas	-0.002	ug/l	8.59

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.002	ug/l	4.67
Cd	114	115	1	No Gas	0.001	ug/l	10.13
Cd	114	115	3	He	0.003	ug/l	7.64
Sn	118	115	1	No Gas	0.385	ug/l	4298.84
Sn	118	115	3	He	0.385	ug/l	1112.27
Sb	121	115	1	No Gas	0.687	ug/l	11465.50
Sb	121	115	3	He	0.690	ug/l	2953.61
Sb	123	115	1	No Gas	0.673	ug/l	8755.95
Sb	123	115	3	He	0.693	ug/l	2365.44
Ba	135	115	1	No Gas	5.074	ug/l	14598.77
Ba	137	115	1	No Gas	5.129	ug/l	26252.94
La	139	115	3	He	0.005	ug/l	81.11
Ce	140	115	3	He	0.012	ug/l	185.56
Hg	201	209	1	No Gas	-0.024	ug/l	59.32
Hg	202	209	1	No Gas	-0.014	ug/l	152.64
Hg	202	209	3	He	-0.014	ug/l	74.65
Tl	203	209	3	He	0.214	ug/l	1230.56
Tl	205	209	1	No Gas	0.124	ug/l	4305.21
Tl	205	209	3	He	0.198	ug/l	2758.07
[Pb]	206	209	1	No Gas	0.036	ug/l	516.68
[Pb]	207	209	1	No Gas	0.039	ug/l	444.46
Pb	208	209	1	No Gas	0.038	ug/l	2041.19
Th	232	209	3	He	-0.006	ug/l	210.09
U	238	209	1	No Gas	0.019	ug/l	719.54

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2937973.01	122.3
Sc	45	2	H2	1873055.85	116.0
Sc	45	3	He	188295.56	129.1
Ge	72	1	No Gas	865187.11	112.6
Ge	72	2	H2	688479.80	114.6
Ge	72	3	He	131044.86	117.1
In	115	1	No Gas	998504.17	104.7
In	115	3	He	222049.28	107.4
Tb	159	1	No Gas	8714752.15	106.2
Tb	159	3	He	3289095.78	100.8
Ho	165	1	No Gas	8186755.01	100.9
Ho	165	3	He	3217316.76	100.0
Lu	175	1	No Gas	7923878.55	97.4
Lu	175	3	He	2595073.47	103.1
Bi	209	1	No Gas	5242141.20	97.9
Bi	209	3	He	2109090.61	95.6



# ICPMS207-B Analytical Data

**Sample Name** B22021763-001B  
**File Name** 072SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 19:27:14  
**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	6.352	ug/l	33016.84
Be	9	45	1	No Gas	0.028	ug/l	114.98
B	11	45	1	No Gas	37.832	ug/l	25560.69
Na	23	45	3	He	32217.703	ug/l	8918117.23
Mg	24	45	3	He	9733.863	ug/l	1478375.47
Al	27	45	1	No Gas	33.475	ug/l	229302.28
Si	28	45	2	H2	20932.108	ug/l	23277932.14
K	39	72	3	He	2629.335	ug/l	557133.78
Ca	40	72	2	H2	9861.255	ug/l	42736668.50
Ti	47	72	1	No Gas	3.854	ug/l	3355.45
V	51	72	1	No Gas	16.640	ug/l	164003.18
V	51	72	3	He	15.605	ug/l	35140.46
Cr	52	72	1	No Gas	2.974	ug/l	60385.35
Cr	52	72	3	He	2.513	ug/l	5743.39
Mn	55	72	1	No Gas	1.319	ug/l	24768.82
Mn	55	72	3	He	0.711	ug/l	1009.17
Fe	56	72	2	H2	39.631	ug/l	378417.74
Fe	56	72	3	He	40.832	ug/l	75595.74
Co	59	72	1	No Gas	0.042	ug/l	1054.62
Ni	60	72	1	No Gas	0.667	ug/l	2215.78
Ni	60	72	3	He	0.711	ug/l	668.91
Cu	63	72	1	No Gas	1.100	ug/l	8187.61
Cu	63	72	3	He	0.838	ug/l	1904.75
Cu	65	72	1	No Gas	0.848	ug/l	3084.24
Zn	66	72	1	No Gas	26.347	ug/l	64042.58
Zn	66	72	3	He	27.604	ug/l	13319.58
As	75	72	1	No Gas	1.594	ug/l	13571.37
As	75	72	3	He	0.214	ug/l	212.93
Se	78	72	2	H2	0.156	ug/l	75.78
Br	79	72	1	No Gas	4.592	ug/l	29411.93
Br	79	72	2	H2	4.303	ug/l	17096.23
Se	82	72	1	No Gas	0.085	ug/l	464.88
Kr	84	72	1	No Gas		ug/l	23176.09
Sr	88	72	1	No Gas	78.415	ug/l	1697916.55
Sr	88	72	3	He	73.805	ug/l	165034.06
Mo	95	115	1	No Gas	0.264	ug/l	1247.84
Mo	95	115	3	He	0.286	ug/l	423.34
Mo	98	115	1	No Gas	0.260	ug/l	2024.60
Ag	107	115	1	No Gas	0.008	ug/l	188.74
Ag	109	115	1	No Gas	0.010	ug/l	204.08
Cd	111	115	1	No Gas	0.004	ug/l	22.57

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	5.00
Cd	114	115	1	No Gas	0.003	ug/l	18.87
Cd	114	115	3	He	0.005	ug/l	10.63
Sn	118	115	1	No Gas	0.815	ug/l	7114.45
Sn	118	115	3	He	0.896	ug/l	1742.34
Sb	121	115	1	No Gas	0.488	ug/l	7367.35
Sb	121	115	3	He	0.529	ug/l	1736.62
Sb	123	115	1	No Gas	0.479	ug/l	5637.71
Sb	123	115	3	He	0.521	ug/l	1366.54
Ba	135	115	1	No Gas	5.606	ug/l	13946.11
Ba	137	115	1	No Gas	5.619	ug/l	24843.08
La	139	115	3	He	0.015	ug/l	166.67
Ce	140	115	3	He	0.041	ug/l	461.12
Hg	201	209	1	No Gas	0.000	ug/l	98.98
Hg	202	209	1	No Gas	0.017	ug/l	272.28
Hg	202	209	3	He	0.037	ug/l	156.64
Tl	203	209	3	He	0.050	ug/l	400.83
Tl	205	209	1	No Gas	0.026	ug/l	1533.44
Tl	205	209	3	He	0.047	ug/l	959.76
[Pb]	206	209	1	No Gas	0.096	ug/l	994.49
[Pb]	207	209	1	No Gas	0.093	ug/l	805.59
Pb	208	209	1	No Gas	0.094	ug/l	3803.57
Th	232	209	3	He	0.128	ug/l	2053.66
U	238	209	1	No Gas	0.022	ug/l	773.87

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2041269.51	85.0
Sc	45	2	H2	1375919.66	85.2
Sc	45	3	He	109096.22	74.8
Ge	72	1	No Gas	669386.95	87.1
Ge	72	2	H2	532697.57	88.7
Ge	72	3	He	89524.31	80.0
In	115	1	No Gas	862616.15	90.4
In	115	3	He	165312.98	80.0
Tb	159	1	No Gas	7645394.50	93.1
Tb	159	3	He	2754843.70	84.4
Ho	165	1	No Gas	7514288.03	92.6
Ho	165	3	He	2679522.27	83.2
Lu	175	1	No Gas	7321987.67	90.0
Lu	175	3	He	2168129.59	86.1
Bi	209	1	No Gas	4786911.73	89.4
Bi	209	3	He	1883512.82	85.3

# ICPMS207-B Analytical Data

**Sample Name** B22021763-001BDIL  
**File Name** 073SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 19:33:27  
**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	33.893	ug/l	30828.77
Be	9	45	1	No Gas	0.137	ug/l	103.98
B	11	45	1	No Gas	41.846	ug/l	5684.03
Na	23	45	3	He	32451.469	ug/l	1874208.93
Mg	24	45	3	He	10034.812	ug/l	313121.19
Al	27	45	1	No Gas	41.685	ug/l	56660.59
Si	28	45	2	H2	21256.440	ug/l	4815191.51
K	39	72	3	He	2631.924	ug/l	147461.25
Ca	40	72	2	H2	10416.007	ug/l	9106063.97
Ti	47	72	1	No Gas	3.745	ug/l	739.10
V	51	72	1	No Gas	33.317	ug/l	48266.58
V	51	72	3	He	10.870	ug/l	10891.95
Cr	52	72	1	No Gas	1.041	ug/l	30545.07
Cr	52	72	3	He	2.929	ug/l	1912.36
Mn	55	72	1	No Gas	1.525	ug/l	9597.46
Mn	55	72	3	He	0.922	ug/l	300.28
Fe	56	72	2	H2	55.061	ug/l	111016.87
Fe	56	72	3	He	52.633	ug/l	22214.41
Co	59	72	1	No Gas	-0.043	ug/l	449.12
Ni	60	72	1	No Gas	1.058	ug/l	974.77
Ni	60	72	3	He	0.940	ug/l	260.00
Cu	63	72	1	No Gas	1.396	ug/l	2678.66
Cu	63	72	3	He	1.126	ug/l	678.88
Cu	65	72	1	No Gas	1.042	ug/l	985.76
Zn	66	72	1	No Gas	42.225	ug/l	20879.94
Zn	66	72	3	He	44.909	ug/l	4471.84
As	75	72	1	No Gas	-3.335	ug/l	6114.60
As	75	72	3	He	0.117	ug/l	123.67
Se	78	72	2	H2	0.154	ug/l	28.89
Br	79	72	1	No Gas	7.966	ug/l	14095.62
Br	79	72	2	H2	7.600	ug/l	8236.06
Se	82	72	1	No Gas	0.985	ug/l	486.48
Kr	84	72	1	No Gas		ug/l	14135.66
Sr	88	72	1	No Gas	78.803	ug/l	343256.47
Sr	88	72	3	He	75.149	ug/l	34334.97
Mo	95	115	1	No Gas	0.245	ug/l	276.67
Mo	95	115	3	He	0.272	ug/l	98.89
Mo	98	115	1	No Gas	0.235	ug/l	473.34
Ag	107	115	1	No Gas	0.016	ug/l	141.39
Ag	109	115	1	No Gas	0.008	ug/l	114.05
Cd	111	115	1	No Gas	0.006	ug/l	16.48

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.013	ug/l	4.00
Cd	114	115	1	No Gas	0.014	ug/l	17.91
Cd	114	115	3	He	0.014	ug/l	6.21
Sn	118	115	1	No Gas	0.948	ug/l	2272.36
Sn	118	115	3	He	1.037	ug/l	535.57
Sb	121	115	1	No Gas	0.306	ug/l	2002.35
Sb	121	115	3	He	0.437	ug/l	485.73
Sb	123	115	1	No Gas	0.355	ug/l	1668.98
Sb	123	115	3	He	0.386	ug/l	367.71
Ba	135	115	1	No Gas	5.802	ug/l	3031.00
Ba	137	115	1	No Gas	5.988	ug/l	5583.42
La	139	115	3	He	0.053	ug/l	125.56
Ce	140	115	3	He	0.057	ug/l	141.12
Hg	201	209	1	No Gas	0.011	ug/l	108.98
Hg	202	209	1	No Gas	0.041	ug/l	248.62
Hg	202	209	3	He	0.048	ug/l	111.65
Tl	203	209	3	He	0.164	ug/l	341.47
Tl	205	209	1	No Gas	0.081	ug/l	1365.64
Tl	205	209	3	He	0.179	ug/l	873.72
[Pb]	206	209	1	No Gas	0.466	ug/l	1040.05
[Pb]	207	209	1	No Gas	0.446	ug/l	834.48
Pb	208	209	1	No Gas	0.461	ug/l	3983.60
Th	232	209	3	He	0.030	ug/l	361.48
U	238	209	1	No Gas	0.038	ug/l	300.28

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	1860192.23	77.5
Sc	45	2	H2	1398553.31	86.6
Sc	45	3	He	111667.42	76.6
Ge	72	1	No Gas	672345.44	87.5
Ge	72	2	H2	533151.52	88.7
Ge	72	3	He	91388.22	81.6
In	115	1	No Gas	903097.20	94.7
In	115	3	He	173010.60	83.7
Tb	159	1	No Gas	7857497.43	95.7
Tb	159	3	He	2884295.29	88.4
Ho	165	1	No Gas	7524574.05	92.8
Ho	165	3	He	2816074.59	87.5
Lu	175	1	No Gas	7448866.05	91.6
Lu	175	3	He	2205231.82	87.6
Bi	209	1	No Gas	5107848.61	95.4
Bi	209	3	He	1947679.59	88.2

# ICPMS207-B Analytical Data

**Sample Name** B22021763-001BPDS1  
**File Name** 074ARef.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 19:39:40  
**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	1830.761	ug/l	3215472.55
Be	9	45	1	No Gas	40.934	ug/l	38805.29
B	11	45	1	No Gas	79.178	ug/l	47715.86
Na	23	45	3	He	75557.158	ug/l	22418470.50
Mg	24	45	3	He	55075.650	ug/l	8986236.82
Al	27	45	1	No Gas	74.091	ug/l	452554.11
Si	28	45	2	H2	21520.748	ug/l	23130682.57
K	39	72	3	He	43530.396	ug/l	8862234.31
Ca	40	72	2	H2	54637.797	ug/l	229507988.24
Ti	47	72	1	No Gas	54.843	ug/l	44685.27
V	51	72	1	No Gas	54.070	ug/l	573862.05
V	51	72	3	He	61.772	ug/l	123501.27
Cr	52	72	1	No Gas	48.516	ug/l	534324.32
Cr	52	72	3	He	49.248	ug/l	102891.86
Mn	55	72	1	No Gas	47.137	ug/l	686521.90
Mn	55	72	3	He	47.852	ug/l	67240.58
Fe	56	72	2	H2	4724.315	ug/l	42889011.67
Fe	56	72	3	He	4825.642	ug/l	8859004.63
Co	59	72	1	No Gas	47.831	ug/l	553563.99
Ni	60	72	1	No Gas	46.732	ug/l	123513.27
Ni	60	72	3	He	49.625	ug/l	40733.00
Cu	63	72	1	No Gas	48.738	ug/l	316798.12
Cu	63	72	3	He	53.644	ug/l	112461.55
Cu	65	72	1	No Gas	48.305	ug/l	153231.24
Zn	66	72	1	No Gas	74.172	ug/l	173294.83
Zn	66	72	3	He	78.243	ug/l	38847.08
As	75	72	1	No Gas	50.703	ug/l	170632.83
As	75	72	3	He	50.512	ug/l	25183.14
Se	78	72	2	H2	49.973	ug/l	18145.86
Br	79	72	1	No Gas	5.069	ug/l	30872.23
Br	79	72	2	H2	4.783	ug/l	18185.54
Se	82	72	1	No Gas	51.785	ug/l	9747.85
Kr	84	72	1	No Gas		ug/l	29532.13
Sr	88	72	1	No Gas	130.126	ug/l	2716975.94
Sr	88	72	3	He	127.521	ug/l	294642.53
Mo	95	115	1	No Gas	48.140	ug/l	215098.57
Mo	95	115	3	He	49.370	ug/l	73528.30
Mo	98	115	1	No Gas	48.270	ug/l	347454.71
Ag	107	115	1	No Gas	19.267	ug/l	231187.72
Ag	109	115	1	No Gas	19.294	ug/l	220347.90
Cd	111	115	1	No Gas	47.782	ug/l	129864.92

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	50.775	ug/l	40699.51
Cd	114	115	1	No Gas	47.238	ug/l	293312.78
Cd	114	115	3	He	51.285	ug/l	99557.55
Sn	118	115	1	No Gas	50.128	ug/l	388429.11
Sn	118	115	3	He	51.790	ug/l	96788.32
Sb	121	115	1	No Gas	46.462	ug/l	581355.11
Sb	121	115	3	He	47.961	ug/l	144561.18
Sb	123	115	1	No Gas	46.337	ug/l	450248.57
Sb	123	115	3	He	47.380	ug/l	113585.78
Ba	135	115	1	No Gas	56.725	ug/l	137747.74
Ba	137	115	1	No Gas	53.612	ug/l	231557.60
La	139	115	3	He	52.723	ug/l	573932.89
Ce	140	115	3	He	51.980	ug/l	605504.91
Hg	201	209	1	No Gas	0.961	ug/l	1828.76
Hg	202	209	1	No Gas	0.983	ug/l	4267.84
Hg	202	209	3	He	0.992	ug/l	1745.44
Tl	203	209	3	He	49.357	ug/l	199275.78
Tl	205	209	1	No Gas	48.101	ug/l	1153578.45
Tl	205	209	3	He	50.176	ug/l	475331.27
[Pb]	206	209	1	No Gas	45.944	ug/l	394376.58
[Pb]	207	209	1	No Gas	47.906	ug/l	347558.72
Pb	208	209	1	No Gas	47.437	ug/l	1598672.08
Th	232	209	3	He	50.787	ug/l	674645.49
U	238	209	1	No Gas	48.602	ug/l	1606471.51

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	1903265.64	79.3
Sc	45	2	H2	1369301.59	84.8
Sc	45	3	He	120809.95	82.8
Ge	72	1	No Gas	664387.39	86.5
Ge	72	2	H2	532724.22	88.7
Ge	72	3	He	95274.24	85.1
In	115	1	No Gas	868622.97	91.0
In	115	3	He	177934.42	86.1
Tb	159	1	No Gas	7498192.72	91.3
Tb	159	3	He	2783919.47	85.3
Ho	165	1	No Gas	7375757.74	90.9
Ho	165	3	He	2704115.17	84.0
Lu	175	1	No Gas	7223309.77	88.8
Lu	175	3	He	2153842.36	85.5
Bi	209	1	No Gas	4788532.59	89.5
Bi	209	3	He	1840646.46	83.4

# ICPMS207-B Analytical Data

**Sample Name** B22021763-001BMS4  
**File Name** 075MS4.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 19:45:55  
**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	86.435	ug/l	183614.65
Be	9	45	1	No Gas	41.651	ug/l	42699.66
B	11	45	1	No Gas	123.127	ug/l	79844.37
Na	23	45	3	He	35271.619	ug/l	10010430.27
Mg	24	45	3	He	14470.157	ug/l	2253026.25
Al	27	45	1	No Gas	473.373	ug/l	3090067.69
Si	28	45	2	H2	19398.898	ug/l	22144257.03
K	39	72	3	He	6699.074	ug/l	1382736.05
Ca	40	72	2	H2	13701.227	ug/l	63350020.29
Ti	47	72	1	No Gas	103.494	ug/l	91942.19
V	51	72	1	No Gas	112.886	ug/l	1343981.46
V	51	72	3	He	107.232	ug/l	206365.18
Cr	52	72	1	No Gas	96.886	ug/l	1133362.67
Cr	52	72	3	He	97.677	ug/l	200794.10
Mn	55	72	1	No Gas	477.479	ug/l	7538419.19
Mn	55	72	3	He	479.660	ug/l	665410.22
Fe	56	72	2	H2	508.533	ug/l	5084411.89
Fe	56	72	3	He	535.458	ug/l	973654.15
Co	59	72	1	No Gas	99.855	ug/l	1260518.49
Ni	60	72	1	No Gas	98.994	ug/l	285022.11
Ni	60	72	3	He	101.268	ug/l	81978.16
Cu	63	72	1	No Gas	101.948	ug/l	722349.42
Cu	63	72	3	He	111.238	ug/l	230113.74
Cu	65	72	1	No Gas	100.529	ug/l	347653.83
Zn	66	72	1	No Gas	126.179	ug/l	321456.67
Zn	66	72	3	He	132.119	ug/l	64740.06
As	75	72	1	No Gas	103.244	ug/l	369586.37
As	75	72	3	He	102.946	ug/l	50573.04
Se	78	72	2	H2	99.054	ug/l	39533.34
Br	79	72	1	No Gas	2.957	ug/l	22129.84
Br	79	72	2	H2	2.973	ug/l	13732.68
Se	82	72	1	No Gas	106.812	ug/l	21411.82
Kr	84	72	1	No Gas		ug/l	40340.07
Sr	88	72	1	No Gas	187.899	ug/l	4281162.00
Sr	88	72	3	He	184.899	ug/l	422056.35
Mo	95	115	1	No Gas	96.485	ug/l	478245.18
Mo	95	115	3	He	101.677	ug/l	150436.34
Mo	98	115	1	No Gas	96.771	ug/l	772344.90
Ag	107	115	1	No Gas	9.242	ug/l	123055.73
Ag	109	115	1	No Gas	9.170	ug/l	116235.39
Cd	111	115	1	No Gas	47.934	ug/l	144521.85

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	53.103	ug/l	42287.03
Cd	114	115	1	No Gas	47.343	ug/l	326146.00
Cd	114	115	3	He	53.398	ug/l	102994.45
Sn	118	115	1	No Gas	101.325	ug/l	870217.07
Sn	118	115	3	He	107.937	ug/l	200236.68
Sb	121	115	1	No Gas	98.920	ug/l	1371729.86
Sb	121	115	3	He	104.157	ug/l	311628.58
Sb	123	115	1	No Gas	101.650	ug/l	1094722.24
Sb	123	115	3	He	106.500	ug/l	253427.08
Ba	135	115	1	No Gas	99.920	ug/l	268999.06
Ba	137	115	1	No Gas	95.067	ug/l	455357.48
La	139	115	3	He	106.560	ug/l	1152552.26
Ce	140	115	3	He	106.540	ug/l	1232978.08
Hg	201	209	1	No Gas	0.026	ug/l	140.97
Hg	202	209	1	No Gas	0.037	ug/l	341.27
Hg	202	209	3	He	0.055	ug/l	173.97
Tl	203	209	3	He	105.645	ug/l	416063.68
Tl	205	209	1	No Gas	102.245	ug/l	2428348.76
Tl	205	209	3	He	108.181	ug/l	999621.64
[Pb]	206	209	1	No Gas	100.244	ug/l	852126.94
[Pb]	207	209	1	No Gas	103.806	ug/l	745949.31
Pb	208	209	1	No Gas	101.895	ug/l	3400844.14
Th	232	209	3	He	106.281	ug/l	1378405.61
U	238	209	1	No Gas	102.968	ug/l	3372520.47

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	1999346.79	83.3
Sc	45	2	H2	1411842.03	87.4
Sc	45	3	He	111950.82	76.8
Ge	72	1	No Gas	704106.19	91.7
Ge	72	2	H2	568892.25	94.7
Ge	72	3	He	91383.93	81.6
In	115	1	No Gas	936624.06	98.2
In	115	3	He	171639.80	83.0
Tb	159	1	No Gas	7683072.75	93.6
Tb	159	3	He	2713910.71	83.2
Ho	165	1	No Gas	7294910.54	89.9
Ho	165	3	He	2682964.66	83.4
Lu	175	1	No Gas	7142661.11	87.8
Lu	175	3	He	2098221.01	83.3
Bi	209	1	No Gas	4609341.03	86.1
Bi	209	3	He	1744881.05	79.1



# ICPMS207-B Analytical Data

**Sample Name** B22021763-001BMSD4  
**File Name** 076MSD4.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 19:52:08  
**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	83.570	ug/l	161904.52
Be	9	45	1	No Gas	40.239	ug/l	37466.68
B	11	45	1	No Gas	113.868	ug/l	67158.79
Na	23	45	3	He	35052.546	ug/l	9265262.22
Mg	24	45	3	He	14646.142	ug/l	2123410.63
Al	27	45	1	No Gas	438.601	ug/l	2600434.44
Si	28	45	2	H2	18983.348	ug/l	20516583.83
K	39	72	3	He	6479.822	ug/l	1278857.01
Ca	40	72	2	H2	14325.686	ug/l	61384119.04
Ti	47	72	1	No Gas	97.984	ug/l	81375.06
V	51	72	1	No Gas	86.967	ug/l	961770.41
V	51	72	3	He	107.535	ug/l	197651.57
Cr	52	72	1	No Gas	90.642	ug/l	995619.95
Cr	52	72	3	He	95.649	ug/l	187815.54
Mn	55	72	1	No Gas	470.054	ug/l	6959499.36
Mn	55	72	3	He	471.607	ug/l	624831.40
Fe	56	72	2	H2	530.266	ug/l	4914364.56
Fe	56	72	3	He	513.353	ug/l	891769.68
Co	59	72	1	No Gas	96.837	ug/l	1144801.55
Ni	60	72	1	No Gas	95.915	ug/l	258624.44
Ni	60	72	3	He	103.942	ug/l	80379.13
Cu	63	72	1	No Gas	98.260	ug/l	652647.30
Cu	63	72	3	He	109.592	ug/l	216537.75
Cu	65	72	1	No Gas	97.809	ug/l	316923.98
Zn	66	72	1	No Gas	123.487	ug/l	294594.04
Zn	66	72	3	He	130.517	ug/l	61081.42
As	75	72	1	No Gas	101.836	ug/l	342076.35
As	75	72	3	He	102.026	ug/l	47871.96
Se	78	72	2	H2	101.148	ug/l	37416.44
Br	79	72	1	No Gas	2.645	ug/l	19178.15
Br	79	72	2	H2	2.728	ug/l	11954.65
Se	82	72	1	No Gas	104.423	ug/l	19644.44
Kr	84	72	1	No Gas		ug/l	36651.02
Sr	88	72	1	No Gas	185.659	ug/l	3964655.01
Sr	88	72	3	He	182.319	ug/l	397386.85
Mo	95	115	1	No Gas	95.836	ug/l	446249.58
Mo	95	115	3	He	102.901	ug/l	148057.83
Mo	98	115	1	No Gas	96.694	ug/l	724801.99
Ag	107	115	1	No Gas	9.272	ug/l	115870.77
Ag	109	115	1	No Gas	9.443	ug/l	112425.28
Cd	111	115	1	No Gas	48.673	ug/l	137749.68

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	53.142	ug/l	41143.83
Cd	114	115	1	No Gas	47.836	ug/l	309343.61
Cd	114	115	3	He	53.652	ug/l	100634.57
Sn	118	115	1	No Gas	97.694	ug/l	787387.52
Sn	118	115	3	He	104.816	ug/l	189026.13
Sb	121	115	1	No Gas	100.795	ug/l	1312602.38
Sb	121	115	3	He	105.189	ug/l	306027.66
Sb	123	115	1	No Gas	103.367	ug/l	1044917.33
Sb	123	115	3	He	106.293	ug/l	245938.27
Ba	135	115	1	No Gas	100.797	ug/l	254903.12
Ba	137	115	1	No Gas	98.266	ug/l	442133.82
La	139	115	3	He	105.503	ug/l	1109253.46
Ce	140	115	3	He	104.519	ug/l	1175702.60
Hg	201	209	1	No Gas	0.029	ug/l	146.30
Hg	202	209	1	No Gas	0.045	ug/l	377.26
Hg	202	209	3	He	0.061	ug/l	181.63
Tl	203	209	3	He	103.401	ug/l	404544.12
Tl	205	209	1	No Gas	99.541	ug/l	2376963.40
Tl	205	209	3	He	106.338	ug/l	976515.28
[Pb]	206	209	1	No Gas	96.691	ug/l	826469.16
[Pb]	207	209	1	No Gas	99.435	ug/l	718543.72
Pb	208	209	1	No Gas	98.678	ug/l	3311516.37
Th	232	209	3	He	105.393	ug/l	1357635.69
U	238	209	1	No Gas	100.467	ug/l	3307921.77

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	1817267.00	75.7
Sc	45	2	H2	1336650.12	82.8
Sc	45	3	He	104274.54	71.5
Ge	72	1	No Gas	662659.90	86.3
Ge	72	2	H2	527248.09	87.7
Ge	72	3	He	87276.31	78.0
In	115	1	No Gas	879499.46	92.2
In	115	3	He	166970.71	80.8
Tb	159	1	No Gas	7460379.13	90.9
Tb	159	3	He	2724320.74	83.5
Ho	165	1	No Gas	7270560.05	89.6
Ho	165	3	He	2628798.57	81.7
Lu	175	1	No Gas	7082789.10	87.1
Lu	175	3	He	2057647.06	81.7
Bi	209	1	No Gas	4630596.52	86.5
Bi	209	3	He	1732629.19	78.5

# ICPMS207-B Analytical Data

**Sample Name** Rinse  
**File Name** 077BLKV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 19:58:21  
**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	5.879	ug/l	31523.77
Be	9	45	1	No Gas	0.011	ug/l	94.98
B	11	45	1	No Gas	0.030	ug/l	749.65
Na	23	45	3	He	65.529	ug/l	61937.78
Mg	24	45	3	He	3.172	ug/l	1766.62
Al	27	45	1	No Gas	0.128	ug/l	7434.09
Si	28	45	2	H2	65.481	ug/l	87952.15
K	39	72	3	He	-31.621	ug/l	36725.60
Ca	40	72	2	H2	0.147	ug/l	93648.33
Ti	47	72	1	No Gas	0.053	ug/l	155.16
V	51	72	1	No Gas	1.080	ug/l	-17195.16
V	51	72	3	He	-1.337	ug/l	4454.05
Cr	52	72	1	No Gas	-0.682	ug/l	21700.02
Cr	52	72	3	He	0.075	ug/l	887.81
Mn	55	72	1	No Gas	-0.059	ug/l	4278.82
Mn	55	72	3	He	0.011	ug/l	60.99
Fe	56	72	2	H2	0.012	ug/l	8347.45
Fe	56	72	3	He	0.009	ug/l	3233.63
Co	59	72	1	No Gas	-0.022	ug/l	296.08
Ni	60	72	1	No Gas	0.039	ug/l	518.98
Ni	60	72	3	He	0.025	ug/l	131.11
Cu	63	72	1	No Gas	0.000	ug/l	824.35
Cu	63	72	3	He	0.011	ug/l	239.95
Cu	65	72	1	No Gas	0.007	ug/l	332.81
Zn	66	72	1	No Gas	0.071	ug/l	541.83
Zn	66	72	3	He	0.005	ug/l	86.67
As	75	72	1	No Gas	0.634	ug/l	10851.50
As	75	72	3	He	-0.051	ug/l	89.33
Se	78	72	2	H2	0.006	ug/l	20.11
Br	79	72	1	No Gas	-0.036	ug/l	5929.50
Br	79	72	2	H2	-0.030	ug/l	3397.02
Se	82	72	1	No Gas	-0.033	ug/l	462.21
Kr	84	72	1	No Gas		ug/l	12244.25
Sr	88	72	1	No Gas	0.003	ug/l	342.66
Sr	88	72	3	He	-0.001	ug/l	70.00
Mo	95	115	1	No Gas	0.019	ug/l	136.67
Mo	95	115	3	He	0.013	ug/l	37.78
Mo	98	115	1	No Gas	0.011	ug/l	205.07
Ag	107	115	1	No Gas	-0.001	ug/l	94.04
Ag	109	115	1	No Gas	-0.002	ug/l	78.03
Cd	111	115	1	No Gas	-0.004	ug/l	3.48

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.001	ug/l	2.33
Cd	114	115	1	No Gas	0.001	ug/l	5.80
Cd	114	115	3	He	0.003	ug/l	6.70
Sn	118	115	1	No Gas	0.008	ug/l	788.46
Sn	118	115	3	He	0.007	ug/l	163.34
Sb	121	115	1	No Gas	0.271	ug/l	4930.37
Sb	121	115	3	He	0.220	ug/l	895.12
Sb	123	115	1	No Gas	0.271	ug/l	3839.59
Sb	123	115	3	He	0.216	ug/l	707.42
Ba	135	115	1	No Gas	-0.002	ug/l	13.31
Ba	137	115	1	No Gas	0.004	ug/l	59.88
La	139	115	3	He	0.000	ug/l	8.89
Ce	140	115	3	He	0.001	ug/l	15.55
Hg	201	209	1	No Gas	-0.008	ug/l	86.65
Hg	202	209	1	No Gas	0.001	ug/l	208.29
Hg	202	209	3	He	-0.002	ug/l	85.31
Tl	203	209	3	He	0.349	ug/l	1632.09
Tl	205	209	1	No Gas	0.254	ug/l	7341.12
Tl	205	209	3	He	0.346	ug/l	3840.11
[Pb]	206	209	1	No Gas	0.007	ug/l	223.34
[Pb]	207	209	1	No Gas	0.009	ug/l	191.11
Pb	208	209	1	No Gas	0.008	ug/l	861.13
Th	232	209	3	He	0.050	ug/l	949.09
U	238	209	1	No Gas	0.002	ug/l	102.98

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2004531.60	83.5
Sc	45	2	H2	1414312.53	87.6
Sc	45	3	He	109498.30	75.1
Ge	72	1	No Gas	699347.60	91.0
Ge	72	2	H2	549697.72	91.5
Ge	72	3	He	93426.74	83.5
In	115	1	No Gas	927437.40	97.2
In	115	3	He	174791.29	84.5
Tb	159	1	No Gas	7781615.35	94.8
Tb	159	3	He	2764886.98	84.7
Ho	165	1	No Gas	7604158.89	93.8
Ho	165	3	He	2763938.43	85.9
Lu	175	1	No Gas	7395302.44	90.9
Lu	175	3	He	2113523.21	83.9
Bi	209	1	No Gas	4975985.32	93.0
Bi	209	3	He	1836789.19	83.2

# ICPMS207-B Analytical Data

**Sample Name** B22021763-006A  
**File Name** 078SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 20:04:34  
**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	-0.659	ug/l	25686.56
Be	9	45	1	No Gas	-0.035	ug/l	64.99
B	11	45	1	No Gas	37.192	ug/l	33186.79
Na	23	45	3	He	36720.480	ug/l	15608437.55
Mg	24	45	3	He	16616.521	ug/l	3876800.93
Al	27	45	1	No Gas	1.834	ug/l	24968.96
Si	28	45	2	H2	26330.805	ug/l	37590234.90
K	39	72	3	He	3012.328	ug/l	852561.97
Ca	40	72	2	H2	16216.271	ug/l	85509321.31
Ti	47	72	1	No Gas	1.666	ug/l	1843.64
V	51	72	1	No Gas	10.079	ug/l	107278.87
V	51	72	3	He	4.370	ug/l	19792.38
Cr	52	72	1	No Gas	-0.175	ug/l	32058.14
Cr	52	72	3	He	0.764	ug/l	3010.33
Mn	55	72	1	No Gas	5.995	ug/l	115844.57
Mn	55	72	3	He	5.913	ug/l	10893.88
Fe	56	72	2	H2	0.370	ug/l	13917.50
Fe	56	72	3	He	0.393	ug/l	5102.87
Co	59	72	1	No Gas	0.014	ug/l	874.96
Ni	60	72	1	No Gas	1.151	ug/l	4322.09
Ni	60	72	3	He	1.053	ug/l	1267.84
Cu	63	72	1	No Gas	0.601	ug/l	5892.90
Cu	63	72	3	He	0.321	ug/l	1157.82
Cu	65	72	1	No Gas	0.369	ug/l	1842.86
Zn	66	72	1	No Gas	0.943	ug/l	3212.63
Zn	66	72	3	He	0.893	ug/l	686.69
As	75	72	1	No Gas	-0.344	ug/l	8707.49
As	75	72	3	He	-0.042	ug/l	120.80
Se	78	72	2	H2	0.225	ug/l	123.44
Br	79	72	1	No Gas	13.340	ug/l	90719.07
Br	79	72	2	H2	13.506	ug/l	56541.63
Se	82	72	1	No Gas	0.256	ug/l	603.67
Kr	84	72	1	No Gas		ug/l	42455.26
Sr	88	72	1	No Gas	183.144	ug/l	4842576.27
Sr	88	72	3	He	168.719	ug/l	508779.15
Mo	95	115	1	No Gas	0.375	ug/l	1981.26
Mo	95	115	3	He	0.371	ug/l	677.80
Mo	98	115	1	No Gas	0.369	ug/l	3185.45
Ag	107	115	1	No Gas	-0.002	ug/l	84.70
Ag	109	115	1	No Gas	-0.001	ug/l	87.37
Cd	111	115	1	No Gas	0.003	ug/l	22.61

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.003	ug/l	5.22
Cd	114	115	1	No Gas	0.005	ug/l	36.14
Cd	114	115	3	He	0.004	ug/l	11.07
Sn	118	115	1	No Gas	-0.053	ug/l	279.45
Sn	118	115	3	He	-0.038	ug/l	92.22
Sb	121	115	1	No Gas	0.315	ug/l	5824.14
Sb	121	115	3	He	0.327	ug/l	1435.89
Sb	123	115	1	No Gas	0.308	ug/l	4453.82
Sb	123	115	3	He	0.333	ug/l	1165.17
Ba	135	115	1	No Gas	4.203	ug/l	11804.96
Ba	137	115	1	No Gas	4.128	ug/l	20621.30
La	139	115	3	He	0.001	ug/l	23.33
Ce	140	115	3	He	0.002	ug/l	34.45
Hg	201	209	1	No Gas	-0.015	ug/l	74.65
Hg	202	209	1	No Gas	-0.010	ug/l	167.97
Hg	202	209	3	He	-0.010	ug/l	80.98
Tl	203	209	3	He	0.146	ug/l	889.06
Tl	205	209	1	No Gas	0.098	ug/l	3509.42
Tl	205	209	3	He	0.163	ug/l	2313.80
[Pb]	206	209	1	No Gas	0.009	ug/l	246.67
[Pb]	207	209	1	No Gas	0.012	ug/l	220.00
Pb	208	209	1	No Gas	0.010	ug/l	954.46
Th	232	209	3	He	-0.002	ug/l	266.11
U	238	209	1	No Gas	0.011	ug/l	427.25

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2692277.86	112.1
Sc	45	2	H2	1766014.45	109.4
Sc	45	3	He	167638.07	115.0
Ge	72	1	No Gas	817271.34	106.4
Ge	72	2	H2	648822.47	108.0
Ge	72	3	He	120753.73	107.9
In	115	1	No Gas	974373.50	102.1
In	115	3	He	205673.41	99.5
Tb	159	1	No Gas	8109749.46	98.8
Tb	159	3	He	3129867.83	95.9
Ho	165	1	No Gas	8068813.37	99.5
Ho	165	3	He	3084256.57	95.8
Lu	175	1	No Gas	7872636.42	96.8
Lu	175	3	He	2404476.79	95.5
Bi	209	1	No Gas	5101133.73	95.3
Bi	209	3	He	2061766.09	93.4

# ICPMS207-B Analytical Data

**Sample Name** B22021763-006B  
**File Name** 079SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 20:10:48  
**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	10.534	ug/l	36017.49
Be	9	45	1	No Gas	0.022	ug/l	95.31
B	11	45	1	No Gas	34.591	ug/l	20550.41
Na	23	45	3	He	36383.276	ug/l	9252222.01
Mg	24	45	3	He	17386.051	ug/l	2426169.50
Al	27	45	1	No Gas	38.150	ug/l	228267.02
Si	28	45	2	H2	20159.383	ug/l	21429127.66
K	39	72	3	He	2638.538	ug/l	517950.81
Ca	40	72	2	H2	15406.898	ug/l	62393527.16
Ti	47	72	1	No Gas	3.778	ug/l	3140.19
V	51	72	1	No Gas	2.174	ug/l	-4533.61
V	51	72	3	He	7.822	ug/l	19438.71
Cr	52	72	1	No Gas	1.326	ug/l	40565.95
Cr	52	72	3	He	1.091	ug/l	2679.15
Mn	55	72	1	No Gas	8.772	ug/l	130306.97
Mn	55	72	3	He	8.104	ug/l	10256.89
Fe	56	72	2	H2	30.733	ug/l	276144.12
Fe	56	72	3	He	30.210	ug/l	52648.51
Co	59	72	1	No Gas	0.078	ug/l	1410.61
Ni	60	72	1	No Gas	1.222	ug/l	3560.06
Ni	60	72	3	He	1.180	ug/l	964.48
Cu	63	72	1	No Gas	0.804	ug/l	5906.25
Cu	63	72	3	He	0.508	ug/l	1148.82
Cu	65	72	1	No Gas	0.534	ug/l	1957.59
Zn	66	72	1	No Gas	1.135	ug/l	2952.67
Zn	66	72	3	He	1.194	ug/l	605.57
As	75	72	1	No Gas	-0.087	ug/l	7583.50
As	75	72	3	He	0.198	ug/l	190.33
Se	78	72	2	H2	0.281	ug/l	114.22
Br	79	72	1	No Gas	3.256	ug/l	21510.18
Br	79	72	2	H2	2.915	ug/l	11851.46
Se	82	72	1	No Gas	-0.663	ug/l	308.76
Kr	84	72	1	No Gas		ug/l	34843.42
Sr	88	72	1	No Gas	190.499	ug/l	3931978.57
Sr	88	72	3	He	179.359	ug/l	371981.18
Mo	95	115	1	No Gas	0.858	ug/l	3741.64
Mo	95	115	3	He	0.896	ug/l	1230.06
Mo	98	115	1	No Gas	0.849	ug/l	5999.73
Ag	107	115	1	No Gas	0.004	ug/l	143.39
Ag	109	115	1	No Gas	0.004	ug/l	134.72
Cd	111	115	1	No Gas	0.000	ug/l	13.25

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.002	ug/l	3.11
Cd	114	115	1	No Gas	0.002	ug/l	14.78
Cd	114	115	3	He	0.003	ug/l	6.15
Sn	118	115	1	No Gas	0.165	ug/l	1866.50
Sn	118	115	3	He	0.188	ug/l	455.57
Sb	121	115	1	No Gas	0.442	ug/l	6404.78
Sb	121	115	3	He	0.469	ug/l	1490.23
Sb	123	115	1	No Gas	0.430	ug/l	4868.68
Sb	123	115	3	He	0.477	ug/l	1207.17
Ba	135	115	1	No Gas	4.869	ug/l	11432.15
Ba	137	115	1	No Gas	4.500	ug/l	18808.88
La	139	115	3	He	0.011	ug/l	118.89
Ce	140	115	3	He	0.027	ug/l	293.34
Hg	201	209	1	No Gas	-0.003	ug/l	87.98
Hg	202	209	1	No Gas	0.008	ug/l	222.63
Hg	202	209	3	He	0.027	ug/l	129.31
Tl	203	209	3	He	0.048	ug/l	370.82
Tl	205	209	1	No Gas	0.023	ug/l	1377.87
Tl	205	209	3	He	0.048	ug/l	907.06
[Pb]	206	209	1	No Gas	0.058	ug/l	633.36
[Pb]	207	209	1	No Gas	0.057	ug/l	516.68
Pb	208	209	1	No Gas	0.060	ug/l	2503.45
Th	232	209	3	He	0.107	ug/l	1655.44
U	238	209	1	No Gas	0.013	ug/l	429.25

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	1789085.55	74.5
Sc	45	2	H2	1314621.05	81.4
Sc	45	3	He	100269.36	68.8
Ge	72	1	No Gas	638406.43	83.1
Ge	72	2	H2	498134.02	82.9
Ge	72	3	He	83060.46	74.2
In	115	1	No Gas	814786.75	85.4
In	115	3	He	157512.62	76.2
Tb	159	1	No Gas	7302005.03	89.0
Tb	159	3	He	2624250.25	80.4
Ho	165	1	No Gas	7063208.38	87.1
Ho	165	3	He	2570019.20	79.8
Lu	175	1	No Gas	7170262.09	88.2
Lu	175	3	He	2002176.31	79.5
Bi	209	1	No Gas	4557279.50	85.2
Bi	209	3	He	1763612.38	79.9



# ICPMS207-B Analytical Data

**Sample Name** B22021763-011A  
**File Name** 080SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 20:17:01  
**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	-1.220	ug/l	25929.73
Be	9	45	1	No Gas	-0.041	ug/l	60.32
B	11	45	1	No Gas	60.039	ug/l	56572.78
Na	23	45	3	He	38646.349	ug/l	17817796.82
Mg	24	45	3	He	10180.239	ug/l	2577365.13
Al	27	45	1	No Gas	3.863	ug/l	45665.80
Si	28	45	2	H2	27225.953	ug/l	40843289.38
K	39	72	3	He	1930.645	ug/l	603124.19
Ca	40	72	2	H2	9105.864	ug/l	49812571.23
Ti	47	72	1	No Gas	2.175	ug/l	2446.01
V	51	72	1	No Gas	3.400	ug/l	13292.05
V	51	72	3	He	-2.280	ug/l	3668.26
Cr	52	72	1	No Gas	-1.020	ug/l	21596.48
Cr	52	72	3	He	-0.006	ug/l	988.93
Mn	55	72	1	No Gas	504.383	ug/l	9548577.26
Mn	55	72	3	He	480.253	ug/l	937914.30
Fe	56	72	2	H2	441.446	ug/l	5217470.98
Fe	56	72	3	He	445.301	ug/l	1141017.59
Co	59	72	1	No Gas	0.346	ug/l	5929.48
Ni	60	72	1	No Gas	0.857	ug/l	3446.92
Ni	60	72	3	He	0.840	ug/l	1110.05
Cu	63	72	1	No Gas	0.471	ug/l	4994.21
Cu	63	72	3	He	0.183	ug/l	832.53
Cu	65	72	1	No Gas	0.228	ug/l	1321.26
Zn	66	72	1	No Gas	1.301	ug/l	4413.79
Zn	66	72	3	He	1.239	ug/l	970.04
As	75	72	1	No Gas	0.043	ug/l	10620.46
As	75	72	3	He	0.328	ug/l	384.13
Se	78	72	2	H2	0.008	ug/l	25.44
Br	79	72	1	No Gas	13.483	ug/l	94639.39
Br	79	72	2	H2	13.537	ug/l	58722.41
Se	82	72	1	No Gas	-0.351	ug/l	483.41
Kr	84	72	1	No Gas		ug/l	27125.05
Sr	88	72	1	No Gas	70.903	ug/l	1938049.60
Sr	88	72	3	He	66.045	ug/l	212305.29
Mo	95	115	1	No Gas	0.245	ug/l	1367.85
Mo	95	115	3	He	0.239	ug/l	471.12
Mo	98	115	1	No Gas	0.247	ug/l	2268.74
Ag	107	115	1	No Gas	-0.003	ug/l	68.03
Ag	109	115	1	No Gas	0.009	ug/l	236.28
Cd	111	115	1	No Gas	-0.004	ug/l	0.61

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	-0.001	ug/l	1.78
Cd	114	115	1	No Gas	0.000	ug/l	-1.37
Cd	114	115	3	He	0.001	ug/l	3.07
Sn	118	115	1	No Gas	-0.038	ug/l	435.81
Sn	118	115	3	He	-0.035	ug/l	104.44
Sb	121	115	1	No Gas	0.476	ug/l	8511.77
Sb	121	115	3	He	0.508	ug/l	2205.40
Sb	123	115	1	No Gas	0.462	ug/l	6451.47
Sb	123	115	3	He	0.498	ug/l	1731.95
Ba	135	115	1	No Gas	4.935	ug/l	14478.92
Ba	137	115	1	No Gas	4.669	ug/l	24376.60
La	139	115	3	He	0.003	ug/l	58.89
Ce	140	115	3	He	0.022	ug/l	336.67
Hg	201	209	1	No Gas	-0.005	ug/l	102.31
Hg	202	209	1	No Gas	0.139	ug/l	907.52
Hg	202	209	3	He	0.116	ug/l	335.27
Tl	203	209	3	He	0.052	ug/l	469.53
Tl	205	209	1	No Gas	0.038	ug/l	2085.74
Tl	205	209	3	He	0.054	ug/l	1172.52
[Pb]	206	209	1	No Gas	0.015	ug/l	327.79
[Pb]	207	209	1	No Gas	0.017	ug/l	280.01
Pb	208	209	1	No Gas	0.017	ug/l	1301.15
Th	232	209	3	He	-0.009	ug/l	155.40
U	238	209	1	No Gas	0.008	ug/l	330.61

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2874743.79	119.7
Sc	45	2	H2	1855768.41	114.9
Sc	45	3	He	181843.82	124.7
Ge	72	1	No Gas	844503.52	109.9
Ge	72	2	H2	672354.15	111.9
Ge	72	3	He	128728.79	115.0
In	115	1	No Gas	1018034.59	106.7
In	115	3	He	217652.51	105.3
Tb	159	1	No Gas	8740641.90	106.5
Tb	159	3	He	3275276.46	100.4
Ho	165	1	No Gas	8429343.42	103.9
Ho	165	3	He	3174146.67	98.6
Lu	175	1	No Gas	8411001.85	103.4
Lu	175	3	He	2564702.03	101.9
Bi	209	1	No Gas	5479138.04	102.4
Bi	209	3	He	2147180.13	97.3

# ICPMS207-B Analytical Data

**Sample Name** B22021763-011B  
**File Name** 081SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 20:23:15  
**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	10.498	ug/l	37797.18
Be	9	45	1	No Gas	0.009	ug/l	87.31
B	11	45	1	No Gas	54.465	ug/l	33614.58
Na	23	45	3	He	39698.128	ug/l	10410517.48
Mg	24	45	3	He	10269.662	ug/l	1479401.30
Al	27	45	1	No Gas	16.071	ug/l	104700.35
Si	28	45	2	H2	26716.181	ug/l	28965708.95
K	39	72	3	He	1673.934	ug/l	351067.62
Ca	40	72	2	H2	8551.785	ug/l	35067940.45
Ti	47	72	1	No Gas	3.797	ug/l	3222.03
V	51	72	1	No Gas	4.814	ug/l	26259.46
V	51	72	3	He	1.798	ug/l	9486.49
Cr	52	72	1	No Gas	0.954	ug/l	37489.64
Cr	52	72	3	He	0.286	ug/l	1210.06
Mn	55	72	1	No Gas	484.321	ug/l	7079493.75
Mn	55	72	3	He	476.113	ug/l	614617.73
Fe	56	72	2	H2	527.345	ug/l	4670581.82
Fe	56	72	3	He	522.235	ug/l	883890.04
Co	59	72	1	No Gas	0.338	ug/l	4481.82
Ni	60	72	1	No Gas	0.916	ug/l	2818.04
Ni	60	72	3	He	0.886	ug/l	766.70
Cu	63	72	1	No Gas	1.142	ug/l	8246.34
Cu	63	72	3	He	0.862	ug/l	1855.75
Cu	65	72	1	No Gas	0.858	ug/l	3034.88
Zn	66	72	1	No Gas	1.859	ug/l	4722.93
Zn	66	72	3	He	2.051	ug/l	1011.15
As	75	72	1	No Gas	1.845	ug/l	14049.78
As	75	72	3	He	0.465	ug/l	316.73
Se	78	72	2	H2	0.047	ug/l	33.11
Br	79	72	1	No Gas	4.855	ug/l	29968.52
Br	79	72	2	H2	4.593	ug/l	17056.32
Se	82	72	1	No Gas	-0.139	ug/l	410.35
Kr	84	72	1	No Gas		ug/l	21270.32
Sr	88	72	1	No Gas	72.114	ug/l	1520718.99
Sr	88	72	3	He	69.449	ug/l	147525.59
Mo	95	115	1	No Gas	1.280	ug/l	5764.54
Mo	95	115	3	He	1.385	ug/l	1943.48
Mo	98	115	1	No Gas	1.342	ug/l	9777.56
Ag	107	115	1	No Gas	0.009	ug/l	204.09
Ag	109	115	1	No Gas	0.010	ug/l	201.42
Cd	111	115	1	No Gas	0.002	ug/l	18.57

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.001	ug/l	2.66
Cd	114	115	1	No Gas	0.002	ug/l	13.32
Cd	114	115	3	He	0.001	ug/l	2.24
Sn	118	115	1	No Gas	0.172	ug/l	1989.54
Sn	118	115	3	He	0.225	ug/l	530.01
Sb	121	115	1	No Gas	0.688	ug/l	9711.01
Sb	121	115	3	He	0.731	ug/l	2262.41
Sb	123	115	1	No Gas	0.663	ug/l	7307.65
Sb	123	115	3	He	0.740	ug/l	1825.97
Ba	135	115	1	No Gas	5.560	ug/l	13536.42
Ba	137	115	1	No Gas	5.171	ug/l	22410.46
La	139	115	3	He	0.016	ug/l	167.78
Ce	140	115	3	He	0.069	ug/l	755.58
Hg	201	209	1	No Gas	0.006	ug/l	110.98
Hg	202	209	1	No Gas	0.100	ug/l	631.89
Hg	202	209	3	He	0.087	ug/l	235.29
Tl	203	209	3	He	0.007	ug/l	214.09
Tl	205	209	1	No Gas	-0.002	ug/l	840.04
Tl	205	209	3	He	0.012	ug/l	591.59
[Pb]	206	209	1	No Gas	0.095	ug/l	1006.71
[Pb]	207	209	1	No Gas	0.099	ug/l	865.59
Pb	208	209	1	No Gas	0.097	ug/l	3944.70
Th	232	209	3	He	0.056	ug/l	1017.12
U	238	209	1	No Gas	0.009	ug/l	327.94

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	1880952.96	78.3
Sc	45	2	H2	1340942.78	83.0
Sc	45	3	He	103505.63	71.0
Ge	72	1	No Gas	651900.68	84.9
Ge	72	2	H2	504338.01	83.9
Ge	72	3	He	85029.01	76.0
In	115	1	No Gas	844769.02	88.5
In	115	3	He	161398.31	78.1
Tb	159	1	No Gas	7478645.05	91.1
Tb	159	3	He	2654086.62	81.3
Ho	165	1	No Gas	7308822.73	90.1
Ho	165	3	He	2681419.71	83.3
Lu	175	1	No Gas	7137662.83	87.8
Lu	175	3	He	2046683.98	81.3
Bi	209	1	No Gas	4845452.77	90.5
Bi	209	3	He	1823241.85	82.6

# ICPMS207-B Analytical Data

**Sample Name** CCV  
**File Name** 082\_CCV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 20:29:29  
**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	538.936	ug/l	1090884.86
Be	9	45	1	No Gas	44.519	ug/l	47903.08
B	11	45	1	No Gas	42.348	ug/l	29355.29
Na	23	45	3	He	12633.018	ug/l	4096371.05
Mg	24	45	3	He	12770.557	ug/l	2254901.09
Al	27	45	1	No Gas	44.578	ug/l	311296.55
Si	28	45	2	H2	245.293	ug/l	307804.32
K	39	72	3	He	10565.507	ug/l	2408875.47
Ca	40	72	2	H2	11899.491	ug/l	56454750.68
Ti	47	72	1	No Gas	49.798	ug/l	45282.17
V	51	72	1	No Gas	47.275	ug/l	556386.17
V	51	72	3	He	45.532	ug/l	102305.21
Cr	52	72	1	No Gas	46.700	ug/l	573730.23
Cr	52	72	3	He	46.554	ug/l	107327.04
Mn	55	72	1	No Gas	49.091	ug/l	797304.99
Mn	55	72	3	He	47.412	ug/l	73520.07
Fe	56	72	2	H2	1292.052	ug/l	13238894.37
Fe	56	72	3	He	1262.652	ug/l	2560016.12
Co	59	72	1	No Gas	50.691	ug/l	654281.46
Ni	60	72	1	No Gas	50.151	ug/l	147765.20
Ni	60	72	3	He	49.806	ug/l	45102.80
Cu	63	72	1	No Gas	50.684	ug/l	367474.39
Cu	63	72	3	He	53.525	ug/l	123803.18
Cu	65	72	1	No Gas	50.582	ug/l	178899.10
Zn	66	72	1	No Gas	51.991	ug/l	135665.16
Zn	66	72	3	He	51.052	ug/l	28001.64
As	75	72	1	No Gas	51.370	ug/l	192434.24
As	75	72	3	He	49.920	ug/l	27461.40
Se	78	72	2	H2	49.684	ug/l	20348.53
Br	79	72	1	No Gas	0.403	ug/l	8529.01
Br	79	72	2	H2	0.476	ug/l	5370.37
Se	82	72	1	No Gas	51.961	ug/l	10890.68
Kr	84	72	1	No Gas		ug/l	21426.89
Sr	88	72	1	No Gas	54.408	ug/l	1267065.67
Sr	88	72	3	He	50.947	ug/l	129949.33
Mo	95	115	1	No Gas	48.142	ug/l	238275.38
Mo	95	115	3	He	50.523	ug/l	78376.81
Mo	98	115	1	No Gas	49.105	ug/l	391513.70
Ag	107	115	1	No Gas	19.883	ug/l	264310.10
Ag	109	115	1	No Gas	19.829	ug/l	250768.42
Cd	111	115	1	No Gas	49.580	ug/l	149249.59

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	52.765	ug/l	44047.88
Cd	114	115	1	No Gas	48.766	ug/l	335388.88
Cd	114	115	3	He	53.663	ug/l	108519.24
Sn	118	115	1	No Gas	48.358	ug/l	415417.05
Sn	118	115	3	He	52.001	ug/l	101223.45
Sb	121	115	1	No Gas	49.996	ug/l	692928.02
Sb	121	115	3	He	51.665	ug/l	162203.25
Sb	123	115	1	No Gas	49.538	ug/l	532975.43
Sb	123	115	3	He	51.187	ug/l	127821.79
Ba	135	115	1	No Gas	51.734	ug/l	139154.06
Ba	137	115	1	No Gas	49.768	ug/l	238053.33
La	139	115	3	He	51.935	ug/l	588620.44
Ce	140	115	3	He	52.279	ug/l	634311.82
Hg	201	209	1	No Gas	1.033	ug/l	2074.75
Hg	202	209	1	No Gas	0.994	ug/l	4568.54
Hg	202	209	3	He	0.975	ug/l	1844.76
Tl	203	209	3	He	49.208	ug/l	213487.35
Tl	205	209	1	No Gas	50.695	ug/l	1289926.15
Tl	205	209	3	He	50.208	ug/l	511493.76
[Pb]	206	209	1	No Gas	49.225	ug/l	448223.13
[Pb]	207	209	1	No Gas	50.280	ug/l	387092.43
Pb	208	209	1	No Gas	49.830	ug/l	1781647.85
Th	232	209	3	He	49.470	ug/l	706746.42
U	238	209	1	No Gas	49.823	ug/l	1747651.29

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2098962.28	87.4
Sc	45	2	H2	1483356.06	91.8
Sc	45	3	He	126822.46	87.0
Ge	72	1	No Gas	719725.05	93.7
Ge	72	2	H2	583528.70	97.1
Ge	72	3	He	102101.81	91.2
In	115	1	No Gas	934385.26	97.9
In	115	3	He	180029.04	87.1
Tb	159	1	No Gas	7893336.81	96.2
Tb	159	3	He	2870851.82	88.0
Ho	165	1	No Gas	7572957.01	93.4
Ho	165	3	He	2876299.01	89.4
Lu	175	1	No Gas	7335690.85	90.2
Lu	175	3	He	2217485.14	88.1
Bi	209	1	No Gas	4932985.04	92.2
Bi	209	3	He	1923045.75	87.1

# ICPMS207-B Analytical Data

**Sample Name** CCB  
**File Name** 083\_CCB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 20:35:43  
**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	8.543	ug/l	34485.38
Be	9	45	1	No Gas	0.001	ug/l	79.98
B	11	45	1	No Gas	-0.182	ug/l	578.91
Na	23	45	3	He	59.881	ug/l	61178.08
Mg	24	45	3	He	3.351	ug/l	1816.51
Al	27	45	1	No Gas	0.072	ug/l	6663.74
Si	28	45	2	H2	16.942	ug/l	32085.97
K	39	72	3	He	-19.247	ug/l	37702.43
Ca	40	72	2	H2	0.573	ug/l	93001.30
Ti	47	72	1	No Gas	0.042	ug/l	138.48
V	51	72	1	No Gas	-0.048	ug/l	-29847.37
V	51	72	3	He	-0.325	ug/l	6124.67
Cr	52	72	1	No Gas	-0.152	ug/l	26382.12
Cr	52	72	3	He	0.060	ug/l	821.14
Mn	55	72	1	No Gas	-0.063	ug/l	4022.60
Mn	55	72	3	He	0.016	ug/l	65.99
Fe	56	72	2	H2	0.085	ug/l	8801.59
Fe	56	72	3	He	0.026	ug/l	3135.17
Co	59	72	1	No Gas	-0.023	ug/l	272.80
Ni	60	72	1	No Gas	0.018	ug/l	435.81
Ni	60	72	3	He	0.001	ug/l	106.67
Cu	63	72	1	No Gas	-0.006	ug/l	744.99
Cu	63	72	3	He	0.005	ug/l	219.63
Cu	65	72	1	No Gas	-0.002	ug/l	287.45
Zn	66	72	1	No Gas	-0.003	ug/l	338.64
Zn	66	72	3	He	-0.042	ug/l	61.11
As	75	72	1	No Gas	0.555	ug/l	10076.24
As	75	72	3	He	-0.043	ug/l	89.60
Se	78	72	2	H2	0.009	ug/l	20.78
Br	79	72	1	No Gas	0.020	ug/l	5939.47
Br	79	72	2	H2	-0.050	ug/l	3243.95
Se	82	72	1	No Gas	0.615	ug/l	559.82
Kr	84	72	1	No Gas		ug/l	12727.12
Sr	88	72	1	No Gas	0.002	ug/l	316.04
Sr	88	72	3	He	0.004	ug/l	78.89
Mo	95	115	1	No Gas	0.027	ug/l	173.33
Mo	95	115	3	He	0.014	ug/l	37.78
Mo	98	115	1	No Gas	0.020	ug/l	270.00
Ag	107	115	1	No Gas	-0.001	ug/l	88.70
Ag	109	115	1	No Gas	0.000	ug/l	97.37
Cd	111	115	1	No Gas	-0.001	ug/l	10.10

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.000	ug/l	2.11
Cd	114	115	1	No Gas	0.002	ug/l	15.70
Cd	114	115	3	He	0.002	ug/l	4.91
Sn	118	115	1	No Gas	0.051	ug/l	1131.14
Sn	118	115	3	He	0.036	ug/l	208.89
Sb	121	115	1	No Gas	0.094	ug/l	2468.47
Sb	121	115	3	He	0.088	ug/l	475.72
Sb	123	115	1	No Gas	0.094	ug/l	1919.66
Sb	123	115	3	He	0.082	ug/l	369.38
Ba	135	115	1	No Gas	-0.005	ug/l	6.65
Ba	137	115	1	No Gas	0.000	ug/l	43.25
La	139	115	3	He	0.000	ug/l	5.56
Ce	140	115	3	He	0.000	ug/l	12.22
Hg	201	209	1	No Gas	-0.022	ug/l	60.66
Hg	202	209	1	No Gas	-0.015	ug/l	143.31
Hg	202	209	3	He	-0.020	ug/l	56.32
Tl	203	209	3	He	0.115	ug/l	684.96
Tl	205	209	1	No Gas	0.082	ug/l	3038.17
Tl	205	209	3	He	0.115	ug/l	1652.77
[Pb]	206	209	1	No Gas	0.004	ug/l	197.78
[Pb]	207	209	1	No Gas	0.004	ug/l	155.56
Pb	208	209	1	No Gas	0.004	ug/l	722.23
Th	232	209	3	He	0.029	ug/l	684.96
U	238	209	1	No Gas	0.002	ug/l	93.32

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	1890309.78	78.7
Sc	45	2	H2	1395817.69	86.4
Sc	45	3	He	110937.70	76.1
Ge	72	1	No Gas	666645.94	86.8
Ge	72	2	H2	535072.60	89.1
Ge	72	3	He	89688.94	80.1
In	115	1	No Gas	914448.15	95.8
In	115	3	He	168250.48	81.4
Tb	159	1	No Gas	7967115.48	97.1
Tb	159	3	He	2632135.17	80.7
Ho	165	1	No Gas	7501721.98	92.5
Ho	165	3	He	2675465.29	83.1
Lu	175	1	No Gas	7355384.71	90.5
Lu	175	3	He	2100712.38	83.4
Bi	209	1	No Gas	5024595.54	93.9
Bi	209	3	He	1897279.89	86.0



# ICPMS207-B Analytical Data

**Sample Name** B22021763-016A  
**File Name** 084SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 20:41:57  
**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	-1.253	ug/l	24743.98
Be	9	45	1	No Gas	-0.035	ug/l	65.66
B	11	45	1	No Gas	72.496	ug/l	65257.79
Na	23	45	3	He	96475.529	ug/l	42428108.26
Mg	24	45	3	He	38262.345	ug/l	9262666.36
Al	27	45	1	No Gas	3.350	ug/l	39160.48
Si	28	45	2	H2	25001.206	ug/l	35922787.29
K	39	72	3	He	2505.170	ug/l	744569.68
Ca	40	72	2	H2	38282.127	ug/l	203127955.80
Ti	47	72	1	No Gas	1.719	ug/l	1932.07
V	51	72	1	No Gas	19.308	ug/l	241442.88
V	51	72	3	He	12.408	ug/l	41005.39
Cr	52	72	1	No Gas	-0.434	ug/l	29171.18
Cr	52	72	3	He	0.402	ug/l	2104.61
Mn	55	72	1	No Gas	2.345	ug/l	50016.72
Mn	55	72	3	He	2.532	ug/l	4870.84
Fe	56	72	2	H2	31.210	ug/l	367587.06
Fe	56	72	3	He	31.235	ug/l	81867.81
Co	59	72	1	No Gas	0.125	ug/l	2555.16
Ni	60	72	1	No Gas	0.599	ug/l	2521.90
Ni	60	72	3	He	0.447	ug/l	643.35
Cu	63	72	1	No Gas	1.118	ug/l	10340.51
Cu	63	72	3	He	0.453	ug/l	1574.77
Cu	65	72	1	No Gas	0.555	ug/l	2641.31
Zn	66	72	1	No Gas	1.291	ug/l	4319.08
Zn	66	72	3	He	1.166	ug/l	894.48
As	75	72	1	No Gas	-0.173	ug/l	9590.76
As	75	72	3	He	0.444	ug/l	451.80
Se	78	72	2	H2	0.390	ug/l	199.78
Br	79	72	1	No Gas	72.100	ug/l	467606.96
Br	79	72	2	H2	70.769	ug/l	280711.01
Se	82	72	1	No Gas	1.399	ug/l	883.68
Kr	84	72	1	No Gas		ug/l	63136.94
Sr	88	72	1	No Gas	305.126	ug/l	8224516.23
Sr	88	72	3	He	283.424	ug/l	885585.29
Mo	95	115	1	No Gas	1.238	ug/l	6564.90
Mo	95	115	3	He	1.314	ug/l	2386.89
Mo	98	115	1	No Gas	1.206	ug/l	10345.57
Ag	107	115	1	No Gas	0.006	ug/l	190.74
Ag	109	115	1	No Gas	0.006	ug/l	187.41
Cd	111	115	1	No Gas	0.002	ug/l	20.78

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	5.78
Cd	114	115	1	No Gas	0.005	ug/l	34.64
Cd	114	115	3	He	0.007	ug/l	17.25
Sn	118	115	1	No Gas	-0.032	ug/l	485.71
Sn	118	115	3	He	-0.023	ug/l	126.67
Sb	121	115	1	No Gas	-0.024	ug/l	952.46
Sb	121	115	3	He	-0.009	ug/l	235.69
Sb	123	115	1	No Gas	-0.026	ug/l	727.09
Sb	123	115	3	He	-0.013	ug/l	182.69
Ba	135	115	1	No Gas	12.372	ug/l	35408.35
Ba	137	115	1	No Gas	11.836	ug/l	60251.85
La	139	115	3	He	0.001	ug/l	25.56
Ce	140	115	3	He	0.006	ug/l	93.33
Hg	201	209	1	No Gas	0.005	ug/l	115.65
Hg	202	209	1	No Gas	0.512	ug/l	2550.07
Hg	202	209	3	He	0.423	ug/l	875.19
Tl	203	209	3	He	0.062	ug/l	474.87
Tl	205	209	1	No Gas	0.029	ug/l	1707.91
Tl	205	209	3	He	0.059	ug/l	1124.50
[Pb]	206	209	1	No Gas	0.016	ug/l	314.45
[Pb]	207	209	1	No Gas	0.024	ug/l	314.45
Pb	208	209	1	No Gas	0.020	ug/l	1302.26
Th	232	209	3	He	-0.007	ug/l	172.07
U	238	209	1	No Gas	0.055	ug/l	2017.09

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2754443.55	114.7
Sc	45	2	H2	1777722.70	110.1
Sc	45	3	He	173992.56	119.3
Ge	72	1	No Gas	832958.34	108.4
Ge	72	2	H2	653308.86	108.7
Ge	72	3	He	125155.75	111.8
In	115	1	No Gas	993560.40	104.1
In	115	3	He	208958.19	101.1
Tb	159	1	No Gas	8418345.44	102.6
Tb	159	3	He	3188547.03	97.7
Ho	165	1	No Gas	8133930.78	100.3
Ho	165	3	He	3065198.35	95.2
Lu	175	1	No Gas	8054801.39	99.1
Lu	175	3	He	2489053.19	98.9
Bi	209	1	No Gas	5126925.59	95.8
Bi	209	3	He	1973731.83	89.4

# ICPMS207-B Analytical Data

**Sample Name** B22021763-016B  
**File Name** 085SMPL.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 20:48:13  
**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	6.696	ug/l	32302.38
Be	9	45	1	No Gas	-0.021	ug/l	61.32
B	11	45	1	No Gas	65.247	ug/l	41771.73
Na	23	45	3	He	89919.120	ug/l	25424352.95
Mg	24	45	3	He	36143.890	ug/l	5623554.24
Al	27	45	1	No Gas	17.782	ug/l	119900.96
Si	28	45	2	H2	24785.286	ug/l	27163928.28
K	39	72	3	He	2114.017	ug/l	456904.35
Ca	40	72	2	H2	35411.756	ug/l	151706901.56
Ti	47	72	1	No Gas	3.358	ug/l	2793.09
V	51	72	1	No Gas	17.582	ug/l	166818.94
V	51	72	3	He	15.220	ug/l	34524.27
Cr	52	72	1	No Gas	1.751	ug/l	44910.43
Cr	52	72	3	He	0.883	ug/l	2476.89
Mn	55	72	1	No Gas	3.474	ug/l	54376.98
Mn	55	72	3	He	2.713	ug/l	3737.07
Fe	56	72	2	H2	106.706	ug/l	995803.93
Fe	56	72	3	He	105.338	ug/l	190542.48
Co	59	72	1	No Gas	0.155	ug/l	2295.64
Ni	60	72	1	No Gas	0.845	ug/l	2571.80
Ni	60	72	3	He	0.611	ug/l	590.02
Cu	63	72	1	No Gas	1.429	ug/l	9914.73
Cu	63	72	3	He	0.640	ug/l	1509.11
Cu	65	72	1	No Gas	0.768	ug/l	2684.66
Zn	66	72	1	No Gas	1.759	ug/l	4392.27
Zn	66	72	3	He	1.601	ug/l	848.92
As	75	72	1	No Gas	1.483	ug/l	12582.02
As	75	72	3	He	0.780	ug/l	485.73
Se	78	72	2	H2	0.450	ug/l	183.56
Br	79	72	1	No Gas	16.290	ug/l	85199.43
Br	79	72	2	H2	14.304	ug/l	48485.61
Se	82	72	1	No Gas	0.256	ug/l	473.28
Kr	84	72	1	No Gas		ug/l	53446.78
Sr	88	72	1	No Gas	326.369	ug/l	6735522.57
Sr	88	72	3	He	303.043	ug/l	678649.45
Mo	95	115	1	No Gas	1.511	ug/l	6795.01
Mo	95	115	3	He	1.535	ug/l	2160.18
Mo	98	115	1	No Gas	1.472	ug/l	10707.43
Ag	107	115	1	No Gas	0.067	ug/l	898.39
Ag	109	115	1	No Gas	0.067	ug/l	848.37
Cd	111	115	1	No Gas	0.001	ug/l	16.18

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.004	ug/l	4.78
Cd	114	115	1	No Gas	0.005	ug/l	33.50
Cd	114	115	3	He	0.006	ug/l	10.79
Sn	118	115	1	No Gas	0.225	ug/l	2398.80
Sn	118	115	3	He	0.266	ug/l	604.46
Sb	121	115	1	No Gas	0.036	ug/l	1558.58
Sb	121	115	3	He	0.063	ug/l	386.05
Sb	123	115	1	No Gas	0.038	ug/l	1241.85
Sb	123	115	3	He	0.061	ug/l	307.70
Ba	135	115	1	No Gas	12.681	ug/l	30819.94
Ba	137	115	1	No Gas	12.393	ug/l	53648.07
La	139	115	3	He	0.014	ug/l	150.00
Ce	140	115	3	He	0.030	ug/l	336.67
Hg	201	209	1	No Gas	0.028	ug/l	137.30
Hg	202	209	1	No Gas	0.669	ug/l	2797.74
Hg	202	209	3	He	0.539	ug/l	919.18
Tl	203	209	3	He	0.008	ug/l	198.08
Tl	205	209	1	No Gas	-0.002	ug/l	760.03
Tl	205	209	3	He	0.001	ug/l	438.18
[Pb]	206	209	1	No Gas	0.058	ug/l	607.80
[Pb]	207	209	1	No Gas	0.054	ug/l	475.57
Pb	208	209	1	No Gas	0.058	ug/l	2335.65
Th	232	209	3	He	0.084	ug/l	1276.58
U	238	209	1	No Gas	0.058	ug/l	1846.77

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	1956993.60	81.5
Sc	45	2	H2	1355728.68	83.9
Sc	45	3	He	111797.09	76.7
Ge	72	1	No Gas	638134.63	83.1
Ge	72	2	H2	527448.64	87.8
Ge	72	3	He	89711.43	80.1
In	115	1	No Gas	844984.78	88.6
In	115	3	He	162080.63	78.4
Tb	159	1	No Gas	7373693.64	89.8
Tb	159	3	He	2655343.97	81.4
Ho	165	1	No Gas	7195867.80	88.7
Ho	165	3	He	2545011.01	79.1
Lu	175	1	No Gas	7227151.85	88.9
Lu	175	3	He	1977281.08	78.5
Bi	209	1	No Gas	4394359.49	82.1
Bi	209	3	He	1664879.02	75.4

# ICPMS207-B Analytical Data

**Sample Name** CCV  
**File Name** 086\_CCV.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 20:54:27  
**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	513.804	ug/l	1086274.54
Be	9	45	1	No Gas	42.679	ug/l	47969.99
B	11	45	1	No Gas	41.443	ug/l	29997.38
Na	23	45	3	He	12499.409	ug/l	4576954.79
Mg	24	45	3	He	12342.121	ug/l	2460510.94
Al	27	45	1	No Gas	46.349	ug/l	338315.43
Si	28	45	2	H2	229.750	ug/l	309457.26
K	39	72	3	He	10750.493	ug/l	2612296.71
Ca	40	72	2	H2	11902.660	ug/l	59394702.61
Ti	47	72	1	No Gas	49.994	ug/l	47536.41
V	51	72	1	No Gas	49.822	ug/l	616129.83
V	51	72	3	He	44.977	ug/l	107839.20
Cr	52	72	1	No Gas	47.285	ug/l	607210.65
Cr	52	72	3	He	47.434	ug/l	116579.84
Mn	55	72	1	No Gas	48.527	ug/l	823514.82
Mn	55	72	3	He	48.032	ug/l	79398.61
Fe	56	72	2	H2	1262.410	ug/l	13609440.21
Fe	56	72	3	He	1239.996	ug/l	2680727.53
Co	59	72	1	No Gas	50.021	ug/l	674981.03
Ni	60	72	1	No Gas	48.369	ug/l	149096.15
Ni	60	72	3	He	49.815	ug/l	48094.39
Cu	63	72	1	No Gas	50.888	ug/l	385713.93
Cu	63	72	3	He	53.870	ug/l	132849.76
Cu	65	72	1	No Gas	49.645	ug/l	183625.79
Zn	66	72	1	No Gas	51.540	ug/l	140604.25
Zn	66	72	3	He	51.083	ug/l	29868.78
As	75	72	1	No Gas	51.792	ug/l	202835.16
As	75	72	3	He	50.446	ug/l	29581.81
Se	78	72	2	H2	49.453	ug/l	21319.47
Br	79	72	1	No Gas	0.832	ug/l	11388.64
Br	79	72	2	H2	0.647	ug/l	6282.32
Se	82	72	1	No Gas	51.282	ug/l	11248.96
Kr	84	72	1	No Gas		ug/l	21620.34
Sr	88	72	1	No Gas	53.411	ug/l	1301598.89
Sr	88	72	3	He	50.106	ug/l	136220.91
Mo	95	115	1	No Gas	47.360	ug/l	235512.11
Mo	95	115	3	He	50.361	ug/l	83673.73
Mo	98	115	1	No Gas	49.618	ug/l	397268.07
Ag	107	115	1	No Gas	19.488	ug/l	260247.03
Ag	109	115	1	No Gas	19.888	ug/l	252723.38
Cd	111	115	1	No Gas	49.499	ug/l	149695.53

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	50.765	ug/l	45389.76
Cd	114	115	1	No Gas	48.752	ug/l	336850.73
Cd	114	115	3	He	51.321	ug/l	111143.24
Sn	118	115	1	No Gas	47.850	ug/l	412700.73
Sn	118	115	3	He	49.215	ug/l	102597.54
Sb	121	115	1	No Gas	49.745	ug/l	692540.99
Sb	121	115	3	He	49.348	ug/l	165908.68
Sb	123	115	1	No Gas	49.211	ug/l	532008.78
Sb	123	115	3	He	49.022	ug/l	131086.02
Ba	135	115	1	No Gas	50.475	ug/l	136409.69
Ba	137	115	1	No Gas	48.998	ug/l	235518.29
La	139	115	3	He	49.205	ug/l	597465.75
Ce	140	115	3	He	50.347	ug/l	654214.40
Hg	201	209	1	No Gas	0.962	ug/l	1882.09
Hg	202	209	1	No Gas	0.966	ug/l	4319.17
Hg	202	209	3	He	0.953	ug/l	1748.10
Tl	203	209	3	He	49.643	ug/l	208813.67
Tl	205	209	1	No Gas	50.043	ug/l	1236645.38
Tl	205	209	3	He	50.703	ug/l	500644.02
[Pb]	206	209	1	No Gas	47.287	ug/l	418225.02
[Pb]	207	209	1	No Gas	49.228	ug/l	368089.11
Pb	208	209	1	No Gas	48.591	ug/l	1687285.65
Th	232	209	3	He	49.517	ug/l	685728.20
U	238	209	1	No Gas	47.633	ug/l	1622498.49

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2189895.27	91.2
Sc	45	2	H2	1587695.59	98.3
Sc	45	3	He	143188.00	98.2
Ge	72	1	No Gas	752687.54	98.0
Ge	72	2	H2	614325.22	102.2
Ge	72	3	He	108820.57	97.2
In	115	1	No Gas	938609.16	98.4
In	115	3	He	192737.40	93.2
Tb	159	1	No Gas	790484.48	96.3
Tb	159	3	He	2882923.97	88.3
Ho	165	1	No Gas	7651271.32	94.3
Ho	165	3	He	2891607.55	89.8
Lu	175	1	No Gas	7404668.68	91.1
Lu	175	3	He	2216242.26	88.0
Bi	209	1	No Gas	4790420.92	89.5
Bi	209	3	He	1862357.17	84.4

# ICPMS207-B Analytical Data

**Sample Name** CCB  
**File Name** 087\_CCB.d  
**Data Path Name** D:\Agilent\ICPMH\1\DATA\220301ADoD.b  
**Acq Time** 2022-03-01 21:00:42  
**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	2.298	ug/l	26365.97
Be	9	45	1	No Gas	-0.025	ug/l	62.32
B	11	45	1	No Gas	-0.319	ug/l	558.90
Na	23	45	3	He	31.129	ug/l	60064.63
Mg	24	45	3	He	0.993	ug/l	1640.18
Al	27	45	1	No Gas	-0.125	ug/l	6157.99
Si	28	45	2	H2	11.713	ug/l	28546.71
K	39	72	3	He	-14.781	ug/l	42070.98
Ca	40	72	2	H2	1.777	ug/l	103948.20
Ti	47	72	1	No Gas	0.023	ug/l	135.14
V	51	72	1	No Gas	-0.761	ug/l	-40730.07
V	51	72	3	He	-0.164	ug/l	7002.85
Cr	52	72	1	No Gas	-0.328	ug/l	27101.49
Cr	52	72	3	He	0.056	ug/l	887.81
Mn	55	72	1	No Gas	-0.074	ug/l	4265.50
Mn	55	72	3	He	0.004	ug/l	53.66
Fe	56	72	2	H2	0.024	ug/l	8719.71
Fe	56	72	3	He	0.066	ug/l	3492.27
Co	59	72	1	No Gas	-0.030	ug/l	206.26
Ni	60	72	1	No Gas	0.027	ug/l	512.33
Ni	60	72	3	He	-0.009	ug/l	107.78
Cu	63	72	1	No Gas	-0.017	ug/l	738.99
Cu	63	72	3	He	-0.010	ug/l	207.29
Cu	65	72	1	No Gas	-0.011	ug/l	288.79
Zn	66	72	1	No Gas	-0.033	ug/l	295.52
Zn	66	72	3	He	-0.040	ug/l	67.78
As	75	72	1	No Gas	-0.080	ug/l	8811.48
As	75	72	3	He	-0.028	ug/l	105.40
Se	78	72	2	H2	0.009	ug/l	22.00
Br	79	72	1	No Gas	0.090	ug/l	6961.23
Br	79	72	2	H2	0.085	ug/l	3889.51
Se	82	72	1	No Gas	-0.249	ug/l	442.61
Kr	84	72	1	No Gas		ug/l	13160.00
Sr	88	72	1	No Gas	0.002	ug/l	339.33
Sr	88	72	3	He	-0.004	ug/l	65.56
Mo	95	115	1	No Gas	0.030	ug/l	192.23
Mo	95	115	3	He	0.015	ug/l	42.22
Mo	98	115	1	No Gas	0.019	ug/l	265.56
Ag	107	115	1	No Gas	-0.001	ug/l	90.04
Ag	109	115	1	No Gas	-0.002	ug/l	78.03
Cd	111	115	1	No Gas	-0.005	ug/l	0.37

# ICPMS207-B Analytical Data

Name	Mass	ISTD	Tune Step	Tune Mode	Conc.	Units	CPS
Cd	111	115	3	He	0.001	ug/l	2.44
Cd	114	115	1	No Gas	0.000	ug/l	1.20
Cd	114	115	3	He	0.002	ug/l	4.26
Sn	118	115	1	No Gas	0.027	ug/l	954.81
Sn	118	115	3	He	0.038	ug/l	228.89
Sb	121	115	1	No Gas	0.085	ug/l	2397.78
Sb	121	115	3	He	0.061	ug/l	426.71
Sb	123	115	1	No Gas	0.077	ug/l	1783.29
Sb	123	115	3	He	0.063	ug/l	350.71
Ba	135	115	1	No Gas	0.010	ug/l	46.57
Ba	137	115	1	No Gas	0.004	ug/l	59.88
La	139	115	3	He	0.000	ug/l	13.33
Ce	140	115	3	He	0.000	ug/l	12.22
Hg	201	209	1	No Gas	-0.024	ug/l	54.99
Hg	202	209	1	No Gas	-0.014	ug/l	141.30
Hg	202	209	3	He	-0.019	ug/l	58.32
Tl	203	209	3	He	0.108	ug/l	658.95
Tl	205	209	1	No Gas	0.075	ug/l	2807.01
Tl	205	209	3	He	0.100	ug/l	1502.69
[Pb]	206	209	1	No Gas	0.002	ug/l	172.23
[Pb]	207	209	1	No Gas	0.001	ug/l	127.78
Pb	208	209	1	No Gas	0.001	ug/l	595.57
Th	232	209	3	He	0.025	ug/l	628.27
U	238	209	1	No Gas	0.002	ug/l	93.31

Name	Mass	Tune Step	Tune Mode	CPS	ISTD Recovery %
Sc	45	1	No Gas	2135827.90	88.9
Sc	45	2	H2	1522312.10	94.3
Sc	45	3	He	125455.54	86.0
Ge	72	1	No Gas	737356.12	96.0
Ge	72	2	H2	567024.38	94.4
Ge	72	3	He	97809.93	87.4
In	115	1	No Gas	932120.00	97.7
In	115	3	He	181473.38	87.8
Tb	159	1	No Gas	7748023.27	94.4
Tb	159	3	He	2743207.35	84.1
Ho	165	1	No Gas	7508481.70	92.6
Ho	165	3	He	2671969.19	83.0
Lu	175	1	No Gas	7322761.72	90.1
Lu	175	3	He	2151992.96	85.5
Bi	209	1	No Gas	4926584.22	92.1
Bi	209	3	He	1908472.66	86.5



# 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:

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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% HNO<sub>3</sub> (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) HNO<sub>3</sub>**

**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	<b>0.0449</b>	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	<b>0.0184</b>	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	<b>0.0028</b>	Ti	<0.0012
Bi	<0.0010	In	<b>0.0020</b>	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](http://www.SCPSCIENCE.com)). / SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> 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

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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% HNO<sub>3</sub> (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<sub>i</sub>) including uncertainty established during characterization of the material (u<sub>char</sub>), the between bottle variation (u<sub>bb</sub>), short-term stability (u<sub>sts</sub>) and long-term stability (u<sub>lts</sub>) 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) HNO<sub>3</sub>**

% abundance of stable isotopes : <sup>238</sup>U : 99.82% ; <sup>235</sup>U : 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	<b>0.0252</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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 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**  
3<sup>rd</sup> 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

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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% HNO<sub>3</sub> (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<sub>i</sub>) including uncertainty established during characterization of the material (u<sub>char</sub>), the between bottle variation (u<sub>bb</sub>), short-term stability (u<sub>sts</sub>) and long-term stability (u<sub>lts</sub>) 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) HNO<sub>3</sub>**

**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

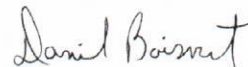
Trace Metal Impurities as tested by ICP-MS:

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	<b>0.0106</b>	Ga	<0.0010	Ni	<0.0010	Sr	<0.0025
As	<0.0010	Gd	<b>0.0889</b>	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	<b>0.0031</b>	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	<b>0.0169</b>	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<0.0024	Re	<0.0010	U	<0.0010
Ce	<b>0.0272</b>	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	<b>0.0020</b>
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	<b>0.0156</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> 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% HNO<sub>3</sub> (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<sub>i</sub>) including uncertainty established during characterization of the material (u<sub>char</sub>), the between bottle variation (u<sub>bb</sub>), short-term stability (u<sub>sts</sub>) and long-term stability (u<sub>lts</sub>) 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) HNO<sub>3</sub>**  
 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	<b>0.0102</b>	Sn	<0.0010
Al	<b>0.0148</b>	Ga	<b>0.0526</b>	Ni	<b>0.0064</b>	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	<b>0.0235</b>	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	<b>0.0375</b>	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	<b>0.0121</b>	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	<b>0.0035</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> 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](http://www.inorganicventures.com/TCT)

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution** - 196.97 +3 6 Au(Cl)<sub>6</sub>

**Chemical Compatibility** - Stable in HCl, and HNO<sub>3</sub>, 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% HNO<sub>3</sub> / LDPE container. 100 ppb is stable for #2 days maximum in 1% HNO<sub>3</sub> / 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 / HNO<sub>3</sub>).

**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](http://inorganicventures.com); [info@inorganicventures.com](mailto: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

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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 (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 < 0.000448	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](http://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/CRM 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/CRM is damaged, contaminated, or otherwise modified.

**11.2 Lot Expiration Date**

- **November 16, 2024**

- The date after which this CRM/CRM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/CRM can be supported by long term stability studies conducted on properly stored and handled CRM/CRMs. 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/CRM 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/CRM 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) HNO<sub>3</sub>  
 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) HNO <sub>3</sub>	
Value / Analyte(s):	5 000 µg/mL ea:	Potassium, Sodium,
	Calcium, Magnesium,	
	1 000 µg/mL ea:	
	Phosphorus,	
	500 µg/mL ea:	Iron,
	Manganese, Aluminum,	
	100 µg/mL ea:	Boron, Cobalt, Copper, Nickel, Selenium, Thallium, Zinc,
	Arsenic, Barium, Chromium, Lithium, Lead, Strontium, Vanadium,	
	50 µg/mL ea:	Beryllium,
	Cadmium,	
	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

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{Its}}$  = long term stability standard uncertainty (storage)

$u_{\text{ts}}$  = 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

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{Its}}$  = long term stability standard uncertainty (storage)

$u_{\text{ts}}$  = 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

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**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

# 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.

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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

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{ITS}}$  = long term stability standard uncertainty (storage)

$u_{\text{TS}}$  = 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

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{ITS}}$  = long term stability standard uncertainty (storage)

$u_{\text{TS}}$  = 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](http://www.inorganicventures.com/TCT)

## 8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

**9.0 HOMOGENEITY**

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

**10.0 QUALITY STANDARD DOCUMENTATION**

**10.1 ISO 9001 Quality Management System Registration**

- QSR Certificate Number QSR-1034

**10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"**

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

**10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"**

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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**11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY**

**11.1 Certification Issue Date**

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) HNO<sub>3</sub>  
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:

<b>Assay Method #1</b>	<b>1003 ± 5 µg/mL</b> ICP Assay NIST SRM 3105a Lot Number: 090514
<b>Assay Method #2</b>	<b>1002 ± 6 µg/mL</b> 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 (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 < 0.000940	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 <i>SSN/2</i> < 0.004700	M Sn < 0.003300	
M B < 0.045000	M Ge < 0.003100	M Os <i>SSN/2</i> < 0.000240	M Sr < 0.001900	
M Ba < 0.001900	M Hf < 0.000240	O P < 0.130000	M Ta < 0.000240	
s Be < 0.003300	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 < 0.000940	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](http://www.inorganicventures.com/TCT)

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution** - 9.01 ; +2 ; 4 ; Be(H<sub>2</sub>O)<sub>4</sub>+2

**Chemical Compatibility** -Soluble in HCl, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub> and HF aqueous matrices. Stable with all metals and inorganic anions.

**Stability** - 2-100 ppb levels stable for months in 1 % HNO<sub>3</sub> / LDPE container. 1-10,000 ppm solutions chemically stable for years in 5-10 % HNO<sub>3</sub> / LDPE container.

**Be Containing Samples (Preparation and Solution)** - Meta l(is best dissolved in diluted H<sub>2</sub>SO<sub>4</sub> ); BeO (boiling nitric, hydrochloric, or sulfuric acids or KHSO<sub>4</sub> fusion); Ores (H<sub>2</sub>SO<sub>4</sub>/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](http://inorganicventures.com); [info@inorganicventures.com](mailto: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  
 Date Prepared: 1/14/2022  
 Date Expires: 12/22/2022  
 Department: ME  
 Vendor:  
 Lot Number:  
 Balance ID:  
 Comments: Solution is 1% HNO3 preserved

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

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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) HNO<sub>3</sub>  
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:**

<b>Assay Method #1</b>	<b>999 ± 3 µg/mL</b> EDTA NIST SRM 928 Lot Number: 928
<b>Assay Method #2</b>	<b>1000 ± 5 µg/mL</b> ICP Assay NIST SRM 3167a Lot Number: 120314
<b>Assay Method #3</b>	<b>1001 ± 3 µg/mL</b> 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:  
 $w_i = (1/u_{char i}^2) / (\sum(1/(u_{char i}^2)))$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{Its}^2 + u_{ts}^2)^{1/2}$$

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.

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](http://www.inorganicventures.com/TCT)

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution** - 88.91 +3 6 Y(OH)(H<sub>2</sub>O)<sub>x+2</sub>

**Chemical Compatibility** -Soluble in HCl, H<sub>2</sub>SO<sub>4</sub> and HNO<sub>3</sub>. Avoid HF, H<sub>3</sub>PO<sub>4</sub> 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% HNO<sub>3</sub> / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO<sub>3</sub> / LDPE container.

**Y Containing Samples (Preparation and Solution)** - Metal (Soluble in acids); Oxide (Dissolve by heating in H<sub>2</sub>O/ HNO<sub>3</sub>); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H<sub>2</sub>O / HCl or HNO<sub>3</sub>).

**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](http://inorganicventures.com); [info@inorganicventures.com](mailto: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% HNO<sub>3</sub> (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<sub>i</sub>) including uncertainty established during characterization of the material (u<sub>char</sub>), the between bottle variation (u<sub>bb</sub>), short-term stability (u<sub>sts</sub>) and long-term stability (u<sub>lts</sub>) 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) HNO<sub>3</sub>**  
 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	<b>0.0102</b>	Sn	<0.0010
Al	<b>0.0148</b>	Ga	<b>0.0526</b>	Ni	<b>0.0064</b>	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	<b>0.0235</b>	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	<b>0.0375</b>	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	<b>0.0121</b>	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	<b>0.0035</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> 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



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: CGCO1  
Lot Number: S2-CO702699  
Matrix: 3% (v/v) HNO3  
Value / Analyte(s): 1 000 µg/mL ea:  
Cobalt  
Starting Material: Co Metal  
Starting Material Lot#: 2326  
Starting Material Purity: 99.9934%

**ID #: 14683**  
Opened:  
Cobalt Single Analyte Custom Grade Solution  
**Expires: 3/22/2025**  
Rec'd: 12/28/2021  
Energy Laboratories Inc 1120 So. 27th Street  
Billings MT 59107

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Value:** 998 ± 3 µg/mL  
**Density:** 1.018 g/mL (measured at 20 ± 4 °C)

### Assay Information:

<b>Assay Method #1</b>	<b>994 ± 5 µg/mL</b> ICP Assay NIST SRM 3113 Lot Number: 190630
<b>Assay Method #2</b>	<b>997 ± 3 µg/mL</b> EDTA NIST SRM 928 Lot Number: 928
<b>Assay Method #3</b>	<b>1001 ± 3 µg/mL</b> 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  $\mu\text{m}$ .

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](http://www.inorganicventures.com/TCT)

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution** - 58.93 +2 6 Co(H<sub>2</sub>O)<sub>6</sub>2+

**Chemical Compatibility** - Stable in HCl, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, HF, H<sub>3</sub>PO<sub>4</sub>. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

**Stability** - 2-100 ppb levels stable for months in 1% HNO<sub>3</sub> / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO<sub>3</sub> / LDPE container.

**Co Containing Samples (Preparation and Solution)** - Metal (soluble in HNO<sub>3</sub>); Oxides (Soluble in HCl); Ore (dissolve in HCl / HNO<sub>3</sub>).

**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](http://inorganicventures.com); [info@inorganicventures.com](mailto: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:**

<b>Assay Method #1</b>	<b>997 ± 4 µg/mL</b> ICP Assay NIST SRM 3129a Lot Number: 100714
<b>Assay Method #2</b>	<b>1000 ± 1 µg/mL</b> Gravimetric NIST SRM Lot Number: See Sec. 4.2
<b>Assay Method #3</b>	<b>1001 ± 3 µg/mL</b> 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  $\mu\text{m}$ .

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](http://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, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub> and HF aqueous matrices. Stable with all metals and inorganic anions.

**Stability** - 2-100 ppb levels stable for months in 1% HNO<sub>3</sub> / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO<sub>3</sub> / 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](http://inorganicventures.com); [info@inorganicventures.com](mailto: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:

<b>Assay Method #1</b>	<b>10022 ± 62 µg/mL</b> ICP Assay NIST SRM 3131a Lot Number: 140110
<b>Assay Method #2</b>	<b>10078 ± 26 µg/mL</b> EDTA NIST SRM 928 Lot Number: 928
<b>Assay Method #3</b>	<b>10033 ± 26 µg/mL</b> 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 (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](http://www.inorganicventures.com/TCT)

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution** - 24.31 +2 6 Mg(H<sub>2</sub>O)<sub>6</sub>+2  
**Chemical Compatibility** -Soluble in HCl, HNO<sub>3</sub>, and H<sub>2</sub>SO<sub>4</sub> avoid HF, H<sub>3</sub>PO<sub>4</sub> 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% HNO<sub>3</sub> / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-10% HNO<sub>3</sub> / LDPE container.

**Mg Containing Samples (Preparation and Solution)** -Metal (Best dissolved in diluted HNO<sub>3</sub>); Oxide (Readily soluble in above compatible aqueous acidic solutions); Ores (Carbonate fusion in Pt<sub>0</sub> 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 <sup>i</sup> Nd < 0.000200	M Sm < 0.000200	
O Au < 0.002824	M Gd < 0.000200	M <sup>i</sup> Ni < 0.000177	M Sn < 0.000601	
O B < 0.004184	M Ge < 0.000801	M <sup>i</sup> 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](http://www.inorganicventures.com/TCT)

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution** - 204.38 + 16 Ti(H<sub>2</sub>O)<sub>6</sub>1+

**Chemical Compatibility** - Soluble in HCl, HNO<sub>3</sub>, and H<sub>2</sub>SO<sub>4</sub>. 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% HNO<sub>3</sub> / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO<sub>3</sub> / LDPE container.

**Ti Containing Samples (Preparation and Solution)** -Metal (Best dissolved in HNO<sub>3</sub> which forms chiefly the Ti<sup>4+</sup> 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

<u>Stock Source</u>	<u>Base Units</u>	<u>Amount Added</u>
ME211208 MSCAL MSCAL 2B	ug/mL	0.5 mL
ME211118 MSCAL EL-MSCAL-5A	ug/mL	0.5 mL
ME211229A AU 2n Au 2nd source Stock	ug/mL	0.01 mL

<u>Analytes</u>	<u>CAS</u>	Conc:	<u>mg/L</u>
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# 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](http://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) HNO<sub>3</sub>

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 (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](http://inorganicventures.com); [info@inorganicventures.com](mailto: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**

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**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	<b>0.3851</b>	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	<b>0.0062</b>	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	<b>0.0434</b>	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<b>0.0048</b>	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<b>0.0362</b>	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	<b>0.0029</b>	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<b>0.0023</b>	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	<b>0.0070</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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.*

**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**  
3<sup>rd</sup> 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

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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) HNO<sub>3</sub>  
 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

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{Its}}$  = long term stability standard uncertainty (storage)

$u_{\text{ts}}$  = 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

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{Its}}$  = long term stability standard uncertainty (storage)

$u_{\text{ts}}$  = 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](http://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

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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) HNO<sub>3</sub>

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](http://inorganicventures.com); [info@inorganicventures.com](mailto: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% HNO<sub>3</sub> (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) HNO<sub>3</sub>**

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<b>0.0322</b>	Nd	<0.0010	Sn	<0.0010
Al	<b>0.0042</b>	Ga	<0.0010	Ni	<b>0.0039</b>	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	<b>0.0117</b>
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	<b>0.0112</b>	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<b>0.0060</b>	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	<b>0.0092</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> 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

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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

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**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	<b>0.3851</b>	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	<b>0.0062</b>	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	<b>0.0434</b>	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<b>0.0048</b>	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<b>0.0362</b>	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	<b>0.0029</b>	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<b>0.0023</b>	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	<b>0.0070</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> Party Distribution Center  
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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

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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:

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u^2_{char} + u^2_{bb} + u^2_{Its} + u^2_{ts})^{1/2}$$

$k$  = 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](http://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	<b>0.3851</b>	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	<b>0.0062</b>	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	<b>0.0434</b>	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<b>0.0048</b>	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<b>0.0362</b>	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	<b>0.0029</b>	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<b>0.0023</b>	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	<b>0.0070</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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.*

**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**  
3<sup>rd</sup> 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

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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

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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) HNO<sub>3</sub>  
 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

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{Its}}$  = long term stability standard uncertainty (storage)

$u_{\text{ts}}$  = 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

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{Its}}$  = long term stability standard uncertainty (storage)

$u_{\text{ts}}$  = 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](http://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) HNO<sub>3</sub>

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](http://inorganicventures.com); [info@inorganicventures.com](mailto: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% HNO<sub>3</sub> (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) HNO<sub>3</sub>**

Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<b>0.0322</b>	Nd	<0.0010	Sn	<0.0010
Al	<b>0.0042</b>	Ga	<0.0010	Ni	<b>0.0039</b>	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	<b>0.0117</b>
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	<b>0.0112</b>	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<b>0.0060</b>	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	<b>0.0092</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> 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	<b>0.3851</b>	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	<b>0.0062</b>	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	<b>0.0434</b>	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<b>0.0048</b>	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<b>0.0362</b>	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	<b>0.0029</b>	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<b>0.0023</b>	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	<b>0.0070</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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.*

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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**  
3<sup>rd</sup> 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:

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u^2_{char} + u^2_{bb} + u^2_{Its} + u^2_{ts})^{1/2}$$

$k$  = 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](http://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	<b>0.3851</b>	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	<b>0.0062</b>	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	<b>0.0434</b>	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<b>0.0048</b>	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<b>0.0362</b>	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	<b>0.0029</b>	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<b>0.0023</b>	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	<b>0.0070</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> 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>	<b>Base Units</b>	<b>Amount Added</b>
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% HNO<sub>3</sub> (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<sub>char</sub>), the between bottle variation (u<sub>bb</sub>), short-term stability (u<sub>sts</sub>) and long-term stability (u<sub>lts</sub>) 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) HNO<sub>3</sub>**

**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 : <sup>238</sup>U : 99.79% ; <sup>235</sup>U : 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	<b>0.0073</b>	Ga	<0.0010	Ni	<b>0.0038</b>	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	<b>0.0020</b>
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	<b>0.0340</b>	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	<b>0.0049</b>
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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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.*

**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**  
3<sup>rd</sup> 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  
348 Route 11, 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  
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

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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

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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%

## 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.

**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

### 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  $\mu\text{m}$ .

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](http://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 HNO<sub>3</sub>. Avoid H<sub>3</sub>PO<sub>4</sub>, H<sub>2</sub>SO<sub>4</sub> and HF although solubilities may not be a problem depending upon pH and matrix (For example: ThF<sub>4</sub> is soluble in acids). Avoid neutral to basic media. Th<sup>4+</sup> 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% HNO<sub>3</sub> / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO<sub>3</sub> / 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. H<sub>2</sub>SO<sub>4</sub> ); Ores ( Na<sub>2</sub>O<sub>2</sub> 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 H<sub>2</sub>SO<sub>4</sub> / 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

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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](http://www.inorganicventures.com/TCT)

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution** - 200.59 +2 4 Hg(OH)(aq) 1+  
**Chemical Compatibility** - Stable in HNO<sub>3</sub>. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

**Stability** - 2-100 ppb levels not stable in 1% HNO<sub>3</sub> / LDPE container, stable in 10% HNO<sub>3</sub> packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO<sub>3</sub> packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO<sub>3</sub> / LDPE container.

**Hg Containing Samples (Preparation and Solution)** - Metal (soluble in HNO<sub>3</sub>); Oxide (Soluble in HNO<sub>3</sub>); 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](http://inorganicventures.com); [info@inorganicventures.com](mailto: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

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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) HNO<sub>3</sub>  
 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,  $X_{CRM/RM}$ , 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 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

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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

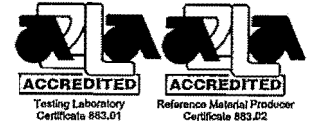
**CAS**

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) HNO<sub>3</sub>

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

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{its}}$  = long term stability standard uncertainty (storage)

$u_{\text{ts}}$  = 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 A with

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k (u_{\text{char } n}^2 + u_{\text{bb}}^2 + u_{\text{its}}^2 + u_{\text{ts}}^2)^{1/2}$$

$k$  = coverage factor = 2

$u_{\text{char } n}$  = the errors from characterization

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{its}}$  = long term stability standard uncertainty (storage)

$u_{\text{ts}}$  = 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  $20 \pm 4$ ° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

## 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

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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% HNO<sub>3</sub> (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<sub>i</sub>) including uncertainty established during characterization of the material (u<sub>char</sub>), the between bottle variation (u<sub>bb</sub>), short-term stability (u<sub>sts</sub>) and long-term stability (u<sub>lts</sub>) 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) HNO<sub>3</sub>**

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	<b>0.0164</b>	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 (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 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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> 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

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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% HNO<sub>3</sub> (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) HNO<sub>3</sub>**

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	<b>0.0102</b>	Sn	<0.0010
Al	<b>0.0148</b>	Ga	<b>0.0526</b>	Ni	<b>0.0064</b>	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	<b>0.0235</b>	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<0.0010	Tl	<0.0011
Ca	<b>0.0375</b>	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	<b>0.0121</b>	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	<b>0.0035</b>	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 (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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> 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:  
 Comments: Made fresh every Monday, Wednesday, and Friday

Type: Secondary  
 BY: Cindy Rohrer  
 Status: Open

---

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) HNO<sub>3</sub>  
 Value / Analyte(s):  
 20 µg/mL ea:  
 Cobalt, Chromium, Copper,  
 Manganese, Nickel, Vanadium,  
 10 µg/mL ea:  
 Zinc, Arsenic, Cadmium,  
 Selenium,  
 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](http://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](http://inorganicventures.com); [Info@inorganicventures.com](mailto: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**

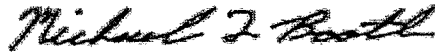
- Sealed TCT Bag Open Date: \_\_\_\_\_

- 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

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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

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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:

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

Comments:

---

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% HNO<sub>3</sub> (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) HNO<sub>3</sub>**


Trace Metal Impurities as tested by ICP-MS:

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	<0.0010	Fe	<b>0.0322</b>	Nd	<0.0010	Sn	<0.0010
Al	<b>0.0042</b>	Ga	<0.0010	Ni	<b>0.0039</b>	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	<b>0.0117</b>
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	<b>0.0112</b>	Lu	<0.0010	S	*	Y	<0.0010
Cs	<0.0010	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<b>0.0060</b>	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	<b>0.0092</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> 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	<b>0.3851</b>	Fe	<0.0090	Nd	<0.0010	Sn	<0.0010
Al	<b>0.0062</b>	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	<b>0.0434</b>	Th	<0.0010
Be	<0.0010	Ho	<0.0010	Pr	<0.0010	Ti	<0.0012
Bi	<0.0010	In	<0.0010	Pt	<b>0.0048</b>	Tl	<0.0011
Ca	<0.0135	Ir	<0.0010	Rb	<0.0010	Tm	<0.0010
Cd	<0.0010	K	<b>0.0362</b>	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	<b>0.0029</b>	Mg	<0.0010	Sb	<0.0010	Yb	<0.0010
Cu	<b>0.0023</b>	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	<b>0.0070</b>	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](http://www.SCPSCIENCE.com)). / *SVP vous référer à la Fiche Signalétique applicable pour de l'information sur ce produit (Disponible à [www.SCPSCIENCE.com](http://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**  
3<sup>rd</sup> 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:

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u^2_{char} + u^2_{bb} + u^2_{Its} + u^2_{ts})^{1/2}$$

$k$  = 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](http://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

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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) HNO<sub>3</sub>  
 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

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{Its}}$  = long term stability standard uncertainty (storage)

$u_{\text{ts}}$  = 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

$u_{\text{bb}}$  = bottle to bottle homogeneity standard uncertainty

$u_{\text{Its}}$  = long term stability standard uncertainty (storage)

$u_{\text{ts}}$  = 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](http://www.inorganicventures.com/TCT)

**HF Note:** This standard should not be prepared or stored in glass.

## 8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

**9.0 HOMOGENEITY**

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

**10.0 QUALITY STANDARD DOCUMENTATION**

**10.1 ISO 9001 Quality Management System Registration**

- QSR Certificate Number QSR-1034

**10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"**

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

**10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"**

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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**11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY**

**11.1 Certification Issue Date**

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**

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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

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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