# PREP BATCH REPORT

Prep Code: **PRP-3010** Technician: **Amanda E. McDaniels** Prep Start Date: **2/8/2022 3:24:21 PM**

Prep Batch **163617** Prep Temp **90.4 °C** Batch Units: **ML** Prep End Date: **2/9/2022 10:24:00 AM**

| Sample ID | Matrix | pH | Initial Samp Amt | Sol Added | Sol Recovered | Final Vol (mL) | Factor | Balance | Prep Start Date | Prep End Date |
|---|---|---|---|---|---|---|---|---|---|---|
| MB-163617 | | | 50 | 0 | 0 | 50 | 1 | | 2/8/2022 | 2/9/2022 |
| Temp cell B2, supervised by JPV | | | | | | | | | | |
| LCS4-163617 | | | 50 | 0 | 0 | 50 | 1 | | 2/8/2022 | 2/9/2022 |
| B22020415-001B | Ground Water | | 50 | 0 | 0 | 50 | 1 | | 2/8/2022 | 2/9/2022 |
| B22020415-001BMS4 | | | 50 | 0 | 0 | 50 | 1 | | 2/8/2022 | 2/9/2022 |
| B22020415-001BMSD4 | | | 50 | 0 | 0 | 50 | 1 | | 2/8/2022 | 2/9/2022 |
| B22020415-006B | Ground Water | | 50 | 0 | 0 | 50 | 1 | | 2/8/2022 | 2/9/2022 |
| B22020415-011B | Ground Water | | 50 | 0 | 0 | 50 | 1 | | 2/8/2022 | 2/9/2022 |
| B22020415-017B | Ground Water | | 50 | 0 | 0 | 50 | 1 | | 2/8/2022 | 2/9/2022 |
| B22020415-022B | Ground Water | | 50 | 0 | 0 | 50 | 1 | | 2/8/2022 | 2/9/2022 |
| B22020415-027B | Ground Water | | 50 | 0 | 0 | 50 | 1 | | 2/8/2022 | 2/9/2022 |
| B22020415-032B | Ground Water | | 50 | 0 | 0 | 50 | 1 | | 2/8/2022 | 2/9/2022 |

| Number | Reagent Name | Exp Date | A |
|---|---|---|---|
| 13910 | Hydrochloric Acid, 36.5-38.0% 0000281827 | 3/29/2026 | 1 mL |
| 14377 | 50mL DigiTubes J521901-2029 | 10/12/2022 | |
| 14778 | Nitric Acid, 69.0-70.0% D0521 | 1/18/2027 | 6 mL |

| Spk ID | Spike Name | SampType | AmtAdd | Exp Date |
|---|---|---|---|---|
| ME211202 EL200 | EL-200.2MS | LCS4/MS4 | 0.05 mL | 12/2/2022 |
| ME220125 EL-MS | EL-MSICV-2 | LCS4/MS4 | 0.05 ml | 1/25/2023 |
| ME220208 AUDI | AUDIGSPK | LCS4/MS4 | 0.05 ml | 10/25/2022 |

# Energy Laboratories Inc

# ANALYTICAL RUN Summary

*24-Feb-22*

**Run ID** ICPMS207-B_220214A

**Run Start Date:** 2/14/2022 11:20:43
**Analyst:** Stacy R. Hendricks
**Ical:** 0
**Column ID:**
**Comments:**

| Instrument ID | Description |
|---|---|
| 04F07114 | Metals 5-50 uL Adjustable Pipette |
| 340760037 | Metals 100-1000 uL Adjustable Pipette |
| 340760040 | Metals 100-1000 uL Adjustable Pipette |
| 440780018 | Metals 1-5 mL Adjustable Pipette |
| 440780025 | Metals 1-5 mL Adjustable Pipette |
| 841980007 | 1000-5000uL Pipette |
| 841980009 | 1000-5000uL Pipette |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035584 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 11:20: | 1 | R374695 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035585 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 11:26: | 1 | R374695 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035586 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 11:33: | 1 | R374695 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035587 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 11:39: | 1 | R374695 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035588 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 11:45: | 1 | R374695 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035589 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 11:51: | 1 | R374695 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035590 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 11:58: | 1 | R374695 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035591 | Cal Blk | ICPMS-6020-W- | SAMP | | 2/14/2022 12:04: | 1 | R374695 | | 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 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00027 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035591 | Cal Blk | ICPMS-6020-W- | SAMP | | 2/14/2022 12:04: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lanthanum | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Manganese | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Nickel | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silicon | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | L |
| Iron | B | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | L |
| Potassium | B | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | L |
| Sodium | B | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | L |
| Tin | B | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | 0 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035592 | 0.025 ppb STD | ICPMS-6020B-C | Cal1 | | 2/14/2022 12:11: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.0002642 | 0.0002642 | | 0 | 0 | 0 | | 0.01 | | 0% | | | 0% | |
| Antimony | A | mg/L | 0.0000207 | 0.0000207 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Arsenic | A | mg/L | 0.00005472 | 0.00005472 | | 0.000025 | 0 | 0 | | 0.001 | | 219% | 80 | 120 | 0% | S |
| Barium | A | mg/L | 0.00003112 | 0.00003112 | | 0.000025 | 0 | 0 | | 0.0003 | | 124% | 80 | 120 | 0% | S |
| Beryllium | A | mg/L | 0.00002855 | 0.00002855 | | 0.000025 | 0 | 0 | | 0.001 | | 114% | 80 | 120 | 0% | |
| Boron | A | mg/L | -3.626E-06 | -3.626E-06 | | 0 | 0 | 0 | | 0.1 | | 0% | | | 0% | |
| Cadmium | A | mg/L | 0.00002177 | 0.00002177 | | 0.000025 | 0 | 0 | | 0.001 | | 87% | 80 | 120 | 0% | |
| Calcium | A | mg/L | 0.009215 | 0.009215 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035592 | 0.025 ppb STD | ICPMS-6020B-C | Cal1 | | 2/14/2022 12:11: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cerium | A | mg/L | 0.0000229 | 0.0000229 | | 0.000025 | 0 | 0 | | 0.001 | | 92% | 80 | 120 | 0% | |
| Chromium | A | mg/L | 0.00004787 | 0.00004787 | | 0.000025 | 0 | 0 | | 0.001 | | 191% | 80 | 120 | 0% | S |
| Cobalt | A | mg/L | 0.00003242 | 0.00003242 | | 0.000025 | 0 | 0 | | 0.001 | | 130% | 80 | 120 | 0% | S |
| Copper | A | mg/L | 0.000095 | 0.000095 | | 0 | 0 | 0 | | 0.005 | | 0% | | | 0% | |
| Iron | A | mg/L | 0.0007911 | 0.0007911 | | 0 | 0 | 0 | | 0.01 | | 0% | | | 0% | |
| Lanthanum | A | mg/L | 0.00002428 | 0.00002428 | | 0.000025 | 0 | 0 | | 0.001 | | 97% | 80 | 120 | 0% | |
| Lead | A | mg/L | 0.00002852 | 0.00002852 | | 0.000025 | 0 | 0 | | 0.001 | | 114% | 80 | 120 | 0% | |
| Lithium | A | mg/L | 0.000336 | 0.000336 | | 0.0003125 | 0 | 0 | | 1 | | 108% | 80 | 120 | 0% | |
| Magnesium | A | mg/L | 0.00674 | 0.00674 | | 0 | 0 | 0 | | 1 | | 0% | | | 0% | |
| Manganese | A | mg/L | 0.00003116 | 0.00003116 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Mercury | A | mg/L | 1.319E-07 | 1.319E-07 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Molybdenum | A | mg/L | 0.00004467 | 0.00004467 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Nickel | A | mg/L | 0.00007264 | 0.00007264 | | 0 | 0 | 0 | | 0.005 | | 0% | | | 0% | |
| Potassium | A | mg/L | 0.009419 | 0.009419 | | 0.00625 | 0 | 0 | | 1 | | 151% | 80 | 120 | 0% | S |
| Selenium | A | mg/L | 9.781E-06 | 9.781E-06 | | 0.000025 | 0 | 0 | | 0.005 | | 39% | 80 | 120 | 0% | S |
| Silicon | A | mg/L | -0.0002958 | -0.0002958 | | 0 | 0 | 0 | | 0.1 | | 0% | | | 0% | |
| Silver | A | mg/L | 0.00002016 | 0.00002016 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Sodium | A | mg/L | 0.007763 | 0.007763 | | 0.00625 | 0 | 0 | | 1 | | 124% | 80 | 120 | 0% | S |
| Strontium | A | mg/L | 0.0000255 | 0.0000255 | | 0 | 0 | 0 | | 0.001 | | 0% | 80 | 120 | 0% | |
| Thallium | A | mg/L | 0.0000194 | 0.0000194 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Thorium | A | mg/L | 0.00001523 | 0.00001523 | | 0 | 0 | 0 | | 0.05 | | 0% | | | 0% | |
| Tin | A | mg/L | 0.00002964 | 0.00002964 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Titanium | A | mg/L | 0.00006116 | 0.00006116 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Uranium | A | mg/L | 0.00002342 | 0.00002342 | | 0.000025 | 0 | 0 | | 0.001 | | 94% | 80 | 120 | 0% | |
| Vanadium | A | mg/L | 0.0001363 | 0.0001363 | | 0 | 0 | 0 | | 0.005 | | 0% | | | 0% | |
| Zinc | A | mg/L | 0.0001026 | 0.0001026 | | 0 | 0 | 0 | | 0.01 | | 0% | | | 0% | |
| Iron, Ferrous | C | mg/L | 0.0007911 | 0.0007911 | | 0.000025 | 0 | 0 | | 0.01 | 5 | 3164% | 80 | 120 | 0% | S |
| Silicon as SiO2 | C | mg/L | -0.0006330 | -0.0006330 | | 0.0000535 | 0 | 0 | | 0.214 | 0.9 | -1183% | 80 | 120 | 0% | S |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035593 | 0.05 ppb STD | ICPMS-6020B-C | Cal2 | | 2/14/2022 12:17: | 1 | R374695 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035593 | 0.05 ppb STD | ICPMS-6020B-C | Cal2 | | 2/14/2022 12:17: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.000373 | 0.000373 | | 0 | 0 | 0 | | 0.01 | | 0% | | | 0% | |
| Antimony | A | mg/L | 0.00004449 | 0.00004449 | | 0.00005 | 0 | 0 | | 0.001 | | 89% | 80 | 120 | 0% | |
| Arsenic | A | mg/L | 0.00006709 | 0.00006709 | | 0.00005 | 0 | 0 | | 0.001 | | 134% | 80 | 120 | 0% | S |
| Barium | A | mg/L | 0.0000599 | 0.0000599 | | 0.00005 | 0 | 0 | | 0.0003 | | 120% | 80 | 120 | 0% | |
| Beryllium | A | mg/L | 0.00003856 | 0.00003856 | | 0.00005 | 0 | 0 | | 0.001 | | 77% | 80 | 120 | 0% | S |
| Boron | A | mg/L | -1.545E-05 | -1.545E-05 | | 0 | 0 | 0 | | 0.1 | | 0% | | | 0% | |
| Cadmium | A | mg/L | 0.00004505 | 0.00004505 | | 0.00005 | 0 | 0 | | 0.001 | | 90% | 80 | 120 | 0% | |
| Calcium | A | mg/L | 0.01918 | 0.01918 | | 0.0125 | 0 | 0 | | 1 | | 153% | 80 | 120 | 0% | S |
| Cerium | A | mg/L | 0.00005135 | 0.00005135 | | 0.00005 | 0 | 0 | | 0.001 | | 103% | 80 | 120 | 0% | |
| Chromium | A | mg/L | 0.00008715 | 0.00008715 | | 0.00005 | 0 | 0 | | 0.001 | | 174% | 80 | 120 | 0% | S |
| Cobalt | A | mg/L | 0.00006092 | 0.00006092 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Copper | A | mg/L | 0.0000996 | 0.0000996 | | 0.00005 | 0 | 0 | | 0.005 | | 199% | 80 | 120 | 0% | S |
| Iron | A | mg/L | 0.001506 | 0.001506 | | 0.00125 | 0 | 0 | | 0.01 | | 120% | 80 | 120 | 0% | |
| Lanthanum | A | mg/L | 0.00004924 | 0.00004924 | | 0.00005 | 0 | 0 | | 0.001 | | 98% | 80 | 120 | 0% | |
| Lead | A | mg/L | 0.00005118 | 0.00005118 | | 0.00005 | 0 | 0 | | 0.001 | | 102% | 80 | 120 | 0% | |
| Lithium | A | mg/L | 0.0006031 | 0.0006031 | | 0.000625 | 0 | 0 | | 1 | | 96% | 80 | 120 | 0% | |
| Magnesium | A | mg/L | 0.01429 | 0.01429 | | 0.0125 | 0 | 0 | | 1 | | 114% | 80 | 120 | 0% | |
| Manganese | A | mg/L | 0.00006307 | 0.00006307 | | 0.00005 | 0 | 0 | | 0.001 | | 126% | 80 | 120 | 0% | S |
| Mercury | A | mg/L | -4.748E-07 | -4.748E-07 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Molybdenum | A | mg/L | 0.00004619 | 0.00004619 | | 0.00005 | 0 | 0 | | 0.001 | | 92% | 80 | 120 | 0% | |
| Nickel | A | mg/L | 0.00009919 | 0.00009919 | | 0 | 0 | 0 | | 0.005 | | 0% | | | 0% | |
| Potassium | A | mg/L | 0.01758 | 0.01758 | | 0.0125 | 0 | 0 | | 1 | | 141% | 80 | 120 | 0% | S |
| Selenium | A | mg/L | 0.00003972 | 0.00003972 | | 0.00005 | 0 | 0 | | 0.005 | | 79% | 80 | 120 | 0% | S |
| Silicon | A | mg/L | -0.000352 | -0.000352 | | 0 | 0 | 0 | | 0.1 | | 0% | | | 0% | |
| Silver | A | mg/L | 0.0000249 | 0.0000249 | | 0.00002 | 0 | 0 | | 0.001 | | 124% | 80 | 120 | 0% | S |
| Sodium | A | mg/L | 0.01566 | 0.01566 | | 0.0125 | 0 | 0 | | 1 | | 125% | 80 | 120 | 0% | S |
| Strontium | A | mg/L | 0.00005983 | 0.00005983 | | 0.00005 | 0 | 0 | | 0.001 | | 120% | 80 | 120 | 0% | |
| Thallium | A | mg/L | 0.00004688 | 0.00004688 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Thorium | A | mg/L | 0.00003229 | 0.00003229 | | 0 | 0 | 0 | | 0.05 | | 0% | | | 0% | |
| Tin | A | mg/L | 0.00005201 | 0.00005201 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Titanium | A | mg/L | 0.00008034 | 0.00008034 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Uranium | A | mg/L | 0.00004784 | 0.00004784 | | 0.00005 | 0 | 0 | | 0.001 | | 96% | 80 | 120 | 0% | |
| Vanadium | A | mg/L | 0.00008486 | 0.00008486 | | 0 | 0 | 0 | | 0.005 | | 0% | | | 0% | |
| Zinc | A | mg/L | 0.0001497 | 0.0001497 | | 0 | 0 | 0 | | 0.01 | | 0% | | | 0% | |
| Iron, Ferrous | C | mg/L | 0.001506 | 0.001506 | | 0.00005 | 0 | 0 | | 0.01 | 5 | 3012% | 80 | 120 | 0% | S |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035593 | 0.05 ppb STD | ICPMS-6020B-C | Cal2 | | 2/14/2022 12:17: | 1 | R374695 | | 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 | -0.0007533 | -0.0007533 | | 0.00428 | 0 | 0 | | 0.214 | 0.9 | -18% | 80 | 120 | 0% | S |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035594 | 0.10 ppb STD | ICPMS-6020B-C | Cal3 | | 2/14/2022 12:24: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.0001369 | 0.0001369 | | 0.0001 | 0 | 0 | | 0.01 | | 137% | 80 | 120 | 0% | S |
| Antimony | A | mg/L | 0.00008714 | 0.00008714 | | 0.0001 | 0 | 0 | | 0.001 | | 87% | 80 | 120 | 0% | |
| Arsenic | A | mg/L | 0.0001147 | 0.0001147 | | 0.0001 | 0 | 0 | | 0.001 | | 115% | 80 | 120 | 0% | |
| Barium | A | mg/L | 0.0001071 | 0.0001071 | | 0.0001 | 0 | 0 | | 0.0003 | | 107% | 80 | 120 | 0% | |
| Beryllium | A | mg/L | 0.0000864 | 0.0000864 | | 0.0001 | 0 | 0 | | 0.001 | | 86% | 80 | 120 | 0% | |
| Boron | A | mg/L | 0.00001755 | 0.00001755 | | 0 | 0 | 0 | | 0.1 | | 0% | | | 0% | |
| Cadmium | A | mg/L | 0.00009654 | 0.00009654 | | 0.0001 | 0 | 0 | | 0.001 | | 97% | 80 | 120 | 0% | |
| Calcium | A | mg/L | 0.03233 | 0.03233 | | 0.025 | 0 | 0 | | 1 | | 129% | 80 | 120 | 0% | S |
| Cerium | A | mg/L | 0.0001033 | 0.0001033 | | 0.0001 | 0 | 0 | | 0.001 | | 103% | 80 | 120 | 0% | |
| Chromium | A | mg/L | 0.0001406 | 0.0001406 | | 0.0001 | 0 | 0 | | 0.001 | | 141% | 80 | 120 | 0% | S |
| Cobalt | A | mg/L | 0.0001137 | 0.0001137 | | 0.0001 | 0 | 0 | | 0.001 | | 114% | 80 | 120 | 0% | |
| Copper | A | mg/L | 0.0001395 | 0.0001395 | | 0.0001 | 0 | 0 | | 0.005 | | 140% | 80 | 120 | 0% | S |
| Iron | A | mg/L | 0.002885 | 0.002885 | | 0.0025 | 0 | 0 | | 0.01 | | 115% | 80 | 120 | 0% | |
| Lanthanum | A | mg/L | 0.0001045 | 0.0001045 | | 0.0001 | 0 | 0 | | 0.001 | | 104% | 80 | 120 | 0% | |
| Lead | A | mg/L | 0.0001015 | 0.0001015 | | 0.0001 | 0 | 0 | | 0.001 | | 102% | 80 | 120 | 0% | |
| Lithium | A | mg/L | 0.001233 | 0.001233 | | 0.00125 | 0 | 0 | | 1 | | 99% | 80 | 120 | 0% | |
| Magnesium | A | mg/L | 0.02869 | 0.02869 | | 0.025 | 0 | 0 | | 1 | | 115% | 80 | 120 | 0% | |
| Manganese | A | mg/L | 0.0001165 | 0.0001165 | | 0.0001 | 0 | 0 | | 0.001 | | 117% | 80 | 120 | 0% | |
| Mercury | A | mg/L | 5.236E-07 | 5.236E-07 | | 0.000002 | 0 | 0 | | 0.001 | | 26% | 80 | 120 | 0% | S |
| Molybdenum | A | mg/L | 0.0001028 | 0.0001028 | | 0.0001 | 0 | 0 | | 0.001 | | 103% | 80 | 120 | 0% | |
| Nickel | A | mg/L | 0.0001553 | 0.0001553 | | 0.0001 | 0 | 0 | | 0.005 | | 155% | 80 | 120 | 0% | S |
| Potassium | A | mg/L | 0.0301 | 0.0301 | | 0.025 | 0 | 0 | | 1 | | 120% | 80 | 120 | 0% | |
| Selenium | A | mg/L | 0.00009341 | 0.00009341 | | 0.0001 | 0 | 0 | | 0.005 | | 93% | 80 | 120 | 0% | |
| Silicon | A | mg/L | -0.0003892 | -0.0003892 | | 0.0004 | 0 | 0 | | 0.1 | | -97% | 80 | 120 | 0% | S |
| Silver | A | mg/L | 0.00004683 | 0.00004683 | | 0.00004 | 0 | 0 | | 0.001 | | 117% | 80 | 120 | 0% | |
| Sodium | A | mg/L | 0.02879 | 0.02879 | | 0.025 | 0 | 0 | | 1 | | 115% | 80 | 120 | 0% | |
| Strontium | A | mg/L | 0.0001078 | 0.0001078 | | 0.0001 | 0 | 0 | | 0.001 | | 108% | 80 | 120 | 0% | |
| Thallium | A | mg/L | 0.00009593 | 0.00009593 | | 0.0001 | 0 | 0 | | 0.001 | | 96% | 80 | 120 | 0% | |
| Thorium | A | mg/L | 0.00006647 | 0.00006647 | | 0.0001 | 0 | 0 | | 0.05 | | 66% | 80 | 120 | 0% | S |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035594 | 0.10 ppb STD | ICPMS-6020B-C | Cal3 | | 2/14/2022 12:24: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tin | A | mg/L | 0.0001105 | 0.0001105 | | 0.0001 | 0 | 0 | | 0.001 | | 111% | 80 | 120 | 0% | |
| Titanium | A | mg/L | 0.0001435 | 0.0001435 | | 0.0001 | 0 | 0 | | 0.001 | | 144% | 80 | 120 | 0% | S |
| Uranium | A | mg/L | 0.00009789 | 0.00009789 | | 0.0001 | 0 | 0 | | 0.001 | | 98% | 80 | 120 | 0% | |
| Vanadium | A | mg/L | 0.0000911 | 0.0000911 | | 0.0001 | 0 | 0 | | 0.005 | | 91% | 80 | 120 | 0% | |
| Zinc | A | mg/L | 0.0001011 | 0.0001011 | | 0.0001 | 0 | 0 | | 0.01 | | 101% | 80 | 120 | 0% | |
| Iron, Ferrous | C | mg/L | 0.002885 | 0.002885 | | 0.0001 | 0 | 0 | | 0.01 | 5 | 2885% | 80 | 120 | 0% | S |
| Silicon as SiO2 | C | mg/L | -0.0008329 | -0.0008329 | | 0.00856 | 0 | 0 | | 0.214 | 0.9 | -10% | 80 | 120 | 0% | S |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035595 | 0.5 ppb STD | ICPMS-6020B-C | Cal4 | | 2/14/2022 12:31: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.0007179 | 0.0007179 | | 0.0005 | 0 | 0 | | 0.01 | | 144% | 80 | 120 | 0% | S |
| Antimony | A | mg/L | 0.0004608 | 0.0004608 | | 0.0005 | 0 | 0 | | 0.001 | | 92% | 80 | 120 | 0% | |
| Arsenic | A | mg/L | 0.0005156 | 0.0005156 | | 0.0005 | 0 | 0 | | 0.001 | | 103% | 80 | 120 | 0% | |
| Barium | A | mg/L | 0.0005111 | 0.0005111 | | 0.0005 | 0 | 0 | | 0.0003 | | 102% | 80 | 120 | 0% | |
| Beryllium | A | mg/L | 0.0005009 | 0.0005009 | | 0.0005 | 0 | 0 | | 0.001 | | 100% | 80 | 120 | 0% | |
| Boron | A | mg/L | 0.000458 | 0.000458 | | 0.0005 | 0 | 0 | | 0.1 | | 92% | 80 | 120 | 0% | |
| Cadmium | A | mg/L | 0.0004986 | 0.0004986 | | 0.0005 | 0 | 0 | | 0.001 | | 100% | 80 | 120 | 0% | |
| Calcium | A | mg/L | 0.1375 | 0.1375 | | 0.125 | 0 | 0 | | 1 | | 110% | 80 | 120 | 0% | |
| Cerium | A | mg/L | 0.0004692 | 0.0004692 | | 0.0005 | 0 | 0 | | 0.001 | | 94% | 80 | 120 | 0% | |
| Chromium | A | mg/L | 0.0004946 | 0.0004946 | | 0.0005 | 0 | 0 | | 0.001 | | 99% | 80 | 120 | 0% | |
| Cobalt | A | mg/L | 0.0005333 | 0.0005333 | | 0.0005 | 0 | 0 | | 0.001 | | 107% | 80 | 120 | 0% | |
| Copper | A | mg/L | 0.0005651 | 0.0005651 | | 0.0005 | 0 | 0 | | 0.005 | | 113% | 80 | 120 | 0% | |
| Iron | A | mg/L | 0.01293 | 0.01293 | | 0.0125 | 0 | 0 | | 0.01 | | 103% | 80 | 120 | 0% | |
| Lanthanum | A | mg/L | 0.0004832 | 0.0004832 | | 0.0005 | 0 | 0 | | 0.001 | | 97% | 80 | 120 | 0% | |
| Lead | A | mg/L | 0.0004917 | 0.0004917 | | 0.0005 | 0 | 0 | | 0.001 | | 98% | 80 | 120 | 0% | |
| Lithium | A | mg/L | 0.006791 | 0.006791 | | 0.00625 | 0 | 0 | | 1 | | 109% | 80 | 120 | 0% | |
| Magnesium | A | mg/L | 0.1325 | 0.1325 | | 0.125 | 0 | 0 | | 1 | | 106% | 80 | 120 | 0% | |
| Manganese | A | mg/L | 0.0005281 | 0.0005281 | | 0.0005 | 0 | 0 | | 0.001 | | 106% | 80 | 120 | 0% | |
| Mercury | A | mg/L | 8.245E-06 | 8.245E-06 | | 0.00001 | 0 | 0 | | 0.001 | | 82% | 80 | 120 | 0% | |
| Molybdenum | A | mg/L | 0.0004929 | 0.0004929 | | 0.0005 | 0 | 0 | | 0.001 | | 99% | 80 | 120 | 0% | |
| Nickel | A | mg/L | 0.0005449 | 0.0005449 | | 0.0005 | 0 | 0 | | 0.005 | | 109% | 80 | 120 | 0% | |
| Potassium | A | mg/L | 0.1282 | 0.1282 | | 0.125 | 0 | 0 | | 1 | | 103% | 80 | 120 | 0% | |
| Selenium | A | mg/L | 0.0004837 | 0.0004837 | | 0.0005 | 0 | 0 | | 0.005 | | 97% | 80 | 120 | 0% | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035595 | 0.5 ppb STD | ICPMS-6020B-C | Cal4 | | 2/14/2022 12:31: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Silicon | A | mg/L | 0.001474 | 0.001474 | | 0.002 | 0 | 0 | | 0.1 | | 74% | 80 | 120 | 0% | S |
| Silver | A | mg/L | 0.0002066 | 0.0002066 | | 0.0002 | 0 | 0 | | 0.001 | | 103% | 80 | 120 | 0% | |
| Sodium | A | mg/L | 0.1318 | 0.1318 | | 0.125 | 0 | 0 | | 1 | | 105% | 80 | 120 | 0% | |
| Strontium | A | mg/L | 0.0004922 | 0.0004922 | | 0.0005 | 0 | 0 | | 0.001 | | 98% | 80 | 120 | 0% | |
| Thallium | A | mg/L | 0.0004469 | 0.0004469 | | 0.0005 | 0 | 0 | | 0.001 | | 89% | 80 | 120 | 0% | |
| Thorium | A | mg/L | 0.0003635 | 0.0003635 | | 0.0005 | 0 | 0 | | 0.05 | | 73% | 80 | 120 | 0% | S |
| Tin | A | mg/L | 0.0004751 | 0.0004751 | | 0.0005 | 0 | 0 | | 0.001 | | 95% | 80 | 120 | 0% | |
| Titanium | A | mg/L | 0.0005149 | 0.0005149 | | 0.0005 | 0 | 0 | | 0.001 | | 103% | 80 | 120 | 0% | |
| Uranium | A | mg/L | 0.0004749 | 0.0004749 | | 0.0005 | 0 | 0 | | 0.001 | | 95% | 80 | 120 | 0% | |
| Vanadium | A | mg/L | 0.0003439 | 0.0003439 | | 0.0005 | 0 | 0 | | 0.005 | | 69% | 80 | 120 | 0% | S |
| Zinc | A | mg/L | 0.0005991 | 0.0005991 | | 0.0005 | 0 | 0 | | 0.01 | | 120% | 80 | 120 | 0% | |
| Iron, Ferrous | C | mg/L | 0.01293 | 0.01293 | | 0.0005 | 0 | 0 | | 0.01 | 5 | 2586% | 80 | 120 | 0% | S |
| Silicon as SiO2 | C | mg/L | 0.00315436 | 0.00315436 | | 0.0428 | 0 | 0 | | 0.214 | 0.9 | 7% | 80 | 120 | 0% | S |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035596 | 1 ppb STD | ICPMS-6020B-C | Cal5 | | 2/14/2022 12:37: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.001288 | 0.001288 | | 0.001 | 0 | 0 | | 0.01 | | 129% | 80 | 120 | 0% | S |
| Antimony | A | mg/L | 0.0009902 | 0.0009902 | | 0.001 | 0 | 0 | | 0.001 | | 99% | 80 | 120 | 0% | |
| Arsenic | A | mg/L | 0.001016 | 0.001016 | | 0.001 | 0 | 0 | | 0.001 | | 102% | 80 | 120 | 0% | |
| Barium | A | mg/L | 0.001 | 0.001 | | 0.001 | 0 | 0 | | 0.0003 | | 100% | 80 | 120 | 0% | |
| Beryllium | A | mg/L | 0.001043 | 0.001043 | | 0.001 | 0 | 0 | | 0.001 | | 104% | 80 | 120 | 0% | |
| Boron | A | mg/L | 0.000986 | 0.000986 | | 0.001 | 0 | 0 | | 0.1 | | 99% | 80 | 120 | 0% | |
| Cadmium | A | mg/L | 0.001029 | 0.001029 | | 0.001 | 0 | 0 | | 0.001 | | 103% | 80 | 120 | 0% | |
| Calcium | A | mg/L | 0.2747 | 0.2747 | | 0.25 | 0 | 0 | | 1 | | 110% | 80 | 120 | 0% | |
| Cerium | A | mg/L | 0.0009743 | 0.0009743 | | 0.001 | 0 | 0 | | 0.001 | | 97% | 80 | 120 | 0% | |
| Chromium | A | mg/L | 0.001071 | 0.001071 | | 0.001 | 0 | 0 | | 0.001 | | 107% | 80 | 120 | 0% | |
| Cobalt | A | mg/L | 0.001063 | 0.001063 | | 0.001 | 0 | 0 | | 0.001 | | 106% | 80 | 120 | 0% | |
| Copper | A | mg/L | 0.001111 | 0.001111 | | 0.001 | 0 | 0 | | 0.005 | | 111% | 80 | 120 | 0% | |
| Iron | A | mg/L | 0.02671 | 0.02671 | | 0.025 | 0 | 0 | | 0.01 | | 107% | 80 | 120 | 0% | |
| Lanthanum | A | mg/L | 0.0009938 | 0.0009938 | | 0.001 | 0 | 0 | | 0.001 | | 99% | 80 | 120 | 0% | |
| Lead | A | mg/L | 0.001044 | 0.001044 | | 0.001 | 0 | 0 | | 0.001 | | 104% | 80 | 120 | 0% | |
| Lithium | A | mg/L | 0.01391 | 0.01391 | | 0.0125 | 0 | 0 | | 1 | | 111% | 80 | 120 | 0% | |
| Magnesium | A | mg/L | 0.2648 | 0.2648 | | 0.25 | 0 | 0 | | 1 | | 106% | 80 | 120 | 0% | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035596 | 1 ppb STD | ICPMS-6020B-C | Cal5 | | 2/14/2022 12:37: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | A | mg/L | 0.001025 | 0.001025 | | 0.001 | 0 | 0 | | 0.001 | | 102% | 80 | 120 | 0% | |
| Mercury | A | mg/L | 0.00001723 | 0.00001723 | | 0.00002 | 0 | 0 | | 0.001 | | 86% | 80 | 120 | 0% | |
| Molybdenum | A | mg/L | 0.001003 | 0.001003 | | 0.001 | 0 | 0 | | 0.001 | | 100% | 80 | 120 | 0% | |
| Nickel | A | mg/L | 0.00105 | 0.00105 | | 0.001 | 0 | 0 | | 0.005 | | 105% | 80 | 120 | 0% | |
| Potassium | A | mg/L | 0.2597 | 0.2597 | | 0.25 | 0 | 0 | | 1 | | 104% | 80 | 120 | 0% | |
| Selenium | A | mg/L | 0.0009806 | 0.0009806 | | 0.001 | 0 | 0 | | 0.005 | | 98% | 80 | 120 | 0% | |
| Silicon | A | mg/L | 0.004339 | 0.004339 | | 0.004 | 0 | 0 | | 0.1 | | 108% | 80 | 120 | 0% | |
| Silver | A | mg/L | 0.0004346 | 0.0004346 | | 0.0004 | 0 | 0 | | 0.001 | | 109% | 80 | 120 | 0% | |
| Sodium | A | mg/L | 0.2633 | 0.2633 | | 0.25 | 0 | 0 | | 1 | | 105% | 80 | 120 | 0% | |
| Strontium | A | mg/L | 0.000967 | 0.000967 | | 0.001 | 0 | 0 | | 0.001 | | 97% | 80 | 120 | 0% | |
| Thallium | A | mg/L | 0.0009273 | 0.0009273 | | 0.001 | 0 | 0 | | 0.001 | | 93% | 80 | 120 | 0% | |
| Thorium | A | mg/L | 0.0008201 | 0.0008201 | | 0.001 | 0 | 0 | | 0.05 | | 82% | 80 | 120 | 0% | |
| Tin | A | mg/L | 0.000983 | 0.000983 | | 0.001 | 0 | 0 | | 0.001 | | 98% | 80 | 120 | 0% | |
| Titanium | A | mg/L | 0.001127 | 0.001127 | | 0.001 | 0 | 0 | | 0.001 | | 113% | 80 | 120 | 0% | |
| Uranium | A | mg/L | 0.0009933 | 0.0009933 | | 0.001 | 0 | 0 | | 0.001 | | 99% | 80 | 120 | 0% | |
| Vanadium | A | mg/L | 0.0007649 | 0.0007649 | | 0.001 | 0 | 0 | | 0.005 | | 76% | 80 | 120 | 0% | S |
| Zinc | A | mg/L | 0.001022 | 0.001022 | | 0.001 | 0 | 0 | | 0.01 | | 102% | 80 | 120 | 0% | |
| Iron, Ferrous | C | mg/L | 0.02671 | 0.02671 | | 0.001 | 0 | 0 | | 0.01 | 5 | 2671% | 80 | 120 | 0% | S |
| Silicon as SiO2 | C | mg/L | 0.00928546 | 0.00928546 | | 0.0856 | 0 | 0 | | 0.214 | 0.9 | 11% | 80 | 120 | 0% | S |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035597 | 10 ppb STD | ICPMS-6020B-C | Cal6 | | 2/14/2022 12:44: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.01139 | 0.01139 | | 0.01 | 0 | 0 | | 0.01 | | 114% | 90 | 110 | 0% | S |
| Antimony | A | mg/L | 0.009623 | 0.009623 | | 0.01 | 0 | 0 | | 0.001 | | 96% | 90 | 110 | 0% | |
| Arsenic | A | mg/L | 0.009916 | 0.009916 | | 0.01 | 0 | 0 | | 0.001 | | 99% | 90 | 110 | 0% | |
| Barium | A | mg/L | 0.009908 | 0.009908 | | 0.01 | 0 | 0 | | 0.0003 | | 99% | 90 | 110 | 0% | |
| Beryllium | A | mg/L | 0.01069 | 0.01069 | | 0.01 | 0 | 0 | | 0.001 | | 107% | 90 | 110 | 0% | |
| Boron | A | mg/L | 0.01073 | 0.01073 | | 0.01 | 0 | 0 | | 0.1 | | 107% | 90 | 110 | 0% | |
| Cadmium | A | mg/L | 0.009999 | 0.009999 | | 0.01 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Calcium | A | mg/L | 2.692 | 2.692 | | 2.5 | 0 | 0 | | 1 | | 108% | 90 | 110 | 0% | |
| Cerium | A | mg/L | 0.009669 | 0.009669 | | 0.01 | 0 | 0 | | 0.001 | | 97% | 90 | 110 | 0% | |
| Chromium | A | mg/L | 0.009991 | 0.009991 | | 0.01 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Cobalt | A | mg/L | 0.0104 | 0.0104 | | 0.01 | 0 | 0 | | 0.001 | | 104% | 90 | 110 | 0% | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035597 | 10 ppb STD | ICPMS-6020B-C Cal6 | | | 2/14/2022 12:44: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Copper | A | mg/L | 0.01069 | 0.01069 | | 0.01 | 0 | 0 | | 0.005 | | 107% | 90 | 110 | 0% | |
| Iron | A | mg/L | 0.2679 | 0.2679 | | 0.25 | 0 | 0 | | 0.01 | | 107% | 90 | 110 | 0% | |
| Lanthanum | A | mg/L | 0.0097 | 0.0097 | | 0.01 | 0 | 0 | | 0.001 | | 97% | 90 | 110 | 0% | |
| Lead | A | mg/L | 0.009995 | 0.009995 | | 0.01 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Lithium | A | mg/L | 0.1381 | 0.1381 | | 0.125 | 0 | 0 | | 1 | | 110% | 90 | 110 | 0% | |
| Magnesium | A | mg/L | 2.603 | 2.603 | | 2.5 | 0 | 0 | | 1 | | 104% | 90 | 110 | 0% | |
| Manganese | A | mg/L | 0.01035 | 0.01035 | | 0.01 | 0 | 0 | | 0.001 | | 103% | 90 | 110 | 0% | |
| Mercury | A | mg/L | 0.0001927 | 0.0001927 | | 0.0002 | 0 | 0 | | 0.001 | | 96% | 90 | 110 | 0% | |
| Molybdenum | A | mg/L | 0.009874 | 0.009874 | | 0.01 | 0 | 0 | | 0.001 | | 99% | 90 | 110 | 0% | |
| Nickel | A | mg/L | 0.01068 | 0.01068 | | 0.01 | 0 | 0 | | 0.005 | | 107% | 90 | 110 | 0% | |
| Potassium | A | mg/L | 2.504 | 2.504 | | 2.5 | 0 | 0 | | 1 | | 100% | 90 | 110 | 0% | |
| Selenium | A | mg/L | 0.01002 | 0.01002 | | 0.01 | 0 | 0 | | 0.005 | | 100% | 90 | 110 | 0% | |
| Silicon | A | mg/L | 0.03896 | 0.03896 | | 0.04 | 0 | 0 | | 0.1 | | 97% | 90 | 110 | 0% | |
| Silver | A | mg/L | 0.003999 | 0.003999 | | 0.004 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Sodium | A | mg/L | 2.609 | 2.609 | | 2.5 | 0 | 0 | | 1 | | 104% | 90 | 110 | 0% | |
| Strontium | A | mg/L | 0.009789 | 0.009789 | | 0.01 | 0 | 0 | | 0.001 | | 98% | 90 | 110 | 0% | |
| Thallium | A | mg/L | 0.00944 | 0.00944 | | 0.01 | 0 | 0 | | 0.001 | | 94% | 90 | 110 | 0% | |
| Thorium | A | mg/L | 0.009129 | 0.009129 | | 0.01 | 0 | 0 | | 0.05 | | 91% | 90 | 110 | 0% | |
| Tin | A | mg/L | 0.009531 | 0.009531 | | 0.01 | 0 | 0 | | 0.001 | | 95% | 90 | 110 | 0% | |
| Titanium | A | mg/L | 0.01049 | 0.01049 | | 0.01 | 0 | 0 | | 0.001 | | 105% | 90 | 110 | 0% | |
| Uranium | A | mg/L | 0.009821 | 0.009821 | | 0.01 | 0 | 0 | | 0.001 | | 98% | 90 | 110 | 0% | |
| Vanadium | A | mg/L | 0.008048 | 0.008048 | | 0.01 | 0 | 0 | | 0.005 | | 80% | 90 | 110 | 0% | S |
| Zinc | A | mg/L | 0.0107 | 0.0107 | | 0.01 | 0 | 0 | | 0.01 | | 107% | 90 | 110 | 0% | |
| Iron, Ferrous | C | mg/L | 0.2679 | 0.2679 | | 0.01 | 0 | 0 | | 0.01 | 5 | 2679% | 90 | 110 | 0% | S |
| Silicon as SiO2 | C | mg/L | 0.0833744 | 0.0833744 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035598 | 50 ppb STD | ICPMS-6020B-C Cal7 | | | 2/14/2022 12:51: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.05481 | 0.05481 | | 0.05 | 0 | 0 | | 0.01 | | 110% | 90 | 110 | 0% | |
| Antimony | A | mg/L | 0.0534 | 0.0534 | | 0.05 | 0 | 0 | | 0.001 | | 107% | 90 | 110 | 0% | |
| Arsenic | A | mg/L | 0.05094 | 0.05094 | | 0.05 | 0 | 0 | | 0.001 | | 102% | 90 | 110 | 0% | |
| Barium | A | mg/L | 0.05169 | 0.05169 | | 0.05 | 0 | 0 | | 0.0003 | | 103% | 90 | 110 | 0% | |
| Beryllium | A | mg/L | 0.05328 | 0.05328 | | 0.05 | 0 | 0 | | 0.001 | | 107% | 90 | 110 | 0% | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035598 | 50 ppb STD | ICPMS-6020B-C Cal7 | | | 2/14/2022 12:51: | 1 | R374695 | | 0 | 0 | | | | | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | A | mg/L | 0.05639 | 0.05639 | | 0.05 | 0 | 0 | | 0.1 | | 113% | 90 | 110 | 0% | S |
| Cadmium | A | mg/L | 0.05144 | 0.05144 | | 0.05 | 0 | 0 | | 0.001 | | 103% | 90 | 110 | 0% | |
| Calcium | A | mg/L | 13 | 13 | | 12.5 | 0 | 0 | | 1 | | 104% | 90 | 110 | 0% | |
| Cerium | A | mg/L | 0.05143 | 0.05143 | | 0.05 | 0 | 0 | | 0.001 | | 103% | 90 | 110 | 0% | |
| Chromium | A | mg/L | 0.05103 | 0.05103 | | 0.05 | 0 | 0 | | 0.001 | | 102% | 90 | 110 | 0% | |
| Cobalt | A | mg/L | 0.05268 | 0.05268 | | 0.05 | 0 | 0 | | 0.001 | | 105% | 90 | 110 | 0% | |
| Copper | A | mg/L | 0.05201 | 0.05201 | | 0.05 | 0 | 0 | | 0.005 | | 104% | 90 | 110 | 0% | |
| Iron | A | mg/L | 1.327 | 1.327 | | 1.25 | 0 | 0 | | 0.01 | | 106% | 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 | 0.05208 | 0.05208 | | 0.05 | 0 | 0 | | 0.001 | | 104% | 90 | 110 | 0% | |
| Lithium | A | mg/L | 0.6843 | 0.6843 | | 0.625 | 0 | 0 | | 1 | | 109% | 90 | 110 | 0% | |
| Magnesium | A | mg/L | 13.07 | 13.07 | | 12.5 | 0 | 0 | | 1 | | 105% | 90 | 110 | 0% | |
| Manganese | A | mg/L | 0.05188 | 0.05188 | | 0.05 | 0 | 0 | | 0.001 | | 104% | 90 | 110 | 0% | |
| Mercury | A | mg/L | 0.001051 | 0.001051 | | 0.001 | 0 | 0 | | 0.001 | | 105% | 90 | 110 | 0% | |
| Molybdenum | A | mg/L | 0.0506 | 0.0506 | | 0.05 | 0 | 0 | | 0.001 | | 101% | 90 | 110 | 0% | |
| Nickel | A | mg/L | 0.05324 | 0.05324 | | 0.05 | 0 | 0 | | 0.005 | | 106% | 90 | 110 | 0% | |
| Potassium | A | mg/L | 12.72 | 12.72 | | 12.5 | 0 | 0 | | 1 | | 102% | 90 | 110 | 0% | |
| Selenium | A | mg/L | 0.05121 | 0.05121 | | 0.05 | 0 | 0 | | 0.005 | | 102% | 90 | 110 | 0% | |
| Silicon | A | mg/L | 0.2272 | 0.2272 | | 0.2 | 0 | 0 | | 0.1 | | 114% | 90 | 110 | 0% | S |
| Silver | A | mg/L | 0.02048 | 0.02048 | | 0.02 | 0 | 0 | | 0.001 | | 102% | 90 | 110 | 0% | |
| Sodium | A | mg/L | 13.18 | 13.18 | | 12.5 | 0 | 0 | | 1 | | 105% | 90 | 110 | 0% | |
| Strontium | A | mg/L | 0.05001 | 0.05001 | | 0.05 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Thallium | A | mg/L | 0.04855 | 0.04855 | | 0.05 | 0 | 0 | | 0.001 | | 97% | 90 | 110 | 0% | |
| Thorium | A | mg/L | 0.04954 | 0.04954 | | 0.05 | 0 | 0 | | 0.05 | | 99% | 90 | 110 | 0% | |
| Tin | A | mg/L | 0.05122 | 0.05122 | | 0.05 | 0 | 0 | | 0.001 | | 102% | 90 | 110 | 0% | |
| Titanium | A | mg/L | 0.05122 | 0.05122 | | 0.05 | 0 | 0 | | 0.001 | | 102% | 90 | 110 | 0% | |
| Uranium | A | mg/L | 0.05092 | 0.05092 | | 0.05 | 0 | 0 | | 0.001 | | 102% | 90 | 110 | 0% | |
| Vanadium | A | mg/L | 0.0469 | 0.0469 | | 0.05 | 0 | 0 | | 0.005 | | 94% | 90 | 110 | 0% | |
| Zinc | A | mg/L | 0.05273 | 0.05273 | | 0.05 | 0 | 0 | | 0.01 | | 105% | 90 | 110 | 0% | |
| Iron, Ferrous | C | mg/L | 1.327 | 1.327 | | 0.05 | 0 | 0 | | 0.01 | 5 | 2654% | 90 | 110 | 0% | S |
| Silicon as SiO2 | C | mg/L | 0.486208 | 0.486208 | | 4.28 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035599 | 100 ppb STD | ICPMS-6020B-C Cal8 | | | 2/14/2022 12:58: | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.1024 | 0.1024 | | 0.1 | 0 | 0 | | 0.01 | | 102% | 90 | 110 | 0% | |
| Antimony | A | mg/L | 0.09834 | 0.09834 | | 0.1 | 0 | 0 | | 0.001 | | 98% | 90 | 110 | 0% | |
| Arsenic | A | mg/L | 0.09901 | 0.09901 | | 0.1 | 0 | 0 | | 0.001 | | 99% | 90 | 110 | 0% | |
| Barium | A | mg/L | 0.101 | 0.101 | | 0.1 | 0 | 0 | | 0.0003 | | 101% | 90 | 110 | 0% | |
| Beryllium | A | mg/L | 0.1004 | 0.1004 | | 0.1 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Boron | A | mg/L | 0.09945 | 0.09945 | | 0.1 | 0 | 0 | | 0.1 | | 99% | 90 | 110 | 0% | |
| Cadmium | A | mg/L | 0.1008 | 0.1008 | | 0.1 | 0 | 0 | | 0.001 | | 101% | 90 | 110 | 0% | |
| Calcium | A | mg/L | 25.02 | 25.02 | | 25 | 0 | 0 | | 1 | | 100% | 90 | 110 | 0% | |
| Cerium | A | mg/L | 0.09932 | 0.09932 | | 0.1 | 0 | 0 | | 0.001 | | 99% | 90 | 110 | 0% | |
| Chromium | A | mg/L | 0.09707 | 0.09707 | | 0.1 | 0 | 0 | | 0.001 | | 97% | 90 | 110 | 0% | |
| Cobalt | A | mg/L | 0.09743 | 0.09743 | | 0.1 | 0 | 0 | | 0.001 | | 97% | 90 | 110 | 0% | |
| Copper | A | mg/L | 0.09992 | 0.09992 | | 0.1 | 0 | 0 | | 0.005 | | 100% | 90 | 110 | 0% | |
| Iron | A | mg/L | 2.548 | 2.548 | | 2.5 | 0 | 0 | | 0.01 | | 102% | 90 | 110 | 0% | |
| Lanthanum | A | mg/L | 0.09885 | 0.09885 | | 0.1 | 0 | 0 | | 0.001 | | 99% | 90 | 110 | 0% | |
| Lead | A | mg/L | 0.09935 | 0.09935 | | 0.1 | 0 | 0 | | 0.001 | | 99% | 90 | 110 | 0% | |
| Lithium | A | mg/L | 1.267 | 1.267 | | 1.25 | 0 | 0 | | 1 | | 101% | 90 | 110 | 0% | |
| Magnesium | A | mg/L | 24.89 | 24.89 | | 25 | 0 | 0 | | 1 | | 100% | 90 | 110 | 0% | |
| Manganese | A | mg/L | 0.1004 | 0.1004 | | 0.1 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Mercury | A | mg/L | 0.001975 | 0.001975 | | 0.002 | 0 | 0 | | 0.001 | | 99% | 90 | 110 | 0% | |
| Molybdenum | A | mg/L | 0.09971 | 0.09971 | | 0.1 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Nickel | A | mg/L | 0.1006 | 0.1006 | | 0.1 | 0 | 0 | | 0.005 | | 101% | 90 | 110 | 0% | |
| Potassium | A | mg/L | 25.07 | 25.07 | | 25 | 0 | 0 | | 1 | | 100% | 90 | 110 | 0% | |
| Selenium | A | mg/L | 0.09923 | 0.09923 | | 0.1 | 0 | 0 | | 0.005 | | 99% | 90 | 110 | 0% | |
| Silicon | A | mg/L | 0.3865 | 0.3865 | | 0.4 | 0 | 0 | | 0.1 | | 97% | 90 | 110 | 0% | |
| Silver | A | mg/L | 0.03976 | 0.03976 | | 0.04 | 0 | 0 | | 0.001 | | 99% | 90 | 110 | 0% | |
| Sodium | A | mg/L | 24.74 | 24.74 | | 25 | 0 | 0 | | 1 | | 99% | 90 | 110 | 0% | |
| Strontium | A | mg/L | 0.09822 | 0.09822 | | 0.1 | 0 | 0 | | 0.001 | | 98% | 90 | 110 | 0% | |
| Thallium | A | mg/L | 0.09379 | 0.09379 | | 0.1 | 0 | 0 | | 0.001 | | 94% | 90 | 110 | 0% | |
| Thorium | A | mg/L | 0.09415 | 0.09415 | | 0.1 | 0 | 0 | | 0.05 | | 94% | 90 | 110 | 0% | |
| Tin | A | mg/L | 0.09943 | 0.09943 | | 0.1 | 0 | 0 | | 0.001 | | 99% | 90 | 110 | 0% | |
| Titanium | A | mg/L | 0.09934 | 0.09934 | | 0.1 | 0 | 0 | | 0.001 | | 99% | 90 | 110 | 0% | |
| Uranium | A | mg/L | 0.09894 | 0.09894 | | 0.1 | 0 | 0 | | 0.001 | | 99% | 90 | 110 | 0% | |
| Vanadium | A | mg/L | 0.09284 | 0.09284 | | 0.1 | 0 | 0 | | 0.005 | | 93% | 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 | 2.548 | 2.548 | | 0.1 | 0 | 0 | | 0.01 | 5 | 2548% | 90 | 110 | 0% | S |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035599 | 100 ppb STD | ICPMS-6020B-C | Cal8 | | 2/14/2022 12:58: | 1 | R374695 | | 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 | 0.82711 | 0.82711 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035600 | 1000 ppb STD | ICPMS-6020B-C | Cal10 | | 2/14/2022 1:04:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.9995 | 0.9995 | | 1 | 0 | 0 | | 0.01 | | 100% | 90 | 110 | 0% | |
| Antimony | A | mg/L | 0.0002221 | 0.0002221 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Arsenic | A | mg/L | 1 | 1 | | 1 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Barium | A | mg/L | 0.9998 | 0.9998 | | 1 | 0 | 0 | | 0.0003 | | 100% | 90 | 110 | 0% | |
| Beryllium | A | mg/L | 0.9998 | 0.9998 | | 1 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Boron | A | mg/L | 0.9997 | 0.9997 | | 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 | 49.85 | 49.85 | | 50 | 0 | 0 | | 1 | | 100% | 90 | 110 | 0% | |
| Cerium | A | mg/L | 0.00002392 | 0.00002392 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Chromium | A | mg/L | 1 | 1 | | 1 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Cobalt | A | mg/L | 1 | 1 | | 1 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Copper | A | mg/L | 0.9999 | 0.9999 | | 1 | 0 | 0 | | 0.005 | | 100% | 90 | 110 | 0% | |
| Iron | A | mg/L | 6.016 | 6.016 | | 6 | 0 | 0 | | 0.01 | | 100% | 90 | 110 | 0% | |
| Lanthanum | A | mg/L | 0.00001322 | 0.00001322 | | 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 | 2.476 | 2.476 | | 2.5 | 0 | 0 | | 1 | | 99% | 90 | 110 | 0% | |
| Magnesium | A | mg/L | 49.91 | 49.91 | | 50 | 0 | 0 | | 1 | | 100% | 90 | 110 | 0% | |
| Manganese | A | mg/L | 0.9999 | 0.9999 | | 1 | 0 | 0 | | 0.001 | | 100% | 90 | | 0% | |
| Mercury | A | mg/L | 0.00001085 | 0.00001085 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Molybdenum | A | mg/L | 0.0001694 | 0.0001694 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Nickel | A | mg/L | 0.9998 | 0.9998 | | 1 | 0 | 0 | | 0.005 | | 100% | 90 | 110 | 0% | |
| Potassium | A | mg/L | 49.91 | 49.91 | | 50 | 0 | 0 | | 1 | | 100% | 90 | 110 | 0% | |
| Selenium | A | mg/L | 1 | 1 | | 1 | 0 | 0 | | 0.005 | | 100% | 90 | 110 | 0% | |
| Silicon | A | mg/L | 0.0004145 | 0.0004145 | | 0 | 0 | 0 | | 0.1 | | 0% | | | 0% | |
| Silver | A | mg/L | 0.3649 | 0.3649 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Sodium | A | mg/L | 49.96 | 49.96 | | 50 | 0 | 0 | | 1 | | 100% | 90 | 110 | 0% | |
| Strontium | A | mg/L | 1 | 1 | | 1 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Thallium | A | mg/L | 1.001 | 1.001 | | 1 | 0 | 0 | | 0.001 | | 100% | 90 | 110 | 0% | |
| Thorium | A | mg/L | 1.001 | 1.001 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035600 | 1000 ppb STD | ICPMS-6020B-C | Cal10 | | 2/14/2022 1:04:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tin | A | mg/L | 0.0001367 | 0.0001367 | | 0 | 0 | 0 | | 0.001 | | 0% | | | 0% | |
| Titanium | A | mg/L | 0.007342 | 0.007342 | | 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 | 0.9997 | 0.9997 | | 1 | 0 | 0 | | 0.01 | | 100% | 90 | 110 | 0% | |
| Iron, Ferrous | C | mg/L | 6.016 | 6.016 | | 0 | 0 | 0 | | 0.01 | 5 | 0% | | | 0% | |
| Silicon as SiO2 | C | mg/L | 0.00088703 | 0.00088703 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035601 | 100 ppb Br STD | ICPMS-6020-W- | SAMP | | 2/14/2022 1:11:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | -2.919E-05 | 0 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -5.655E-05 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 0.00001546 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | 2.429E-06 | 0 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0.00004647 | 0.00004647 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Cerium | A | mg/L | 8.452E-07 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0.00000278 | 0 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 5.892E-06 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | 0.00006305 | 0 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Lanthanum | A | mg/L | 8.994E-07 | 0 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 0.00002856 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Manganese | A | mg/L | 0.00001639 | 0 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | 2.037E-06 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.0000256 | 0 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Nickel | A | mg/L | 9.807E-06 | 0 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | 0.0001524 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silicon | A | mg/L | -0.0008389 | 0 | | 0 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | 0.00003863 | 0.00003863 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | J |
| Strontium | A | mg/L | 0.00001012 | 0 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00008369 | 0.00008369 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Thorium | A | mg/L | 0.0002332 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.00008833 | 0 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00004745 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035601 | 100 ppb Br STD | ICPMS-6020-W- | SAMP | | 2/14/2022 1:11:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | B | mg/L | 0.005625 | 0 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | L |
| Iron | B | mg/L | 0.0001342 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.0001342 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | 0.0002316 | 0 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | L |
| Potassium | B | mg/L | 0.645 | 0.645 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | D |
| Sodium | B | mg/L | 0.006678 | 0 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | L |
| Tin | B | mg/L | 0.00009025 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | 0.00006486 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035602 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 1:17:3 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | -0.0002075 | 0 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0002176 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 1.849E-06 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | -3.048E-05 | 0 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0.00001221 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 2.485E-07 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | -9.758E-06 | 0 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 2.277E-06 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | 0.00001505 | 0 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Lanthanum | A | mg/L | 1.574E-07 | 0 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 9.926E-06 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Manganese | A | mg/L | -1.369E-06 | 0 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | -1.201E-06 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 4.352E-06 | 0 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Nickel | A | mg/L | 2.503E-06 | 0 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | 0.00002843 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silicon | A | mg/L | -0.001985 | 0 | | 0 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | 5.648E-07 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 3.261E-06 | 0 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00002791 | 0 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 0.00004804 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.00004032 | 0 | | 0 | 0 | 0 | 0.000094 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035602 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 1:17:3 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Uranium | A | mg/L | 8.381E-06 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 0.0023 | 0 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | L |
| Iron | B | mg/L | -1.125E-05 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | -1.125E-05 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | -0.0003228 | 0 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | L |
| Potassium | B | mg/L | 0.01582 | 0 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | L |
| Sodium | B | mg/L | 0.002398 | 0 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | L |
| Tin | B | mg/L | 0.00003038 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | -3.043E-05 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035603 | QCS | ICPMS-6020-W- | ICV | | 2/14/2022 1:23:5 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.2704 | 0.2704 | | 0.25 | 0 | 0 | 0.00086 | 0.001 | 1 | 108% | 90 | 110 | 0% | |
| Antimony | A | mg/L | 0.04672 | 0.04672 | | 0.05 | 0 | 0 | | 0.001 | 0.1 | 93% | 90 | 110 | 0% | |
| Arsenic | A | mg/L | 0.04939 | 0.04939 | | 0.05 | 0 | 0 | 0.00019 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Barium | A | mg/L | 0.05187 | 0.05187 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 104% | 90 | 110 | 0% | |
| Beryllium | A | mg/L | 0.02539 | 0.02539 | | 0.025 | 0 | 0 | 0.00012 | 0.001 | 1 | 102% | 90 | 110 | 0% | |
| Boron | A | mg/L | 0.05711 | 0.05711 | | 0.05 | 0 | 0 | 0.00561 | 0.00561 | 1 | 114% | 90 | 110 | 0% | S |
| Cadmium | A | mg/L | 0.02481 | 0.02481 | | 0.025 | 0 | 0 | 0.000025 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Calcium | A | mg/L | 2.591 | 2.591 | | 2.5 | 0 | 0 | 0.02092 | 0.02092 | 50 | 104% | 90 | 110 | 0% | |
| Cerium | A | mg/L | 0.04983 | 0.04983 | | 0.05 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 100% | 90 | 110 | 0% | |
| Chromium | A | mg/L | 0.04933 | 0.04933 | | 0.05 | 0 | 0 | 0.00018 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Cobalt | A | mg/L | 0.0522 | 0.0522 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 104% | 90 | 110 | 0% | |
| Copper | A | mg/L | 0.05259 | 0.05259 | | 0.05 | 0 | 0 | 0.00027 | 0.001 | 1 | 105% | 90 | 110 | 0% | |
| Iron | A | mg/L | 0.2555 | 0.2555 | | 0.25 | 0 | 0 | 0.00119 | 0.00119 | 5 | 102% | 90 | 110 | 0% | |
| Lanthanum | A | mg/L | 0.04949 | 0.04949 | | 0.05 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 99% | 90 | 110 | 0% | |
| Lead | A | mg/L | 0.04943 | 0.04943 | | 0.05 | 0 | 0 | 0.000056 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Magnesium | A | mg/L | 2.647 | 2.647 | | 2.5 | 0 | 0 | 0.00564 | 0.00564 | 50 | 106% | 90 | 110 | 0% | |
| Manganese | A | mg/L | 0.257 | 0.257 | | 0.25 | 0 | 0 | 0.000095 | 0.001 | 1 | 103% | 90 | 110 | 0% | |
| Mercury | A | mg/L | 0.0009916 | 0.0009916 | | 0.001 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 99% | 90 | 110 | 0% | |
| Molybdenum | A | mg/L | 0.04817 | 0.04817 | | 0.05 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 96% | 90 | 110 | 0% | |
| Nickel | A | mg/L | 0.05193 | 0.05193 | | 0.05 | 0 | 0 | 0.00063 | 0.001 | 1 | 104% | 90 | 110 | 0% | |
| Potassium | A | mg/L | 2.564 | 2.564 | | 2.5 | 0 | 0 | 0.08139 | 0.08139 | 50 | 103% | 90 | 110 | 0% | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035603 | QCS | ICPMS-6020-W- ICV | | | 2/14/2022 1:23:5 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | A | mg/L | 0.05052 | 0.05052 | | 0.05 | 0 | 0 | 0.00033 | 0.001 | 1 | 101% | 90 | 110 | 0% | |
| Silicon | A | mg/L | 0.4851 | 0.4851 | | 0.5 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 97% | 90 | 110 | 0% | |
| Silver | A | mg/L | 0.02519 | 0.02519 | | 0.025 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 101% | 90 | 110 | 0% | |
| Sodium | A | mg/L | 2.656 | 2.656 | | 2.5 | 0 | 0 | 0.02171 | 0.02171 | 50 | 106% | 90 | 110 | 0% | |
| Strontium | A | mg/L | 0.04948 | 0.04948 | | 0.05 | 0 | 0 | 0.00014 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Thallium | A | mg/L | 0.04894 | 0.04894 | | 0.05 | 0 | 0 | 0.000041 | 0.001 | 1 | 98% | 90 | 110 | 0% | |
| Thorium | A | mg/L | 0.04577 | 0.04577 | | 0.05 | 0 | 0 | 0.00061 | 0.001 | 1 | 92% | 90 | 110 | 0% | |
| Tin | A | mg/L | 0.04928 | 0.04928 | | 0.05 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 99% | 90 | 110 | 0% | |
| Titanium | A | mg/L | 0.04964 | 0.04964 | | 0.05 | 0 | 0 | 0.000094 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Uranium | A | mg/L | 0.05137 | 0.05137 | | 0.05 | 0 | 0 | 0.000052 | 0.0003 | 1 | 103% | 90 | 110 | 0% | |
| Vanadium | A | mg/L | 0.04544 | 0.04544 | | 0.05 | 0 | 0 | | 0.001 | 1 | 91% | 90 | 110 | 0% | |
| Zinc | A | mg/L | 0.05287 | 0.05287 | | 0.05 | 0 | 0 | 0.00273 | 0.00273 | 1 | 106% | 90 | 110 | 0% | |
| Iron, Ferrous | C | mg/L | 0.2555 | 0.2555 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035604 | CCV | ICPMS-6020-W- CCV | | | 2/14/2022 1:30:0 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.05216 | 0.05216 | | 0.05 | 0 | 0 | 0.00086 | 0.001 | 1 | 104% | 90 | 110 | 0% | |
| Antimony | A | mg/L | 0.05041 | 0.05041 | | 0.05 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 101% | 90 | 110 | 0% | |
| Arsenic | A | mg/L | 0.05087 | 0.05087 | | 0.05 | 0 | 0 | 0.00019 | 0.001 | 1 | 102% | 90 | 110 | 0% | |
| Barium | A | mg/L | 0.04951 | 0.04951 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Beryllium | A | mg/L | 0.05034 | 0.05034 | | 0.05 | 0 | 0 | 0.00012 | 0.001 | 1 | 101% | 90 | 110 | 0% | |
| Boron | A | mg/L | 0.05532 | 0.05532 | | 0.05 | 0 | 0 | 0.00561 | 0.00561 | 1 | 111% | 90 | 110 | 0% | S |
| Cadmium | A | mg/L | 0.04954 | 0.04954 | | 0.05 | 0 | 0 | 0.000025 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Calcium | A | mg/L | 13.23 | 13.23 | | 12.5 | 0 | 0 | 0.02092 | 0.02092 | 50 | 106% | 90 | 110 | 0% | |
| Cerium | A | mg/L | 0.0506 | 0.0506 | | 0.05 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 101% | 90 | 110 | 0% | |
| Chromium | A | mg/L | 0.05128 | 0.05128 | | 0.05 | 0 | 0 | 0.00018 | 0.001 | 1 | 103% | 90 | 110 | 0% | |
| Cobalt | A | mg/L | 0.05017 | 0.05017 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 100% | 90 | 110 | 0% | |
| Copper | A | mg/L | 0.05238 | 0.05238 | | 0.05 | 0 | 0 | 0.00027 | 0.001 | 1 | 105% | 90 | 110 | 0% | |
| Iron | A | mg/L | 1.379 | 1.379 | | 1.3 | 0 | 0 | 0.00119 | 0.00119 | 5 | 106% | 90 | 110 | 0% | |
| Lanthanum | A | mg/L | 0.05117 | 0.05117 | | 0.05 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 102% | 90 | 110 | 0% | |
| Lead | A | mg/L | 0.05021 | 0.05021 | | 0.05 | 0 | 0 | 0.000056 | 0.001 | 1 | 100% | 90 | 110 | 0% | |
| Magnesium | A | mg/L | 13.06 | 13.06 | | 12.5 | 0 | 0 | 0.00564 | 0.00564 | 50 | 104% | 90 | 110 | 0% | |
| Manganese | A | mg/L | 0.05223 | 0.05223 | | 0.05 | 0 | 0 | 0.000095 | 0.001 | 1 | 104% | 90 | 110 | 0% | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035604 | CCV | ICPMS-6020-W- CCV | | | 2/14/2022 1:30:0 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | A | mg/L | 0.001036 | 0.001036 | | 0.001 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 104% | 90 | 110 | 0% | |
| Molybdenum | A | mg/L | 0.04816 | 0.04816 | | 0.05 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 96% | 90 | 110 | 0% | |
| Nickel | A | mg/L | 0.05367 | 0.05367 | | 0.05 | 0 | 0 | 0.00063 | 0.001 | 1 | 107% | 90 | 110 | 0% | |
| Potassium | A | mg/L | 12.95 | 12.95 | | 12.5 | 0 | 0 | 0.08139 | 0.08139 | 50 | 104% | 90 | 110 | 0% | |
| Selenium | A | mg/L | 0.05171 | 0.05171 | | 0.05 | 0 | 0 | 0.00033 | 0.001 | 1 | 103% | 90 | 110 | 0% | |
| Silicon | A | mg/L | 0.2271 | 0.2271 | | 0.2 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 114% | 90 | 110 | 0% | S |
| Silver | A | mg/L | 0.01948 | 0.01948 | | 0.02 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 97% | 90 | 110 | 0% | |
| Sodium | A | mg/L | 13.22 | 13.22 | | 12.5 | 0 | 0 | 0.02171 | 0.02171 | 50 | 106% | 90 | 110 | 0% | |
| Strontium | A | mg/L | 0.05052 | 0.05052 | | 0.05 | 0 | 0 | 0.00014 | 0.001 | 1 | 101% | 90 | 110 | 0% | |
| Thallium | A | mg/L | 0.04571 | 0.04571 | | 0.05 | 0 | 0 | 0.000041 | 0.001 | 1 | 91% | 90 | 110 | 0% | |
| Thorium | A | mg/L | 0.04935 | 0.04935 | | 0.05 | 0 | 0 | 0.00061 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Tin | A | mg/L | 0.04938 | 0.04938 | | 0.05 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 99% | 90 | 110 | 0% | |
| Titanium | A | mg/L | 0.05009 | 0.05009 | | 0.05 | 0 | 0 | 0.000094 | 0.001 | 1 | 100% | 90 | 110 | 0% | |
| Uranium | A | mg/L | 0.04958 | 0.04958 | | 0.05 | 0 | 0 | 0.000052 | 0.0003 | 1 | 99% | 90 | 110 | 0% | |
| Vanadium | A | mg/L | 0.04577 | 0.04577 | | 0.05 | 0 | 0 | 0.0013 | 0.0013 | 1 | 92% | 90 | 110 | 0% | |
| Zinc | A | mg/L | 0.0528 | 0.0528 | | 0.05 | 0 | 0 | 0.00273 | 0.00273 | 1 | 106% | 90 | 110 | 0% | |
| Iron, Ferrous | C | mg/L | 1.379 | 1.379 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035605 | CCB | ICPMS-6020-W- CCB | | | 2/14/2022 1:36:2 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | -0.0002337 | -0.0002337 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | | | 0% | |
| Antimony | A | mg/L | 0.00008912 | 0.00008912 | | 0 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 0% | | | 0% | |
| Arsenic | A | mg/L | -0.0001829 | -0.0001829 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | | | 0% | |
| Barium | A | mg/L | -1.987E-06 | -1.987E-06 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Beryllium | A | mg/L | -4.068E-05 | -4.068E-05 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | | | 0% | |
| Boron | A | mg/L | 0.001904 | 0.001904 | | 0 | 0 | 0 | 0.00561 | 0.00561 | 1 | 0% | | | 0% | |
| Cadmium | A | mg/L | 6.249E-06 | 6.249E-06 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | | | 0% | |
| Calcium | A | mg/L | 0.001741 | 0.001741 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | | | 0% | |
| Cerium | A | mg/L | 2.06E-07 | 2.06E-07 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 8.743E-06 | 8.743E-06 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | | | 0% | |
| Cobalt | A | mg/L | 9.345E-07 | 9.345E-07 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Copper | A | mg/L | 0.0000105 | 0.0000105 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | | | 0% | |
| Iron | A | mg/L | 0.00001303 | 0.00001303 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035605 | CCB | ICPMS-6020-W- | CCB | | 2/14/2022 1:36:2 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lanthanum | A | mg/L | 4.921E-07 | 4.921E-07 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 5.265E-06 | 5.265E-06 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | | | 0% | |
| Magnesium | A | mg/L | -0.0003656 | -0.0003656 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | | | 0% | |
| Manganese | A | mg/L | -3.305E-06 | -3.305E-06 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | | | 0% | |
| Mercury | A | mg/L | 6.942E-07 | 6.942E-07 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | | | 0% | |
| Molybdenum | A | mg/L | 0.00004685 | 0.00004685 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | | | 0% | |
| Nickel | A | mg/L | 1.608E-06 | 1.608E-06 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | | | 0% | |
| Potassium | A | mg/L | 0.02043 | 0.02043 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | | | 0% | |
| Selenium | A | mg/L | 4.356E-06 | 4.356E-06 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | | | 0% | |
| Silicon | A | mg/L | -0.001833 | -0.001833 | | 0 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | 5.076E-06 | 5.076E-06 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | | | 0% | |
| Sodium | A | mg/L | 0.001284 | 0.001284 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | | | 0% | |
| Strontium | A | mg/L | 3.57E-07 | 3.57E-07 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00008797 | 0.00008797 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 0.00004581 | 0.00004581 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Tin | A | mg/L | 0.00002478 | 0.00002478 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | -1.496E-06 | -1.496E-06 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 5.951E-06 | 5.951E-06 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Vanadium | A | mg/L | -0.003926 | -0.003926 | | 0 | 0 | 0 | 0.0013 | 0.0013 | 1 | 0% | 0 | 0 | 0% | |
| Zinc | A | mg/L | -0.0001054 | -0.0001054 | | 0 | 0 | 0 | 0.00273 | 0.00273 | 1 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | C | mg/L | 0.00001303 | 0.00001303 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035606 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 1:42:3 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | -0.000261 | 0 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0001765 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | -3.13E-06 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | -4.704E-05 | 0 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 7.971E-06 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 4.677E-07 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | -8.304E-06 | 0 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | -1.938E-06 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | 7.981E-06 | 0 | | 0 | 0 | 0 | 0.00027 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035606 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 1:42:3 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lanthanum | A | mg/L | 2.76E-07 | 0 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 1.915E-06 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Manganese | A | mg/L | -7.823E-06 | 0 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | 1.003E-06 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 9.385E-06 | 0 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Nickel | A | mg/L | -1.909E-06 | 0 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | -0.0000116 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | 1.84E-07 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | -9.504E-07 | 0 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00002197 | 0 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 0.00001317 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 2.101E-06 | 0 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 1.807E-06 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 0.001132 | 0 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | L |
| Iron | B | mg/L | -4.568E-05 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | -4.568E-05 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | -0.0004864 | 0 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | L |
| Potassium | B | mg/L | 0.01606 | 0 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | L |
| Sodium | B | mg/L | 0.0009693 | 0 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | L |
| Tin | B | mg/L | -4.082E-06 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | -9.149E-05 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035607 | LRB | ICPMS-6020-W- | MBLK | | 2/14/2022 1:48:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.00003802 | 0 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Antimony | A | mg/L | 0.00002552 | 0 | | 0 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0001785 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 0.0000102 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | -4.607E-05 | 0 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Boron | A | mg/L | 0.001196 | 0 | | 0 | 0 | 0 | 0.00561 | 0.00561 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0.0000201 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | A | mg/L | 0.005054 | 0 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 5.681E-07 | 0 | | 0 | 0 | 0 | 0.000012 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035607 | LRB | ICPMS-6020-W- | MBLK | | 2/14/2022 1:48:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | A | mg/L | 4.167E-06 | 0 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 1.998E-06 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | 0.00003674 | 0 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Iron | A | mg/L | 0.0001914 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Lanthanum | A | mg/L | 3.844E-07 | 0 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 7.241E-06 | 0 | | 0 | 0 | 0 | 0.000056 | 0.0005 | 1 | 0% | 0 | 0 | 0% | |
| Magnesium | A | mg/L | 0.002448 | 0 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | |
| Manganese | A | mg/L | 3.487E-06 | 0 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | 1.696E-06 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 5.759E-06 | 0 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Nickel | A | mg/L | -2.91E-06 | 0 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Potassium | A | mg/L | 0.0211 | 0 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | -1.546E-05 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silicon | A | mg/L | -0.0000227 | 0 | | 0 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -6.697E-05 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Sodium | A | mg/L | 0.00704 | 0 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 0.00002828 | 0 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00001164 | 0 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 7.507E-06 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Tin | A | mg/L | 0.00002603 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | -3.258E-06 | 0 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 1.667E-06 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Vanadium | A | mg/L | -0.004004 | 0 | | 0 | 0 | 0 | 0.0013 | 0.0013 | 1 | 0% | 0 | 0 | 0% | |
| Zinc | A | mg/L | 0.0002793 | 0 | | 0 | 0 | 0 | 0.00273 | 0.00273 | 1 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | C | mg/L | 0.0001914 | 0 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035608 | LFB | ICPMS-6020-W- | LFB | | 2/14/2022 1:55:0 | 1.03 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.04954 | 0.0510262 | | 0.05 | 0 | 0 | 0.0008858 | 0.001 | 1 | 102% | 85 | 115 | 0% | |
| Antimony | A | mg/L | 0.04888 | 0.0503464 | | 0.05 | 0 | 0 | 0.0004326 | 0.001 | 0.1 | 101% | 85 | 115 | 0% | |
| Arsenic | A | mg/L | 0.04923 | 0.0507069 | | 0.05 | 0 | 0 | 0.0001957 | 0.001 | 1 | 101% | 85 | 115 | 0% | |
| Barium | A | mg/L | 0.04695 | 0.0483585 | | 0.05 | 0 | 0 | 4.326E-05 | 0.001 | 1 | 97% | 85 | 115 | 0% | |
| Beryllium | A | mg/L | 0.04789 | 0.0493267 | | 0.05 | 0 | 0 | 0.0001236 | 0.001 | 1 | 99% | 85 | 115 | 0% | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035608 | LFB | ICPMS-6020-W- | LFB | | 2/14/2022 1:55:0 | 1.03 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | A | mg/L | 0.05034 | 0.0518502 | | 0.05 | 0 | 0 | 0.0057783 | 0.0057783 | 1 | 104% | 85 | 115 | 0% | |
| Cadmium | A | mg/L | 0.04726 | 0.0486778 | | 0.05 | 0 | 0 | 2.575E-05 | 0.001 | 1 | 97% | 85 | 115 | 0% | |
| Calcium | A | mg/L | 49.57 | 51.0571 | | 50 | 0 | 0 | 0.0215476 | 0.0215476 | 50 | 102% | 85 | 115 | 0% | |
| Cerium | A | mg/L | 0.04946 | 0.0509438 | | 0.05 | 0 | 0 | 1.236E-05 | 0.001 | 0.1 | 102% | 85 | 115 | 0% | |
| Chromium | A | mg/L | 0.04792 | 0.0493576 | | 0.05 | 0 | 0 | 0.0001854 | 0.001 | 1 | 99% | 85 | 115 | 0% | |
| Cobalt | A | mg/L | 0.04697 | 0.0483791 | | 0.05 | 0 | 0 | 4.326E-05 | 0.001 | 1 | 97% | 85 | 115 | 0% | |
| Copper | A | mg/L | 0.0493 | 0.050779 | | 0.05 | 0 | 0 | 0.0002781 | 0.001 | 1 | 102% | 85 | 115 | 0% | |
| Iron | A | mg/L | 5.002 | 5.15206 | | 5.05 | 0 | 0 | 0.0012257 | 0.0012257 | 5 | 102% | 85 | 115 | 0% | |
| Lanthanum | A | mg/L | 5.445E-06 | 0 | | 0.05 | 0 | 0 | 1.133E-05 | 0.001 | 0.1 | 0% | 85 | 115 | 0% | S |
| Lead | A | mg/L | 0.04965 | 0.0511395 | | 0.05 | 0 | 0 | 5.768E-05 | 0.001 | 1 | 102% | 88 | 115 | 0% | |
| Magnesium | A | mg/L | 49.79 | 51.2837 | | 50 | 0 | 0 | 0.0058092 | 0.0058092 | 50 | 103% | 85 | 115 | 0% | |
| Manganese | A | mg/L | 0.0496 | 0.051088 | | 0.05 | 0 | 0 | 9.785E-05 | 0.001 | 1 | 102% | 85 | 115 | 0% | |
| Mercury | A | mg/L | 0.001041 | 0.00107223 | | 0.001 | 0 | 0 | 0.0001648 | 0.001 | 0.002 | 107% | 85 | 115 | 0% | |
| Molybdenum | A | mg/L | 0.04779 | 0.0492237 | | 0.05 | 0 | 0 | 0.0000515 | 0.001 | 0.1 | 98% | 85 | 115 | 0% | |
| Nickel | A | mg/L | 0.05064 | 0.0521592 | | 0.05 | 0 | 0 | 0.0006489 | 0.001 | 1 | 104% | 85 | 115 | 0% | |
| Potassium | A | mg/L | 49.04 | 50.5112 | | 50 | 0 | 0 | 0.0838317 | 0.0838317 | 50 | 101% | 85 | 115 | 0% | |
| Selenium | A | mg/L | 0.04929 | 0.0507687 | | 0.05 | 0 | 0 | 0.0003399 | 0.001 | 1 | 102% | 85 | 115 | 0% | |
| Silicon | A | mg/L | 0.1905 | 0.196215 | | 0.2 | 0 | 0 | 0.0125969 | 0.1 | 0.4 | 98% | 85 | 115 | 0% | |
| Silver | A | mg/L | 0.01967 | 0.0202601 | | 0.02 | 0 | 0 | 0.0000206 | 0.001 | 0.04 | 101% | 85 | 115 | 0% | |
| Sodium | A | mg/L | 51.46 | 53.0038 | | 50 | 0 | 0 | 0.0223613 | 0.0223613 | 50 | 106% | 85 | 115 | 0% | |
| Strontium | A | mg/L | 0.04839 | 0.0498417 | | 0.05 | 0 | 0 | 0.0001442 | 0.001 | 1 | 100% | 85 | 115 | 0% | |
| Thallium | A | mg/L | 0.05016 | 0.0516648 | | 0.05 | 0 | 0 | 4.223E-05 | 0.001 | 1 | 103% | 85 | 115 | 0% | |
| Thorium | A | mg/L | 0.04856 | 0.0500168 | | 0.05 | 0 | 0 | 0.0006283 | 0.001 | 1 | 100% | 85 | 115 | 0% | |
| Tin | A | mg/L | 0.04719 | 0.0486057 | | 0.05 | 0 | 0 | 0.0013596 | 0.0013596 | 0.1 | 97% | 85 | 115 | 0% | |
| Titanium | A | mg/L | 0.05206 | 0.0536218 | | 0.05 | 0 | 0 | 9.682E-05 | 0.001 | 1 | 107% | 85 | 115 | 0% | |
| Uranium | A | mg/L | 0.05047 | 0.0519841 | | 0.05 | 0 | 0 | 5.356E-05 | 0.0003 | 1 | 104% | 85 | 115 | 0% | |
| Vanadium | A | mg/L | 0.04618 | 0.0475654 | | 0.05 | 0 | 0 | 0.001339 | 0.001339 | 1 | 95% | 85 | 115 | 0% | |
| Zinc | A | mg/L | 0.0531 | 0.054693 | | 0.05 | 0 | 0 | 0.0028119 | 0.0028119 | 1 | 109% | 85 | 115 | 0% | |
| Iron, Ferrous | C | mg/L | 5.002 | 5.15206 | | 0 | 0 | 0 | 0.0012257 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035609 | ICSA | ICPMS-6020-W- | ICSA | | 2/14/2022 2:01:2 | 1 | R374695 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035609 | ICSA | ICPMS-6020-W- | ICSA | | 2/14/2022 2:01:2 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 40.56 | 40.56 | | 40 | 0 | 0 | 0.00086 | 0.001 | 1 | 101% | 80 | 120 | 0% | |
| Antimony | A | mg/L | 0.00011 | 0.00011 | | 0 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 0% | | | 0% | |
| Arsenic | A | mg/L | -0.0002388 | -0.0002388 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | | | 0% | |
| Barium | A | mg/L | 0.00009016 | 0.00009016 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Beryllium | A | mg/L | -6.396E-05 | -6.396E-05 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | | | 0% | |
| Boron | A | mg/L | 0.001278 | 0.001278 | | 0 | 0 | 0 | 0.00561 | 0.00561 | 1 | 0% | | | 0% | |
| Cadmium | A | mg/L | 0.0000793 | 0.0000793 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | | | 0% | |
| Calcium | A | mg/L | 117.1 | 117.1 | | 120 | 0 | 0 | 0.02092 | 0.02092 | 50 | 98% | 80 | 120 | 0% | |
| Cerium | A | mg/L | 0.00000502 | 0.00000502 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | | | 0% | |
| Chromium | A | mg/L | 0.0008436 | 0.0008436 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | | | 0% | |
| Cobalt | A | mg/L | 0.0003587 | 0.0003587 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Copper | A | mg/L | 0.000129 | 0.000129 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | | | 0% | |
| Iron | A | mg/L | 101.6 | 101.6 | | 100 | 0 | 0 | 0.00119 | 0.00119 | 5 | 102% | 80 | 120 | 0% | |
| Lanthanum | A | mg/L | 0.00001136 | 0.00001136 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | | | 0% | |
| Lead | A | mg/L | 0.00002613 | 0.00002613 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | | | 0% | |
| Magnesium | A | mg/L | 41.65 | 41.65 | | 50 | 0 | 0 | 0.00564 | 0.00564 | 50 | 83% | | | 0% | |
| Manganese | A | mg/L | 0.0001875 | 0.0001875 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | | | 0% | |
| Mercury | A | mg/L | 1.453E-06 | 1.453E-06 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | | | 0% | |
| Molybdenum | A | mg/L | 0.8255 | 0.8255 | | 0.8 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 103% | 80 | 120 | 0% | |
| Nickel | A | mg/L | 0.0002138 | 0.0002138 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | | | 0% | |
| Potassium | A | mg/L | 39.14 | 39.14 | | 50 | 0 | 0 | 0.08139 | 0.08139 | 50 | 78% | | | 0% | |
| Selenium | A | mg/L | 0.0001709 | 0.0001709 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | | | 0% | |
| Silicon | A | mg/L | -0.0003613 | -0.0003613 | | 0 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 0% | | | 0% | |
| Silver | A | mg/L | 8.233E-06 | 8.233E-06 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | | | 0% | |
| Sodium | A | mg/L | 103.6 | 103.6 | | 100 | 0 | 0 | 0.02171 | 0.02171 | 50 | 104% | | | 0% | |
| Strontium | A | mg/L | 0.001244 | 0.001244 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | | | 0% | |
| Thallium | A | mg/L | 0.00003946 | 0.00003946 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | | | 0% | |
| Thorium | A | mg/L | 0.00006981 | 0.00006981 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | | | 0% | |
| Tin | A | mg/L | 0.00006716 | 0.00006716 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | | | 0% | |
| Titanium | A | mg/L | 0.8355 | 0.8355 | | 0.8 | 0 | 0 | 0.000094 | 0.001 | 1 | 104% | | | 0% | |
| Uranium | A | mg/L | 5.205E-06 | 5.205E-06 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | | | 0% | |
| Vanadium | A | mg/L | -0.007066 | -0.007066 | | 0 | 0 | 0 | 0.0013 | 0.0013 | 1 | 0% | | | 0% | |
| Zinc | A | mg/L | 0.0005231 | 0.0005231 | | 0 | 0 | 0 | 0.00273 | 0.00273 | 1 | 0% | | | 0% | |
| Iron, Ferrous | C | mg/L | 101.6 | 101.6 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035610 | ICSAB | ICPMS-6020-W- | ICSAB | | 2/14/2022 2:07:3 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 38.34 | 38.34 | | 40 | 0 | 0 | 0.00086 | 0.001 | 1 | 96% | 80 | 120 | 0% | |
| Antimony | A | mg/L | 0.00007149 | 0.00007149 | | 0 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 0% | | | 0% | |
| Arsenic | A | mg/L | 0.009562 | 0.009562 | | 0.01 | 0 | 0 | 0.00019 | 0.001 | 1 | 96% | 80 | 120 | 0% | |
| Barium | A | mg/L | 0.0001003 | 0.0001003 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Beryllium | A | mg/L | -6.901E-05 | -6.901E-05 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | | | 0% | |
| Boron | A | mg/L | 0.0009519 | 0.0009519 | | 0 | 0 | 0 | 0.00561 | 0.00561 | 1 | 0% | | | 0% | |
| Cadmium | A | mg/L | 0.009402 | 0.009402 | | 0.01 | 0 | 0 | 0.000025 | 0.001 | 1 | 94% | 80 | 120 | 0% | |
| Calcium | A | mg/L | 119.9 | 119.9 | | 120 | 0 | 0 | 0.02092 | 0.02092 | 50 | 100% | 80 | 120 | 0% | |
| Cerium | A | mg/L | 4.622E-06 | 4.622E-06 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | | | 0% | |
| Chromium | A | mg/L | 0.01995 | 0.01995 | | 0.02 | 0 | 0 | 0.00018 | 0.001 | 1 | 100% | 80 | 120 | 0% | |
| Cobalt | A | mg/L | 0.0198 | 0.0198 | | 0.02 | 0 | 0 | 0.000042 | 0.001 | 1 | 99% | 80 | 120 | 0% | |
| Copper | A | mg/L | 0.02007 | 0.02007 | | 0.02 | 0 | 0 | 0.00027 | 0.001 | 1 | 100% | 80 | 120 | 0% | |
| Iron | A | mg/L | 104 | 104 | | 100 | 0 | 0 | 0.00119 | 0.00119 | 5 | 104% | 80 | 120 | 0% | |
| Lanthanum | A | mg/L | 0.0000123 | 0.0000123 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | | | 0% | |
| Lead | A | mg/L | 0.00003117 | 0.00003117 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | | | 0% | |
| Magnesium | A | mg/L | 41.51 | 41.51 | | 40 | 0 | 0 | 0.00564 | 0.00564 | 50 | 104% | 80 | 120 | 0% | |
| Manganese | A | mg/L | 0.01975 | 0.01975 | | 0.02 | 0 | 0 | 0.000095 | 0.001 | 1 | 99% | 80 | 120 | 0% | |
| Mercury | A | mg/L | 4.046E-06 | 4.046E-06 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | | | 0% | |
| Molybdenum | A | mg/L | 0.778 | 0.778 | | 0.8 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 97% | 80 | 120 | 0% | |
| Nickel | A | mg/L | 0.02074 | 0.02074 | | 0.02 | 0 | 0 | 0.00063 | 0.001 | 1 | 104% | 80 | 120 | 0% | |
| Potassium | A | mg/L | 39.35 | 39.35 | | 40 | 0 | 0 | 0.08139 | 0.08139 | 50 | 98% | 80 | 120 | 0% | |
| Selenium | A | mg/L | 0.01031 | 0.01031 | | 0.01 | 0 | 0 | 0.00033 | 0.001 | 1 | 103% | 80 | 120 | 0% | |
| Silicon | A | mg/L | -3.545E-05 | -3.545E-05 | | 0 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 0% | | | 0% | |
| Silver | A | mg/L | 0.004587 | 0.004587 | | 0.005 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 92% | 80 | 120 | 0% | |
| Sodium | A | mg/L | 102.7 | 102.7 | | 100 | 0 | 0 | 0.02171 | 0.02171 | 50 | 103% | 80 | 120 | 0% | |
| Strontium | A | mg/L | 0.001218 | 0.001218 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | | | 0% | |
| Thallium | A | mg/L | 0.00001475 | 0.00001475 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | | | 0% | |
| Thorium | A | mg/L | 0.00002912 | 0.00002912 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | | | 0% | |
| Tin | A | mg/L | 0.00008077 | 0.00008077 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | | | 0% | |
| Titanium | A | mg/L | 0.7885 | 0.7885 | | 0.8 | 0 | 0 | 0.000094 | 0.001 | 1 | 99% | 80 | 120 | 0% | |
| Uranium | A | mg/L | 2.767E-06 | 2.767E-06 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | | | 0% | |
| Vanadium | A | mg/L | 0.01208 | 0.01208 | | 0.02 | 0 | 0 | 0.0013 | 0.0013 | 1 | 60% | 80 | 120 | 0% | S |
| Zinc | A | mg/L | 0.01066 | 0.01066 | | 0.01 | 0 | 0 | 0.00273 | 0.00273 | 1 | 107% | 80 | 120 | 0% | |
| Iron, Ferrous | C | mg/L | 104 | 104 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035611 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 2:13:5 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.000054 | 0 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0003481 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | -6.233E-07 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | -6.459E-05 | 0 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 2.37E-09 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 2.516E-07 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | -4.726E-05 | 0 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 0.00000188 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | -6.79E-06 | 0 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | -4.875E-07 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Manganese | A | mg/L | -3.688E-06 | 0 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | -2.153E-06 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.0004559 | 0.0004559 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Nickel | A | mg/L | -1.092E-05 | 0 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | -2.129E-05 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | 2.103E-06 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 3.775E-06 | 0 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 7.924E-06 | 0 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 1.709E-06 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.0001457 | 0.0001457 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Uranium | A | mg/L | 5.495E-07 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 0.002618 | 0 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | L |
| Iron | B | mg/L | 0.001097 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.001097 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | -0.0001665 | 0 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | L |
| Potassium | B | mg/L | 0.006986 | 0 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | L |
| Sodium | B | mg/L | 0.02365 | 0.02365 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | D |
| Tin | B | mg/L | 0.00001035 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | -5.899E-05 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035612 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 2:20:0 | 1 | R374695 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035612 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 2:20:0 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | -0.0001758 | 0 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0003605 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 4.268E-06 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | -6.422E-05 | 0 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 3.545E-06 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 1.543E-07 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | -2.268E-05 | 0 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 2.813E-06 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | -1.526E-05 | 0 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | -1.091E-06 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Manganese | A | mg/L | -6.707E-08 | 0 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | -3.697E-07 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.000105 | 0.000105 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Nickel | A | mg/L | -6.836E-06 | 0 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | -3.398E-05 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -3.051E-06 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 2.538E-06 | 0 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 6.005E-06 | 0 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 3.602E-07 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.00008434 | 0 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 3.126E-07 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 0.001632 | 0 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | L |
| Iron | B | mg/L | 0.0004503 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.0004503 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | -0.0002259 | 0 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | L |
| Potassium | B | mg/L | -0.002144 | 0 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | L |
| Sodium | B | mg/L | 0.01288 | 0 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | L |
| Tin | B | mg/L | -0.000002 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | 0.00004714 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035613 | CCV | ICPMS-6020-W- | CCV | | 2/14/2022 2:26:2 | 1 | R374695 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035613 | CCV | ICPMS-6020-W- CCV | | | 2/14/2022 2:26:2 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.05142 | 0.05142 | | 0.05 | 0 | 0 | 0.00086 | 0.001 | 1 | 103% | 90 | 110 | 0% | |
| Antimony | A | mg/L | 0.05202 | 0.05202 | | 0.05 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 104% | 90 | 110 | 0% | |
| Arsenic | A | mg/L | 0.05148 | 0.05148 | | 0.05 | 0 | 0 | 0.00019 | 0.001 | 1 | 103% | 90 | 110 | 0% | |
| Barium | A | mg/L | 0.04995 | 0.04995 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 100% | 90 | 110 | 0% | |
| Beryllium | A | mg/L | 0.04797 | 0.04797 | | 0.05 | 0 | 0 | 0.00012 | 0.001 | 1 | 96% | 90 | 110 | 0% | |
| Boron | A | mg/L | 0.05473 | 0.05473 | | 0.05 | 0 | 0 | 0.00561 | 0.00561 | 1 | 109% | 90 | 110 | 0% | |
| Cadmium | A | mg/L | 0.05077 | 0.05077 | | 0.05 | 0 | 0 | 0.000025 | 0.001 | 1 | 102% | 90 | 110 | 0% | |
| Calcium | A | mg/L | 13.16 | 13.16 | | 12.5 | 0 | 0 | 0.02092 | 0.02092 | 50 | 105% | 90 | 110 | 0% | |
| Cerium | A | mg/L | 0.0522 | 0.0522 | | 0.05 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 104% | 90 | 110 | 0% | |
| Chromium | A | mg/L | 0.05063 | 0.05063 | | 0.05 | 0 | 0 | 0.00018 | 0.001 | 1 | 101% | 90 | 110 | 0% | |
| Cobalt | A | mg/L | 0.05246 | 0.05246 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 105% | 90 | 110 | 0% | |
| Copper | A | mg/L | 0.05419 | 0.05419 | | 0.05 | 0 | 0 | 0.00027 | 0.001 | 1 | 108% | 90 | 110 | 0% | |
| Iron | A | mg/L | 1.36 | 1.36 | | 1.3 | 0 | 0 | 0.00119 | 0.00119 | 5 | 105% | 90 | 110 | 0% | |
| Lanthanum | A | mg/L | 0.05229 | 0.05229 | | 0.05 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 105% | 90 | 110 | 0% | |
| Lead | A | mg/L | 0.0514 | 0.0514 | | 0.05 | 0 | 0 | 0.000056 | 0.001 | 1 | 103% | 90 | 110 | 0% | |
| Magnesium | A | mg/L | 13.59 | 13.59 | | 12.5 | 0 | 0 | 0.00564 | 0.00564 | 50 | 109% | 90 | 110 | 0% | |
| Manganese | A | mg/L | 0.05245 | 0.05245 | | 0.05 | 0 | 0 | 0.000095 | 0.001 | 1 | 105% | 90 | 110 | 0% | |
| Mercury | A | mg/L | 0.001046 | 0.001046 | | 0.001 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 105% | 90 | 110 | 0% | |
| Molybdenum | A | mg/L | 0.0494 | 0.0494 | | 0.05 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 99% | 90 | 110 | 0% | |
| Nickel | A | mg/L | 0.05471 | 0.05471 | | 0.05 | 0 | 0 | 0.00063 | 0.001 | 1 | 109% | 90 | 110 | 0% | |
| Potassium | A | mg/L | 12.87 | 12.87 | | 12.5 | 0 | 0 | 0.08139 | 0.08139 | 50 | 103% | 90 | 110 | 0% | |
| Selenium | A | mg/L | 0.05234 | 0.05234 | | 0.05 | 0 | 0 | 0.00033 | 0.001 | 1 | 105% | 90 | 110 | 0% | |
| Silicon | A | mg/L | 0.2194 | 0.2194 | | 0.2 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 110% | 90 | 110 | 0% | |
| Silver | A | mg/L | 0.02017 | 0.02017 | | 0.02 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 101% | 90 | 110 | 0% | |
| Sodium | A | mg/L | 13.81 | 13.81 | | 12.5 | 0 | 0 | 0.02171 | 0.02171 | 50 | 110% | 90 | 110 | 0% | |
| Strontium | A | mg/L | 0.05088 | 0.05088 | | 0.05 | 0 | 0 | 0.00014 | 0.001 | 1 | 102% | 90 | 110 | 0% | |
| Thallium | A | mg/L | 0.04818 | 0.04818 | | 0.05 | 0 | 0 | 0.000041 | 0.001 | 1 | 96% | 90 | 110 | 0% | |
| Thorium | A | mg/L | 0.04775 | 0.04775 | | 0.05 | 0 | 0 | 0.00061 | 0.001 | 1 | 95% | 90 | 110 | 0% | |
| Tin | A | mg/L | 0.04996 | 0.04996 | | 0.05 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 100% | 90 | 110 | 0% | |
| Titanium | A | mg/L | 0.05179 | 0.05179 | | 0.05 | 0 | 0 | 0.000094 | 0.001 | 1 | 104% | 90 | 110 | 0% | |
| Uranium | A | mg/L | 0.05093 | 0.05093 | | 0.05 | 0 | 0 | 0.000052 | 0.0003 | 1 | 102% | 90 | 110 | 0% | |
| Vanadium | A | mg/L | 0.04513 | 0.04513 | | 0.05 | 0 | 0 | 0.0013 | 0.0013 | 1 | 90% | 90 | 110 | 0% | |
| Zinc | A | mg/L | 0.05461 | 0.05461 | | 0.05 | 0 | 0 | 0.00273 | 0.00273 | 1 | 109% | 90 | 110 | 0% | |
| Iron, Ferrous | C | mg/L | 1.36 | 1.36 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035614 | CCB | ICPMS-6020-W- | CCB | | 2/14/2022 2:32:3 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | -0.0002442 | -0.0002442 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | | | 0% | |
| Antimony | A | mg/L | 0.00007134 | 0.00007134 | | 0 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 0% | | | 0% | |
| Arsenic | A | mg/L | -0.0003428 | -0.0003428 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | | | 0% | |
| Barium | A | mg/L | -1.342E-06 | -1.342E-06 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Beryllium | A | mg/L | -6.498E-05 | -6.498E-05 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | | | 0% | |
| Boron | A | mg/L | 0.0008038 | 0.0008038 | | 0 | 0 | 0 | 0.00561 | 0.00561 | 1 | 0% | | | 0% | |
| Cadmium | A | mg/L | 0.00000955 | 0.00000955 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | | | 0% | |
| Calcium | A | mg/L | 0.0004098 | 0.0004098 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | | | 0% | |
| Cerium | A | mg/L | 6.427E-08 | 6.427E-08 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 8.432E-06 | 8.432E-06 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | | | 0% | |
| Cobalt | A | mg/L | -1.752E-06 | -1.752E-06 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Copper | A | mg/L | -6.522E-06 | -6.522E-06 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | | | 0% | |
| Iron | A | mg/L | 0.0001671 | 0.0001671 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | | | 0% | |
| Lanthanum | A | mg/L | 2.356E-07 | 2.356E-07 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 2.038E-07 | 2.038E-07 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | | | 0% | |
| Magnesium | A | mg/L | -0.0001906 | -0.0001906 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | | | 0% | |
| Manganese | A | mg/L | -5.742E-06 | -5.742E-06 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | | | 0% | |
| Mercury | A | mg/L | 1.694E-06 | 1.694E-06 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | | | 0% | |
| Molybdenum | A | mg/L | 0.00006106 | 0.00006106 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | | | 0% | |
| Nickel | A | mg/L | -1.283E-05 | -1.283E-05 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | | | 0% | |
| Potassium | A | mg/L | -0.004062 | -0.004062 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | | | 0% | |
| Selenium | A | mg/L | -0.00002 | -0.00002 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | | | 0% | |
| Silicon | A | mg/L | -0.00186 | -0.00186 | | 0 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -3.686E-06 | -3.686E-06 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | | | 0% | |
| Sodium | A | mg/L | 0.007525 | 0.007525 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | | | 0% | |
| Strontium | A | mg/L | 0.00000224 | 0.00000224 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00007828 | 0.00007828 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 0.00003644 | 0.00003644 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Tin | A | mg/L | 0.00001132 | 0.00001132 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.00002941 | 0.00002941 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 2.729E-06 | 2.729E-06 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Vanadium | A | mg/L | -0.00617 | -0.00617 | | 0 | 0 | 0 | 0.0013 | 0.0013 | 1 | 0% | 0 | 0 | 0% | |
| Zinc | A | mg/L | -0.0000651 | -0.0000651 | | 0 | 0 | 0 | 0.00273 | 0.00273 | 1 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | C | mg/L | 0.0001671 | 0.0001671 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035615 | MB-163617 | ICPMS-6020-W- | MBLK | | 2/14/2022 2:38:5 | 1 | 163617 | 2/8/2022 3:2 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.002123 | 0 | | 0 | 0 | 0 | 0.0038747 | 0.0031975 | 1 | 0% | 0 | 0 | 0% | |
| Antimony | A | mg/L | 0.00007729 | 0 | | 0 | 0 | 0 | 0.0002799 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0001022 | 0 | | 0 | 0 | 0 | 0.0003412 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 0.00001481 | 0 | | 0 | 0 | 0 | 0.0002682 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | -5.303E-05 | 0 | | 0 | 0 | 0 | 0.0001071 | 0.01 | 1 | 0% | 0 | 0 | 0% | |
| Boron | A | mg/L | 0.001302 | 0 | | 0 | 0 | 0 | 0.0203802 | 0.01467 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 6.143E-06 | 0 | | 0 | 0 | 0 | 1.821E-05 | 0.005 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | A | mg/L | 0.01396 | 0 | | 0 | 0 | 0 | 0.0372936 | 0.1103481 | 50 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 1.566E-06 | 0 | | 0 | 0 | 0 | 2.738E-05 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0.00009066 | 0 | | 0 | 0 | 0 | 0.0015375 | 0.0015375 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 0.00001462 | 0 | | 0 | 0 | 0 | 9.541E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | 0.00007978 | 0 | | 0 | 0 | 0 | 0.0008747 | 0.00198 | 1 | 0% | 0 | 0 | 0% | |
| Iron | A | mg/L | 0.001207 | 0 | | 0 | 0 | 0 | 0.007424 | 0.00513 | 5 | 0% | 0 | 0 | 0% | |
| Lanthanum | A | mg/L | 1.035E-06 | 0 | | 0 | 0 | 0 | 0.000055 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 0.00003084 | 0 | | 0 | 0 | 0 | 7.716E-05 | 0.0005 | 1 | 0% | 0 | 0 | 0% | |
| Magnesium | A | mg/L | 0.0009626 | 0 | | 0 | 0 | 0 | 0.0104254 | 0.0081522 | 50 | 0% | 0 | 0 | 0% | |
| Manganese | A | mg/L | 0.00003108 | 0 | | 0 | 0 | 0 | 0.0005399 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.0002182 | 0.0002182 | | 0 | 0 | 0 | 0.0001763 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Nickel | A | mg/L | 0.00003191 | 0 | | 0 | 0 | 0 | 0.0002288 | 0.0024200 | 1 | 0% | 0 | 0 | 0% | |
| Potassium | A | mg/L | -0.007273 | 0 | | 0 | 0 | 0 | 0.0765619 | 0.0261205 | 50 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | -4.484E-06 | 0 | | 0 | 0 | 0 | 0.0001357 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silicon | A | mg/L | 0.01888 | 0 | | 0 | 0 | 0 | 0.0422089 | 0.0053212 | 0.4 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -6.458E-05 | 0 | | 0 | 0 | 0 | 4.281E-05 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Sodium | A | mg/L | 0.02517 | 0 | | 0 | 0 | 0 | 0.1019461 | 0.7330269 | 50 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 0.00001498 | 0 | | 0 | 0 | 0 | 0.0002433 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00006882 | 0 | | 0 | 0 | 0 | 0.0001114 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 0.0001538 | 0 | | 0 | 0 | 0 | 0.0003796 | 0.00415 | 1 | 0% | 0 | 0 | 0% | |
| Tin | A | mg/L | 0.0003086 | 0 | | 0 | 0 | 0 | 0.0018932 | 0.0011175 | 0.1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.0006546 | 0.0006546 | | 0 | 0 | 0 | 0.0005733 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 2.574E-06 | 0 | | 0 | 0 | 0 | 1.699E-05 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Vanadium | A | mg/L | -0.005001 | 0 | | 0 | 0 | 0 | 0.0039127 | 0.0021085 | 1 | 0% | 0 | 0 | 0% | |
| Zinc | A | mg/L | 0.0008124 | 0 | | 0 | 0 | 0 | 0.0011617 | 0.0065544 | 1 | 0% | 0 | 0 | 0% | |
| Silica | C | mg/L | 0.0403881 | 0 | | 0 | 0 | 0 | 0.0902933 | 0.0113831 | 5 | 0% | 0 | 0 | 0% | |
| Silicon as SiO2 | C | mg/L | 0.0403881 | 0 | | 0 | 0 | 0 | 0.0902933 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035616 | LCS4-163617 | ICPMS-6020-W- | LCS4 | | 2/14/2022 2:45:0 | 1 | 163617 | 2/8/2022 3:2 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.48 | 0.48 | | 0.5 | 0 | 0 | 0.0038747 | 0.0031975 | 1 | 96% | 80 | 120 | 0% | |
| Antimony | A | mg/L | 0.1034 | 0.1034 | | 0.1 | 0 | 0 | 0.0002799 | 0.001 | 0.1 | 103% | 80 | 120 | 0% | |
| Arsenic | A | mg/L | 0.1001 | 0.1001 | | 0.1 | 0 | 0 | 0.0003412 | 0.001 | 1 | 100% | 80 | 120 | 0% | |
| Barium | A | mg/L | 0.09187 | 0.09187 | | 0.1 | 0 | 0 | 0.0002682 | 0.001 | 1 | 92% | 80 | 120 | 0% | |
| Beryllium | A | mg/L | 0.04452 | 0.04452 | | 0.05 | 0 | 0 | 0.0001071 | 0.01 | 1 | 89% | 80 | 120 | 0% | |
| Boron | A | mg/L | 0.1021 | 0.1021 | | 0.1 | 0 | 0 | 0.0203802 | 0.01467 | 1 | 102% | 80 | 120 | 0% | |
| Cadmium | A | mg/L | 0.05176 | 0.05176 | | 0.05 | 0 | 0 | 1.821E-05 | 0.005 | 1 | 104% | 80 | 120 | 0% | |
| Calcium | A | mg/L | 5.139 | 5.139 | | 5 | 0 | 0 | 0.0372936 | 0.1103481 | 50 | 103% | 80 | 120 | 0% | |
| Cerium | A | mg/L | 0.1107 | 0.1107 | | 0.1 | 0 | 0 | 2.738E-05 | 0.001 | 0.1 | 111% | 80 | 120 | 0% | |
| Chromium | A | mg/L | 0.1029 | 0.1029 | | 0.1 | 0 | 0 | 0.0015375 | 0.0015375 | 1 | 103% | 80 | 120 | 0% | |
| Cobalt | A | mg/L | 0.09746 | 0.09746 | | 0.1 | 0 | 0 | 9.541E-05 | 0.001 | 1 | 97% | 80 | 120 | 0% | |
| Copper | A | mg/L | 0.1091 | 0.1091 | | 0.1 | 0 | 0 | 0.0008747 | 0.00198 | 1 | 109% | 80 | 120 | 0% | |
| Iron | A | mg/L | 0.5145 | 0.5145 | | 0.5 | 0 | 0 | 0.007424 | 0.00513 | 5 | 103% | 80 | 120 | 0% | |
| Lanthanum | A | mg/L | 0.1073 | 0.1073 | | 0.1 | 0 | 0 | 0.000055 | 0.001 | 0.1 | 107% | 80 | 120 | 0% | |
| Lead | A | mg/L | 0.09947 | 0.09947 | | 0.1 | 0 | 0 | 7.716E-05 | 0.001 | 1 | 99% | 88 | 115 | 0% | |
| Magnesium | A | mg/L | 5.499 | 5.499 | | 5 | 0 | 0 | 0.0104254 | 0.0081522 | 50 | 110% | 80 | 120 | 0% | |
| Manganese | A | mg/L | 0.5216 | 0.5216 | | 0.5 | 0 | 0 | 0.0005399 | 0.001 | 1 | 104% | 80 | 120 | 0% | |
| Molybdenum | A | mg/L | 0.09074 | 0.09074 | | 0.1 | 0 | 0 | 0.0001763 | 0.001 | 0.1 | 91% | 80 | 120 | 0% | |
| Nickel | A | mg/L | 0.1079 | 0.1079 | | 0.1 | 0 | 0 | 0.0002288 | 0.0024200 | 1 | 108% | 80 | 120 | 0% | |
| Potassium | A | mg/L | 4.879 | 4.879 | | 5 | 0 | 0 | 0.0765619 | 0.0261205 | 50 | 98% | 80 | 120 | 0% | |
| Selenium | A | mg/L | 0.1028 | 0.1028 | | 0.1 | 0 | 0 | 0.0001357 | 0.001 | 1 | 103% | 80 | 120 | 0% | |
| Silicon | A | mg/L | 1 | 1 | | 1 | 0 | 0 | 0.0422089 | 0.0053212 | 0.4 | 100% | 80 | 120 | 0% | |
| Silver | A | mg/L | 0.009447 | 0.009447 | | 0.01 | 0 | 0 | 4.281E-05 | 0.001 | 0.04 | 94% | 80 | 120 | 0% | |
| Sodium | A | mg/L | 5.546 | 5.546 | | 5 | 0 | 0 | 0.1019461 | 0.7330269 | 50 | 111% | 80 | 120 | 0% | |
| Strontium | A | mg/L | 0.1015 | 0.1015 | | 0.1 | 0 | 0 | 0.0002433 | 0.001 | 1 | 101% | 80 | 120 | 0% | |
| Thallium | A | mg/L | 0.09923 | 0.09923 | | 0.1 | 0 | 0 | 0.0001114 | 0.001 | 1 | 99% | 80 | 120 | 0% | |
| Thorium | A | mg/L | 0.09901 | 0.09901 | | 0.1 | 0 | 0 | 0.0003796 | 0.00415 | 1 | 99% | 80 | 120 | 0% | |
| Tin | A | mg/L | 0.09682 | 0.09682 | | 0.1 | 0 | 0 | 0.0018932 | 0.0011175 | 0.1 | 97% | 80 | 120 | 0% | |
| Titanium | A | mg/L | 0.09188 | 0.09188 | | 0.1 | 0 | 0 | 0.0005733 | 0.001 | 1 | 92% | 80 | 120 | 0% | |
| Uranium | A | mg/L | 0.09831 | 0.09831 | | 0.1 | 0 | 0 | 1.699E-05 | 0.0003 | 1 | 98% | 80 | 120 | 0% | |
| Vanadium | A | mg/L | 0.09438 | 0.09438 | | 0.1 | 0 | 0 | 0.0039127 | 0.0021085 | 1 | 94% | 80 | 120 | 0% | |
| Zinc | A | mg/L | 0.1083 | 0.1083 | | 0.1 | 0 | 0 | 0.0011617 | 0.0065544 | 1 | 108% | 80 | 120 | 0% | |
| Silica | C | mg/L | 2.1392 | 2.1392 | | 0 | 0 | 0 | 0.0902933 | 0.0113831 | 5 | 0% | 0 | 0 | 0% | |
| Silicon as SiO2 | C | mg/L | 2.1392 | 2.1392 | | 2.14 | 0 | 0 | 0.0902933 | 0.0113831 | 5 | 100% | 80 | 120 | 0% | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035617 | B22020415-001 | ICPMS-6020-W- | SAMP | | 2/14/2022 2:51:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.005963 | 0.005963 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0004334 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 0.02313 | 0.02313 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | -7.045E-05 | 0 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0.00004828 | 0.00004828 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Cerium | A | mg/L | 0.00000537 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0.001416 | 0.001416 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 0.000193 | 0.000193 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Copper | A | mg/L | 0.002104 | 0.002104 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 0.000368 | 0.000368 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Manganese | A | mg/L | 0.03688 | 0.03688 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | 0.00001892 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.0003822 | 0.0003822 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Nickel | A | mg/L | 0.002183 | 0.002183 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | 0.0004563 | 0.0004563 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Silver | A | mg/L | -6.275E-05 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 0.1826 | 0.1826 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00016 | 0.00016 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Thorium | A | mg/L | 0.00006404 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.001495 | 0.001495 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00002806 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 24.84 | 24.84 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | D |
| Iron | B | mg/L | 0.005825 | 0.005825 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.005825 | 0.005825 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | 24.06 | 24.06 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | D |
| Potassium | B | mg/L | 2.708 | 2.708 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | D |
| Tin | B | mg/L | 0.0001702 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | 0.006526 | 0.006526 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035618 | B22020415-001 | ICPMS-6020-W- | SD | | 2/14/2022 2:57:3 | 5 | R374695 | | 0 | 2E+07 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035618 | B22020415-001 | ICPMS-6020-W- | SD | | 2/14/2022 2:57:3 | 5 | R374695 | | 0 | 2E+07 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.003276 | 0.01638 | | 0 | 0 | 0.005963 | 0.0043 | 0.0043 | 1 | 0% | | | | N |
| Antimony | A | mg/L | 0.0000488 | 0 | | 0 | 0 | 0 | 0.0021 | 0.0021 | 0.1 | 0% | | | | |
| Arsenic | A | mg/L | -0.0003017 | 0 | | 0 | 0 | 0 | 0.00095 | 0.001 | 1 | 0% | | | | |
| Barium | A | mg/L | 0.00463 | 0.02315 | | 0 | 0 | 0.02313 | 0.00021 | 0.001 | 1 | 0% | | | 0% | |
| Beryllium | A | mg/L | -6.747E-05 | 0 | | 0 | 0 | 0 | 0.0006 | 0.001 | 1 | 0% | | | | |
| Boron | A | mg/L | 0.01588 | 0.0794 | | 0 | 0 | 0.06783 | 0.02805 | 0.02805 | 1 | 0% | | | | N |
| Cadmium | A | mg/L | 0.00002456 | 0 | | 0 | 0 | 4.828E-05 | 0.000125 | 0.001 | 1 | 0% | | | | |
| Calcium | A | mg/L | 4.984 | 24.92 | | 0 | 0 | 24.84 | 0.1046 | 0.1046 | 50 | 0% | | | 0% | |
| Cerium | A | mg/L | 2.883E-06 | 0 | | 0 | 0 | 0 | 0.00006 | 0.001 | 0.1 | 0% | | | | |
| Chromium | A | mg/L | 0.0002944 | 0.001472 | | 0 | 0 | 0.001416 | 0.0009 | 0.001 | 1 | 0% | | | | N |
| Cobalt | A | mg/L | 0.00004165 | 0 | | 0 | 0 | 0.000193 | 0.00021 | 0.001 | 1 | 0% | | | | |
| Copper | A | mg/L | 0.0008039 | 0.0040195 | | 0 | 0 | 0.002104 | 0.00135 | 0.00135 | 1 | 0% | | | | N |
| Iron | A | mg/L | 0.001818 | 0.00909 | | 0 | 0 | 0.005825 | 0.00595 | 0.00595 | 5 | 0% | | | | N |
| Lanthanum | A | mg/L | 1.978E-06 | 0 | | 0 | 0 | 0 | 0.000055 | 0.001 | 0.1 | 0% | | | | |
| Lead | A | mg/L | 0.0001014 | 0.000507 | | 0 | 0 | 0.000368 | 0.00028 | 0.001 | 1 | 0% | | | | N |
| Magnesium | A | mg/L | 4.914 | 24.57 | | 0 | 0 | 24.06 | 0.0282 | 0.0282 | 50 | 0% | | | 2% | |
| Manganese | A | mg/L | 0.007411 | 0.037055 | | 0 | 0 | 0.03688 | 0.000475 | 0.001 | 1 | 0% | | | 0% | |
| Mercury | A | mg/L | 2.891E-06 | 0 | | 0 | 0 | 0 | 0.0008 | 0.001 | 0.002 | 0% | | | | |
| Molybdenum | A | mg/L | 0.00009722 | 0.0004861 | | 0 | 0 | 0.0003822 | 0.00025 | 0.001 | 0.1 | 0% | | | | N |
| Nickel | A | mg/L | 0.0005284 | 0 | | 0 | 0 | 0.002183 | 0.00315 | 0.00315 | 1 | 0% | | | | |
| Potassium | A | mg/L | 0.4891 | 2.4455 | | 0 | 0 | 2.708 | 0.40695 | 0.40695 | 50 | 0% | | | | N |
| Selenium | A | mg/L | 0.000057 | 0 | | 0 | 0 | 0.0004563 | 0.00165 | 0.00165 | 1 | 0% | | | | |
| Silicon | A | mg/L | 4.077 | 20.385 | | 0 | 0 | 20.73 | 0.06115 | 0.1 | 0.4 | 0% | | | 2% | |
| Silver | A | mg/L | -6.471E-05 | 0 | | 0 | 0 | 0 | 0.0001 | 0.001 | 0.04 | 0% | | | | |
| Sodium | A | mg/L | 13.09 | 65.45 | | 0 | 0 | 63.15 | 0.10855 | 0.10855 | 50 | 0% | | | 4% | |
| Strontium | A | mg/L | 0.03612 | 0.1806 | | 0 | 0 | 0.1826 | 0.0007 | 0.001 | 1 | 0% | | | 1% | |
| Thallium | A | mg/L | 0.00003907 | 0 | | 0 | 0 | 0.00016 | 0.000205 | 0.001 | 1 | 0% | | | | |
| Thorium | A | mg/L | 0.0000217 | 0 | | 0 | 0 | 0 | 0.00305 | 0.00305 | 1 | 0% | | | | |
| Tin | A | mg/L | 0.00009108 | 0 | | 0 | 0 | 0 | 0.0066 | 0.0066 | 0.1 | 0% | | | | |
| Titanium | A | mg/L | 0.0003021 | 0.0015105 | | 0 | 0 | 0.001495 | 0.00047 | 0.001 | 1 | 0% | | | | N |
| Uranium | A | mg/L | 7.022E-06 | 0 | | 0 | 0 | 0 | 0.00026 | 0.0003 | 1 | 0% | | | | |
| Vanadium | A | mg/L | -0.001304 | 0 | | 0 | 0 | 0.007099 | 0.0065 | 0.0065 | 1 | 0% | | | | |
| Zinc | A | mg/L | 0.002863 | 0.014315 | | 0 | 0 | 0.006526 | 0.01365 | 0.01365 | 1 | 0% | | | | N |
| Iron, Ferrous | C | mg/L | 0.001818 | 0.00909 | | 0 | 0 | 0.005825 | 0.00595 | 0.00595 | 5 | 0% | | | | N |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035619 | B22020415-001 | ICPMS-6020-W- MS | | | 2/14/2022 3:03:4 | 1.03 | R374695 | | 2E+07 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.05106 | 0.0525918 | | 0.05 | 0.005963 | 0 | 0.0008858 | 0.001 | 1 | 93% | 75 | 125 | 0% | |
| Antimony | A | mg/L | 0.04981 | 0.0513043 | | 0.05 | 0 | 0 | 0.0004326 | 0.001 | 0.1 | 103% | 75 | 125 | 0% | |
| Arsenic | A | mg/L | 0.04902 | 0.0504906 | | 0.05 | 0 | 0 | 0.0001957 | 0.001 | 1 | 101% | 75 | 125 | 0% | |
| Barium | A | mg/L | 0.07316 | 0.0753548 | | 0.05 | 0.02313 | 0 | 4.326E-05 | 0.001 | 1 | 104% | 75 | 125 | 0% | |
| Beryllium | A | mg/L | 0.04432 | 0.0456496 | | 0.05 | 0 | 0 | 0.0001236 | 0.001 | 1 | 91% | 75 | 125 | 0% | |
| Boron | A | mg/L | 0.1167 | 0.120201 | | 0.05 | 0.06783 | 0 | 0.0057783 | 0.0057783 | 1 | 105% | 75 | 125 | 0% | |
| Cadmium | A | mg/L | 0.04826 | 0.0497078 | | 0.05 | 4.828E-05 | 0 | 2.575E-05 | 0.001 | 1 | 99% | 75 | 125 | 0% | |
| Calcium | A | mg/L | 70.44 | 72.5532 | | 50 | 24.84 | 0 | 0.0215476 | 0.0215476 | 50 | 95% | 75 | 125 | 0% | E |
| Cerium | A | mg/L | 0.05049 | 0.0520047 | | 0.05 | 0 | 0 | 1.236E-05 | 0.001 | 0.1 | 104% | 75 | 125 | 0% | |
| Chromium | A | mg/L | 0.04847 | 0.0499241 | | 0.05 | 0.001416 | 0 | 0.0001854 | 0.001 | 1 | 97% | 75 | 125 | 0% | |
| Cobalt | A | mg/L | 0.04709 | 0.0485027 | | 0.05 | 0.000193 | 0 | 4.326E-05 | 0.001 | 1 | 97% | 75 | 125 | 0% | |
| Copper | A | mg/L | 0.05011 | 0.0516133 | | 0.05 | 0.002104 | 0 | 0.0002781 | 0.001 | 1 | 99% | 75 | 125 | 0% | |
| Iron | A | mg/L | 4.955 | 5.10365 | | 5.05 | 0.005825 | 0 | 0.0012257 | 0.0012257 | 5 | 101% | 75 | 125 | 0% | |
| Lanthanum | A | mg/L | 7.972E-06 | 0 | | 0.05 | 0 | 0 | 1.133E-05 | 0.001 | 0.1 | 0% | 75 | 125 | 0% | S |
| Lead | A | mg/L | 0.04847 | 0.0499241 | | 0.05 | 0.000368 | 0 | 5.768E-05 | 0.001 | 1 | 99% | 88 | 115 | 0% | |
| Magnesium | A | mg/L | 73.05 | 75.2415 | | 50 | 24.06 | 0 | 0.0058092 | 0.0058092 | 50 | 102% | 75 | 125 | 0% | E |
| Manganese | A | mg/L | 0.08374 | 0.0862522 | | 0.05 | 0.03688 | 0 | 9.785E-05 | 0.001 | 1 | 99% | 75 | 125 | 0% | |
| Mercury | A | mg/L | 0.001025 | 0.00105575 | | 0.001 | 0 | 0 | 0.0001648 | 0.001 | 0.002 | 106% | 75 | 125 | 0% | |
| Molybdenum | A | mg/L | 0.04686 | 0.0482658 | | 0.05 | 0.0003822 | 0 | 0.0000515 | 0.001 | 0.1 | 96% | 75 | 125 | 0% | |
| Nickel | A | mg/L | 0.05177 | 0.0533231 | | 0.05 | 0.002183 | 0 | 0.0006489 | 0.001 | 1 | 102% | 75 | 125 | 0% | |
| Potassium | A | mg/L | 49.43 | 50.9129 | | 50 | 2.708 | 0 | 0.0838317 | 0.0838317 | 50 | 96% | 75 | 125 | 0% | |
| Selenium | A | mg/L | 0.0498 | 0.051294 | | 0.05 | 0.0004563 | 0 | 0.0003399 | 0.001 | 1 | 102% | 75 | 125 | 0% | |
| Silicon | A | mg/L | 20.07 | 20.6721 | | 0.2 | 20.73 | 0 | 0.0125969 | 0.1 | 0.4 | | 75 | 125 | 0% | AE |
| Silver | A | mg/L | 0.01945 | 0.0200335 | | 0.02 | 0 | 0 | 0.0000206 | 0.001 | 0.04 | 100% | 75 | 125 | 0% | |
| Sodium | A | mg/L | 109.6 | 112.888 | | 50 | 63.15 | 0 | 0.0223613 | 0.0223613 | 50 | 99% | 75 | 125 | 0% | E |
| Strontium | A | mg/L | 0.2244 | 0.231132 | | 0.05 | 0.1826 | 0 | 0.0001442 | 0.001 | 1 | 97% | 75 | 125 | 0% | |
| Thallium | A | mg/L | 0.04715 | 0.0485645 | | 0.05 | 0.00016 | 0 | 4.223E-05 | 0.001 | 1 | 97% | 75 | 125 | 0% | |
| Thorium | A | mg/L | 0.04877 | 0.0502331 | | 0.05 | 0 | 0 | 0.0006283 | 0.001 | 1 | 100% | 75 | 125 | 0% | |
| Tin | A | mg/L | 0.04825 | 0.0496975 | | 0.05 | 0 | 0 | 0.0013596 | 0.0013596 | 0.1 | 99% | 75 | 125 | 0% | |
| Titanium | A | mg/L | 0.05248 | 0.0540544 | | 0.05 | 0.001495 | 0 | 9.682E-05 | 0.001 | 1 | 105% | 75 | 125 | 0% | |
| Uranium | A | mg/L | 0.04948 | 0.0509644 | | 0.05 | 0 | 0 | 5.356E-05 | 0.0003 | 1 | 102% | 75 | 125 | 0% | |
| Vanadium | A | mg/L | 0.05692 | 0.0586276 | | 0.05 | 0.007099 | 0 | 0.001339 | 0.001339 | 1 | 103% | 75 | 125 | 0% | |
| Zinc | A | mg/L | 0.05589 | 0.0575667 | | 0.05 | 0.006526 | 0 | 0.0028119 | 0.0028119 | 1 | 102% | 75 | 125 | 0% | |
| Iron, Ferrous | C | mg/L | 4.955 | 5.10365 | | 0 | 0.005825 | 0 | 0.0012257 | 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 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035620 | B22020415-001 | ICPMS-6020-W- MSD | | | 2/14/2022 3:09:5 | 1.03 | R374695 | | 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 | 0.05021 | 0.0517163 | | 0.05 | 0.005963 | 0.0525918 | 0.0008858 | 0.001 | 1 | 92% | 75 | 125 | 2% | |
| Antimony | A | mg/L | 0.04679 | 0.0481937 | | 0.05 | 0 | 0.0513043 | 0.0004326 | 0.001 | 0.1 | 96% | 75 | 125 | 6% | |
| Arsenic | A | mg/L | 0.04956 | 0.0510468 | | 0.05 | 0 | 0.0504906 | 0.0001957 | 0.001 | 1 | 102% | 75 | 125 | 1% | |
| Barium | A | mg/L | 0.06895 | 0.0710185 | | 0.05 | 0.02313 | 0.0753548 | 4.326E-05 | 0.001 | 1 | 96% | 75 | 125 | 6% | |
| Beryllium | A | mg/L | 0.0431 | 0.044393 | | 0.05 | 0 | 0.0456496 | 0.0001236 | 0.001 | 1 | 89% | 75 | 125 | 3% | |
| Boron | A | mg/L | 0.1141 | 0.117523 | | 0.05 | 0.06783 | 0.120201 | 0.0057783 | 0.0057783 | 1 | 99% | 75 | 125 | 2% | |
| Cadmium | A | mg/L | 0.04488 | 0.0462264 | | 0.05 | 4.828E-05 | 0.0497078 | 2.575E-05 | 0.001 | 1 | 92% | 75 | 125 | 7% | |
| Calcium | A | mg/L | 70.23 | 72.3369 | | 50 | 24.84 | 72.5532 | 0.0215476 | 0.0215476 | 50 | 95% | 75 | 125 | 0% | E |
| Cerium | A | mg/L | 0.05004 | 0.0515412 | | 0.05 | 0 | 0.0520047 | 1.236E-05 | 0.001 | 0.1 | 103% | 75 | 125 | 1% | |
| Chromium | A | mg/L | 0.04953 | 0.0510159 | | 0.05 | 0.001416 | 0.0499241 | 0.0001854 | 0.001 | 1 | 99% | 75 | 125 | 2% | |
| Cobalt | A | mg/L | 0.04561 | 0.0469783 | | 0.05 | 0.000193 | 0.0485027 | 4.326E-05 | 0.001 | 1 | 94% | 75 | 125 | 3% | |
| Copper | A | mg/L | 0.05065 | 0.0521695 | | 0.05 | 0.002104 | 0.0516133 | 0.0002781 | 0.001 | 1 | 100% | 75 | 125 | 1% | |
| Iron | A | mg/L | 4.991 | 5.14073 | | 5.05 | 0.005825 | 5.10365 | 0.0012257 | 0.0012257 | 5 | 102% | 75 | 125 | 1% | |
| Lanthanum | A | mg/L | 6.438E-06 | 0 | | 0.05 | 0 | 0 | 1.133E-05 | 0.001 | 0.1 | 0% | 75 | 125 | | S |
| Lead | A | mg/L | 0.04701 | 0.0484203 | | 0.05 | 0.000368 | 0.0499241 | 5.768E-05 | 0.001 | 1 | 96% | 88 | 115 | 3% | |
| Magnesium | A | mg/L | 72.63 | 74.8089 | | 50 | 24.06 | 75.2415 | 0.0058092 | 0.0058092 | 50 | 101% | 75 | 125 | 1% | E |
| Manganese | A | mg/L | 0.08445 | 0.0869835 | | 0.05 | 0.03688 | 0.0862522 | 9.785E-05 | 0.001 | 1 | 100% | 75 | 125 | 1% | |
| Mercury | A | mg/L | 0.001042 | 0.00107326 | | 0.001 | 0 | 0.0010558 | 0.0001648 | 0.001 | 0.002 | 107% | 75 | 125 | 2% | |
| Molybdenum | A | mg/L | 0.04392 | 0.0452376 | | 0.05 | 0.0003822 | 0.0482658 | 0.0000515 | 0.001 | 0.1 | 90% | 75 | 125 | 6% | |
| Nickel | A | mg/L | 0.05141 | 0.0529523 | | 0.05 | 0.002183 | 0.0533231 | 0.0006489 | 0.001 | 1 | 102% | 75 | 125 | 1% | |
| Potassium | A | mg/L | 49.84 | 51.3352 | | 50 | 2.708 | 50.9129 | 0.0838317 | 0.0838317 | 50 | 97% | 75 | 125 | 1% | |
| Selenium | A | mg/L | 0.05003 | 0.0515309 | | 0.05 | 0.0004563 | 0.051294 | 0.0003399 | 0.001 | 1 | 102% | 75 | 125 | 0% | |
| Silicon | A | mg/L | 19.87 | 20.4661 | | 0.2 | 20.73 | 20.6721 | 0.0125969 | 0.1 | 0.4 | | 75 | 125 | 1% | AE |
| Silver | A | mg/L | 0.01813 | 0.0186739 | | 0.02 | 0 | 0.0200335 | 0.0000206 | 0.001 | 0.04 | 93% | 75 | 125 | 7% | |
| Sodium | A | mg/L | 110.4 | 113.712 | | 50 | 63.15 | 112.888 | 0.0223613 | 0.0223613 | 50 | 101% | 75 | 125 | 1% | E |
| Strontium | A | mg/L | 0.2283 | 0.235149 | | 0.05 | 0.1826 | 0.231132 | 0.0001442 | 0.001 | 1 | 105% | 75 | 125 | 2% | |
| Thallium | A | mg/L | 0.04686 | 0.0482658 | | 0.05 | 0.00016 | 0.0485645 | 4.223E-05 | 0.001 | 1 | 96% | 75 | 125 | 1% | |
| Thorium | A | mg/L | 0.04857 | 0.0500271 | | 0.05 | 0 | 0.0502331 | 0.0006283 | 0.001 | 1 | 100% | 75 | 125 | 0% | |
| Tin | A | mg/L | 0.04572 | 0.0470916 | | 0.05 | 0 | 0.0496975 | 0.0013596 | 0.0013596 | 0.1 | 94% | 75 | 125 | 5% | |
| Titanium | A | mg/L | 0.05202 | 0.0535806 | | 0.05 | 0.001495 | 0.0540544 | 9.682E-05 | 0.001 | 1 | 104% | 75 | 125 | 1% | |
| Uranium | A | mg/L | 0.0476 | 0.049028 | | 0.05 | 0 | 0.0509644 | 5.356E-05 | 0.0003 | 1 | 98% | 75 | 125 | 4% | |
| Vanadium | A | mg/L | 0.05765 | 0.0593795 | | 0.05 | 0.007099 | 0.0586276 | 0.001339 | 0.001339 | 1 | 105% | 75 | 125 | 1% | |
| Zinc | A | mg/L | 0.05497 | 0.0566191 | | 0.05 | 0.006526 | 0.0575667 | 0.0028119 | 0.0028119 | 1 | 100% | 75 | 125 | 2% | |
| Iron, Ferrous | C | mg/L | 4.991 | 5.14073 | | 0 | 0.005825 | 5.10365 | 0.0012257 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035621 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 3:16:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | -0.0003138 | 0 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0001566 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | -2.841E-06 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | -7.355E-05 | 0 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 4.107E-06 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 1.009E-06 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0.00001387 | 0 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | -3.187E-06 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | -1.147E-05 | 0 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 3.105E-06 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Manganese | A | mg/L | 3.487E-06 | 0 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | 7.455E-06 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.00008196 | 0.00008196 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Nickel | A | mg/L | -2.412E-05 | 0 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | -1.059E-05 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -1.098E-06 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 4.448E-06 | 0 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.000055 | 0.000055 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Thorium | A | mg/L | 0.00002995 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.0001432 | 0.0001432 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Uranium | A | mg/L | 4.412E-06 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 0.001079 | 0 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | L |
| Iron | B | mg/L | 0.0001689 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.0001689 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | 0.001743 | 0 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | L |
| Potassium | B | mg/L | -0.006945 | 0 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | L |
| Sodium | B | mg/L | 0.03281 | 0.03281 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | D |
| Tin | B | mg/L | 0.00004661 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | -7.105E-07 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035622 | B22020415-001 | ICPMS-6020-W- | SAMP | | 2/14/2022 3:22:2 | 1 | 163617 | 2/8/2022 3:3 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035622 | B22020415-001 | ICPMS-6020-W- | SAMP | | 2/14/2022 3:22:2 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | A | mg/L | 0.0002387 | 0 | | 0 | 0 | 0 | 0.0003412 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Barium | A | mg/L | 0.02399 | 0.02399 | | 0 | 0 | 0 | 0.0002682 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | -0.000062 | 0 | | 0 | 0 | 0 | 0.0001071 | 0.01 | 1 | 0% | 0 | 0 | 0% | U |
| Cadmium | A | mg/L | 0.00004363 | 0.00004363 | | 0 | 0 | 0 | 1.821E-05 | 0.005 | 1 | 0% | 0 | 0 | 0% | J |
| Cerium | A | mg/L | 0.00003119 | 0.00003119 | | 0 | 0 | 0 | 2.738E-05 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Cobalt | A | mg/L | 0.0002386 | 0.0002386 | | 0 | 0 | 0 | 9.541E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Lanthanum | A | mg/L | 0.00001935 | 0 | | 0 | 0 | 0 | 0.000055 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | U |
| Lead | A | mg/L | 0.0002833 | 0.0002833 | | 0 | 0 | 0 | 7.716E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Manganese | A | mg/L | 0.03948 | 0.03948 | | 0 | 0 | 0 | 0.0005399 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.000476 | 0.000476 | | 0 | 0 | 0 | 0.0001763 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Selenium | A | mg/L | 0.0005156 | 0.0005156 | | 0 | 0 | 0 | 0.0001357 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Silver | A | mg/L | -6.112E-05 | 0 | | 0 | 0 | 0 | 4.281E-05 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | U |
| Strontium | A | mg/L | 0.1898 | 0.1898 | | 0 | 0 | 0 | 0.0002433 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00009053 | 0 | | 0 | 0 | 0 | 0.0001114 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Titanium | A | mg/L | 0.002374 | 0.002374 | | 0 | 0 | 0 | 0.0005733 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00003219 | 0.00003219 | | 0 | 0 | 0 | 1.699E-05 | 0.0003 | 1 | 0% | 0 | 0 | 0% | J |
| Aluminum | B | mg/L | 0.01729 | 0.01729 | | 0 | 0 | 0 | 0.0038747 | 0.0031975 | 1 | 0% | 0 | 0 | 0% | D |
| Calcium | B | mg/L | 25.25 | 25.25 | | 0 | 0 | 0 | 0.0372936 | 0.1103481 | 50 | 0% | 0 | 0 | 0% | D |
| Chromium | B | mg/L | 0.001797 | 0.001797 | | 0 | 0 | 0 | 0.0015375 | 0.0015375 | 1 | 0% | 0 | 0 | 0% | DU |
| Copper | B | mg/L | 0.001813 | 0.001813 | | 0 | 0 | 0 | 0.0008747 | 0.00198 | 1 | 0% | 0 | 0 | 0% | JL |
| Iron | B | mg/L | 0.04746 | 0.04746 | | 0 | 0 | 0 | 0.007424 | 0.00513 | 5 | 0% | 0 | 0 | 0% | D |
| Magnesium | B | mg/L | 24.83 | 24.83 | | 0 | 0 | 0 | 0.0104254 | 0.0081522 | 50 | 0% | 0 | 0 | 0% | D |
| Nickel | B | mg/L | 0.002051 | 0.002051 | | 0 | 0 | 0 | 0.0002288 | 0.0024200 | 1 | 0% | 0 | 0 | 0% | JL |
| Potassium | B | mg/L | 2.716 | 2.716 | | 0 | 0 | 0 | 0.0765619 | 0.0261205 | 50 | 0% | 0 | 0 | 0% | D |
| Thorium | B | mg/L | 0.0001764 | 0 | | 0 | 0 | 0 | 0.0003796 | 0.00415 | 1 | 0% | 0 | 0 | 0% | LU |
| Tin | B | mg/L | 0.0004125 | 0 | | 0 | 0 | 0 | 0.0018932 | 0.0011175 | 0.1 | 0% | 0 | 0 | 0% | U |
| Zinc | B | mg/L | 0.007351 | 0.007351 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035623 | B22020415-001 | ICPMS-6020-W- | SD | | 2/14/2022 3:28:4 | 5 | 163617 | 2/8/2022 3:3 | 0 | 2E+07 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.004485 | 0.022425 | | 0 | 0 | 0.01729 | 0.0193736 | 0.0159875 | 1 | 0% | 0 | 0 | | N |
| Antimony | A | mg/L | 0.00004933 | 0 | | 0 | 0 | 0 | 0.0013997 | 0.0049 | 0.1 | 0% | 0 | 0 | | |
| Arsenic | A | mg/L | -0.0001466 | 0 | | 0 | 0 | 0 | 0.0017061 | 0.0013383 | 1 | 0% | 0 | 0 | | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035623 | B22020415-001 | ICPMS-6020-W- | SD | | 2/14/2022 3:28:4 | 5 | 163617 | 2/8/2022 3:3 | 0 | 2E+07 | | | | | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | A | mg/L | 0.004796 | 0.02398 | | 0 | 0 | 0.02399 | 0.0013411 | 0.0012039 | 1 | 0% | 0 | 0 | 0% | |
| Beryllium | A | mg/L | -7.693E-05 | 0 | | 0 | 0 | 0 | 0.0005353 | 0.01 | 1 | 0% | 0 | 0 | | |
| Boron | A | mg/L | 0.01524 | 0 | | 0 | 0 | 0.07206 | 0.1019008 | 0.07335 | 1 | 0% | 0 | 0 | | |
| Cadmium | A | mg/L | 0.00000967 | 0 | | 0 | 0 | 4.363E-05 | 9.105E-05 | 0.005 | 1 | 0% | 0 | 0 | | |
| Calcium | A | mg/L | 4.994 | 24.97 | | 0 | 0 | 25.25 | 0.1864681 | 0.5517403 | 50 | 0% | 0 | 0 | 1% | |
| Cerium | A | mg/L | 6.137E-06 | 0 | | 0 | 0 | 3.119E-05 | 0.0001369 | 0.001 | 0.1 | 0% | 0 | 0 | | |
| Chromium | A | mg/L | 0.0003723 | 0 | | 0 | 0 | 0.001797 | 0.0076875 | 0.0076875 | 1 | 0% | 0 | 0 | | |
| Cobalt | A | mg/L | 0.00004444 | 0 | | 0 | 0 | 0.0002386 | 0.0004771 | 0.001 | 1 | 0% | 0 | 0 | | |
| Copper | A | mg/L | 0.0003878 | 0 | | 0 | 0 | 0.001813 | 0.0043735 | 0.0099 | 1 | 0% | 0 | 0 | | |
| Iron | A | mg/L | 0.009724 | 0.04862 | | 0 | 0 | 0.04746 | 0.0371198 | 0.02565 | 5 | 0% | 0 | 0 | | N |
| Lanthanum | A | mg/L | 3.546E-06 | 0 | | 0 | 0 | 0 | 0.000275 | 0.001 | 0.1 | 0% | 0 | 0 | | |
| Lead | A | mg/L | 0.00006131 | 0 | | 0 | 0 | 0.0002833 | 0.0003858 | 0.001 | 1 | 0% | 0 | 0 | | |
| Magnesium | A | mg/L | 5.109 | 25.545 | | 0 | 0 | 24.83 | 0.0521269 | 0.0407608 | 50 | 0% | 0 | 0 | 3% | |
| Manganese | A | mg/L | 0.007637 | 0.038185 | | 0 | 0 | 0.03948 | 0.0026994 | 0.0010695 | 1 | 0% | 0 | 0 | 3% | |
| Molybdenum | A | mg/L | 0.000093 | 0 | | 0 | 0 | 0.000476 | 0.0008814 | 0.001 | 0.1 | 0% | 0 | 0 | | |
| Nickel | A | mg/L | 0.0003704 | 0.001852 | | 0 | 0 | 0.002051 | 0.0011441 | 0.0121000 | 1 | 0% | 0 | 0 | | N |
| Potassium | A | mg/L | 0.4809 | 2.4045 | | 0 | 0 | 2.716 | 0.3828097 | 0.1306027 | 50 | 0% | 0 | 0 | | N |
| Selenium | A | mg/L | 0.00008284 | 0 | | 0 | 0 | 0.0005156 | 0.0006787 | 0.0029274 | 1 | 0% | 0 | 0 | | |
| Silicon | A | mg/L | 4.221 | 21.105 | | 0 | 0 | 20.95 | 0.2110446 | 0.026606 | 0.4 | 0% | 0 | 0 | 1% | |
| Silver | A | mg/L | -6.496E-05 | 0 | | 0 | 0 | 0 | 0.0002141 | 0.001 | 0.04 | 0% | 0 | 0 | | |
| Sodium | A | mg/L | 13.36 | 66.8 | | 0 | 0 | 65.47 | 0.5097304 | 3.6651346 | 50 | 0% | 0 | 0 | 2% | |
| Strontium | A | mg/L | 0.03675 | 0.18375 | | 0 | 0 | 0.1898 | 0.0012164 | 0.001 | 1 | 0% | 0 | 0 | 3% | |
| Thallium | A | mg/L | 0.00003642 | 0 | | 0 | 0 | 0 | 0.0005569 | 0.001 | 1 | 0% | 0 | 0 | | |
| Thorium | A | mg/L | 0.00001998 | 0 | | 0 | 0 | 0 | 0.0018981 | 0.02075 | 1 | 0% | 0 | 0 | | |
| Tin | A | mg/L | 0.000134 | 0 | | 0 | 0 | 0 | 0.0094659 | 0.0055874 | 0.1 | 0% | 0 | 0 | | |
| Titanium | A | mg/L | 0.0004964 | 0 | | 0 | 0 | 0.002374 | 0.0028666 | 0.001 | 1 | 0% | 0 | 0 | | |
| Uranium | A | mg/L | 6.146E-06 | 0 | | 0 | 0 | 3.219E-05 | 8.495E-05 | 0.0004224 | 1 | 0% | 0 | 0 | | |
| Vanadium | A | mg/L | 0.0006406 | 0 | | 0 | 0 | 0.01415 | 0.0195637 | 0.0105423 | 1 | 0% | 0 | 0 | | |
| Zinc | A | mg/L | 0.001405 | 0.007025 | | 0 | 0 | 0.007351 | 0.0058087 | 0.0327721 | 1 | 0% | 0 | 0 | | N |
| Silica | C | mg/L | 9.0295632 | 45.147816 | | 0 | 0 | 0 | 0.4514666 | 0.0569155 | 5 | 0% | 0 | 0 | | N |
| Silicon as SiO2 | C | mg/L | 9.0295632 | 45.147816 | | 0 | 0 | 0 | 0.4514666 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035624 | B22020415-001 | ICPMS-6020-W- PDS1 | | | 2/14/2022 3:34:5 | 1.03 | 163617 | 2/8/2022 3:3 | 2E+07 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.05905 | 0.0608215 | | 0.0515 | 0.01729 | 0 | 0.003991 | 0.0032934 | 1 | 85% | 75 | 125 | 0% | |
| Antimony | A | mg/L | 0.04839 | 0.0498417 | | 0.0515 | 0 | 0 | 0.0002883 | 0.0010094 | 0.1 | 97% | 75 | 125 | 0% | |
| Arsenic | A | mg/L | 0.04904 | 0.0505112 | | 0.0515 | 0 | 0 | 0.0003514 | 0.001 | 1 | 98% | 75 | 125 | 0% | |
| Barium | A | mg/L | 0.07123 | 0.0733669 | | 0.0515 | 0.02399 | 0 | 0.0002763 | 0.001 | 1 | 96% | 75 | 125 | 0% | |
| Beryllium | A | mg/L | 0.04181 | 0.0430643 | | 0.0515 | 0 | 0 | 0.0001103 | 0.01 | 1 | 84% | 75 | 125 | 0% | |
| Boron | A | mg/L | 0.1186 | 0.122158 | | 0.0515 | 0.07206 | 0 | 0.0209916 | 0.0151101 | 1 | 97% | 75 | 125 | 0% | |
| Cadmium | A | mg/L | 0.04967 | 0.0511601 | | 0.0515 | 4.363E-05 | 0 | 1.876E-05 | 0.005 | 1 | 99% | 75 | 125 | 0% | |
| Calcium | A | mg/L | 69.44 | 71.5232 | | 51.5 | 25.25 | 0 | 0.0384124 | 0.1136585 | 50 | 90% | 75 | 125 | 0% | |
| Cerium | A | mg/L | 0.05101 | 0.0525403 | | 0.0515 | 3.119E-05 | 0 | 2.820E-05 | 0.001 | 0.1 | 102% | 75 | 125 | 0% | |
| Chromium | A | mg/L | 0.04959 | 0.0510777 | | 0.0515 | 0.001797 | 0 | 0.0015836 | 0.0015836 | 1 | 96% | 75 | 125 | 0% | |
| Cobalt | A | mg/L | 0.0433 | 0.044599 | | 0.0515 | 0.0002386 | 0 | 9.827E-05 | 0.001 | 1 | 86% | 75 | 125 | 0% | |
| Copper | A | mg/L | 0.05086 | 0.0523858 | | 0.0515 | 0.001813 | 0 | 0.0009009 | 0.0020394 | 1 | 98% | 75 | 125 | 0% | |
| Iron | A | mg/L | 5.022 | 5.17266 | | 5.15 | 0.04746 | 0 | 0.0076467 | 0.0052839 | 5 | 100% | 75 | 125 | 0% | |
| Lanthanum | A | mg/L | 0.00001435 | 0 | | 0.0515 | 0 | 0 | 5.665E-05 | 0.001 | 0.1 | 0% | 75 | 125 | 0% | S |
| Lead | A | mg/L | 0.04793 | 0.0493679 | | 0.0515 | 0.0002833 | 0 | 7.947E-05 | 0.001 | 1 | 95% | 80 | 120 | 0% | |
| Magnesium | A | mg/L | 74.14 | 76.3642 | | 51.5 | 24.83 | 0 | 0.0107381 | 0.0083967 | 50 | 100% | 75 | 125 | 0% | |
| Manganese | A | mg/L | 0.08507 | 0.0876221 | | 0.0515 | 0.03948 | 0 | 0.0005561 | 0.001 | 1 | 93% | 75 | 125 | 0% | |
| Molybdenum | A | mg/L | 0.04684 | 0.0482452 | | 0.0515 | 0.000476 | 0 | 0.0001816 | 0.001 | 0.1 | 93% | 75 | 125 | 0% | |
| Nickel | A | mg/L | 0.05074 | 0.0522622 | | 0.0515 | 0.002051 | 0 | 0.0002357 | 0.0024926 | 1 | 97% | 75 | 125 | 0% | |
| Potassium | A | mg/L | 48.19 | 49.6357 | | 51.5 | 2.716 | 0 | 0.0788588 | 0.0269042 | 50 | 91% | 75 | 125 | 0% | |
| Selenium | A | mg/L | 0.05025 | 0.0517575 | | 0.0515 | 0.0005156 | 0 | 0.0001398 | 0.001 | 1 | 99% | 75 | 125 | 0% | |
| Silicon | A | mg/L | 20.18 | 20.7854 | | 0.206 | 20.95 | 0 | 0.0434752 | 0.0054808 | 0.4 | | 0 | 0 | 0% | A |
| Silver | A | mg/L | 0.01885 | 0.0194155 | | 0.0206 | 0 | 0 | 4.409E-05 | 0.001 | 0.04 | 94% | 75 | 125 | 0% | |
| Sodium | A | mg/L | 111.5 | 114.845 | | 51.5 | 65.47 | 0 | 0.1050045 | 0.7550177 | 50 | 96% | 75 | 125 | 0% | |
| Strontium | A | mg/L | 0.2253 | 0.232059 | | 0.0515 | 0.1898 | 0 | 0.0002506 | 0.001 | 1 | 82% | 75 | 125 | 0% | |
| Thallium | A | mg/L | 0.04688 | 0.0482864 | | 0.0515 | 0 | 0 | 0.0001147 | 0.001 | 1 | 94% | 75 | 125 | 0% | |
| Thorium | A | mg/L | 0.04825 | 0.0496975 | | 0.0515 | 0 | 0 | 0.000391 | 0.0042745 | 1 | 97% | 75 | 125 | 0% | |
| Tin | A | mg/L | 0.04895 | 0.0504185 | | 0.0515 | 0 | 0 | 0.00195 | 0.001151 | 0.1 | 98% | 75 | 125 | 0% | |
| Titanium | A | mg/L | 0.0505 | 0.052015 | | 0.0515 | 0.002374 | 0 | 0.0005905 | 0.001 | 1 | 96% | 75 | 125 | 0% | |
| Uranium | A | mg/L | 0.04832 | 0.0497696 | | 0.0515 | 3.219E-05 | 0 | 1.75E-05 | 0.0003 | 1 | 97% | 75 | 125 | 0% | |
| Vanadium | A | mg/L | 0.0629 | 0.064787 | | 0.0515 | 0.01415 | 0 | 0.0040301 | 0.0021717 | 1 | 98% | 75 | 125 | 0% | |
| Zinc | A | mg/L | 0.05458 | 0.0562174 | | 0.0515 | 0.007351 | 0 | 0.0011966 | 0.0067511 | 1 | 95% | 75 | 125 | 0% | |
| Silica | C | mg/L | 43.169056 | 44.4641277 | | 0 | 0 | 0 | 0.0930021 | 0.0117246 | 5 | 0% | 0 | 0 | 0% | |
| Silicon as SiO2 | C | mg/L | 43.169056 | 44.4641277 | | 0.0515 | 0 | 0 | 0.0930021 | 0.0117246 | 5 | 86338% | 75 | 125 | 0% | S |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035625 | B22020415-001 | ICPMS-6020-W- MS4 | | | 2/14/2022 3:41:0 | 1 | 163617 | 2/8/2022 3:3 | 2E+07 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.4791 | 0.4791 | | 0.5 | 0.01729 | 0 | 0.0038747 | 0.0031975 | 1 | 92% | 75 | 125 | 0% | |
| Antimony | A | mg/L | 0.1018 | 0.1018 | | 0.1 | 0 | 0 | 0.0002799 | 0.001 | 0.1 | 102% | 75 | 125 | 0% | |
| Arsenic | A | mg/L | 0.09946 | 0.09946 | | 0.1 | 0 | 0 | 0.0003412 | 0.001 | 1 | 99% | 75 | 125 | 0% | |
| Barium | A | mg/L | 0.1148 | 0.1148 | | 0.1 | 0.02399 | 0 | 0.0002682 | 0.001 | 1 | 91% | 75 | 125 | 0% | |
| Beryllium | A | mg/L | 0.04374 | 0.04374 | | 0.05 | 0 | 0 | 0.0001071 | 0.01 | 1 | 87% | 75 | 125 | 0% | |
| Boron | A | mg/L | 0.1668 | 0.1668 | | 0.1 | 0.07206 | 0 | 0.0203802 | 0.01467 | 1 | 95% | 75 | 125 | 0% | |
| Cadmium | A | mg/L | 0.05082 | 0.05082 | | 0.05 | 4.363E-05 | 0 | 1.821E-05 | 0.005 | 1 | 102% | 75 | 125 | 0% | |
| Calcium | A | mg/L | 29.7 | 29.7 | | 5 | 25.25 | 0 | 0.0372936 | 0.1103481 | 50 | | 75 | 125 | 0% | A |
| Cerium | A | mg/L | 0.1074 | 0.1074 | | 0.1 | 3.119E-05 | 0 | 2.738E-05 | 0.001 | 0.1 | 107% | 75 | 125 | 0% | |
| Chromium | A | mg/L | 0.09939 | 0.09939 | | 0.1 | 0.001797 | 0 | 0.0015375 | 0.0015375 | 1 | 98% | 75 | 125 | 0% | |
| Cobalt | A | mg/L | 0.09367 | 0.09367 | | 0.1 | 0.0002386 | 0 | 9.541E-05 | 0.001 | 1 | 93% | 75 | 125 | 0% | |
| Copper | A | mg/L | 0.1048 | 0.1048 | | 0.1 | 0.001813 | 0 | 0.0008747 | 0.00198 | 1 | 103% | 75 | 125 | 0% | |
| Iron | A | mg/L | 0.5601 | 0.5601 | | 0.5 | 0.04746 | 0 | 0.007424 | 0.00513 | 5 | 103% | 75 | 125 | 0% | |
| Lanthanum | A | mg/L | 0.1066 | 0.1066 | | 0.1 | 0 | 0 | 0.000055 | 0.001 | 0.1 | 107% | 75 | 125 | 0% | |
| Lead | A | mg/L | 0.1002 | 0.1002 | | 0.1 | 0.0002833 | 0 | 7.716E-05 | 0.001 | 1 | 100% | 88 | 115 | 0% | |
| Magnesium | A | mg/L | 29.58 | 29.58 | | 5 | 24.83 | 0 | 0.0104254 | 0.0081522 | 50 | | 75 | 125 | 0% | A |
| Manganese | A | mg/L | 0.5487 | 0.5487 | | 0.5 | 0.03948 | 0 | 0.0005399 | 0.001 | 1 | 102% | 75 | 125 | 0% | |
| Molybdenum | A | mg/L | 0.09161 | 0.09161 | | 0.1 | 0.000476 | 0 | 0.0001763 | 0.001 | 0.1 | 91% | 75 | 125 | 0% | |
| Nickel | A | mg/L | 0.1066 | 0.1066 | | 0.1 | 0.002051 | 0 | 0.0002288 | 0.0024200 | 1 | 105% | 75 | 125 | 0% | |
| Potassium | A | mg/L | 7.446 | 7.446 | | 5 | 2.716 | 0 | 0.0765619 | 0.0261205 | 50 | 95% | 75 | 125 | 0% | |
| Selenium | A | mg/L | 0.1036 | 0.1036 | | 0.1 | 0.0005156 | 0 | 0.0001357 | 0.001 | 1 | 103% | 75 | 125 | 0% | |
| Silicon | A | mg/L | 21.59 | 21.59 | | 1 | 20.95 | 0 | 0.0422089 | 0.0053212 | 0.4 | | 75 | 125 | 0% | A |
| Silver | A | mg/L | 0.009052 | 0.009052 | | 0.01 | 0 | 0 | 4.281E-05 | 0.001 | 0.04 | 91% | 75 | 125 | 0% | |
| Sodium | A | mg/L | 69.26 | 69.26 | | 5 | 65.47 | 0 | 0.1019461 | 0.7330269 | 50 | | 75 | 125 | 0% | A |
| Strontium | A | mg/L | 0.2952 | 0.2952 | | 0.1 | 0.1898 | 0 | 0.0002433 | 0.001 | 1 | 105% | 75 | 125 | 0% | |
| Thallium | A | mg/L | 0.09862 | 0.09862 | | 0.1 | 0 | 0 | 0.0001114 | 0.001 | 1 | 99% | 75 | 125 | 0% | |
| Thorium | A | mg/L | 0.1025 | 0.1025 | | 0.1 | 0 | 0 | 0.0003796 | 0.00415 | 1 | 102% | 75 | 125 | 0% | |
| Tin | A | mg/L | 0.09864 | 0.09864 | | 0.1 | 0 | 0 | 0.0018932 | 0.0011175 | 0.1 | 99% | 75 | 125 | 0% | |
| Titanium | A | mg/L | 0.09441 | 0.09441 | | 0.1 | 0.002374 | 0 | 0.0005733 | 0.001 | 1 | 92% | 75 | 125 | 0% | |
| Uranium | A | mg/L | 0.1005 | 0.1005 | | 0.1 | 3.219E-05 | 0 | 1.699E-05 | 0.0003 | 1 | 100% | 75 | 125 | 0% | |
| Vanadium | A | mg/L | 0.1138 | 0.1138 | | 0.1 | 0.01415 | 0 | 0.0039127 | 0.0021085 | 1 | 100% | 75 | 125 | 0% | |
| Zinc | A | mg/L | 0.1071 | 0.1071 | | 0.1 | 0.007351 | 0 | 0.0011617 | 0.0065544 | 1 | 100% | 75 | 125 | 0% | |
| Silica | C | mg/L | 46.185328 | 46.185328 | | 0 | 0 | 0 | 0.0902933 | 0.0113831 | 5 | 0% | 0 | 0 | 0% | |
| Silicon as SiO2 | C | mg/L | 46.185328 | 46.185328 | | 2.14 | 0 | 0 | 0.0902933 | 0.0113831 | 5 | 2158% | 75 | 125 | 0% | S |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035626 | CCV | ICPMS-6020-W- CCV | | | 2/14/2022 3:47:2 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.05019 | 0.05019 | | 0.05 | 0 | 0 | 0.00086 | 0.001 | 1 | 100% | 90 | 110 | 0% | |
| Antimony | A | mg/L | 0.05157 | 0.05157 | | 0.05 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 103% | 90 | 110 | 0% | |
| Arsenic | A | mg/L | 0.05004 | 0.05004 | | 0.05 | 0 | 0 | 0.00019 | 0.001 | 1 | 100% | 90 | 110 | 0% | |
| Barium | A | mg/L | 0.0496 | 0.0496 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Beryllium | A | mg/L | 0.04673 | 0.04673 | | 0.05 | 0 | 0 | 0.00012 | 0.001 | 1 | 93% | 90 | 110 | 0% | |
| Boron | A | mg/L | 0.05394 | 0.05394 | | 0.05 | 0 | 0 | 0.00561 | 0.00561 | 1 | 108% | 90 | 110 | 0% | |
| Cadmium | A | mg/L | 0.05028 | 0.05028 | | 0.05 | 0 | 0 | 0.000025 | 0.001 | 1 | 101% | 90 | 110 | 0% | |
| Calcium | A | mg/L | 12.87 | 12.87 | | 12.5 | 0 | 0 | 0.02092 | 0.02092 | 50 | 103% | 90 | 110 | 0% | |
| Cerium | A | mg/L | 0.05258 | 0.05258 | | 0.05 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 105% | 90 | 110 | 0% | |
| Chromium | A | mg/L | 0.04991 | 0.04991 | | 0.05 | 0 | 0 | 0.00018 | 0.001 | 1 | 100% | 90 | 110 | 0% | |
| Cobalt | A | mg/L | 0.04911 | 0.04911 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 98% | 90 | 110 | 0% | |
| Copper | A | mg/L | 0.05243 | 0.05243 | | 0.05 | 0 | 0 | 0.00027 | 0.001 | 1 | 105% | 90 | 110 | 0% | |
| Iron | A | mg/L | 1.37 | 1.37 | | 1.3 | 0 | 0 | 0.00119 | 0.00119 | 5 | 105% | 90 | 110 | 0% | |
| Lanthanum | A | mg/L | 0.05153 | 0.05153 | | 0.05 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 103% | 90 | 110 | 0% | |
| Lead | A | mg/L | 0.05029 | 0.05029 | | 0.05 | 0 | 0 | 0.000056 | 0.001 | 1 | 101% | 90 | 110 | 0% | |
| Magnesium | A | mg/L | 13.61 | 13.61 | | 12.5 | 0 | 0 | 0.00564 | 0.00564 | 50 | 109% | 90 | 110 | 0% | |
| Manganese | A | mg/L | 0.05095 | 0.05095 | | 0.05 | 0 | 0 | 0.000095 | 0.001 | 1 | 102% | 90 | 110 | 0% | |
| Mercury | A | mg/L | 0.001039 | 0.001039 | | 0.001 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 104% | 90 | 110 | 0% | |
| Molybdenum | A | mg/L | 0.04853 | 0.04853 | | 0.05 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 97% | 90 | 110 | 0% | |
| Nickel | A | mg/L | 0.05238 | 0.05238 | | 0.05 | 0 | 0 | 0.00063 | 0.001 | 1 | 105% | 90 | 110 | 0% | |
| Potassium | A | mg/L | 12.56 | 12.56 | | 12.5 | 0 | 0 | 0.08139 | 0.08139 | 50 | 100% | 90 | 110 | 0% | |
| Selenium | A | mg/L | 0.0515 | 0.0515 | | 0.05 | 0 | 0 | 0.00033 | 0.001 | 1 | 103% | 90 | 110 | 0% | |
| Silicon | A | mg/L | 0.2238 | 0.2238 | | 0.2 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 112% | 90 | 110 | 0% | S |
| Silver | A | mg/L | 0.01999 | 0.01999 | | 0.02 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 100% | 90 | 110 | 0% | |
| Sodium | A | mg/L | 13.74 | 13.74 | | 12.5 | 0 | 0 | 0.02171 | 0.02171 | 50 | 110% | 90 | 110 | 0% | |
| Strontium | A | mg/L | 0.05042 | 0.05042 | | 0.05 | 0 | 0 | 0.00014 | 0.001 | 1 | 101% | 90 | 110 | 0% | |
| Thallium | A | mg/L | 0.04941 | 0.04941 | | 0.05 | 0 | 0 | 0.000041 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Thorium | A | mg/L | 0.04809 | 0.04809 | | 0.05 | 0 | 0 | 0.00061 | 0.001 | 1 | 96% | 90 | 110 | 0% | |
| Tin | A | mg/L | 0.0498 | 0.0498 | | 0.05 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 100% | 90 | 110 | 0% | |
| Titanium | A | mg/L | 0.0483 | 0.0483 | | 0.05 | 0 | 0 | 0.000094 | 0.001 | 1 | 97% | 90 | 110 | 0% | |
| Uranium | A | mg/L | 0.04963 | 0.04963 | | 0.05 | 0 | 0 | 0.000052 | 0.0003 | 1 | 99% | 90 | 110 | 0% | |
| Vanadium | A | mg/L | 0.04705 | 0.04705 | | 0.05 | 0 | 0 | 0.0013 | 0.0013 | 1 | 94% | 90 | 110 | 0% | |
| Zinc | A | mg/L | 0.05264 | 0.05264 | | 0.05 | 0 | 0 | 0.00273 | 0.00273 | 1 | 105% | 90 | 110 | 0% | |
| Iron, Ferrous | C | mg/L | 1.37 | 1.37 | | 0 | 0 | 0 | 0.00119 | 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 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035627 | CCB | ICPMS-6020-W- | CCB | | 2/14/2022 3:53:3 | 1 | R374695 | | 0 | 0 | | | | | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | -0.0003984 | -0.0003984 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | | | 0% | |
| Antimony | A | mg/L | 0.0001056 | 0.0001056 | | 0 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 0% | | | 0% | |
| Arsenic | A | mg/L | -0.0001704 | -0.0001704 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | | | 0% | |
| Barium | A | mg/L | -4.638E-06 | -4.638E-06 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Beryllium | A | mg/L | -6.931E-05 | -6.931E-05 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | | | 0% | |
| Boron | A | mg/L | 0.001788 | 0.001788 | | 0 | 0 | 0 | 0.00561 | 0.00561 | 1 | 0% | | | 0% | |
| Cadmium | A | mg/L | 6.848E-06 | 6.848E-06 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | | | 0% | |
| Calcium | A | mg/L | 1.986E-06 | 1.986E-06 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | | | 0% | |
| Cerium | A | mg/L | 5.703E-07 | 5.703E-07 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0.0000285 | 0.0000285 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | | | 0% | |
| Cobalt | A | mg/L | -1.119E-06 | -1.119E-06 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Copper | A | mg/L | -8.179E-06 | -8.179E-06 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | | | 0% | |
| Iron | A | mg/L | 0.00007771 | 0.00007771 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | | | 0% | |
| Lanthanum | A | mg/L | 6.044E-07 | 6.044E-07 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 3.477E-06 | 3.477E-06 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | | | 0% | |
| Magnesium | A | mg/L | 0.001724 | 0.001724 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | | | 0% | |
| Manganese | A | mg/L | 2.173E-07 | 2.173E-07 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | | | 0% | |
| Mercury | A | mg/L | 6.461E-06 | 6.461E-06 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | | | 0% | |
| Molybdenum | A | mg/L | 0.00004041 | 0.00004041 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | | | 0% | |
| Nickel | A | mg/L | -1.856E-05 | -1.856E-05 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | | | 0% | |
| Potassium | A | mg/L | -0.01854 | -0.01854 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | | | 0% | |
| Selenium | A | mg/L | -6.552E-06 | -6.552E-06 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | | | 0% | |
| Silicon | A | mg/L | -9.897E-05 | -9.897E-05 | | 0 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -1.899E-06 | -1.899E-06 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | | | 0% | |
| Sodium | A | mg/L | 0.02129 | 0.02129 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | | | 0% | |
| Strontium | A | mg/L | 2.543E-06 | 2.543E-06 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.0001137 | 0.0001137 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 0.00004753 | 0.00004753 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Tin | A | mg/L | 8.696E-06 | 8.696E-06 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.00001857 | 0.00001857 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 3.675E-06 | 3.675E-06 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Vanadium | A | mg/L | -0.001361 | -0.001361 | | 0 | 0 | 0 | 0.0013 | 0.0013 | 1 | 0% | 0 | 0 | 0% | |
| Zinc | A | mg/L | -5.253E-05 | -5.253E-05 | | 0 | 0 | 0 | 0.00273 | 0.00273 | 1 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | C | mg/L | 0.00007771 | 0.00007771 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035628 | B22020415-001 | ICPMS-6020-W- MSD4 | | | 2/14/2022 3:59:5 | 1 | 163617 | 2/8/2022 3:3 | 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 | 0.4791 | 0.4791 | | 0.5 | 0.01729 | 0.4791 | 0.0038747 | 0.0031975 | 1 | 92% | 75 | 125 | 0% | |
| Antimony | A | mg/L | 0.1052 | 0.1052 | | 0.1 | 0 | 0.1018 | 0.0002799 | 0.001 | 0.1 | 105% | 75 | 125 | 3% | |
| Arsenic | A | mg/L | 0.1007 | 0.1007 | | 0.1 | 0 | 0.09946 | 0.0003412 | 0.001 | 1 | 101% | 75 | 125 | 1% | |
| Barium | A | mg/L | 0.1176 | 0.1176 | | 0.1 | 0.02399 | 0.1148 | 0.0002682 | 0.001 | 1 | 94% | 75 | 125 | 2% | |
| Beryllium | A | mg/L | 0.04267 | 0.04267 | | 0.05 | 0 | 0.04374 | 0.0001071 | 0.01 | 1 | 85% | 75 | 125 | 2% | |
| Boron | A | mg/L | 0.168 | 0.168 | | 0.1 | 0.07206 | 0.1668 | 0.0203802 | 0.01467 | 1 | 96% | 75 | 125 | 1% | |
| Cadmium | A | mg/L | 0.05219 | 0.05219 | | 0.05 | 4.363E-05 | 0.05082 | 1.821E-05 | 0.005 | 1 | 104% | 75 | 125 | 3% | |
| Calcium | A | mg/L | 28.78 | 28.78 | | 5 | 25.25 | 29.7 | 0.0372936 | 0.1103481 | 50 | | 75 | 125 | 3% | A |
| Cerium | A | mg/L | 0.1103 | 0.1103 | | 0.1 | 3.119E-05 | 0.1074 | 2.738E-05 | 0.001 | 0.1 | 110% | 75 | 125 | 3% | |
| Chromium | A | mg/L | 0.102 | 0.102 | | 0.1 | 0.001797 | 0.09939 | 0.0015375 | 0.0015375 | 1 | 100% | 75 | 125 | 3% | |
| Cobalt | A | mg/L | 0.09145 | 0.09145 | | 0.1 | 0.0002386 | 0.09367 | 9.541E-05 | 0.001 | 1 | 91% | 75 | 125 | 2% | |
| Copper | A | mg/L | 0.1066 | 0.1066 | | 0.1 | 0.001813 | 0.1048 | 0.0008747 | 0.00198 | 1 | 105% | 75 | 125 | 2% | |
| Iron | A | mg/L | 0.554 | 0.554 | | 0.5 | 0.04746 | 0.5601 | 0.007424 | 0.00513 | 5 | 101% | 75 | 125 | 1% | |
| Lanthanum | A | mg/L | 0.1091 | 0.1091 | | 0.1 | 0 | 0.1066 | 0.000055 | 0.001 | 0.1 | 109% | 75 | 125 | 2% | |
| Lead | A | mg/L | 0.1009 | 0.1009 | | 0.1 | 0.0002833 | 0.1002 | 7.716E-05 | 0.001 | 1 | 101% | 88 | 115 | 1% | |
| Magnesium | A | mg/L | 29.46 | 29.46 | | 5 | 24.83 | 29.58 | 0.0104254 | 0.0081522 | 50 | | 75 | 125 | 0% | A |
| Manganese | A | mg/L | 0.5428 | 0.5428 | | 0.5 | 0.03948 | 0.5487 | 0.0005399 | 0.001 | 1 | 101% | 75 | 125 | 1% | |
| Molybdenum | A | mg/L | 0.09361 | 0.09361 | | 0.1 | 0.000476 | 0.09161 | 0.0001763 | 0.001 | 0.1 | 93% | 75 | 125 | 2% | |
| Nickel | A | mg/L | 0.1068 | 0.1068 | | 0.1 | 0.002051 | 0.1066 | 0.0002288 | 0.0024200 | 1 | 105% | 75 | 125 | 0% | |
| Potassium | A | mg/L | 7.367 | 7.367 | | 5 | 2.716 | 7.446 | 0.0765619 | 0.0261205 | 50 | 93% | 75 | 125 | 1% | |
| Selenium | A | mg/L | 0.1026 | 0.1026 | | 0.1 | 0.0005156 | 0.1036 | 0.0001357 | 0.001 | 1 | 102% | 75 | 125 | 1% | |
| Silicon | A | mg/L | 21.55 | 21.55 | | 1 | 20.95 | 21.59 | 0.0422089 | 0.0053212 | 0.4 | | 75 | 125 | 0% | A |
| Silver | A | mg/L | 0.009176 | 0.009176 | | 0.01 | 0 | 0.009052 | 4.281E-05 | 0.001 | 0.04 | 92% | 75 | 125 | 1% | |
| Sodium | A | mg/L | 68.2 | 68.2 | | 5 | 65.47 | 69.26 | 0.1019461 | 0.7330269 | 50 | | 75 | 125 | 2% | A |
| Strontium | A | mg/L | 0.2891 | 0.2891 | | 0.1 | 0.1898 | 0.2952 | 0.0002433 | 0.001 | 1 | 99% | 75 | 125 | 2% | |
| Thallium | A | mg/L | 0.09917 | 0.09917 | | 0.1 | 0 | 0.09862 | 0.0001114 | 0.001 | 1 | 99% | 75 | 125 | 1% | |
| Thorium | A | mg/L | 0.1014 | 0.1014 | | 0.1 | 0 | 0.1025 | 0.0003796 | 0.00415 | 1 | 101% | 75 | 125 | 1% | |
| Tin | A | mg/L | 0.09991 | 0.09991 | | 0.1 | 0 | 0.09864 | 0.0018932 | 0.0011175 | 0.1 | 100% | 75 | 125 | 1% | |
| Titanium | A | mg/L | 0.09054 | 0.09054 | | 0.1 | 0.002374 | 0.09441 | 0.0005733 | 0.001 | 1 | 88% | 75 | 125 | 4% | |
| Uranium | A | mg/L | 0.1004 | 0.1004 | | 0.1 | 3.219E-05 | 0.1005 | 1.699E-05 | 0.0003 | 1 | 100% | 75 | 125 | 0% | |
| Vanadium | A | mg/L | 0.1125 | 0.1125 | | 0.1 | 0.01415 | 0.1138 | 0.0039127 | 0.0021085 | 1 | 98% | 75 | 125 | 1% | |
| Zinc | A | mg/L | 0.1087 | 0.1087 | | 0.1 | 0.007351 | 0.1071 | 0.0011617 | 0.0065544 | 1 | 101% | 75 | 125 | 1% | |
| Silica | C | mg/L | 46.09976 | 46.09976 | | 0 | 0 | 46.185328 | 0.0902933 | 0.0113831 | 5 | 0% | 0 | 0 | 0% | |
| Silicon as SiO2 | C | mg/L | 46.09976 | 46.09976 | | 2.14 | 0 | 46.185328 | 0.0902933 | 0.0113831 | 5 | 2154% | 75 | 125 | 0% | S |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035629 | Rinse | ICPMS-6020-W- | SAMP | | 2/14/2022 4:06:0 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | -0.0003954 | 0 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0002255 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 2.932E-06 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 5.266E-06 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 8.323E-07 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 2.359E-06 | 0 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 2.431E-07 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | -2.199E-06 | 0 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 4.733E-06 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Manganese | A | mg/L | 3.272E-06 | 0 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | 9.985E-09 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.0000253 | 0 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Nickel | A | mg/L | -0.0000103 | 0 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | -1.491E-05 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -2.691E-06 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 8.904E-06 | 0 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.0001599 | 0.0001599 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Thorium | A | mg/L | 0.00004585 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | -2.774E-05 | 0 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 3.145E-06 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 0.0001484 | 0 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | L |
| Iron | B | mg/L | 0.00004284 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.00004284 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | 0.0014 | 0 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | L |
| Potassium | B | mg/L | -0.0281 | 0 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | L |
| Tin | B | mg/L | 4.192E-06 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | -7.229E-05 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035630 | B22020415-006 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:12:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.003782 | 0.003782 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | 0.00005505 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 0.003989 | 0.003989 | | 0 | 0 | 0 | 0.000042 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035630 | B22020415-006 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:12:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cadmium | A | mg/L | 0.00001495 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 0.00001896 | 0.00001896 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Chromium | A | mg/L | -4.094E-05 | 0 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 0.0003948 | 0.0003948 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Copper | A | mg/L | 0.0001558 | 0 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 0.00001832 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Manganese | A | mg/L | 0.5135 | 0.5135 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | 0.0001826 | 0.0001826 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | J |
| Molybdenum | A | mg/L | 0.0003193 | 0.0003193 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Nickel | A | mg/L | 0.0008796 | 0.0008796 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Selenium | A | mg/L | -1.987E-05 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -6.595E-05 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 0.06823 | 0.06823 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.0001031 | 0.0001031 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Thorium | A | mg/L | 0.0000108 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.002323 | 0.002323 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00001079 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 9.648 | 9.648 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | D |
| Iron | B | mg/L | 0.452 | 0.452 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.452 | 0.452 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | 10.56 | 10.56 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | D |
| Potassium | B | mg/L | 1.989 | 1.989 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | D |
| Sodium | B | mg/L | 41.71 | 41.71 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | D |
| Tin | B | mg/L | -1.554E-05 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | 0.001569 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035631 | B22020415-006 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:18:3 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | A | mg/L | 0.0006609 | 0.0006609 | | 0 | 0 | 0 | 0.0003412 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Barium | A | mg/L | 0.004286 | 0.004286 | | 0 | 0 | 0 | 0.0002682 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 4.929E-06 | 0 | | 0 | 0 | 0 | 1.821E-05 | 0.005 | 1 | 0% | 0 | 0 | 0% | U |
| Cerium | A | mg/L | 0.00009689 | 0.00009689 | | 0 | 0 | 0 | 2.738E-05 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Cobalt | A | mg/L | 0.000401 | 0.000401 | | 0 | 0 | 0 | 9.541E-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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035631 | B22020415-006 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:18:3 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lanthanum | A | mg/L | 0.00002875 | 0 | | 0 | 0 | 0 | 0.000055 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | U |
| Lead | A | mg/L | 0.00006283 | 0 | | 0 | 0 | 0 | 7.716E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Manganese | A | mg/L | 0.523 | 0.523 | | 0 | 0 | 0 | 0.0005399 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.0002803 | 0.0002803 | | 0 | 0 | 0 | 0.0001763 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Selenium | A | mg/L | 0.00002599 | 0 | | 0 | 0 | 0 | 0.0001357 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Silver | A | mg/L | -3.891E-05 | 0 | | 0 | 0 | 0 | 4.281E-05 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | U |
| Strontium | A | mg/L | 0.06744 | 0.06744 | | 0 | 0 | 0 | 0.0002433 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00009918 | 0 | | 0 | 0 | 0 | 0.0001114 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Titanium | A | mg/L | 0.005244 | 0.005244 | | 0 | 0 | 0 | 0.0005733 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00001132 | 0 | | 0 | 0 | 0 | 1.699E-05 | 0.0003 | 1 | 0% | 0 | 0 | 0% | U |
| Aluminum | B | mg/L | 0.04484 | 0.04484 | | 0 | 0 | 0 | 0.0038747 | 0.0031975 | 1 | 0% | 0 | 0 | 0% | D |
| Calcium | B | mg/L | 9.196 | 9.196 | | 0 | 0 | 0 | 0.0372936 | 0.1103481 | 50 | 0% | 0 | 0 | 0% | D |
| Chromium | B | mg/L | 0.0003044 | 0 | | 0 | 0 | 0 | 0.0015375 | 0.0015375 | 1 | 0% | 0 | 0 | 0% | LU |
| Copper | B | mg/L | 0.0009274 | 0.0009274 | | 0 | 0 | 0 | 0.0008747 | 0.00198 | 1 | 0% | 0 | 0 | 0% | JL |
| Iron | B | mg/L | 0.5116 | 0.5116 | | 0 | 0 | 0 | 0.007424 | 0.00513 | 5 | 0% | 0 | 0 | 0% | D |
| Magnesium | B | mg/L | 10.71 | 10.71 | | 0 | 0 | 0 | 0.0104254 | 0.0081522 | 50 | 0% | 0 | 0 | 0% | D |
| Nickel | B | mg/L | 0.001047 | 0.001047 | | 0 | 0 | 0 | 0.0002288 | 0.0024200 | 1 | 0% | 0 | 0 | 0% | JL |
| Potassium | B | mg/L | 1.833 | 1.833 | | 0 | 0 | 0 | 0.0765619 | 0.0261205 | 50 | 0% | 0 | 0 | 0% | D |
| Sodium | B | mg/L | 42.18 | 42.18 | | 0 | 0 | 0 | 0.1019461 | 0.7330269 | 50 | 0% | 0 | 0 | 0% | D |
| Thorium | B | mg/L | 0.0001306 | 0 | | 0 | 0 | 0 | 0.0003796 | 0.00415 | 1 | 0% | 0 | 0 | 0% | LU |
| Tin | B | mg/L | 0.0002366 | 0 | | 0 | 0 | 0 | 0.0018932 | 0.0011175 | 0.1 | 0% | 0 | 0 | 0% | U |
| Zinc | B | mg/L | 0.001936 | 0.001936 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035632 | B22020415-011 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:24:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.004212 | 0.004212 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0004462 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 0.004337 | 0.004337 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0.00001649 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 6.284E-06 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0.0007909 | 0.0007909 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Cobalt | A | mg/L | 0.00005455 | 0.00005455 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Copper | A | mg/L | 0.0004859 | 0.0004859 | | 0 | 0 | 0 | 0.00027 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035632 | B22020415-011 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:24:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | A | mg/L | 0.00001241 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Manganese | A | mg/L | 0.008143 | 0.008143 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | 7.441E-06 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.0003266 | 0.0003266 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Nickel | A | mg/L | 0.0008135 | 0.0008135 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Selenium | A | mg/L | 0.0002095 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -6.347E-05 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 0.1678 | 0.1678 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00004614 | 0.00004614 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Thorium | A | mg/L | -4.576E-06 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.001951 | 0.001951 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00001041 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 16.89 | 16.89 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | D |
| Iron | B | mg/L | 0.001706 | 0.001706 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.001706 | 0.001706 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | 18.01 | 18.01 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | D |
| Potassium | B | mg/L | 3.196 | 3.196 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | D |
| Sodium | B | mg/L | 39.45 | 39.45 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | D |
| Tin | B | mg/L | -6.494E-05 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | 0.00131 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035633 | B22020415-011 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:31:0 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | A | mg/L | 0.0002587 | 0 | | 0 | 0 | 0 | 0.0003412 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Barium | A | mg/L | 0.004641 | 0.004641 | | 0 | 0 | 0 | 0.0002682 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0.00000601 | 0 | | 0 | 0 | 0 | 1.821E-05 | 0.005 | 1 | 0% | 0 | 0 | 0% | U |
| Cerium | A | mg/L | 0.00006631 | 0.00006631 | | 0 | 0 | 0 | 2.738E-05 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Cobalt | A | mg/L | 0.0001754 | 0.0001754 | | 0 | 0 | 0 | 9.541E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Lanthanum | A | mg/L | 0.00002929 | 0 | | 0 | 0 | 0 | 0.000055 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | U |
| Lead | A | mg/L | 0.00002894 | 0 | | 0 | 0 | 0 | 7.716E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Manganese | A | mg/L | 0.01757 | 0.01757 | | 0 | 0 | 0 | 0.0005399 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.0007675 | 0.0007675 | | 0 | 0 | 0 | 0.0001763 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Selenium | A | mg/L | 0.000235 | 0.000235 | | 0 | 0 | 0 | 0.0001357 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035633 | B22020415-011 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:31:0 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Silver | A | mg/L | -5.475E-05 | 0 | | 0 | 0 | 0 | 4.281E-05 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | U |
| Strontium | A | mg/L | 0.1728 | 0.1728 | | 0 | 0 | 0 | 0.0002433 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00005909 | 0 | | 0 | 0 | 0 | 0.0001114 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Titanium | A | mg/L | 0.006666 | 0.006666 | | 0 | 0 | 0 | 0.0005733 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00001183 | 0 | | 0 | 0 | 0 | 1.699E-05 | 0.0003 | 1 | 0% | 0 | 0 | 0% | U |
| Aluminum | B | mg/L | 0.0983 | 0.0983 | | 0 | 0 | 0 | 0.0038747 | 0.0031975 | 1 | 0% | 0 | 0 | 0% | D |
| Calcium | B | mg/L | 16.4 | 16.4 | | 0 | 0 | 0 | 0.0372936 | 0.1103481 | 50 | 0% | 0 | 0 | 0% | D |
| Chromium | B | mg/L | 0.001285 | 0 | | 0 | 0 | 0 | 0.0015375 | 0.0015375 | 1 | 0% | 0 | 0 | 0% | LU |
| Copper | B | mg/L | 0.0008017 | 0 | | 0 | 0 | 0 | 0.0008747 | 0.00198 | 1 | 0% | 0 | 0 | 0% | LU |
| Iron | B | mg/L | 0.0741 | 0.0741 | | 0 | 0 | 0 | 0.007424 | 0.00513 | 5 | 0% | 0 | 0 | 0% | D |
| Magnesium | B | mg/L | 18.77 | 18.77 | | 0 | 0 | 0 | 0.0104254 | 0.0081522 | 50 | 0% | 0 | 0 | 0% | D |
| Nickel | B | mg/L | 0.001128 | 0.001128 | | 0 | 0 | 0 | 0.0002288 | 0.0024200 | 1 | 0% | 0 | 0 | 0% | JL |
| Potassium | B | mg/L | 3.083 | 3.083 | | 0 | 0 | 0 | 0.0765619 | 0.0261205 | 50 | 0% | 0 | 0 | 0% | D |
| Sodium | B | mg/L | 40.17 | 40.17 | | 0 | 0 | 0 | 0.1019461 | 0.7330269 | 50 | 0% | 0 | 0 | 0% | D |
| Thorium | B | mg/L | 0.00006965 | 0 | | 0 | 0 | 0 | 0.0003796 | 0.00415 | 1 | 0% | 0 | 0 | 0% | LU |
| Tin | B | mg/L | 0.0002392 | 0 | | 0 | 0 | 0 | 0.0018932 | 0.0011175 | 0.1 | 0% | 0 | 0 | 0% | U |
| Zinc | B | mg/L | 0.003137 | 0.003137 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035634 | B22020415-017 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:37:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.003087 | 0.003087 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | 0.0004405 | 0.0004405 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Barium | A | mg/L | 0.01112 | 0.01112 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0.00002192 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 4.713E-06 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0.0006896 | 0.0006896 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Cobalt | A | mg/L | 0.0001126 | 0.0001126 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Copper | A | mg/L | 0.0005615 | 0.0005615 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Lead | A | mg/L | 0.00001517 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Manganese | A | mg/L | 0.002003 | 0.002003 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | 0.000772 | 0.000772 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | J |
| Molybdenum | A | mg/L | 0.001802 | 0.001802 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Nickel | A | mg/L | 0.0004843 | 0 | | 0 | 0 | 0 | 0.00063 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035634 | B22020415-017 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:37:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | A | mg/L | 0.0003927 | 0.0003927 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Silver | A | mg/L | -4.627E-05 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 0.3061 | 0.3061 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00002263 | 0 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | -5.833E-06 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.001735 | 0.001735 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00007447 | 0.00007447 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | J |
| Calcium | B | mg/L | 39.14 | 39.14 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | D |
| Iron | B | mg/L | 0.01445 | 0.01445 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.01445 | 0.01445 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | 40.27 | 40.27 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | D |
| Potassium | B | mg/L | 2.762 | 2.762 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | D |
| Tin | B | mg/L | -4.676E-05 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | 0.001892 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035635 | B22020415-017 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:43:3 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | A | mg/L | 0.001322 | 0.001322 | | 0 | 0 | 0 | 0.0003412 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 0.01129 | 0.01129 | | 0 | 0 | 0 | 0.0002682 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0.00001026 | 0 | | 0 | 0 | 0 | 1.821E-05 | 0.005 | 1 | 0% | 0 | 0 | 0% | U |
| Cerium | A | mg/L | 0.00003819 | 0.00003819 | | 0 | 0 | 0 | 2.738E-05 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Cobalt | A | mg/L | 0.0001393 | 0.0001393 | | 0 | 0 | 0 | 9.541E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Lanthanum | A | mg/L | 0.00001755 | 0 | | 0 | 0 | 0 | 0.000055 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | U |
| Lead | A | mg/L | 0.00006939 | 0 | | 0 | 0 | 0 | 7.716E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Manganese | A | mg/L | 0.002803 | 0.002803 | | 0 | 0 | 0 | 0.0005399 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.001897 | 0.001897 | | 0 | 0 | 0 | 0.0001763 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | 0.0004409 | 0.0004409 | | 0 | 0 | 0 | 0.0001357 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Silver | A | mg/L | -3.881E-05 | 0 | | 0 | 0 | 0 | 4.281E-05 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | U |
| Strontium | A | mg/L | 0.3076 | 0.3076 | | 0 | 0 | 0 | 0.0002433 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00004743 | 0 | | 0 | 0 | 0 | 0.0001114 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Titanium | A | mg/L | 0.003052 | 0.003052 | | 0 | 0 | 0 | 0.0005733 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00007795 | 0.00007795 | | 0 | 0 | 0 | 1.699E-05 | 0.0003 | 1 | 0% | 0 | 0 | 0% | J |
| Aluminum | B | mg/L | 0.01902 | 0.01902 | | 0 | 0 | 0 | 0.0038747 | 0.0031975 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035635 | B22020415-017 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:43:3 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | B | mg/L | 39.09 | 39.09 | | 0 | 0 | 0 | 0.0372936 | 0.1103481 | 50 | 0% | 0 | 0 | 0% | D |
| Chromium | B | mg/L | 0.00109 | 0 | | 0 | 0 | 0 | 0.0015375 | 0.0015375 | 1 | 0% | 0 | 0 | 0% | LU |
| Copper | B | mg/L | 0.0006014 | 0 | | 0 | 0 | 0 | 0.0008747 | 0.00198 | 1 | 0% | 0 | 0 | 0% | LU |
| Iron | B | mg/L | 0.07876 | 0.07876 | | 0 | 0 | 0 | 0.007424 | 0.00513 | 5 | 0% | 0 | 0 | 0% | D |
| Magnesium | B | mg/L | 41.31 | 41.31 | | 0 | 0 | 0 | 0.0104254 | 0.0081522 | 50 | 0% | 0 | 0 | 0% | D |
| Nickel | B | mg/L | 0.0006434 | 0.0006434 | | 0 | 0 | 0 | 0.0002288 | 0.0024200 | 1 | 0% | 0 | 0 | 0% | JL |
| Potassium | B | mg/L | 2.74 | 2.74 | | 0 | 0 | 0 | 0.0765619 | 0.0261205 | 50 | 0% | 0 | 0 | 0% | D |
| Thorium | B | mg/L | 0.00004757 | 0 | | 0 | 0 | 0 | 0.0003796 | 0.00415 | 1 | 0% | 0 | 0 | 0% | LU |
| Tin | B | mg/L | 0.0003082 | 0 | | 0 | 0 | 0 | 0.0018932 | 0.0011175 | 0.1 | 0% | 0 | 0 | 0% | U |
| Zinc | B | mg/L | 0.004792 | 0.004792 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035636 | B22020415-022 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:49:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.005417 | 0.005417 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0004206 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 0.003578 | 0.003578 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0.00001772 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 3.837E-06 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0.001991 | 0.001991 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 0.00002529 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | 0.0006238 | 0.0006238 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Lead | A | mg/L | 0.00001428 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Manganese | A | mg/L | 0.0003477 | 0.0003477 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Mercury | A | mg/L | 9.398E-06 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.00009774 | 0.00009774 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Nickel | A | mg/L | 0.0006477 | 0.0006477 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Selenium | A | mg/L | 0.00007557 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -6.442E-05 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 0.06874 | 0.06874 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00001705 | 0 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | -8.317E-06 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.001637 | 0.001637 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00001743 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035636 | B22020415-022 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:49:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calcium | B | mg/L | 10.42 | 10.42 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | D |
| Iron | B | mg/L | 0.000985 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.000985 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | 10.11 | 10.11 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | D |
| Potassium | B | mg/L | 2.038 | 2.038 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | D |
| Sodium | B | mg/L | 31.95 | 31.95 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | D |
| Tin | B | mg/L | -2.744E-05 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | 0.002288 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035637 | B22020415-022 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:56:0 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | A | mg/L | 0.0003504 | 0.0003504 | | 0 | 0 | 0 | 0.0003412 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Barium | A | mg/L | 0.003686 | 0.003686 | | 0 | 0 | 0 | 0.0002682 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 2.585E-06 | 0 | | 0 | 0 | 0 | 1.821E-05 | 0.005 | 1 | 0% | 0 | 0 | 0% | U |
| Cerium | A | mg/L | 0.00000834 | 0 | | 0 | 0 | 0 | 2.738E-05 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | U |
| Cobalt | A | mg/L | 0.00005139 | 0 | | 0 | 0 | 0 | 9.541E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Lanthanum | A | mg/L | 3.988E-06 | 0 | | 0 | 0 | 0 | 0.000055 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | U |
| Lead | A | mg/L | 0.0000322 | 0 | | 0 | 0 | 0 | 7.716E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Manganese | A | mg/L | 0.0004547 | 0 | | 0 | 0 | 0 | 0.0005399 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Molybdenum | A | mg/L | 0.0001745 | 0 | | 0 | 0 | 0 | 0.0001763 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | U |
| Selenium | A | mg/L | 0.0001422 | 0.0001422 | | 0 | 0 | 0 | 0.0001357 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Silver | A | mg/L | -6.179E-05 | 0 | | 0 | 0 | 0 | 4.281E-05 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | U |
| Strontium | A | mg/L | 0.06804 | 0.06804 | | 0 | 0 | 0 | 0.0002433 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.0000316 | 0 | | 0 | 0 | 0 | 0.0001114 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Titanium | A | mg/L | 0.002189 | 0.002189 | | 0 | 0 | 0 | 0.0005733 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00001754 | 0.00001754 | | 0 | 0 | 0 | 1.699E-05 | 0.0003 | 1 | 0% | 0 | 0 | 0% | J |
| Aluminum | B | mg/L | 0.009832 | 0.009832 | | 0 | 0 | 0 | 0.0038747 | 0.0031975 | 1 | 0% | 0 | 0 | 0% | DU |
| Calcium | B | mg/L | 10.27 | 10.27 | | 0 | 0 | 0 | 0.0372936 | 0.1103481 | 50 | 0% | 0 | 0 | 0% | D |
| Chromium | B | mg/L | 0.004759 | 0.004759 | | 0 | 0 | 0 | 0.0015375 | 0.0015375 | 1 | 0% | 0 | 0 | 0% | DU |
| Copper | B | mg/L | 0.000273 | 0 | | 0 | 0 | 0 | 0.0008747 | 0.00198 | 1 | 0% | 0 | 0 | 0% | LU |
| Iron | B | mg/L | 0.02084 | 0.02084 | | 0 | 0 | 0 | 0.007424 | 0.00513 | 5 | 0% | 0 | 0 | 0% | D |
| Magnesium | B | mg/L | 10.26 | 10.26 | | 0 | 0 | 0 | 0.0104254 | 0.0081522 | 50 | 0% | 0 | 0 | 0% | D |
| Nickel | B | mg/L | 0.001422 | 0.001422 | | 0 | 0 | 0 | 0.0002288 | 0.0024200 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035637 | B22020415-022 | ICPMS-6020-W- | SAMP | | 2/14/2022 4:56:0 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | B | mg/L | 1.906 | 1.906 | | 0 | 0 | 0 | 0.0765619 | 0.0261205 | 50 | 0% | 0 | 0 | 0% | D |
| Sodium | B | mg/L | 33.15 | 33.15 | | 0 | 0 | 0 | 0.1019461 | 0.7330269 | 50 | 0% | 0 | 0 | 0% | D |
| Thorium | B | mg/L | 0.00003284 | 0 | | 0 | 0 | 0 | 0.0003796 | 0.00415 | 1 | 0% | 0 | 0 | 0% | LU |
| Tin | B | mg/L | 0.0003471 | 0 | | 0 | 0 | 0 | 0.0018932 | 0.0011175 | 0.1 | 0% | 0 | 0 | 0% | U |
| Zinc | B | mg/L | 0.007889 | 0.007889 | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035638 | B22020415-027 | ICPMS-6020-W- | SAMP | | 2/14/2022 5:02:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.0007821 | 0 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.0004973 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 0.007067 | 0.007067 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0.00001925 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 3.721E-07 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0.001914 | 0.001914 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 0.00002633 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | 0.002038 | 0.002038 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 0.00007934 | 0.00007934 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Manganese | A | mg/L | 0.001635 | 0.001635 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Mercury | A | mg/L | 2.307E-06 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.0002647 | 0.0002647 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Nickel | A | mg/L | 0.0001798 | 0 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | 0.0002628 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -6.501E-05 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 0.1447 | 0.1447 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 5.217E-06 | 0 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | -8.65E-06 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.001327 | 0.001327 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00002443 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 19.66 | 19.66 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | D |
| Iron | B | mg/L | 0.001355 | 0.001355 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.001355 | 0.001355 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | 20.25 | 20.25 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | 0 | 0 | 0% | D |
| Potassium | B | mg/L | 2.589 | 2.589 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035638 | B22020415-027 | ICPMS-6020-W- | SAMP | | 2/14/2022 5:02:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tin | B | mg/L | -6.476E-05 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | 0.00273 | 0.00273 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035639 | CCV | ICPMS-6020-W- | CCV | | 2/14/2022 5:08:2 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.04689 | 0.04689 | | 0.05 | 0 | 0 | 0.00086 | 0.001 | 1 | 94% | 90 | 110 | 0% | |
| Antimony | A | mg/L | 0.04967 | 0.04967 | | 0.05 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 99% | 90 | 110 | 0% | |
| Arsenic | A | mg/L | 0.04962 | 0.04962 | | 0.05 | 0 | 0 | 0.00019 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Barium | A | mg/L | 0.04862 | 0.04862 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 97% | 90 | 110 | 0% | |
| Beryllium | A | mg/L | 0.04357 | 0.04357 | | 0.05 | 0 | 0 | 0.00012 | 0.001 | 1 | 87% | 90 | 110 | 0% | S |
| Boron | A | mg/L | 0.05108 | 0.05108 | | 0.05 | 0 | 0 | 0.00561 | 0.00561 | 1 | 102% | 90 | 110 | 0% | |
| Cadmium | A | mg/L | 0.04786 | 0.04786 | | 0.05 | 0 | 0 | 0.000025 | 0.001 | 1 | 96% | 90 | 110 | 0% | |
| Calcium | A | mg/L | 12.44 | 12.44 | | 12.5 | 0 | 0 | 0.02092 | 0.02092 | 50 | 100% | 90 | 110 | 0% | |
| Cerium | A | mg/L | 0.05047 | 0.05047 | | 0.05 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 101% | 90 | 110 | 0% | |
| Chromium | A | mg/L | 0.04896 | 0.04896 | | 0.05 | 0 | 0 | 0.00018 | 0.001 | 1 | 98% | 90 | 110 | 0% | |
| Cobalt | A | mg/L | 0.04762 | 0.04762 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 95% | 90 | 110 | 0% | |
| Copper | A | mg/L | 0.05166 | 0.05166 | | 0.05 | 0 | 0 | 0.00027 | 0.001 | 1 | 103% | 90 | 110 | 0% | |
| Iron | A | mg/L | 1.362 | 1.362 | | 1.3 | 0 | 0 | 0.00119 | 0.00119 | 5 | 105% | 90 | 110 | 0% | |
| Lanthanum | A | mg/L | 0.05034 | 0.05034 | | 0.05 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 101% | 90 | 110 | 0% | |
| Lead | A | mg/L | 0.04897 | 0.04897 | | 0.05 | 0 | 0 | 0.000056 | 0.001 | 1 | 98% | 90 | 110 | 0% | |
| Magnesium | A | mg/L | 13.31 | 13.31 | | 12.5 | 0 | 0 | 0.00564 | 0.00564 | 50 | 106% | 90 | 110 | 0% | |
| Manganese | A | mg/L | 0.04997 | 0.04997 | | 0.05 | 0 | 0 | 0.000095 | 0.001 | 1 | 100% | 90 | 110 | 0% | |
| Mercury | A | mg/L | 0.001006 | 0.001006 | | 0.001 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 101% | 90 | 110 | 0% | |
| Molybdenum | A | mg/L | 0.04634 | 0.04634 | | 0.05 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 93% | 90 | 110 | 0% | |
| Nickel | A | mg/L | 0.05228 | 0.05228 | | 0.05 | 0 | 0 | 0.00063 | 0.001 | 1 | 105% | 90 | 110 | 0% | |
| Potassium | A | mg/L | 12.27 | 12.27 | | 12.5 | 0 | 0 | 0.08139 | 0.08139 | 50 | 98% | 90 | 110 | 0% | |
| Selenium | A | mg/L | 0.05141 | 0.05141 | | 0.05 | 0 | 0 | 0.00033 | 0.001 | 1 | 103% | 90 | 110 | 0% | |
| Silicon | A | mg/L | 0.2154 | 0.2154 | | 0.2 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 108% | 90 | 110 | 0% | |
| Silver | A | mg/L | 0.01909 | 0.01909 | | 0.02 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 95% | 90 | 110 | 0% | |
| Sodium | A | mg/L | 13.46 | 13.46 | | 12.5 | 0 | 0 | 0.02171 | 0.02171 | 50 | 108% | 90 | 110 | 0% | |
| Strontium | A | mg/L | 0.04939 | 0.04939 | | 0.05 | 0 | 0 | 0.00014 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Thallium | A | mg/L | 0.04803 | 0.04803 | | 0.05 | 0 | 0 | 0.000041 | 0.001 | 1 | 96% | 90 | 110 | 0% | |
| Thorium | A | mg/L | 0.04631 | 0.04631 | | 0.05 | 0 | 0 | 0.00061 | 0.001 | 1 | 93% | 90 | 110 | 0% | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035639 | CCV | ICPMS-6020-W- CCV | | | 2/14/2022 5:08:2 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tin | A | mg/L | 0.04852 | 0.04852 | | 0.05 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 97% | 90 | 110 | 0% | |
| Titanium | A | mg/L | 0.04812 | 0.04812 | | 0.05 | 0 | 0 | 0.000094 | 0.001 | 1 | 96% | 90 | 110 | 0% | |
| Uranium | A | mg/L | 0.04921 | 0.04921 | | 0.05 | 0 | 0 | 0.000052 | 0.0003 | 1 | 98% | 90 | 110 | 0% | |
| Vanadium | A | mg/L | 0.04778 | 0.04778 | | 0.05 | 0 | 0 | 0.0013 | 0.0013 | 1 | 96% | 90 | 110 | 0% | |
| Zinc | A | mg/L | 0.05103 | 0.05103 | | 0.05 | 0 | 0 | 0.00273 | 0.00273 | 1 | 102% | 90 | 110 | 0% | |
| Iron, Ferrous | C | mg/L | 1.362 | 1.362 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035640 | CCB | ICPMS-6020-W- CCB | | | 2/14/2022 5:14:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | -0.000496 | -0.000496 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | | | 0% | |
| Antimony | A | mg/L | 0.00006174 | 0.00006174 | | 0 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 0% | | | 0% | |
| Arsenic | A | mg/L | -0.0001081 | -0.0001081 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | | | 0% | |
| Barium | A | mg/L | -2.284E-06 | -2.284E-06 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Beryllium | A | mg/L | -7.052E-05 | -7.052E-05 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | | | 0% | |
| Boron | A | mg/L | 0.001169 | 0.001169 | | 0 | 0 | 0 | 0.00561 | 0.00561 | 1 | 0% | | | 0% | |
| Cadmium | A | mg/L | 7.533E-06 | 7.533E-06 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | | | 0% | |
| Calcium | A | mg/L | 0.0001302 | 0.0001302 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | | | 0% | |
| Cerium | A | mg/L | 4.943E-07 | 4.943E-07 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0.0000204 | 0.0000204 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | | | 0% | |
| Cobalt | A | mg/L | -2.385E-06 | -2.385E-06 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Copper | A | mg/L | -1.733E-05 | -1.733E-05 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | | | 0% | |
| Iron | A | mg/L | 0.000121 | 0.000121 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | | | 0% | |
| Lanthanum | A | mg/L | 5.275E-07 | 5.275E-07 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 9.924E-07 | 9.924E-07 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | | | 0% | |
| Magnesium | A | mg/L | 0.0007812 | 0.0007812 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | | | 0% | |
| Manganese | A | mg/L | 1.024E-06 | 1.024E-06 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | | | 0% | |
| Mercury | A | mg/L | 1.012E-06 | 1.012E-06 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | | | 0% | |
| Molybdenum | A | mg/L | 0.00002651 | 0.00002651 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | | | 0% | |
| Nickel | A | mg/L | -1.744E-05 | -1.744E-05 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | | | 0% | |
| Potassium | A | mg/L | -0.02854 | -0.02854 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | | | 0% | |
| Selenium | A | mg/L | -1.424E-05 | -1.424E-05 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | | | 0% | |
| Silicon | A | mg/L | -0.0007018 | -0.0007018 | | 0 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -3.458E-06 | -3.458E-06 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | | | 0% | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035640 | CCB | ICPMS-6020-W- | CCB | | 2/14/2022 5:14:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium | A | mg/L | 0.02986 | 0.02986 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | | | 0% | |
| Strontium | A | mg/L | -1.085E-06 | -1.085E-06 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00006478 | 0.00006478 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 0.00002499 | 0.00002499 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Tin | A | mg/L | -7.053E-06 | -7.053E-06 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.0000258 | 0.0000258 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 2.839E-06 | 2.839E-06 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Vanadium | A | mg/L | 0.0002554 | 0.0002554 | | 0 | 0 | 0 | 0.0013 | 0.0013 | 1 | 0% | 0 | 0 | 0% | |
| Zinc | A | mg/L | -0.000166 | -0.000166 | | 0 | 0 | 0 | 0.00273 | 0.00273 | 1 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | C | mg/L | 0.000121 | 0.000121 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035641 | B22020415-027 | ICPMS-6020-W- | SAMP | | 2/14/2022 5:20:5 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | A | mg/L | 0.0003083 | 0 | | 0 | 0 | 0 | 0.0003412 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Barium | A | mg/L | 0.006962 | 0.006962 | | 0 | 0 | 0 | 0.0002682 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 5.357E-06 | 0 | | 0 | 0 | 0 | 1.821E-05 | 0.005 | 1 | 0% | 0 | 0 | 0% | U |
| Cerium | A | mg/L | 1.836E-06 | 0 | | 0 | 0 | 0 | 2.738E-05 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | U |
| Cobalt | A | mg/L | 0.00004753 | 0 | | 0 | 0 | 0 | 9.541E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Lanthanum | A | mg/L | 8.046E-07 | 0 | | 0 | 0 | 0 | 0.000055 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | U |
| Lead | A | mg/L | 0.00002487 | 0 | | 0 | 0 | 0 | 7.716E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Manganese | A | mg/L | 0.001697 | 0.001697 | | 0 | 0 | 0 | 0.0005399 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.0005301 | 0.0005301 | | 0 | 0 | 0 | 0.0001763 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Selenium | A | mg/L | 0.0003273 | 0.0003273 | | 0 | 0 | 0 | 0.0001357 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Silver | A | mg/L | -6.576E-05 | 0 | | 0 | 0 | 0 | 4.281E-05 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | U |
| Strontium | A | mg/L | 0.1445 | 0.1445 | | 0 | 0 | 0 | 0.0002433 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00005944 | 0 | | 0 | 0 | 0 | 0.0001114 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Titanium | A | mg/L | 0.001789 | 0.001789 | | 0 | 0 | 0 | 0.0005733 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00002726 | 0.00002726 | | 0 | 0 | 0 | 1.699E-05 | 0.0003 | 1 | 0% | 0 | 0 | 0% | J |
| Aluminum | B | mg/L | 0.002345 | 0 | | 0 | 0 | 0 | 0.0038747 | 0.0031975 | 1 | 0% | 0 | 0 | 0% | LU |
| Calcium | B | mg/L | 19.28 | 19.28 | | 0 | 0 | 0 | 0.0372936 | 0.1103481 | 50 | 0% | 0 | 0 | 0% | D |
| Chromium | B | mg/L | 0.0023 | 0.0023 | | 0 | 0 | 0 | 0.0015375 | 0.0015375 | 1 | 0% | 0 | 0 | 0% | DU |
| Copper | B | mg/L | 0.0001468 | 0 | | 0 | 0 | 0 | 0.0008747 | 0.00198 | 1 | 0% | 0 | 0 | 0% | LU |
| Iron | B | mg/L | 0.002661 | 0 | | 0 | 0 | 0 | 0.007424 | 0.00513 | 5 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035641 | B22020415-027 | ICPMS-6020-W- | SAMP | | 2/14/2022 5:20:5 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Magnesium | B | mg/L | 20.52 | 20.52 | | 0 | 0 | 0 | 0.0104254 | 0.0081522 | 50 | 0% | 0 | 0 | 0% | D |
| Nickel | B | mg/L | 0.0002332 | 0.0002332 | | 0 | 0 | 0 | 0.0002288 | 0.0024200 | 1 | 0% | 0 | 0 | 0% | JL |
| Potassium | B | mg/L | 2.523 | 2.523 | | 0 | 0 | 0 | 0.0765619 | 0.0261205 | 50 | 0% | 0 | 0 | 0% | D |
| Thorium | B | mg/L | 0.0001018 | 0 | | 0 | 0 | 0 | 0.0003796 | 0.00415 | 1 | 0% | 0 | 0 | 0% | LU |
| Tin | B | mg/L | 0.0002107 | 0 | | 0 | 0 | 0 | 0.0018932 | 0.0011175 | 0.1 | 0% | 0 | 0 | 0% | U |
| Zinc | B | mg/L | 0.0009584 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035642 | B22020415-032 | ICPMS-6020-W- | SAMP | | 2/14/2022 5:27:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.001306 | 0.001306 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Arsenic | A | mg/L | -0.000499 | 0 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Barium | A | mg/L | 0.00675 | 0.00675 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 0.00001838 | 0 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cerium | A | mg/L | 8.62E-07 | 0 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | 0.001883 | 0.001883 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cobalt | A | mg/L | 0.00002321 | 0 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Copper | A | mg/L | 0.0003808 | 0.0003808 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Lead | A | mg/L | 0.00001084 | 0 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Manganese | A | mg/L | 0.0007255 | 0.0007255 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Mercury | A | mg/L | 1.281E-06 | 0 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | 0 | 0 | 0% | |
| Molybdenum | A | mg/L | 0.0002699 | 0.0002699 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Nickel | A | mg/L | 0.0001811 | 0 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Selenium | A | mg/L | 0.0002452 | 0 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -6.405E-05 | 0 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | |
| Strontium | A | mg/L | 0.1426 | 0.1426 | | 0 | 0 | 0 | 0.00014 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00001852 | 0 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | -7.904E-06 | 0 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 0.001318 | 0.001318 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00002622 | 0 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Calcium | B | mg/L | 19.42 | 19.42 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | 0 | 0 | 0% | D |
| Iron | B | mg/L | 0.0009957 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | B | mg/L | 0.0009957 | 0 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |
| Magnesium | B | mg/L | 20.19 | 20.19 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035642 | B22020415-032 | ICPMS-6020-W- | SAMP | | 2/14/2022 5:27:1 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Potassium | B | mg/L | 2.586 | 2.586 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | 0 | 0 | 0% | D |
| Sodium | B | mg/L | 49.05 | 49.05 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | 0 | 0 | 0% | D |
| Tin | B | mg/L | -6.153E-05 | 0 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Zinc | B | mg/L | 0.0008527 | 0 | | 0 | 0 | 0 | 0.00273 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035643 | B22020415-032 | ICPMS-6020-W- | SAMP | | 2/14/2022 5:33:2 | 1 | 163617 | 2/8/2022 3:3 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | A | mg/L | 0.0003186 | 0 | | 0 | 0 | 0 | 0.0003412 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Barium | A | mg/L | 0.006776 | 0.006776 | | 0 | 0 | 0 | 0.0002682 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Cadmium | A | mg/L | 4.587E-06 | 0 | | 0 | 0 | 0 | 1.821E-05 | 0.005 | 1 | 0% | 0 | 0 | 0% | U |
| Cerium | A | mg/L | 2.207E-06 | 0 | | 0 | 0 | 0 | 2.738E-05 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | U |
| Cobalt | A | mg/L | 0.00004181 | 0 | | 0 | 0 | 0 | 9.541E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Lanthanum | A | mg/L | 1.221E-06 | 0 | | 0 | 0 | 0 | 0.000055 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | U |
| Lead | A | mg/L | 0.00001606 | 0 | | 0 | 0 | 0 | 7.716E-05 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Manganese | A | mg/L | 0.0007989 | 0.0007989 | | 0 | 0 | 0 | 0.0005399 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Molybdenum | A | mg/L | 0.0006626 | 0.0006626 | | 0 | 0 | 0 | 0.0001763 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | J |
| Selenium | A | mg/L | 0.0003063 | 0.0003063 | | 0 | 0 | 0 | 0.0001357 | 0.001 | 1 | 0% | 0 | 0 | 0% | J |
| Silver | A | mg/L | -6.637E-05 | 0 | | 0 | 0 | 0 | 4.281E-05 | 0.001 | 0.04 | 0% | 0 | 0 | 0% | U |
| Strontium | A | mg/L | 0.1419 | 0.1419 | | 0 | 0 | 0 | 0.0002433 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thallium | A | mg/L | 0.00002592 | 0 | | 0 | 0 | 0 | 0.0001114 | 0.001 | 1 | 0% | 0 | 0 | 0% | U |
| Titanium | A | mg/L | 0.001561 | 0.001561 | | 0 | 0 | 0 | 0.0005733 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 0.00002535 | 0.00002535 | | 0 | 0 | 0 | 1.699E-05 | 0.0003 | 1 | 0% | 0 | 0 | 0% | J |
| Aluminum | B | mg/L | 0.002394 | 0 | | 0 | 0 | 0 | 0.0038747 | 0.0031975 | 1 | 0% | 0 | 0 | 0% | LU |
| Calcium | B | mg/L | 19.47 | 19.47 | | 0 | 0 | 0 | 0.0372936 | 0.1103481 | 50 | 0% | 0 | 0 | 0% | D |
| Chromium | B | mg/L | 0.002145 | 0.002145 | | 0 | 0 | 0 | 0.0015375 | 0.0015375 | 1 | 0% | 0 | 0 | 0% | DU |
| Copper | B | mg/L | 0.0001349 | 0 | | 0 | 0 | 0 | 0.0008747 | 0.00198 | 1 | 0% | 0 | 0 | 0% | LU |
| Iron | B | mg/L | 0.001717 | 0 | | 0 | 0 | 0 | 0.007424 | 0.00513 | 5 | 0% | 0 | 0 | 0% | LU |
| Magnesium | B | mg/L | 20.5 | 20.5 | | 0 | 0 | 0 | 0.0104254 | 0.0081522 | 50 | 0% | 0 | 0 | 0% | D |
| Nickel | B | mg/L | 0.0002125 | 0 | | 0 | 0 | 0 | 0.0002288 | 0.0024200 | 1 | 0% | 0 | 0 | 0% | LU |
| Potassium | B | mg/L | 2.538 | 2.538 | | 0 | 0 | 0 | 0.0765619 | 0.0261205 | 50 | 0% | 0 | 0 | 0% | D |
| Thorium | B | mg/L | 0.00004541 | 0 | | 0 | 0 | 0 | 0.0003796 | 0.00415 | 1 | 0% | 0 | 0 | 0% | LU |
| Tin | B | mg/L | 0.0001923 | 0 | | 0 | 0 | 0 | 0.0018932 | 0.0011175 | 0.1 | 0% | 0 | 0 | 0% | U |
| Zinc | B | mg/L | 0.0008047 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035643 | B22020415-032 | ICPMS-6020-W- | SAMP | | 2/14/2022 5:33:2 | 1 | 163617 | 2/8/2022 3:3 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035644 | CCV | ICPMS-6020-W- | CCV | | 2/14/2022 5:39:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | 0.04988 | 0.04988 | | 0.05 | 0 | 0 | 0.00086 | 0.001 | 1 | 100% | 90 | 110 | 0% | |
| Antimony | A | mg/L | 0.05042 | 0.05042 | | 0.05 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 101% | 90 | 110 | 0% | |
| Arsenic | A | mg/L | 0.04858 | 0.04858 | | 0.05 | 0 | 0 | 0.00019 | 0.001 | 1 | 97% | 90 | 110 | 0% | |
| Barium | A | mg/L | 0.04926 | 0.04926 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Beryllium | A | mg/L | 0.04572 | 0.04572 | | 0.05 | 0 | 0 | 0.00012 | 0.001 | 1 | 91% | 90 | 110 | 0% | |
| Boron | A | mg/L | 0.05292 | 0.05292 | | 0.05 | 0 | 0 | 0.00561 | 0.00561 | 1 | 106% | 90 | 110 | 0% | |
| Cadmium | A | mg/L | 0.04888 | 0.04888 | | 0.05 | 0 | 0 | 0.000025 | 0.001 | 1 | 98% | 90 | 110 | 0% | |
| Calcium | A | mg/L | 12.04 | 12.04 | | 12.5 | 0 | 0 | 0.02092 | 0.02092 | 50 | 96% | 90 | 110 | 0% | |
| Cerium | A | mg/L | 0.05077 | 0.05077 | | 0.05 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 102% | 90 | 110 | 0% | |
| Chromium | A | mg/L | 0.04844 | 0.04844 | | 0.05 | 0 | 0 | 0.00018 | 0.001 | 1 | 97% | 90 | 110 | 0% | |
| Cobalt | A | mg/L | 0.0476 | 0.0476 | | 0.05 | 0 | 0 | 0.000042 | 0.001 | 1 | 95% | 90 | 110 | 0% | |
| Copper | A | mg/L | 0.05132 | 0.05132 | | 0.05 | 0 | 0 | 0.00027 | 0.001 | 1 | 103% | 90 | 110 | 0% | |
| Iron | A | mg/L | 1.342 | 1.342 | | 1.3 | 0 | 0 | 0.00119 | 0.00119 | 5 | 103% | 90 | 110 | 0% | |
| Lanthanum | A | mg/L | 0.05099 | 0.05099 | | 0.05 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 102% | 90 | 110 | 0% | |
| Lead | A | mg/L | 0.04992 | 0.04992 | | 0.05 | 0 | 0 | 0.000056 | 0.001 | 1 | 100% | 90 | 110 | 0% | |
| Magnesium | A | mg/L | 13.38 | 13.38 | | 12.5 | 0 | 0 | 0.00564 | 0.00564 | 50 | 107% | 90 | 110 | 0% | |
| Manganese | A | mg/L | 0.04927 | 0.04927 | | 0.05 | 0 | 0 | 0.000095 | 0.001 | 1 | 99% | 90 | 110 | 0% | |
| Mercury | A | mg/L | 0.001008 | 0.001008 | | 0.001 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 101% | 90 | 110 | 0% | |
| Molybdenum | A | mg/L | 0.0463 | 0.0463 | | 0.05 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 93% | 90 | 110 | 0% | |
| Nickel | A | mg/L | 0.05207 | 0.05207 | | 0.05 | 0 | 0 | 0.00063 | 0.001 | 1 | 104% | 90 | 110 | 0% | |
| Potassium | A | mg/L | 11.99 | 11.99 | | 12.5 | 0 | 0 | 0.08139 | 0.08139 | 50 | 96% | 90 | 110 | 0% | |
| Selenium | A | mg/L | 0.0506 | 0.0506 | | 0.05 | 0 | 0 | 0.00033 | 0.001 | 1 | 101% | 90 | 110 | 0% | |
| Silicon | A | mg/L | 0.2144 | 0.2144 | | 0.2 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 107% | 90 | 110 | 0% | |
| Silver | A | mg/L | 0.01907 | 0.01907 | | 0.02 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 95% | 90 | 110 | 0% | |
| Sodium | A | mg/L | 13.62 | 13.62 | | 12.5 | 0 | 0 | 0.02171 | 0.02171 | 50 | 109% | 90 | 110 | 0% | |
| Strontium | A | mg/L | 0.04855 | 0.04855 | | 0.05 | 0 | 0 | 0.00014 | 0.001 | 1 | 97% | 90 | 110 | 0% | |
| Thallium | A | mg/L | 0.04847 | 0.04847 | | 0.05 | 0 | 0 | 0.000041 | 0.001 | 1 | 97% | 90 | 110 | 0% | |
| Thorium | A | mg/L | 0.04689 | 0.04689 | | 0.05 | 0 | 0 | 0.00061 | 0.001 | 1 | 94% | 90 | 110 | 0% | |
| Tin | A | mg/L | 0.04978 | 0.04978 | | 0.05 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 100% | 90 | 110 | 0% | |
| Titanium | A | mg/L | 0.0474 | 0.0474 | | 0.05 | 0 | 0 | 0.000094 | 0.001 | 1 | 95% | 90 | 110 | 0% | |

| Seq No | Lab ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035644 | CCV | ICPMS-6020-W- | CCV | | 2/14/2022 5:39:4 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Uranium | A | mg/L | 0.04921 | 0.04921 | | 0.05 | 0 | 0 | 0.000052 | 0.0003 | 1 | 98% | 90 | 110 | 0% | |
| Vanadium | A | mg/L | 0.04766 | 0.04766 | | 0.05 | 0 | 0 | 0.0013 | 0.0013 | 1 | 95% | 90 | 110 | 0% | |
| Zinc | A | mg/L | 0.05104 | 0.05104 | | 0.05 | 0 | 0 | 0.00273 | 0.00273 | 1 | 102% | 90 | 110 | 0% | |
| Iron, Ferrous | C | mg/L | 1.342 | 1.342 | | 0 | 0 | 0 | 0.00119 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035645 | CCB | ICPMS-6020-W- | CCB | | 2/14/2022 5:45:5 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | A | mg/L | -0.0005162 | -0.0005162 | | 0 | 0 | 0 | 0.00086 | 0.001 | 1 | 0% | | | 0% | |
| Antimony | A | mg/L | 0.00005863 | 0.00005863 | | 0 | 0 | 0 | 0.00042 | 0.001 | 0.1 | 0% | | | 0% | |
| Arsenic | A | mg/L | -0.0001227 | -0.0001227 | | 0 | 0 | 0 | 0.00019 | 0.001 | 1 | 0% | | | 0% | |
| Barium | A | mg/L | -3.764E-06 | -3.764E-06 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Beryllium | A | mg/L | -6.629E-05 | -6.629E-05 | | 0 | 0 | 0 | 0.00012 | 0.001 | 1 | 0% | | | 0% | |
| Boron | A | mg/L | 0.0009095 | 0.0009095 | | 0 | 0 | 0 | 0.00561 | 0.00561 | 1 | 0% | | | 0% | |
| Cadmium | A | mg/L | 8.155E-06 | 8.155E-06 | | 0 | 0 | 0 | 0.000025 | 0.001 | 1 | 0% | | | 0% | |
| Calcium | A | mg/L | 0.00008003 | 0.00008003 | | 0 | 0 | 0 | 0.02092 | 0.02092 | 50 | 0% | | | 0% | |
| Cerium | A | mg/L | 7.274E-08 | 7.274E-08 | | 0 | 0 | 0 | 0.000012 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Chromium | A | mg/L | -1.014E-06 | -1.014E-06 | | 0 | 0 | 0 | 0.00018 | 0.001 | 1 | 0% | | | 0% | |
| Cobalt | A | mg/L | -8.091E-07 | -8.091E-07 | | 0 | 0 | 0 | 0.000042 | 0.001 | 1 | 0% | | | 0% | |
| Copper | A | mg/L | -1.751E-05 | -1.751E-05 | | 0 | 0 | 0 | 0.00027 | 0.001 | 1 | 0% | | | 0% | |
| Iron | A | mg/L | 0.0001024 | 0.0001024 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | | | 0% | |
| Lanthanum | A | mg/L | 7.527E-08 | 7.527E-08 | | 0 | 0 | 0 | 0.000011 | 0.001 | 0.1 | 0% | 0 | 0 | 0% | |
| Lead | A | mg/L | 6.187E-07 | 6.187E-07 | | 0 | 0 | 0 | 0.000056 | 0.001 | 1 | 0% | | | 0% | |
| Magnesium | A | mg/L | 0.00098 | 0.00098 | | 0 | 0 | 0 | 0.00564 | 0.00564 | 50 | 0% | | | 0% | |
| Manganese | A | mg/L | -2.611E-06 | -2.611E-06 | | 0 | 0 | 0 | 0.000095 | 0.001 | 1 | 0% | | | 0% | |
| Mercury | A | mg/L | -6.103E-07 | -6.103E-07 | | 0 | 0 | 0 | 0.00016 | 0.001 | 0.002 | 0% | | | 0% | |
| Molybdenum | A | mg/L | 0.00002753 | 0.00002753 | | 0 | 0 | 0 | 0.00005 | 0.001 | 0.1 | 0% | | | 0% | |
| Nickel | A | mg/L | 1.172E-06 | 1.172E-06 | | 0 | 0 | 0 | 0.00063 | 0.001 | 1 | 0% | | | 0% | |
| Potassium | A | mg/L | -0.04037 | -0.04037 | | 0 | 0 | 0 | 0.08139 | 0.08139 | 50 | 0% | | | 0% | |
| Selenium | A | mg/L | -1.845E-05 | -1.845E-05 | | 0 | 0 | 0 | 0.00033 | 0.001 | 1 | 0% | | | 0% | |
| Silicon | A | mg/L | -0.0009173 | -0.0009173 | | 0 | 0 | 0 | 0.01223 | 0.1 | 0.4 | 0% | 0 | 0 | 0% | |
| Silver | A | mg/L | -2.699E-06 | -2.699E-06 | | 0 | 0 | 0 | 0.00002 | 0.001 | 0.04 | 0% | | | 0% | |
| Sodium | A | mg/L | 0.02805 | 0.02805 | | 0 | 0 | 0 | 0.02171 | 0.02171 | 50 | 0% | | | 0% | |
| Strontium | A | mg/L | -3.367E-06 | -3.367E-06 | | 0 | 0 | 0 | 0.00014 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15035645 | CCB | ICPMS-6020-W- | CCB | | 2/14/2022 5:45:5 | 1 | R374695 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thallium | A | mg/L | 0.00007295 | 0.00007295 | | 0 | 0 | 0 | 0.000041 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Thorium | A | mg/L | 0.00002545 | 0.00002545 | | 0 | 0 | 0 | 0.00061 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Tin | A | mg/L | -3.41E-06 | -3.41E-06 | | 0 | 0 | 0 | 0.00132 | 0.00132 | 0.1 | 0% | 0 | 0 | 0% | |
| Titanium | A | mg/L | 4.442E-06 | 4.442E-06 | | 0 | 0 | 0 | 0.000094 | 0.001 | 1 | 0% | 0 | 0 | 0% | |
| Uranium | A | mg/L | 3.241E-06 | 3.241E-06 | | 0 | 0 | 0 | 0.000052 | 0.0003 | 1 | 0% | 0 | 0 | 0% | |
| Vanadium | A | mg/L | -0.0001202 | -0.0001202 | | 0 | 0 | 0 | 0.0013 | 0.0013 | 1 | 0% | 0 | 0 | 0% | |
| Zinc | A | mg/L | -0.0002147 | -0.0002147 | | 0 | 0 | 0 | 0.00273 | 0.00273 | 1 | 0% | 0 | 0 | 0% | |
| Iron, Ferrous | C | mg/L | 0.0001024 | 0.0001024 | | 0 | 0 | 0 | 0.00119 | 0.00119 | 5 | 0% | 0 | 0 | 0% | |

# Batch Summary Report

Batch Folder: D:\Agilent\ICPMH\1\DATA\220214A.b\
Analysis File: 220214A.batch.bin
Tune Step: #1 No Gas
#2 H2
#3 He

| | Rjct | Acq. Date-Time | Data File | Sample Name | Type | Level | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | | 2022-02-14 11:20:43 | 001BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 2 | | 2022-02-14 11:26:57 | 002BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 3 | | 2022-02-14 11:33:10 | 003BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 4 | | 2022-02-14 11:39:23 | 004BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 5 | | 2022-02-14 11:45:36 | 005BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 6 | | 2022-02-14 11:51:49 | 006BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 7 | | 2022-02-14 11:58:03 | 007BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 8 | | 2022-02-14 12:04:17 | 008CALB.d | Cal Blk | CalBlk | 1 | 1.0000 |
| 9 | | 2022-02-14 12:11:15 | 009CALS.d | 0.025 ppb STD | CalStd | 2 | 1.0000 |
| 10 | | 2022-02-14 12:17:54 | 010CALS.d | 0.05 ppb STD | CalStd | 3 | 1.0000 |
| 11 | | 2022-02-14 12:24:33 | 011CALS.d | 0.10 ppb STD | CalStd | 4 | 1.0000 |
| 12 | | 2022-02-14 12:31:12 | 012CALS.d | 0.5 ppb STD | CalStd | 5 | 1.0000 |
| 13 | | 2022-02-14 12:37:51 | 013CALS.d | 1 ppb STD | CalStd | 6 | 1.0000 |
| 14 | | 2022-02-14 12:44:29 | 014CALS.d | 10 ppb STD | CalStd | 7 | 1.0000 |
| 15 | | 2022-02-14 12:51:06 | 015CALS.d | 50 ppb STD | CalStd | 8 | 1.0000 |
| 16 | | 2022-02-14 12:58:15 | 016CALS.d | 100 ppb STD | CalStd | 9 | 1.0000 |
| 17 | | 2022-02-14 13:04:46 | 017CALS.d | 1000 ppb STD | CalStd | 10 | 1.0000 |
| 18 | | 2022-02-14 13:11:14 | 018CALS.d | 100 ppb Br STD | CalStd | 11 | 1.0000 |
| 19 | | 2022-02-14 13:17:36 | 019BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 20 | | 2022-02-14 13:23:51 | 020_QC1.d | QCS | QC1 | | 1.0000 |
| 21 | | 2022-02-14 13:30:05 | 021_CCV.d | CCV | CCV | | 1.0000 |
| 22 | | 2022-02-14 13:36:20 | 022_CCB.d | CCB | CCB | | 1.0000 |
| 23 | | 2022-02-14 13:42:34 | 023BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 24 | | 2022-02-14 13:48:49 | 024MBLK.d | LRB | MBLK | | 1.0000 |
| 25 | | 2022-02-14 13:55:04 | 025_LFB.d | LFB | LFB | | 1.0300 |

| | Rjct | Acq. Date-Time | Data File | Sample Name | Type | Level | Dilution |
|---|---|---|---|---|---|---|---|
| 26 | | 2022-02-14 14:01:20 | 026ICSA.d | ICSA | ICSA | | 1.0000 |
| 27 | | 2022-02-14 14:07:36 | 027ICSB.d | ICSAB | ICSAB | | 1.0000 |
| 28 | | 2022-02-14 14:13:54 | 028BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 29 | | 2022-02-14 14:20:07 | 029BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 30 | | 2022-02-14 14:26:21 | 030_CCV.d | CCV | CCV | | 1.0000 |
| 31 | | 2022-02-14 14:32:36 | 031_CCB.d | CCB | CCB | | 1.0000 |
| 32 | | 2022-02-14 14:38:50 | 032ARef.d | MB-163617 | AllRef | | 1.0000 |
| 33 | | 2022-02-14 14:45:04 | 033LCS4.d | LCS4-163617 | LCS4 | | 1.0000 |
| 34 | | 2022-02-14 14:51:17 | 034SMPL.d | B22020415-001A | Sample | | 1.0000 |
| 35 | | 2022-02-14 14:57:31 | 035ARef.d | B22020415-001ADIL | AllRef | | 5.0000 |
| 36 | | 2022-02-14 15:03:44 | 036MS.d | B22020415-001AMS | MS | | 1.0300 |
| 37 | | 2022-02-14 15:09:58 | 037MSD.d | B22020415-001AMSD | MSD | | 1.0300 |
| 38 | | 2022-02-14 15:16:13 | 038BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 39 | | 2022-02-14 15:22:26 | 039SMPL.d | B22020415-001B | Sample | | 1.0000 |
| 40 | | 2022-02-14 15:28:40 | 040SMPL.d | B22020415-001BDIL | Sample | | 5.0000 |
| 41 | | 2022-02-14 15:34:53 | 041ARef.d | B22020415-001BPDS1 | AllRef | | 1.0300 |
| 42 | | 2022-02-14 15:41:08 | 042MS4.d | B22020415-001BMS4 | MS4 | | 1.0000 |
| 43 | | 2022-02-14 15:47:22 | 043_CCV.d | CCV | CCV | | 1.0000 |
| 44 | | 2022-02-14 15:53:37 | 044_CCB.d | CCB | CCB | | 1.0000 |
| 45 | | 2022-02-14 15:59:51 | 045MSD4.d | B22020415-001BMSD4 | MSD4 | | 1.0000 |
| 46 | | 2022-02-14 16:06:05 | 046BLKV.d | Rinse | BlkVrfy | | 1.0000 |
| 47 | | 2022-02-14 16:12:19 | 047SMPL.d | B22020415-006A | Sample | | 1.0000 |
| 48 | | 2022-02-14 16:18:33 | 048SMPL.d | B22020415-006B | Sample | | 1.0000 |
| 49 | | 2022-02-14 16:24:47 | 049SMPL.d | B22020415-011A | Sample | | 1.0000 |
| 50 | | 2022-02-14 16:31:03 | 050SMPL.d | B22020415-011B | Sample | | 1.0000 |
| 51 | | 2022-02-14 16:37:18 | 051SMPL.d | B22020415-017A | Sample | | 1.0000 |
| 52 | | 2022-02-14 16:43:32 | 052SMPL.d | B22020415-017B | Sample | | 1.0000 |
| 53 | | 2022-02-14 16:49:47 | 053SMPL.d | B22020415-022A | Sample | | 1.0000 |
| 54 | | 2022-02-14 16:56:00 | 054SMPL.d | B22020415-022B | Sample | | 1.0000 |
| 55 | | 2022-02-14 17:02:13 | 055SMPL.d | B22020415-027A | Sample | | 1.0000 |
| 56 | | 2022-02-14 17:08:29 | 056_CCV.d | CCV | CCV | | 1.0000 |
| 57 | | 2022-02-14 17:14:43 | 057_CCB.d | CCB | CCB | | 1.0000 |

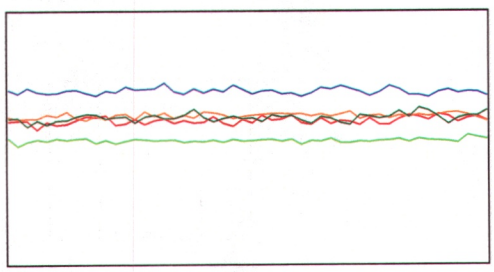
| | Rjct | Acq. Date-Time | Data File | Sample Name | Type | Level | Dilution |
|---|---|---|---|---|---|---|---|
| 58 | | 2022-02-14 17:20:57 | 058SMPL.d | B22020415-027B | Sample | | 1.0000 |
| 59 | | 2022-02-14 17:27:11 | 059SMPL.d | B22020415-032A | Sample | | 1.0000 |
| 60 | | 2022-02-14 17:33:27 | 060SMPL.d | B22020415-032B | Sample | | 1.0000 |
| 61 | | 2022-02-14 17:39:41 | 061_CCV.d | CCV | CCV | | 1.0000 |
| 62 | | 2022-02-14 17:45:56 | 062_CCB.d | CCB | CCB | | 1.0000 |

# Tune Report

| | |
|---|---|
| **Operator Name** | elim |
| **Acq/Data Batch** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq. Date-Time** | 2022-02-14 11:04:16 |
| **Report Comment** | ICPMS207-B JPV |
| **Instrument Name** | G8403A JP17281923 |

[No Gas]

**Sensitivity**



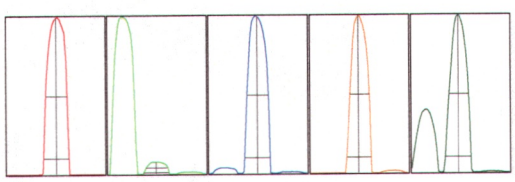
| Mass | Range | Count | RSD% | Background |
|---|---|---|---|---|
| 9 | 500000 | 284962 | 2.441 | 4.000 |
| 24 | 100000 | 49016 | 1.526 | 3.100 |
| 59 | 100000 | 68736 | 1.845 | 1.600 |
| 115 | 100000 | 59013 | 1.648 | 2.800 |
| 208 | 50000 | 29056 | 2.715 | 7.600 |

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

**Oxide/Doubly Charged Ratio**

| | |
|---|---|
| Oxide | 156 / 140 0.935 % |
| Doubly Charged | 70 / 140 0.979 % |

**Resolution/Axis**



| Mass | Peak Height | Axis | W-50% | W-10% |
|---|---|---|---|---|
| 9 | 288860.92 | 9.05 | 0.64 | 0.769 |
| 24 | 48884.04 | 24.00 | 0.66 | 0.773 |
| 59 | 67121.68 | 59.00 | 0.64 | 0.771 |
| 115 | 59237.27 | 115.00 | 0.58 | 0.744 |
| 208 | 29527.24 | 207.95 | 0.60 | 0.784 |

| | |
|---|---|
| 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**

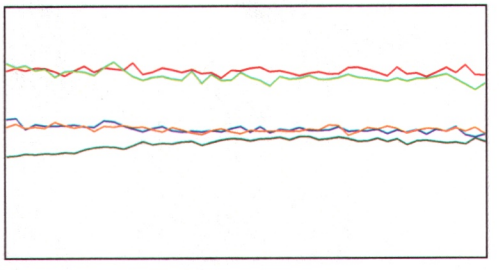
| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 9.6 V | Deflect | 15.0 V |
| Extract 2 | -250.0 V | Cell Entrance | -30 V | Plate Bias | -35 V |

# Tune Report

| | | | | | |
|---|---|---|---|---|---|
| Omega Bias | -75 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 | 170 V | | |
| **QP Parameters** | | | | | |
| Mass Gain | 124 | Axis Gain | 0.9986 | QP Bias | -3.0 V |
| Mass Offset | 126 | Axis Offset | 0.15 | | |
| **Hardware Settings** | | | | | |
| **Torch** | | | | | |
| Torch H | -1.0 mm | Torch V | -0.7 mm | | |
| **EM** | | | | | |
| Discriminator | 5.0 mV | Analog HV | 2324 V | Pulse HV | 1751 V |

[H2]

**Sensitivity**



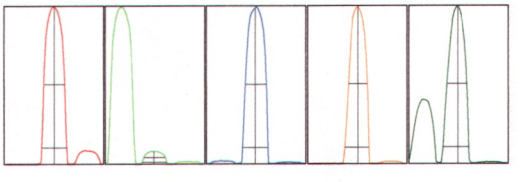
| Mass | Range | Count | RSD% | Background |
|---|---|---|---|---|
| 9 | 50000 | 37340 | 1.799 | 0.100 |
| 24 | 20000 | 14492 | 3.215 | 0.700 |
| 59 | 50000 | 25728 | 3.193 | 0.100 |
| 115 | 100000 | 51500 | 2.367 | 0.200 |
| 208 | 50000 | 22768 | 4.813 | 0.400 |

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

**Oxide/Doubly Charged Ratio**

| | |
|---|---|
| Oxide | --- |
| Doubly Charged | 70 / 140 0.796 % |

**Resolution/Axis**



| Mass | Peak Height | Axis | W-50% | W-10% |
|---|---|---|---|---|
| 9 | 35008.52 | 9.05 | 0.62 | 0.758 |
| 24 | 13499.31 | 24.00 | 0.65 | 0.764 |
| 59 | 24700.72 | 59.00 | 0.63 | 0.767 |
| 115 | 51355.22 | 115.05 | 0.57 | 0.737 |
| 208 | 23084.78 | 208.00 | 0.61 | 0.784 |

| | |
|---|---|
| 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 | 9.4 V | Deflect | 3.6 V |
| Extract 2 | -230.0 V | Cell Entrance | -30 V | Plate Bias | -80 V |
| Omega Bias | -95 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 | 190 V | | |

**QP Parameters**

| | | | | | |
|---|---|---|---|---|---|
| Mass Gain | 124 | Axis Gain | 0.9986 | QP Bias | -13.0 V |
| Mass Offset | 126 | Axis Offset | 0.15 | | |

**Hardware Settings**

**Torch**

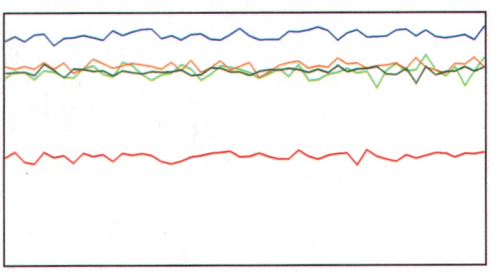
| | | | |
|---|---|---|---|
| Torch H | -1.0 mm | Torch V | -0.7 mm |

**EM**

| | | | | | |
|---|---|---|---|---|---|
| Discriminator | 5.0 mV | Analog HV | 2324 V | Pulse HV | 1751 V |

**[He]**

**Sensitivity**



| Mass | Range | Count | RSD% | Background |
|---|---|---|---|---|
| 9 | 5000 | 2156 | 3.418 | 1.400 |
| 24 | 2000 | 1530 | 3.354 | 0.500 |
| 59 | 20000 | 18281 | 1.904 | 0.400 |
| 115 | 20000 | 15816 | 2.157 | 0.400 |
| 208 | 20000 | 15364 | 1.794 | 0.700 |

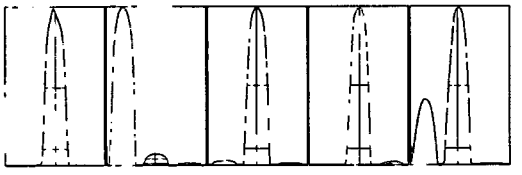
| | |
|---|---|
| Sampling Period [sec] | 0.514 |
| Integration Time [sec] | 0.1 |

**Oxide/Doubly Charged Ratio**

| | |
|---|---|
| Oxide | --- |
| Doubly Charged | 70 / 140 0.828 % |

**Resolution/Axis**

# Tune Report



| Mass | Peak Height | Axis | W-50% | W-10% |
|---|---|---|---|---|
| 9 | 2153.60 | 9.05 | 0.62 | 0.757 |
| 24 | 1523.07 | 24.00 | 0.65 | 0.750 |
| 59 | 18332.00 | 59.00 | 0.62 | 0.763 |
| 115 | 15877.58 | 115.05 | 0.56 | 0.717 |
| 208 | 15154.16 | 207.95 | 0.59 | 0.765 |

| | |
|---|---|
| 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 | 10.3 V | Deflect | 0.6 V |
| Extract 2 | -230.0 V | Cell Entrance | -30 V | Plate Bias | -80 V |
| Omega Bias | -70 V | Cell Exit | -50 V | | |

### Cell Parameters

| | | | | | |
|---|---|---|---|---|---|
| Use Gas | Yes | 3rd Gas Flow | — | Energy Discrimination | 5.0 V |
| He Flow | 4.0 mL/min | OctP Bias | -18.0 V | | |
| H2 Flow | 0.0 mL/min | OctP RF | 200 V | | |

### QP Parameters

| | | | | | |
|---|---|---|---|---|---|
| Mass Gain | 124 | Axis Gain | 0.9986 | QP Bias | -13.0 V |
| Mass Offset | 126 | Axis Offset | 0.15 | | |

## Hardware Settings

### Torch

| | | | |
|---|---|---|---|
| Torch H | -1.0 mm | Torch V | -0.7 mm |

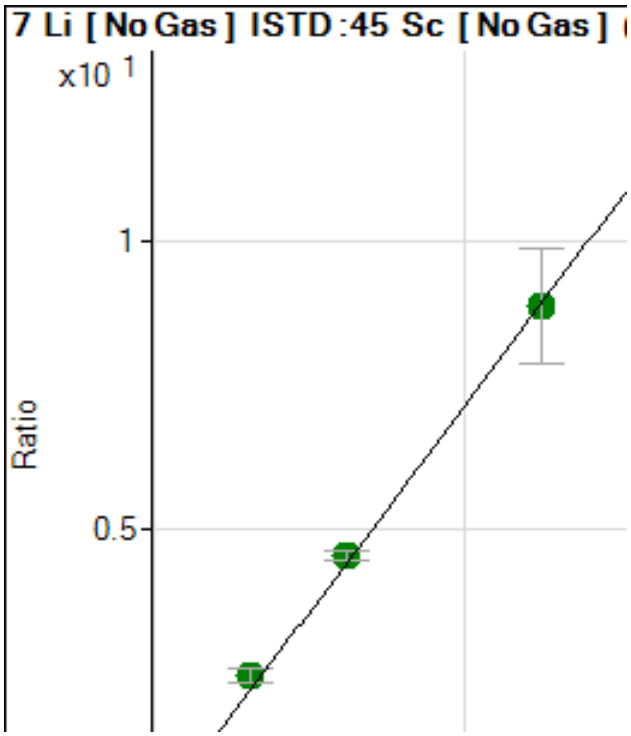
### EM

| | | | | | |
|---|---|---|---|---|---|
| Discriminator | 5.0 mV | Analog HV | 2324 V | Pulse HV | 1751 V |

Calibration for 020_QC1.d

Batch Folder: D:\Agilent\ICPMH\1\DATA\220214A.b\
Analysis File: 220214A.batch.bin
DA Date-Time: 2022-02-14 13:26:48
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

| Level | Standard Data File | Sample Name | Acq. Date-Time |
|---|---|---|---|
| 1 | 008CALB.d | Cal Blk | 2022-02-14 12:04:17 |
| 2 | 009CALS.d | 0.025 ppb STD | 2022-02-14 12:11:15 |
| 3 | 010CALS.d | 0.05 ppb STD | 2022-02-14 12:17:54 |
| 4 | 011CALS.d | 0.10 ppb STD | 2022-02-14 12:24:33 |
| 5 | 012CALS.d | 0.5 ppb STD | 2022-02-14 12:31:12 |
| 6 | 013CALS.d | 1 ppb STD | 2022-02-14 12:37:51 |
| 7 | 014CALS.d | 10 ppb STD | 2022-02-14 12:44:29 |
| 8 | 015CALS.d | 50 ppb STD | 2022-02-14 12:51:06 |
| 9 | 016CALS.d | 100 ppb STD | 2022-02-14 12:58:15 |
| 10 | 017CALS.d | 1000 ppb STD | 2022-02-14 13:04:46 |
| 11 | 018CALS.d | 100 ppb Br STD | 2022-02-14 13:11:14 |




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 11494.94 | 0.003 | | 0. | |
| 2 | ☐ | 0.313 | 0.336 | 15281.79 | 0.004 | | 10 | 7.5 |
| 3 | ☐ | 0.625 | 0.603 | 20115.99 | 0.005 | | 3. | -3.5 |
| 4 | ☐ | 1.250 | 1.233 | 28980.42 | 0.007 | | 2. | -1.4 |
| 5 | ☐ | 6.250 | 6.791 | 98538.25 | 0.027 | | 10 | 8.7 |
| 6 | ☐ | 12.500 | 13.912 | 189820.1 | 0.052 | | 6. | 11.3 |
| 7 | ☐ | 125.00 | 138.05 | 1783391. | 0.495 | | 6. | 10.4 |
| 8 | ☐ | 625.00 | 684.30 | 9002617. | 2.446 | | 9. | 9.5 |
| 9 | ☐ | 1250.0 | 1266.5 | 17343227 | 4.525 | | 3. | 1.3 |
| 10 | ☐ | 2500.0 | 2476.2 | 33884178 | 8.844 | | 22 | -1.0 |
| 11 | ☐ | | | 43191.53 | 0.010 | | 2. | |

y = 0.0036 * x + 0.0030

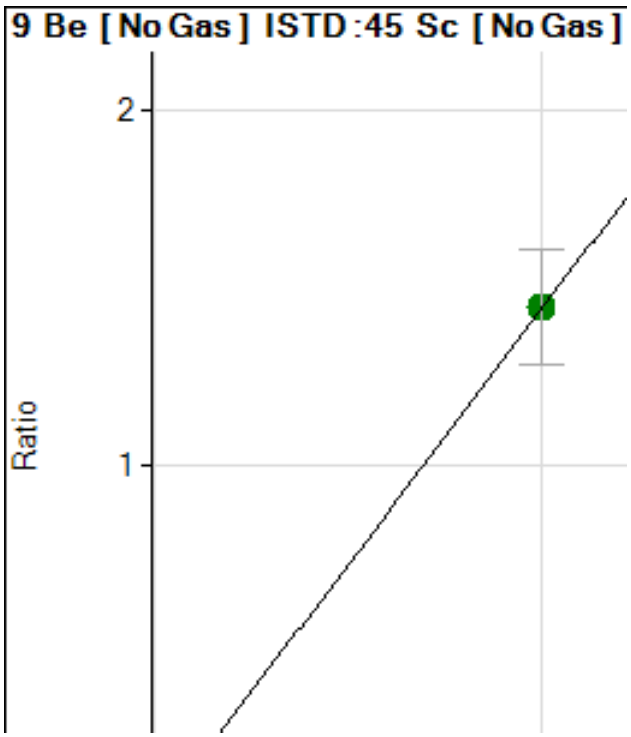
R = 0.9997

DL = 0.02188 ug/l

BEC = 0.8346 ug/l

Weight: 1/y

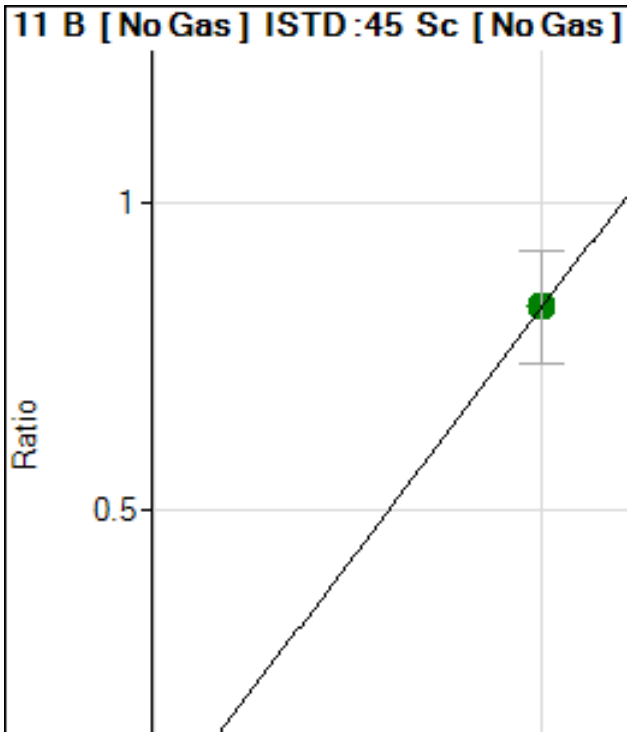
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 555.23 | 0.000 | | 4. | |
| 2 | ☐ | 0.025 | 0.029 | 677.88 | 0.000 | | 8. | 14.2 |
| 3 | ☐ | 0.050 | 0.039 | 782.53 | 0.000 | | 3. | -22.9 |
| 4 | ☐ | 0.100 | 0.086 | 1055.49 | 0.000 | | 1. | -13.6 |
| 5 | ☐ | 0.500 | 0.501 | 3132.03 | 0.000 | | 13 | 0.2 |
| 6 | ☐ | 1.000 | 1.043 | 5947.98 | 0.001 | | 8. | 4.3 |
| 7 | ☐ | 10.000 | 10.689 | 56045.87 | 0.015 | | 5. | 6.9 |
| 8 | ☐ | 50.000 | 53.282 | 283835.2 | 0.077 | | 9. | 6.6 |
| 9 | ☐ | 100.00 | 100.42 | 556591.6 | 0.145 | | 3. | 0.4 |
| 10 | ☐ | 1000.0 | 999.78 | 5532769. | 1.444 | | 22 | 0.0 |
| 11 | ☐ | | | 585.23 | 0.000 | | 3. | |

y = 0.0014 * x + 1.4396E-004

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1151.84 | 0.000 | | 4. | |
| 2 | ☐ | | | 1085.15 | 0.000 | | 3. | |
| 3 | ☐ | 0.050 | -0.015 | 1120.49 | 0.000 | | 2. | -130. |
| 4 | ☐ | 0.100 | 0.018 | 1230.55 | 0.000 | | 3. | -82.5 |
| 5 | ☐ | 0.500 | 0.458 | 2459.86 | 0.000 | | 8. | -8.4 |
| 6 | ☐ | 1.000 | 0.986 | 4033.50 | 0.001 | | 4. | -1.4 |
| 7 | ☐ | 10.000 | 10.725 | 33119.35 | 0.009 | | 5. | 7.3 |
| 8 | ☐ | 50.000 | 56.387 | 173462.4 | 0.047 | | 9. | 12.8 |
| 9 | ☐ | 100.00 | 99.451 | 317697.6 | 0.082 | | 4. | -0.5 |
| 10 | ☐ | 1000.0 | 999.72 | 3183430. | 0.830 | | 22 | 0.0 |
| 11 | ☐ | | | 18576.79 | 0.004 | | 2. | |

y = 8.3053E-004 * x + 2.9867E-004

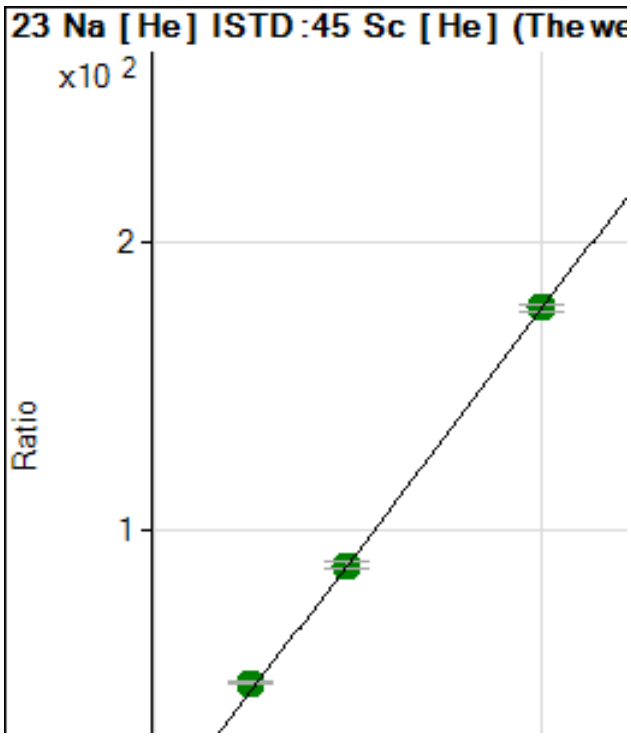
R = 1.0000

DL = 0.04895 ug/l

BEC = 0.3596 ug/l

Weight: 1/y

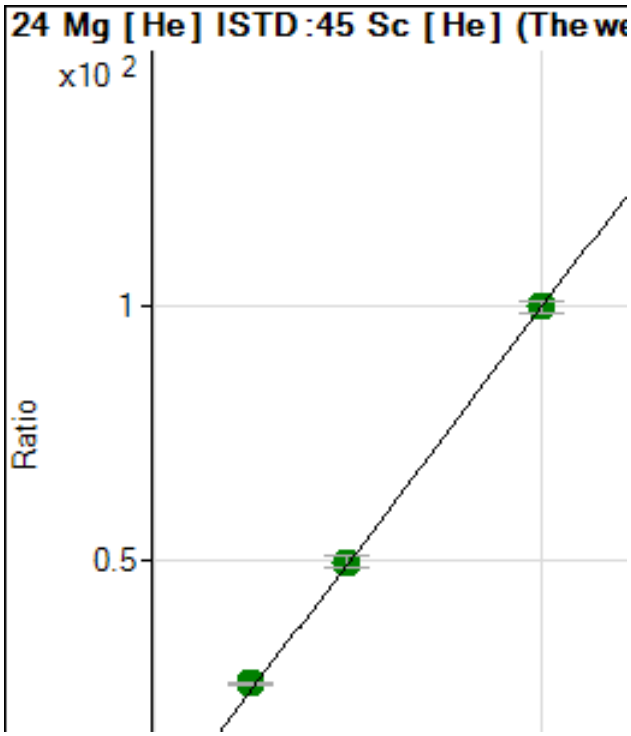
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 40797.30 | 0.154 | | 1. | |
| 2 | ☐ | 6.250 | 7.763 | 47522.44 | 0.181 | | 0. | 24.2 |
| 3 | ☐ | 12.500 | 15.659 | 54890.72 | 0.209 | | 0. | 25.3 |
| 4 | ☐ | 25.000 | 28.789 | 67000.54 | 0.256 | | 1. | 15.2 |
| 5 | ☐ | 125.00 | 131.83 | 162531.2 | 0.621 | | 0. | 5.5 |
| 6 | ☐ | 250.00 | 263.29 | 287291.5 | 1.086 | | 0. | 5.3 |
| 7 | ☐ | 2500.0 | 2609.3 | 2463572. | 9.393 | | 0. | 4.4 |
| 8 | ☐ | 12500. | 13182. | 12463575 | 46.83 | | 1. | 5.5 |
| 9 | ☐ | 25000. | 24737. | 23714329 | 87.74 | | 3. | -1.1 |
| 10 | ☐ | 50000. | 49955. | 47619395 | 177.0 | | 1. | -0.1 |
| 11 | ☐ | | | 47075.43 | 0.178 | | 0. | |

y = 0.0035 * x + 0.1544

R = 0.9999




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1201.01 | 0.004 | | 2. | |
| 2 | ☐ | 6.250 | 6.740 | 4704.75 | 0.018 | | 3. | 7.8 |
| 3 | ☐ | 12.500 | 14.289 | 8652.01 | 0.033 | | 1. | 14.3 |
| 4 | ☐ | 25.000 | 28.693 | 16166.64 | 0.061 | | 1. | 14.8 |
| 5 | ☐ | 125.00 | 132.48 | 70411.02 | 0.269 | | 1. | 6.0 |
| 6 | ☐ | 250.00 | 264.76 | 140979.7 | 0.533 | | 1. | 5.9 |
| 7 | ☐ | 2500.0 | 2602.6 | 1364310. | 5.202 | | 1. | 4.1 |
| 8 | ☐ | 12500. | 13074. | 6950590. | 26.11 | | 1. | 4.6 |
| 9 | ☐ | 25000. | 24885. | 13427706 | 49.70 | | 4. | -0.5 |
| 10 | ☐ | 50000. | 49908. | 26809096 | 99.67 | | 2. | -0.2 |
| 11 | ☐ | | | 1324.10 | 0.005 | | 7. | |

y = 0.0020 * x + 0.0045

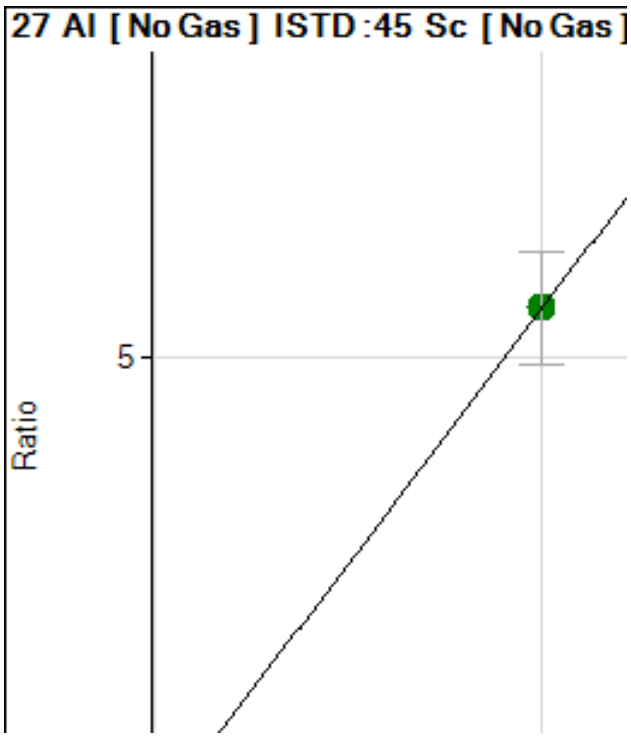
R = 0.9999

DL = 0.1823 ug/l

BEC = 2.276 ug/l

Weight: 1/y

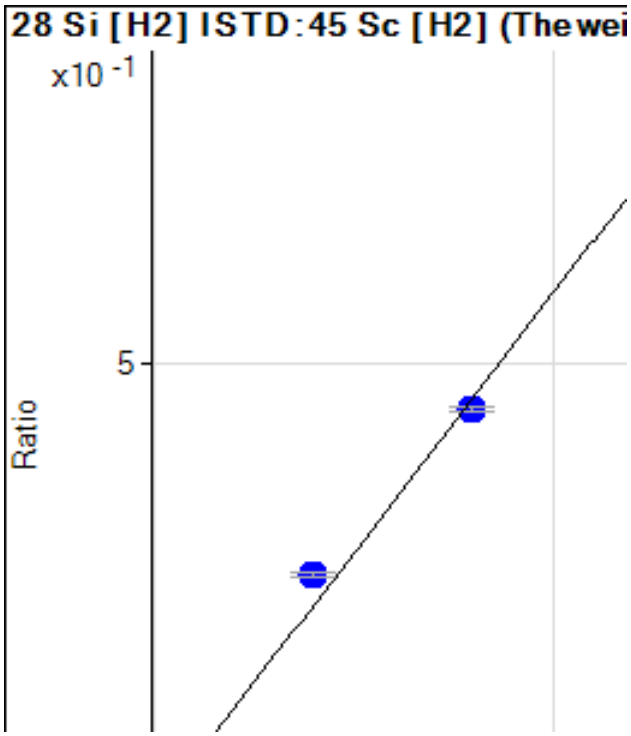
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 17709.40 | 0.004 | | 0. | |
| 2 | ☐ | | | 22133.03 | 0.006 | | 9. | |
| 3 | ☐ | 0.050 | 0.373 | 26076.01 | 0.006 | | 2. | 646. |
| 4 | ☐ | 0.100 | 0.137 | 21000.27 | 0.005 | | 0. | 36.9 |
| 5 | ☐ | 0.500 | 0.718 | 30935.19 | 0.008 | | 11 | 43.6 |
| 6 | ☐ | 1.000 | 1.288 | 42175.87 | 0.011 | | 8. | 28.8 |
| 7 | ☐ | 10.000 | 11.394 | 242855.2 | 0.067 | | 6. | 13.9 |
| 8 | ☐ | 50.000 | 54.815 | 1131395. | 0.307 | | 10 | 9.6 |
| 9 | ☐ | 100.00 | 102.43 | 2186726. | 0.570 | | 3. | 2.4 |
| 10 | ☐ | 1000.0 | 999.50 | 21180765 | 5.526 | | 22 | 0.0 |
| 11 | ☐ | | | 17581.46 | 0.004 | | 1. | |

y = 0.0055 * x + 0.0046

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 15615.74 | 0.007 | | 2. | |
| 2 | ☐ | | | 14331.94 | 0.006 | | 0. | |
| 3 | ☐ | 0.200 | -0.352 | 13822.58 | 0.006 | | 0. | -276. |
| 4 | ☐ | 0.400 | -0.389 | 13737.14 | 0.006 | | 3. | -197. |
| 5 | ☐ | 2.000 | 1.474 | 17670.14 | 0.008 | | 0. | -26.3 |
| 6 | ☐ | 4.000 | 4.339 | 23905.36 | 0.011 | | 6. | 8.5 |
| 7 | ☐ | 40.000 | 38.959 | 101599.2 | 0.051 | | 1. | -2.6 |
| 8 | ☐ | 200.00 | 227.15 | 512045.5 | 0.266 | | 1. | 13.6 |
| 9 | ☐ | 400.00 | 386.52 | 837848.3 | 0.449 | | 1. | -3.4 |
| 10 | ☐ | | | 13640.32 | 0.007 | | 1. | |
| 11 | ☐ | | | 11730.64 | 0.006 | | 0. | |

y = 0.0011 * x + 0.0070

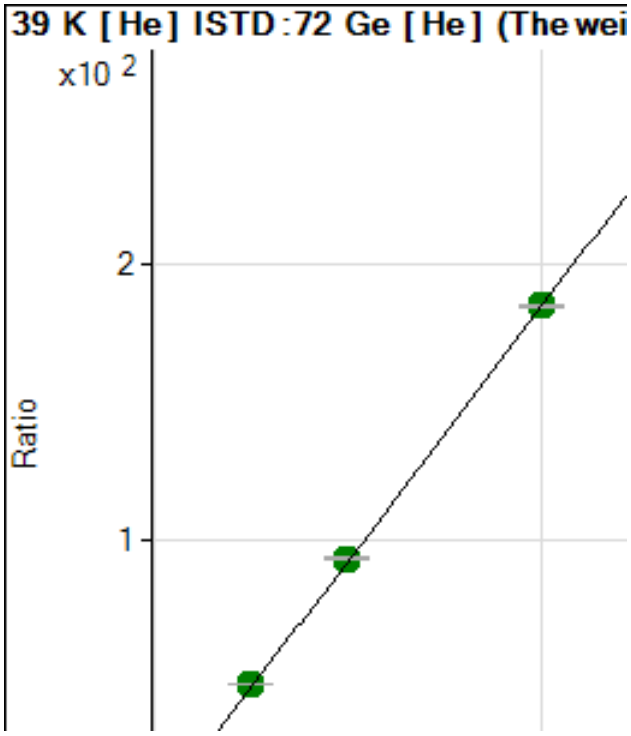
R = 0.9970

DL = 0.445 ug/l

BEC = 6.089 ug/l

Weight: 1/y

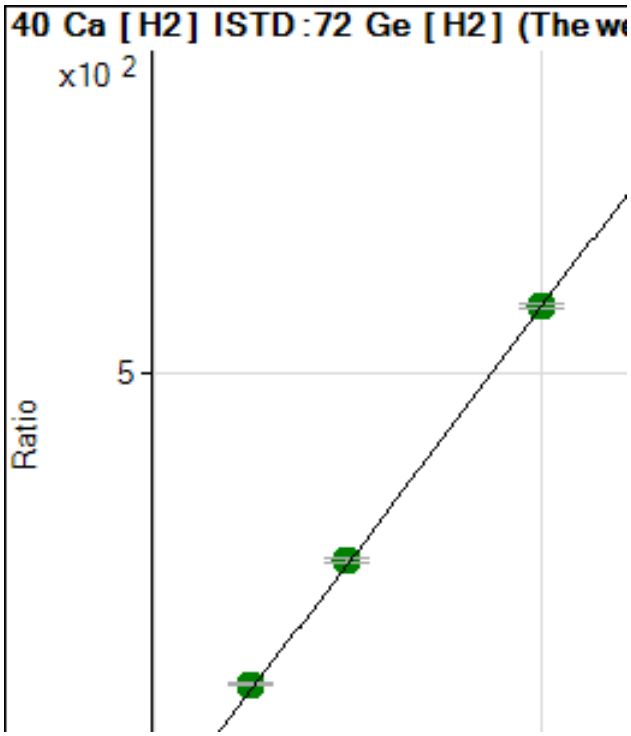
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 137300.5 | 0.869 | | 1. | |
| 2 | ☐ | 6.250 | 9.419 | 140195.2 | 0.904 | | 0. | 50.7 |
| 3 | ☐ | 12.500 | 17.582 | 144058.2 | 0.934 | | 3. | 40.7 |
| 4 | ☐ | 25.000 | 30.103 | 151899.5 | 0.980 | | 1. | 20.4 |
| 5 | ☐ | 125.00 | 128.15 | 207737.2 | 1.341 | | 1. | 2.5 |
| 6 | ☐ | 250.00 | 259.72 | 284367.6 | 1.826 | | 1. | 3.9 |
| 7 | ☐ | 2500.0 | 2503.5 | 1564873. | 10.09 | | 0. | 0.1 |
| 8 | ☐ | 12500. | 12724. | 7534975. | 47.74 | | 0. | 1.8 |
| 9 | ☐ | 25000. | 25070. | 14806361 | 93.22 | | 1. | 0.3 |
| 10 | ☐ | 50000. | 49908. | 29257935 | 184.7 | | 0. | -0.2 |
| 11 | ☐ | | | 509276.5 | 3.245 | | 0. | |

y = 0.0037 * x + 0.8695

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 161076.2 | 0.228 | | 3. | |
| 2 | ☐ | 6.250 | 9.215 | 230255.8 | 0.334 | | 2. | 47.4 |
| 3 | ☐ | 12.500 | 19.182 | 307305.6 | 0.449 | | 1. | 53.5 |
| 4 | ☐ | 25.000 | 32.334 | 411831.7 | 0.601 | | 1. | 29.3 |
| 5 | ☐ | 125.00 | 137.48 | 1228516. | 1.814 | | 2. | 10.0 |
| 6 | ☐ | 250.00 | 274.71 | 2273402. | 3.398 | | 3. | 9.9 |
| 7 | ☐ | 2500.0 | 2691.8 | 20768975 | 31.28 | | 3. | 7.7 |
| 8 | ☐ | 12500. | 12995. | 10023505 | 150.1 | | 3. | 4.0 |
| 9 | ☐ | 25000. | 25024. | 18882876 | 288.9 | | 2. | 0.1 |
| 10 | ☐ | 50000. | 49854. | 36597858 | 575.4 | | 1. | -0.3 |
| 11 | ☐ | | | 193750.8 | 0.293 | | 1. | |

y = 0.0115 * x + 0.2284

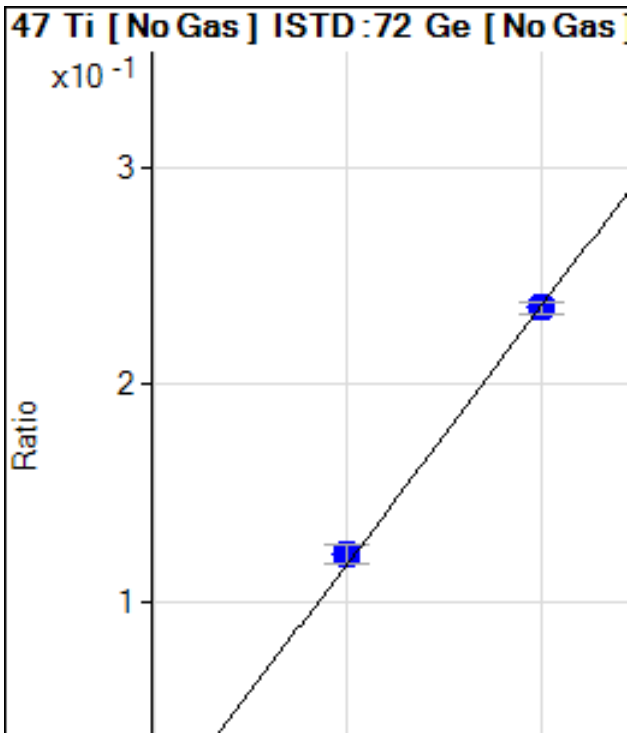
R = 0.9999

DL = 1.76 ug/l

BEC = 19.8 ug/l

Weight: 1/y

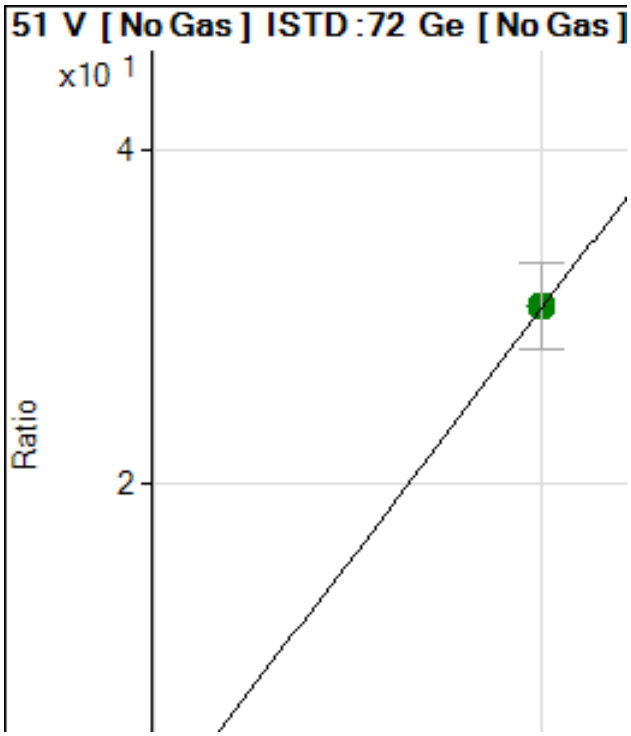
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 395.40 | 0.000 | | 11 | |
| 2 | ☐ | 0.025 | 0.061 | 505.52 | 0.000 | | 6. | 144. |
| 3 | ☐ | 0.050 | 0.080 | 567.25 | 0.000 | | 5. | 60.7 |
| 4 | ☐ | 0.100 | 0.143 | 712.41 | 0.000 | | 2. | 43.5 |
| 5 | ☐ | 0.500 | 0.515 | 1456.54 | 0.001 | | 1. | 3.0 |
| 6 | ☐ | 1.000 | 1.127 | 2768.05 | 0.003 | | 5. | 12.7 |
| 7 | ☐ | 10.000 | 10.490 | 22782.22 | 0.025 | | 2. | 4.9 |
| 8 | ☐ | 50.000 | 51.223 | 111837.3 | 0.121 | | 6. | 2.4 |
| 9 | ☐ | 100.00 | 99.338 | 220732.1 | 0.235 | | 2. | -0.7 |
| 10 | ☐ | | | 16001.45 | 0.017 | | 15 | |
| 11 | ☐ | | | 590.61 | 0.000 | | 16 | |

y = 0.0024 * x + 4.1550E-004

R = 0.9999




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 15055.51 | 0.015 | | 45 | |
| 2 | ☐ | 0.025 | -3.504 | -81003.85 | -0.09 | | -5 | -141 |
| 3 | ☐ | 0.050 | -2.403 | -54805.10 | -0.05 | | -1 | -490 |
| 4 | ☐ | 0.100 | -1.919 | -40982.47 | -0.04 | | -1 | -201 |
| 5 | ☐ | 0.500 | -3.376 | -76276.31 | -0.08 | | -9 | -775. |
| 6 | ☐ | 1.000 | -4.179 | -100281.0 | -0.11 | | -4 | -517. |
| 7 | ☐ | 10.000 | 4.989 | 151310.0 | 0.167 | | 17 | -50.1 |
| 8 | ☐ | 50.000 | 43.218 | 1229815. | 1.335 | | 7. | -13.6 |
| 9 | ☐ | 100.00 | 86.954 | 2508194. | 2.670 | | 3. | -13.0 |
| 10 | ☐ | 1000.0 | 1001.7 | 27535665 | 30.60 | | 17 | 0.2 |
| 11 | ☐ | | | -35592.19 | -0.03 | | -8 | |

y = 0.0305 * x + 0.0154

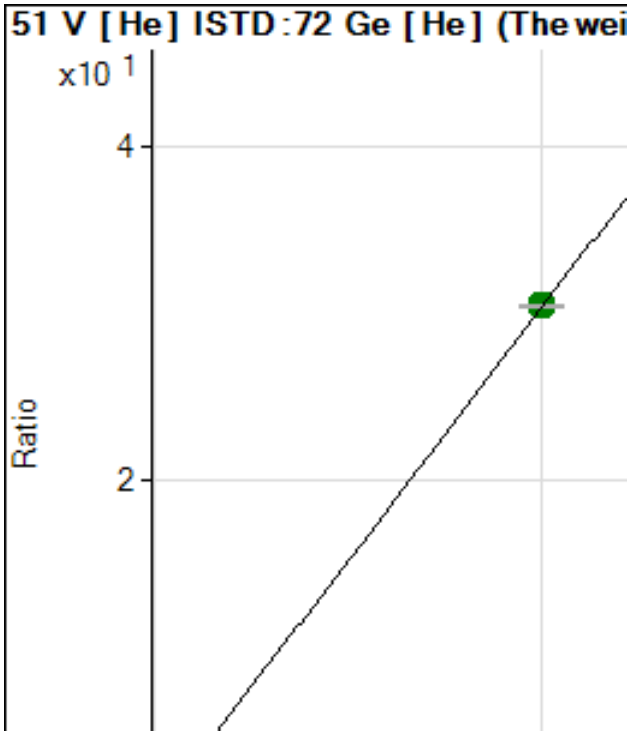
R = 0.9999

DL = 6.831 ug/l

BEC = 0.5034 ug/l

Weight: 1/y

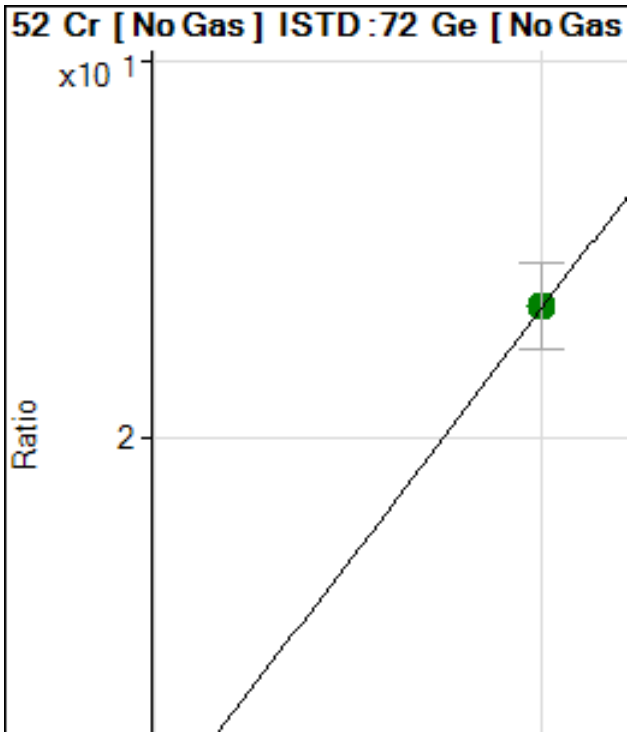
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 37592.29 | 0.238 | | 1. | |
| 2 | ☐ | 0.025 | 0.136 | 37547.73 | 0.242 | | 1. | 445. |
| 3 | ☐ | 0.050 | 0.085 | 37105.53 | 0.240 | | 2. | 69.7 |
| 4 | ☐ | 0.100 | 0.091 | 37309.33 | 0.240 | | 0. | -8.9 |
| 5 | ☐ | 0.500 | 0.344 | 38471.15 | 0.248 | | 1. | -31.2 |
| 6 | ☐ | 1.000 | 0.765 | 40667.07 | 0.261 | | 1. | -23.5 |
| 7 | ☐ | 10.000 | 8.048 | 74628.96 | 0.481 | | 0. | -19.5 |
| 8 | ☐ | 50.000 | 46.902 | 261302.5 | 1.655 | | 0. | -6.2 |
| 9 | ☐ | 100.00 | 92.841 | 483477.0 | 3.044 | | 1. | -7.2 |
| 10 | ☐ | 1000.0 | 1000.8 | 4829191. | 30.48 | | 0. | 0.1 |
| 11 | ☐ | | | 18378.18 | 0.117 | | 2. | |

y = 0.0302 * x + 0.2381

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 124562.5 | 0.130 | | 3. | |
| 2 | ☐ | 0.025 | 0.309 | 125464.2 | 0.139 | | 6. | 1134 |
| 3 | ☐ | 0.050 | 0.002 | 122574.0 | 0.130 | | 1. | -96.7 |
| 4 | ☐ | 0.100 | 0.008 | 123737.3 | 0.131 | | 2. | -91.9 |
| 5 | ☐ | 0.500 | 0.580 | 130299.9 | 0.146 | | 5. | 15.9 |
| 6 | ☐ | 1.000 | 1.145 | 145243.0 | 0.161 | | 7. | 14.5 |
| 7 | ☐ | 10.000 | 9.890 | 358070.9 | 0.396 | | 2. | -1.1 |
| 8 | ☐ | 50.000 | 49.010 | 1332009. | 1.445 | | 5. | -2.0 |
| 9 | ☐ | 100.00 | 94.194 | 2494124. | 2.657 | | 4. | -5.8 |
| 10 | ☐ | 1000.0 | 1000.6 | 24262327 | 26.97 | | 17 | 0.1 |
| 11 | ☐ | | | 91638.21 | 0.096 | | 3. | |

y = 0.0268 * x + 0.1308

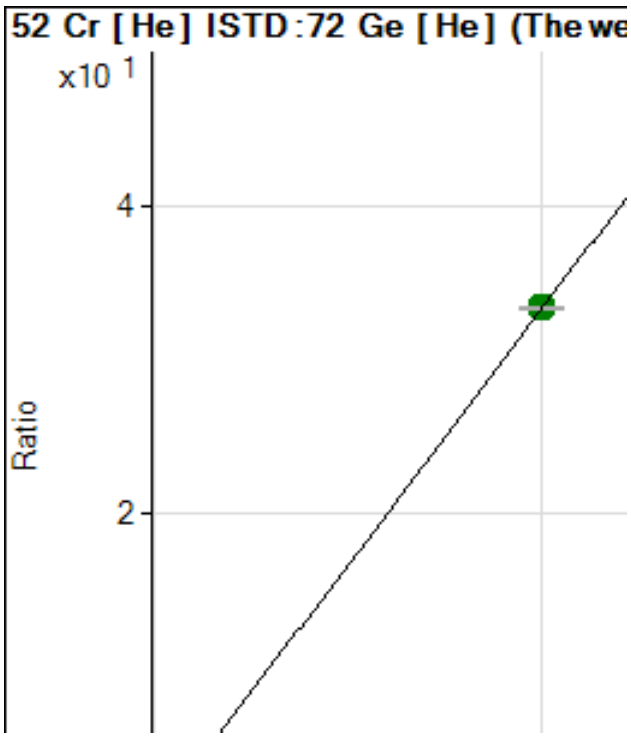
R = 1.0000

DL = 0.4632 ug/l

BEC = 4.876 ug/l

Weight: 1/y

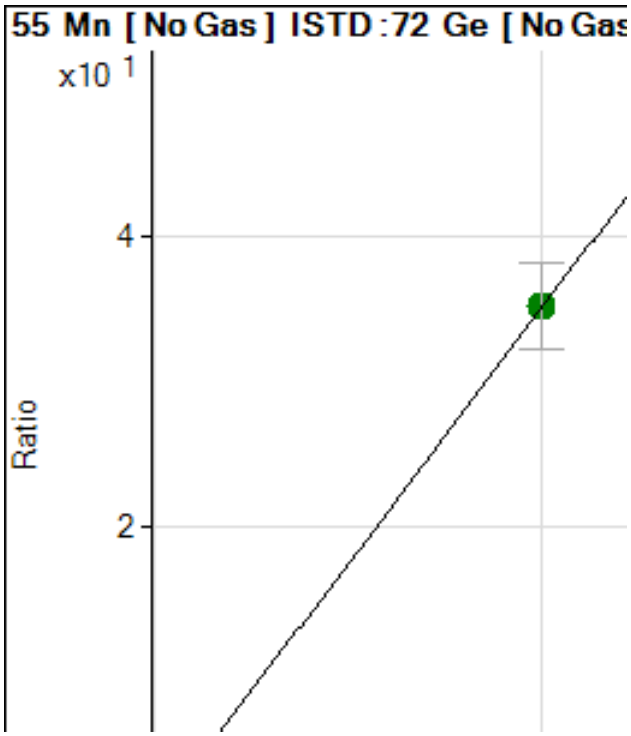
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1705.67 | 0.010 | | 5. | |
| 2 | ☐ | 0.025 | 0.048 | 1922.36 | 0.012 | | 4. | 91.5 |
| 3 | ☐ | 0.050 | 0.087 | 2114.61 | 0.013 | | 4. | 74.3 |
| 4 | ☐ | 0.100 | 0.141 | 2399.10 | 0.015 | | 3. | 40.6 |
| 5 | ☐ | 0.500 | 0.495 | 4226.18 | 0.027 | | 4. | -1.1 |
| 6 | ☐ | 1.000 | 1.071 | 7245.16 | 0.046 | | 1. | 7.1 |
| 7 | ☐ | 10.000 | 9.991 | 53350.71 | 0.344 | | 2. | -0.1 |
| 8 | ☐ | 50.000 | 51.035 | 270392.9 | 1.713 | | 0. | 2.1 |
| 9 | ☐ | 100.00 | 97.074 | 516002.1 | 3.249 | | 2. | -2.9 |
| 10 | ☐ | 1000.0 | 1000.2 | 5286634. | 33.37 | | 0. | 0.0 |
| 11 | ☐ | | | 1709.00 | 0.010 | | 5. | |

y = 0.0334 * x + 0.0108

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 12044.37 | 0.012 | | 5. | |
| 2 | ☐ | 0.025 | 0.061 | 13339.62 | 0.014 | | 6. | 143. |
| 3 | ☐ | 0.050 | 0.066 | 14015.57 | 0.015 | | 1. | 31.5 |
| 4 | ☐ | 0.100 | 0.112 | 15660.64 | 0.016 | | 3. | 11.8 |
| 5 | ☐ | 0.500 | 0.547 | 28354.45 | 0.031 | | 8. | 9.4 |
| 6 | ☐ | 1.000 | 1.049 | 44579.06 | 0.049 | | 6. | 4.9 |
| 7 | ☐ | 10.000 | 10.456 | 343908.6 | 0.380 | | 1. | 4.6 |
| 8 | ☐ | 50.000 | 50.832 | 1659798. | 1.800 | | 4. | 1.7 |
| 9 | ☐ | 100.00 | 98.530 | 3264888. | 3.478 | | 4. | -1.5 |
| 10 | ☐ | 1000.0 | 1000.1 | 31657828 | 35.18 | | 16 | 0.0 |
| 11 | ☐ | | | 18001.94 | 0.019 | | 1. | |

y = 0.0352 * x + 0.0126

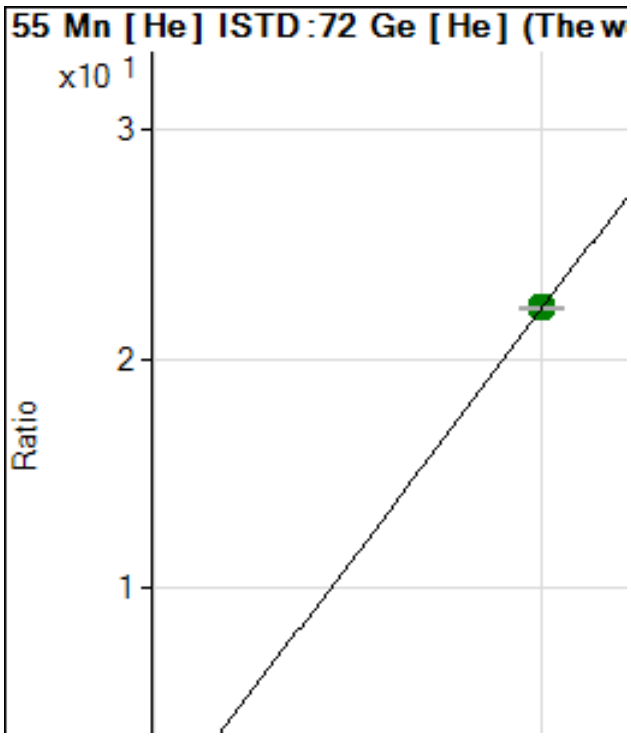
R = 1.0000

DL = 0.06139 ug/l

BEC = 0.3596 ug/l

Weight: 1/y

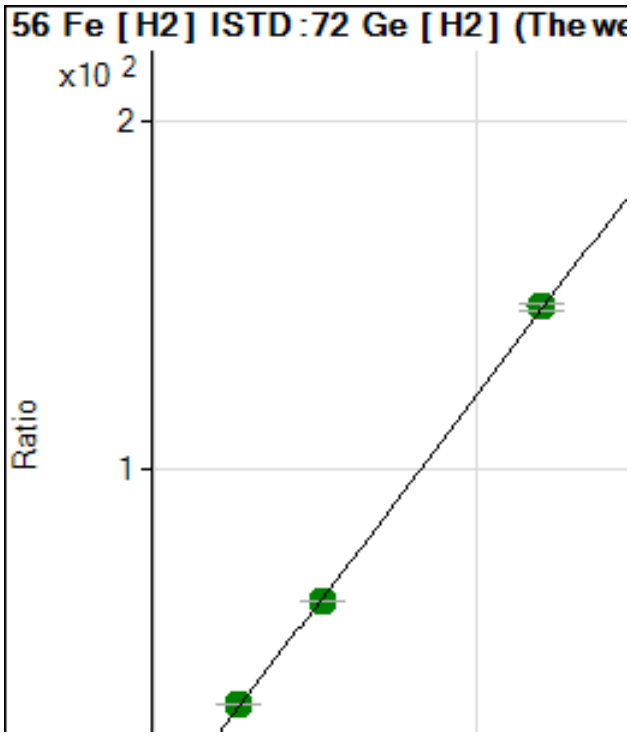
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 170.63 | 0.001 | | 10 | |
| 2 | ☐ | 0.025 | 0.031 | 274.95 | 0.001 | | 6. | 24.6 |
| 3 | ☐ | 0.050 | 0.063 | 383.26 | 0.002 | | 1. | 26.1 |
| 4 | ☐ | 0.100 | 0.116 | 568.90 | 0.003 | | 4. | 16.5 |
| 5 | ☐ | 0.500 | 0.528 | 1986.41 | 0.012 | | 3. | 5.6 |
| 6 | ☐ | 1.000 | 1.025 | 3719.40 | 0.023 | | 1. | 2.5 |
| 7 | ☐ | 10.000 | 10.347 | 35858.67 | 0.231 | | 0. | 3.5 |
| 8 | ☐ | 50.000 | 51.881 | 182301.8 | 1.155 | | 0. | 3.8 |
| 9 | ☐ | 100.00 | 100.43 | 354989.4 | 2.235 | | 1. | 0.4 |
| 10 | ☐ | 1000.0 | 999.85 | 3522797. | 22.24 | | 0. | 0.0 |
| 11 | ☐ | | | 226.96 | 0.001 | | 5. | |

y = 0.0222 * x + 0.0011

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 9819.83 | 0.013 | | 2. | |
| 2 | ☐ | 0.650 | 0.791 | 22864.06 | 0.033 | | 1. | 21.7 |
| 3 | ☐ | 1.300 | 1.506 | 34623.73 | 0.050 | | 1. | 15.8 |
| 4 | ☐ | 2.600 | 2.885 | 57728.91 | 0.084 | | 2. | 10.9 |
| 5 | ☐ | 13.000 | 12.928 | 222970.1 | 0.329 | | 1. | -0.6 |
| 6 | ☐ | 26.000 | 26.712 | 445405.8 | 0.665 | | 1. | 2.7 |
| 7 | ☐ | 260.00 | 267.86 | 4347633. | 6.550 | | 1. | 3.0 |
| 8 | ☐ | 1300.0 | 1327.2 | 21625388 | 32.40 | | 1. | 2.1 |
| 9 | ☐ | 2600.0 | 2548.3 | 40635466 | 62.20 | | 0. | -2.0 |
| 10 | ☐ | 6000.0 | 6016.1 | 93387917 | 146.8 | | 1. | 0.3 |
| 11 | ☐ | | | 11359.17 | 0.017 | | 1. | |

y = 0.0244 * x + 0.0139

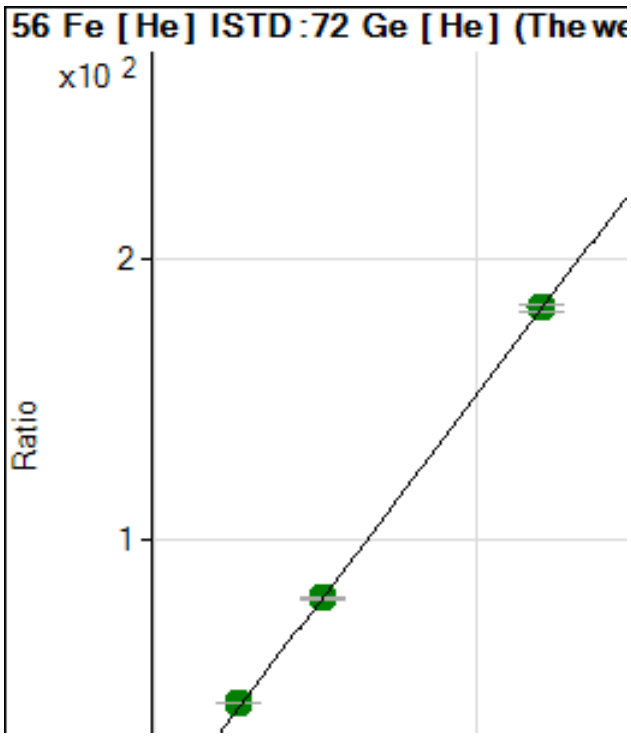
R = 0.9999

DL = 0.04916 ug/l

BEC = 0.5706 ug/l

Weight: 1/y

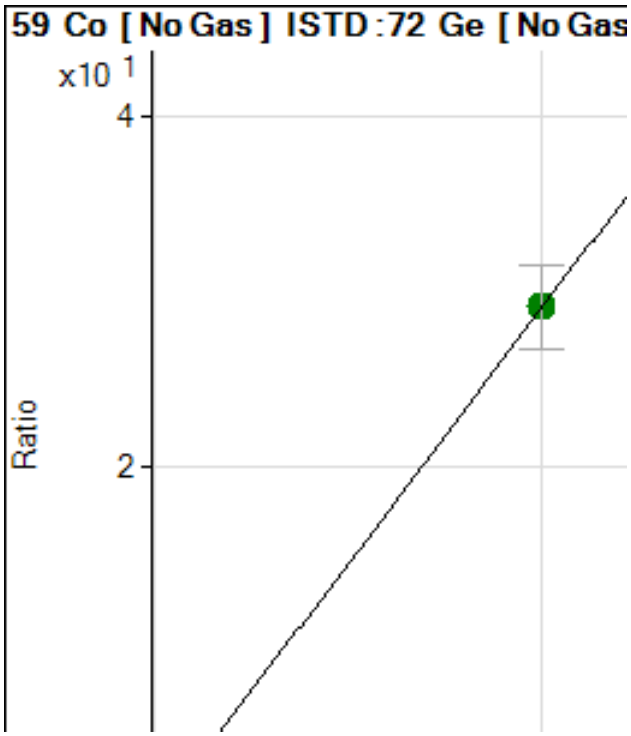
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 7389.32 | 0.046 | | 2. | |
| 2 | ☐ | 0.650 | 0.752 | 10808.21 | 0.069 | | 3. | 15.7 |
| 3 | ☐ | 1.300 | 1.491 | 14217.87 | 0.092 | | 4. | 14.7 |
| 4 | ☐ | 2.600 | 2.928 | 21061.31 | 0.136 | | 2. | 12.6 |
| 5 | ☐ | 13.000 | 12.861 | 67894.21 | 0.438 | | 1. | -1.1 |
| 6 | ☐ | 26.000 | 26.374 | 132349.5 | 0.850 | | 2. | 1.4 |
| 7 | ☐ | 260.00 | 262.97 | 1248937. | 8.055 | | 2. | 1.1 |
| 8 | ☐ | 1300.0 | 1347.4 | 6484025. | 41.08 | | 0. | 3.7 |
| 9 | ☐ | 2600.0 | 2590.3 | 12537433 | 78.93 | | 1. | -0.4 |
| 10 | ☐ | 6000.0 | 5993.7 | 28921554 | 182.5 | | 1. | -0.1 |
| 11 | ☐ | | | 8078.70 | 0.051 | | 2. | |

y = 0.0305 * x + 0.0468

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 445.79 | 0.000 | | 21 | |
| 2 | ☐ | 0.025 | 0.032 | 1274.20 | 0.001 | | 7. | 29.7 |
| 3 | ☐ | 0.050 | 0.061 | 2099.35 | 0.002 | | 5. | 21.8 |
| 4 | ☐ | 0.100 | 0.114 | 3570.04 | 0.003 | | 3. | 13.7 |
| 5 | ☐ | 0.500 | 0.533 | 14245.40 | 0.016 | | 6. | 6.7 |
| 6 | ☐ | 1.000 | 1.063 | 28254.54 | 0.031 | | 7. | 6.3 |
| 7 | ☐ | 10.000 | 10.404 | 274428.1 | 0.303 | | 1. | 4.0 |
| 8 | ☐ | 50.000 | 52.680 | 1415068. | 1.535 | | 4. | 5.4 |
| 9 | ☐ | 100.00 | 97.428 | 2664484. | 2.838 | | 4. | -2.6 |
| 10 | ☐ | 1000.0 | 1000.1 | 26221333 | 29.13 | | 16 | 0.0 |
| 11 | ☐ | | | 605.48 | 0.000 | | 23 | |

y = 0.0291 * x + 4.6714E-004

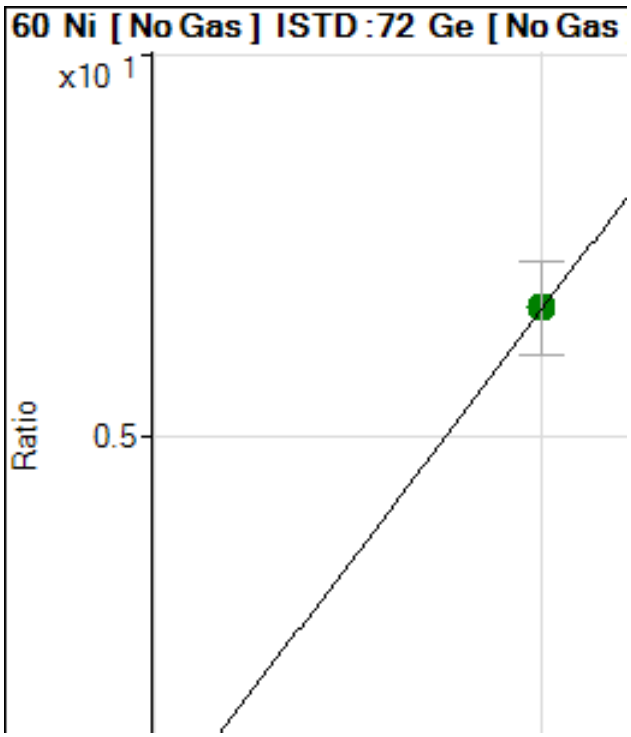
R = 1.0000

DL = 0.01043 ug/l

BEC = 0.01604 ug/l

Weight: 1/y

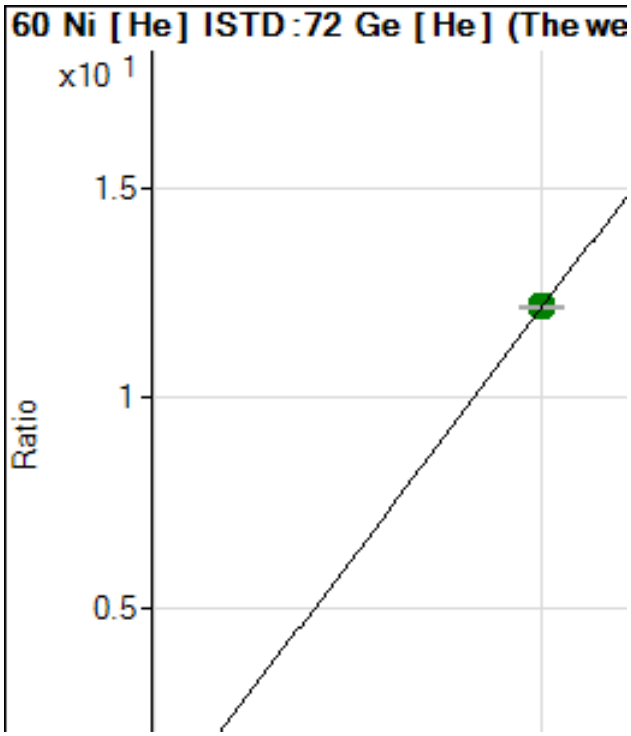
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 815.08 | 0.000 | | 21 | |
| 2 | ☐ | 0.025 | 0.058 | 1121.16 | 0.001 | | 18 | 133. |
| 3 | ☐ | 0.050 | 0.087 | 1347.39 | 0.001 | | 6. | 73.9 |
| 4 | ☐ | 0.100 | 0.129 | 1623.55 | 0.001 | | 9. | 29.0 |
| 5 | ☐ | 0.500 | 0.553 | 4039.24 | 0.004 | | 11 | 10.5 |
| 6 | ☐ | 1.000 | 1.084 | 7284.09 | 0.008 | | 5. | 8.4 |
| 7 | ☐ | 10.000 | 10.156 | 62087.78 | 0.068 | | 2. | 1.6 |
| 8 | ☐ | 50.000 | 51.450 | 317347.2 | 0.344 | | 6. | 2.9 |
| 9 | ☐ | 100.00 | 95.720 | 600899.0 | 0.640 | | 4. | -4.3 |
| 10 | ☐ | 1000.0 | 1000.3 | 6002894. | 6.681 | | 18 | 0.0 |
| 11 | ☐ | | | 1543.70 | 0.001 | | 13 | |

y = 0.0067 * x + 8.5805E-004

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 137.78 | 0.000 | | 11 | |
| 2 | ☐ | 0.025 | 0.073 | 272.23 | 0.001 | | 10 | 190. |
| 3 | ☐ | 0.050 | 0.099 | 321.12 | 0.002 | | 8. | 98.4 |
| 4 | ☐ | 0.100 | 0.155 | 427.78 | 0.002 | | 7. | 55.3 |
| 5 | ☐ | 0.500 | 0.545 | 1161.16 | 0.007 | | 5. | 9.0 |
| 6 | ☐ | 1.000 | 1.050 | 2125.73 | 0.013 | | 4. | 5.0 |
| 7 | ☐ | 10.000 | 10.684 | 20284.11 | 0.130 | | 1. | 6.8 |
| 8 | ☐ | 50.000 | 53.235 | 102329.7 | 0.648 | | 1. | 6.5 |
| 9 | ☐ | 100.00 | 100.59 | 194490.0 | 1.224 | | 2. | 0.6 |
| 10 | ☐ | 1000.0 | 999.77 | 1926185. | 12.16 | | 0. | 0.0 |
| 11 | ☐ | | | 155.56 | 0.001 | | 15 | |

y = 0.0122 * x + 8.7244E-004

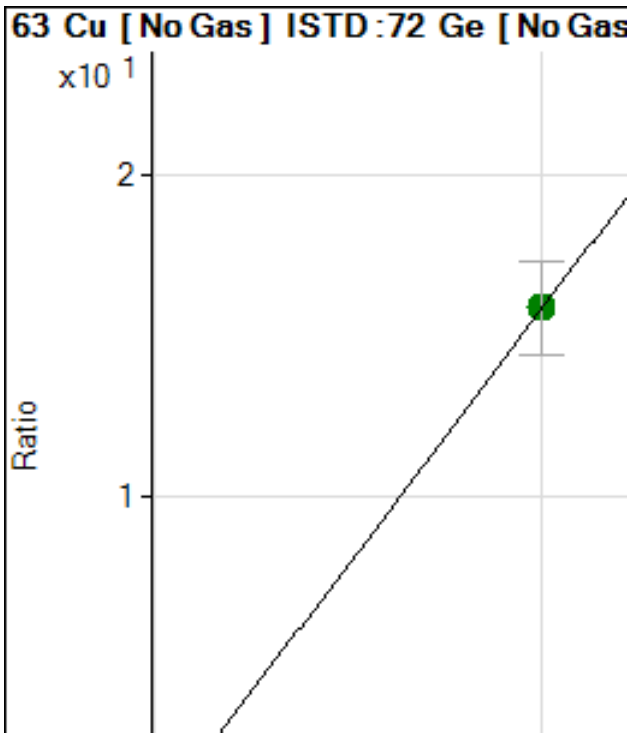
R = 1.0000

DL = 0.02391 ug/l

BEC = 0.07173 ug/l

Weight: 1/y

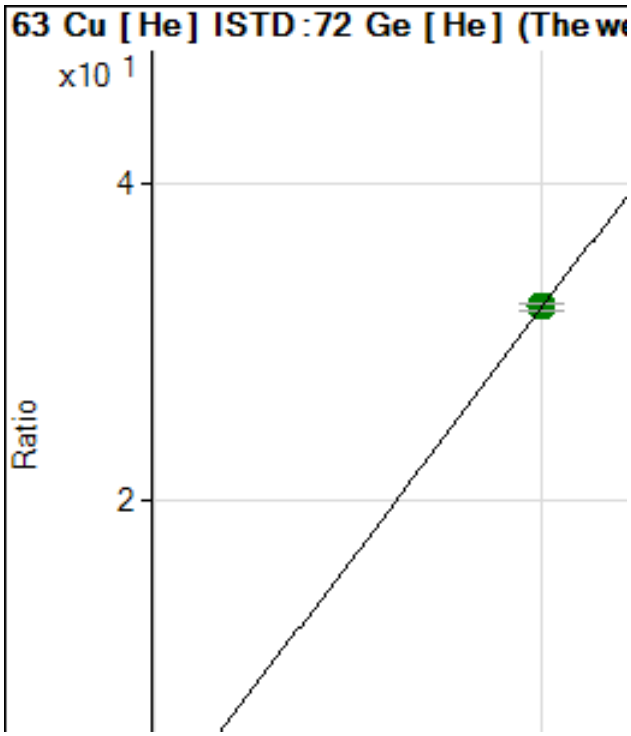
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1794.83 | 0.001 | | 4. | |
| 2 | ☐ | 0.025 | 0.095 | 3057.55 | 0.003 | | 8. | 279. |
| 3 | ☐ | 0.050 | 0.094 | 3172.29 | 0.003 | | 4. | 88.9 |
| 4 | ☐ | 0.100 | 0.122 | 3607.90 | 0.003 | | 3. | 21.8 |
| 5 | ☐ | 0.500 | 0.583 | 9922.02 | 0.011 | | 7. | 16.7 |
| 6 | ☐ | 1.000 | 1.100 | 17402.67 | 0.019 | | 7. | 10.0 |
| 7 | ☐ | 10.000 | 10.663 | 154873.2 | 0.171 | | 2. | 6.6 |
| 8 | ☐ | 50.000 | 52.210 | 766133.8 | 0.831 | | 6. | 4.4 |
| 9 | ☐ | 100.00 | 96.678 | 1443812. | 1.538 | | 4. | -3.3 |
| 10 | ☐ | 1000.0 | 1000.2 | 14276326 | 15.89 | | 18 | 0.0 |
| 11 | ☐ | | | 3523.18 | 0.003 | | 4. | |

y = 0.0159 * x + 0.0019

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 430.92 | 0.002 | | 9. | |
| 2 | ☐ | 0.025 | 0.095 | 897.18 | 0.005 | | 0. | 280. |
| 3 | ☐ | 0.050 | 0.100 | 914.85 | 0.005 | | 4. | 99.2 |
| 4 | ☐ | 0.100 | 0.139 | 1118.16 | 0.007 | | 1. | 39.5 |
| 5 | ☐ | 0.500 | 0.565 | 3238.05 | 0.020 | | 0. | 13.0 |
| 6 | ☐ | 1.000 | 1.111 | 5988.70 | 0.038 | | 0. | 11.1 |
| 7 | ☐ | 10.000 | 10.691 | 53751.41 | 0.346 | | 1. | 6.9 |
| 8 | ☐ | 50.000 | 52.011 | 264500.1 | 1.675 | | 0. | 4.0 |
| 9 | ☐ | 100.00 | 99.922 | 510990.9 | 3.217 | | 1. | -0.1 |
| 10 | ☐ | 1000.0 | 999.90 | 5094975. | 32.16 | | 1. | 0.0 |
| 11 | ☐ | | | 746.54 | 0.004 | | 2. | |

y = 0.0322 * x + 0.0027

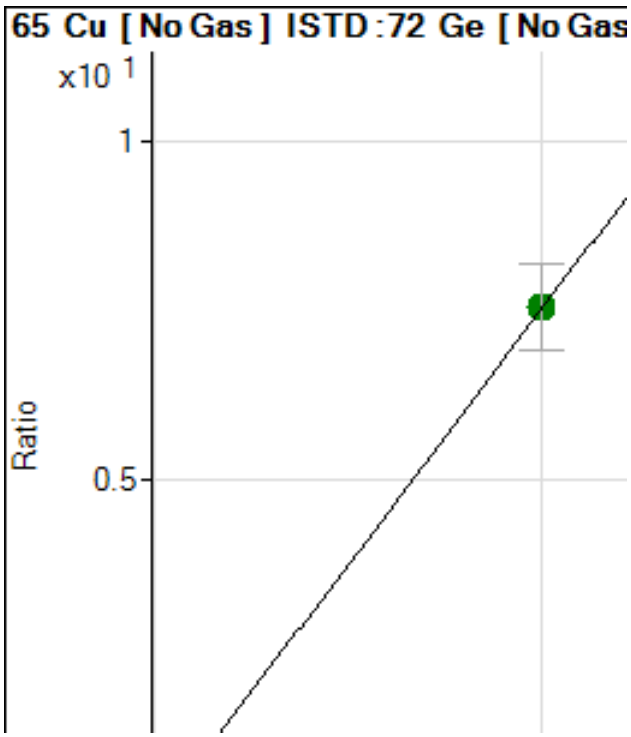
R = 1.0000

DL = 0.02435 ug/l

BEC = 0.08487 ug/l

Weight: 1/y

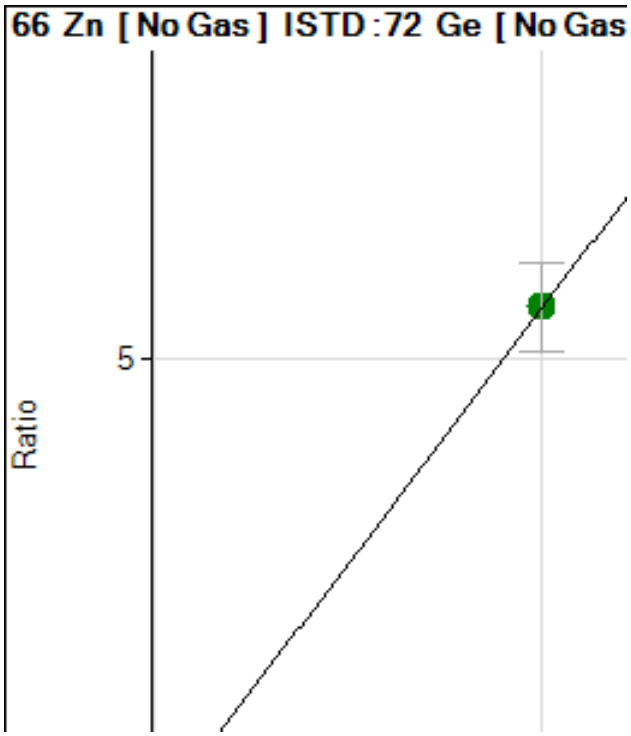
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1037.79 | 0.001 | | 5. | |
| 2 | ☐ | 0.025 | 0.091 | 1604.07 | 0.001 | | 7. | 265. |
| 3 | ☐ | 0.050 | 0.087 | 1639.42 | 0.001 | | 3. | 74.8 |
| 4 | ☐ | 0.100 | 0.109 | 1807.51 | 0.001 | | 1. | 9.2 |
| 5 | ☐ | 0.500 | 0.565 | 4765.37 | 0.005 | | 5. | 13.0 |
| 6 | ☐ | 1.000 | 1.089 | 8364.43 | 0.009 | | 6. | 8.9 |
| 7 | ☐ | 10.000 | 10.581 | 73107.13 | 0.080 | | 3. | 5.8 |
| 8 | ☐ | 50.000 | 51.895 | 361636.9 | 0.392 | | 5. | 3.8 |
| 9 | ☐ | 100.00 | 97.095 | 688378.2 | 0.733 | | 4. | -2.9 |
| 10 | ☐ | 1000.0 | 1000.1 | 6786287. | 7.543 | | 16 | 0.0 |
| 11 | ☐ | | | 1507.35 | 0.001 | | 7. | |

y = 0.0075 * x + 0.0011

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 2681.59 | 0.002 | | 10 | |
| 2 | ☐ | | | 2824.56 | 0.003 | | 9. | |
| 3 | ☐ | 0.050 | 0.145 | 3397.17 | 0.003 | | 3. | 190. |
| 4 | ☐ | 0.100 | 0.058 | 2967.87 | 0.003 | | 2. | -41.6 |
| 5 | ☐ | 0.500 | 0.569 | 5310.03 | 0.006 | | 14 | 13.8 |
| 6 | ☐ | 1.000 | 0.943 | 7257.01 | 0.008 | | 6. | -5.7 |
| 7 | ☐ | 10.000 | 10.014 | 52938.94 | 0.058 | | 2. | 0.1 |
| 8 | ☐ | 50.000 | 50.055 | 259463.4 | 0.281 | | 4. | 0.1 |
| 9 | ☐ | 100.00 | 94.500 | 496542.9 | 0.528 | | 3. | -5.5 |
| 10 | ☐ | 1000.0 | 1000.5 | 5009270. | 5.572 | | 17 | 0.1 |
| 11 | ☐ | | | 2689.98 | 0.002 | | 1. | |

y = 0.0056 * x + 0.0028

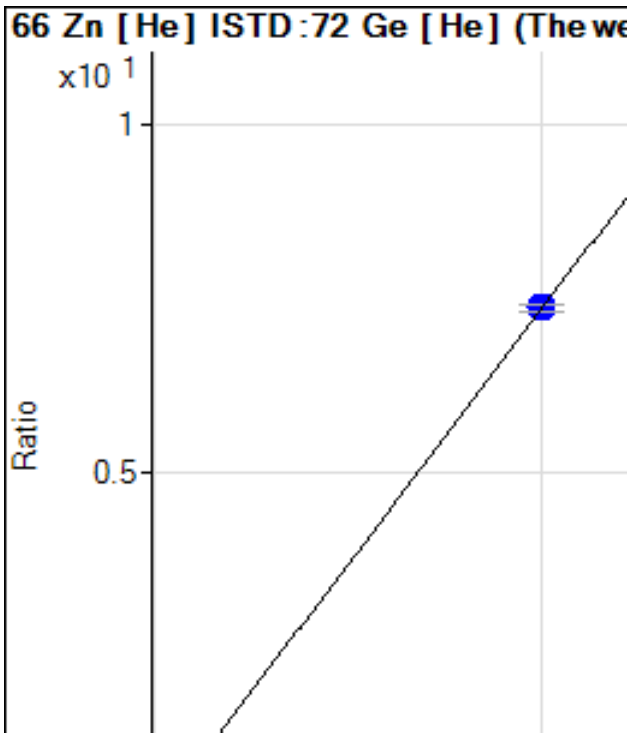
R = 1.0000

DL = 0.162 ug/l

BEC = 0.5061 ug/l

Weight: 1/y

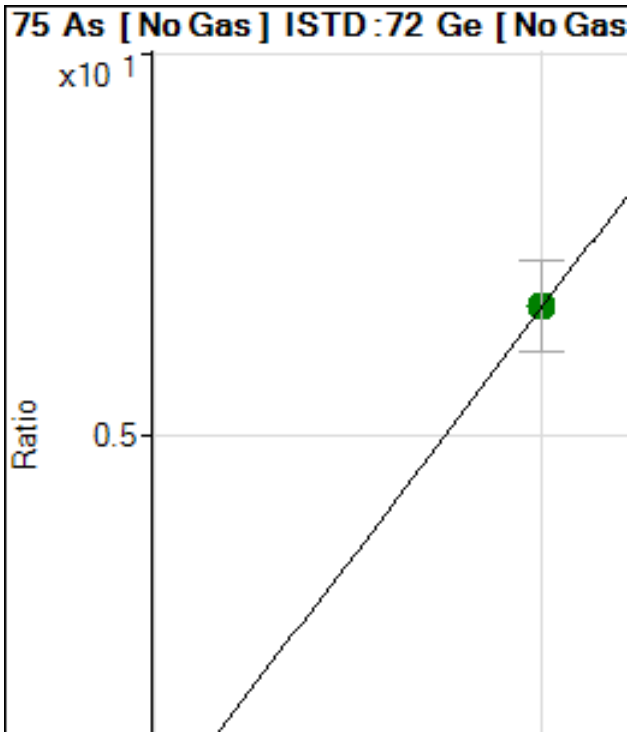
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 551.12 | 0.003 | | 9. | |
| 2 | ☐ | | | 657.80 | 0.004 | | 7. | |
| 3 | ☐ | 0.050 | 0.150 | 706.69 | 0.004 | | 14 | 199. |
| 4 | ☐ | 0.100 | 0.101 | 655.58 | 0.004 | | 8. | 1.1 |
| 5 | ☐ | 0.500 | 0.599 | 1223.39 | 0.007 | | 6. | 19.8 |
| 6 | ☐ | 1.000 | 1.022 | 1714.56 | 0.011 | | 1. | 2.2 |
| 7 | ☐ | 10.000 | 10.703 | 12752.28 | 0.082 | | 2. | 7.0 |
| 8 | ☐ | 50.000 | 52.733 | 61786.02 | 0.391 | | 1. | 5.5 |
| 9 | ☐ | 100.00 | 101.16 | 118780.0 | 0.747 | | 1. | 1.2 |
| 10 | ☐ | 1000.0 | 999.74 | 1165604. | 7.359 | | 1. | 0.0 |
| 11 | ☐ | | | 622.24 | 0.004 | | 5. | |

y = 0.0074 * x + 0.0035

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 21067.61 | 0.022 | | 11 | |
| 2 | ☐ | 0.025 | 0.218 | 21497.74 | 0.023 | | 24 | 771. |
| 3 | ☐ | 0.050 | -0.742 | 16144.28 | 0.017 | | 53 | -158 |
| 4 | ☐ | 0.100 | -0.096 | 20328.13 | 0.021 | | 51 | -196. |
| 5 | ☐ | 0.500 | 0.764 | 24243.79 | 0.027 | | 6. | 52.8 |
| 6 | ☐ | 1.000 | 1.401 | 28374.69 | 0.031 | | 1. | 40.1 |
| 7 | ☐ | 10.000 | 10.447 | 82936.26 | 0.091 | | 1. | 4.5 |
| 8 | ☐ | 50.000 | 53.245 | 347044.1 | 0.376 | | 6. | 6.5 |
| 9 | ☐ | 100.00 | 101.80 | 657464.9 | 0.700 | | 2. | 1.8 |
| 10 | ☐ | 1000.0 | 999.65 | 6003427. | 6.679 | | 17 | 0.0 |
| 11 | ☐ | | | 20427.27 | 0.021 | | 24 | |

y = 0.0067 * x + 0.0221

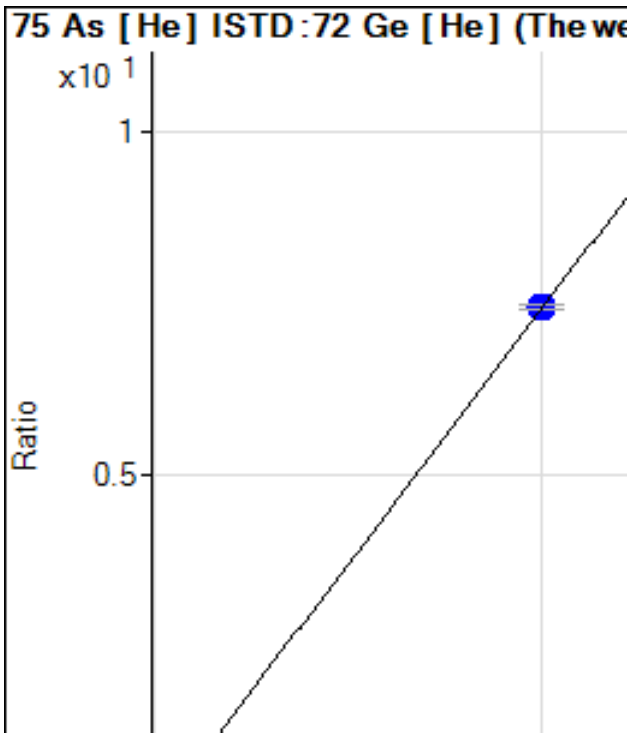
R = 1.0000

DL = 1.19 ug/l

BEC = 3.325 ug/l

Weight: 1/y

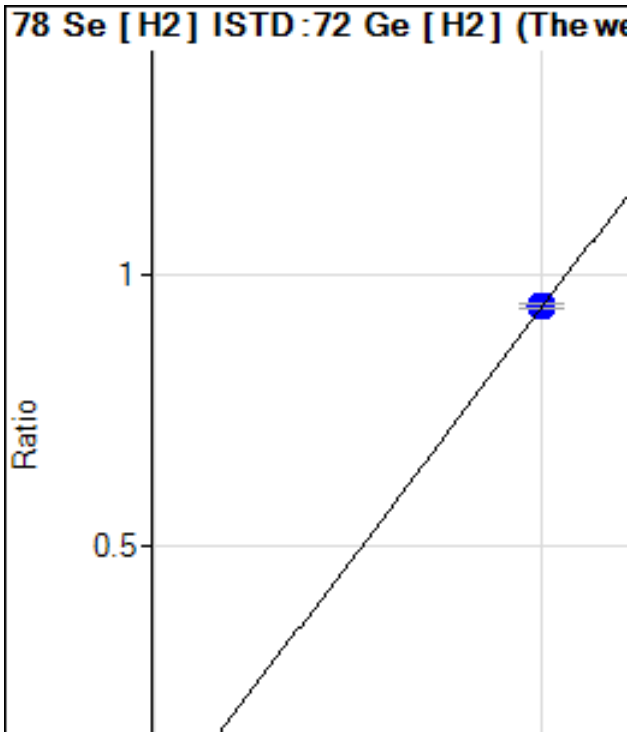
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 828.94 | 0.005 | | 1. | |
| 2 | ☐ | 0.025 | 0.055 | 877.08 | 0.005 | | 1. | 118. |
| 3 | ☐ | 0.050 | 0.067 | 886.34 | 0.005 | | 3. | 34.2 |
| 4 | ☐ | 0.100 | 0.115 | 945.14 | 0.006 | | 0. | 14.7 |
| 5 | ☐ | 0.500 | 0.516 | 1405.57 | 0.009 | | 1. | 3.1 |
| 6 | ☐ | 1.000 | 1.016 | 1991.70 | 0.012 | | 1. | 1.6 |
| 7 | ☐ | 10.000 | 9.916 | 12226.54 | 0.078 | | 1. | -0.8 |
| 8 | ☐ | 50.000 | 50.940 | 60504.53 | 0.383 | | 0. | 1.9 |
| 9 | ☐ | 100.00 | 99.007 | 117556.4 | 0.740 | | 1. | -1.0 |
| 10 | ☐ | 1000.0 | 1000.0 | 1176555. | 7.428 | | 0. | 0.0 |
| 11 | ☐ | | | 757.80 | 0.004 | | 1. | |

y = 0.0074 * x + 0.0052

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 49.00 | 0.000 | | 6. | |
| 2 | ☐ | 0.025 | 0.010 | 54.22 | 0.000 | | 7. | -60.9 |
| 3 | ☐ | 0.050 | 0.040 | 73.00 | 0.000 | | 9. | -20.6 |
| 4 | ☐ | 0.100 | 0.093 | 107.67 | 0.000 | | 1. | -6.6 |
| 5 | ☐ | 0.500 | 0.484 | 354.67 | 0.000 | | 4. | -3.3 |
| 6 | ☐ | 1.000 | 0.981 | 662.57 | 0.001 | | 1. | -1.9 |
| 7 | ☐ | 10.000 | 10.021 | 6292.14 | 0.009 | | 1. | 0.2 |
| 8 | ☐ | 50.000 | 51.205 | 32135.83 | 0.048 | | 0. | 2.4 |
| 9 | ☐ | 100.00 | 99.231 | 60924.78 | 0.093 | | 0. | -0.8 |
| 10 | ☐ | 1000.0 | 1000.0 | 597152.3 | 0.939 | | 0. | 0.0 |
| 11 | ☐ | | | 140.44 | 0.000 | | 6. | |

y = 9.3908E-004 * x + 6.9528E-005

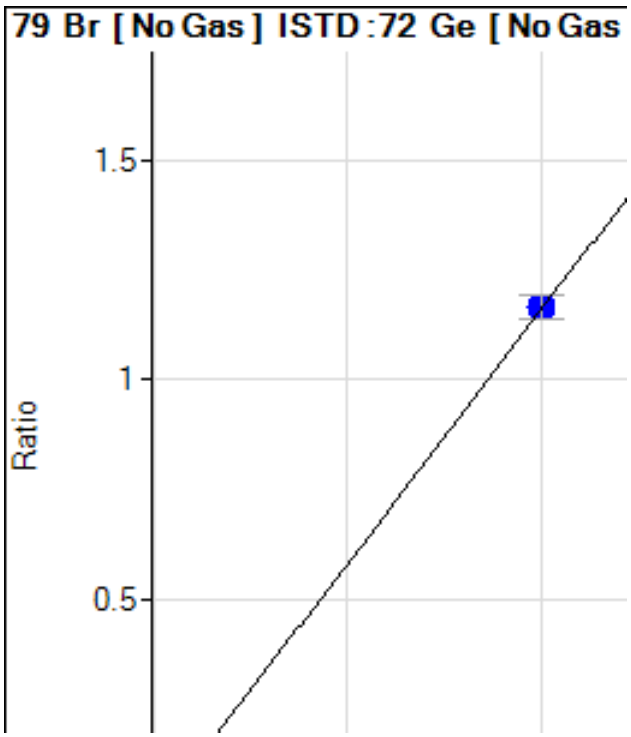
R = 1.0000

DL = 0.0143 ug/l

BEC = 0.07404 ug/l

Weight: 1/y

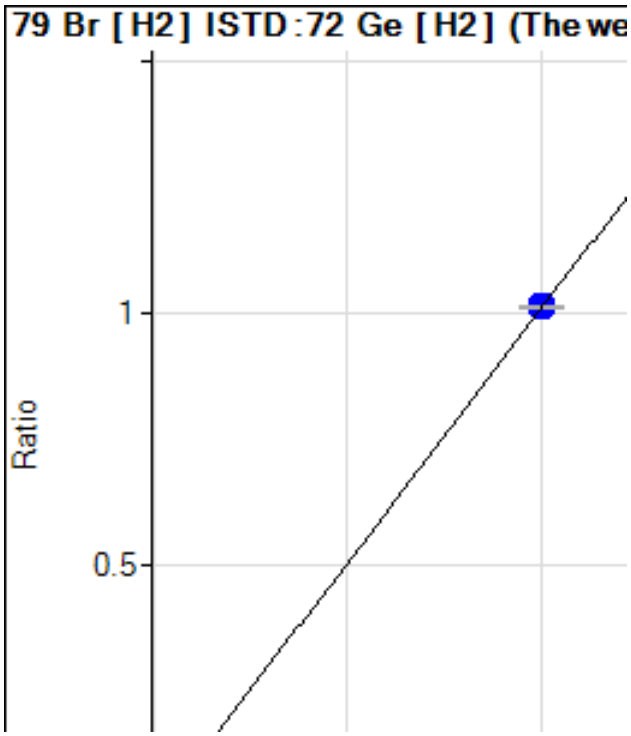
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 7433.88 | 0.007 | | 6. | |
| 2 | ☐ | | | 12317.54 | 0.013 | | 10 | |
| 3 | ☐ | | | 12334.19 | 0.013 | | 0. | |
| 4 | ☐ | | | 12577.26 | 0.013 | | 4. | |
| 5 | ☐ | | | 12244.31 | 0.013 | | 9. | |
| 6 | ☐ | | | 12314.19 | 0.013 | | 8. | |
| 7 | ☐ | | | 11578.39 | 0.012 | | 3. | |
| 8 | ☐ | | | 9394.45 | 0.010 | | 2. | |
| 9 | ☐ | | | 13063.35 | 0.013 | | 4. | |
| 10 | ☐ | | | 14981.42 | 0.016 | | 16 | |
| 11 | ☐ | 100.00 | 100.00 | 1102542. | 1.165 | | 4. | 0.0 |

y = 0.0116 * x + 0.0078

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 4538.40 | 0.006 | | 4. | |
| 2 | ☐ | | | 7483.81 | 0.010 | | 3. | |
| 3 | ☐ | | | 7666.86 | 0.011 | | 1. | |
| 4 | ☐ | | | 7643.56 | 0.011 | | 5. | |
| 5 | ☐ | | | 7177.54 | 0.010 | | 5. | |
| 6 | ☐ | | | 7114.33 | 0.010 | | 1. | |
| 7 | ☐ | | | 6981.19 | 0.010 | | 1. | |
| 8 | ☐ | | | 5982.73 | 0.009 | | 4. | |
| 9 | ☐ | | | 8575.57 | 0.013 | | 6. | |
| 10 | ☐ | | | 21993.24 | 0.034 | | 1. | |
| 11 | ☐ | 100.00 | 100.00 | 668101.5 | 1.011 | | 0. | 0.0 |

y = 0.0101 * x + 0.0064

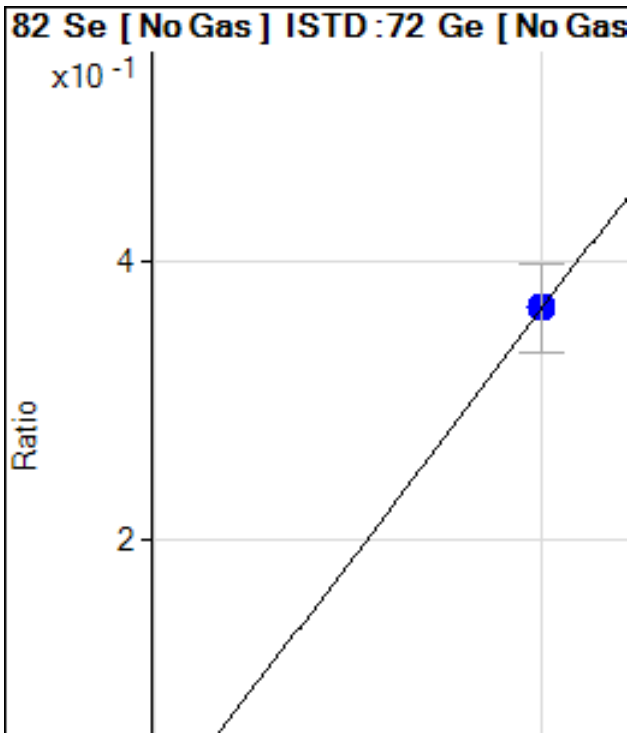
R = 1.0000

DL = 0.08175 ug/l

BEC = 0.6397 ug/l

Weight: 1/y

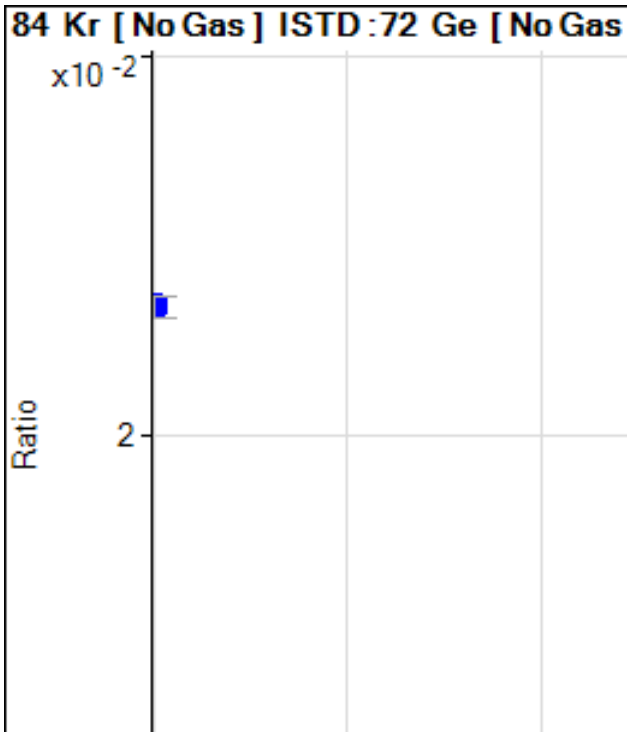
Min Conc: <None>



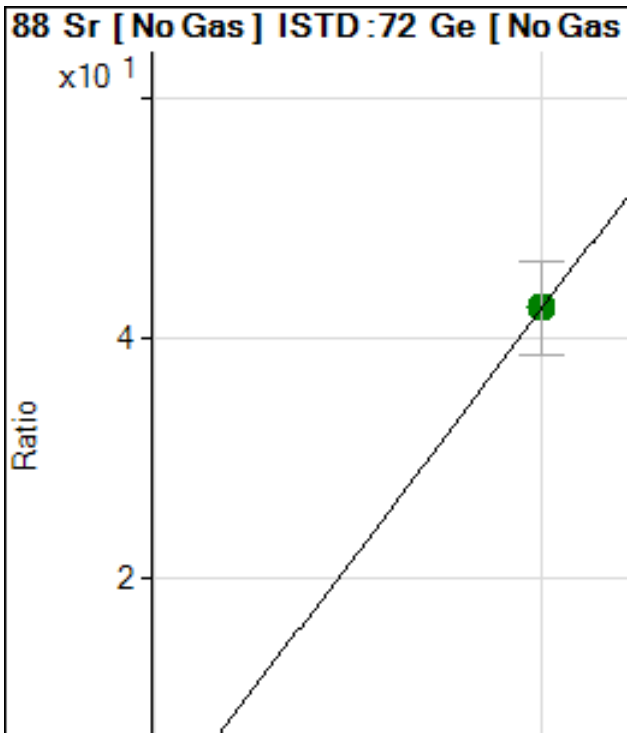

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 989.58 | 0.001 | | 7. | |
| 2 | ☐ | 0.025 | 0.518 | 1116.12 | 0.001 | | 12 | 1970 |
| 3 | ☐ | 0.050 | -0.216 | 898.49 | 0.001 | | 11 | -532. |
| 4 | ☐ | 0.100 | -0.188 | 916.23 | 0.001 | | 4. | -288. |
| 5 | ☐ | 0.500 | 0.586 | 1115.59 | 0.001 | | 8. | 17.3 |
| 6 | ☐ | 1.000 | 0.785 | 1192.67 | 0.001 | | 13 | -21.5 |
| 7 | ☐ | 10.000 | 10.549 | 4432.85 | 0.004 | | 4. | 5.5 |
| 8 | ☐ | 50.000 | 52.516 | 18666.58 | 0.020 | | 7. | 5.0 |
| 9 | ☐ | 100.00 | 99.571 | 35201.27 | 0.037 | | 3. | -0.4 |
| 10 | ☐ | 1000.0 | 999.91 | 330207.5 | 0.367 | | 17 | 0.0 |
| 11 | ☐ | | | 1468.05 | 0.001 | | 6. | |

y = 3.6613E-004 * x + 0.0010

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | | 25521.94 | 0.026 | | 4. | |
| 2 | ☐ | | | 25135.30 | 0.027 | | 4. | |
| 3 | ☐ | | | 24965.44 | 0.026 | | 1. | |
| 4 | ☐ | | | 25332.00 | 0.026 | | 4. | |
| 5 | ☐ | | | 25112.16 | 0.028 | | 10 | |
| 6 | ☐ | | | 24932.24 | 0.027 | | 13 | |
| 7 | ☐ | | | 26768.54 | 0.029 | | 6. | |
| 8 | ☐ | | | 39298.89 | 0.042 | | 5. | |
| 9 | ☐ | | | 49206.24 | 0.052 | | 5. | |
| 10 | ☐ | | | 263475.3 | 0.292 | | 15 | |
| 11 | ☐ | | | 24972.14 | 0.026 | | 4. | |




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 582.20 | 0.000 | | 20 | |
| 2 | ☐ | 0.025 | 0.027 | 1593.61 | 0.001 | | 8. | 8.7 |
| 3 | ☐ | 0.050 | 0.057 | 2834.69 | 0.003 | | 9. | 13.6 |
| 4 | ☐ | 0.100 | 0.111 | 5047.56 | 0.005 | | 4. | 11.3 |
| 5 | ☐ | 0.500 | 0.504 | 19594.53 | 0.022 | | 8. | 0.8 |
| 6 | ☐ | 1.000 | 1.020 | 39572.49 | 0.044 | | 4. | 2.0 |
| 7 | ☐ | 10.000 | 10.242 | 394048.3 | 0.435 | | 2. | 2.4 |
| 8 | ☐ | 50.000 | 52.095 | 2041504. | 2.214 | | 5. | 4.2 |
| 9 | ☐ | 100.00 | 97.677 | 3897806. | 4.152 | | 4. | -2.3 |
| 10 | ☐ | 1000.0 | 1000.1 | 38190192 | 42.50 | | 18 | 0.0 |
| 11 | ☐ | | | 944.83 | 0.001 | | 15 | |

y = 0.0425 * x + 6.1109E-004

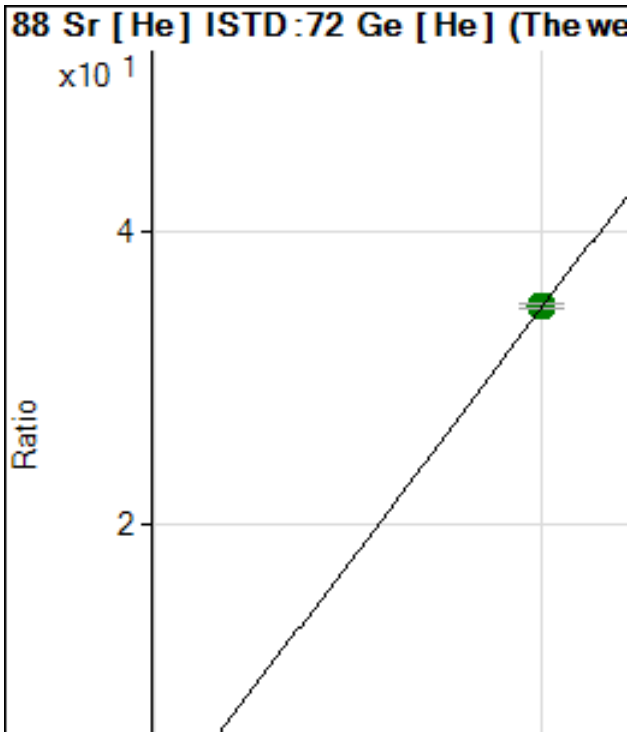
R = 1.0000

DL = 0.008956 ug/l

BEC = 0.01438 ug/l

Weight: 1/y

Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 164.45 | 0.001 | | 7. | |
| 2 | ☐ | 0.025 | 0.025 | 298.89 | 0.001 | | 21 | 2.0 |
| 3 | ☐ | 0.050 | 0.060 | 483.34 | 0.003 | | 7. | 19.7 |
| 4 | ☐ | 0.100 | 0.108 | 744.47 | 0.004 | | 6. | 7.8 |
| 5 | ☐ | 0.500 | 0.492 | 2822.52 | 0.018 | | 5. | -1.6 |
| 6 | ☐ | 1.000 | 0.967 | 5419.95 | 0.034 | | 4. | -3.3 |
| 7 | ☐ | 10.000 | 9.789 | 53171.49 | 0.342 | | 1. | -2.1 |
| 8 | ☐ | 50.000 | 50.005 | 275775.4 | 1.747 | | 1. | 0.0 |
| 9 | ☐ | 100.00 | 98.219 | 544950.2 | 3.431 | | 1. | -1.8 |
| 10 | ☐ | 1000.0 | 1000.1 | 5532411. | 34.93 | | 1. | 0.0 |
| 11 | ☐ | | | 218.89 | 0.001 | | 8. | |

y = 0.0349 * x + 0.0010

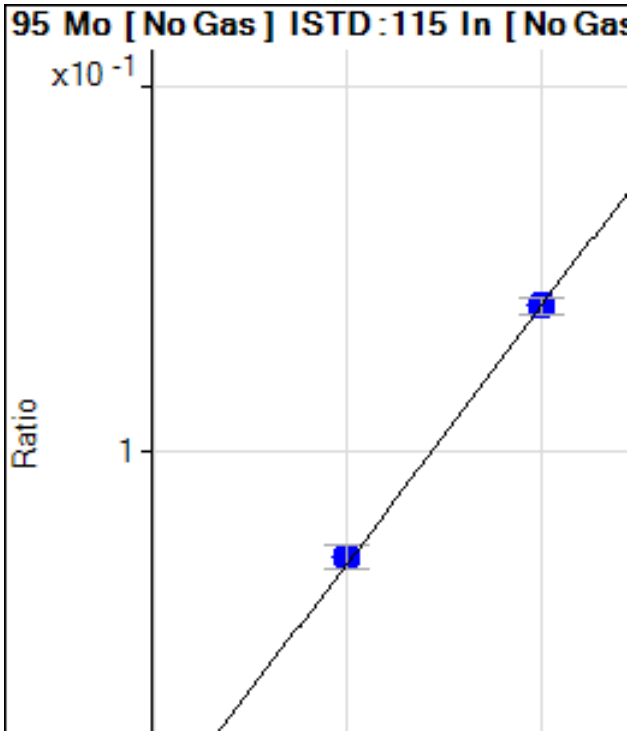
R = 1.0000

DL = 0.006465 ug/l

BEC = 0.0298 ug/l

Weight: 1/y

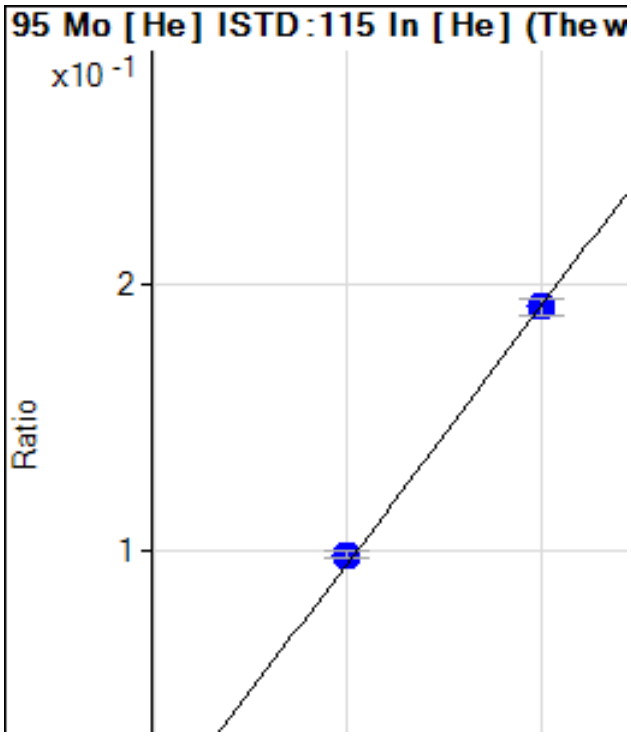
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 90.00 | 0.000 | | 22 | |
| 2 | ☐ | 0.025 | 0.045 | 406.68 | 0.000 | | 14 | 78.7 |
| 3 | ☐ | 0.050 | 0.046 | 444.46 | 0.000 | | 6. | -7.6 |
| 4 | ☐ | 0.100 | 0.103 | 897.81 | 0.000 | | 4. | 2.8 |
| 5 | ☐ | 0.500 | 0.493 | 3663.83 | 0.000 | | 6. | -1.4 |
| 6 | ☐ | 1.000 | 1.003 | 7222.98 | 0.001 | | 8. | 0.3 |
| 7 | ☐ | 10.000 | 9.874 | 72724.18 | 0.013 | | 5. | -1.3 |
| 8 | ☐ | 50.000 | 50.600 | 373690.9 | 0.071 | | 8. | 1.2 |
| 9 | ☐ | 100.00 | 99.713 | 730306.2 | 0.139 | | 3. | -0.3 |
| 10 | ☐ | | | 1353.41 | 0.000 | | 21 | |
| 11 | ☐ | | | 295.56 | 0.000 | | 13 | |

y = 0.0014 * x + 1.6135E-005

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 34.44 | 0.000 | | 40 | |
| 2 | ☐ | 0.025 | 0.038 | 141.11 | 0.000 | | 11 | 50.2 |
| 3 | ☐ | 0.050 | 0.044 | 161.11 | 0.000 | | 10 | -11.4 |
| 4 | ☐ | 0.100 | 0.098 | 314.45 | 0.000 | | 8. | -2.4 |
| 5 | ☐ | 0.500 | 0.476 | 1395.63 | 0.000 | | 6. | -4.7 |
| 6 | ☐ | 1.000 | 0.987 | 2868.09 | 0.001 | | 2. | -1.3 |
| 7 | ☐ | 10.000 | 9.692 | 27879.45 | 0.018 | | 3. | -3.1 |
| 8 | ☐ | 50.000 | 51.129 | 146249.3 | 0.098 | | 2. | 2.3 |
| 9 | ☐ | 100.00 | 99.467 | 283282.3 | 0.191 | | 3. | -0.5 |
| 10 | ☐ | | | 362.23 | 0.000 | | 17 | |
| 11 | ☐ | | | 82.22 | 0.000 | | 14 | |

y = 0.0019 * x + 2.3011E-005

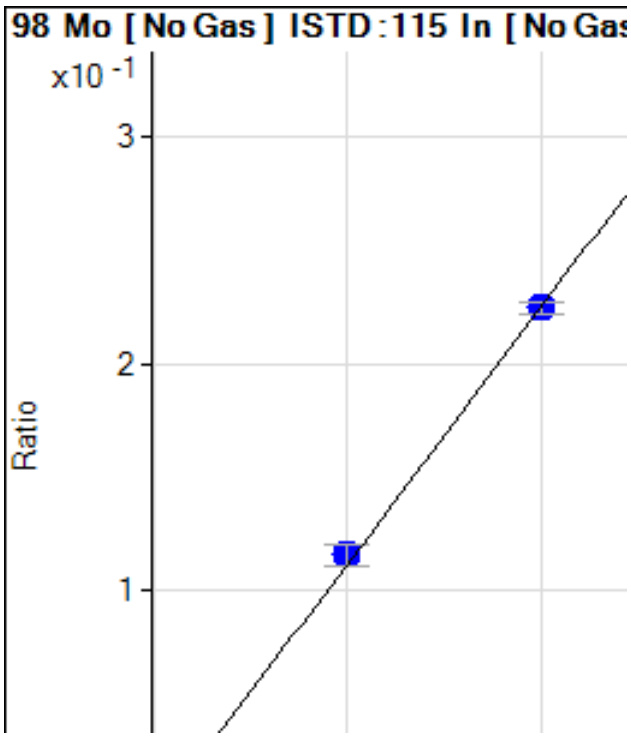
R = 0.9999

DL = 0.01434 ug/l

BEC = 0.01193 ug/l

Weight: 1/y

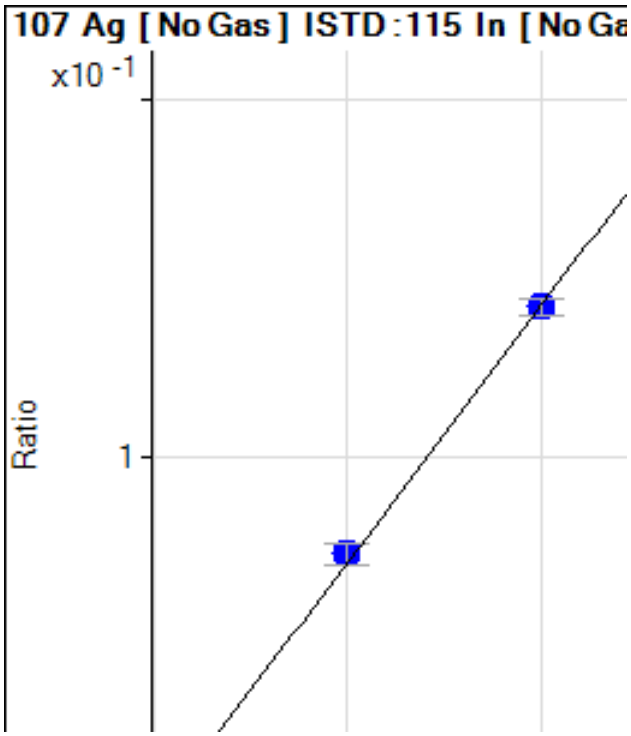
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 148.56 | 0.000 | | 21 | |
| 2 | ☐ | 0.025 | 0.046 | 678.50 | 0.000 | | 17 | 85.9 |
| 3 | ☐ | 0.050 | 0.044 | 696.97 | 0.000 | | 6. | -11.3 |
| 4 | ☐ | 0.100 | 0.099 | 1400.65 | 0.000 | | 5. | -1.1 |
| 5 | ☐ | 0.500 | 0.468 | 5605.59 | 0.001 | | 10 | -6.4 |
| 6 | ☐ | 1.000 | 0.992 | 11527.60 | 0.002 | | 8. | -0.8 |
| 7 | ☐ | 10.000 | 9.674 | 114935.8 | 0.021 | | 4. | -3.3 |
| 8 | ☐ | 50.000 | 51.202 | 610082.6 | 0.115 | | 7. | 2.4 |
| 9 | ☐ | 100.00 | 99.432 | 1174546. | 0.225 | | 2. | -0.6 |
| 10 | ☐ | | | 2396.42 | 0.000 | | 16 | |
| 11 | ☐ | | | 384.40 | 0.000 | | 5. | |

y = 0.0023 * x + 2.6634E-005

R = 0.9999




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1456.66 | 0.000 | | 9. | |
| 2 | ☐ | 0.010 | 0.020 | 1728.80 | 0.000 | | 2. | 101. |
| 3 | ☐ | 0.020 | 0.025 | 1922.91 | 0.000 | | 1. | 24.5 |
| 4 | ☐ | 0.040 | 0.047 | 2397.84 | 0.000 | | 3. | 17.1 |
| 5 | ☐ | 0.200 | 0.207 | 5161.68 | 0.001 | | 8. | 3.3 |
| 6 | ☐ | 0.400 | 0.435 | 9197.35 | 0.001 | | 6. | 8.7 |
| 7 | ☐ | 4.000 | 3.999 | 76170.84 | 0.014 | | 4. | 0.0 |
| 8 | ☐ | 20.000 | 20.485 | 385920.3 | 0.073 | | 8. | 2.4 |
| 9 | ☐ | 40.000 | 39.757 | 741324.5 | 0.142 | | 3. | -0.6 |
| 10 | ☐ | | | 6898458. | 1.301 | | 23 | |
| 11 | ☐ | | | 2264.43 | 0.000 | | 3. | |

y = 0.0036 * x + 2.6138E-004

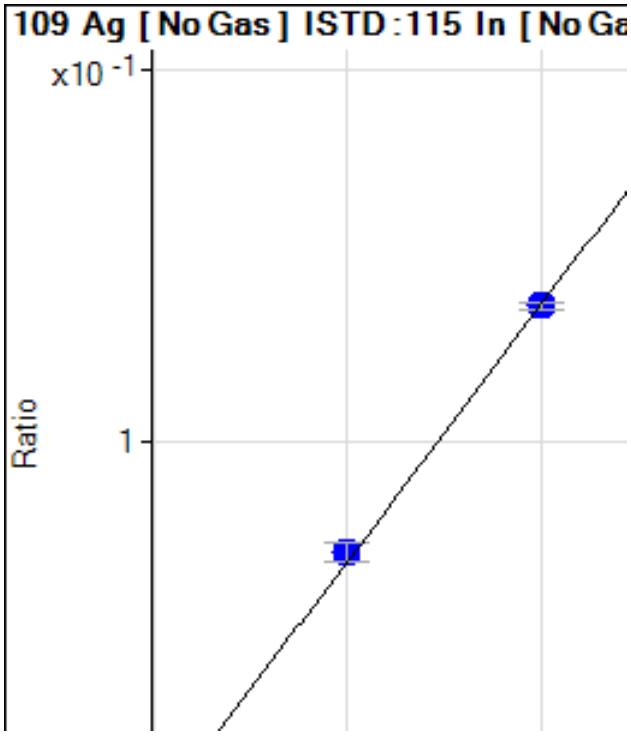
R = 0.9999

DL = 0.02025 ug/l

BEC = 0.07331 ug/l

Weight: 1/y

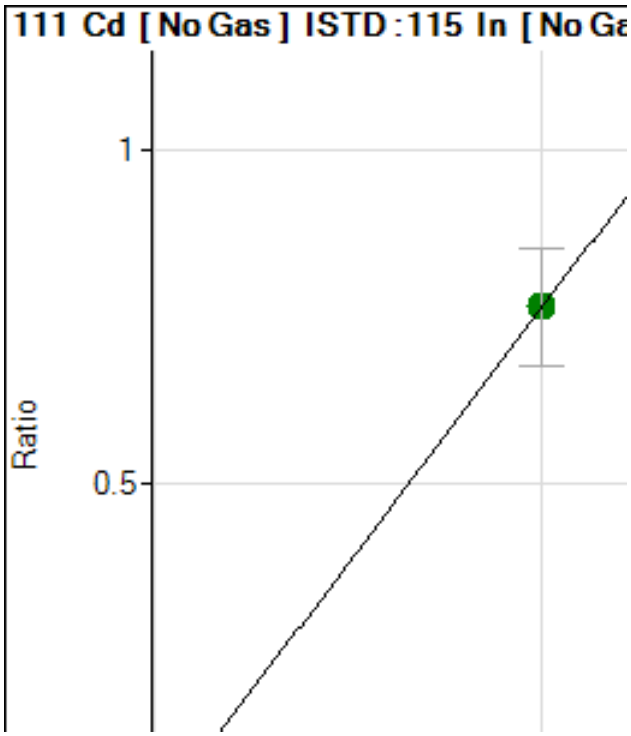
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1496.68 | 0.000 | | 3. | |
| 2 | ☐ | 0.010 | 0.013 | 1613.41 | 0.000 | | 7. | 26.0 |
| 3 | ☐ | 0.020 | 0.016 | 1774.16 | 0.000 | | 2. | -20.8 |
| 4 | ☐ | 0.040 | 0.037 | 2223.74 | 0.000 | | 4. | -6.5 |
| 5 | ☐ | 0.200 | 0.200 | 4931.51 | 0.001 | | 9. | -0.1 |
| 6 | ☐ | 0.400 | 0.426 | 8778.25 | 0.001 | | 9. | 6.6 |
| 7 | ☐ | 4.000 | 4.038 | 74041.91 | 0.014 | | 5. | 0.9 |
| 8 | ☐ | 20.000 | 20.512 | 371939.8 | 0.070 | | 7. | 2.6 |
| 9 | ☐ | 40.000 | 39.740 | 713158.7 | 0.136 | | 1. | -0.7 |
| 10 | ☐ | | | 6801309. | 1.284 | | 24 | |
| 11 | ☐ | | | 2103.00 | 0.000 | | 1. | |

y = 0.0034 * x + 2.6870E-004

R = 0.9999




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | -13.45 | 0.000 | | -1 | |
| 2 | ☐ | 0.025 | 0.029 | 102.31 | 0.000 | | 21 | 16.8 |
| 3 | ☐ | 0.050 | 0.051 | 202.91 | 0.000 | | 23 | 2.9 |
| 4 | ☐ | 0.100 | 0.096 | 397.41 | 0.000 | | 3. | -4.1 |
| 5 | ☐ | 0.500 | 0.514 | 2014.10 | 0.000 | | 15 | 2.8 |
| 6 | ☐ | 1.000 | 1.053 | 4073.19 | 0.000 | | 10 | 5.3 |
| 7 | ☐ | 10.000 | 10.345 | 41523.28 | 0.007 | | 4. | 3.5 |
| 8 | ☐ | 50.000 | 53.369 | 215062.0 | 0.040 | | 7. | 6.7 |
| 9 | ☐ | 100.00 | 103.83 | 414903.6 | 0.079 | | 2. | 3.8 |
| 10 | ☐ | 1000.0 | 999.44 | 4058398. | 0.764 | | 23 | -0.1 |
| 11 | ☐ | | | 254.30 | 0.000 | | 23 | |

y = 7.6537E-004 * x - 2.4381E-006

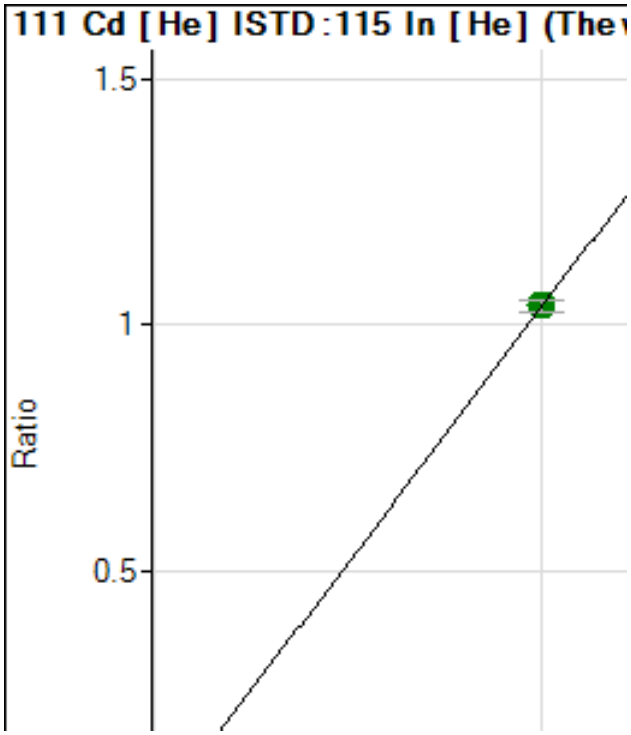
R = 1.0000

DL = 0.01612 ug/l

BEC = -0.003185 ug/l

Weight: 1/y

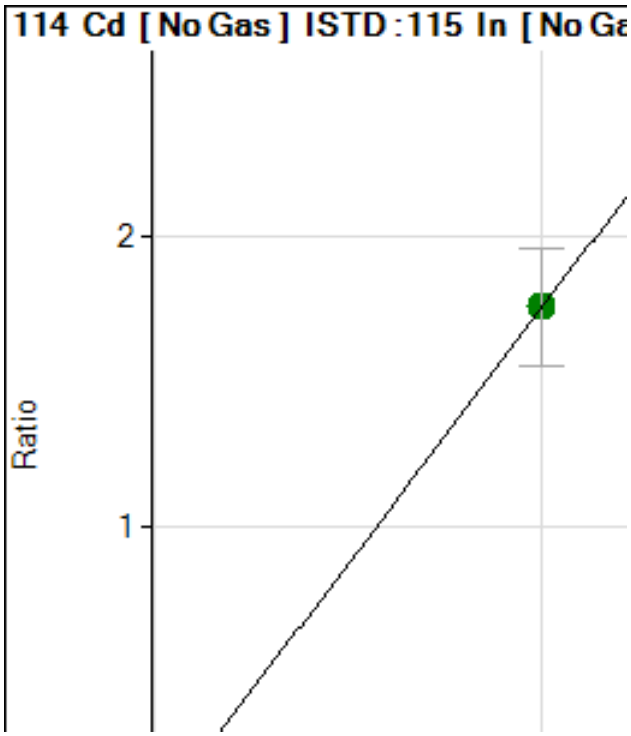
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 4.22 | 0.000 | | 18 | |
| 2 | ☐ | 0.025 | 0.029 | 49.45 | 0.000 | | 10 | 17.9 |
| 3 | ☐ | 0.050 | 0.049 | 79.89 | 0.000 | | 5. | -1.8 |
| 4 | ☐ | 0.100 | 0.109 | 172.78 | 0.000 | | 4. | 9.1 |
| 5 | ☐ | 0.500 | 0.501 | 775.02 | 0.000 | | 2. | 0.2 |
| 6 | ☐ | 1.000 | 0.997 | 1545.53 | 0.001 | | 1. | -0.3 |
| 7 | ☐ | 10.000 | 9.985 | 15440.36 | 0.010 | | 0. | -0.1 |
| 8 | ☐ | 50.000 | 52.104 | 80185.98 | 0.054 | | 1. | 4.2 |
| 9 | ☐ | 100.00 | 101.14 | 154989.3 | 0.105 | | 2. | 1.1 |
| 10 | ☐ | 1000.0 | 999.78 | 1516163. | 1.037 | | 2. | 0.0 |
| 11 | ☐ | | | 57.11 | 0.000 | | 10 | |

y = 0.0010 * x + 2.8230E-006

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | -129.99 | 0.000 | | -1 | |
| 2 | ☐ | 0.025 | 0.022 | 77.57 | 0.000 | | 33 | -12.9 |
| 3 | ☐ | 0.050 | 0.045 | 305.92 | 0.000 | | 34 | -9.9 |
| 4 | ☐ | 0.100 | 0.097 | 817.20 | 0.000 | | 7. | -3.5 |
| 5 | ☐ | 0.500 | 0.499 | 4397.17 | 0.000 | | 11 | -0.3 |
| 6 | ☐ | 1.000 | 1.029 | 9028.82 | 0.001 | | 10 | 2.9 |
| 7 | ☐ | 10.000 | 9.999 | 91889.10 | 0.017 | | 4. | 0.0 |
| 8 | ☐ | 50.000 | 51.436 | 475040.1 | 0.090 | | 7. | 2.9 |
| 9 | ☐ | 100.00 | 100.78 | 922857.6 | 0.176 | | 2. | 0.8 |
| 10 | ☐ | 1000.0 | 999.85 | 9305919. | 1.754 | | 23 | 0.0 |
| 11 | ☐ | | | 330.21 | 0.000 | | 22 | |

y = 0.0018 * x - 2.3351E-005

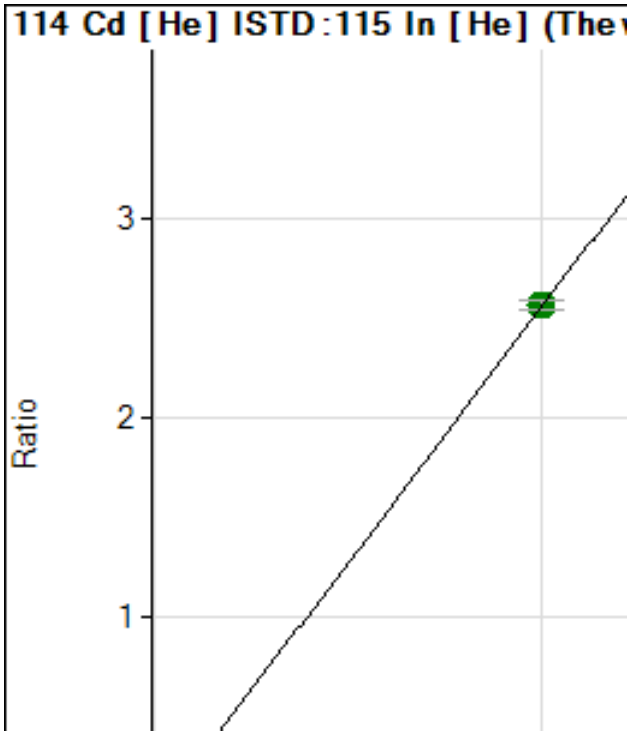
R = 1.0000

DL = 0.004657 ug/l

BEC = -0.01331 ug/l

Weight: 1/y

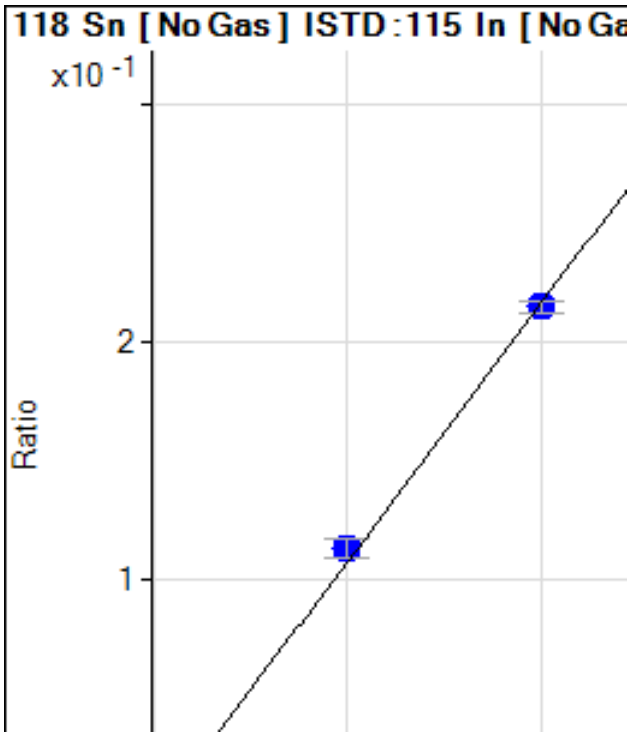
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 11.30 | 0.000 | | 18 | |
| 2 | ☐ | 0.025 | 0.024 | 101.06 | 0.000 | | 7. | -5.1 |
| 3 | ☐ | 0.050 | 0.053 | 214.81 | 0.000 | | 1. | 6.9 |
| 4 | ☐ | 0.100 | 0.103 | 403.50 | 0.000 | | 4. | 2.8 |
| 5 | ☐ | 0.500 | 0.482 | 1842.49 | 0.001 | | 1. | -3.6 |
| 6 | ☐ | 1.000 | 0.984 | 3769.41 | 0.002 | | 1. | -1.6 |
| 7 | ☐ | 10.000 | 9.758 | 37282.85 | 0.025 | | 0. | -2.4 |
| 8 | ☐ | 50.000 | 50.866 | 193423.4 | 0.130 | | 1. | 1.7 |
| 9 | ☐ | 100.00 | 99.015 | 374899.6 | 0.253 | | 2. | -1.0 |
| 10 | ☐ | 1000.0 | 1000.0 | 3747214. | 2.564 | | 2. | 0.0 |
| 11 | ☐ | | | 139.32 | 0.000 | | 7. | |

y = 0.0026 * x + 7.5515E-006

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 1117.84 | 0.000 | | 13 | |
| 2 | ☐ | 0.025 | 0.027 | 1344.07 | 0.000 | | 5. | 8.1 |
| 3 | ☐ | 0.050 | 0.056 | 1766.62 | 0.000 | | 7. | 11.5 |
| 4 | ☐ | 0.100 | 0.091 | 2232.42 | 0.000 | | 2. | -8.8 |
| 5 | ☐ | 0.500 | 0.491 | 6548.57 | 0.001 | | 9. | -1.7 |
| 6 | ☐ | 1.000 | 0.993 | 11948.09 | 0.002 | | 10 | -0.7 |
| 7 | ☐ | 10.000 | 9.748 | 112024.6 | 0.021 | | 5. | -2.5 |
| 8 | ☐ | 50.000 | 52.192 | 597837.1 | 0.113 | | 7. | 4.4 |
| 9 | ☐ | 100.00 | 98.929 | 1122124. | 0.214 | | 2. | -1.1 |
| 10 | ☐ | | | 3514.09 | 0.000 | | 46 | |
| 11 | ☐ | | | 2249.06 | 0.000 | | 6. | |

y = 0.0022 * x + 2.0061E-004

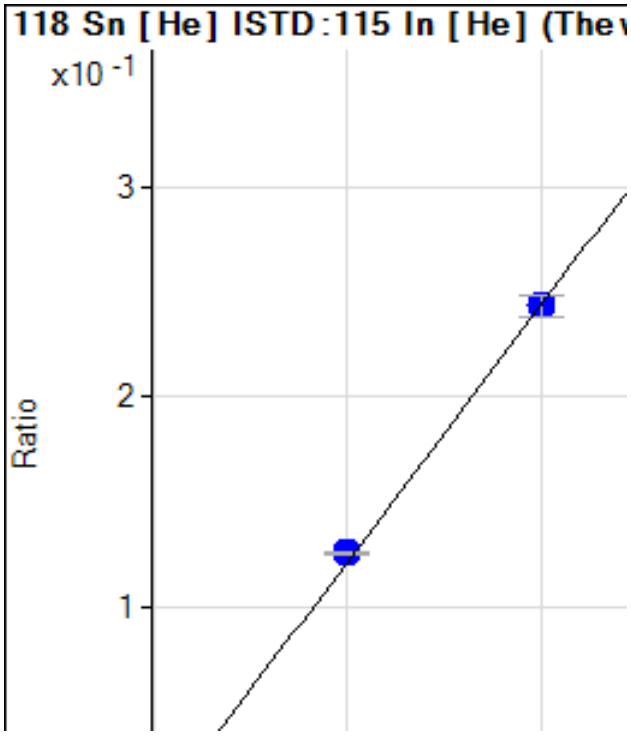
R = 0.9997

DL = 0.03618 ug/l

BEC = 0.09242 ug/l

Weight: 1/y

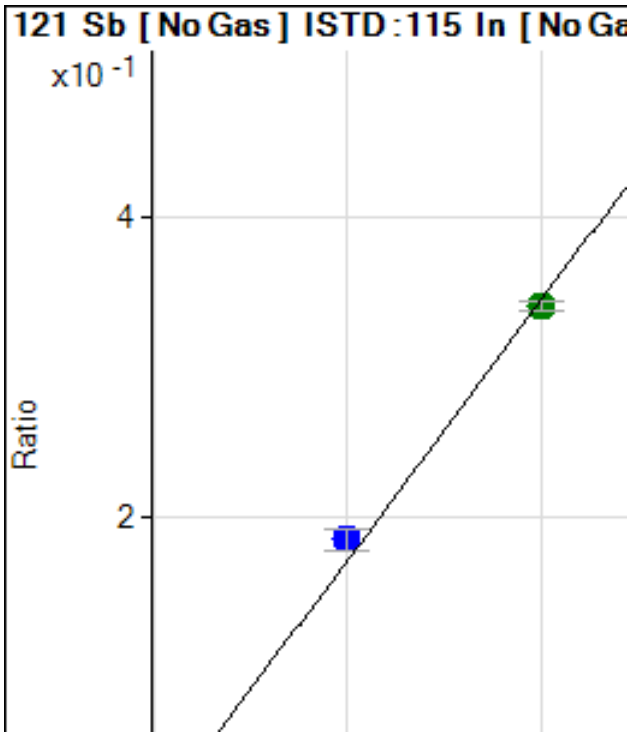
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 338.89 | 0.000 | | 24 | |
| 2 | ☐ | 0.025 | 0.030 | 442.23 | 0.000 | | 5. | 18.5 |
| 3 | ☐ | 0.050 | 0.052 | 525.57 | 0.000 | | 10 | 4.0 |
| 4 | ☐ | 0.100 | 0.110 | 738.92 | 0.000 | | 12 | 10.5 |
| 5 | ☐ | 0.500 | 0.475 | 2056.83 | 0.001 | | 2. | -5.0 |
| 6 | ☐ | 1.000 | 0.983 | 3913.90 | 0.002 | | 4. | -1.7 |
| 7 | ☐ | 10.000 | 9.531 | 35035.82 | 0.023 | | 1. | -4.7 |
| 8 | ☐ | 50.000 | 51.225 | 185994.7 | 0.125 | | 0. | 2.4 |
| 9 | ☐ | 100.00 | 99.435 | 359100.4 | 0.243 | | 4. | -0.6 |
| 10 | ☐ | | | 818.92 | 0.000 | | 6. | |
| 11 | ☐ | | | 770.03 | 0.000 | | 5. | |

y = 0.0024 * x + 2.2660E-004

R = 0.9999




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 353.04 | 0.000 | | 6. | |
| 2 | ☐ | 0.025 | 0.021 | 698.09 | 0.000 | | 8. | -17.2 |
| 3 | ☐ | 0.050 | 0.044 | 1192.17 | 0.000 | | 3. | -11.0 |
| 4 | ☐ | 0.100 | 0.087 | 2040.02 | 0.000 | | 1. | -12.9 |
| 5 | ☐ | 0.500 | 0.461 | 8558.13 | 0.001 | | 8. | -7.8 |
| 6 | ☐ | 1.000 | 0.990 | 17682.19 | 0.003 | | 8. | -1.0 |
| 7 | ☐ | 10.000 | 9.623 | 174755.5 | 0.033 | | 4. | -3.8 |
| 8 | ☐ | 50.000 | 53.403 | 971803.5 | 0.184 | | 7. | 6.8 |
| 9 | ☐ | 100.00 | 98.336 | 1774176. | 0.339 | | 1. | -1.7 |
| 10 | ☐ | | | 4442.15 | 0.000 | | 18 | |
| 11 | ☐ | | | 1263.85 | 0.000 | | 5. | |

y = 0.0035 * x + 6.3385E-005

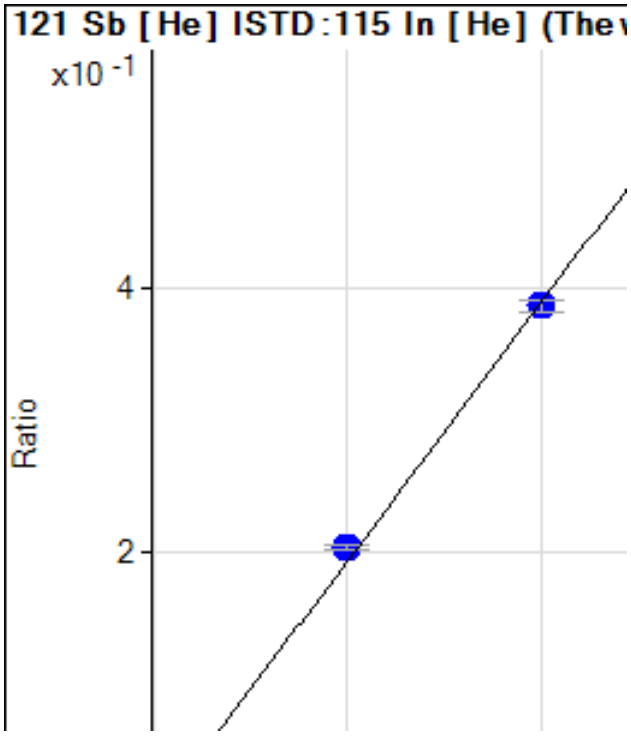
R = 0.9993

DL = 0.003683 ug/l

BEC = 0.01835 ug/l

Weight: 1/y

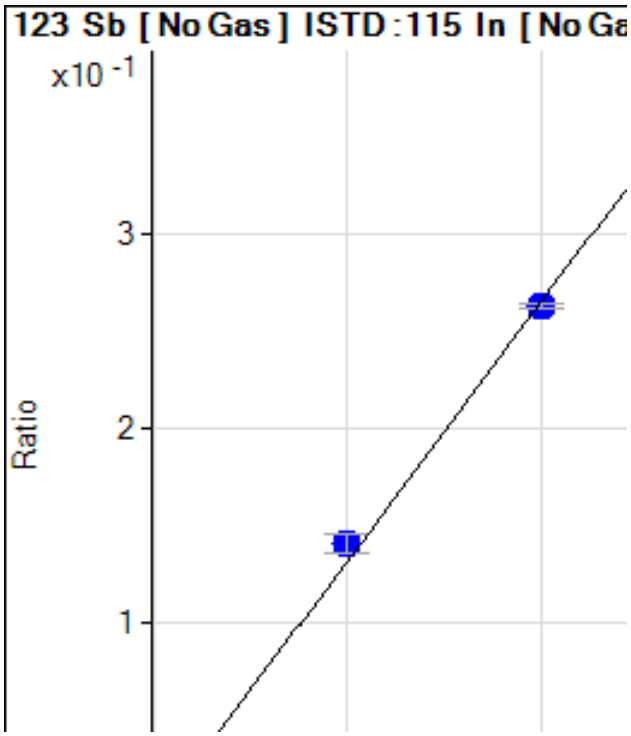
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 105.34 | 0.000 | | 14 | |
| 2 | ☐ | 0.025 | 0.020 | 217.69 | 0.000 | | 3. | -21.3 |
| 3 | ☐ | 0.050 | 0.045 | 368.04 | 0.000 | | 5. | -9.2 |
| 4 | ☐ | 0.100 | 0.096 | 660.75 | 0.000 | | 5. | -4.3 |
| 5 | ☐ | 0.500 | 0.444 | 2670.86 | 0.001 | | 2. | -11.3 |
| 6 | ☐ | 1.000 | 0.906 | 5367.90 | 0.003 | | 3. | -9.4 |
| 7 | ☐ | 10.000 | 9.486 | 55254.21 | 0.037 | | 1. | -5.1 |
| 8 | ☐ | 50.000 | 52.093 | 301597.3 | 0.203 | | 1. | 4.2 |
| 9 | ☐ | 100.00 | 99.006 | 570723.7 | 0.386 | | 2. | -1.0 |
| 10 | ☐ | | | 1280.19 | 0.000 | | 3. | |
| 11 | ☐ | | | 397.38 | 0.000 | | 6. | |

y = 0.0039 * x + 7.0430E-005

R = 0.9997




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 262.36 | 0.000 | | 2. | |
| 2 | ☐ | 0.025 | 0.020 | 516.39 | 0.000 | | 4. | -21.0 |
| 3 | ☐ | 0.050 | 0.043 | 886.45 | 0.000 | | 2. | -14.2 |
| 4 | ☐ | 0.100 | 0.090 | 1609.92 | 0.000 | | 1. | -9.8 |
| 5 | ☐ | 0.500 | 0.456 | 6523.17 | 0.001 | | 8. | -8.9 |
| 6 | ☐ | 1.000 | 0.973 | 13410.73 | 0.002 | | 6. | -2.7 |
| 7 | ☐ | 10.000 | 9.528 | 133460.1 | 0.025 | | 4. | -4.7 |
| 8 | ☐ | 50.000 | 52.810 | 741296.5 | 0.140 | | 7. | 5.6 |
| 9 | ☐ | 100.00 | 98.642 | 1372899. | 0.262 | | 1. | -1.4 |
| 10 | ☐ | | | 3664.85 | 0.000 | | 18 | |
| 11 | ☐ | | | 950.80 | 0.000 | | 5. | |

y = 0.0027 * x + 4.7103E-005

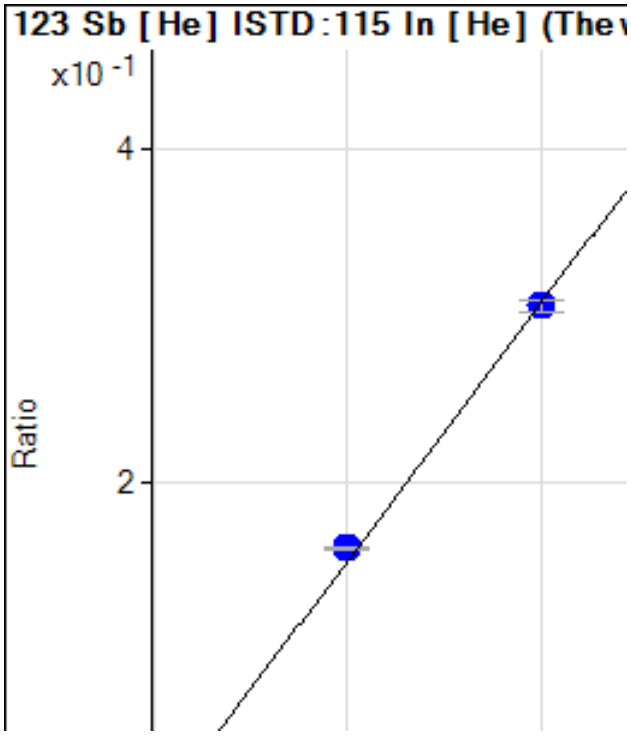
R = 0.9995

DL = 0.001357 ug/l

BEC = 0.01768 ug/l

Weight: 1/y

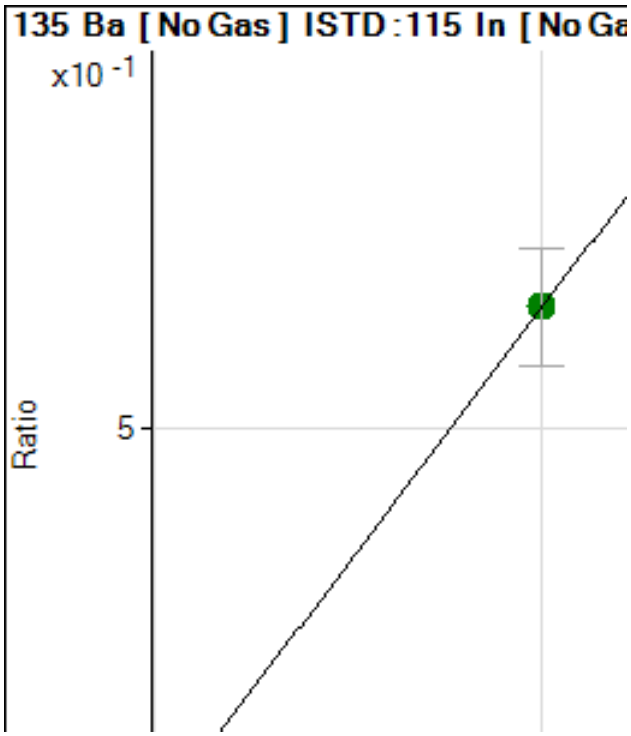
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 91.01 | 0.000 | | 10 | |
| 2 | ☐ | 0.025 | 0.020 | 182.02 | 0.000 | | 5. | -19.4 |
| 3 | ☐ | 0.050 | 0.048 | 312.04 | 0.000 | | 2. | -3.3 |
| 4 | ☐ | 0.100 | 0.093 | 517.39 | 0.000 | | 2. | -7.1 |
| 5 | ☐ | 0.500 | 0.444 | 2120.37 | 0.001 | | 2. | -11.2 |
| 6 | ☐ | 1.000 | 0.936 | 4393.47 | 0.003 | | 2. | -6.4 |
| 7 | ☐ | 10.000 | 9.370 | 43178.64 | 0.029 | | 1. | -6.3 |
| 8 | ☐ | 50.000 | 51.971 | 238005.9 | 0.160 | | 1. | 3.9 |
| 9 | ☐ | 100.00 | 99.079 | 451732.0 | 0.305 | | 2. | -0.9 |
| 10 | ☐ | | | 1009.14 | 0.000 | | 5. | |
| 11 | ☐ | | | 334.71 | 0.000 | | 2. | |

y = 0.0031 * x + 6.0837E-005

R = 0.9997




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 29.94 | 0.000 | | 32 | |
| 2 | ☐ | 0.025 | 0.026 | 116.44 | 0.000 | | 34 | 2.4 |
| 3 | ☐ | 0.050 | 0.050 | 209.59 | 0.000 | | 37 | 0.1 |
| 4 | ☐ | 0.100 | 0.119 | 465.75 | 0.000 | | 6. | 18.8 |
| 5 | ☐ | 0.500 | 0.531 | 1823.19 | 0.000 | | 10 | 6.2 |
| 6 | ☐ | 1.000 | 1.037 | 3480.21 | 0.000 | | 6. | 3.7 |
| 7 | ☐ | 10.000 | 10.294 | 35378.19 | 0.006 | | 6. | 2.9 |
| 8 | ☐ | 50.000 | 53.002 | 182732.6 | 0.034 | | 9. | 6.0 |
| 9 | ☐ | 100.00 | 103.37 | 353497.0 | 0.067 | | 4. | 3.4 |
| 10 | ☐ | 1000.0 | 999.50 | 3474261. | 0.654 | | 23 | 0.0 |
| 11 | ☐ | | | 93.15 | 0.000 | | 33 | |

y = 6.5503E-004 * x + 5.3695E-006

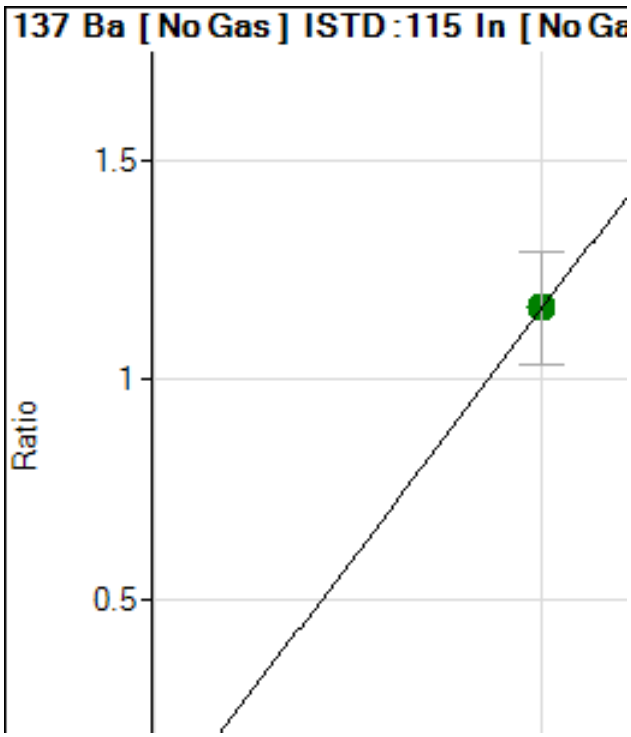
R = 1.0000

DL = 0.008056 ug/l

BEC = 0.008197 ug/l

Weight: 1/y

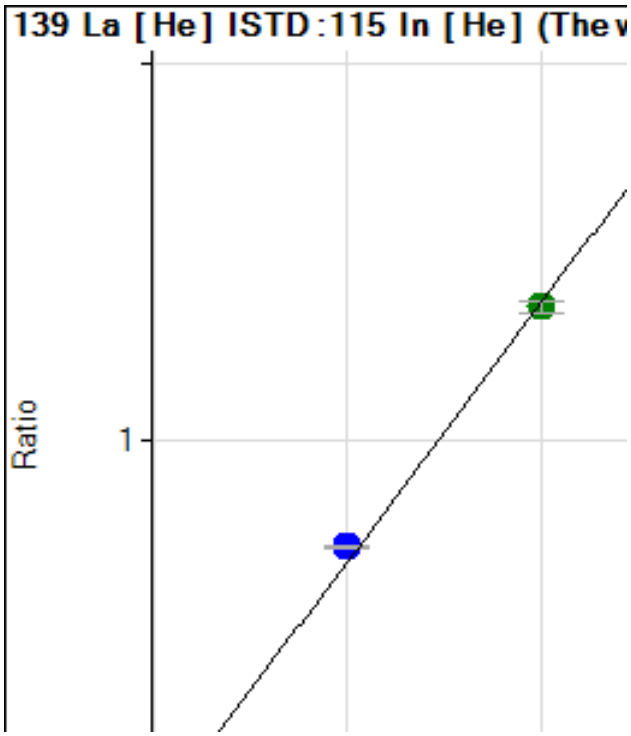
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 43.25 | 0.000 | | 13 | |
| 2 | ☐ | 0.025 | 0.031 | 226.22 | 0.000 | | 37 | 24.5 |
| 3 | ☐ | 0.050 | 0.060 | 425.83 | 0.000 | | 9. | 19.8 |
| 4 | ☐ | 0.100 | 0.107 | 741.89 | 0.000 | | 1. | 7.1 |
| 5 | ☐ | 0.500 | 0.511 | 3130.82 | 0.000 | | 5. | 2.2 |
| 6 | ☐ | 1.000 | 1.000 | 5942.84 | 0.001 | | 12 | 0.0 |
| 7 | ☐ | 10.000 | 9.908 | 60588.13 | 0.011 | | 4. | -0.9 |
| 8 | ☐ | 50.000 | 51.690 | 317152.0 | 0.060 | | 7. | 3.4 |
| 9 | ☐ | 100.00 | 100.96 | 614278.7 | 0.117 | | 1. | 1.0 |
| 10 | ☐ | 1000.0 | 999.82 | 6187133. | 1.164 | | 22 | 0.0 |
| 11 | ☐ | | | 146.38 | 0.000 | | 13 | |

y = 0.0012 * x + 7.7642E-006

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 5.56 | 0.000 | | 34 | |
| 2 | ☐ | 0.025 | 0.024 | 497.79 | 0.000 | | 7. | -2.9 |
| 3 | ☐ | 0.050 | 0.049 | 1007.82 | 0.000 | | 11 | -1.5 |
| 4 | ☐ | 0.100 | 0.105 | 2137.96 | 0.001 | | 2. | 4.5 |
| 5 | ☐ | 0.500 | 0.483 | 9821.29 | 0.006 | | 0. | -3.4 |
| 6 | ☐ | 1.000 | 0.994 | 20286.02 | 0.013 | | 2. | -0.6 |
| 7 | ☐ | 10.000 | 9.700 | 198051.4 | 0.132 | | 0. | -3.0 |
| 8 | ☐ | 50.000 | 52.367 | 1064475. | 0.717 | | 0. | 4.7 |
| 9 | ☐ | 100.00 | 98.847 | 2000593. | 1.354 | | 2. | -1.2 |
| 10 | ☐ | | | 270.01 | 0.000 | | 9. | |
| 11 | ☐ | | | 24.44 | 0.000 | | 8. | |

y = 0.0137 * x + 3.7131E-006

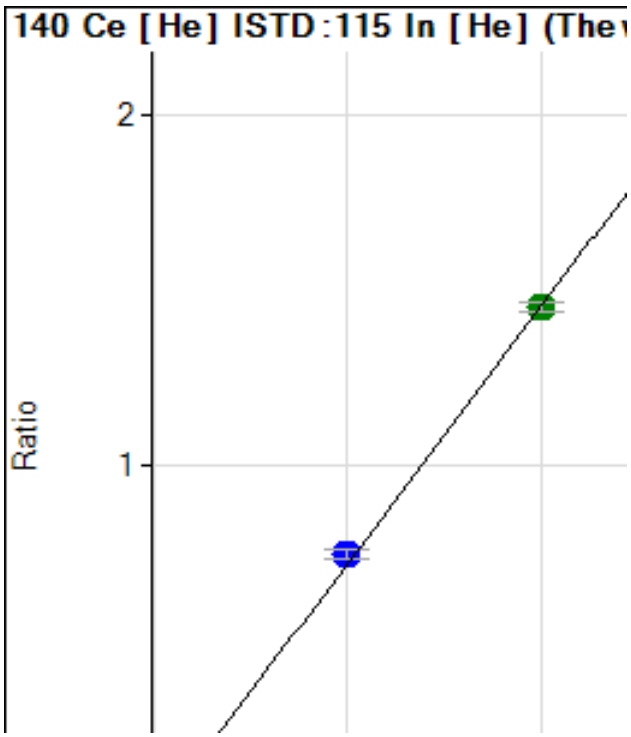
R = 0.9996

DL = 0.0002812 ug/l

BEC = 0.0002709 ug/l

Weight: 1/y

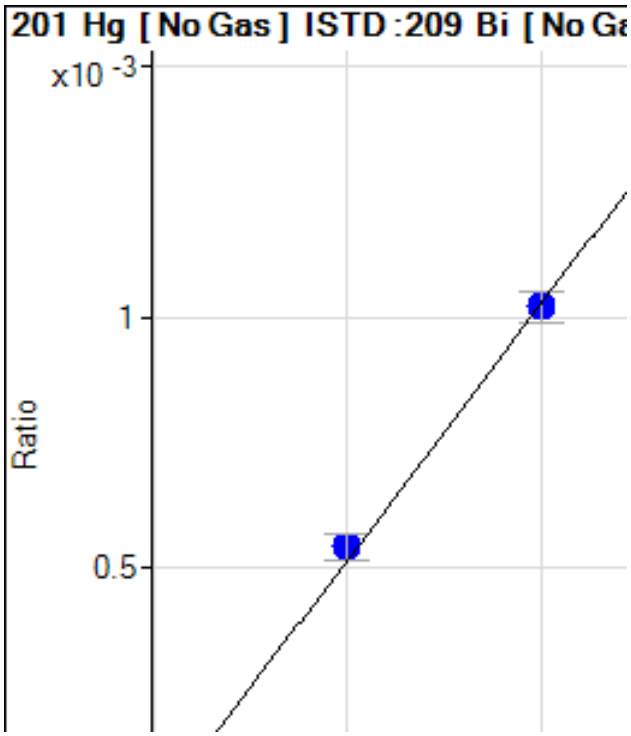
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 6.67 | 0.000 | | 50 | |
| 2 | ☐ | 0.025 | 0.023 | 501.13 | 0.000 | | 3. | -8.4 |
| 3 | ☐ | 0.050 | 0.051 | 1120.05 | 0.000 | | 7. | 2.7 |
| 4 | ☐ | 0.100 | 0.103 | 2251.31 | 0.001 | | 1. | 3.3 |
| 5 | ☐ | 0.500 | 0.469 | 10156.00 | 0.006 | | 1. | -6.2 |
| 6 | ☐ | 1.000 | 0.974 | 21180.68 | 0.014 | | 1. | -2.6 |
| 7 | ☐ | 10.000 | 9.669 | 210211.9 | 0.141 | | 1. | -3.3 |
| 8 | ☐ | 50.000 | 51.430 | 1112938. | 0.750 | | 3. | 2.9 |
| 9 | ☐ | 100.00 | 99.319 | 2140665. | 1.449 | | 1. | -0.7 |
| 10 | ☐ | | | 516.68 | 0.000 | | 2. | |
| 11 | ☐ | | | 25.55 | 0.000 | | 28 | |

y = 0.0146 * x + 4.4555E-006

R = 0.9999




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 34.99 | 0.000 | | 5. | |
| 2 | ☐ | | | 31.99 | 0.000 | | 13 | |
| 3 | ☐ | 0.001 | -0.001 | 33.99 | 0.000 | | 11 | -156. |
| 4 | ☐ | 0.002 | -0.004 | 25.99 | 0.000 | | 18 | -289. |
| 5 | ☐ | 0.010 | 0.005 | 43.99 | 0.000 | | 12 | -47.2 |
| 6 | ☐ | 0.020 | 0.017 | 65.99 | 0.000 | | 4. | -12.7 |
| 7 | ☐ | 0.200 | 0.181 | 402.93 | 0.000 | | 4. | -9.4 |
| 8 | ☐ | 1.000 | 1.041 | 2159.08 | 0.000 | | 10 | 4.1 |
| 9 | ☐ | 2.000 | 1.981 | 4135.82 | 0.001 | | 6. | -0.9 |
| 10 | ☐ | | | 43.66 | 0.000 | | 16 | |
| 11 | ☐ | | | 26.99 | 0.000 | | 8. | |

y = 5.1098E-004 * x + 8.1265E-006

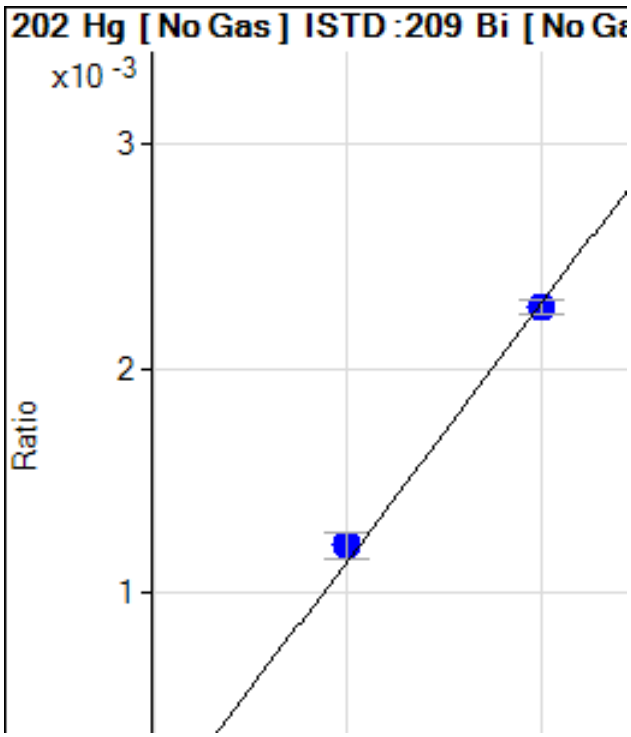
R = 0.9997

DL = 0.002445 ug/l

BEC = 0.0159 ug/l

Weight: 1/y

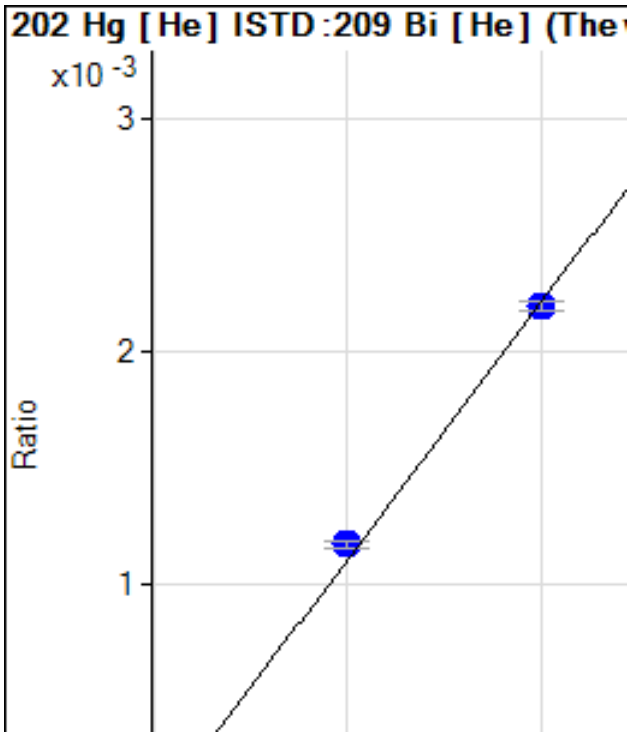
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 69.66 | 0.000 | | 4. | |
| 2 | ☐ | | | 67.99 | 0.000 | | 24 | |
| 3 | ☐ | 0.001 | -0.001 | 65.66 | 0.000 | | 5. | -189. |
| 4 | ☐ | 0.002 | 0.003 | 82.98 | 0.000 | | 22 | 62.0 |
| 5 | ☐ | 0.010 | 0.009 | 107.31 | 0.000 | | 16 | -6.2 |
| 6 | ☐ | 0.020 | 0.019 | 144.64 | 0.000 | | 4. | -7.4 |
| 7 | ☐ | 0.200 | 0.191 | 936.18 | 0.000 | | 1. | -4.5 |
| 8 | ☐ | 1.000 | 1.049 | 4843.92 | 0.001 | | 10 | 4.9 |
| 9 | ☐ | 2.000 | 1.977 | 9206.00 | 0.002 | | 2. | -1.2 |
| 10 | ☐ | | | 112.98 | 0.000 | | 16 | |
| 11 | ☐ | | | 84.98 | 0.000 | | 11 | |

y = 0.0011 * x + 1.6184E-005

R = 0.9996




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 31.66 | 0.000 | | 14 | |
| 2 | ☐ | | | 31.32 | 0.000 | | 17 | |
| 3 | ☐ | 0.001 | 0.000 | 30.32 | 0.000 | | 14 | -147. |
| 4 | ☐ | 0.002 | 0.001 | 32.33 | 0.000 | | 29 | -73.8 |
| 5 | ☐ | 0.010 | 0.008 | 52.32 | 0.000 | | 11 | -17.6 |
| 6 | ☐ | 0.020 | 0.017 | 73.32 | 0.000 | | 4. | -13.9 |
| 7 | ☐ | 0.200 | 0.193 | 495.58 | 0.000 | | 1. | -3.6 |
| 8 | ☐ | 1.000 | 1.051 | 2577.41 | 0.001 | | 2. | 5.1 |
| 9 | ☐ | 2.000 | 1.975 | 4885.25 | 0.002 | | 1. | -1.2 |
| 10 | ☐ | | | 55.66 | 0.000 | | 3. | |
| 11 | ☐ | | | 37.32 | 0.000 | | 19 | |

y = 0.0011 * x + 1.4253E-005

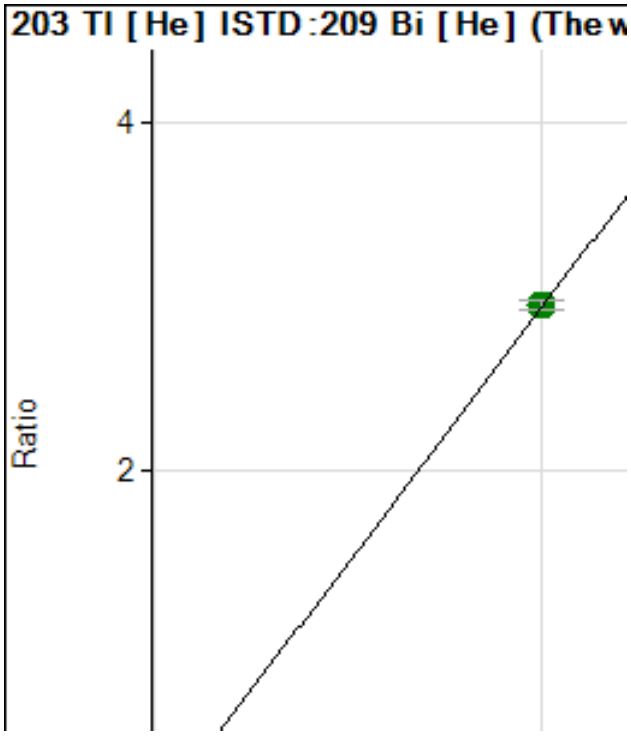
R = 0.9996

DL = 0.005606 ug/l

BEC = 0.01293 ug/l

Weight: 1/y

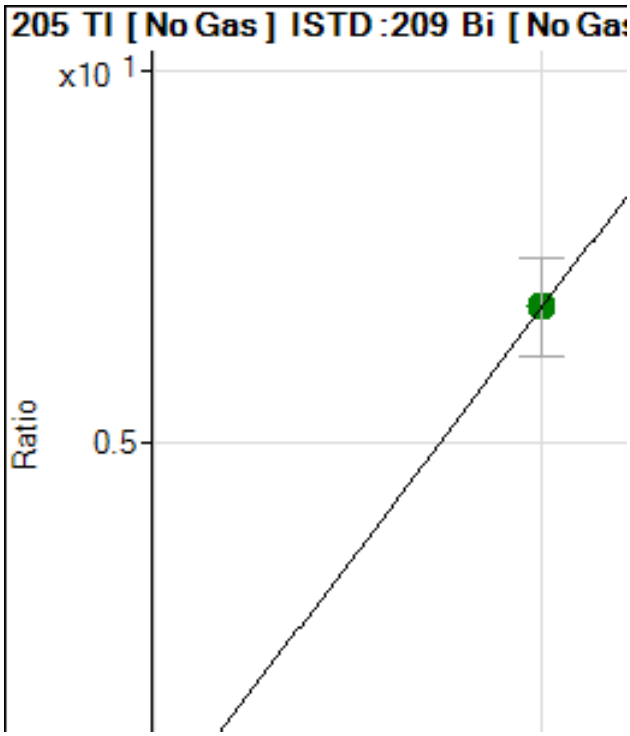
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 142.72 | 0.000 | | 4. | |
| 2 | ☐ | 0.025 | 0.023 | 286.12 | 0.000 | | 2. | -9.1 |
| 3 | ☐ | 0.050 | 0.041 | 408.17 | 0.000 | | 2. | -18.1 |
| 4 | ☐ | 0.100 | 0.088 | 706.97 | 0.000 | | 6. | -11.8 |
| 5 | ☐ | 0.500 | 0.444 | 3070.93 | 0.001 | | 2. | -11.3 |
| 6 | ☐ | 1.000 | 0.922 | 6126.54 | 0.002 | | 1. | -7.8 |
| 7 | ☐ | 10.000 | 9.558 | 61632.93 | 0.028 | | 1. | -4.4 |
| 8 | ☐ | 50.000 | 48.628 | 314647.1 | 0.143 | | 1. | -2.7 |
| 9 | ☐ | 100.00 | 94.756 | 621868.9 | 0.279 | | 3. | -5.2 |
| 10 | ☐ | 1000.0 | 1000.5 | 6254109. | 2.945 | | 2. | 0.1 |
| 11 | ☐ | | | 634.27 | 0.000 | | 3. | |

y = 0.0029 * x + 6.4239E-005

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 668.91 | 0.000 | | 7. | |
| 2 | ☐ | 0.025 | 0.022 | 1220.06 | 0.000 | | 7. | -13.2 |
| 3 | ☐ | 0.050 | 0.041 | 1871.26 | 0.000 | | 1. | -18.9 |
| 4 | ☐ | 0.100 | 0.095 | 3372.67 | 0.000 | | 6. | -4.7 |
| 5 | ☐ | 0.500 | 0.478 | 13727.14 | 0.003 | | 8. | -4.4 |
| 6 | ☐ | 1.000 | 1.024 | 27635.37 | 0.007 | | 3. | 2.4 |
| 7 | ☐ | 10.000 | 10.006 | 273749.1 | 0.068 | | 4. | 0.1 |
| 8 | ☐ | 50.000 | 49.131 | 1345304. | 0.335 | | 5. | -1.7 |
| 9 | ☐ | 100.00 | 99.012 | 2740296. | 0.676 | | 5. | -1.0 |
| 10 | ☐ | 1000.0 | 1000.1 | 27470274 | 6.828 | | 19 | 0.0 |
| 11 | ☐ | | | 3127.05 | 0.000 | | 5. | |

y = 0.0068 * x + 1.5537E-004

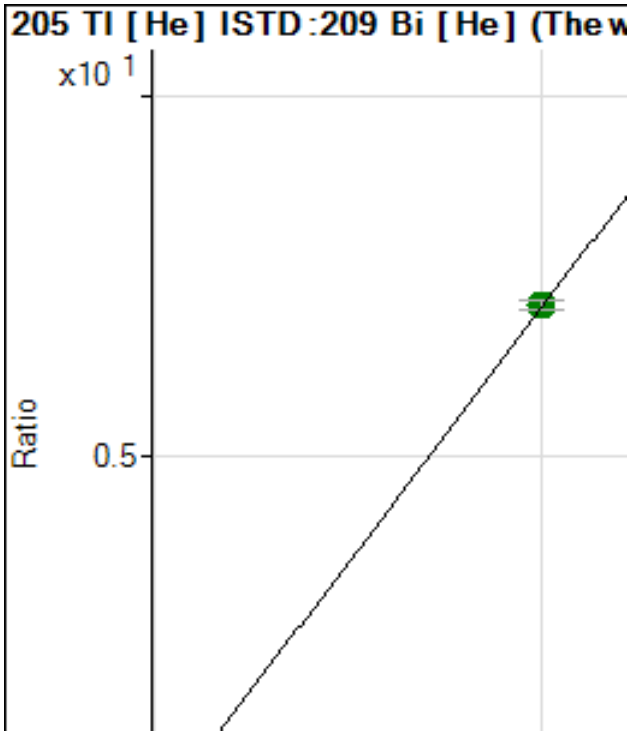
R = 1.0000

DL = 0.004892 ug/l

BEC = 0.02276 ug/l

Weight: 1/y

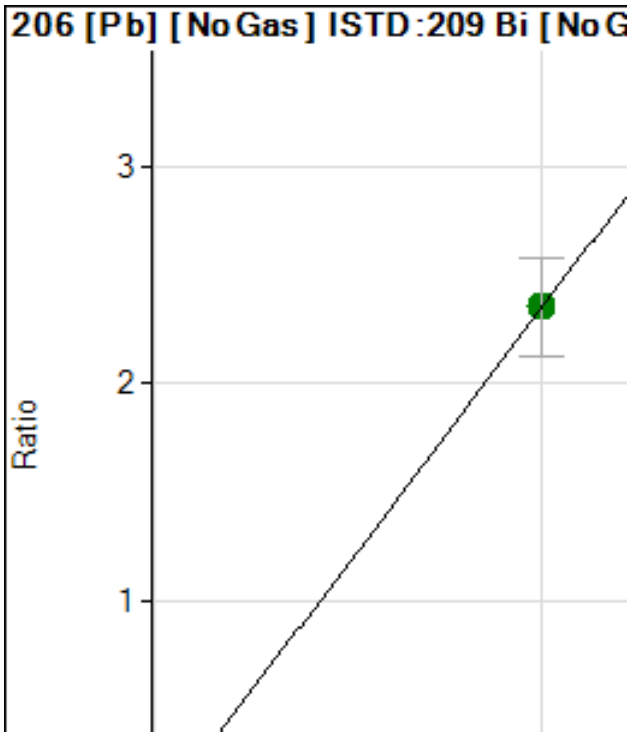
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 377.49 | 0.000 | | 11 | |
| 2 | ☐ | 0.025 | 0.019 | 670.29 | 0.000 | | 7. | -22.4 |
| 3 | ☐ | 0.050 | 0.047 | 1110.50 | 0.000 | | 3. | -6.2 |
| 4 | ☐ | 0.100 | 0.096 | 1857.55 | 0.000 | | 8. | -4.1 |
| 5 | ☐ | 0.500 | 0.447 | 7481.79 | 0.003 | | 0. | -10.6 |
| 6 | ☐ | 1.000 | 0.927 | 14864.26 | 0.006 | | 3. | -7.3 |
| 7 | ☐ | 10.000 | 9.440 | 146626.1 | 0.067 | | 2. | -5.6 |
| 8 | ☐ | 50.000 | 48.547 | 756809.4 | 0.344 | | 0. | -2.9 |
| 9 | ☐ | 100.00 | 93.788 | 1482456. | 0.665 | | 3. | -6.2 |
| 10 | ☐ | 1000.0 | 1000.7 | 15066333 | 7.095 | | 1. | 0.1 |
| 11 | ☐ | | | 1546.05 | 0.000 | | 4. | |

y = 0.0071 * x + 1.7011E-004

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 137.78 | 0.000 | | 4. | |
| 2 | ☐ | 0.025 | 0.028 | 400.01 | 0.000 | | 12 | 14.0 |
| 3 | ☐ | 0.050 | 0.048 | 624.47 | 0.000 | | 10 | -4.5 |
| 4 | ☐ | 0.100 | 0.100 | 1116.72 | 0.000 | | 13 | -0.2 |
| 5 | ☐ | 0.500 | 0.499 | 4839.80 | 0.001 | | 11 | -0.1 |
| 6 | ☐ | 1.000 | 1.030 | 9490.11 | 0.002 | | 6. | 3.0 |
| 7 | ☐ | 10.000 | 10.059 | 94812.45 | 0.023 | | 4. | 0.6 |
| 8 | ☐ | 50.000 | 51.887 | 488610.3 | 0.122 | | 9. | 3.8 |
| 9 | ☐ | 100.00 | 98.334 | 938621.4 | 0.231 | | 5. | -1.7 |
| 10 | ☐ | 1000.0 | 1000.0 | 9474817. | 2.354 | | 19 | 0.0 |
| 11 | ☐ | | | 417.79 | 0.000 | | 10 | |

y = 0.0024 * x + 3.2005E-005

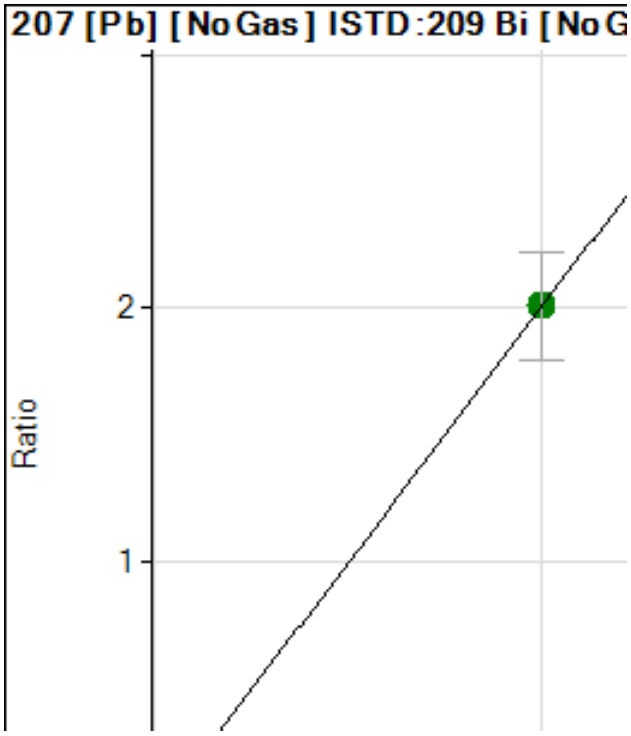
R = 1.0000

DL = 0.002014 ug/l

BEC = 0.01359 ug/l

Weight: 1/y

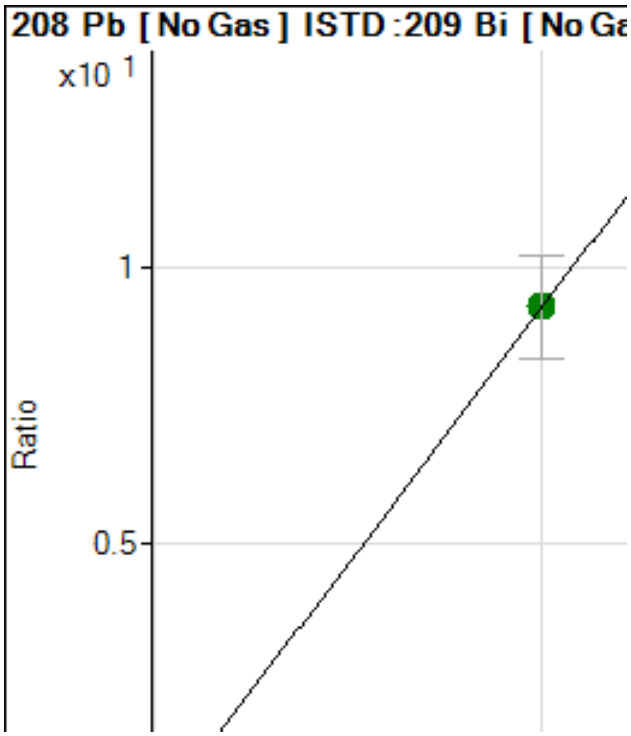
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 116.67 | 0.000 | | 15 | |
| 2 | ☐ | 0.025 | 0.029 | 341.12 | 0.000 | | 11 | 15.2 |
| 3 | ☐ | 0.050 | 0.057 | 615.57 | 0.000 | | 13 | 14.6 |
| 4 | ☐ | 0.100 | 0.099 | 943.38 | 0.000 | | 6. | -1.5 |
| 5 | ☐ | 0.500 | 0.494 | 4080.65 | 0.001 | | 13 | -1.3 |
| 6 | ☐ | 1.000 | 1.022 | 8054.70 | 0.002 | | 3. | 2.2 |
| 7 | ☐ | 10.000 | 9.961 | 80220.67 | 0.020 | | 4. | -0.4 |
| 8 | ☐ | 50.000 | 52.804 | 424753.2 | 0.106 | | 9. | 5.6 |
| 9 | ☐ | 100.00 | 101.16 | 825524.3 | 0.203 | | 3. | 1.2 |
| 10 | ☐ | 1000.0 | 999.74 | 8071856. | 2.010 | | 21 | 0.0 |
| 11 | ☐ | | | 362.23 | 0.000 | | 18 | |

y = 0.0020 * x + 2.7084E-005

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 528.89 | 0.000 | | 7. | |
| 2 | ☐ | 0.025 | 0.029 | 1558.93 | 0.000 | | 9. | 14.1 |
| 3 | ☐ | 0.050 | 0.051 | 2589.01 | 0.000 | | 8. | 2.4 |
| 4 | ☐ | 0.100 | 0.102 | 4461.44 | 0.001 | | 4. | 1.5 |
| 5 | ☐ | 0.500 | 0.492 | 18814.20 | 0.004 | | 10 | -1.7 |
| 6 | ☐ | 1.000 | 1.044 | 37960.58 | 0.009 | | 4. | 4.4 |
| 7 | ☐ | 10.000 | 9.995 | 371904.7 | 0.093 | | 4. | 0.0 |
| 8 | ☐ | 50.000 | 52.082 | 1935325. | 0.484 | | 10 | 4.2 |
| 9 | ☐ | 100.00 | 99.350 | 3743508. | 0.923 | | 4. | -0.6 |
| 10 | ☐ | 1000.0 | 999.96 | 37332142 | 9.292 | | 20 | 0.0 |
| 11 | ☐ | | | 1668.94 | 0.000 | | 12 | |

y = 0.0093 * x + 1.2282E-004

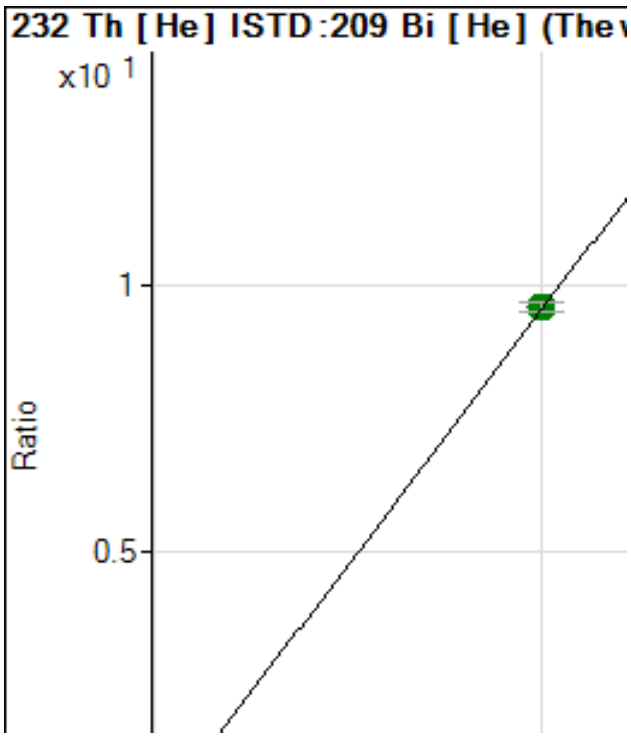
R = 1.0000

DL = 0.0028 ug/l

BEC = 0.01322 ug/l

Weight: 1/y

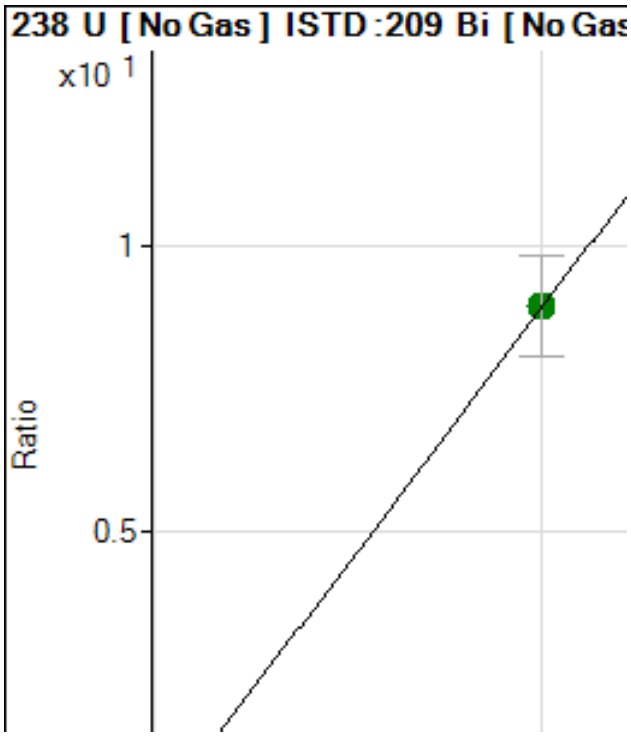
Min Conc: <None>




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 293.46 | 0.000 | | 5. | |
| 2 | ☐ | 0.025 | 0.015 | 605.59 | 0.000 | | 11 | -39.1 |
| 3 | ☐ | 0.050 | 0.032 | 975.10 | 0.000 | | 9. | -35.4 |
| 4 | ☐ | 0.100 | 0.066 | 1679.45 | 0.000 | | 1. | -33.5 |
| 5 | ☐ | 0.500 | 0.364 | 8101.77 | 0.003 | | 6. | -27.3 |
| 6 | ☐ | 1.000 | 0.820 | 17611.56 | 0.008 | | 2. | -18.0 |
| 7 | ☐ | 10.000 | 9.129 | 191391.5 | 0.087 | | 2. | -8.7 |
| 8 | ☐ | 50.000 | 49.543 | 1042971. | 0.474 | | 2. | -0.9 |
| 9 | ☐ | 100.00 | 94.149 | 2010195. | 0.902 | | 4. | -5.9 |
| 10 | ☐ | 1000.0 | 1000.6 | 20355171 | 9.586 | | 2. | 0.1 |
| 11 | ☐ | | | 5353.93 | 0.002 | | 3. | |

y = 0.0096 * x + 1.3210E-004

R = 1.0000




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 0.000 | 0.000 | 13.67 | 0.000 | | 17 | |
| 2 | ☐ | 0.025 | 0.023 | 853.19 | 0.000 | | 4. | -6.3 |
| 3 | ☐ | 0.050 | 0.048 | 1861.09 | 0.000 | | 2. | -4.3 |
| 4 | ☐ | 0.100 | 0.098 | 3667.12 | 0.000 | | 4. | -2.1 |
| 5 | ☐ | 0.500 | 0.475 | 16981.29 | 0.004 | | 11 | -5.0 |
| 6 | ☐ | 1.000 | 0.993 | 34255.54 | 0.008 | | 4. | -0.7 |
| 7 | ☐ | 10.000 | 9.821 | 350211.5 | 0.087 | | 4. | -1.8 |
| 8 | ☐ | 50.000 | 50.923 | 1816361. | 0.454 | | 9. | 1.8 |
| 9 | ☐ | 100.00 | 98.938 | 3577620. | 0.882 | | 4. | -1.1 |
| 10 | ☐ | 1000.0 | 1000.0 | 35868162 | 8.919 | | 19 | 0.0 |
| 11 | ☐ | | | 1831.10 | 0.000 | | 18 | |

y = 0.0089 * x + 3.1727E-006

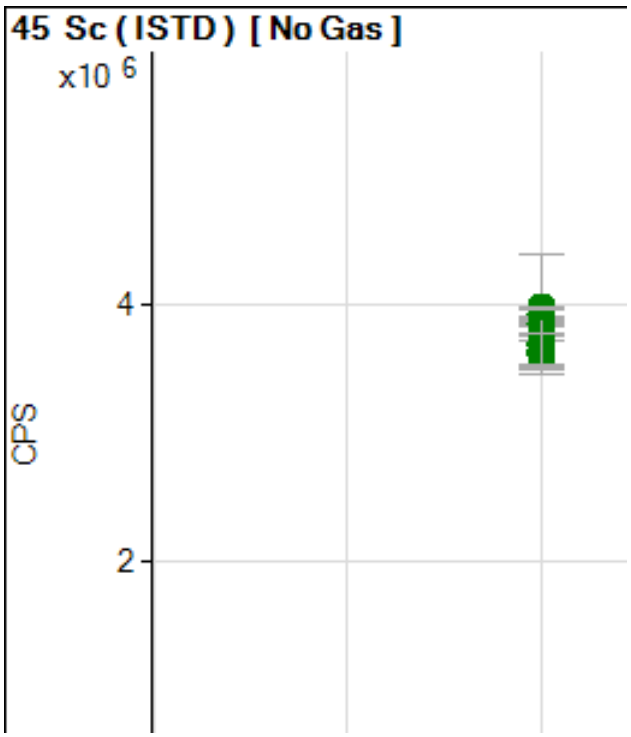
R = 1.0000

DL = 0.0001906 ug/l

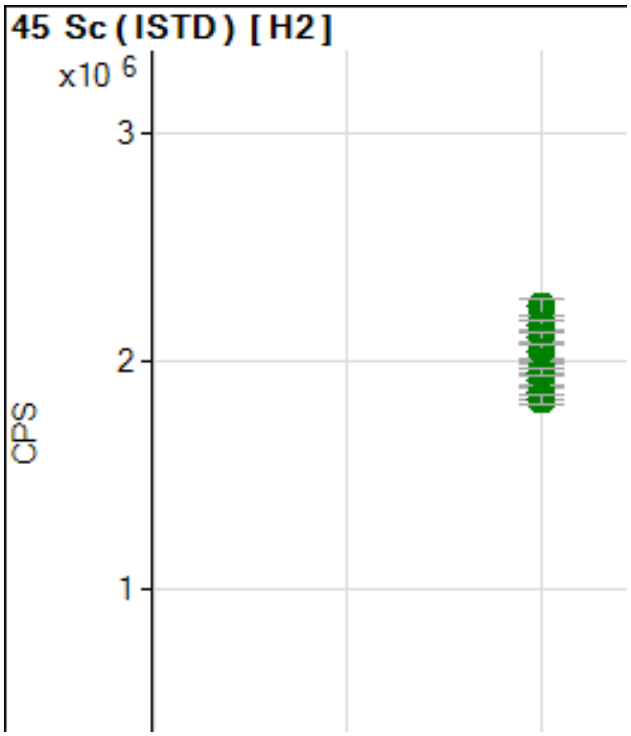
BEC = 0.0003557 ug/l

Weight: 1/y

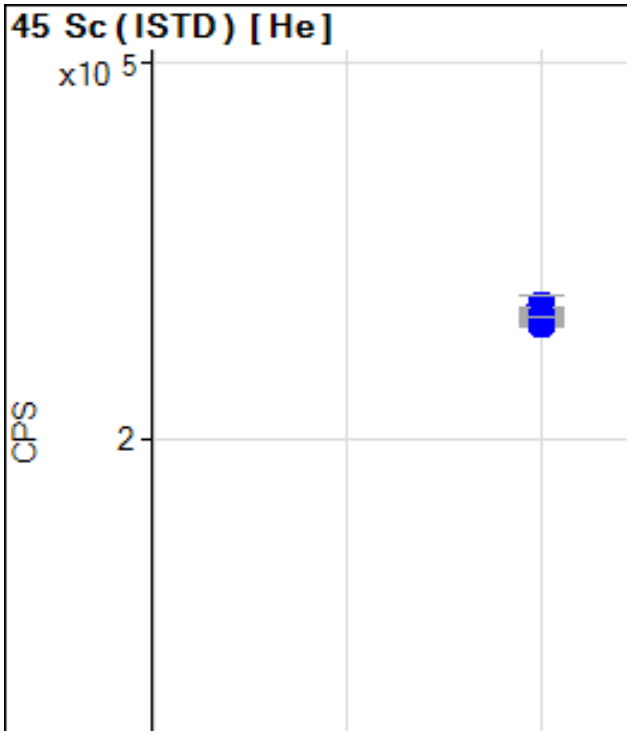
Min Conc: <None>



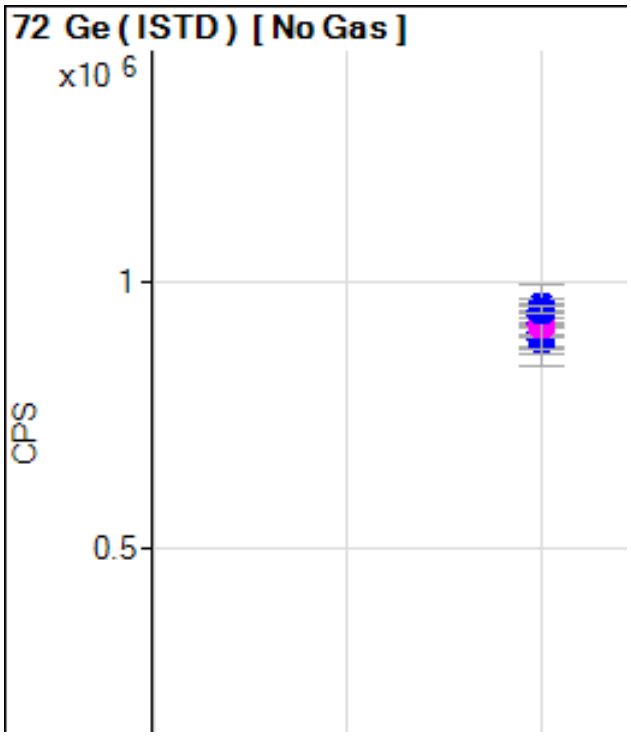

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 3857271. | | | 1. | |
| 2 | ☐ | 1.000 | | 3677133. | | | 8. | |
| 3 | ☐ | 1.000 | | 3921507. | | | 2. | |
| 4 | ☐ | 1.000 | | 3927272. | | | 1. | |
| 5 | ☐ | 1.000 | | 3644655. | | | 10 | |
| 6 | ☐ | 1.000 | | 3616480. | | | 7. | |
| 7 | ☐ | 1.000 | | 3604547. | | | 5. | |
| 8 | ☐ | 1.000 | | 3702375. | | | 9. | |
| 9 | ☐ | 1.000 | | 3836119. | | | 3. | |
| 10 | ☐ | 1.000 | | 3959384. | | | 21 | |
| 11 | ☐ | 1.000 | | 3968564. | | | 0. | |



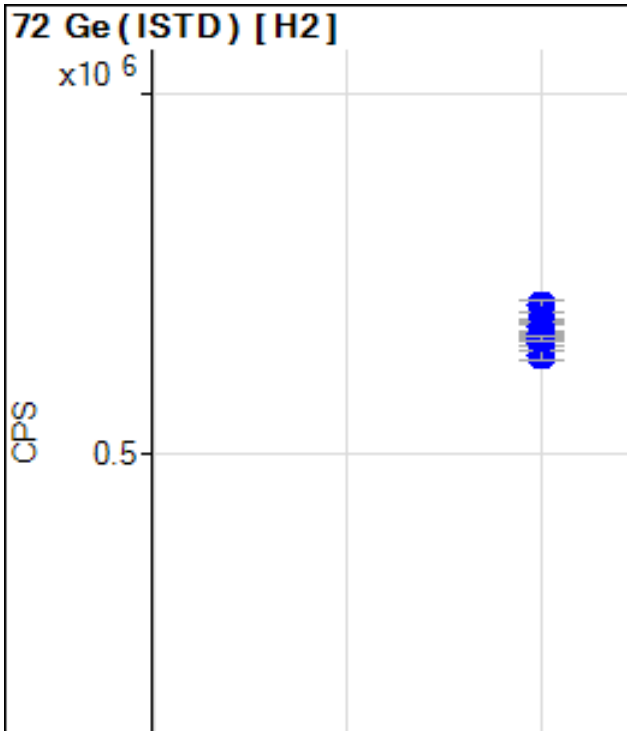

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 2240425. | | | 3. | |
| 2 | ☐ | 1.000 | | 2162080. | | | 1. | |
| 3 | ☐ | 1.000 | | 2105750. | | | 3. | |
| 4 | ☐ | 1.000 | | 2106210. | | | 2. | |
| 5 | ☐ | 1.000 | | 2041583. | | | 3. | |
| 6 | ☐ | 1.000 | | 2002457. | | | 1. | |
| 7 | ☐ | 1.000 | | 1970459. | | | 3. | |
| 8 | ☐ | 1.000 | | 1918115. | | | 3. | |
| 9 | ☐ | 1.000 | | 1864726. | | | 3. | |
| 10 | ☐ | 1.000 | | 1832824. | | | 2. | |
| 11 | ☐ | 1.000 | | 1952844. | | | 1. | |



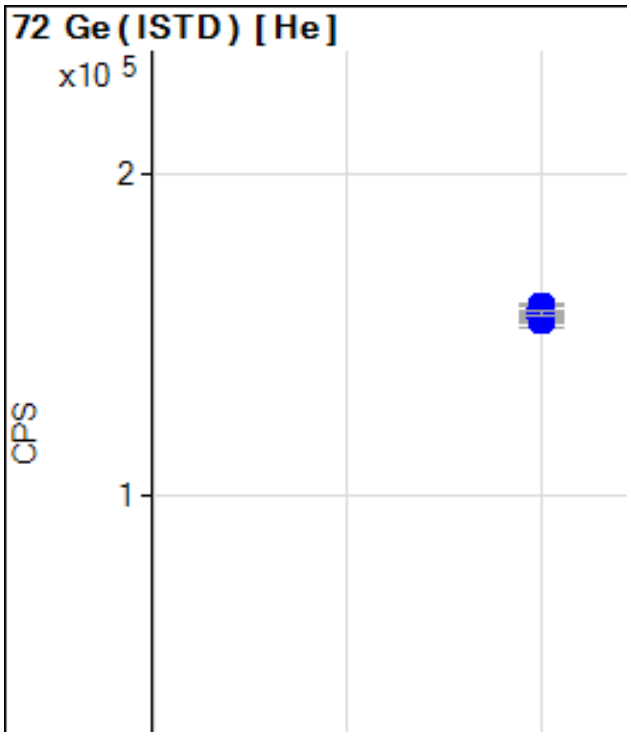

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 264213.2 | | | 0. | |
| 2 | ☐ | 1.000 | | 261251.5 | | | 0. | |
| 3 | ☐ | 1.000 | | 261570.8 | | | 1. | |
| 4 | ☐ | 1.000 | | 261386.4 | | | 1. | |
| 5 | ☐ | 1.000 | | 261639.1 | | | 0. | |
| 6 | ☐ | 1.000 | | 264390.4 | | | 1. | |
| 7 | ☐ | 1.000 | | 262267.2 | | | 0. | |
| 8 | ☐ | 1.000 | | 266151.7 | | | 0. | |
| 9 | ☐ | 1.000 | | 270511.7 | | | 4. | |
| 10 | ☐ | 1.000 | | 269000.0 | | | 0. | |
| 11 | ☐ | 1.000 | | 264382.6 | | | 0. | |



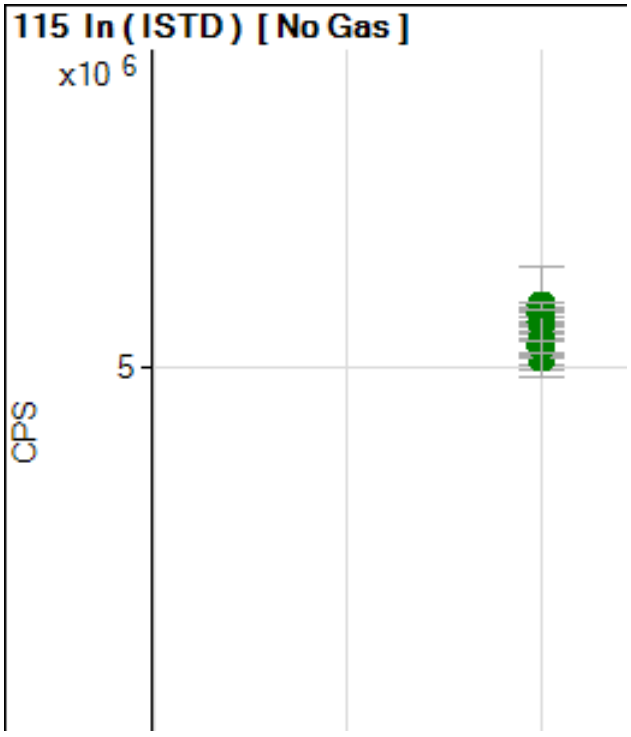

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 952801.0 | | | 2. | |
| 2 | ☐ | 1.000 | | 904595.5 | | | 6. | |
| 3 | ☐ | 1.000 | | 936869.3 | | | 1. | |
| 4 | ☐ | 1.000 | | 944495.2 | | | 0. | |
| 5 | ☐ | 1.000 | | 892492.4 | | | 6. | |
| 6 | ☐ | 1.000 | | 901824.3 | | | 6. | |
| 7 | ☐ | 1.000 | | 904223.6 | | | 2. | |
| 8 | ☐ | 1.000 | | 923288.2 | | | 5. | |
| 9 | ☐ | 1.000 | | 939742.5 | | | 4. | |
| 10 | ☐ | 1.000 | | 916666.6 | | | 16 | |
| 11 | ☐ | 1.000 | | 946645.0 | | | 1. | |



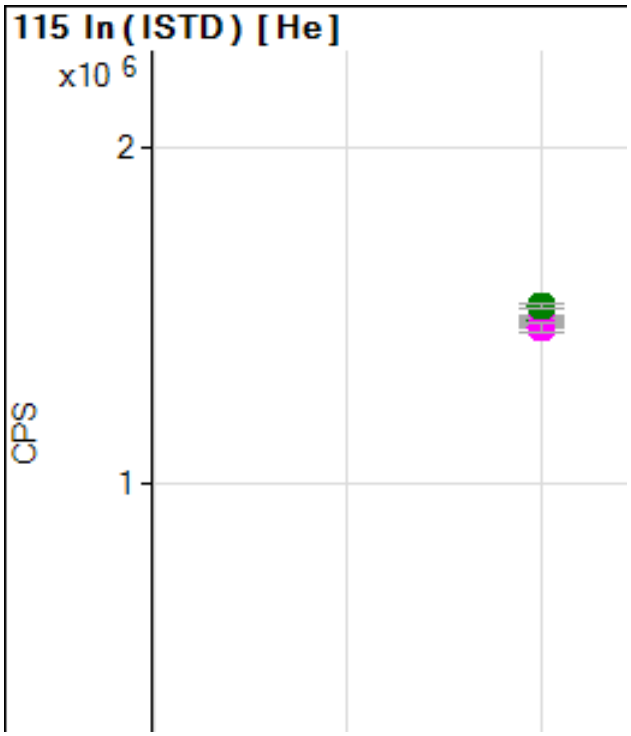

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 705403.8 | | | 2. | |
| 2 | ☐ | 1.000 | | 688138.5 | | | 2. | |
| 3 | ☐ | 1.000 | | 683217.3 | | | 1. | |
| 4 | ☐ | 1.000 | | 684660.3 | | | 0. | |
| 5 | ☐ | 1.000 | | 676834.3 | | | 1. | |
| 6 | ☐ | 1.000 | | 669003.5 | | | 0. | |
| 7 | ☐ | 1.000 | | 663641.5 | | | 1. | |
| 8 | ☐ | 1.000 | | 667346.1 | | | 1. | |
| 9 | ☐ | 1.000 | | 653321.0 | | | 1. | |
| 10 | ☐ | 1.000 | | 635901.9 | | | 2. | |
| 11 | ☐ | 1.000 | | 660497.1 | | | 0. | |



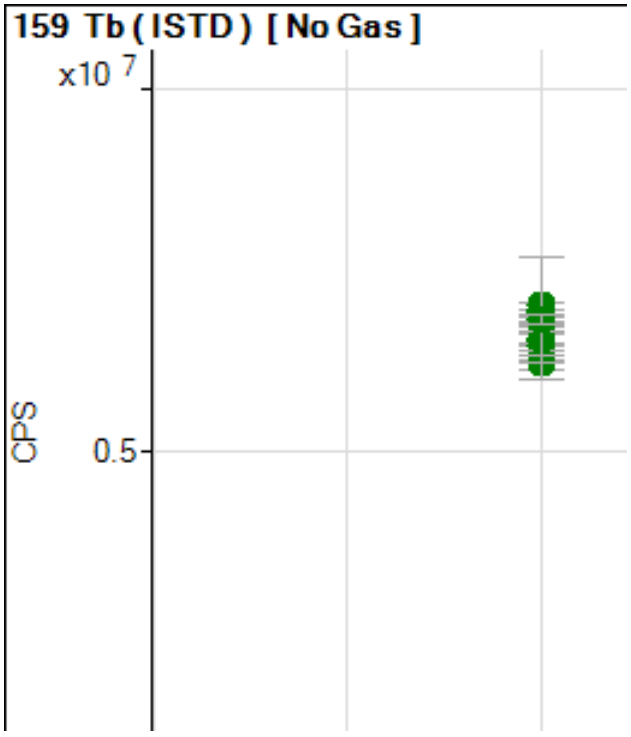

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 157921.0 | | | 1. | |
| 2 | ☐ | 1.000 | | 155062.9 | | | 1. | |
| 3 | ☐ | 1.000 | | 154266.5 | | | 2. | |
| 4 | ☐ | 1.000 | | 154927.0 | | | 1. | |
| 5 | ☐ | 1.000 | | 154853.6 | | | 0. | |
| 6 | ☐ | 1.000 | | 155718.9 | | | 0. | |
| 7 | ☐ | 1.000 | | 155065.4 | | | 1. | |
| 8 | ☐ | 1.000 | | 157822.0 | | | 0. | |
| 9 | ☐ | 1.000 | | 158845.4 | | | 1. | |
| 10 | ☐ | 1.000 | | 158388.0 | | | 0. | |
| 11 | ☐ | 1.000 | | 156906.7 | | | 0. | |



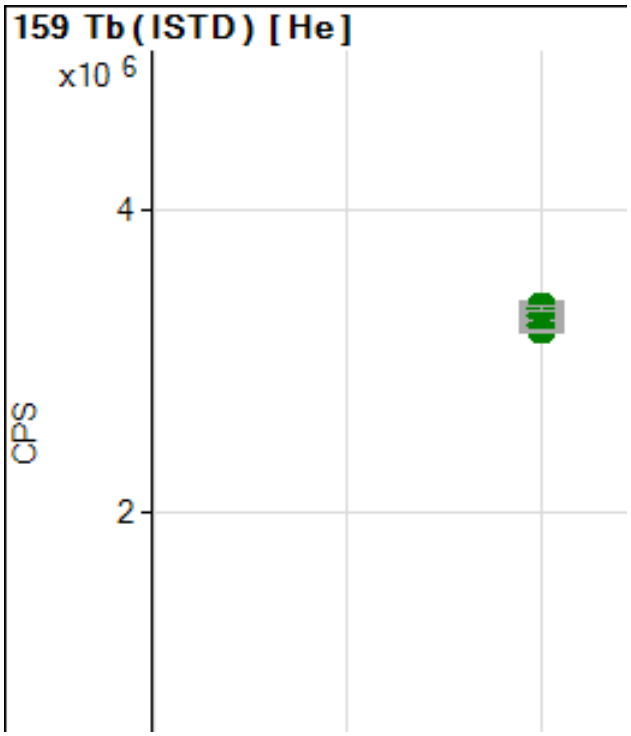

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 5570411. | | | 0. | |
| 2 | ☐ | 1.000 | | 5190570. | | | 7. | |
| 3 | ☐ | 1.000 | | 5491584. | | | 0. | |
| 4 | ☐ | 1.000 | | 5599116. | | | 2. | |
| 5 | ☐ | 1.000 | | 5199654. | | | 9. | |
| 6 | ☐ | 1.000 | | 5097419. | | | 8. | |
| 7 | ☐ | 1.000 | | 5252958. | | | 4. | |
| 8 | ☐ | 1.000 | | 5285707. | | | 7. | |
| 9 | ☐ | 1.000 | | 5223133. | | | 2. | |
| 10 | ☐ | 1.000 | | 5497297. | | | 22 | |
| 11 | ☐ | 1.000 | | 5675110. | | | 1. | |



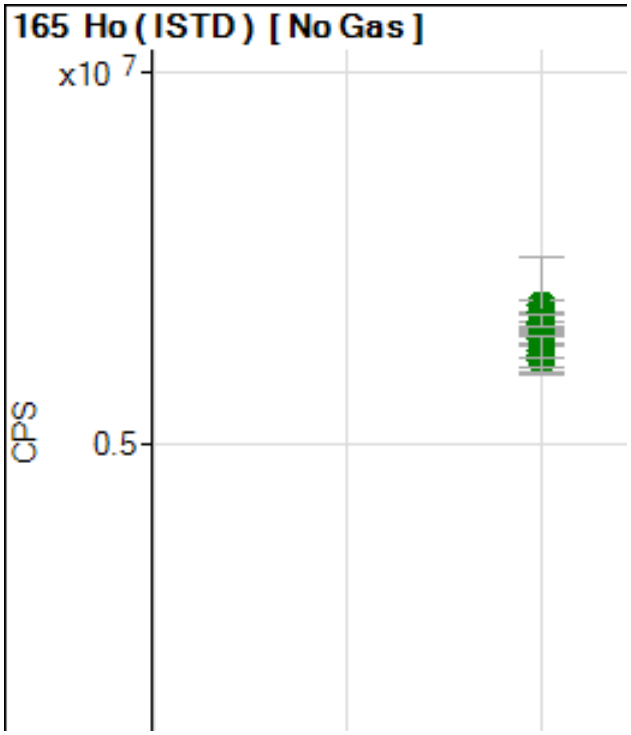

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 1495968. | | | 0. | |
| 2 | ☐ | 1.000 | | 1479181. | | | 1. | |
| 3 | ☐ | 1.000 | | 1485831. | | | 0. | |
| 4 | ☐ | 1.000 | | 1488672. | | | 0. | |
| 5 | ☐ | 1.000 | | 1482183. | | | 0. | |
| 6 | ☐ | 1.000 | | 1489255. | | | 1. | |
| 7 | ☐ | 1.000 | | 1489691. | | | 0. | |
| 8 | ☐ | 1.000 | | 1483180. | | | 1. | |
| 9 | ☐ | 1.000 | | 1477057. | | | 1. | |
| 10 | ☐ | 1.000 | | 1461799. | | | 2. | |
| 11 | ☐ | 1.000 | | 1524718. | | | 1. | |



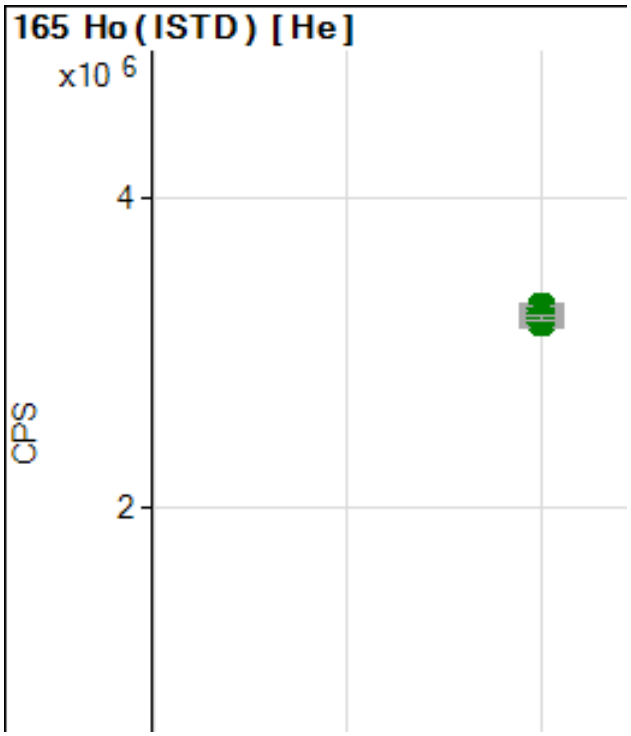

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 7012816. | | | 1. | |
| 2 | ☐ | 1.000 | | 6520983. | | | 8. | |
| 3 | ☐ | 1.000 | | 6914800. | | | 1. | |
| 4 | ☐ | 1.000 | | 6806465. | | | 2. | |
| 5 | ☐ | 1.000 | | 6388432. | | | 7. | |
| 6 | ☐ | 1.000 | | 6224676. | | | 7. | |
| 7 | ☐ | 1.000 | | 6451917. | | | 1. | |
| 8 | ☐ | 1.000 | | 6557721. | | | 7. | |
| 9 | ☐ | 1.000 | | 6757094. | | | 2. | |
| 10 | ☐ | 1.000 | | 6944602. | | | 20 | |
| 11 | ☐ | 1.000 | | 6825168. | | | 1. | |



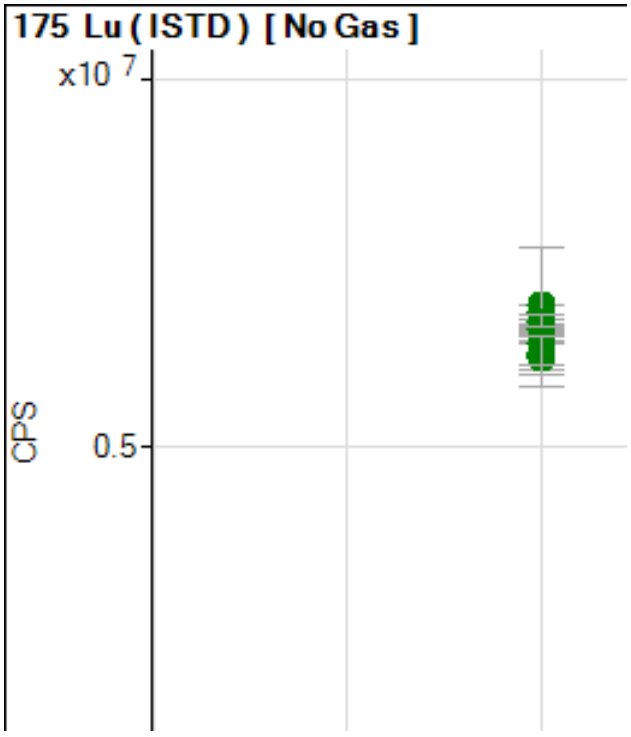

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 3358791. | | | 1. | |
| 2 | ☐ | 1.000 | | 3223103. | | | 0. | |
| 3 | ☐ | 1.000 | | 3241386. | | | 1. | |
| 4 | ☐ | 1.000 | | 3261747. | | | 2. | |
| 5 | ☐ | 1.000 | | 3259691. | | | 0. | |
| 6 | ☐ | 1.000 | | 3204811. | | | 0. | |
| 7 | ☐ | 1.000 | | 3295089. | | | 1. | |
| 8 | ☐ | 1.000 | | 3317472. | | | 1. | |
| 9 | ☐ | 1.000 | | 3304483. | | | 2. | |
| 10 | ☐ | 1.000 | | 3360056. | | | 2. | |
| 11 | ☐ | 1.000 | | 3344201. | | | 0. | |



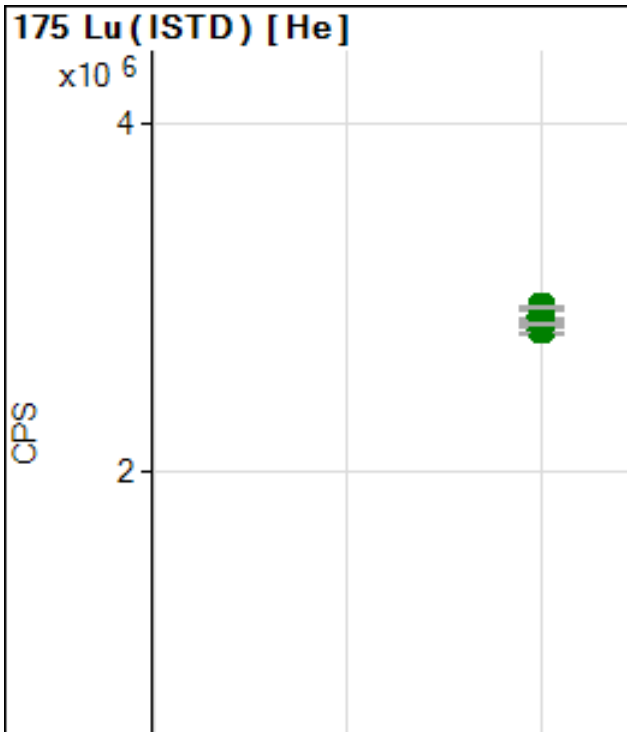

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 6863707. | | | 2. | |
| 2 | ☐ | 1.000 | | 6210298. | | | 8. | |
| 3 | ☐ | 1.000 | | 6605439. | | | 1. | |
| 4 | ☐ | 1.000 | | 6509283. | | | 0. | |
| 5 | ☐ | 1.000 | | 6258846. | | | 10 | |
| 6 | ☐ | 1.000 | | 6143760. | | | 5. | |
| 7 | ☐ | 1.000 | | 6195093. | | | 4. | |
| 8 | ☐ | 1.000 | | 6417824. | | | 7. | |
| 9 | ☐ | 1.000 | | 6589109. | | | 4. | |
| 10 | ☐ | 1.000 | | 6772931. | | | 21 | |
| 11 | ☐ | 1.000 | | 6655709. | | | 2. | |



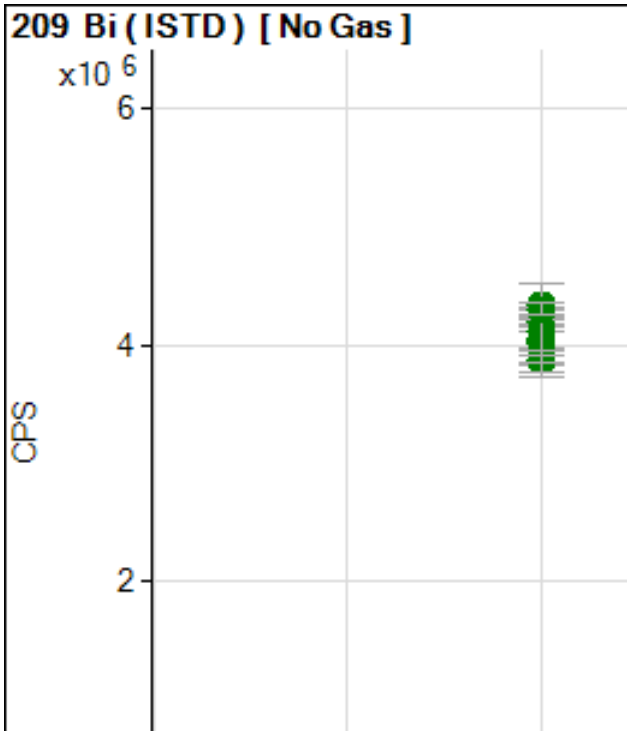

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 3270471. | | | 2. | |
| 2 | ☐ | 1.000 | | 3230908. | | | 2. | |
| 3 | ☐ | 1.000 | | 3232599. | | | 1. | |
| 4 | ☐ | 1.000 | | 3245640. | | | 1. | |
| 5 | ☐ | 1.000 | | 3184601. | | | 1. | |
| 6 | ☐ | 1.000 | | 3192182. | | | 2. | |
| 7 | ☐ | 1.000 | | 3229327. | | | 0. | |
| 8 | ☐ | 1.000 | | 3288595. | | | 0. | |
| 9 | ☐ | 1.000 | | 3292151. | | | 1. | |
| 10 | ☐ | 1.000 | | 3275896. | | | 0. | |
| 11 | ☐ | 1.000 | | 3222898. | | | 0. | |



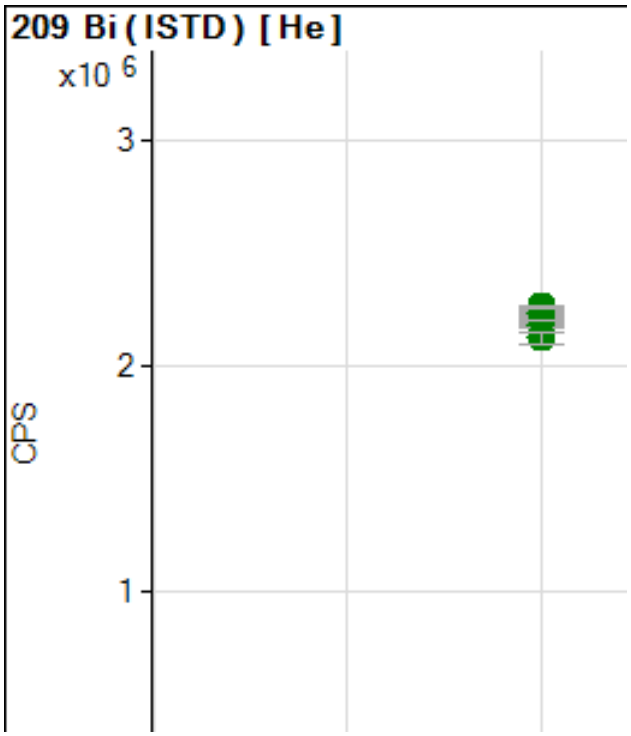

| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 6840550. | | | 2. | |
| 2 | ☐ | 1.000 | | 6236913. | | | 6. | |
| 3 | ☐ | 1.000 | | 6548028. | | | 1. | |
| 4 | ☐ | 1.000 | | 6590265. | | | 1. | |
| 5 | ☐ | 1.000 | | 6216424. | | | 12 | |
| 6 | ☐ | 1.000 | | 6197148. | | | 7. | |
| 7 | ☐ | 1.000 | | 6269379. | | | 5. | |
| 8 | ☐ | 1.000 | | 6398394. | | | 8. | |
| 9 | ☐ | 1.000 | | 6615749. | | | 3. | |
| 10 | ☐ | 1.000 | | 6916159. | | | 22 | |
| 11 | ☐ | 1.000 | | 6709005. | | | 2. | |




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 2853023. | | | 1. | |
| 2 | ☐ | 1.000 | | 2807250. | | | 1. | |
| 3 | ☐ | 1.000 | | 2845390. | | | 1. | |
| 4 | ☐ | 1.000 | | 2842948. | | | 0. | |
| 5 | ☐ | 1.000 | | 2837040. | | | 0. | |
| 6 | ☐ | 1.000 | | 2829906. | | | 1. | |
| 7 | ☐ | 1.000 | | 2850709. | | | 1. | |
| 8 | ☐ | 1.000 | | 2876400. | | | 3. | |
| 9 | ☐ | 1.000 | | 2894970. | | | 3. | |
| 10 | ☐ | 1.000 | | 2946052. | | | 0. | |
| 11 | ☐ | 1.000 | | 2849549. | | | 0. | |




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 4304831. | | | 0. | |
| 2 | ☐ | 1.000 | | 4032452. | | | 6. | |
| 3 | ☐ | 1.000 | | 4330434. | | | 1. | |
| 4 | ☐ | 1.000 | | 4187495. | | | 2. | |
| 5 | ☐ | 1.000 | | 4037259. | | | 10 | |
| 6 | ☐ | 1.000 | | 3871647. | | | 5. | |
| 7 | ☐ | 1.000 | | 4004536. | | | 5. | |
| 8 | ☐ | 1.000 | | 4022298. | | | 9. | |
| 9 | ☐ | 1.000 | | 4060895. | | | 5. | |
| 10 | ☐ | 1.000 | | 4123372. | | | 18 | |
| 11 | ☐ | 1.000 | | 4305623. | | | 2. | |




| | Rjct | Conc. | Calc Conc. | CPS | Ratio | Det. | RSD | %RE |
|---|---|---|---|---|---|---|---|---|
| 1 | ☐ | 1.000 | | 2221377. | | | 2. | |
| 2 | ☐ | 1.000 | | 2182069. | | | 3. | |
| 3 | ☐ | 1.000 | | 2209812. | | | 0. | |
| 4 | ☐ | 1.000 | | 2184235. | | | 1. | |
| 5 | ☐ | 1.000 | | 2241075. | | | 0. | |
| 6 | ☐ | 1.000 | | 2204544. | | | 1. | |
| 7 | ☐ | 1.000 | | 2186150. | | | 2. | |
| 8 | ☐ | 1.000 | | 2197766. | | | 2. | |
| 9 | ☐ | 1.000 | | 2230330. | | | 2. | |
| 10 | ☐ | 1.000 | | 2124030. | | | 2. | |
| 11 | ☐ | 1.000 | | 2262803. | | | 0. | |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 001BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 11:20:43 |
| **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 | 37352.65 |
| Be | 9 | 45 | 1 | No Gas | | ug/l | 1023.16 |
| B | 11 | 45 | 1 | No Gas | | ug/l | 3651.91 |
| Na | 23 | 45 | 3 | He | | ug/l | 54899.89 |
| Mg | 24 | 45 | 3 | He | | ug/l | 4385.32 |
| Al | 27 | 45 | 1 | No Gas | | ug/l | 43795.36 |
| Si | 28 | 45 | 2 | H2 | | ug/l | 29194.06 |
| K | 39 | 72 | 3 | He | | ug/l | 130208.85 |
| Ca | 40 | 72 | 2 | H2 | | ug/l | 255022.46 |
| Ti | 47 | 72 | 1 | No Gas | | ug/l | 553.90 |
| V | 51 | 72 | 1 | No Gas | | ug/l | -119157.79 |
| V | 51 | 72 | 3 | He | | ug/l | 33916.78 |
| Cr | 52 | 72 | 1 | No Gas | | ug/l | 121051.36 |
| Cr | 52 | 72 | 3 | He | | ug/l | 1727.89 |
| Mn | 55 | 72 | 1 | No Gas | | ug/l | 14971.30 |
| Mn | 55 | 72 | 3 | He | | ug/l | 390.60 |
| Fe | 56 | 72 | 2 | H2 | | ug/l | 31905.14 |
| Fe | 56 | 72 | 3 | He | | ug/l | 13307.78 |
| Co | 59 | 72 | 1 | No Gas | | ug/l | 991.40 |
| Ni | 60 | 72 | 1 | No Gas | | ug/l | 1826.50 |
| Ni | 60 | 72 | 3 | He | | ug/l | 524.45 |
| Cu | 63 | 72 | 1 | No Gas | | ug/l | 4738.68 |
| Cu | 63 | 72 | 3 | He | | ug/l | 871.19 |
| Cu | 65 | 72 | 1 | No Gas | | ug/l | 1912.90 |
| Zn | 66 | 72 | 1 | No Gas | | ug/l | 20996.83 |
| Zn | 66 | 72 | 3 | He | | ug/l | 4302.89 |
| As | 75 | 72 | 1 | No Gas | | ug/l | 17834.30 |
| As | 75 | 72 | 3 | He | | ug/l | 635.20 |
| Se | 78 | 72 | 2 | H2 | | ug/l | 87.22 |
| Br | 79 | 72 | 1 | No Gas | | ug/l | 4119.10 |
| Br | 79 | 72 | 2 | H2 | | ug/l | 2887.91 |
| Se | 82 | 72 | 1 | No Gas | | ug/l | 946.24 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 23942.42 |
| Sr | 88 | 72 | 1 | No Gas | | ug/l | 3892.84 |
| Sr | 88 | 72 | 3 | He | | ug/l | 704.47 |
| Mo | 95 | 115 | 1 | No Gas | | ug/l | 643.35 |
| Mo | 95 | 115 | 3 | He | | ug/l | 260.00 |
| Mo | 98 | 115 | 1 | No Gas | | ug/l | 1032.14 |
| Ag | 107 | 115 | 1 | No Gas | | ug/l | 1654.76 |
| Ag | 109 | 115 | 1 | No Gas | | ug/l | 1548.04 |
| Cd | 111 | 115 | 1 | No Gas | | ug/l | 235.00 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | | ug/l | 65.44 |
| Cd | 114 | 115 | 1 | No Gas | | ug/l | 356.33 |
| Cd | 114 | 115 | 3 | He | | ug/l | 159.32 |
| Sn | 118 | 115 | 1 | No Gas | | ug/l | 2774.79 |
| Sn | 118 | 115 | 3 | He | | ug/l | 700.02 |
| Sb | 121 | 115 | 1 | No Gas | | ug/l | 1521.91 |
| Sb | 121 | 115 | 3 | He | | ug/l | 457.72 |
| Sb | 123 | 115 | 1 | No Gas | | ug/l | 1216.85 |
| Sb | 123 | 115 | 3 | He | | ug/l | 340.04 |
| Ba | 135 | 115 | 1 | No Gas | | ug/l | 136.39 |
| Ba | 137 | 115 | 1 | No Gas | | ug/l | 209.59 |
| La | 139 | 115 | 3 | He | | ug/l | 85.56 |
| Ce | 140 | 115 | 3 | He | | ug/l | 116.67 |
| Hg | 201 | 209 | 1 | No Gas | | ug/l | 87.65 |
| Hg | 202 | 209 | 1 | No Gas | | ug/l | 227.96 |
| Hg | 202 | 209 | 3 | He | | ug/l | 111.65 |
| Tl | 203 | 209 | 3 | He | | ug/l | 2236.42 |
| Tl | 205 | 209 | 1 | No Gas | | ug/l | 15346.76 |
| Tl | 205 | 209 | 3 | He | | ug/l | 5336.55 |
| [Pb] | 206 | 209 | 1 | No Gas | | ug/l | 765.58 |
| [Pb] | 207 | 209 | 1 | No Gas | | ug/l | 632.24 |
| Pb | 208 | 209 | 1 | No Gas | | ug/l | 2935.70 |
| Th | 232 | 209 | 3 | He | | ug/l | 4290.43 |
| U | 238 | 209 | 1 | No Gas | | ug/l | 288.95 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3811366.84 | |
| Sc | 45 | 2 | H2 | 2583804.30 | |
| Sc | 45 | 3 | He | 244547.47 | |
| Ge | 72 | 1 | No Gas | 905949.16 | |
| Ge | 72 | 2 | H2 | 730943.63 | |
| Ge | 72 | 3 | He | 151156.62 | |
| In | 115 | 1 | No Gas | 5801724.66 | |
| In | 115 | 3 | He | 1491045.88 | |
| Tb | 159 | 1 | No Gas | 6892410.03 | |
| Tb | 159 | 3 | He | 3464396.04 | |
| Ho | 165 | 1 | No Gas | 6661988.84 | |
| Ho | 165 | 3 | He | 3368799.62 | |
| Lu | 175 | 1 | No Gas | 6724889.71 | |
| Lu | 175 | 3 | He | 2950796.01 | |
| Bi | 209 | 1 | No Gas | 5067763.53 | |
| Bi | 209 | 3 | He | 2498145.67 | |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 002BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 11:26:57 |
| **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 | 21619.31 |
| Be | 9 | 45 | 1 | No Gas | | ug/l | 798.20 |
| B | 11 | 45 | 1 | No Gas | | ug/l | 2282.43 |
| Na | 23 | 45 | 3 | He | | ug/l | 39069.44 |
| Mg | 24 | 45 | 3 | He | | ug/l | 1430.57 |
| Al | 27 | 45 | 1 | No Gas | | ug/l | 24619.07 |
| Si | 28 | 45 | 2 | H2 | | ug/l | 24965.39 |
| K | 39 | 72 | 3 | He | | ug/l | 125554.15 |
| Ca | 40 | 72 | 2 | H2 | | ug/l | 174907.83 |
| Ti | 47 | 72 | 1 | No Gas | | ug/l | 595.65 |
| V | 51 | 72 | 1 | No Gas | | ug/l | -198575.98 |
| V | 51 | 72 | 3 | He | | ug/l | 37956.58 |
| Cr | 52 | 72 | 1 | No Gas | | ug/l | 132584.07 |
| Cr | 52 | 72 | 3 | He | | ug/l | 1713.44 |
| Mn | 55 | 72 | 1 | No Gas | | ug/l | 13642.60 |
| Mn | 55 | 72 | 3 | He | | ug/l | 194.29 |
| Fe | 56 | 72 | 2 | H2 | | ug/l | 12524.61 |
| Fe | 56 | 72 | 3 | He | | ug/l | 7389.31 |
| Co | 59 | 72 | 1 | No Gas | | ug/l | 622.12 |
| Ni | 60 | 72 | 1 | No Gas | | ug/l | 891.59 |
| Ni | 60 | 72 | 3 | He | | ug/l | 203.34 |
| Cu | 63 | 72 | 1 | No Gas | | ug/l | 2965.50 |
| Cu | 63 | 72 | 3 | He | | ug/l | 519.90 |
| Cu | 65 | 72 | 1 | No Gas | | ug/l | 1435.98 |
| Zn | 66 | 72 | 1 | No Gas | | ug/l | 8795.02 |
| Zn | 66 | 72 | 3 | He | | ug/l | 1799.01 |
| As | 75 | 72 | 1 | No Gas | | ug/l | 22263.22 |
| As | 75 | 72 | 3 | He | | ug/l | 745.33 |
| Se | 78 | 72 | 2 | H2 | | ug/l | 67.11 |
| Br | 79 | 72 | 1 | No Gas | | ug/l | 5480.20 |
| Br | 79 | 72 | 2 | H2 | | ug/l | 3799.66 |
| Se | 82 | 72 | 1 | No Gas | | ug/l | 1032.91 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 26221.80 |
| Sr | 88 | 72 | 1 | No Gas | | ug/l | 652.06 |
| Sr | 88 | 72 | 3 | He | | ug/l | 190.00 |
| Mo | 95 | 115 | 1 | No Gas | | ug/l | 168.89 |
| Mo | 95 | 115 | 3 | He | | ug/l | 71.11 |
| Mo | 98 | 115 | 1 | No Gas | | ug/l | 258.35 |
| Ag | 107 | 115 | 1 | No Gas | | ug/l | 1463.34 |
| Ag | 109 | 115 | 1 | No Gas | | ug/l | 1409.31 |
| Cd | 111 | 115 | 1 | No Gas | | ug/l | 59.17 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | | ug/l | 18.89 |
| Cd | 114 | 115 | 1 | No Gas | | ug/l | -19.54 |
| Cd | 114 | 115 | 3 | He | | ug/l | 36.44 |
| Sn | 118 | 115 | 1 | No Gas | | ug/l | 1397.30 |
| Sn | 118 | 115 | 3 | He | | ug/l | 432.23 |
| Sb | 121 | 115 | 1 | No Gas | | ug/l | 607.08 |
| Sb | 121 | 115 | 3 | He | | ug/l | 236.69 |
| Sb | 123 | 115 | 1 | No Gas | | ug/l | 452.05 |
| Sb | 123 | 115 | 3 | He | | ug/l | 198.02 |
| Ba | 135 | 115 | 1 | No Gas | | ug/l | 53.23 |
| Ba | 137 | 115 | 1 | No Gas | | ug/l | 116.44 |
| La | 139 | 115 | 3 | He | | ug/l | 7.78 |
| Ce | 140 | 115 | 3 | He | | ug/l | 7.78 |
| Hg | 201 | 209 | 1 | No Gas | | ug/l | 55.66 |
| Hg | 202 | 209 | 1 | No Gas | | ug/l | 126.98 |
| Hg | 202 | 209 | 3 | He | | ug/l | 77.65 |
| Tl | 203 | 209 | 3 | He | | ug/l | 707.64 |
| Tl | 205 | 209 | 1 | No Gas | | ug/l | 3548.27 |
| Tl | 205 | 209 | 3 | He | | ug/l | 1544.04 |
| [Pb] | 206 | 209 | 1 | No Gas | | ug/l | 306.67 |
| [Pb] | 207 | 209 | 1 | No Gas | | ug/l | 246.67 |
| Pb | 208 | 209 | 1 | No Gas | | ug/l | 1172.26 |
| Th | 232 | 209 | 3 | He | | ug/l | 1307.93 |
| U | 238 | 209 | 1 | No Gas | | ug/l | 11.00 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3844949.32 | |
| Sc | 45 | 2 | H2 | 2583419.04 | |
| Sc | 45 | 3 | He | 253491.39 | |
| Ge | 72 | 1 | No Gas | 890674.21 | |
| Ge | 72 | 2 | H2 | 748060.52 | |
| Ge | 72 | 3 | He | 152244.44 | |
| In | 115 | 1 | No Gas | 5714498.85 | |
| In | 115 | 3 | He | 1492014.12 | |
| Tb | 159 | 1 | No Gas | 6693044.74 | |
| Tb | 159 | 3 | He | 3356017.23 | |
| Ho | 165 | 1 | No Gas | 6515598.65 | |
| Ho | 165 | 3 | He | 3374975.27 | |
| Lu | 175 | 1 | No Gas | 6529655.10 | |
| Lu | 175 | 3 | He | 2987487.69 | |
| Bi | 209 | 1 | No Gas | 4843307.52 | |
| Bi | 209 | 3 | He | 2449583.24 | |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 003BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 11:33:10 |
| **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 | 18444.52 |
| Be | 9 | 45 | 1 | No Gas | | ug/l | 760.54 |
| B | 11 | 45 | 1 | No Gas | | ug/l | 2010.28 |
| Na | 23 | 45 | 3 | He | | ug/l | 39228.71 |
| Mg | 24 | 45 | 3 | He | | ug/l | 1277.52 |
| Al | 27 | 45 | 1 | No Gas | | ug/l | 23295.88 |
| Si | 28 | 45 | 2 | H2 | | ug/l | 25350.26 |
| K | 39 | 72 | 3 | He | | ug/l | 130711.93 |
| Ca | 40 | 72 | 2 | H2 | | ug/l | 172148.93 |
| Ti | 47 | 72 | 1 | No Gas | | ug/l | 555.57 |
| V | 51 | 72 | 1 | No Gas | | ug/l | -160588.18 |
| V | 51 | 72 | 3 | He | | ug/l | 39007.02 |
| Cr | 52 | 72 | 1 | No Gas | | ug/l | 134170.72 |
| Cr | 52 | 72 | 3 | He | | ug/l | 1814.57 |
| Mn | 55 | 72 | 1 | No Gas | | ug/l | 13622.67 |
| Mn | 55 | 72 | 3 | He | | ug/l | 186.96 |
| Fe | 56 | 72 | 2 | H2 | | ug/l | 11491.07 |
| Fe | 56 | 72 | 3 | He | | ug/l | 7619.67 |
| Co | 59 | 72 | 1 | No Gas | | ug/l | 562.23 |
| Ni | 60 | 72 | 1 | No Gas | | ug/l | 835.04 |
| Ni | 60 | 72 | 3 | He | | ug/l | 185.56 |
| Cu | 63 | 72 | 1 | No Gas | | ug/l | 2596.61 |
| Cu | 63 | 72 | 3 | He | | ug/l | 502.91 |
| Cu | 65 | 72 | 1 | No Gas | | ug/l | 1307.25 |
| Zn | 66 | 72 | 1 | No Gas | | ug/l | 6225.54 |
| Zn | 66 | 72 | 3 | He | | ug/l | 1315.62 |
| As | 75 | 72 | 1 | No Gas | | ug/l | 12680.09 |
| As | 75 | 72 | 3 | He | | ug/l | 812.28 |
| Se | 78 | 72 | 2 | H2 | | ug/l | 62.78 |
| Br | 79 | 72 | 1 | No Gas | | ug/l | 6212.38 |
| Br | 79 | 72 | 2 | H2 | | ug/l | 3859.57 |
| Se | 82 | 72 | 1 | No Gas | | ug/l | 923.03 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 26531.72 |
| Sr | 88 | 72 | 1 | No Gas | | ug/l | 718.60 |
| Sr | 88 | 72 | 3 | He | | ug/l | 198.89 |
| Mo | 95 | 115 | 1 | No Gas | | ug/l | 217.78 |
| Mo | 95 | 115 | 3 | He | | ug/l | 70.00 |
| Mo | 98 | 115 | 1 | No Gas | | ug/l | 344.94 |
| Ag | 107 | 115 | 1 | No Gas | | ug/l | 1405.97 |
| Ag | 109 | 115 | 1 | No Gas | | ug/l | 1408.64 |
| Cd | 111 | 115 | 1 | No Gas | | ug/l | 47.30 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | | ug/l | 13.67 |
| Cd | 114 | 115 | 1 | No Gas | | ug/l | -60.52 |
| Cd | 114 | 115 | 3 | He | | ug/l | 25.36 |
| Sn | 118 | 115 | 1 | No Gas | | ug/l | 1097.87 |
| Sn | 118 | 115 | 3 | He | | ug/l | 418.90 |
| Sb | 121 | 115 | 1 | No Gas | | ug/l | 500.39 |
| Sb | 121 | 115 | 3 | He | | ug/l | 194.69 |
| Sb | 123 | 115 | 1 | No Gas | | ug/l | 362.37 |
| Sb | 123 | 115 | 3 | He | | ug/l | 145.35 |
| Ba | 135 | 115 | 1 | No Gas | | ug/l | 53.23 |
| Ba | 137 | 115 | 1 | No Gas | | ug/l | 106.46 |
| La | 139 | 115 | 3 | He | | ug/l | 14.44 |
| Ce | 140 | 115 | 3 | He | | ug/l | 13.33 |
| Hg | 201 | 209 | 1 | No Gas | | ug/l | 43.32 |
| Hg | 202 | 209 | 1 | No Gas | | ug/l | 101.65 |
| Hg | 202 | 209 | 3 | He | | ug/l | 63.99 |
| Tl | 203 | 209 | 3 | He | | ug/l | 424.18 |
| Tl | 205 | 209 | 1 | No Gas | | ug/l | 1965.72 |
| Tl | 205 | 209 | 3 | He | | ug/l | 971.76 |
| [Pb] | 206 | 209 | 1 | No Gas | | ug/l | 207.78 |
| [Pb] | 207 | 209 | 1 | No Gas | | ug/l | 190.00 |
| Pb | 208 | 209 | 1 | No Gas | | ug/l | 871.13 |
| Th | 232 | 209 | 3 | He | | ug/l | 1121.84 |
| U | 238 | 209 | 1 | No Gas | | ug/l | 15.33 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 4081545.14 | |
| Sc | 45 | 2 | H2 | 2524930.73 | |
| Sc | 45 | 3 | He | 259151.85 | |
| Ge | 72 | 1 | No Gas | 965732.20 | |
| Ge | 72 | 2 | H2 | 734849.73 | |
| Ge | 72 | 3 | He | 155821.67 | |
| In | 115 | 1 | No Gas | 6042665.82 | |
| In | 115 | 3 | He | 1502479.67 | |
| Tb | 159 | 1 | No Gas | 7012415.35 | |
| Tb | 159 | 3 | He | 3340515.53 | |
| Ho | 165 | 1 | No Gas | 6648372.41 | |
| Ho | 165 | 3 | He | 3317816.82 | |
| Lu | 175 | 1 | No Gas | 6671751.36 | |
| Lu | 175 | 3 | He | 2940644.11 | |
| Bi | 209 | 1 | No Gas | 5030480.70 | |
| Bi | 209 | 3 | He | 2375088.46 | |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 004BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 11:39:23 |
| **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 | 16168.39 |
| Be | 9 | 45 | 1 | No Gas | | ug/l | 684.55 |
| B | 11 | 45 | 1 | No Gas | | ug/l | 1812.84 |
| Na | 23 | 45 | 3 | He | | ug/l | 40344.99 |
| Mg | 24 | 45 | 3 | He | | ug/l | 1423.92 |
| Al | 27 | 45 | 1 | No Gas | | ug/l | 21686.80 |
| Si | 28 | 45 | 2 | H2 | | ug/l | 21330.36 |
| K | 39 | 72 | 3 | He | | ug/l | 133359.40 |
| Ca | 40 | 72 | 2 | H2 | | ug/l | 169758.19 |
| Ti | 47 | 72 | 1 | No Gas | | ug/l | 505.52 |
| V | 51 | 72 | 1 | No Gas | | ug/l | -140318.55 |
| V | 51 | 72 | 3 | He | | ug/l | 39141.94 |
| Cr | 52 | 72 | 1 | No Gas | | ug/l | 132765.87 |
| Cr | 52 | 72 | 3 | He | | ug/l | 1741.22 |
| Mn | 55 | 72 | 1 | No Gas | | ug/l | 13246.38 |
| Mn | 55 | 72 | 3 | He | | ug/l | 192.30 |
| Fe | 56 | 72 | 2 | H2 | | ug/l | 11442.66 |
| Fe | 56 | 72 | 3 | He | | ug/l | 7651.38 |
| Co | 59 | 72 | 1 | No Gas | | ug/l | 512.33 |
| Ni | 60 | 72 | 1 | No Gas | | ug/l | 901.58 |
| Ni | 60 | 72 | 3 | He | | ug/l | 165.56 |
| Cu | 63 | 72 | 1 | No Gas | | ug/l | 2267.76 |
| Cu | 63 | 72 | 3 | He | | ug/l | 528.57 |
| Cu | 65 | 72 | 1 | No Gas | | ug/l | 1295.25 |
| Zn | 66 | 72 | 1 | No Gas | | ug/l | 4435.06 |
| Zn | 66 | 72 | 3 | He | | ug/l | 1022.27 |
| As | 75 | 72 | 1 | No Gas | | ug/l | 25328.24 |
| As | 75 | 72 | 3 | He | | ug/l | 822.28 |
| Se | 78 | 72 | 2 | H2 | | ug/l | 56.22 |
| Br | 79 | 72 | 1 | No Gas | | ug/l | 6548.52 |
| Br | 79 | 72 | 2 | H2 | | ug/l | 4215.62 |
| Se | 82 | 72 | 1 | No Gas | | ug/l | 967.17 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 27035.08 |
| Sr | 88 | 72 | 1 | No Gas | | ug/l | 588.85 |
| Sr | 88 | 72 | 3 | He | | ug/l | 208.89 |
| Mo | 95 | 115 | 1 | No Gas | | ug/l | 107.78 |
| Mo | 95 | 115 | 3 | He | | ug/l | 56.67 |
| Mo | 98 | 115 | 1 | No Gas | | ug/l | 190.50 |
| Ag | 107 | 115 | 1 | No Gas | | ug/l | 1494.01 |
| Ag | 109 | 115 | 1 | No Gas | | ug/l | 1454.00 |
| Cd | 111 | 115 | 1 | No Gas | | ug/l | 13.27 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | | ug/l | 8.33 |
| Cd | 114 | 115 | 1 | No Gas | | ug/l | -112.94 |
| Cd | 114 | 115 | 3 | He | | ug/l | 18.76 |
| Sn | 118 | 115 | 1 | No Gas | | ug/l | 1154.43 |
| Sn | 118 | 115 | 3 | He | | ug/l | 371.12 |
| Sb | 121 | 115 | 1 | No Gas | | ug/l | 424.72 |
| Sb | 121 | 115 | 3 | He | | ug/l | 150.68 |
| Sb | 123 | 115 | 1 | No Gas | | ug/l | 317.70 |
| Sb | 123 | 115 | 3 | He | | ug/l | 114.01 |
| Ba | 135 | 115 | 1 | No Gas | | ug/l | 46.57 |
| Ba | 137 | 115 | 1 | No Gas | | ug/l | 93.15 |
| La | 139 | 115 | 3 | He | | ug/l | 3.33 |
| Ce | 140 | 115 | 3 | He | | ug/l | 12.22 |
| Hg | 201 | 209 | 1 | No Gas | | ug/l | 45.32 |
| Hg | 202 | 209 | 1 | No Gas | | ug/l | 104.65 |
| Hg | 202 | 209 | 3 | He | | ug/l | 51.99 |
| Tl | 203 | 209 | 3 | He | | ug/l | 292.12 |
| Tl | 205 | 209 | 1 | No Gas | | ug/l | 1346.75 |
| Tl | 205 | 209 | 3 | He | | ug/l | 734.98 |
| [Pb] | 206 | 209 | 1 | No Gas | | ug/l | 190.00 |
| [Pb] | 207 | 209 | 1 | No Gas | | ug/l | 194.45 |
| Pb | 208 | 209 | 1 | No Gas | | ug/l | 758.90 |
| Th | 232 | 209 | 3 | He | | ug/l | 656.95 |
| U | 238 | 209 | 1 | No Gas | | ug/l | 16.33 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3750246.09 | |
| Sc | 45 | 2 | H2 | 2479660.89 | |
| Sc | 45 | 3 | He | 261643.45 | |
| Ge | 72 | 1 | No Gas | 924438.72 | |
| Ge | 72 | 2 | H2 | 718954.32 | |
| Ge | 72 | 3 | He | 154885.88 | |
| In | 115 | 1 | No Gas | 5462371.01 | |
| In | 115 | 3 | He | 1506533.98 | |
| Tb | 159 | 1 | No Gas | 6365229.69 | |
| Tb | 159 | 3 | He | 3291182.21 | |
| Ho | 165 | 1 | No Gas | 6238294.01 | |
| Ho | 165 | 3 | He | 3242756.39 | |
| Lu | 175 | 1 | No Gas | 6196895.32 | |
| Lu | 175 | 3 | He | 2889871.88 | |
| Bi | 209 | 1 | No Gas | 4554450.58 | |
| Bi | 209 | 3 | He | 2351248.39 | |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 005BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 11:45:36 |
| **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 | 13893.91 |
| Be | 9 | 45 | 1 | No Gas | | ug/l | 629.22 |
| B | 11 | 45 | 1 | No Gas | | ug/l | 1608.73 |
| Na | 23 | 45 | 3 | He | | ug/l | 40699.29 |
| Mg | 24 | 45 | 3 | He | | ug/l | 1497.11 |
| Al | 27 | 45 | 1 | No Gas | | ug/l | 20501.82 |
| Si | 28 | 45 | 2 | H2 | | ug/l | 20315.88 |
| K | 39 | 72 | 3 | He | | ug/l | 134896.90 |
| Ca | 40 | 72 | 2 | H2 | | ug/l | 170275.00 |
| Ti | 47 | 72 | 1 | No Gas | | ug/l | 462.14 |
| V | 51 | 72 | 1 | No Gas | | ug/l | -119904.34 |
| V | 51 | 72 | 3 | He | | ug/l | 38911.29 |
| Cr | 52 | 72 | 1 | No Gas | | ug/l | 133331.17 |
| Cr | 52 | 72 | 3 | He | | ug/l | 1870.13 |
| Mn | 55 | 72 | 1 | No Gas | | ug/l | 12890.11 |
| Mn | 55 | 72 | 3 | He | | ug/l | 186.63 |
| Fe | 56 | 72 | 2 | H2 | | ug/l | 10971.80 |
| Fe | 56 | 72 | 3 | He | | ug/l | 7564.56 |
| Co | 59 | 72 | 1 | No Gas | | ug/l | 535.62 |
| Ni | 60 | 72 | 1 | No Gas | | ug/l | 868.31 |
| Ni | 60 | 72 | 3 | He | | ug/l | 165.56 |
| Cu | 63 | 72 | 1 | No Gas | | ug/l | 2126.35 |
| Cu | 63 | 72 | 3 | He | | ug/l | 491.91 |
| Cu | 65 | 72 | 1 | No Gas | | ug/l | 1198.53 |
| Zn | 66 | 72 | 1 | No Gas | | ug/l | 3842.58 |
| Zn | 66 | 72 | 3 | He | | ug/l | 805.59 |
| As | 75 | 72 | 1 | No Gas | | ug/l | 19946.54 |
| As | 75 | 72 | 3 | He | | ug/l | 842.14 |
| Se | 78 | 72 | 2 | H2 | | ug/l | 52.78 |
| Br | 79 | 72 | 1 | No Gas | | ug/l | 6674.97 |
| Br | 79 | 72 | 2 | H2 | | ug/l | 4198.97 |
| Se | 82 | 72 | 1 | No Gas | | ug/l | 1019.58 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 25838.50 |
| Sr | 88 | 72 | 1 | No Gas | | ug/l | 655.39 |
| Sr | 88 | 72 | 3 | He | | ug/l | 193.34 |
| Mo | 95 | 115 | 1 | No Gas | | ug/l | 103.34 |
| Mo | 95 | 115 | 3 | He | | ug/l | 42.22 |
| Mo | 98 | 115 | 1 | No Gas | | ug/l | 166.47 |
| Ag | 107 | 115 | 1 | No Gas | | ug/l | 1437.32 |
| Ag | 109 | 115 | 1 | No Gas | | ug/l | 1440.65 |
| Cd | 111 | 115 | 1 | No Gas | | ug/l | 33.02 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | | ug/l | 6.67 |
| Cd | 114 | 115 | 1 | No Gas | | ug/l | -94.06 |
| Cd | 114 | 115 | 3 | He | | ug/l | 14.78 |
| Sn | 118 | 115 | 1 | No Gas | | ug/l | 1294.17 |
| Sn | 118 | 115 | 3 | He | | ug/l | 345.56 |
| Sb | 121 | 115 | 1 | No Gas | | ug/l | 385.38 |
| Sb | 121 | 115 | 3 | He | | ug/l | 142.35 |
| Sb | 123 | 115 | 1 | No Gas | | ug/l | 294.70 |
| Sb | 123 | 115 | 3 | He | | ug/l | 103.68 |
| Ba | 135 | 115 | 1 | No Gas | | ug/l | 29.94 |
| Ba | 137 | 115 | 1 | No Gas | | ug/l | 113.11 |
| La | 139 | 115 | 3 | He | | ug/l | 5.55 |
| Ce | 140 | 115 | 3 | He | | ug/l | 8.89 |
| Hg | 201 | 209 | 1 | No Gas | | ug/l | 34.66 |
| Hg | 202 | 209 | 1 | No Gas | | ug/l | 91.65 |
| Hg | 202 | 209 | 3 | He | | ug/l | 46.99 |
| Tl | 203 | 209 | 3 | He | | ug/l | 242.77 |
| Tl | 205 | 209 | 1 | No Gas | | ug/l | 1042.27 |
| Tl | 205 | 209 | 3 | He | | ug/l | 549.57 |
| [Pb] | 206 | 209 | 1 | No Gas | | ug/l | 196.67 |
| [Pb] | 207 | 209 | 1 | No Gas | | ug/l | 118.89 |
| Pb | 208 | 209 | 1 | No Gas | | ug/l | 661.12 |
| Th | 232 | 209 | 3 | He | | ug/l | 531.56 |
| U | 238 | 209 | 1 | No Gas | | ug/l | 19.33 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3879353.19 | |
| Sc | 45 | 2 | H2 | 2417037.11 | |
| Sc | 45 | 3 | He | 261499.86 | |
| Ge | 72 | 1 | No Gas | 927334.69 | |
| Ge | 72 | 2 | H2 | 719990.18 | |
| Ge | 72 | 3 | He | 156213.20 | |
| In | 115 | 1 | No Gas | 5728732.04 | |
| In | 115 | 3 | He | 1498246.17 | |
| Tb | 159 | 1 | No Gas | 6595651.20 | |
| Tb | 159 | 3 | He | 3346941.62 | |
| Ho | 165 | 1 | No Gas | 6283150.17 | |
| Ho | 165 | 3 | He | 3290863.95 | |
| Lu | 175 | 1 | No Gas | 6246922.07 | |
| Lu | 175 | 3 | He | 2865448.79 | |
| Bi | 209 | 1 | No Gas | 4650086.83 | |
| Bi | 209 | 3 | He | 2347205.55 | |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 006BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 11:51:49 |
| **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 | | ug/l | 12986.76 |
| Be | 9 | 45 | 1 | No Gas | | ug/l | 608.23 |
| B | 11 | 45 | 1 | No Gas | | ug/l | 1518.02 |
| Na | 23 | 45 | 3 | He | | ug/l | 41345.46 |
| Mg | 24 | 45 | 3 | He | | ug/l | 1300.81 |
| Al | 27 | 45 | 1 | No Gas | | ug/l | 19320.23 |
| Si | 28 | 45 | 2 | H2 | | ug/l | 19477.11 |
| K | 39 | 72 | 3 | He | | ug/l | 136536.01 |
| Ca | 40 | 72 | 2 | H2 | | ug/l | 169709.36 |
| Ti | 47 | 72 | 1 | No Gas | | ug/l | 447.13 |
| V | 51 | 72 | 1 | No Gas | | ug/l | -115531.30 |
| V | 51 | 72 | 3 | He | | ug/l | 39261.13 |
| Cr | 52 | 72 | 1 | No Gas | | ug/l | 130314.25 |
| Cr | 52 | 72 | 3 | He | | ug/l | 1872.35 |
| Mn | 55 | 72 | 1 | No Gas | | ug/l | 12623.76 |
| Mn | 55 | 72 | 3 | He | | ug/l | 197.63 |
| Fe | 56 | 72 | 2 | H2 | | ug/l | 11073.68 |
| Fe | 56 | 72 | 3 | He | | ug/l | 7504.48 |
| Co | 59 | 72 | 1 | No Gas | | ug/l | 538.94 |
| Ni | 60 | 72 | 1 | No Gas | | ug/l | 908.23 |
| Ni | 60 | 72 | 3 | He | | ug/l | 174.45 |
| Cu | 63 | 72 | 1 | No Gas | | ug/l | 2027.63 |
| Cu | 63 | 72 | 3 | He | | ug/l | 513.57 |
| Cu | 65 | 72 | 1 | No Gas | | ug/l | 1135.17 |
| Zn | 66 | 72 | 1 | No Gas | | ug/l | 3240.29 |
| Zn | 66 | 72 | 3 | He | | ug/l | 790.03 |
| As | 75 | 72 | 1 | No Gas | | ug/l | 17304.79 |
| As | 75 | 72 | 3 | He | | ug/l | 838.68 |
| Se | 78 | 72 | 2 | H2 | | ug/l | 50.11 |
| Br | 79 | 72 | 1 | No Gas | | ug/l | 6848.08 |
| Br | 79 | 72 | 2 | H2 | | ug/l | 4531.75 |
| Se | 82 | 72 | 1 | No Gas | | ug/l | 943.18 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 25508.58 |
| Sr | 88 | 72 | 1 | No Gas | | ug/l | 602.16 |
| Sr | 88 | 72 | 3 | He | | ug/l | 208.89 |
| Mo | 95 | 115 | 1 | No Gas | | ug/l | 103.33 |
| Mo | 95 | 115 | 3 | He | | ug/l | 40.00 |
| Mo | 98 | 115 | 1 | No Gas | | ug/l | 139.74 |
| Ag | 107 | 115 | 1 | No Gas | | ug/l | 1468.00 |
| Ag | 109 | 115 | 1 | No Gas | | ug/l | 1347.94 |
| Cd | 111 | 115 | 1 | No Gas | | ug/l | -0.05 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | | ug/l | 5.33 |
| Cd | 114 | 115 | 1 | No Gas | | ug/l | -129.93 |
| Cd | 114 | 115 | 3 | He | | ug/l | 8.61 |
| Sn | 118 | 115 | 1 | No Gas | | ug/l | 1134.47 |
| Sn | 118 | 115 | 3 | He | | ug/l | 388.90 |
| Sb | 121 | 115 | 1 | No Gas | | ug/l | 362.04 |
| Sb | 121 | 115 | 3 | He | | ug/l | 127.01 |
| Sb | 123 | 115 | 1 | No Gas | | ug/l | 292.70 |
| Sb | 123 | 115 | 3 | He | | ug/l | 95.01 |
| Ba | 135 | 115 | 1 | No Gas | | ug/l | 43.25 |
| Ba | 137 | 115 | 1 | No Gas | | ug/l | 73.19 |
| La | 139 | 115 | 3 | He | | ug/l | 12.22 |
| Ce | 140 | 115 | 3 | He | | ug/l | 17.78 |
| Hg | 201 | 209 | 1 | No Gas | | ug/l | 39.99 |
| Hg | 202 | 209 | 1 | No Gas | | ug/l | 83.32 |
| Hg | 202 | 209 | 3 | He | | ug/l | 47.99 |
| Tl | 203 | 209 | 3 | He | | ug/l | 225.43 |
| Tl | 205 | 209 | 1 | No Gas | | ug/l | 847.81 |
| Tl | 205 | 209 | 3 | He | | ug/l | 491.54 |
| [Pb] | 206 | 209 | 1 | No Gas | | ug/l | 141.11 |
| [Pb] | 207 | 209 | 1 | No Gas | | ug/l | 148.89 |
| Pb | 208 | 209 | 1 | No Gas | | ug/l | 615.57 |
| Th | 232 | 209 | 3 | He | | ug/l | 500.88 |
| U | 238 | 209 | 1 | No Gas | | ug/l | 19.67 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3866835.75 | |
| Sc | 45 | 2 | H2 | 2397964.78 | |
| Sc | 45 | 3 | He | 262224.24 | |
| Ge | 72 | 1 | No Gas | 928468.36 | |
| Ge | 72 | 2 | H2 | 716425.82 | |
| Ge | 72 | 3 | He | 155074.03 | |
| In | 115 | 1 | No Gas | 5681872.69 | |
| In | 115 | 3 | He | 1478244.76 | |
| Tb | 159 | 1 | No Gas | 6534449.01 | |
| Tb | 159 | 3 | He | 3307485.70 | |
| Ho | 165 | 1 | No Gas | 6337213.14 | |
| Ho | 165 | 3 | He | 3270313.06 | |
| Lu | 175 | 1 | No Gas | 6357528.35 | |
| Lu | 175 | 3 | He | 2910330.85 | |
| Bi | 209 | 1 | No Gas | 4722885.68 | |
| Bi | 209 | 3 | He | 2293521.15 | |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 007BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 11:58:03 |
| **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 | 12277.86 |
| Be | 9 | 45 | 1 | No Gas | | ug/l | 590.23 |
| B | 11 | 45 | 1 | No Gas | | ug/l | 1411.30 |
| Na | 23 | 45 | 3 | He | | ug/l | 40851.86 |
| Mg | 24 | 45 | 3 | He | | ug/l | 1207.66 |
| Al | 27 | 45 | 1 | No Gas | | ug/l | 18351.27 |
| Si | 28 | 45 | 2 | H2 | | ug/l | 17771.65 |
| K | 39 | 72 | 3 | He | | ug/l | 135697.29 |
| Ca | 40 | 72 | 2 | H2 | | ug/l | 160494.95 |
| Ti | 47 | 72 | 1 | No Gas | | ug/l | 368.71 |
| V | 51 | 72 | 1 | No Gas | | ug/l | -246779.77 |
| V | 51 | 72 | 3 | He | | ug/l | 38337.63 |
| Cr | 52 | 72 | 1 | No Gas | | ug/l | 129471.94 |
| Cr | 52 | 72 | 3 | He | | ug/l | 1894.58 |
| Mn | 55 | 72 | 1 | No Gas | | ug/l | 11931.18 |
| Mn | 55 | 72 | 3 | He | | ug/l | 168.64 |
| Fe | 56 | 72 | 2 | H2 | | ug/l | 10133.71 |
| Fe | 56 | 72 | 3 | He | | ug/l | 7532.86 |
| Co | 59 | 72 | 1 | No Gas | | ug/l | 552.25 |
| Ni | 60 | 72 | 1 | No Gas | | ug/l | 868.31 |
| Ni | 60 | 72 | 3 | He | | ug/l | 185.56 |
| Cu | 63 | 72 | 1 | No Gas | | ug/l | 1933.57 |
| Cu | 63 | 72 | 3 | He | | ug/l | 457.92 |
| Cu | 65 | 72 | 1 | No Gas | | ug/l | 1118.49 |
| Zn | 66 | 72 | 1 | No Gas | | ug/l | 2608.31 |
| Zn | 66 | 72 | 3 | He | | ug/l | 566.68 |
| As | 75 | 72 | 1 | No Gas | | ug/l | 16954.94 |
| As | 75 | 72 | 3 | He | | ug/l | 828.01 |
| Se | 78 | 72 | 2 | H2 | | ug/l | 47.33 |
| Br | 79 | 72 | 1 | No Gas | | ug/l | 7483.79 |
| Br | 79 | 72 | 2 | H2 | | ug/l | 4714.76 |
| Se | 82 | 72 | 1 | No Gas | | ug/l | 917.96 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 25425.43 |
| Sr | 88 | 72 | 1 | No Gas | | ug/l | 588.85 |
| Sr | 88 | 72 | 3 | He | | ug/l | 186.67 |
| Mo | 95 | 115 | 1 | No Gas | | ug/l | 107.78 |
| Mo | 95 | 115 | 3 | He | | ug/l | 33.34 |
| Mo | 98 | 115 | 1 | No Gas | | ug/l | 186.68 |
| Ag | 107 | 115 | 1 | No Gas | | ug/l | 1412.64 |
| Ag | 109 | 115 | 1 | No Gas | | ug/l | 1339.27 |
| Cd | 111 | 115 | 1 | No Gas | | ug/l | -40.72 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | | ug/l | 6.00 |
| Cd | 114 | 115 | 1 | No Gas | | ug/l | -180.17 |
| Cd | 114 | 115 | 3 | He | | ug/l | 9.72 |
| Sn | 118 | 115 | 1 | No Gas | | ug/l | 1084.57 |
| Sn | 118 | 115 | 3 | He | | ug/l | 335.56 |
| Sb | 121 | 115 | 1 | No Gas | | ug/l | 453.05 |
| Sb | 121 | 115 | 3 | He | | ug/l | 128.68 |
| Sb | 123 | 115 | 1 | No Gas | | ug/l | 353.71 |
| Sb | 123 | 115 | 3 | He | | ug/l | 106.68 |
| Ba | 135 | 115 | 1 | No Gas | | ug/l | 13.31 |
| Ba | 137 | 115 | 1 | No Gas | | ug/l | 33.27 |
| La | 139 | 115 | 3 | He | | ug/l | 7.78 |
| Ce | 140 | 115 | 3 | He | | ug/l | 13.33 |
| Hg | 201 | 209 | 1 | No Gas | | ug/l | 31.32 |
| Hg | 202 | 209 | 1 | No Gas | | ug/l | 86.31 |
| Hg | 202 | 209 | 3 | He | | ug/l | 50.66 |
| Tl | 203 | 209 | 3 | He | | ug/l | 184.07 |
| Tl | 205 | 209 | 1 | No Gas | | ug/l | 792.25 |
| Tl | 205 | 209 | 3 | He | | ug/l | 412.17 |
| [Pb] | 206 | 209 | 1 | No Gas | | ug/l | 150.00 |
| [Pb] | 207 | 209 | 1 | No Gas | | ug/l | 117.78 |
| Pb | 208 | 209 | 1 | No Gas | | ug/l | 567.79 |
| Th | 232 | 209 | 3 | He | | ug/l | 384.83 |
| U | 238 | 209 | 1 | No Gas | | ug/l | 10.67 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 4014390.85 | |
| Sc | 45 | 2 | H2 | 2319355.17 | |
| Sc | 45 | 3 | He | 262663.62 | |
| Ge | 72 | 1 | No Gas | 950485.58 | |
| Ge | 72 | 2 | H2 | 705862.27 | |
| Ge | 72 | 3 | He | 157270.99 | |
| In | 115 | 1 | No Gas | 5859695.40 | |
| In | 115 | 3 | He | 1499357.93 | |
| Tb | 159 | 1 | No Gas | 6777383.18 | |
| Tb | 159 | 3 | He | 3318220.34 | |
| Ho | 165 | 1 | No Gas | 6398595.71 | |
| Ho | 165 | 3 | He | 3255434.41 | |
| Lu | 175 | 1 | No Gas | 6595990.76 | |
| Lu | 175 | 3 | He | 2963920.54 | |
| Bi | 209 | 1 | No Gas | 4749822.33 | |
| Bi | 209 | 3 | He | 2293434.24 | |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Cal Blk |
| **File Name** | 008CALB.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 12:04:17 |
| **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 | 11494.94 |
| Be | 9 | 45 | 1 | No Gas | 0.000 | ug/l | 555.23 |
| B | 11 | 45 | 1 | No Gas | 0.000 | ug/l | 1151.84 |
| Na | 23 | 45 | 3 | He | 0.000 | ug/l | 40797.30 |
| Mg | 24 | 45 | 3 | He | 0.000 | ug/l | 1201.01 |
| Al | 27 | 45 | 1 | No Gas | 0.000 | ug/l | 17709.40 |
| Si | 28 | 45 | 2 | H2 | 0.000 | ug/l | 15615.74 |
| K | 39 | 72 | 3 | He | 0.000 | ug/l | 137300.52 |
| Ca | 40 | 72 | 2 | H2 | 0.000 | ug/l | 161076.22 |
| Ti | 47 | 72 | 1 | No Gas | 0.000 | ug/l | 395.40 |
| V | 51 | 72 | 1 | No Gas | 0.000 | ug/l | 15055.51 |
| V | 51 | 72 | 3 | He | 0.000 | ug/l | 37592.29 |
| Cr | 52 | 72 | 1 | No Gas | 0.000 | ug/l | 124562.50 |
| Cr | 52 | 72 | 3 | He | 0.000 | ug/l | 1705.67 |
| Mn | 55 | 72 | 1 | No Gas | 0.000 | ug/l | 12044.37 |
| Mn | 55 | 72 | 3 | He | 0.000 | ug/l | 170.63 |
| Fe | 56 | 72 | 2 | H2 | 0.000 | ug/l | 9819.83 |
| Fe | 56 | 72 | 3 | He | 0.000 | ug/l | 7389.32 |
| Co | 59 | 72 | 1 | No Gas | 0.000 | ug/l | 445.79 |
| Ni | 60 | 72 | 1 | No Gas | 0.000 | ug/l | 815.08 |
| Ni | 60 | 72 | 3 | He | 0.000 | ug/l | 137.78 |
| Cu | 63 | 72 | 1 | No Gas | 0.000 | ug/l | 1794.83 |
| Cu | 63 | 72 | 3 | He | 0.000 | ug/l | 430.92 |
| Cu | 65 | 72 | 1 | No Gas | 0.000 | ug/l | 1037.79 |
| Zn | 66 | 72 | 1 | No Gas | 0.000 | ug/l | 2681.59 |
| Zn | 66 | 72 | 3 | He | 0.000 | ug/l | 551.12 |
| As | 75 | 72 | 1 | No Gas | 0.000 | ug/l | 21067.61 |
| As | 75 | 72 | 3 | He | 0.000 | ug/l | 828.94 |
| Se | 78 | 72 | 2 | H2 | 0.000 | ug/l | 49.00 |
| Br | 79 | 72 | 1 | No Gas | 0.000 | ug/l | 7433.88 |
| Br | 79 | 72 | 2 | H2 | 0.000 | ug/l | 4538.40 |
| Se | 82 | 72 | 1 | No Gas | 0.000 | ug/l | 989.58 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 25521.94 |
| Sr | 88 | 72 | 1 | No Gas | 0.000 | ug/l | 582.20 |
| Sr | 88 | 72 | 3 | He | 0.000 | ug/l | 164.45 |
| Mo | 95 | 115 | 1 | No Gas | 0.000 | ug/l | 90.00 |
| Mo | 95 | 115 | 3 | He | 0.000 | ug/l | 34.44 |
| Mo | 98 | 115 | 1 | No Gas | 0.000 | ug/l | 148.56 |
| Ag | 107 | 115 | 1 | No Gas | 0.000 | ug/l | 1456.66 |
| Ag | 109 | 115 | 1 | No Gas | 0.000 | ug/l | 1496.68 |
| Cd | 111 | 115 | 1 | No Gas | 0.000 | ug/l | -13.45 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.000 | ug/l | 4.22 |
| Cd | 114 | 115 | 1 | No Gas | 0.000 | ug/l | -129.99 |
| Cd | 114 | 115 | 3 | He | 0.000 | ug/l | 11.30 |
| Sn | 118 | 115 | 1 | No Gas | 0.000 | ug/l | 1117.84 |
| Sn | 118 | 115 | 3 | He | 0.000 | ug/l | 338.89 |
| Sb | 121 | 115 | 1 | No Gas | 0.000 | ug/l | 353.04 |
| Sb | 121 | 115 | 3 | He | 0.000 | ug/l | 105.34 |
| Sb | 123 | 115 | 1 | No Gas | 0.000 | ug/l | 262.36 |
| Sb | 123 | 115 | 3 | He | 0.000 | ug/l | 91.01 |
| Ba | 135 | 115 | 1 | No Gas | 0.000 | ug/l | 29.94 |
| 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 | 6.67 |
| Hg | 201 | 209 | 1 | No Gas | 0.000 | ug/l | 34.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.000 | ug/l | 69.66 |
| Hg | 202 | 209 | 3 | He | 0.000 | ug/l | 31.66 |
| Tl | 203 | 209 | 3 | He | 0.000 | ug/l | 142.72 |
| Tl | 205 | 209 | 1 | No Gas | 0.000 | ug/l | 668.91 |
| Tl | 205 | 209 | 3 | He | 0.000 | ug/l | 377.49 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.000 | ug/l | 137.78 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.000 | ug/l | 116.67 |
| Pb | 208 | 209 | 1 | No Gas | 0.000 | ug/l | 528.89 |
| Th | 232 | 209 | 3 | He | 0.000 | ug/l | 293.46 |
| U | 238 | 209 | 1 | No Gas | 0.000 | ug/l | 13.67 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3857271.91 | 100.0 |
| Sc | 45 | 2 | H2 | 2240425.66 | 100.0 |
| Sc | 45 | 3 | He | 264213.20 | 100.0 |
| Ge | 72 | 1 | No Gas | 952801.02 | 100.0 |
| Ge | 72 | 2 | H2 | 705403.84 | 100.0 |
| Ge | 72 | 3 | He | 157921.08 | 100.0 |
| In | 115 | 1 | No Gas | 5570411.92 | 100.0 |
| In | 115 | 3 | He | 1495968.32 | 100.0 |
| Tb | 159 | 1 | No Gas | 7012816.74 | 100.0 |
| Tb | 159 | 3 | He | 3358791.12 | 100.0 |
| Ho | 165 | 1 | No Gas | 6863707.27 | 100.0 |
| Ho | 165 | 3 | He | 3270471.63 | 100.0 |
| Lu | 175 | 1 | No Gas | 6840550.57 | 100.0 |
| Lu | 175 | 3 | He | 2853023.36 | 100.0 |
| Bi | 209 | 1 | No Gas | 4304831.53 | 100.0 |
| Bi | 209 | 3 | He | 2221377.86 | 100.0 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | 0.025 ppb STD |
| **File Name** | 009CALS.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 12:11:15 |
| **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 | 0.336 | ug/l | 15281.79 |
| Be | 9 | 45 | 1 | No Gas | 0.029 | ug/l | 677.88 |
| B | 11 | 45 | 1 | No Gas | -0.004 | ug/l | 1085.15 |
| Na | 23 | 45 | 3 | He | 7.763 | ug/l | 47522.44 |
| Mg | 24 | 45 | 3 | He | 6.740 | ug/l | 4704.75 |
| Al | 27 | 45 | 1 | No Gas | 0.264 | ug/l | 22133.03 |
| Si | 28 | 45 | 2 | H2 | -0.296 | ug/l | 14331.94 |
| K | 39 | 72 | 3 | He | 9.419 | ug/l | 140195.28 |
| Ca | 40 | 72 | 2 | H2 | 9.215 | ug/l | 230255.83 |
| Ti | 47 | 72 | 1 | No Gas | 0.061 | ug/l | 505.52 |
| V | 51 | 72 | 1 | No Gas | -3.504 | ug/l | -81003.85 |
| V | 51 | 72 | 3 | He | 0.136 | ug/l | 37547.73 |
| Cr | 52 | 72 | 1 | No Gas | 0.309 | ug/l | 125464.25 |
| Cr | 52 | 72 | 3 | He | 0.048 | ug/l | 1922.36 |
| Mn | 55 | 72 | 1 | No Gas | 0.061 | ug/l | 13339.62 |
| Mn | 55 | 72 | 3 | He | 0.031 | ug/l | 274.95 |
| Fe | 56 | 72 | 2 | H2 | 0.791 | ug/l | 22864.06 |
| Fe | 56 | 72 | 3 | He | 0.752 | ug/l | 10808.21 |
| Co | 59 | 72 | 1 | No Gas | 0.032 | ug/l | 1274.20 |
| Ni | 60 | 72 | 1 | No Gas | 0.058 | ug/l | 1121.16 |
| Ni | 60 | 72 | 3 | He | 0.073 | ug/l | 272.23 |
| Cu | 63 | 72 | 1 | No Gas | 0.095 | ug/l | 3057.55 |
| Cu | 63 | 72 | 3 | He | 0.095 | ug/l | 897.18 |
| Cu | 65 | 72 | 1 | No Gas | 0.091 | ug/l | 1604.07 |
| Zn | 66 | 72 | 1 | No Gas | 0.057 | ug/l | 2824.56 |
| Zn | 66 | 72 | 3 | He | 0.103 | ug/l | 657.80 |
| As | 75 | 72 | 1 | No Gas | 0.218 | ug/l | 21497.74 |
| As | 75 | 72 | 3 | He | 0.055 | ug/l | 877.08 |
| Se | 78 | 72 | 2 | H2 | 0.010 | ug/l | 54.22 |
| Br | 79 | 72 | 1 | No Gas | 0.507 | ug/l | 12317.54 |
| Br | 79 | 72 | 2 | H2 | 0.442 | ug/l | 7483.81 |
| Se | 82 | 72 | 1 | No Gas | 0.518 | ug/l | 1116.12 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 25135.30 |
| Sr | 88 | 72 | 1 | No Gas | 0.027 | ug/l | 1593.61 |
| Sr | 88 | 72 | 3 | He | 0.025 | ug/l | 298.89 |
| Mo | 95 | 115 | 1 | No Gas | 0.045 | ug/l | 406.68 |
| Mo | 95 | 115 | 3 | He | 0.038 | ug/l | 141.11 |
| Mo | 98 | 115 | 1 | No Gas | 0.046 | ug/l | 678.50 |
| Ag | 107 | 115 | 1 | No Gas | 0.020 | ug/l | 1728.80 |
| Ag | 109 | 115 | 1 | No Gas | 0.013 | ug/l | 1613.41 |
| Cd | 111 | 115 | 1 | No Gas | 0.029 | ug/l | 102.31 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.029 | ug/l | 49.45 |
| Cd | 114 | 115 | 1 | No Gas | 0.022 | ug/l | 77.57 |
| Cd | 114 | 115 | 3 | He | 0.024 | ug/l | 101.06 |
| Sn | 118 | 115 | 1 | No Gas | 0.027 | ug/l | 1344.07 |
| Sn | 118 | 115 | 3 | He | 0.030 | ug/l | 442.23 |
| Sb | 121 | 115 | 1 | No Gas | 0.021 | ug/l | 698.09 |
| Sb | 121 | 115 | 3 | He | 0.020 | ug/l | 217.69 |
| Sb | 123 | 115 | 1 | No Gas | 0.020 | ug/l | 516.39 |
| Sb | 123 | 115 | 3 | He | 0.020 | ug/l | 182.02 |
| Ba | 135 | 115 | 1 | No Gas | 0.026 | ug/l | 116.44 |
| Ba | 137 | 115 | 1 | No Gas | 0.031 | ug/l | 226.22 |
| La | 139 | 115 | 3 | He | 0.024 | ug/l | 497.79 |
| Ce | 140 | 115 | 3 | He | 0.023 | ug/l | 501.13 |
| Hg | 201 | 209 | 1 | No Gas | 0.000 | ug/l | 31.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.001 | ug/l | 67.99 |
| Hg | 202 | 209 | 3 | He | 0.000 | ug/l | 31.32 |
| Tl | 203 | 209 | 3 | He | 0.023 | ug/l | 286.12 |
| Tl | 205 | 209 | 1 | No Gas | 0.022 | ug/l | 1220.06 |
| Tl | 205 | 209 | 3 | He | 0.019 | ug/l | 670.29 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.028 | ug/l | 400.01 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.029 | ug/l | 341.12 |
| Pb | 208 | 209 | 1 | No Gas | 0.029 | ug/l | 1558.93 |
| Th | 232 | 209 | 3 | He | 0.015 | ug/l | 605.59 |
| U | 238 | 209 | 1 | No Gas | 0.023 | ug/l | 853.19 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3677133.75 | 95.3 |
| Sc | 45 | 2 | H2 | 2162080.93 | 96.5 |
| Sc | 45 | 3 | He | 261251.50 | 98.9 |
| Ge | 72 | 1 | No Gas | 904595.51 | 94.9 |
| Ge | 72 | 2 | H2 | 688138.53 | 97.6 |
| Ge | 72 | 3 | He | 155062.96 | 98.2 |
| In | 115 | 1 | No Gas | 5190570.88 | 93.2 |
| In | 115 | 3 | He | 1479181.45 | 98.9 |
| Tb | 159 | 1 | No Gas | 6520983.10 | 93.0 |
| Tb | 159 | 3 | He | 3223103.80 | 96.0 |
| Ho | 165 | 1 | No Gas | 6210298.26 | 90.5 |
| Ho | 165 | 3 | He | 3230908.24 | 98.8 |
| Lu | 175 | 1 | No Gas | 6236913.99 | 91.2 |
| Lu | 175 | 3 | He | 2807250.33 | 98.4 |
| Bi | 209 | 1 | No Gas | 4032452.87 | 93.7 |
| Bi | 209 | 3 | He | 2182069.85 | 98.2 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | 0.05 ppb STD |
| **File Name** | 010CALS.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 12:17:54 |
| **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 | 0.603 | ug/l | 20115.99 |
| Be | 9 | 45 | 1 | No Gas | 0.039 | ug/l | 782.53 |
| B | 11 | 45 | 1 | No Gas | -0.015 | ug/l | 1120.49 |
| Na | 23 | 45 | 3 | He | 15.659 | ug/l | 54890.72 |
| Mg | 24 | 45 | 3 | He | 14.289 | ug/l | 8652.01 |
| Al | 27 | 45 | 1 | No Gas | 0.373 | ug/l | 26076.01 |
| Si | 28 | 45 | 2 | H2 | -0.352 | ug/l | 13822.58 |
| K | 39 | 72 | 3 | He | 17.582 | ug/l | 144058.22 |
| Ca | 40 | 72 | 2 | H2 | 19.182 | ug/l | 307305.60 |
| Ti | 47 | 72 | 1 | No Gas | 0.080 | ug/l | 567.25 |
| V | 51 | 72 | 1 | No Gas | -2.403 | ug/l | -54805.10 |
| V | 51 | 72 | 3 | He | 0.085 | ug/l | 37105.53 |
| Cr | 52 | 72 | 1 | No Gas | 0.002 | ug/l | 122574.08 |
| Cr | 52 | 72 | 3 | He | 0.087 | ug/l | 2114.61 |
| Mn | 55 | 72 | 1 | No Gas | 0.066 | ug/l | 14015.57 |
| Mn | 55 | 72 | 3 | He | 0.063 | ug/l | 383.26 |
| Fe | 56 | 72 | 2 | H2 | 1.506 | ug/l | 34623.73 |
| Fe | 56 | 72 | 3 | He | 1.491 | ug/l | 14217.87 |
| Co | 59 | 72 | 1 | No Gas | 0.061 | ug/l | 2099.35 |
| Ni | 60 | 72 | 1 | No Gas | 0.087 | ug/l | 1347.39 |
| Ni | 60 | 72 | 3 | He | 0.099 | ug/l | 321.12 |
| Cu | 63 | 72 | 1 | No Gas | 0.094 | ug/l | 3172.29 |
| Cu | 63 | 72 | 3 | He | 0.100 | ug/l | 914.85 |
| Cu | 65 | 72 | 1 | No Gas | 0.087 | ug/l | 1639.42 |
| Zn | 66 | 72 | 1 | No Gas | 0.145 | ug/l | 3397.17 |
| Zn | 66 | 72 | 3 | He | 0.150 | ug/l | 706.69 |
| As | 75 | 72 | 1 | No Gas | -0.742 | ug/l | 16144.28 |
| As | 75 | 72 | 3 | He | 0.067 | ug/l | 886.34 |
| Se | 78 | 72 | 2 | H2 | 0.040 | ug/l | 73.00 |
| Br | 79 | 72 | 1 | No Gas | 0.463 | ug/l | 12334.19 |
| Br | 79 | 72 | 2 | H2 | 0.477 | ug/l | 7666.86 |
| Se | 82 | 72 | 1 | No Gas | -0.216 | ug/l | 898.49 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 24965.44 |
| Sr | 88 | 72 | 1 | No Gas | 0.057 | ug/l | 2834.69 |
| Sr | 88 | 72 | 3 | He | 0.060 | ug/l | 483.34 |
| Mo | 95 | 115 | 1 | No Gas | 0.046 | ug/l | 444.46 |
| Mo | 95 | 115 | 3 | He | 0.044 | ug/l | 161.11 |
| Mo | 98 | 115 | 1 | No Gas | 0.044 | ug/l | 696.97 |
| Ag | 107 | 115 | 1 | No Gas | 0.025 | ug/l | 1922.91 |
| Ag | 109 | 115 | 1 | No Gas | 0.016 | ug/l | 1774.16 |
| Cd | 111 | 115 | 1 | No Gas | 0.051 | ug/l | 202.91 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.049 | ug/l | 79.89 |
| Cd | 114 | 115 | 1 | No Gas | 0.045 | ug/l | 305.92 |
| Cd | 114 | 115 | 3 | He | 0.053 | ug/l | 214.81 |
| Sn | 118 | 115 | 1 | No Gas | 0.056 | ug/l | 1766.62 |
| Sn | 118 | 115 | 3 | He | 0.052 | ug/l | 525.57 |
| Sb | 121 | 115 | 1 | No Gas | 0.044 | ug/l | 1192.17 |
| Sb | 121 | 115 | 3 | He | 0.045 | ug/l | 368.04 |
| Sb | 123 | 115 | 1 | No Gas | 0.043 | ug/l | 886.45 |
| Sb | 123 | 115 | 3 | He | 0.048 | ug/l | 312.04 |
| Ba | 135 | 115 | 1 | No Gas | 0.050 | ug/l | 209.59 |
| Ba | 137 | 115 | 1 | No Gas | 0.060 | ug/l | 425.83 |
| La | 139 | 115 | 3 | He | 0.049 | ug/l | 1007.82 |
| Ce | 140 | 115 | 3 | He | 0.051 | ug/l | 1120.05 |
| Hg | 201 | 209 | 1 | No Gas | -0.001 | ug/l | 33.99 |
| Hg | 202 | 209 | 1 | No Gas | -0.001 | ug/l | 65.66 |
| Hg | 202 | 209 | 3 | He | 0.000 | ug/l | 30.32 |
| Tl | 203 | 209 | 3 | He | 0.041 | ug/l | 408.17 |
| Tl | 205 | 209 | 1 | No Gas | 0.041 | ug/l | 1871.26 |
| Tl | 205 | 209 | 3 | He | 0.047 | ug/l | 1110.50 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.048 | ug/l | 624.47 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.057 | ug/l | 615.57 |
| Pb | 208 | 209 | 1 | No Gas | 0.051 | ug/l | 2589.01 |
| Th | 232 | 209 | 3 | He | 0.032 | ug/l | 975.10 |
| U | 238 | 209 | 1 | No Gas | 0.048 | ug/l | 1861.09 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3921507.61 | 101.7 |
| Sc | 45 | 2 | H2 | 2105750.79 | 94.0 |
| Sc | 45 | 3 | He | 261570.84 | 99.0 |
| Ge | 72 | 1 | No Gas | 936869.33 | 98.3 |
| Ge | 72 | 2 | H2 | 683217.33 | 96.9 |
| Ge | 72 | 3 | He | 154266.52 | 97.7 |
| In | 115 | 1 | No Gas | 5491584.85 | 98.6 |
| In | 115 | 3 | He | 1485831.80 | 99.3 |
| Tb | 159 | 1 | No Gas | 6914800.03 | 98.6 |
| Tb | 159 | 3 | He | 3241386.19 | 96.5 |
| Ho | 165 | 1 | No Gas | 6605439.74 | 96.2 |
| Ho | 165 | 3 | He | 3232599.72 | 98.8 |
| Lu | 175 | 1 | No Gas | 6548028.27 | 95.7 |
| Lu | 175 | 3 | He | 2845390.55 | 99.7 |
| Bi | 209 | 1 | No Gas | 4330434.36 | 100.6 |
| Bi | 209 | 3 | He | 2209812.49 | 99.5 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | 0.10 ppb STD |
| **File Name** | 011CALS.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 12:24:33 |
| **Sample Type** | CalStd |
| **Total Dilution** | 1.0000 |
| **Comment** | ICPMS-6020B-Cal |
| **Operator** | CAR/SRH/JPV/AEM |
| **Method** | SW6020/SW6020B |

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Li | 7 | 45 | 1 | No Gas | 1.233 | ug/l | 28980.42 |
| Be | 9 | 45 | 1 | No Gas | 0.086 | ug/l | 1055.49 |
| B | 11 | 45 | 1 | No Gas | 0.018 | ug/l | 1230.55 |
| Na | 23 | 45 | 3 | He | 28.789 | ug/l | 67000.54 |
| Mg | 24 | 45 | 3 | He | 28.693 | ug/l | 16166.64 |
| Al | 27 | 45 | 1 | No Gas | 0.137 | ug/l | 21000.27 |
| Si | 28 | 45 | 2 | H2 | -0.389 | ug/l | 13737.14 |
| K | 39 | 72 | 3 | He | 30.103 | ug/l | 151899.59 |
| Ca | 40 | 72 | 2 | H2 | 32.334 | ug/l | 411831.78 |
| Ti | 47 | 72 | 1 | No Gas | 0.143 | ug/l | 712.41 |
| V | 51 | 72 | 1 | No Gas | -1.919 | ug/l | -40982.47 |
| V | 51 | 72 | 3 | He | 0.091 | ug/l | 37309.33 |
| Cr | 52 | 72 | 1 | No Gas | 0.008 | ug/l | 123737.38 |
| Cr | 52 | 72 | 3 | He | 0.141 | ug/l | 2399.10 |
| Mn | 55 | 72 | 1 | No Gas | 0.112 | ug/l | 15660.64 |
| Mn | 55 | 72 | 3 | He | 0.116 | ug/l | 568.90 |
| Fe | 56 | 72 | 2 | H2 | 2.885 | ug/l | 57728.91 |
| Fe | 56 | 72 | 3 | He | 2.928 | ug/l | 21061.31 |
| Co | 59 | 72 | 1 | No Gas | 0.114 | ug/l | 3570.04 |
| Ni | 60 | 72 | 1 | No Gas | 0.129 | ug/l | 1623.55 |
| Ni | 60 | 72 | 3 | He | 0.155 | ug/l | 427.78 |
| Cu | 63 | 72 | 1 | No Gas | 0.122 | ug/l | 3607.90 |
| Cu | 63 | 72 | 3 | He | 0.139 | ug/l | 1118.16 |
| Cu | 65 | 72 | 1 | No Gas | 0.109 | ug/l | 1807.51 |
| Zn | 66 | 72 | 1 | No Gas | 0.058 | ug/l | 2967.87 |
| Zn | 66 | 72 | 3 | He | 0.101 | ug/l | 655.58 |
| As | 75 | 72 | 1 | No Gas | -0.096 | ug/l | 20328.13 |
| As | 75 | 72 | 3 | He | 0.115 | ug/l | 945.14 |
| Se | 78 | 72 | 2 | H2 | 0.093 | ug/l | 107.67 |
| Br | 79 | 72 | 1 | No Gas | 0.476 | ug/l | 12577.26 |
| Br | 79 | 72 | 2 | H2 | 0.471 | ug/l | 7643.56 |
| Se | 82 | 72 | 1 | No Gas | -0.188 | ug/l | 916.23 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 25332.00 |
| Sr | 88 | 72 | 1 | No Gas | 0.111 | ug/l | 5047.56 |
| Sr | 88 | 72 | 3 | He | 0.108 | ug/l | 744.47 |
| Mo | 95 | 115 | 1 | No Gas | 0.103 | ug/l | 897.81 |
| Mo | 95 | 115 | 3 | He | 0.098 | ug/l | 314.45 |
| Mo | 98 | 115 | 1 | No Gas | 0.099 | ug/l | 1400.65 |
| Ag | 107 | 115 | 1 | No Gas | 0.047 | ug/l | 2397.84 |
| Ag | 109 | 115 | 1 | No Gas | 0.037 | ug/l | 2223.74 |
| Cd | 111 | 115 | 1 | No Gas | 0.096 | ug/l | 397.41 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.109 | ug/l | 172.78 |
| Cd | 114 | 115 | 1 | No Gas | 0.097 | ug/l | 817.20 |
| Cd | 114 | 115 | 3 | He | 0.103 | ug/l | 403.50 |
| Sn | 118 | 115 | 1 | No Gas | 0.091 | ug/l | 2232.42 |
| Sn | 118 | 115 | 3 | He | 0.110 | ug/l | 738.92 |
| Sb | 121 | 115 | 1 | No Gas | 0.087 | ug/l | 2040.02 |
| Sb | 121 | 115 | 3 | He | 0.096 | ug/l | 660.75 |
| Sb | 123 | 115 | 1 | No Gas | 0.090 | ug/l | 1609.92 |
| Sb | 123 | 115 | 3 | He | 0.093 | ug/l | 517.39 |
| Ba | 135 | 115 | 1 | No Gas | 0.119 | ug/l | 465.75 |
| Ba | 137 | 115 | 1 | No Gas | 0.107 | ug/l | 741.89 |
| La | 139 | 115 | 3 | He | 0.105 | ug/l | 2137.96 |
| Ce | 140 | 115 | 3 | He | 0.103 | ug/l | 2251.31 |
| Hg | 201 | 209 | 1 | No Gas | -0.004 | ug/l | 25.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.003 | ug/l | 82.98 |
| Hg | 202 | 209 | 3 | He | 0.001 | ug/l | 32.33 |
| Tl | 203 | 209 | 3 | He | 0.088 | ug/l | 706.97 |
| Tl | 205 | 209 | 1 | No Gas | 0.095 | ug/l | 3372.67 |
| Tl | 205 | 209 | 3 | He | 0.096 | ug/l | 1857.55 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.100 | ug/l | 1116.72 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.099 | ug/l | 943.38 |
| Pb | 208 | 209 | 1 | No Gas | 0.102 | ug/l | 4461.44 |
| Th | 232 | 209 | 3 | He | 0.066 | ug/l | 1679.45 |
| U | 238 | 209 | 1 | No Gas | 0.098 | ug/l | 3667.12 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3927272.92 | 101.8 |
| Sc | 45 | 2 | H2 | 2106210.73 | 94.0 |
| Sc | 45 | 3 | He | 261386.41 | 98.9 |
| Ge | 72 | 1 | No Gas | 944495.23 | 99.1 |
| Ge | 72 | 2 | H2 | 684660.35 | 97.1 |
| Ge | 72 | 3 | He | 154927.00 | 98.1 |
| In | 115 | 1 | No Gas | 5599116.28 | 100.5 |
| In | 115 | 3 | He | 1488672.20 | 99.5 |
| Tb | 159 | 1 | No Gas | 6806465.65 | 97.1 |
| Tb | 159 | 3 | He | 3261747.60 | 97.1 |
| Ho | 165 | 1 | No Gas | 6509283.38 | 94.8 |
| Ho | 165 | 3 | He | 3245640.52 | 99.2 |
| Lu | 175 | 1 | No Gas | 6590265.24 | 96.3 |
| Lu | 175 | 3 | He | 2842948.29 | 99.6 |
| Bi | 209 | 1 | No Gas | 4187495.41 | 97.3 |
| Bi | 209 | 3 | He | 2184235.70 | 98.3 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | 0.5 ppb STD |
| **File Name** | 012CALS.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 12:31:12 |
| **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 | 6.791 | ug/l | 98538.25 |
| Be | 9 | 45 | 1 | No Gas | 0.501 | ug/l | 3132.03 |
| B | 11 | 45 | 1 | No Gas | 0.458 | ug/l | 2459.86 |
| Na | 23 | 45 | 3 | He | 131.835 | ug/l | 162531.25 |
| Mg | 24 | 45 | 3 | He | 132.485 | ug/l | 70411.02 |
| Al | 27 | 45 | 1 | No Gas | 0.718 | ug/l | 30935.19 |
| Si | 28 | 45 | 2 | H2 | 1.474 | ug/l | 17670.14 |
| K | 39 | 72 | 3 | He | 128.155 | ug/l | 207737.29 |
| Ca | 40 | 72 | 2 | H2 | 137.489 | ug/l | 1228516.98 |
| Ti | 47 | 72 | 1 | No Gas | 0.515 | ug/l | 1456.54 |
| V | 51 | 72 | 1 | No Gas | -3.376 | ug/l | -76276.31 |
| V | 51 | 72 | 3 | He | 0.344 | ug/l | 38471.15 |
| Cr | 52 | 72 | 1 | No Gas | 0.580 | ug/l | 130299.99 |
| Cr | 52 | 72 | 3 | He | 0.495 | ug/l | 4226.18 |
| Mn | 55 | 72 | 1 | No Gas | 0.547 | ug/l | 28354.45 |
| Mn | 55 | 72 | 3 | He | 0.528 | ug/l | 1986.41 |
| Fe | 56 | 72 | 2 | H2 | 12.928 | ug/l | 222970.17 |
| Fe | 56 | 72 | 3 | He | 12.861 | ug/l | 67894.21 |
| Co | 59 | 72 | 1 | No Gas | 0.533 | ug/l | 14245.40 |
| Ni | 60 | 72 | 1 | No Gas | 0.553 | ug/l | 4039.24 |
| Ni | 60 | 72 | 3 | He | 0.545 | ug/l | 1161.16 |
| Cu | 63 | 72 | 1 | No Gas | 0.583 | ug/l | 9922.02 |
| Cu | 63 | 72 | 3 | He | 0.565 | ug/l | 3238.05 |
| Cu | 65 | 72 | 1 | No Gas | 0.565 | ug/l | 4765.37 |
| Zn | 66 | 72 | 1 | No Gas | 0.569 | ug/l | 5310.03 |
| Zn | 66 | 72 | 3 | He | 0.599 | ug/l | 1223.39 |
| As | 75 | 72 | 1 | No Gas | 0.764 | ug/l | 24243.79 |
| As | 75 | 72 | 3 | He | 0.516 | ug/l | 1405.57 |
| Se | 78 | 72 | 2 | H2 | 0.484 | ug/l | 354.67 |
| Br | 79 | 72 | 1 | No Gas | 0.515 | ug/l | 12244.31 |
| Br | 79 | 72 | 2 | H2 | 0.415 | ug/l | 7177.54 |
| Se | 82 | 72 | 1 | No Gas | 0.586 | ug/l | 1115.59 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 25112.16 |
| Sr | 88 | 72 | 1 | No Gas | 0.504 | ug/l | 19594.53 |
| Sr | 88 | 72 | 3 | He | 0.492 | ug/l | 2822.52 |
| Mo | 95 | 115 | 1 | No Gas | 0.493 | ug/l | 3663.83 |
| Mo | 95 | 115 | 3 | He | 0.476 | ug/l | 1395.63 |
| Mo | 98 | 115 | 1 | No Gas | 0.468 | ug/l | 5605.59 |
| Ag | 107 | 115 | 1 | No Gas | 0.207 | ug/l | 5161.68 |
| Ag | 109 | 115 | 1 | No Gas | 0.200 | ug/l | 4931.51 |
| Cd | 111 | 115 | 1 | No Gas | 0.514 | ug/l | 2014.10 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.501 | ug/l | 775.02 |
| Cd | 114 | 115 | 1 | No Gas | 0.499 | ug/l | 4397.17 |
| Cd | 114 | 115 | 3 | He | 0.482 | ug/l | 1842.49 |
| Sn | 118 | 115 | 1 | No Gas | 0.491 | ug/l | 6548.57 |
| Sn | 118 | 115 | 3 | He | 0.475 | ug/l | 2056.83 |
| Sb | 121 | 115 | 1 | No Gas | 0.461 | ug/l | 8558.13 |
| Sb | 121 | 115 | 3 | He | 0.444 | ug/l | 2670.86 |
| Sb | 123 | 115 | 1 | No Gas | 0.456 | ug/l | 6523.17 |
| Sb | 123 | 115 | 3 | He | 0.444 | ug/l | 2120.37 |
| Ba | 135 | 115 | 1 | No Gas | 0.531 | ug/l | 1823.19 |
| Ba | 137 | 115 | 1 | No Gas | 0.511 | ug/l | 3130.82 |
| La | 139 | 115 | 3 | He | 0.483 | ug/l | 9821.29 |
| Ce | 140 | 115 | 3 | He | 0.469 | ug/l | 10156.00 |
| Hg | 201 | 209 | 1 | No Gas | 0.005 | ug/l | 43.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.009 | ug/l | 107.31 |
| Hg | 202 | 209 | 3 | He | 0.008 | ug/l | 52.32 |
| Tl | 203 | 209 | 3 | He | 0.444 | ug/l | 3070.93 |
| Tl | 205 | 209 | 1 | No Gas | 0.478 | ug/l | 13727.14 |
| Tl | 205 | 209 | 3 | He | 0.447 | ug/l | 7481.79 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.499 | ug/l | 4839.80 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.494 | ug/l | 4080.65 |
| Pb | 208 | 209 | 1 | No Gas | 0.492 | ug/l | 18814.20 |
| Th | 232 | 209 | 3 | He | 0.364 | ug/l | 8101.77 |
| U | 238 | 209 | 1 | No Gas | 0.475 | ug/l | 16981.29 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3644655.99 | 94.5 |
| Sc | 45 | 2 | H2 | 2041583.50 | 91.1 |
| Sc | 45 | 3 | He | 261639.13 | 99.0 |
| Ge | 72 | 1 | No Gas | 892492.42 | 93.7 |
| Ge | 72 | 2 | H2 | 676834.33 | 95.9 |
| Ge | 72 | 3 | He | 154853.62 | 98.1 |
| In | 115 | 1 | No Gas | 5199654.07 | 93.3 |
| In | 115 | 3 | He | 1482183.06 | 99.1 |
| Tb | 159 | 1 | No Gas | 6388432.84 | 91.1 |
| Tb | 159 | 3 | He | 3259691.97 | 97.0 |
| Ho | 165 | 1 | No Gas | 6258846.33 | 91.2 |
| Ho | 165 | 3 | He | 3184601.94 | 97.4 |
| Lu | 175 | 1 | No Gas | 6216424.48 | 90.9 |
| Lu | 175 | 3 | He | 2837040.56 | 99.4 |
| Bi | 209 | 1 | No Gas | 4037259.47 | 93.8 |
| Bi | 209 | 3 | He | 2241075.48 | 100.9 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | 1 ppb STD |
| **File Name** | 013CALS.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 12:37:51 |
| **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 | 13.912 | ug/l | 189820.14 |
| Be | 9 | 45 | 1 | No Gas | 1.043 | ug/l | 5947.98 |
| B | 11 | 45 | 1 | No Gas | 0.986 | ug/l | 4033.50 |
| Na | 23 | 45 | 3 | He | 263.292 | ug/l | 287291.59 |
| Mg | 24 | 45 | 3 | He | 264.761 | ug/l | 140979.71 |
| Al | 27 | 45 | 1 | No Gas | 1.288 | ug/l | 42175.87 |
| Si | 28 | 45 | 2 | H2 | 4.339 | ug/l | 23905.36 |
| K | 39 | 72 | 3 | He | 259.728 | ug/l | 284367.63 |
| Ca | 40 | 72 | 2 | H2 | 274.716 | ug/l | 2273402.15 |
| Ti | 47 | 72 | 1 | No Gas | 1.127 | ug/l | 2768.05 |
| V | 51 | 72 | 1 | No Gas | -4.179 | ug/l | -100281.08 |
| V | 51 | 72 | 3 | He | 0.765 | ug/l | 40667.07 |
| Cr | 52 | 72 | 1 | No Gas | 1.145 | ug/l | 145243.06 |
| Cr | 52 | 72 | 3 | He | 1.071 | ug/l | 7245.16 |
| Mn | 55 | 72 | 1 | No Gas | 1.049 | ug/l | 44579.06 |
| Mn | 55 | 72 | 3 | He | 1.025 | ug/l | 3719.40 |
| Fe | 56 | 72 | 2 | H2 | 26.712 | ug/l | 445405.86 |
| Fe | 56 | 72 | 3 | He | 26.374 | ug/l | 132349.59 |
| Co | 59 | 72 | 1 | No Gas | 1.063 | ug/l | 28254.54 |
| Ni | 60 | 72 | 1 | No Gas | 1.084 | ug/l | 7284.09 |
| Ni | 60 | 72 | 3 | He | 1.050 | ug/l | 2125.73 |
| Cu | 63 | 72 | 1 | No Gas | 1.100 | ug/l | 17402.67 |
| Cu | 63 | 72 | 3 | He | 1.111 | ug/l | 5988.70 |
| Cu | 65 | 72 | 1 | No Gas | 1.089 | ug/l | 8364.43 |
| Zn | 66 | 72 | 1 | No Gas | 0.943 | ug/l | 7257.01 |
| Zn | 66 | 72 | 3 | He | 1.022 | ug/l | 1714.56 |
| As | 75 | 72 | 1 | No Gas | 1.401 | ug/l | 28374.69 |
| As | 75 | 72 | 3 | He | 1.016 | ug/l | 1991.70 |
| Se | 78 | 72 | 2 | H2 | 0.981 | ug/l | 662.57 |
| Br | 79 | 72 | 1 | No Gas | 0.509 | ug/l | 12314.19 |
| Br | 79 | 72 | 2 | H2 | 0.418 | ug/l | 7114.33 |
| Se | 82 | 72 | 1 | No Gas | 0.785 | ug/l | 1192.67 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 24932.24 |
| Sr | 88 | 72 | 1 | No Gas | 1.020 | ug/l | 39572.49 |
| Sr | 88 | 72 | 3 | He | 0.967 | ug/l | 5419.95 |
| Mo | 95 | 115 | 1 | No Gas | 1.003 | ug/l | 7222.98 |
| Mo | 95 | 115 | 3 | He | 0.987 | ug/l | 2868.09 |
| Mo | 98 | 115 | 1 | No Gas | 0.992 | ug/l | 11527.60 |
| Ag | 107 | 115 | 1 | No Gas | 0.435 | ug/l | 9197.35 |
| Ag | 109 | 115 | 1 | No Gas | 0.426 | ug/l | 8778.25 |
| Cd | 111 | 115 | 1 | No Gas | 1.053 | ug/l | 4073.19 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.997 | ug/l | 1545.53 |
| Cd | 114 | 115 | 1 | No Gas | 1.029 | ug/l | 9028.82 |
| Cd | 114 | 115 | 3 | He | 0.984 | ug/l | 3769.41 |
| Sn | 118 | 115 | 1 | No Gas | 0.993 | ug/l | 11948.09 |
| Sn | 118 | 115 | 3 | He | 0.983 | ug/l | 3913.90 |
| Sb | 121 | 115 | 1 | No Gas | 0.990 | ug/l | 17682.19 |
| Sb | 121 | 115 | 3 | He | 0.906 | ug/l | 5367.90 |
| Sb | 123 | 115 | 1 | No Gas | 0.973 | ug/l | 13410.73 |
| Sb | 123 | 115 | 3 | He | 0.936 | ug/l | 4393.47 |
| Ba | 135 | 115 | 1 | No Gas | 1.037 | ug/l | 3480.21 |
| Ba | 137 | 115 | 1 | No Gas | 1.000 | ug/l | 5942.84 |
| La | 139 | 115 | 3 | He | 0.994 | ug/l | 20286.02 |
| Ce | 140 | 115 | 3 | He | 0.974 | ug/l | 21180.68 |
| Hg | 201 | 209 | 1 | No Gas | 0.017 | ug/l | 65.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.019 | ug/l | 144.64 |
| Hg | 202 | 209 | 3 | He | 0.017 | ug/l | 73.32 |
| Tl | 203 | 209 | 3 | He | 0.922 | ug/l | 6126.54 |
| Tl | 205 | 209 | 1 | No Gas | 1.024 | ug/l | 27635.37 |
| Tl | 205 | 209 | 3 | He | 0.927 | ug/l | 14864.26 |
| [Pb] | 206 | 209 | 1 | No Gas | 1.030 | ug/l | 9490.11 |
| [Pb] | 207 | 209 | 1 | No Gas | 1.022 | ug/l | 8054.70 |
| Pb | 208 | 209 | 1 | No Gas | 1.044 | ug/l | 37960.58 |
| Th | 232 | 209 | 3 | He | 0.820 | ug/l | 17611.56 |
| U | 238 | 209 | 1 | No Gas | 0.993 | ug/l | 34255.54 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3616480.26 | 93.8 |
| Sc | 45 | 2 | H2 | 2002457.62 | 89.4 |
| Sc | 45 | 3 | He | 264390.49 | 100.1 |
| Ge | 72 | 1 | No Gas | 901824.30 | 94.6 |
| Ge | 72 | 2 | H2 | 669003.56 | 94.8 |
| Ge | 72 | 3 | He | 155718.93 | 98.6 |
| In | 115 | 1 | No Gas | 5097419.21 | 91.5 |
| In | 115 | 3 | He | 1489255.47 | 99.6 |
| Tb | 159 | 1 | No Gas | 6224676.65 | 88.8 |
| Tb | 159 | 3 | He | 3204811.99 | 95.4 |
| Ho | 165 | 1 | No Gas | 6143760.83 | 89.5 |
| Ho | 165 | 3 | He | 3192182.57 | 97.6 |
| Lu | 175 | 1 | No Gas | 6197148.60 | 90.6 |
| Lu | 175 | 3 | He | 2829906.89 | 99.2 |
| Bi | 209 | 1 | No Gas | 3871647.48 | 89.9 |
| Bi | 209 | 3 | He | 2204544.07 | 99.2 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | 10 ppb STD |
| **File Name** | 014CALS.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 12:44:29 |
| **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 | 138.055 | ug/l | 1783391.42 |
| Be | 9 | 45 | 1 | No Gas | 10.689 | ug/l | 56045.87 |
| B | 11 | 45 | 1 | No Gas | 10.725 | ug/l | 33119.35 |
| Na | 23 | 45 | 3 | He | 2609.397 | ug/l | 2463572.38 |
| Mg | 24 | 45 | 3 | He | 2602.653 | ug/l | 1364310.75 |
| Al | 27 | 45 | 1 | No Gas | 11.394 | ug/l | 242855.28 |
| Si | 28 | 45 | 2 | H2 | 38.959 | ug/l | 101599.25 |
| K | 39 | 72 | 3 | He | 2503.578 | ug/l | 1564873.40 |
| Ca | 40 | 72 | 2 | H2 | 2691.895 | ug/l | 20768975.12 |
| Ti | 47 | 72 | 1 | No Gas | 10.490 | ug/l | 22782.22 |
| V | 51 | 72 | 1 | No Gas | 4.989 | ug/l | 151310.02 |
| V | 51 | 72 | 3 | He | 8.048 | ug/l | 74628.96 |
| Cr | 52 | 72 | 1 | No Gas | 9.890 | ug/l | 358070.95 |
| Cr | 52 | 72 | 3 | He | 9.991 | ug/l | 53350.71 |
| Mn | 55 | 72 | 1 | No Gas | 10.456 | ug/l | 343908.66 |
| Mn | 55 | 72 | 3 | He | 10.347 | ug/l | 35858.67 |
| Fe | 56 | 72 | 2 | H2 | 267.868 | ug/l | 4347633.10 |
| Fe | 56 | 72 | 3 | He | 262.972 | ug/l | 1248937.62 |
| Co | 59 | 72 | 1 | No Gas | 10.404 | ug/l | 274428.19 |
| Ni | 60 | 72 | 1 | No Gas | 10.156 | ug/l | 62087.78 |
| Ni | 60 | 72 | 3 | He | 10.684 | ug/l | 20284.11 |
| Cu | 63 | 72 | 1 | No Gas | 10.663 | ug/l | 154873.26 |
| Cu | 63 | 72 | 3 | He | 10.691 | ug/l | 53751.41 |
| Cu | 65 | 72 | 1 | No Gas | 10.581 | ug/l | 73107.13 |
| Zn | 66 | 72 | 1 | No Gas | 10.014 | ug/l | 52938.94 |
| Zn | 66 | 72 | 3 | He | 10.703 | ug/l | 12752.28 |
| As | 75 | 72 | 1 | No Gas | 10.447 | ug/l | 82936.26 |
| As | 75 | 72 | 3 | He | 9.916 | ug/l | 12226.54 |
| Se | 78 | 72 | 2 | H2 | 10.021 | ug/l | 6292.14 |
| Br | 79 | 72 | 1 | No Gas | 0.432 | ug/l | 11578.39 |
| Br | 79 | 72 | 2 | H2 | 0.407 | ug/l | 6981.19 |
| Se | 82 | 72 | 1 | No Gas | 10.549 | ug/l | 4432.85 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 26768.54 |
| Sr | 88 | 72 | 1 | No Gas | 10.242 | ug/l | 394048.37 |
| Sr | 88 | 72 | 3 | He | 9.789 | ug/l | 53171.49 |
| Mo | 95 | 115 | 1 | No Gas | 9.874 | ug/l | 72724.18 |
| Mo | 95 | 115 | 3 | He | 9.692 | ug/l | 27879.45 |
| Mo | 98 | 115 | 1 | No Gas | 9.674 | ug/l | 114935.84 |
| Ag | 107 | 115 | 1 | No Gas | 3.999 | ug/l | 76170.84 |
| Ag | 109 | 115 | 1 | No Gas | 4.038 | ug/l | 74041.91 |
| Cd | 111 | 115 | 1 | No Gas | 10.345 | ug/l | 41523.28 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 9.985 | ug/l | 15440.36 |
| Cd | 114 | 115 | 1 | No Gas | 9.999 | ug/l | 91889.10 |
| Cd | 114 | 115 | 3 | He | 9.758 | ug/l | 37282.85 |
| Sn | 118 | 115 | 1 | No Gas | 9.748 | ug/l | 112024.69 |
| Sn | 118 | 115 | 3 | He | 9.531 | ug/l | 35035.82 |
| Sb | 121 | 115 | 1 | No Gas | 9.623 | ug/l | 174755.52 |
| Sb | 121 | 115 | 3 | He | 9.486 | ug/l | 55254.21 |
| Sb | 123 | 115 | 1 | No Gas | 9.528 | ug/l | 133460.12 |
| Sb | 123 | 115 | 3 | He | 9.370 | ug/l | 43178.64 |
| Ba | 135 | 115 | 1 | No Gas | 10.294 | ug/l | 35378.19 |
| Ba | 137 | 115 | 1 | No Gas | 9.908 | ug/l | 60588.13 |
| La | 139 | 115 | 3 | He | 9.700 | ug/l | 198051.41 |
| Ce | 140 | 115 | 3 | He | 9.669 | ug/l | 210211.92 |
| Hg | 201 | 209 | 1 | No Gas | 0.181 | ug/l | 402.93 |
| Hg | 202 | 209 | 1 | No Gas | 0.191 | ug/l | 936.18 |
| Hg | 202 | 209 | 3 | He | 0.193 | ug/l | 495.58 |
| Tl | 203 | 209 | 3 | He | 9.558 | ug/l | 61632.93 |
| Tl | 205 | 209 | 1 | No Gas | 10.006 | ug/l | 273749.13 |
| Tl | 205 | 209 | 3 | He | 9.440 | ug/l | 146626.12 |
| [Pb] | 206 | 209 | 1 | No Gas | 10.059 | ug/l | 94812.45 |
| [Pb] | 207 | 209 | 1 | No Gas | 9.961 | ug/l | 80220.67 |
| Pb | 208 | 209 | 1 | No Gas | 9.995 | ug/l | 371904.78 |
| Th | 232 | 209 | 3 | He | 9.129 | ug/l | 191391.50 |
| U | 238 | 209 | 1 | No Gas | 9.821 | ug/l | 350211.54 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3604547.90 | 93.4 |
| Sc | 45 | 2 | H2 | 1970459.49 | 88.0 |
| Sc | 45 | 3 | He | 262267.26 | 99.3 |
| Ge | 72 | 1 | No Gas | 904223.61 | 94.9 |
| Ge | 72 | 2 | H2 | 663641.50 | 94.1 |
| Ge | 72 | 3 | He | 155065.43 | 98.2 |
| In | 115 | 1 | No Gas | 5252958.24 | 94.3 |
| In | 115 | 3 | He | 1489691.64 | 99.6 |
| Tb | 159 | 1 | No Gas | 6451917.31 | 92.0 |
| Tb | 159 | 3 | He | 3295089.06 | 98.1 |
| Ho | 165 | 1 | No Gas | 6195093.73 | 90.3 |
| Ho | 165 | 3 | He | 3229327.68 | 98.7 |
| Lu | 175 | 1 | No Gas | 6269379.79 | 91.7 |
| Lu | 175 | 3 | He | 2850709.54 | 99.9 |
| Bi | 209 | 1 | No Gas | 4004536.78 | 93.0 |
| Bi | 209 | 3 | He | 2186150.68 | 98.4 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | 50 ppb STD |
| **File Name** | 015CALS.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 12:51:06 |
| **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 | 684.303 | ug/l | 9002617.84 |
| Be | 9 | 45 | 1 | No Gas | 53.282 | ug/l | 283835.22 |
| B | 11 | 45 | 1 | No Gas | 56.387 | ug/l | 173462.41 |
| Na | 23 | 45 | 3 | He | 13182.776 | ug/l | 12463575.79 |
| Mg | 24 | 45 | 3 | He | 13074.382 | ug/l | 6950590.14 |
| Al | 27 | 45 | 1 | No Gas | 54.815 | ug/l | 1131395.42 |
| Si | 28 | 45 | 2 | H2 | 227.159 | ug/l | 512045.51 |
| K | 39 | 72 | 3 | He | 12724.353 | ug/l | 7534975.79 |
| Ca | 40 | 72 | 2 | H2 | 12995.114 | ug/l | 100235051.52 |
| Ti | 47 | 72 | 1 | No Gas | 51.223 | ug/l | 111837.31 |
| V | 51 | 72 | 1 | No Gas | 43.218 | ug/l | 1229815.21 |
| V | 51 | 72 | 3 | He | 46.902 | ug/l | 261302.51 |
| Cr | 52 | 72 | 1 | No Gas | 49.010 | ug/l | 1332009.66 |
| Cr | 52 | 72 | 3 | He | 51.035 | ug/l | 270392.92 |
| Mn | 55 | 72 | 1 | No Gas | 50.832 | ug/l | 1659798.10 |
| Mn | 55 | 72 | 3 | He | 51.881 | ug/l | 182301.84 |
| Fe | 56 | 72 | 2 | H2 | 1327.219 | ug/l | 21625388.17 |
| Fe | 56 | 72 | 3 | He | 1347.463 | ug/l | 6484025.98 |
| Co | 59 | 72 | 1 | No Gas | 52.680 | ug/l | 1415068.47 |
| Ni | 60 | 72 | 1 | No Gas | 51.450 | ug/l | 317347.23 |
| Ni | 60 | 72 | 3 | He | 53.235 | ug/l | 102329.74 |
| Cu | 63 | 72 | 1 | No Gas | 52.210 | ug/l | 766133.83 |
| Cu | 63 | 72 | 3 | He | 52.011 | ug/l | 264500.12 |
| Cu | 65 | 72 | 1 | No Gas | 51.895 | ug/l | 361636.97 |
| Zn | 66 | 72 | 1 | No Gas | 50.055 | ug/l | 259463.41 |
| Zn | 66 | 72 | 3 | He | 52.733 | ug/l | 61786.02 |
| As | 75 | 72 | 1 | No Gas | 53.245 | ug/l | 347044.15 |
| As | 75 | 72 | 3 | He | 50.940 | ug/l | 60504.53 |
| Se | 78 | 72 | 2 | H2 | 51.205 | ug/l | 32135.83 |
| Br | 79 | 72 | 1 | No Gas | 0.205 | ug/l | 9394.45 |
| Br | 79 | 72 | 2 | H2 | 0.252 | ug/l | 5982.73 |
| Se | 82 | 72 | 1 | No Gas | 52.516 | ug/l | 18666.58 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 39298.89 |
| Sr | 88 | 72 | 1 | No Gas | 52.095 | ug/l | 2041504.18 |
| Sr | 88 | 72 | 3 | He | 50.005 | ug/l | 275775.42 |
| Mo | 95 | 115 | 1 | No Gas | 50.600 | ug/l | 373690.92 |
| Mo | 95 | 115 | 3 | He | 51.129 | ug/l | 146249.32 |
| Mo | 98 | 115 | 1 | No Gas | 51.202 | ug/l | 610082.69 |
| Ag | 107 | 115 | 1 | No Gas | 20.485 | ug/l | 385920.34 |
| Ag | 109 | 115 | 1 | No Gas | 20.512 | ug/l | 371939.85 |
| Cd | 111 | 115 | 1 | No Gas | 53.369 | ug/l | 215062.08 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 52.104 | ug/l | 80185.98 |
| Cd | 114 | 115 | 1 | No Gas | 51.436 | ug/l | 475040.13 |
| Cd | 114 | 115 | 3 | He | 50.866 | ug/l | 193423.49 |
| Sn | 118 | 115 | 1 | No Gas | 52.192 | ug/l | 597837.14 |
| Sn | 118 | 115 | 3 | He | 51.225 | ug/l | 185994.73 |
| Sb | 121 | 115 | 1 | No Gas | 53.403 | ug/l | 971803.52 |
| Sb | 121 | 115 | 3 | He | 52.093 | ug/l | 301597.34 |
| Sb | 123 | 115 | 1 | No Gas | 52.810 | ug/l | 741296.57 |
| Sb | 123 | 115 | 3 | He | 51.971 | ug/l | 238005.96 |
| Ba | 135 | 115 | 1 | No Gas | 53.002 | ug/l | 182732.69 |
| Ba | 137 | 115 | 1 | No Gas | 51.690 | ug/l | 317152.09 |
| La | 139 | 115 | 3 | He | 52.367 | ug/l | 1064475.96 |
| Ce | 140 | 115 | 3 | He | 51.430 | ug/l | 1112938.25 |
| Hg | 201 | 209 | 1 | No Gas | 1.041 | ug/l | 2159.08 |
| Hg | 202 | 209 | 1 | No Gas | 1.049 | ug/l | 4843.92 |
| Hg | 202 | 209 | 3 | He | 1.051 | ug/l | 2577.41 |
| Tl | 203 | 209 | 3 | He | 48.628 | ug/l | 314647.12 |
| Tl | 205 | 209 | 1 | No Gas | 49.131 | ug/l | 1345304.81 |
| Tl | 205 | 209 | 3 | He | 48.547 | ug/l | 756809.42 |
| [Pb] | 206 | 209 | 1 | No Gas | 51.887 | ug/l | 488610.34 |
| [Pb] | 207 | 209 | 1 | No Gas | 52.804 | ug/l | 424753.23 |
| Pb | 208 | 209 | 1 | No Gas | 52.082 | ug/l | 1935325.44 |
| Th | 232 | 209 | 3 | He | 49.543 | ug/l | 1042971.05 |
| U | 238 | 209 | 1 | No Gas | 50.923 | ug/l | 1816361.52 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3702375.16 | 96.0 |
| Sc | 45 | 2 | H2 | 1918115.99 | 85.6 |
| Sc | 45 | 3 | He | 266151.76 | 100.7 |
| Ge | 72 | 1 | No Gas | 923288.23 | 96.9 |
| Ge | 72 | 2 | H2 | 667346.10 | 94.6 |
| Ge | 72 | 3 | He | 157822.07 | 99.9 |
| In | 115 | 1 | No Gas | 5285707.84 | 94.9 |
| In | 115 | 3 | He | 1483180.79 | 99.1 |
| Tb | 159 | 1 | No Gas | 6557721.97 | 93.5 |
| Tb | 159 | 3 | He | 3317472.25 | 98.8 |
| Ho | 165 | 1 | No Gas | 6417824.79 | 93.5 |
| Ho | 165 | 3 | He | 3288595.80 | 100.6 |
| Lu | 175 | 1 | No Gas | 6398394.73 | 93.5 |
| Lu | 175 | 3 | He | 2876400.36 | 100.8 |
| Bi | 209 | 1 | No Gas | 4022298.01 | 93.4 |
| Bi | 209 | 3 | He | 2197766.28 | 98.9 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | 100 ppb STD |
| **File Name** | 016CALS.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 12:58:15 |
| **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 | 1266.561 | ug/l | 17343227.22 |
| Be | 9 | 45 | 1 | No Gas | 100.428 | ug/l | 556591.69 |
| B | 11 | 45 | 1 | No Gas | 99.451 | ug/l | 317697.60 |
| Na | 23 | 45 | 3 | He | 24737.217 | ug/l | 23714329.37 |
| Mg | 24 | 45 | 3 | He | 24885.371 | ug/l | 13427706.08 |
| Al | 27 | 45 | 1 | No Gas | 102.437 | ug/l | 2186726.74 |
| Si | 28 | 45 | 2 | H2 | 386.525 | ug/l | 837848.35 |
| K | 39 | 72 | 3 | He | 25070.354 | ug/l | 14806361.44 |
| Ca | 40 | 72 | 2 | H2 | 25024.904 | ug/l | 188828767.12 |
| Ti | 47 | 72 | 1 | No Gas | 99.338 | ug/l | 220732.16 |
| V | 51 | 72 | 1 | No Gas | 86.954 | ug/l | 2508194.27 |
| V | 51 | 72 | 3 | He | 92.841 | ug/l | 483477.01 |
| Cr | 52 | 72 | 1 | No Gas | 94.194 | ug/l | 2494124.58 |
| Cr | 52 | 72 | 3 | He | 97.074 | ug/l | 516002.12 |
| Mn | 55 | 72 | 1 | No Gas | 98.530 | ug/l | 3264888.92 |
| Mn | 55 | 72 | 3 | He | 100.432 | ug/l | 354989.45 |
| Fe | 56 | 72 | 2 | H2 | 2548.328 | ug/l | 40635466.95 |
| Fe | 56 | 72 | 3 | He | 2590.322 | ug/l | 12537433.76 |
| Co | 59 | 72 | 1 | No Gas | 97.428 | ug/l | 2664484.41 |
| Ni | 60 | 72 | 1 | No Gas | 95.720 | ug/l | 600899.03 |
| Ni | 60 | 72 | 3 | He | 100.597 | ug/l | 194490.03 |
| Cu | 63 | 72 | 1 | No Gas | 96.678 | ug/l | 1443812.40 |
| Cu | 63 | 72 | 3 | He | 99.922 | ug/l | 510990.99 |
| Cu | 65 | 72 | 1 | No Gas | 97.095 | ug/l | 688378.21 |
| Zn | 66 | 72 | 1 | No Gas | 94.500 | ug/l | 496542.94 |
| Zn | 66 | 72 | 3 | He | 101.166 | ug/l | 118780.00 |
| As | 75 | 72 | 1 | No Gas | 101.808 | ug/l | 657464.96 |
| As | 75 | 72 | 3 | He | 99.007 | ug/l | 117556.40 |
| Se | 78 | 72 | 2 | H2 | 99.231 | ug/l | 60924.78 |
| Br | 79 | 72 | 1 | No Gas | 0.528 | ug/l | 13063.35 |
| Br | 79 | 72 | 2 | H2 | 0.666 | ug/l | 8575.57 |
| Se | 82 | 72 | 1 | No Gas | 99.571 | ug/l | 35201.27 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 49206.24 |
| Sr | 88 | 72 | 1 | No Gas | 97.677 | ug/l | 3897806.13 |
| Sr | 88 | 72 | 3 | He | 98.219 | ug/l | 544950.29 |
| Mo | 95 | 115 | 1 | No Gas | 99.713 | ug/l | 730306.22 |
| Mo | 95 | 115 | 3 | He | 99.467 | ug/l | 283282.37 |
| Mo | 98 | 115 | 1 | No Gas | 99.432 | ug/l | 1174546.47 |
| Ag | 107 | 115 | 1 | No Gas | 39.757 | ug/l | 741324.50 |
| Ag | 109 | 115 | 1 | No Gas | 39.740 | ug/l | 713158.73 |
| Cd | 111 | 115 | 1 | No Gas | 103.837 | ug/l | 414903.63 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 101.142 | ug/l | 154989.35 |
| Cd | 114 | 115 | 1 | No Gas | 100.782 | ug/l | 922857.65 |
| Cd | 114 | 115 | 3 | He | 99.015 | ug/l | 374899.62 |
| Sn | 118 | 115 | 1 | No Gas | 98.929 | ug/l | 1122124.14 |
| Sn | 118 | 115 | 3 | He | 99.435 | ug/l | 359100.44 |
| Sb | 121 | 115 | 1 | No Gas | 98.336 | ug/l | 1774176.24 |
| Sb | 121 | 115 | 3 | He | 99.006 | ug/l | 570723.70 |
| Sb | 123 | 115 | 1 | No Gas | 98.642 | ug/l | 1372899.53 |
| Sb | 123 | 115 | 3 | He | 99.079 | ug/l | 451732.08 |
| Ba | 135 | 115 | 1 | No Gas | 103.377 | ug/l | 353497.03 |
| Ba | 137 | 115 | 1 | No Gas | 100.969 | ug/l | 614278.70 |
| La | 139 | 115 | 3 | He | 98.847 | ug/l | 2000593.84 |
| Ce | 140 | 115 | 3 | He | 99.319 | ug/l | 2140665.87 |
| Hg | 201 | 209 | 1 | No Gas | 1.981 | ug/l | 4135.82 |
| Hg | 202 | 209 | 1 | No Gas | 1.977 | ug/l | 9206.00 |
| Hg | 202 | 209 | 3 | He | 1.975 | ug/l | 4885.25 |
| Tl | 203 | 209 | 3 | He | 94.756 | ug/l | 621868.99 |
| Tl | 205 | 209 | 1 | No Gas | 99.012 | ug/l | 2740296.10 |
| Tl | 205 | 209 | 3 | He | 93.788 | ug/l | 1482456.43 |
| [Pb] | 206 | 209 | 1 | No Gas | 98.334 | ug/l | 938621.48 |
| [Pb] | 207 | 209 | 1 | No Gas | 101.167 | ug/l | 825524.30 |
| Pb | 208 | 209 | 1 | No Gas | 99.350 | ug/l | 3743508.76 |
| Th | 232 | 209 | 3 | He | 94.149 | ug/l | 2010195.05 |
| U | 238 | 209 | 1 | No Gas | 98.938 | ug/l | 3577620.61 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3836119.66 | 99.5 |
| Sc | 45 | 2 | H2 | 1864726.12 | 83.2 |
| Sc | 45 | 3 | He | 270511.79 | 102.4 |
| Ge | 72 | 1 | No Gas | 939742.56 | 98.6 |
| Ge | 72 | 2 | H2 | 653321.06 | 92.6 |
| Ge | 72 | 3 | He | 158845.45 | 100.6 |
| In | 115 | 1 | No Gas | 5223133.09 | 93.8 |
| In | 115 | 3 | He | 1477057.08 | 98.7 |
| Tb | 159 | 1 | No Gas | 6757094.30 | 96.4 |
| Tb | 159 | 3 | He | 3304483.30 | 98.4 |
| Ho | 165 | 1 | No Gas | 6589109.66 | 96.0 |
| Ho | 165 | 3 | He | 3292151.49 | 100.7 |
| Lu | 175 | 1 | No Gas | 6615749.06 | 96.7 |
| Lu | 175 | 3 | He | 2894970.23 | 101.5 |
| Bi | 209 | 1 | No Gas | 4060895.39 | 94.3 |
| Bi | 209 | 3 | He | 2230330.24 | 100.4 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | 1000 ppb STD |
| **File Name** | 017CALS.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 13:04:46 |
| **Sample Type** | CalStd |
| **Total Dilution** | 1.0000 |
| **Comment** | ICPMS-6020B-Cal |
| **Operator** | CAR/SRH/JPV/AEM |
| **Method** | SW6020/SW6020B |

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Li | 7 | 45 | 1 | No Gas | 2476.233 | ug/l | 33884178.89 |
| Be | 9 | 45 | 1 | No Gas | 999.786 | ug/l | 5532769.01 |
| B | 11 | 45 | 1 | No Gas | 999.728 | ug/l | 3183430.36 |
| Na | 23 | 45 | 3 | He | 49955.142 | ug/l | 47619395.96 |
| Mg | 24 | 45 | 3 | He | 49908.492 | ug/l | 26809096.87 |
| Al | 27 | 45 | 1 | No Gas | 999.501 | ug/l | 21180765.66 |
| Si | 28 | 45 | 2 | H2 | 0.414 | ug/l | 13640.32 |
| K | 39 | 72 | 3 | He | 49908.495 | ug/l | 29257935.95 |
| Ca | 40 | 72 | 2 | H2 | 49854.014 | ug/l | 365978589.03 |
| Ti | 47 | 72 | 1 | No Gas | 7.342 | ug/l | 16001.45 |
| V | 51 | 72 | 1 | No Gas | 1001.701 | ug/l | 27535665.19 |
| V | 51 | 72 | 3 | He | 1000.891 | ug/l | 4829191.49 |
| Cr | 52 | 72 | 1 | No Gas | 1000.631 | ug/l | 24262327.01 |
| Cr | 52 | 72 | 3 | He | 1000.241 | ug/l | 5286634.37 |
| Mn | 55 | 72 | 1 | No Gas | 1000.101 | ug/l | 31657828.08 |
| Mn | 55 | 72 | 3 | He | 999.859 | ug/l | 3522797.99 |
| Fe | 56 | 72 | 2 | H2 | 6016.150 | ug/l | 93387917.13 |
| Fe | 56 | 72 | 3 | He | 5993.780 | ug/l | 28921554.91 |
| Co | 59 | 72 | 1 | No Gas | 1000.119 | ug/l | 26221333.63 |
| Ni | 60 | 72 | 1 | No Gas | 1000.354 | ug/l | 6002894.31 |
| Ni | 60 | 72 | 3 | He | 999.772 | ug/l | 1926185.18 |
| Cu | 63 | 72 | 1 | No Gas | 1000.215 | ug/l | 14276326.37 |
| Cu | 63 | 72 | 3 | He | 999.900 | ug/l | 5094975.96 |
| Cu | 65 | 72 | 1 | No Gas | 1000.190 | ug/l | 6786287.53 |
| Zn | 66 | 72 | 1 | No Gas | 1000.547 | ug/l | 5009270.44 |
| Zn | 66 | 72 | 3 | He | 999.740 | ug/l | 1165604.76 |
| As | 75 | 72 | 1 | No Gas | 999.652 | ug/l | 6003427.99 |
| As | 75 | 72 | 3 | He | 1000.053 | ug/l | 1176555.50 |
| Se | 78 | 72 | 2 | H2 | 1000.016 | ug/l | 597152.36 |
| Br | 79 | 72 | 1 | No Gas | 0.762 | ug/l | 14981.42 |
| Br | 79 | 72 | 2 | H2 | 2.802 | ug/l | 21993.24 |
| Se | 82 | 72 | 1 | No Gas | 999.912 | ug/l | 330207.50 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 263475.37 |
| Sr | 88 | 72 | 1 | No Gas | 1000.125 | ug/l | 38190192.27 |
| Sr | 88 | 72 | 3 | He | 1000.180 | ug/l | 5532411.17 |
| Mo | 95 | 115 | 1 | No Gas | 0.169 | ug/l | 1353.41 |
| Mo | 95 | 115 | 3 | He | 0.117 | ug/l | 362.23 |
| Mo | 98 | 115 | 1 | No Gas | 0.185 | ug/l | 2396.42 |
| Ag | 107 | 115 | 1 | No Gas | 364.927 | ug/l | 6898458.48 |
| Ag | 109 | 115 | 1 | No Gas | 374.521 | ug/l | 6801309.37 |
| Cd | 111 | 115 | 1 | No Gas | 999.444 | ug/l | 4058398.31 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 999.781 | ug/l | 1516163.10 |
| Cd | 114 | 115 | 1 | No Gas | 999.850 | ug/l | 9305919.43 |
| Cd | 114 | 115 | 3 | He | 1000.058 | ug/l | 3747214.89 |
| Sn | 118 | 115 | 1 | No Gas | 0.212 | ug/l | 3514.09 |
| Sn | 118 | 115 | 3 | He | 0.137 | ug/l | 818.92 |
| Sb | 121 | 115 | 1 | No Gas | 0.222 | ug/l | 4442.15 |
| Sb | 121 | 115 | 3 | He | 0.206 | ug/l | 1280.19 |
| Sb | 123 | 115 | 1 | No Gas | 0.239 | ug/l | 3664.85 |
| Sb | 123 | 115 | 3 | He | 0.204 | ug/l | 1009.14 |
| Ba | 135 | 115 | 1 | No Gas | 999.509 | ug/l | 3474261.10 |
| Ba | 137 | 115 | 1 | No Gas | 999.820 | ug/l | 6187133.44 |
| La | 139 | 115 | 3 | He | 0.013 | ug/l | 270.01 |
| Ce | 140 | 115 | 3 | He | 0.024 | ug/l | 516.68 |
| Hg | 201 | 209 | 1 | No Gas | 0.005 | ug/l | 43.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.010 | ug/l | 112.98 |
| Hg | 202 | 209 | 3 | He | 0.011 | ug/l | 55.66 |
| Tl | 203 | 209 | 3 | He | 1000.598 | ug/l | 6254109.71 |
| Tl | 205 | 209 | 1 | No Gas | 1000.142 | ug/l | 27470274.87 |
| Tl | 205 | 209 | 3 | He | 1000.700 | ug/l | 15066333.85 |
| [Pb] | 206 | 209 | 1 | No Gas | 1000.072 | ug/l | 9474817.50 |
| [Pb] | 207 | 209 | 1 | No Gas | 999.743 | ug/l | 8071856.34 |
| Pb | 208 | 209 | 1 | No Gas | 999.961 | ug/l | 37332142.01 |
| Th | 232 | 209 | 3 | He | 1000.617 | ug/l | 20355171.60 |
| U | 238 | 209 | 1 | No Gas | 1000.062 | ug/l | 35868162.51 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3959384.62 | 102.6 |
| Sc | 45 | 2 | H2 | 1832824.42 | 81.8 |
| Sc | 45 | 3 | He | 269000.04 | 101.8 |
| Ge | 72 | 1 | No Gas | 916666.61 | 96.2 |
| Ge | 72 | 2 | H2 | 635901.95 | 90.1 |
| Ge | 72 | 3 | He | 158388.02 | 100.3 |
| In | 115 | 1 | No Gas | 5497297.38 | 98.7 |
| In | 115 | 3 | He | 1461799.46 | 97.7 |
| Tb | 159 | 1 | No Gas | 6944602.85 | 99.0 |
| Tb | 159 | 3 | He | 3360056.06 | 100.0 |
| Ho | 165 | 1 | No Gas | 6772931.23 | 98.7 |
| Ho | 165 | 3 | He | 3275896.67 | 100.2 |
| Lu | 175 | 1 | No Gas | 6916159.30 | 101.1 |
| Lu | 175 | 3 | He | 2946052.14 | 103.3 |
| Bi | 209 | 1 | No Gas | 4123372.04 | 95.8 |
| Bi | 209 | 3 | He | 2124030.45 | 95.6 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | 100 ppb Br STD |
| **File Name** | 018CALS.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 13:11:14 |
| **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 | 2.213 | ug/l | 43191.53 |
| Be | 9 | 45 | 1 | No Gas | 0.002 | ug/l | 585.23 |
| B | 11 | 45 | 1 | No Gas | 5.276 | ug/l | 18576.79 |
| Na | 23 | 45 | 3 | He | 6.678 | ug/l | 47075.43 |
| Mg | 24 | 45 | 3 | He | 0.232 | ug/l | 1324.10 |
| Al | 27 | 45 | 1 | No Gas | -0.029 | ug/l | 17581.46 |
| Si | 28 | 45 | 2 | H2 | -0.839 | ug/l | 11730.64 |
| K | 39 | 72 | 3 | He | 645.040 | ug/l | 509276.59 |
| Ca | 40 | 72 | 2 | H2 | 5.625 | ug/l | 193750.80 |
| Ti | 47 | 72 | 1 | No Gas | 0.088 | ug/l | 590.61 |
| V | 51 | 72 | 1 | No Gas | -1.737 | ug/l | -35592.19 |
| V | 51 | 72 | 3 | He | -4.000 | ug/l | 18378.18 |
| Cr | 52 | 72 | 1 | No Gas | -1.267 | ug/l | 91638.21 |
| Cr | 52 | 72 | 3 | He | 0.003 | ug/l | 1709.00 |
| Mn | 55 | 72 | 1 | No Gas | 0.181 | ug/l | 18001.94 |
| Mn | 55 | 72 | 3 | He | 0.016 | ug/l | 226.96 |
| Fe | 56 | 72 | 2 | H2 | 0.134 | ug/l | 11359.17 |
| Fe | 56 | 72 | 3 | He | 0.154 | ug/l | 8078.70 |
| Co | 59 | 72 | 1 | No Gas | 0.006 | ug/l | 605.48 |
| Ni | 60 | 72 | 1 | No Gas | 0.116 | ug/l | 1543.70 |
| Ni | 60 | 72 | 3 | He | 0.010 | ug/l | 155.56 |
| Cu | 63 | 72 | 1 | No Gas | 0.115 | ug/l | 3523.18 |
| Cu | 63 | 72 | 3 | He | 0.063 | ug/l | 746.54 |
| Cu | 65 | 72 | 1 | No Gas | 0.066 | ug/l | 1507.35 |
| Zn | 66 | 72 | 1 | No Gas | 0.004 | ug/l | 2689.98 |
| Zn | 66 | 72 | 3 | He | 0.065 | ug/l | 622.24 |
| As | 75 | 72 | 1 | No Gas | -0.087 | ug/l | 20427.27 |
| As | 75 | 72 | 3 | He | -0.057 | ug/l | 757.80 |
| Se | 78 | 72 | 2 | H2 | 0.152 | ug/l | 140.44 |
| Br | 79 | 72 | 1 | No Gas | 100.000 | ug/l | 1102542.03 |
| Br | 79 | 72 | 2 | H2 | 100.000 | ug/l | 668101.50 |
| Se | 82 | 72 | 1 | No Gas | 1.398 | ug/l | 1468.05 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 24972.14 |
| Sr | 88 | 72 | 1 | No Gas | 0.009 | ug/l | 944.83 |
| Sr | 88 | 72 | 3 | He | 0.010 | ug/l | 218.89 |
| Mo | 95 | 115 | 1 | No Gas | 0.026 | ug/l | 295.56 |
| Mo | 95 | 115 | 3 | He | 0.016 | ug/l | 82.22 |
| Mo | 98 | 115 | 1 | No Gas | 0.018 | ug/l | 384.40 |
| Ag | 107 | 115 | 1 | No Gas | 0.039 | ug/l | 2264.43 |
| Ag | 109 | 115 | 1 | No Gas | 0.030 | ug/l | 2103.00 |
| Cd | 111 | 115 | 1 | No Gas | 0.062 | ug/l | 254.30 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.033 | ug/l | 57.11 |
| Cd | 114 | 115 | 1 | No Gas | 0.046 | ug/l | 330.21 |
| Cd | 114 | 115 | 3 | He | 0.033 | ug/l | 139.32 |
| Sn | 118 | 115 | 1 | No Gas | 0.090 | ug/l | 2249.06 |
| Sn | 118 | 115 | 3 | He | 0.114 | ug/l | 770.03 |
| Sb | 121 | 115 | 1 | No Gas | 0.046 | ug/l | 1263.85 |
| Sb | 121 | 115 | 3 | He | 0.049 | ug/l | 397.38 |
| Sb | 123 | 115 | 1 | No Gas | 0.045 | ug/l | 950.80 |
| Sb | 123 | 115 | 3 | He | 0.051 | ug/l | 334.71 |
| Ba | 135 | 115 | 1 | No Gas | 0.017 | ug/l | 93.15 |
| Ba | 137 | 115 | 1 | No Gas | 0.015 | ug/l | 146.38 |
| La | 139 | 115 | 3 | He | 0.001 | ug/l | 24.44 |
| Ce | 140 | 115 | 3 | He | 0.001 | ug/l | 25.55 |
| Hg | 201 | 209 | 1 | No Gas | -0.004 | ug/l | 26.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.003 | ug/l | 84.98 |
| Hg | 202 | 209 | 3 | He | 0.002 | ug/l | 37.32 |
| Tl | 203 | 209 | 3 | He | 0.073 | ug/l | 634.27 |
| Tl | 205 | 209 | 1 | No Gas | 0.084 | ug/l | 3127.05 |
| Tl | 205 | 209 | 3 | He | 0.072 | ug/l | 1546.05 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.028 | ug/l | 417.79 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.028 | ug/l | 362.23 |
| Pb | 208 | 209 | 1 | No Gas | 0.029 | ug/l | 1668.94 |
| Th | 232 | 209 | 3 | He | 0.233 | ug/l | 5353.93 |
| U | 238 | 209 | 1 | No Gas | 0.047 | ug/l | 1831.10 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3968564.95 | 102.9 |
| Sc | 45 | 2 | H2 | 1952844.11 | 87.2 |
| Sc | 45 | 3 | He | 264382.67 | 100.1 |
| Ge | 72 | 1 | No Gas | 946645.07 | 99.4 |
| Ge | 72 | 2 | H2 | 660497.13 | 93.6 |
| Ge | 72 | 3 | He | 156906.74 | 99.4 |
| In | 115 | 1 | No Gas | 5675110.48 | 101.9 |
| In | 115 | 3 | He | 1524718.63 | 101.9 |
| Tb | 159 | 1 | No Gas | 6825168.42 | 97.3 |
| Tb | 159 | 3 | He | 3344201.19 | 99.6 |
| Ho | 165 | 1 | No Gas | 6655709.12 | 97.0 |
| Ho | 165 | 3 | He | 3222898.05 | 98.5 |
| Lu | 175 | 1 | No Gas | 6709005.90 | 98.1 |
| Lu | 175 | 3 | He | 2849549.40 | 99.9 |
| Bi | 209 | 1 | No Gas | 4305623.97 | 100.0 |
| Bi | 209 | 3 | He | 2262803.70 | 101.9 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 019BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 13:17:36 |
| **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 | 0.927 | ug/l | 24538.19 |
| Be | 9 | 45 | 1 | No Gas | -0.030 | ug/l | 389.93 |
| B | 11 | 45 | 1 | No Gas | 3.112 | ug/l | 11254.02 |
| Na | 23 | 45 | 3 | He | 2.398 | ug/l | 43192.80 |
| Mg | 24 | 45 | 3 | He | -0.323 | ug/l | 1034.65 |
| Al | 27 | 45 | 1 | No Gas | -0.207 | ug/l | 13437.18 |
| Si | 28 | 45 | 2 | H2 | -1.985 | ug/l | 9408.07 |
| K | 39 | 72 | 3 | He | 15.816 | ug/l | 147332.83 |
| Ca | 40 | 72 | 2 | H2 | 2.300 | ug/l | 170464.60 |
| Ti | 47 | 72 | 1 | No Gas | 0.040 | ug/l | 480.49 |
| V | 51 | 72 | 1 | No Gas | -0.073 | ug/l | 11558.00 |
| V | 51 | 72 | 3 | He | -4.814 | ug/l | 14700.71 |
| Cr | 52 | 72 | 1 | No Gas | -1.858 | ug/l | 75984.23 |
| Cr | 52 | 72 | 3 | He | -0.010 | ug/l | 1662.33 |
| Mn | 55 | 72 | 1 | No Gas | 0.075 | ug/l | 14345.22 |
| Mn | 55 | 72 | 3 | He | -0.001 | ug/l | 166.97 |
| Fe | 56 | 72 | 2 | H2 | -0.011 | ug/l | 9125.38 |
| Fe | 56 | 72 | 3 | He | -0.044 | ug/l | 7217.36 |
| Co | 59 | 72 | 1 | No Gas | 0.002 | ug/l | 499.02 |
| Ni | 60 | 72 | 1 | No Gas | 0.042 | ug/l | 1064.60 |
| Ni | 60 | 72 | 3 | He | 0.003 | ug/l | 143.33 |
| Cu | 63 | 72 | 1 | No Gas | 0.049 | ug/l | 2496.55 |
| Cu | 63 | 72 | 3 | He | 0.015 | ug/l | 510.57 |
| Cu | 65 | 72 | 1 | No Gas | 0.006 | ug/l | 1067.14 |
| Zn | 66 | 72 | 1 | No Gas | -0.039 | ug/l | 2440.89 |
| Zn | 66 | 72 | 3 | He | -0.030 | ug/l | 518.90 |
| As | 75 | 72 | 1 | No Gas | -1.560 | ug/l | 10996.18 |
| As | 75 | 72 | 3 | He | -0.218 | ug/l | 577.27 |
| Se | 78 | 72 | 2 | H2 | 0.028 | ug/l | 64.34 |
| Br | 79 | 72 | 1 | No Gas | 1.035 | ug/l | 18611.80 |
| Br | 79 | 72 | 2 | H2 | 0.832 | ug/l | 9887.14 |
| Se | 82 | 72 | 1 | No Gas | -0.244 | ug/l | 885.96 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 24675.56 |
| Sr | 88 | 72 | 1 | No Gas | 0.001 | ug/l | 618.79 |
| Sr | 88 | 72 | 3 | He | 0.003 | ug/l | 183.33 |
| Mo | 95 | 115 | 1 | No Gas | 0.004 | ug/l | 126.67 |
| Mo | 95 | 115 | 3 | He | 0.006 | ug/l | 52.22 |
| Mo | 98 | 115 | 1 | No Gas | 0.007 | ug/l | 239.39 |
| Ag | 107 | 115 | 1 | No Gas | 0.001 | ug/l | 1494.68 |
| Ag | 109 | 115 | 1 | No Gas | -0.003 | ug/l | 1461.33 |
| Cd | 111 | 115 | 1 | No Gas | 0.016 | ug/l | 57.02 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.015 | ug/l | 27.67 |
| Cd | 114 | 115 | 1 | No Gas | 0.012 | ug/l | -11.64 |
| Cd | 114 | 115 | 3 | He | 0.015 | ug/l | 69.52 |
| Sn | 118 | 115 | 1 | No Gas | 0.030 | ug/l | 1544.44 |
| Sn | 118 | 115 | 3 | He | -0.002 | ug/l | 334.45 |
| Sb | 121 | 115 | 1 | No Gas | 0.018 | ug/l | 714.09 |
| Sb | 121 | 115 | 3 | He | 0.020 | ug/l | 221.69 |
| Sb | 123 | 115 | 1 | No Gas | 0.020 | ug/l | 576.41 |
| Sb | 123 | 115 | 3 | He | 0.022 | ug/l | 193.02 |
| Ba | 135 | 115 | 1 | No Gas | -0.002 | ug/l | 23.29 |
| Ba | 137 | 115 | 1 | No Gas | 0.002 | ug/l | 56.55 |
| La | 139 | 115 | 3 | He | 0.000 | ug/l | 8.89 |
| Ce | 140 | 115 | 3 | He | 0.000 | ug/l | 12.22 |
| Hg | 201 | 209 | 1 | No Gas | -0.004 | ug/l | 25.33 |
| Hg | 202 | 209 | 1 | No Gas | -0.001 | ug/l | 64.99 |
| Hg | 202 | 209 | 3 | He | -0.001 | ug/l | 28.66 |
| Tl | 203 | 209 | 3 | He | 0.030 | ug/l | 339.47 |
| Tl | 205 | 209 | 1 | No Gas | 0.028 | ug/l | 1480.09 |
| Tl | 205 | 209 | 3 | He | 0.028 | ug/l | 825.69 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.008 | ug/l | 216.67 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.015 | ug/l | 247.78 |
| Pb | 208 | 209 | 1 | No Gas | 0.010 | ug/l | 923.35 |
| Th | 232 | 209 | 3 | He | 0.048 | ug/l | 1313.27 |
| U | 238 | 209 | 1 | No Gas | 0.008 | ug/l | 335.61 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3918029.85 | 101.6 |
| Sc | 45 | 2 | H2 | 2003172.08 | 89.4 |
| Sc | 45 | 3 | He | 265159.26 | 100.4 |
| Ge | 72 | 1 | No Gas | 941096.72 | 98.8 |
| Ge | 72 | 2 | H2 | 668557.36 | 94.8 |
| Ge | 72 | 3 | He | 158825.39 | 100.6 |
| In | 115 | 1 | No Gas | 5699730.82 | 102.3 |
| In | 115 | 3 | He | 1512147.97 | 101.1 |
| Tb | 159 | 1 | No Gas | 6894210.74 | 98.3 |
| Tb | 159 | 3 | He | 3320266.42 | 98.9 |
| Ho | 165 | 1 | No Gas | 6754628.66 | 98.4 |
| Ho | 165 | 3 | He | 3289681.42 | 100.6 |
| Lu | 175 | 1 | No Gas | 6729156.42 | 98.4 |
| Lu | 175 | 3 | He | 2868808.34 | 100.6 |
| Bi | 209 | 1 | No Gas | 4298532.32 | 99.9 |
| Bi | 209 | 3 | He | 2218547.84 | 99.9 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | QCS |
| **File Name** | 020_QC1.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 13:23:51 |
| **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 | 53.780 | ug/l | 728390.93 |
| Be | 9 | 45 | 1 | No Gas | 25.388 | ug/l | 137596.45 |
| B | 11 | 45 | 1 | No Gas | 57.105 | ug/l | 178285.62 |
| Na | 23 | 45 | 3 | He | 2655.870 | ug/l | 2527379.41 |
| Mg | 24 | 45 | 3 | He | 2647.412 | ug/l | 1399200.26 |
| Al | 27 | 45 | 1 | No Gas | 270.395 | ug/l | 5597331.38 |
| Si | 28 | 45 | 2 | H2 | 485.143 | ug/l | 1108489.60 |
| K | 39 | 72 | 3 | He | 2563.878 | ug/l | 1634955.20 |
| Ca | 40 | 72 | 2 | H2 | 2591.182 | ug/l | 20275446.61 |
| Ti | 47 | 72 | 1 | No Gas | 49.643 | ug/l | 108057.39 |
| V | 51 | 72 | 1 | No Gas | 45.442 | ug/l | 1284245.15 |
| V | 51 | 72 | 3 | He | 44.022 | ug/l | 248647.92 |
| Cr | 52 | 72 | 1 | No Gas | 49.385 | ug/l | 1335086.50 |
| Cr | 52 | 72 | 3 | He | 49.334 | ug/l | 262585.04 |
| Mn | 55 | 72 | 1 | No Gas | 260.955 | ug/l | 8442764.17 |
| Mn | 55 | 72 | 3 | He | 256.998 | ug/l | 906310.98 |
| Fe | 56 | 72 | 2 | H2 | 255.516 | ug/l | 4203076.36 |
| Fe | 56 | 72 | 3 | He | 249.402 | ug/l | 1211395.95 |
| Co | 59 | 72 | 1 | No Gas | 52.197 | ug/l | 1396708.99 |
| Ni | 60 | 72 | 1 | No Gas | 50.965 | ug/l | 313277.33 |
| Ni | 60 | 72 | 3 | He | 51.930 | ug/l | 100259.05 |
| Cu | 63 | 72 | 1 | No Gas | 52.269 | ug/l | 764012.07 |
| Cu | 63 | 72 | 3 | He | 52.592 | ug/l | 268626.11 |
| Cu | 65 | 72 | 1 | No Gas | 52.659 | ug/l | 365706.28 |
| Zn | 66 | 72 | 1 | No Gas | 49.932 | ug/l | 257708.16 |
| Zn | 66 | 72 | 3 | He | 52.871 | ug/l | 62208.95 |
| As | 75 | 72 | 1 | No Gas | 52.159 | ug/l | 339292.11 |
| As | 75 | 72 | 3 | He | 49.394 | ug/l | 58948.96 |
| Se | 78 | 72 | 2 | H2 | 50.523 | ug/l | 31955.12 |
| Br | 79 | 72 | 1 | No Gas | 0.434 | ug/l | 11768.14 |
| Br | 79 | 72 | 2 | H2 | 0.506 | ug/l | 7746.71 |
| Se | 82 | 72 | 1 | No Gas | 51.454 | ug/l | 18261.44 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 37934.70 |
| Sr | 88 | 72 | 1 | No Gas | 51.753 | ug/l | 2020612.19 |
| Sr | 88 | 72 | 3 | He | 49.483 | ug/l | 274094.21 |
| Mo | 95 | 115 | 1 | No Gas | 48.172 | ug/l | 364149.08 |
| Mo | 95 | 115 | 3 | He | 48.095 | ug/l | 139647.77 |
| Mo | 98 | 115 | 1 | No Gas | 47.028 | ug/l | 572825.85 |
| Ag | 107 | 115 | 1 | No Gas | 25.190 | ug/l | 485400.03 |
| Ag | 109 | 115 | 1 | No Gas | 24.915 | ug/l | 461753.01 |
| Cd | 111 | 115 | 1 | No Gas | 25.736 | ug/l | 106100.53 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 25.254 | ug/l | 39454.70 |
| Cd | 114 | 115 | 1 | No Gas | 24.813 | ug/l | 234414.13 |
| Cd | 114 | 115 | 3 | He | 24.586 | ug/l | 94908.04 |
| Sn | 118 | 115 | 1 | No Gas | 49.279 | ug/l | 577467.86 |
| Sn | 118 | 115 | 3 | He | 49.124 | ug/l | 181062.86 |
| Sb | 121 | 115 | 1 | No Gas | 45.154 | ug/l | 842316.40 |
| Sb | 121 | 115 | 3 | He | 47.076 | ug/l | 276662.00 |
| Sb | 123 | 115 | 1 | No Gas | 44.539 | ug/l | 640430.91 |
| Sb | 123 | 115 | 3 | He | 46.716 | ug/l | 217149.47 |
| Ba | 135 | 115 | 1 | No Gas | 52.961 | ug/l | 186735.57 |
| Ba | 137 | 115 | 1 | No Gas | 51.868 | ug/l | 325496.83 |
| La | 139 | 115 | 3 | He | 49.494 | ug/l | 1021161.11 |
| Ce | 140 | 115 | 3 | He | 49.825 | ug/l | 1094664.57 |
| Hg | 201 | 209 | 1 | No Gas | 0.936 | ug/l | 2021.09 |
| Hg | 202 | 209 | 1 | No Gas | 0.961 | ug/l | 4626.55 |
| Hg | 202 | 209 | 3 | He | 0.992 | ug/l | 2509.07 |
| Tl | 203 | 209 | 3 | He | 47.078 | ug/l | 314215.97 |
| Tl | 205 | 209 | 1 | No Gas | 48.944 | ug/l | 1391437.39 |
| Tl | 205 | 209 | 3 | He | 46.068 | ug/l | 740515.86 |
| [Pb] | 206 | 209 | 1 | No Gas | 48.912 | ug/l | 479314.67 |
| [Pb] | 207 | 209 | 1 | No Gas | 49.628 | ug/l | 415361.52 |
| Pb | 208 | 209 | 1 | No Gas | 49.433 | ug/l | 1912065.83 |
| Th | 232 | 209 | 3 | He | 45.769 | ug/l | 993933.46 |
| U | 238 | 209 | 1 | No Gas | 51.370 | ug/l | 1906352.77 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3770190.60 | 97.7 |
| Sc | 45 | 2 | H2 | 1970664.47 | 88.0 |
| Sc | 45 | 3 | He | 264427.96 | 100.1 |
| Ge | 72 | 1 | No Gas | 921489.32 | 96.7 |
| Ge | 72 | 2 | H2 | 672713.28 | 95.4 |
| Ge | 72 | 3 | He | 158519.59 | 100.4 |
| In | 115 | 1 | No Gas | 5414300.35 | 97.2 |
| In | 115 | 3 | He | 1505660.20 | 100.6 |
| Tb | 159 | 1 | No Gas | 6666479.79 | 95.1 |
| Tb | 159 | 3 | He | 3254927.52 | 96.9 |
| Ho | 165 | 1 | No Gas | 6309294.12 | 91.9 |
| Ho | 165 | 3 | He | 3234454.00 | 98.9 |
| Lu | 175 | 1 | No Gas | 6363482.01 | 93.0 |
| Lu | 175 | 3 | He | 2899332.22 | 101.6 |
| Bi | 209 | 1 | No Gas | 4173561.79 | 97.0 |
| Bi | 209 | 3 | He | 2266412.32 | 102.0 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | CCV |
| **File Name** | 021_CCV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 13:30:05 |
| **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 | 638.680 | ug/l | 8900875.48 |
| Be | 9 | 45 | 1 | No Gas | 50.336 | ug/l | 283880.70 |
| B | 11 | 45 | 1 | No Gas | 55.324 | ug/l | 180215.84 |
| Na | 23 | 45 | 3 | He | 13216.754 | ug/l | 12581713.98 |
| Mg | 24 | 45 | 3 | He | 13063.906 | ug/l | 6992236.96 |
| Al | 27 | 45 | 1 | No Gas | 52.161 | ug/l | 1140657.95 |
| Si | 28 | 45 | 2 | H2 | 227.053 | ug/l | 529453.45 |
| K | 39 | 72 | 3 | He | 12951.877 | ug/l | 7652955.58 |
| Ca | 40 | 72 | 2 | H2 | 13232.540 | ug/l | 102756396.11 |
| Ti | 47 | 72 | 1 | No Gas | 50.087 | ug/l | 112858.29 |
| V | 51 | 72 | 1 | No Gas | 43.718 | ug/l | 1283485.30 |
| V | 51 | 72 | 3 | He | 45.772 | ug/l | 255437.18 |
| Cr | 52 | 72 | 1 | No Gas | 46.648 | ug/l | 1314099.97 |
| Cr | 52 | 72 | 3 | He | 51.277 | ug/l | 271167.89 |
| Mn | 55 | 72 | 1 | No Gas | 50.323 | ug/l | 1693904.37 |
| Mn | 55 | 72 | 3 | He | 52.225 | ug/l | 183164.92 |
| Fe | 56 | 72 | 2 | H2 | 1378.808 | ug/l | 22606148.06 |
| Fe | 56 | 72 | 3 | He | 1342.176 | ug/l | 6446045.71 |
| Co | 59 | 72 | 1 | No Gas | 50.166 | ug/l | 1388324.81 |
| Ni | 60 | 72 | 1 | No Gas | 49.388 | ug/l | 314285.29 |
| Ni | 60 | 72 | 3 | He | 53.668 | ug/l | 102975.87 |
| Cu | 63 | 72 | 1 | No Gas | 50.367 | ug/l | 762560.04 |
| Cu | 63 | 72 | 3 | He | 52.378 | ug/l | 265884.02 |
| Cu | 65 | 72 | 1 | No Gas | 50.011 | ug/l | 359427.67 |
| Zn | 66 | 72 | 1 | No Gas | 47.922 | ug/l | 256399.05 |
| Zn | 66 | 72 | 3 | He | 52.796 | ug/l | 61747.81 |
| As | 75 | 72 | 1 | No Gas | 51.223 | ug/l | 345162.11 |
| As | 75 | 72 | 3 | He | 50.874 | ug/l | 60316.91 |
| Se | 78 | 72 | 2 | H2 | 51.712 | ug/l | 32655.54 |
| Br | 79 | 72 | 1 | No Gas | 0.473 | ug/l | 12637.14 |
| Br | 79 | 72 | 2 | H2 | 0.488 | ug/l | 7613.59 |
| Se | 82 | 72 | 1 | No Gas | 50.838 | ug/l | 18690.80 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 37894.57 |
| Sr | 88 | 72 | 1 | No Gas | 50.120 | ug/l | 2025038.15 |
| Sr | 88 | 72 | 3 | He | 50.516 | ug/l | 278112.97 |
| Mo | 95 | 115 | 1 | No Gas | 48.164 | ug/l | 369090.54 |
| Mo | 95 | 115 | 3 | He | 50.989 | ug/l | 146373.63 |
| Mo | 98 | 115 | 1 | No Gas | 49.279 | ug/l | 609111.56 |
| Ag | 107 | 115 | 1 | No Gas | 19.485 | ug/l | 381103.59 |
| Ag | 109 | 115 | 1 | No Gas | 19.652 | ug/l | 369655.50 |
| Cd | 111 | 115 | 1 | No Gas | 51.020 | ug/l | 213266.28 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 51.682 | ug/l | 79807.52 |
| Cd | 114 | 115 | 1 | No Gas | 49.543 | ug/l | 474557.84 |
| Cd | 114 | 115 | 3 | He | 50.601 | ug/l | 193065.88 |
| Sn | 118 | 115 | 1 | No Gas | 49.378 | ug/l | 586355.97 |
| Sn | 118 | 115 | 3 | He | 50.644 | ug/l | 184504.02 |
| Sb | 121 | 115 | 1 | No Gas | 51.493 | ug/l | 972529.72 |
| Sb | 121 | 115 | 3 | He | 51.786 | ug/l | 300848.01 |
| Sb | 123 | 115 | 1 | No Gas | 50.412 | ug/l | 733849.31 |
| Sb | 123 | 115 | 3 | He | 51.442 | ug/l | 236374.14 |
| Ba | 135 | 115 | 1 | No Gas | 50.723 | ug/l | 181497.40 |
| Ba | 137 | 115 | 1 | No Gas | 49.513 | ug/l | 314756.09 |
| La | 139 | 115 | 3 | He | 51.173 | ug/l | 1043566.17 |
| Ce | 140 | 115 | 3 | He | 50.596 | ug/l | 1098767.47 |
| Hg | 201 | 209 | 1 | No Gas | 0.981 | ug/l | 2088.08 |
| Hg | 202 | 209 | 1 | No Gas | 0.996 | ug/l | 4721.23 |
| Hg | 202 | 209 | 3 | He | 1.036 | ug/l | 2520.74 |
| Tl | 203 | 209 | 3 | He | 48.487 | ug/l | 311240.32 |
| Tl | 205 | 209 | 1 | No Gas | 45.709 | ug/l | 1277663.27 |
| Tl | 205 | 209 | 3 | He | 48.138 | ug/l | 744297.64 |
| [Pb] | 206 | 209 | 1 | No Gas | 49.826 | ug/l | 481151.59 |
| [Pb] | 207 | 209 | 1 | No Gas | 50.975 | ug/l | 420586.65 |
| Pb | 208 | 209 | 1 | No Gas | 50.211 | ug/l | 1913815.62 |
| Th | 232 | 209 | 3 | He | 49.346 | ug/l | 1030684.39 |
| U | 238 | 209 | 1 | No Gas | 49.583 | ug/l | 1812269.49 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3908871.99 | 101.3 |
| Sc | 45 | 2 | H2 | 1983443.04 | 88.5 |
| Sc | 45 | 3 | He | 267969.58 | 101.4 |
| Ge | 72 | 1 | No Gas | 951815.36 | 99.9 |
| Ge | 72 | 2 | H2 | 671532.36 | 95.2 |
| Ge | 72 | 3 | He | 157552.61 | 99.8 |
| In | 115 | 1 | No Gas | 5484604.01 | 98.5 |
| In | 115 | 3 | He | 1488026.06 | 99.5 |
| Tb | 159 | 1 | No Gas | 6759845.75 | 96.4 |
| Tb | 159 | 3 | He | 3313633.57 | 98.7 |
| Ho | 165 | 1 | No Gas | 6608645.55 | 96.3 |
| Ho | 165 | 3 | He | 3325796.33 | 101.7 |
| Lu | 175 | 1 | No Gas | 6644756.09 | 97.1 |
| Lu | 175 | 3 | He | 2856548.84 | 100.1 |
| Bi | 209 | 1 | No Gas | 4114097.50 | 95.6 |
| Bi | 209 | 3 | He | 2179882.16 | 98.1 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | CCB |
| **File Name** | 022_CCB.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 13:36:20 |
| **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 | 0.881 | ug/l | 23500.81 |
| Be | 9 | 45 | 1 | No Gas | -0.041 | ug/l | 326.94 |
| B | 11 | 45 | 1 | No Gas | 1.904 | ug/l | 7215.29 |
| Na | 23 | 45 | 3 | He | 1.284 | ug/l | 42024.04 |
| Mg | 24 | 45 | 3 | He | -0.366 | ug/l | 1008.04 |
| Al | 27 | 45 | 1 | No Gas | -0.234 | ug/l | 12660.95 |
| Si | 28 | 45 | 2 | H2 | -1.833 | ug/l | 9685.03 |
| K | 39 | 72 | 3 | He | 20.434 | ug/l | 145897.94 |
| Ca | 40 | 72 | 2 | H2 | 1.741 | ug/l | 168814.78 |
| Ti | 47 | 72 | 1 | No Gas | -0.001 | ug/l | 380.39 |
| V | 51 | 72 | 1 | No Gas | -1.906 | ug/l | -38723.11 |
| V | 51 | 72 | 3 | He | -3.926 | ug/l | 18439.38 |
| Cr | 52 | 72 | 1 | No Gas | -1.456 | ug/l | 84684.13 |
| Cr | 52 | 72 | 3 | He | 0.009 | ug/l | 1712.34 |
| Mn | 55 | 72 | 1 | No Gas | 0.030 | ug/l | 12643.72 |
| Mn | 55 | 72 | 3 | He | -0.003 | ug/l | 155.64 |
| Fe | 56 | 72 | 2 | H2 | 0.013 | ug/l | 9674.60 |
| Fe | 56 | 72 | 3 | He | 0.083 | ug/l | 7614.66 |
| Co | 59 | 72 | 1 | No Gas | 0.001 | ug/l | 455.77 |
| Ni | 60 | 72 | 1 | No Gas | 0.041 | ug/l | 1041.31 |
| Ni | 60 | 72 | 3 | He | 0.002 | ug/l | 137.78 |
| Cu | 63 | 72 | 1 | No Gas | 0.026 | ug/l | 2117.67 |
| Cu | 63 | 72 | 3 | He | 0.011 | ug/l | 473.91 |
| Cu | 65 | 72 | 1 | No Gas | -0.015 | ug/l | 901.06 |
| Zn | 66 | 72 | 1 | No Gas | -0.118 | ug/l | 1994.65 |
| Zn | 66 | 72 | 3 | He | -0.105 | ug/l | 418.90 |
| As | 75 | 72 | 1 | No Gas | -1.621 | ug/l | 10484.12 |
| As | 75 | 72 | 3 | He | -0.183 | ug/l | 601.13 |
| Se | 78 | 72 | 2 | H2 | 0.004 | ug/l | 50.00 |
| Br | 79 | 72 | 1 | No Gas | 0.297 | ug/l | 10369.88 |
| Br | 79 | 72 | 2 | H2 | 0.198 | ug/l | 5719.83 |
| Se | 82 | 72 | 1 | No Gas | -0.066 | ug/l | 934.37 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 24598.95 |
| Sr | 88 | 72 | 1 | No Gas | -0.004 | ug/l | 425.83 |
| Sr | 88 | 72 | 3 | He | 0.000 | ug/l | 162.22 |
| Mo | 95 | 115 | 1 | No Gas | 0.047 | ug/l | 452.23 |
| Mo | 95 | 115 | 3 | He | 0.045 | ug/l | 162.22 |
| Mo | 98 | 115 | 1 | No Gas | 0.049 | ug/l | 752.60 |
| Ag | 107 | 115 | 1 | No Gas | 0.005 | ug/l | 1548.05 |
| Ag | 109 | 115 | 1 | No Gas | 0.004 | ug/l | 1554.71 |
| Cd | 111 | 115 | 1 | No Gas | 0.011 | ug/l | 30.55 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.008 | ug/l | 16.11 |
| Cd | 114 | 115 | 1 | No Gas | 0.006 | ug/l | -70.04 |
| Cd | 114 | 115 | 3 | He | 0.007 | ug/l | 38.59 |
| Sn | 118 | 115 | 1 | No Gas | 0.025 | ug/l | 1407.29 |
| Sn | 118 | 115 | 3 | He | 0.017 | ug/l | 397.79 |
| Sb | 121 | 115 | 1 | No Gas | 0.093 | ug/l | 2130.38 |
| Sb | 121 | 115 | 3 | He | 0.075 | ug/l | 539.40 |
| Sb | 123 | 115 | 1 | No Gas | 0.089 | ug/l | 1571.25 |
| Sb | 123 | 115 | 3 | He | 0.079 | ug/l | 453.39 |
| Ba | 135 | 115 | 1 | No Gas | 0.000 | ug/l | 29.94 |
| Ba | 137 | 115 | 1 | No Gas | -0.002 | ug/l | 29.94 |
| La | 139 | 115 | 3 | He | 0.000 | ug/l | 15.55 |
| Ce | 140 | 115 | 3 | He | 0.000 | ug/l | 11.11 |
| Hg | 201 | 209 | 1 | No Gas | 0.000 | ug/l | 34.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.003 | ug/l | 80.98 |
| Hg | 202 | 209 | 3 | He | 0.001 | ug/l | 33.32 |
| Tl | 203 | 209 | 3 | He | 0.092 | ug/l | 744.32 |
| Tl | 205 | 209 | 1 | No Gas | 0.088 | ug/l | 3181.51 |
| Tl | 205 | 209 | 3 | He | 0.089 | ug/l | 1772.17 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.005 | ug/l | 187.78 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.005 | ug/l | 160.00 |
| Pb | 208 | 209 | 1 | No Gas | 0.005 | ug/l | 722.23 |
| Th | 232 | 209 | 3 | He | 0.046 | ug/l | 1267.91 |
| U | 238 | 209 | 1 | No Gas | 0.006 | ug/l | 236.29 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3842561.95 | 99.6 |
| Sc | 45 | 2 | H2 | 1987690.68 | 88.7 |
| Sc | 45 | 3 | He | 264363.42 | 100.1 |
| Ge | 72 | 1 | No Gas | 923346.04 | 96.9 |
| Ge | 72 | 2 | H2 | 679268.22 | 96.3 |
| Ge | 72 | 3 | He | 154449.29 | 97.8 |
| In | 115 | 1 | No Gas | 5539008.83 | 99.4 |
| In | 115 | 3 | He | 1486042.65 | 99.3 |
| Tb | 159 | 1 | No Gas | 6746617.58 | 96.2 |
| Tb | 159 | 3 | He | 3307006.50 | 98.5 |
| Ho | 165 | 1 | No Gas | 6470759.54 | 94.3 |
| Ho | 165 | 3 | He | 3226697.05 | 98.7 |
| Lu | 175 | 1 | No Gas | 6587995.63 | 96.3 |
| Lu | 175 | 3 | He | 2834651.40 | 99.4 |
| Bi | 209 | 1 | No Gas | 4210152.19 | 97.8 |
| Bi | 209 | 3 | He | 2221097.60 | 100.0 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 023BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 13:42:34 |
| **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 | 0.487 | ug/l | 18571.40 |
| Be | 9 | 45 | 1 | No Gas | -0.047 | ug/l | 299.28 |
| B | 11 | 45 | 1 | No Gas | 1.460 | ug/l | 5947.56 |
| Na | 23 | 45 | 3 | He | 0.969 | ug/l | 40543.28 |
| Mg | 24 | 45 | 3 | He | -0.486 | ug/l | 918.21 |
| Al | 27 | 45 | 1 | No Gas | -0.261 | ug/l | 12397.39 |
| Si | 28 | 45 | 2 | H2 | -1.897 | ug/l | 9610.29 |
| K | 39 | 72 | 3 | He | 16.058 | ug/l | 143298.42 |
| Ca | 40 | 72 | 2 | H2 | 1.132 | ug/l | 162865.11 |
| Ti | 47 | 72 | 1 | No Gas | 0.002 | ug/l | 392.07 |
| V | 51 | 72 | 1 | No Gas | -0.272 | ug/l | 6609.12 |
| V | 51 | 72 | 3 | He | -4.023 | ug/l | 17972.10 |
| Cr | 52 | 72 | 1 | No Gas | -1.550 | ug/l | 83172.10 |
| Cr | 52 | 72 | 3 | He | -0.008 | ug/l | 1623.43 |
| Mn | 55 | 72 | 1 | No Gas | 0.036 | ug/l | 12986.68 |
| Mn | 55 | 72 | 3 | He | -0.008 | ug/l | 139.97 |
| Fe | 56 | 72 | 2 | H2 | -0.046 | ug/l | 8637.90 |
| Fe | 56 | 72 | 3 | He | -0.039 | ug/l | 7037.13 |
| Co | 59 | 72 | 1 | No Gas | -0.002 | ug/l | 382.58 |
| Ni | 60 | 72 | 1 | No Gas | 0.027 | ug/l | 968.12 |
| Ni | 60 | 72 | 3 | He | -0.002 | ug/l | 131.11 |
| Cu | 63 | 72 | 1 | No Gas | 0.015 | ug/l | 1976.26 |
| Cu | 63 | 72 | 3 | He | 0.008 | ug/l | 460.91 |
| Cu | 65 | 72 | 1 | No Gas | -0.018 | ug/l | 887.72 |
| Zn | 66 | 72 | 1 | No Gas | -0.163 | ug/l | 1781.67 |
| Zn | 66 | 72 | 3 | He | -0.091 | ug/l | 434.45 |
| As | 75 | 72 | 1 | No Gas | -1.629 | ug/l | 10509.82 |
| As | 75 | 72 | 3 | He | -0.176 | ug/l | 607.93 |
| Se | 78 | 72 | 2 | H2 | -0.012 | ug/l | 39.56 |
| Br | 79 | 72 | 1 | No Gas | 0.218 | ug/l | 9630.78 |
| Br | 79 | 72 | 2 | H2 | 0.223 | ug/l | 5849.59 |
| Se | 82 | 72 | 1 | No Gas | 0.111 | ug/l | 1006.51 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 24072.34 |
| Sr | 88 | 72 | 1 | No Gas | -0.003 | ug/l | 462.42 |
| Sr | 88 | 72 | 3 | He | -0.001 | ug/l | 155.56 |
| Mo | 95 | 115 | 1 | No Gas | 0.009 | ug/l | 165.56 |
| Mo | 95 | 115 | 3 | He | 0.015 | ug/l | 76.67 |
| Mo | 98 | 115 | 1 | No Gas | 0.009 | ug/l | 264.59 |
| Ag | 107 | 115 | 1 | No Gas | 0.000 | ug/l | 1481.34 |
| Ag | 109 | 115 | 1 | No Gas | -0.006 | ug/l | 1400.63 |
| Cd | 111 | 115 | 1 | No Gas | 0.015 | ug/l | 51.87 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.004 | ug/l | 11.11 |
| Cd | 114 | 115 | 1 | No Gas | 0.008 | ug/l | -52.72 |
| Cd | 114 | 115 | 3 | He | 0.005 | ug/l | 32.09 |
| Sn | 118 | 115 | 1 | No Gas | -0.004 | ug/l | 1084.57 |
| Sn | 118 | 115 | 3 | He | 0.013 | ug/l | 383.34 |
| Sb | 121 | 115 | 1 | No Gas | 0.037 | ug/l | 1083.15 |
| Sb | 121 | 115 | 3 | He | 0.037 | ug/l | 317.70 |
| Sb | 123 | 115 | 1 | No Gas | 0.037 | ug/l | 816.77 |
| Sb | 123 | 115 | 3 | He | 0.035 | ug/l | 251.03 |
| Ba | 135 | 115 | 1 | No Gas | 0.000 | ug/l | 29.94 |
| Ba | 137 | 115 | 1 | No Gas | -0.003 | ug/l | 23.29 |
| La | 139 | 115 | 3 | He | 0.000 | ug/l | 11.11 |
| Ce | 140 | 115 | 3 | He | 0.000 | ug/l | 16.67 |
| Hg | 201 | 209 | 1 | No Gas | -0.006 | ug/l | 22.67 |
| Hg | 202 | 209 | 1 | No Gas | 0.000 | ug/l | 66.99 |
| Hg | 202 | 209 | 3 | He | 0.001 | ug/l | 33.66 |
| Tl | 203 | 209 | 3 | He | 0.037 | ug/l | 376.16 |
| Tl | 205 | 209 | 1 | No Gas | 0.022 | ug/l | 1307.85 |
| Tl | 205 | 209 | 3 | He | 0.033 | ug/l | 891.72 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.003 | ug/l | 172.23 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.000 | ug/l | 117.78 |
| Pb | 208 | 209 | 1 | No Gas | 0.002 | ug/l | 602.23 |
| Th | 232 | 209 | 3 | He | 0.013 | ug/l | 565.58 |
| U | 238 | 209 | 1 | No Gas | 0.002 | ug/l | 82.65 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3936377.24 | 102.1 |
| Sc | 45 | 2 | H2 | 2002063.03 | 89.4 |
| Sc | 45 | 3 | He | 256855.50 | 97.2 |
| Ge | 72 | 1 | No Gas | 932225.23 | 97.8 |
| Ge | 72 | 2 | H2 | 674590.45 | 95.6 |
| Ge | 72 | 3 | He | 154310.47 | 97.7 |
| In | 115 | 1 | No Gas | 5653468.94 | 101.5 |
| In | 115 | 3 | He | 1483661.70 | 99.2 |
| Tb | 159 | 1 | No Gas | 6982492.66 | 99.6 |
| Tb | 159 | 3 | He | 3380215.15 | 100.6 |
| Ho | 165 | 1 | No Gas | 6810705.05 | 99.2 |
| Ho | 165 | 3 | He | 3294864.25 | 100.7 |
| Lu | 175 | 1 | No Gas | 6799286.91 | 99.4 |
| Lu | 175 | 3 | He | 2800332.00 | 98.2 |
| Bi | 209 | 1 | No Gas | 4282946.49 | 99.5 |
| Bi | 209 | 3 | He | 2190214.10 | 98.6 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | LRB |
| **File Name** | 024MBLK.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 13:48:49 |
| **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 | 0.408 | ug/l | 16942.21 |
| Be | 9 | 45 | 1 | No Gas | -0.046 | ug/l | 294.28 |
| B | 11 | 45 | 1 | No Gas | 1.196 | ug/l | 4946.80 |
| Na | 23 | 45 | 3 | He | 7.040 | ug/l | 46168.29 |
| Mg | 24 | 45 | 3 | He | 2.448 | ug/l | 2428.78 |
| Al | 27 | 45 | 1 | No Gas | 0.038 | ug/l | 18335.67 |
| Si | 28 | 45 | 2 | H2 | -0.023 | ug/l | 13712.11 |
| K | 39 | 72 | 3 | He | 21.099 | ug/l | 143314.38 |
| Ca | 40 | 72 | 2 | H2 | 5.054 | ug/l | 189568.35 |
| Ti | 47 | 72 | 1 | No Gas | -0.003 | ug/l | 378.72 |
| V | 51 | 72 | 1 | No Gas | -1.282 | ug/l | -22221.27 |
| V | 51 | 72 | 3 | He | -4.004 | ug/l | 17708.48 |
| Cr | 52 | 72 | 1 | No Gas | -1.527 | ug/l | 83336.30 |
| Cr | 52 | 72 | 3 | He | 0.004 | ug/l | 1654.55 |
| Mn | 55 | 72 | 1 | No Gas | 0.064 | ug/l | 13845.79 |
| Mn | 55 | 72 | 3 | He | 0.003 | ug/l | 175.30 |
| Fe | 56 | 72 | 2 | H2 | 0.191 | ug/l | 12297.54 |
| Fe | 56 | 72 | 3 | He | 0.111 | ug/l | 7591.29 |
| Co | 59 | 72 | 1 | No Gas | 0.002 | ug/l | 485.72 |
| Ni | 60 | 72 | 1 | No Gas | 0.045 | ug/l | 1084.56 |
| Ni | 60 | 72 | 3 | He | -0.003 | ug/l | 126.67 |
| Cu | 63 | 72 | 1 | No Gas | 0.044 | ug/l | 2395.83 |
| Cu | 63 | 72 | 3 | He | 0.037 | ug/l | 591.90 |
| Cu | 65 | 72 | 1 | No Gas | 0.007 | ug/l | 1063.80 |
| Zn | 66 | 72 | 1 | No Gas | 0.118 | ug/l | 3215.91 |
| Zn | 66 | 72 | 3 | He | 0.279 | ug/l | 838.92 |
| As | 75 | 72 | 1 | No Gas | -0.426 | ug/l | 17608.38 |
| As | 75 | 72 | 3 | He | -0.178 | ug/l | 593.80 |
| Se | 78 | 72 | 2 | H2 | -0.015 | ug/l | 36.33 |
| Br | 79 | 72 | 1 | No Gas | 0.171 | ug/l | 9124.83 |
| Br | 79 | 72 | 2 | H2 | 0.127 | ug/l | 5100.82 |
| Se | 82 | 72 | 1 | No Gas | -0.301 | ug/l | 866.10 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 23559.13 |
| Sr | 88 | 72 | 1 | No Gas | 0.024 | ug/l | 1517.07 |
| Sr | 88 | 72 | 3 | He | 0.028 | ug/l | 306.67 |
| Mo | 95 | 115 | 1 | No Gas | 0.006 | ug/l | 132.22 |
| Mo | 95 | 115 | 3 | He | 0.007 | ug/l | 53.33 |
| Mo | 98 | 115 | 1 | No Gas | 0.004 | ug/l | 193.34 |
| Ag | 107 | 115 | 1 | No Gas | -0.067 | ug/l | 122.71 |
| Ag | 109 | 115 | 1 | No Gas | -0.071 | ug/l | 136.06 |
| Cd | 111 | 115 | 1 | No Gas | 0.011 | ug/l | 32.68 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.005 | ug/l | 12.00 |
| Cd | 114 | 115 | 1 | No Gas | 0.020 | ug/l | 63.96 |
| Cd | 114 | 115 | 3 | He | 0.004 | ug/l | 25.53 |
| Sn | 118 | 115 | 1 | No Gas | 0.026 | ug/l | 1387.32 |
| Sn | 118 | 115 | 3 | He | 0.030 | ug/l | 445.56 |
| Sb | 121 | 115 | 1 | No Gas | 0.025 | ug/l | 817.44 |
| Sb | 121 | 115 | 3 | He | 0.024 | ug/l | 243.36 |
| Sb | 123 | 115 | 1 | No Gas | 0.026 | ug/l | 627.41 |
| Sb | 123 | 115 | 3 | He | 0.024 | ug/l | 201.69 |
| Ba | 135 | 115 | 1 | No Gas | 0.012 | ug/l | 73.19 |
| Ba | 137 | 115 | 1 | No Gas | 0.010 | ug/l | 106.45 |
| La | 139 | 115 | 3 | He | 0.000 | ug/l | 13.33 |
| Ce | 140 | 115 | 3 | He | 0.001 | ug/l | 18.89 |
| Hg | 201 | 209 | 1 | No Gas | -0.004 | ug/l | 25.33 |
| Hg | 202 | 209 | 1 | No Gas | -0.001 | ug/l | 63.32 |
| Hg | 202 | 209 | 3 | He | 0.002 | ug/l | 36.32 |
| Tl | 203 | 209 | 3 | He | 0.016 | ug/l | 249.44 |
| Tl | 205 | 209 | 1 | No Gas | 0.012 | ug/l | 1006.71 |
| Tl | 205 | 209 | 3 | He | 0.017 | ug/l | 656.95 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.006 | ug/l | 198.89 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.010 | ug/l | 197.78 |
| Pb | 208 | 209 | 1 | No Gas | 0.007 | ug/l | 814.46 |
| Th | 232 | 209 | 3 | He | 0.008 | ug/l | 459.53 |
| U | 238 | 209 | 1 | No Gas | 0.002 | ug/l | 76.99 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3855411.13 | 100.0 |
| Sc | 45 | 2 | H2 | 1975443.22 | 88.2 |
| Sc | 45 | 3 | He | 257440.61 | 97.4 |
| Ge | 72 | 1 | No Gas | 932949.78 | 97.9 |
| Ge | 72 | 2 | H2 | 661284.25 | 93.7 |
| Ge | 72 | 3 | He | 151297.74 | 95.8 |
| In | 115 | 1 | No Gas | 5458265.64 | 98.0 |
| In | 115 | 3 | He | 1481792.85 | 99.1 |
| Tb | 159 | 1 | No Gas | 6777586.83 | 96.6 |
| Tb | 159 | 3 | He | 3338066.10 | 99.4 |
| Ho | 165 | 1 | No Gas | 6518868.74 | 95.0 |
| Ho | 165 | 3 | He | 3240118.67 | 99.1 |
| Lu | 175 | 1 | No Gas | 6617722.75 | 96.7 |
| Lu | 175 | 3 | He | 2857724.92 | 100.2 |
| Bi | 209 | 1 | No Gas | 4282712.01 | 99.5 |
| Bi | 209 | 3 | He | 2252660.39 | 101.4 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | LFB |
| **File Name** | 025_LFB.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 13:55:04 |
| **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 | 2475.129 | ug/l | 32681269.09 |
| Be | 9 | 45 | 1 | No Gas | 49.324 | ug/l | 263941.18 |
| B | 11 | 45 | 1 | No Gas | 51.851 | ug/l | 160332.66 |
| Na | 23 | 45 | 3 | He | 53002.453 | ug/l | 46837652.08 |
| Mg | 24 | 45 | 3 | He | 51285.389 | ug/l | 25542549.73 |
| Al | 27 | 45 | 1 | No Gas | 51.024 | ug/l | 1059729.05 |
| Si | 28 | 45 | 2 | H2 | 196.216 | ug/l | 426389.69 |
| K | 39 | 72 | 3 | He | 50512.924 | ug/l | 27820709.31 |
| Ca | 40 | 72 | 2 | H2 | 51059.928 | ug/l | 374455445.59 |
| Ti | 47 | 72 | 1 | No Gas | 53.620 | ug/l | 116380.63 |
| V | 51 | 72 | 1 | No Gas | 45.578 | ug/l | 1289370.99 |
| V | 51 | 72 | 3 | He | 47.564 | ug/l | 250413.21 |
| Cr | 52 | 72 | 1 | No Gas | 48.153 | ug/l | 1306404.69 |
| Cr | 52 | 72 | 3 | He | 49.362 | ug/l | 246693.43 |
| Mn | 55 | 72 | 1 | No Gas | 48.401 | ug/l | 1571276.72 |
| Mn | 55 | 72 | 3 | He | 51.083 | ug/l | 169253.01 |
| Fe | 56 | 72 | 2 | H2 | 5152.396 | ug/l | 79849960.48 |
| Fe | 56 | 72 | 3 | He | 5069.421 | ug/l | 22977406.18 |
| Co | 59 | 72 | 1 | No Gas | 48.374 | ug/l | 1291343.82 |
| Ni | 60 | 72 | 1 | No Gas | 47.077 | ug/l | 288834.60 |
| Ni | 60 | 72 | 3 | He | 52.157 | ug/l | 94544.75 |
| Cu | 63 | 72 | 1 | No Gas | 47.803 | ug/l | 697484.79 |
| Cu | 63 | 72 | 3 | He | 50.782 | ug/l | 243509.78 |
| Cu | 65 | 72 | 1 | No Gas | 47.329 | ug/l | 327946.81 |
| Zn | 66 | 72 | 1 | No Gas | 48.614 | ug/l | 250540.91 |
| Zn | 66 | 72 | 3 | He | 54.694 | ug/l | 60420.22 |
| As | 75 | 72 | 1 | No Gas | 51.246 | ug/l | 333589.48 |
| As | 75 | 72 | 3 | He | 50.706 | ug/l | 56814.12 |
| Se | 78 | 72 | 2 | H2 | 50.767 | ug/l | 30320.95 |
| Br | 79 | 72 | 1 | No Gas | 0.511 | ug/l | 12783.71 |
| Br | 79 | 72 | 2 | H2 | 0.495 | ug/l | 7363.98 |
| Se | 82 | 72 | 1 | No Gas | 49.106 | ug/l | 17445.04 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 35743.31 |
| Sr | 88 | 72 | 1 | No Gas | 48.230 | ug/l | 1878205.36 |
| Sr | 88 | 72 | 3 | He | 49.846 | ug/l | 259175.35 |
| Mo | 95 | 115 | 1 | No Gas | 49.222 | ug/l | 351376.62 |
| Mo | 95 | 115 | 3 | He | 51.537 | ug/l | 138375.09 |
| Mo | 98 | 115 | 1 | No Gas | 48.507 | ug/l | 558446.03 |
| Ag | 107 | 115 | 1 | No Gas | 20.260 | ug/l | 368857.02 |
| Ag | 109 | 115 | 1 | No Gas | 20.047 | ug/l | 351327.88 |
| Cd | 111 | 115 | 1 | No Gas | 50.631 | ug/l | 197127.22 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 51.434 | ug/l | 74296.78 |
| Cd | 114 | 115 | 1 | No Gas | 48.677 | ug/l | 434319.35 |
| Cd | 114 | 115 | 3 | He | 50.426 | ug/l | 179967.73 |
| Sn | 118 | 115 | 1 | No Gas | 48.608 | ug/l | 538047.81 |
| Sn | 118 | 115 | 3 | He | 50.598 | ug/l | 172426.76 |
| Sb | 121 | 115 | 1 | No Gas | 51.130 | ug/l | 899027.41 |
| Sb | 121 | 115 | 3 | He | 51.061 | ug/l | 277491.81 |
| Sb | 123 | 115 | 1 | No Gas | 50.343 | ug/l | 682658.59 |
| Sb | 123 | 115 | 3 | He | 50.991 | ug/l | 219168.78 |
| Ba | 135 | 115 | 1 | No Gas | 50.838 | ug/l | 169409.76 |
| Ba | 137 | 115 | 1 | No Gas | 48.355 | ug/l | 286655.82 |
| La | 139 | 115 | 3 | He | 0.006 | ug/l | 112.22 |
| Ce | 140 | 115 | 3 | He | 50.941 | ug/l | 1034813.47 |
| Hg | 201 | 209 | 1 | No Gas | 1.020 | ug/l | 1977.75 |
| Hg | 202 | 209 | 1 | No Gas | 1.043 | ug/l | 4502.53 |
| Hg | 202 | 209 | 3 | He | 1.072 | ug/l | 2422.41 |
| Tl | 203 | 209 | 3 | He | 49.438 | ug/l | 294888.52 |
| Tl | 205 | 209 | 1 | No Gas | 51.660 | ug/l | 1318052.53 |
| Tl | 205 | 209 | 3 | He | 49.071 | ug/l | 705050.43 |
| [Pb] | 206 | 209 | 1 | No Gas | 50.694 | ug/l | 445887.50 |
| [Pb] | 207 | 209 | 1 | No Gas | 51.484 | ug/l | 386827.12 |
| Pb | 208 | 209 | 1 | No Gas | 51.137 | ug/l | 1775214.79 |
| Th | 232 | 209 | 3 | He | 50.015 | ug/l | 970793.53 |
| U | 238 | 209 | 1 | No Gas | 51.986 | ug/l | 1731366.15 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3808356.77 | 98.7 |
| Sc | 45 | 2 | H2 | 1894094.80 | 84.5 |
| Sc | 45 | 3 | He | 256867.75 | 97.2 |
| Ge | 72 | 1 | No Gas | 943711.14 | 99.0 |
| Ge | 72 | 2 | H2 | 654038.86 | 92.7 |
| Ge | 72 | 3 | He | 153278.04 | 97.1 |
| In | 115 | 1 | No Gas | 5241646.80 | 94.1 |
| In | 115 | 3 | He | 1433707.27 | 95.8 |
| Tb | 159 | 1 | No Gas | 6714267.31 | 95.7 |
| Tb | 159 | 3 | He | 3251821.24 | 96.8 |
| Ho | 165 | 1 | No Gas | 6605330.31 | 96.2 |
| Ho | 165 | 3 | He | 3191272.17 | 97.6 |
| Lu | 175 | 1 | No Gas | 6598772.60 | 96.5 |
| Lu | 175 | 3 | He | 2819981.44 | 98.8 |
| Bi | 209 | 1 | No Gas | 3847994.20 | 89.4 |
| Bi | 209 | 3 | He | 2086379.04 | 93.9 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | ICSA |
| **File Name** | 026ICSA.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 14:01:20 |
| **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 | 1.595 | ug/l | 31303.93 |
| Be | 9 | 45 | 1 | No Gas | -0.064 | ug/l | 186.30 |
| B | 11 | 45 | 1 | No Gas | 1.278 | ug/l | 4902.76 |
| Na | 23 | 45 | 3 | He | 103615.540 | ug/l | 89884584.22 |
| Mg | 24 | 45 | 3 | He | 41652.065 | ug/l | 20370997.28 |
| Al | 27 | 45 | 1 | No Gas | 40556.609 | ug/l | 809445267.94 |
| Si | 28 | 45 | 2 | H2 | -0.361 | ug/l | 11818.11 |
| K | 39 | 72 | 3 | He | 39136.684 | ug/l | 21587501.62 |
| Ca | 40 | 72 | 2 | H2 | 117085.869 | ug/l | 841208885.92 |
| Ti | 47 | 72 | 1 | No Gas | 835.466 | ug/l | 1717552.29 |
| V | 51 | 72 | 1 | No Gas | 0.148 | ug/l | 17415.38 |
| V | 51 | 72 | 3 | He | -7.066 | ug/l | 3647.14 |
| Cr | 52 | 72 | 1 | No Gas | -2.072 | ug/l | 65438.30 |
| Cr | 52 | 72 | 3 | He | 0.844 | ug/l | 5794.51 |
| Mn | 55 | 72 | 1 | No Gas | 0.369 | ug/l | 22289.37 |
| Mn | 55 | 72 | 3 | He | 0.187 | ug/l | 781.53 |
| Fe | 56 | 72 | 2 | H2 | 101578.500 | ug/l | 1543087820.13 |
| Fe | 56 | 72 | 3 | He | 100681.617 | ug/l | 456388305.56 |
| Co | 59 | 72 | 1 | No Gas | 0.359 | ug/l | 9504.27 |
| Ni | 60 | 72 | 1 | No Gas | 1.002 | ug/l | 6575.11 |
| Ni | 60 | 72 | 3 | He | 0.214 | ug/l | 516.68 |
| Cu | 63 | 72 | 1 | No Gas | 2.776 | ug/l | 40032.42 |
| Cu | 63 | 72 | 3 | He | 0.129 | ug/l | 1023.83 |
| Cu | 65 | 72 | 1 | No Gas | 0.782 | ug/l | 6081.06 |
| Zn | 66 | 72 | 1 | No Gas | 0.827 | ug/l | 6453.82 |
| Zn | 66 | 72 | 3 | He | 0.523 | ug/l | 1092.27 |
| As | 75 | 72 | 1 | No Gas | -0.525 | ug/l | 16259.53 |
| As | 75 | 72 | 3 | He | -0.239 | ug/l | 517.53 |
| Se | 78 | 72 | 2 | H2 | 0.171 | ug/l | 143.22 |
| Br | 79 | 72 | 1 | No Gas | 1.078 | ug/l | 17639.07 |
| Br | 79 | 72 | 2 | H2 | 0.530 | ug/l | 7317.37 |
| Se | 82 | 72 | 1 | No Gas | 0.027 | ug/l | 913.17 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 24095.67 |
| Sr | 88 | 72 | 1 | No Gas | 1.274 | ug/l | 47700.97 |
| Sr | 88 | 72 | 3 | He | 1.244 | ug/l | 6622.67 |
| Mo | 95 | 115 | 1 | No Gas | 825.536 | ug/l | 5860101.58 |
| Mo | 95 | 115 | 3 | He | 842.393 | ug/l | 2276181.29 |
| Mo | 98 | 115 | 1 | No Gas | 819.807 | ug/l | 9388762.30 |
| Ag | 107 | 115 | 1 | No Gas | 0.008 | ug/l | 1468.67 |
| Ag | 109 | 115 | 1 | No Gas | 0.002 | ug/l | 1394.63 |
| Cd | 111 | 115 | 1 | No Gas | 0.074 | ug/l | 268.32 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.273 | ug/l | 400.67 |
| Cd | 114 | 115 | 1 | No Gas | 0.079 | ug/l | 578.56 |
| Cd | 114 | 115 | 3 | He | 0.192 | ug/l | 701.07 |
| Sn | 118 | 115 | 1 | No Gas | 0.067 | ug/l | 1759.97 |
| Sn | 118 | 115 | 3 | He | 0.067 | ug/l | 545.57 |
| Sb | 121 | 115 | 1 | No Gas | 0.113 | ug/l | 2294.42 |
| Sb | 121 | 115 | 3 | He | 0.105 | ug/l | 673.09 |
| Sb | 123 | 115 | 1 | No Gas | 0.110 | ug/l | 1721.62 |
| Sb | 123 | 115 | 3 | He | 0.101 | ug/l | 521.40 |
| Ba | 135 | 115 | 1 | No Gas | 0.092 | ug/l | 332.68 |
| Ba | 137 | 115 | 1 | No Gas | 0.090 | ug/l | 568.89 |
| La | 139 | 115 | 3 | He | 0.011 | ug/l | 223.34 |
| Ce | 140 | 115 | 3 | He | 0.005 | ug/l | 108.89 |
| Hg | 201 | 209 | 1 | No Gas | -0.001 | ug/l | 30.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.001 | ug/l | 70.65 |
| Hg | 202 | 209 | 3 | He | 0.001 | ug/l | 34.66 |
| Tl | 203 | 209 | 3 | He | 0.053 | ug/l | 479.54 |
| Tl | 205 | 209 | 1 | No Gas | 0.039 | ug/l | 1686.79 |
| Tl | 205 | 209 | 3 | He | 0.049 | ug/l | 1127.17 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.027 | ug/l | 381.12 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.024 | ug/l | 300.01 |
| Pb | 208 | 209 | 1 | No Gas | 0.026 | ug/l | 1448.93 |
| Th | 232 | 209 | 3 | He | 0.070 | ug/l | 1751.49 |
| U | 238 | 209 | 1 | No Gas | 0.005 | ug/l | 195.96 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3622608.68 | 93.9 |
| Sc | 45 | 2 | H2 | 1803065.66 | 80.5 |
| Sc | 45 | 3 | He | 244908.69 | 92.7 |
| Ge | 72 | 1 | No Gas | 870860.29 | 91.4 |
| Ge | 72 | 2 | H2 | 622496.89 | 88.2 |
| Ge | 72 | 3 | He | 148863.79 | 94.3 |
| In | 115 | 1 | No Gas | 5068737.51 | 91.0 |
| In | 115 | 3 | He | 1400996.80 | 93.7 |
| Tb | 159 | 1 | No Gas | 6747687.81 | 96.2 |
| Tb | 159 | 3 | He | 3449328.69 | 102.7 |
| Ho | 165 | 1 | No Gas | 6544675.70 | 95.4 |
| Ho | 165 | 3 | He | 3370705.28 | 103.1 |
| Lu | 175 | 1 | No Gas | 6545971.89 | 95.7 |
| Lu | 175 | 3 | He | 2924529.74 | 102.5 |
| Bi | 209 | 1 | No Gas | 3969524.75 | 92.2 |
| Bi | 209 | 3 | He | 2188877.11 | 98.5 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | ICSAB |
| **File Name** | 027ICSB.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 14:07:36 |
| **Sample Type** | ICSAB |
| **Total Dilution** | 1.0000 |
| **Comment** | ICPMS-6020-W-D |
| **Operator** | CAR/SRH/JPV/AEM |
| **Method** | SW6020/SW6020B |

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Li | 7 | 45 | 1 | No Gas | 1.179 | ug/l | 27544.51 |
| Be | 9 | 45 | 1 | No Gas | -0.069 | ug/l | 169.64 |
| B | 11 | 45 | 1 | No Gas | 0.952 | ug/l | 4172.93 |
| Na | 23 | 45 | 3 | He | 102686.184 | ug/l | 88642409.79 |
| Mg | 24 | 45 | 3 | He | 41509.522 | ug/l | 20202144.57 |
| Al | 27 | 45 | 1 | No Gas | 38340.065 | ug/l | 811505783.46 |
| Si | 28 | 45 | 2 | H2 | -0.035 | ug/l | 12574.39 |
| K | 39 | 72 | 3 | He | 39351.128 | ug/l | 21601905.51 |
| Ca | 40 | 72 | 2 | H2 | 119862.405 | ug/l | 861787336.98 |
| Ti | 47 | 72 | 1 | No Gas | 788.521 | ug/l | 1706232.80 |
| V | 51 | 72 | 1 | No Gas | 19.597 | ug/l | 562101.57 |
| V | 51 | 72 | 3 | He | 12.082 | ug/l | 89349.20 |
| Cr | 52 | 72 | 1 | No Gas | 16.492 | ug/l | 524868.17 |
| Cr | 52 | 72 | 3 | He | 19.950 | ug/l | 100168.71 |
| Mn | 55 | 72 | 1 | No Gas | 19.491 | ug/l | 639294.24 |
| Mn | 55 | 72 | 3 | He | 19.752 | ug/l | 65237.55 |
| Fe | 56 | 72 | 2 | H2 | 104045.595 | ug/l | 1582055519.79 |
| Fe | 56 | 72 | 3 | He | 100496.339 | ug/l | 453280414.45 |
| Co | 59 | 72 | 1 | No Gas | 19.800 | ug/l | 528621.83 |
| Ni | 60 | 72 | 1 | No Gas | 19.507 | ug/l | 120078.02 |
| Ni | 60 | 72 | 3 | He | 20.743 | ug/l | 37499.18 |
| Cu | 63 | 72 | 1 | No Gas | 21.842 | ug/l | 319554.64 |
| Cu | 63 | 72 | 3 | He | 20.068 | ug/l | 96022.24 |
| Cu | 65 | 72 | 1 | No Gas | 19.595 | ug/l | 136316.28 |
| Zn | 66 | 72 | 1 | No Gas | 10.144 | ug/l | 54285.59 |
| Zn | 66 | 72 | 3 | He | 10.656 | ug/l | 12125.11 |
| As | 75 | 72 | 1 | No Gas | 10.512 | ug/l | 84455.53 |
| As | 75 | 72 | 3 | He | 9.562 | ug/l | 11290.81 |
| Se | 78 | 72 | 2 | H2 | 10.307 | ug/l | 6074.82 |
| Br | 79 | 72 | 1 | No Gas | 1.011 | ug/l | 17858.89 |
| Br | 79 | 72 | 2 | H2 | 0.562 | ug/l | 7530.36 |
| Se | 82 | 72 | 1 | No Gas | 11.202 | ug/l | 4712.31 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 41997.51 |
| Sr | 88 | 72 | 1 | No Gas | 1.260 | ug/l | 49600.41 |
| Sr | 88 | 72 | 3 | He | 1.218 | ug/l | 6454.82 |
| Mo | 95 | 115 | 1 | No Gas | 777.962 | ug/l | 5978068.04 |
| Mo | 95 | 115 | 3 | He | 844.494 | ug/l | 2290541.25 |
| Mo | 98 | 115 | 1 | No Gas | 769.695 | ug/l | 9535714.51 |
| Ag | 107 | 115 | 1 | No Gas | 4.587 | ug/l | 90994.88 |
| Ag | 109 | 115 | 1 | No Gas | 4.592 | ug/l | 87731.69 |
| Cd | 111 | 115 | 1 | No Gas | 9.640 | ug/l | 40397.21 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 10.415 | ug/l | 15203.33 |
| Cd | 114 | 115 | 1 | No Gas | 9.402 | ug/l | 90204.69 |
| Cd | 114 | 115 | 3 | He | 10.087 | ug/l | 36381.61 |
| Sn | 118 | 115 | 1 | No Gas | 0.081 | ug/l | 2059.40 |
| Sn | 118 | 115 | 3 | He | 0.088 | ug/l | 620.02 |
| Sb | 121 | 115 | 1 | No Gas | 0.073 | ug/l | 1727.28 |
| Sb | 121 | 115 | 3 | He | 0.078 | ug/l | 526.40 |
| Sb | 123 | 115 | 1 | No Gas | 0.071 | ug/l | 1301.53 |
| Sb | 123 | 115 | 3 | He | 0.093 | ug/l | 491.11 |
| Ba | 135 | 115 | 1 | No Gas | 0.102 | ug/l | 395.89 |
| Ba | 137 | 115 | 1 | No Gas | 0.100 | ug/l | 682.00 |
| La | 139 | 115 | 3 | He | 0.012 | ug/l | 242.22 |
| Ce | 140 | 115 | 3 | He | 0.005 | ug/l | 101.11 |
| Hg | 201 | 209 | 1 | No Gas | -0.001 | ug/l | 30.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.002 | ug/l | 77.32 |
| Hg | 202 | 209 | 3 | He | 0.004 | ug/l | 40.99 |
| Tl | 203 | 209 | 3 | He | 0.028 | ug/l | 323.47 |
| Tl | 205 | 209 | 1 | No Gas | 0.015 | ug/l | 1067.83 |
| Tl | 205 | 209 | 3 | He | 0.024 | ug/l | 743.66 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.029 | ug/l | 416.68 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.032 | ug/l | 384.45 |
| Pb | 208 | 209 | 1 | No Gas | 0.031 | ug/l | 1721.17 |
| Th | 232 | 209 | 3 | He | 0.029 | ug/l | 899.06 |
| U | 238 | 209 | 1 | No Gas | 0.003 | ug/l | 115.98 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3830809.21 | 99.3 |
| Sc | 45 | 2 | H2 | 1815326.50 | 81.0 |
| Sc | 45 | 3 | He | 243710.32 | 92.2 |
| Ge | 72 | 1 | No Gas | 915882.95 | 96.1 |
| Ge | 72 | 2 | H2 | 623298.59 | 88.4 |
| Ge | 72 | 3 | He | 148129.30 | 93.8 |
| In | 115 | 1 | No Gas | 5477663.88 | 98.3 |
| In | 115 | 3 | He | 1406368.73 | 94.0 |
| Tb | 159 | 1 | No Gas | 7136363.14 | 101.8 |
| Tb | 159 | 3 | He | 3383374.95 | 100.7 |
| Ho | 165 | 1 | No Gas | 7026229.84 | 102.4 |
| Ho | 165 | 3 | He | 3343172.38 | 102.2 |
| Lu | 175 | 1 | No Gas | 7042264.21 | 102.9 |
| Lu | 175 | 3 | He | 2962608.42 | 103.8 |
| Bi | 209 | 1 | No Gas | 4170565.66 | 96.9 |
| Bi | 209 | 3 | He | 2190079.99 | 98.6 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 028BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 14:13:54 |
| **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 | 1.369 | ug/l | 29981.41 |
| Be | 9 | 45 | 1 | No Gas | -0.065 | ug/l | 193.29 |
| B | 11 | 45 | 1 | No Gas | 0.687 | ug/l | 3307.70 |
| Na | 23 | 45 | 3 | He | 23.650 | ug/l | 59615.16 |
| Mg | 24 | 45 | 3 | He | -0.167 | ug/l | 1054.61 |
| Al | 27 | 45 | 1 | No Gas | 0.054 | ug/l | 18666.34 |
| Si | 28 | 45 | 2 | H2 | -1.785 | ug/l | 9855.88 |
| K | 39 | 72 | 3 | He | 6.986 | ug/l | 135688.39 |
| Ca | 40 | 72 | 2 | H2 | 2.618 | ug/l | 172712.67 |
| Ti | 47 | 72 | 1 | No Gas | 0.146 | ug/l | 682.37 |
| V | 51 | 72 | 1 | No Gas | -0.410 | ug/l | 2722.88 |
| V | 51 | 72 | 3 | He | -6.737 | ug/l | 5220.95 |
| Cr | 52 | 72 | 1 | No Gas | -3.178 | ug/l | 40965.67 |
| Cr | 52 | 72 | 3 | He | -0.047 | ug/l | 1397.85 |
| Mn | 55 | 72 | 1 | No Gas | 0.223 | ug/l | 18418.29 |
| Mn | 55 | 72 | 3 | He | -0.004 | ug/l | 151.64 |
| Fe | 56 | 72 | 2 | H2 | 1.097 | ug/l | 27189.13 |
| Fe | 56 | 72 | 3 | He | 0.720 | ug/l | 10414.18 |
| Co | 59 | 72 | 1 | No Gas | 0.002 | ug/l | 469.08 |
| Ni | 60 | 72 | 1 | No Gas | 0.177 | ug/l | 1829.83 |
| Ni | 60 | 72 | 3 | He | -0.011 | ug/l | 112.22 |
| Cu | 63 | 72 | 1 | No Gas | 0.121 | ug/l | 3424.45 |
| Cu | 63 | 72 | 3 | He | -0.007 | ug/l | 380.60 |
| Cu | 65 | 72 | 1 | No Gas | 0.010 | ug/l | 1045.79 |
| Zn | 66 | 72 | 1 | No Gas | -0.071 | ug/l | 2178.62 |
| Zn | 66 | 72 | 3 | He | -0.059 | ug/l | 463.34 |
| As | 75 | 72 | 1 | No Gas | -1.496 | ug/l | 10938.64 |
| As | 75 | 72 | 3 | He | -0.348 | ug/l | 404.13 |
| Se | 78 | 72 | 2 | H2 | -0.021 | ug/l | 33.11 |
| Br | 79 | 72 | 1 | No Gas | 0.188 | ug/l | 8975.00 |
| Br | 79 | 72 | 2 | H2 | 0.113 | ug/l | 5054.21 |
| Se | 82 | 72 | 1 | No Gas | 0.279 | ug/l | 1025.58 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 24415.68 |
| Sr | 88 | 72 | 1 | No Gas | 0.000 | ug/l | 538.95 |
| Sr | 88 | 72 | 3 | He | 0.004 | ug/l | 177.78 |
| Mo | 95 | 115 | 1 | No Gas | 0.456 | ug/l | 3726.08 |
| Mo | 95 | 115 | 3 | He | 0.363 | ug/l | 1085.60 |
| Mo | 98 | 115 | 1 | No Gas | 0.438 | ug/l | 5781.56 |
| Ag | 107 | 115 | 1 | No Gas | 0.002 | ug/l | 1529.37 |
| Ag | 109 | 115 | 1 | No Gas | -0.003 | ug/l | 1470.00 |
| Cd | 111 | 115 | 1 | No Gas | 0.003 | ug/l | 0.70 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.006 | ug/l | 14.34 |
| Cd | 114 | 115 | 1 | No Gas | 0.000 | ug/l | -132.35 |
| Cd | 114 | 115 | 3 | He | 0.004 | ug/l | 28.37 |
| Sn | 118 | 115 | 1 | No Gas | 0.010 | ug/l | 1267.56 |
| Sn | 118 | 115 | 3 | He | 0.005 | ug/l | 356.68 |
| Sb | 121 | 115 | 1 | No Gas | 0.025 | ug/l | 859.12 |
| Sb | 121 | 115 | 3 | He | 0.030 | ug/l | 282.36 |
| Sb | 123 | 115 | 1 | No Gas | 0.029 | ug/l | 707.76 |
| Sb | 123 | 115 | 3 | He | 0.023 | ug/l | 198.69 |
| Ba | 135 | 115 | 1 | No Gas | 0.002 | ug/l | 36.59 |
| Ba | 137 | 115 | 1 | No Gas | -0.001 | ug/l | 39.92 |
| La | 139 | 115 | 3 | He | 0.000 | ug/l | 6.67 |
| Ce | 140 | 115 | 3 | He | 0.000 | ug/l | 12.22 |
| Hg | 201 | 209 | 1 | No Gas | -0.005 | ug/l | 23.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.000 | ug/l | 70.65 |
| Hg | 202 | 209 | 3 | He | -0.002 | ug/l | 27.99 |
| Tl | 203 | 209 | 3 | He | 0.021 | ug/l | 293.45 |
| Tl | 205 | 209 | 1 | No Gas | 0.008 | ug/l | 910.04 |
| Tl | 205 | 209 | 3 | He | 0.016 | ug/l | 659.62 |
| [Pb] | 206 | 209 | 1 | No Gas | -0.001 | ug/l | 123.33 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.000 | ug/l | 117.78 |
| Pb | 208 | 209 | 1 | No Gas | 0.000 | ug/l | 511.12 |
| Th | 232 | 209 | 3 | He | 0.002 | ug/l | 348.81 |
| 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 | 3816919.65 | 99.0 |
| Sc | 45 | 2 | H2 | 2001716.97 | 89.3 |
| Sc | 45 | 3 | He | 250318.18 | 94.7 |
| Ge | 72 | 1 | No Gas | 899624.94 | 94.4 |
| Ge | 72 | 2 | H2 | 667905.57 | 94.7 |
| Ge | 72 | 3 | He | 151599.04 | 96.0 |
| In | 115 | 1 | No Gas | 5684985.38 | 102.1 |
| In | 115 | 3 | He | 1499891.21 | 100.3 |
| Tb | 159 | 1 | No Gas | 7146169.72 | 101.9 |
| Tb | 159 | 3 | He | 3407849.14 | 101.5 |
| Ho | 165 | 1 | No Gas | 6846765.69 | 99.8 |
| Ho | 165 | 3 | He | 3370244.84 | 103.1 |
| Lu | 175 | 1 | No Gas | 6841623.05 | 100.0 |
| Lu | 175 | 3 | He | 2914574.52 | 102.2 |
| Bi | 209 | 1 | No Gas | 4324935.17 | 100.5 |
| Bi | 209 | 3 | He | 2345588.88 | 105.6 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 029BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 14:20:07 |
| **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 | 1.275 | ug/l | 29026.53 |
| Be | 9 | 45 | 1 | No Gas | -0.064 | ug/l | 197.29 |
| B | 11 | 45 | 1 | No Gas | 0.560 | ug/l | 2943.47 |
| Na | 23 | 45 | 3 | He | 12.881 | ug/l | 49409.61 |
| Mg | 24 | 45 | 3 | He | -0.226 | ug/l | 1011.37 |
| Al | 27 | 45 | 1 | No Gas | -0.176 | ug/l | 13946.53 |
| Si | 28 | 45 | 2 | H2 | -2.007 | ug/l | 9332.68 |
| K | 39 | 72 | 3 | He | -2.144 | ug/l | 129781.85 |
| Ca | 40 | 72 | 2 | H2 | 1.632 | ug/l | 166420.44 |
| Ti | 47 | 72 | 1 | No Gas | 0.084 | ug/l | 553.90 |
| V | 51 | 72 | 1 | No Gas | -0.096 | ug/l | 11336.96 |
| V | 51 | 72 | 3 | He | -6.644 | ug/l | 5611.10 |
| Cr | 52 | 72 | 1 | No Gas | -3.111 | ug/l | 42713.64 |
| Cr | 52 | 72 | 3 | He | -0.023 | ug/l | 1512.31 |
| Mn | 55 | 72 | 1 | No Gas | 0.171 | ug/l | 16846.28 |
| Mn | 55 | 72 | 3 | He | 0.000 | ug/l | 162.64 |
| Fe | 56 | 72 | 2 | H2 | 0.450 | ug/l | 16768.12 |
| Fe | 56 | 72 | 3 | He | 0.075 | ug/l | 7390.97 |
| Co | 59 | 72 | 1 | No Gas | 0.003 | ug/l | 495.70 |
| Ni | 60 | 72 | 1 | No Gas | 0.068 | ug/l | 1184.37 |
| Ni | 60 | 72 | 3 | He | -0.007 | ug/l | 118.89 |
| Cu | 63 | 72 | 1 | No Gas | 0.064 | ug/l | 2619.29 |
| Cu | 63 | 72 | 3 | He | -0.015 | ug/l | 337.27 |
| Cu | 65 | 72 | 1 | No Gas | -0.013 | ug/l | 891.72 |
| Zn | 66 | 72 | 1 | No Gas | -0.051 | ug/l | 2285.17 |
| Zn | 66 | 72 | 3 | He | 0.047 | ug/l | 577.79 |
| As | 75 | 72 | 1 | No Gas | -1.313 | ug/l | 12089.41 |
| As | 75 | 72 | 3 | He | -0.360 | ug/l | 387.73 |
| Se | 78 | 72 | 2 | H2 | -0.034 | ug/l | 25.33 |
| Br | 79 | 72 | 1 | No Gas | 0.130 | ug/l | 8399.15 |
| Br | 79 | 72 | 2 | H2 | 0.058 | ug/l | 4721.44 |
| Se | 82 | 72 | 1 | No Gas | -0.003 | ug/l | 935.57 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 23169.50 |
| Sr | 88 | 72 | 1 | No Gas | 0.002 | ug/l | 625.45 |
| Sr | 88 | 72 | 3 | He | 0.003 | ug/l | 170.00 |
| Mo | 95 | 115 | 1 | No Gas | 0.105 | ug/l | 934.48 |
| Mo | 95 | 115 | 3 | He | 0.107 | ug/l | 340.01 |
| Mo | 98 | 115 | 1 | No Gas | 0.098 | ug/l | 1425.23 |
| Ag | 107 | 115 | 1 | No Gas | -0.003 | ug/l | 1431.32 |
| Ag | 109 | 115 | 1 | No Gas | -0.006 | ug/l | 1417.98 |
| Cd | 111 | 115 | 1 | No Gas | 0.001 | ug/l | -9.08 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.005 | ug/l | 11.22 |
| Cd | 114 | 115 | 1 | No Gas | 0.004 | ug/l | -97.33 |
| Cd | 114 | 115 | 3 | He | 0.003 | ug/l | 21.24 |
| Sn | 118 | 115 | 1 | No Gas | -0.002 | ug/l | 1121.16 |
| Sn | 118 | 115 | 3 | He | 0.004 | ug/l | 353.34 |
| Sb | 121 | 115 | 1 | No Gas | 0.021 | ug/l | 773.10 |
| Sb | 121 | 115 | 3 | He | 0.024 | ug/l | 241.36 |
| Sb | 123 | 115 | 1 | No Gas | 0.021 | ug/l | 582.40 |
| Sb | 123 | 115 | 3 | He | 0.024 | ug/l | 198.69 |
| Ba | 135 | 115 | 1 | No Gas | 0.003 | ug/l | 43.25 |
| Ba | 137 | 115 | 1 | No Gas | 0.004 | ug/l | 73.19 |
| La | 139 | 115 | 3 | He | 0.000 | ug/l | 8.89 |
| Ce | 140 | 115 | 3 | He | 0.000 | ug/l | 10.00 |
| Hg | 201 | 209 | 1 | No Gas | -0.005 | ug/l | 25.00 |
| Hg | 202 | 209 | 1 | No Gas | -0.001 | ug/l | 64.66 |
| Hg | 202 | 209 | 3 | He | 0.000 | ug/l | 31.99 |
| Tl | 203 | 209 | 3 | He | 0.015 | ug/l | 250.10 |
| Tl | 205 | 209 | 1 | No Gas | 0.006 | ug/l | 851.14 |
| Tl | 205 | 209 | 3 | He | 0.014 | ug/l | 632.27 |
| [Pb] | 206 | 209 | 1 | No Gas | -0.001 | ug/l | 127.78 |
| [Pb] | 207 | 209 | 1 | No Gas | -0.001 | ug/l | 107.78 |
| Pb | 208 | 209 | 1 | No Gas | -0.001 | ug/l | 486.67 |
| Th | 232 | 209 | 3 | He | 0.000 | ug/l | 314.80 |
| U | 238 | 209 | 1 | No Gas | 0.000 | ug/l | 25.99 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3852940.60 | 99.9 |
| Sc | 45 | 2 | H2 | 1996873.20 | 89.1 |
| Sc | 45 | 3 | He | 247030.54 | 93.5 |
| Ge | 72 | 1 | No Gas | 902068.83 | 94.7 |
| Ge | 72 | 2 | H2 | 673074.83 | 95.4 |
| Ge | 72 | 3 | He | 150629.83 | 95.4 |
| In | 115 | 1 | No Gas | 5721039.94 | 102.7 |
| In | 115 | 3 | He | 1487953.97 | 99.5 |
| Tb | 159 | 1 | No Gas | 7049491.64 | 100.5 |
| Tb | 159 | 3 | He | 3414820.59 | 101.7 |
| Ho | 165 | 1 | No Gas | 6863686.15 | 100.0 |
| Ho | 165 | 3 | He | 3319666.61 | 101.5 |
| Lu | 175 | 1 | No Gas | 6875367.42 | 100.5 |
| Lu | 175 | 3 | He | 2878325.38 | 100.9 |
| Bi | 209 | 1 | No Gas | 4346695.29 | 101.0 |
| Bi | 209 | 3 | He | 2320427.53 | 104.5 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | CCV |
| **File Name** | 030_CCV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 14:26:21 |
| **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 | 628.747 | ug/l | 8389298.86 |
| Be | 9 | 45 | 1 | No Gas | 47.967 | ug/l | 259212.57 |
| B | 11 | 45 | 1 | No Gas | 54.730 | ug/l | 170794.76 |
| Na | 23 | 45 | 3 | He | 13807.068 | ug/l | 12255258.71 |
| Mg | 24 | 45 | 3 | He | 13592.702 | ug/l | 6784562.61 |
| Al | 27 | 45 | 1 | No Gas | 51.420 | ug/l | 1077558.72 |
| Si | 28 | 45 | 2 | H2 | 219.360 | ug/l | 526143.51 |
| K | 39 | 72 | 3 | He | 12867.089 | ug/l | 7231427.74 |
| Ca | 40 | 72 | 2 | H2 | 13155.218 | ug/l | 105634277.22 |
| Ti | 47 | 72 | 1 | No Gas | 51.789 | ug/l | 111206.78 |
| V | 51 | 72 | 1 | No Gas | 48.347 | ug/l | 1353632.89 |
| V | 51 | 72 | 3 | He | 45.127 | ug/l | 239989.88 |
| Cr | 52 | 72 | 1 | No Gas | 48.341 | ug/l | 1294019.31 |
| Cr | 52 | 72 | 3 | He | 50.630 | ug/l | 254662.22 |
| Mn | 55 | 72 | 1 | No Gas | 53.056 | ug/l | 1701367.84 |
| Mn | 55 | 72 | 3 | He | 52.452 | ug/l | 174937.91 |
| Fe | 56 | 72 | 2 | H2 | 1360.138 | ug/l | 23063296.86 |
| Fe | 56 | 72 | 3 | He | 1372.923 | ug/l | 6271461.29 |
| Co | 59 | 72 | 1 | No Gas | 52.460 | ug/l | 1385394.60 |
| Ni | 60 | 72 | 1 | No Gas | 51.123 | ug/l | 310262.06 |
| Ni | 60 | 72 | 3 | He | 54.714 | ug/l | 99837.14 |
| Cu | 63 | 72 | 1 | No Gas | 51.936 | ug/l | 749612.66 |
| Cu | 63 | 72 | 3 | He | 54.193 | ug/l | 261579.11 |
| Cu | 65 | 72 | 1 | No Gas | 51.834 | ug/l | 355207.57 |
| Zn | 66 | 72 | 1 | No Gas | 49.580 | ug/l | 252699.95 |
| Zn | 66 | 72 | 3 | He | 54.610 | ug/l | 60714.81 |
| As | 75 | 72 | 1 | No Gas | 52.761 | ug/l | 338338.04 |
| As | 75 | 72 | 3 | He | 51.481 | ug/l | 58038.88 |
| Se | 78 | 72 | 2 | H2 | 52.338 | ug/l | 34182.25 |
| Br | 79 | 72 | 1 | No Gas | 0.284 | ug/l | 10046.94 |
| Br | 79 | 72 | 2 | H2 | 0.275 | ug/l | 6382.11 |
| Se | 82 | 72 | 1 | No Gas | 53.707 | ug/l | 18754.84 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 36883.91 |
| Sr | 88 | 72 | 1 | No Gas | 53.436 | ug/l | 2058891.05 |
| Sr | 88 | 72 | 3 | He | 50.878 | ug/l | 266345.48 |
| Mo | 95 | 115 | 1 | No Gas | 49.400 | ug/l | 379014.88 |
| Mo | 95 | 115 | 3 | He | 53.026 | ug/l | 146619.99 |
| Mo | 98 | 115 | 1 | No Gas | 49.497 | ug/l | 612407.18 |
| Ag | 107 | 115 | 1 | No Gas | 20.173 | ug/l | 394847.87 |
| Ag | 109 | 115 | 1 | No Gas | 19.976 | ug/l | 376222.70 |
| Cd | 111 | 115 | 1 | No Gas | 52.223 | ug/l | 218622.42 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 53.429 | ug/l | 79478.02 |
| Cd | 114 | 115 | 1 | No Gas | 50.773 | ug/l | 486970.46 |
| Cd | 114 | 115 | 3 | He | 52.282 | ug/l | 192155.04 |
| Sn | 118 | 115 | 1 | No Gas | 49.956 | ug/l | 594425.03 |
| Sn | 118 | 115 | 3 | He | 51.554 | ug/l | 180916.04 |
| Sb | 121 | 115 | 1 | No Gas | 52.209 | ug/l | 986771.34 |
| Sb | 121 | 115 | 3 | He | 52.719 | ug/l | 295021.05 |
| Sb | 123 | 115 | 1 | No Gas | 52.022 | ug/l | 758245.30 |
| Sb | 123 | 115 | 3 | He | 52.342 | ug/l | 231682.95 |
| Ba | 135 | 115 | 1 | No Gas | 52.520 | ug/l | 188359.86 |
| Ba | 137 | 115 | 1 | No Gas | 49.946 | ug/l | 318542.92 |
| La | 139 | 115 | 3 | He | 52.290 | ug/l | 1027228.54 |
| Ce | 140 | 115 | 3 | He | 52.204 | ug/l | 1092056.32 |
| Hg | 201 | 209 | 1 | No Gas | 0.988 | ug/l | 2143.08 |
| Hg | 202 | 209 | 1 | No Gas | 1.032 | ug/l | 4976.61 |
| Hg | 202 | 209 | 3 | He | 1.046 | ug/l | 2613.74 |
| Tl | 203 | 209 | 3 | He | 48.061 | ug/l | 317224.38 |
| Tl | 205 | 209 | 1 | No Gas | 48.179 | ug/l | 1374533.67 |
| Tl | 205 | 209 | 3 | He | 47.779 | ug/l | 759591.78 |
| [Pb] | 206 | 209 | 1 | No Gas | 51.005 | ug/l | 501499.47 |
| [Pb] | 207 | 209 | 1 | No Gas | 51.853 | ug/l | 435566.14 |
| Pb | 208 | 209 | 1 | No Gas | 51.401 | ug/l | 1994340.42 |
| Th | 232 | 209 | 3 | He | 47.749 | ug/l | 1025540.56 |
| U | 238 | 209 | 1 | No Gas | 50.929 | ug/l | 1896604.97 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3737730.26 | 96.9 |
| Sc | 45 | 2 | H2 | 2038295.94 | 91.0 |
| Sc | 45 | 3 | He | 249895.60 | 94.6 |
| Ge | 72 | 1 | No Gas | 906814.93 | 95.2 |
| Ge | 72 | 2 | H2 | 694577.65 | 98.5 |
| Ge | 72 | 3 | He | 149835.72 | 94.9 |
| In | 115 | 1 | No Gas | 5477115.77 | 98.3 |
| In | 115 | 3 | He | 1433394.64 | 95.8 |
| Tb | 159 | 1 | No Gas | 6882421.76 | 98.1 |
| Tb | 159 | 3 | He | 3388771.49 | 100.9 |
| Ho | 165 | 1 | No Gas | 6842705.33 | 99.7 |
| Ho | 165 | 3 | He | 3287657.17 | 100.5 |
| Lu | 175 | 1 | No Gas | 6917898.54 | 101.1 |
| Lu | 175 | 3 | He | 2782570.62 | 97.5 |
| Bi | 209 | 1 | No Gas | 4177571.57 | 97.0 |
| Bi | 209 | 3 | He | 2241582.56 | 100.9 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | CCB |
| **File Name** | 031_CCB.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 14:32:36 |
| **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 | 1.306 | ug/l | 29990.78 |
| Be | 9 | 45 | 1 | No Gas | -0.065 | ug/l | 196.96 |
| B | 11 | 45 | 1 | No Gas | 0.804 | ug/l | 3792.67 |
| Na | 23 | 45 | 3 | He | 7.525 | ug/l | 43792.36 |
| Mg | 24 | 45 | 3 | He | -0.191 | ug/l | 1008.04 |
| Al | 27 | 45 | 1 | No Gas | -0.244 | ug/l | 12732.11 |
| Si | 28 | 45 | 2 | H2 | -1.860 | ug/l | 9705.05 |
| K | 39 | 72 | 3 | He | -4.062 | ug/l | 124730.20 |
| Ca | 40 | 72 | 2 | H2 | 0.410 | ug/l | 160127.18 |
| Ti | 47 | 72 | 1 | No Gas | 0.029 | ug/l | 452.13 |
| V | 51 | 72 | 1 | No Gas | -0.168 | ug/l | 11071.87 |
| V | 51 | 72 | 3 | He | -6.170 | ug/l | 7527.52 |
| Cr | 52 | 72 | 1 | No Gas | -2.815 | ug/l | 51400.75 |
| Cr | 52 | 72 | 3 | He | 0.008 | ug/l | 1616.77 |
| Mn | 55 | 72 | 1 | No Gas | 0.191 | ug/l | 18035.33 |
| Mn | 55 | 72 | 3 | He | -0.006 | ug/l | 139.30 |
| Fe | 56 | 72 | 2 | H2 | 0.167 | ug/l | 12362.67 |
| Fe | 56 | 72 | 3 | He | 0.040 | ug/l | 7008.74 |
| Co | 59 | 72 | 1 | No Gas | -0.002 | ug/l | 385.91 |
| Ni | 60 | 72 | 1 | No Gas | 0.034 | ug/l | 1011.37 |
| Ni | 60 | 72 | 3 | He | -0.013 | ug/l | 104.44 |
| Cu | 63 | 72 | 1 | No Gas | 0.032 | ug/l | 2228.40 |
| Cu | 63 | 72 | 3 | He | -0.007 | ug/l | 367.60 |
| Cu | 65 | 72 | 1 | No Gas | -0.040 | ug/l | 739.65 |
| Zn | 66 | 72 | 1 | No Gas | -0.138 | ug/l | 1895.70 |
| Zn | 66 | 72 | 3 | He | -0.065 | ug/l | 438.90 |
| As | 75 | 72 | 1 | No Gas | -0.678 | ug/l | 16312.25 |
| As | 75 | 72 | 3 | He | -0.343 | ug/l | 394.87 |
| Se | 78 | 72 | 2 | H2 | -0.020 | ug/l | 34.89 |
| Br | 79 | 72 | 1 | No Gas | 0.156 | ug/l | 8958.37 |
| Br | 79 | 72 | 2 | H2 | 0.099 | ug/l | 5097.46 |
| Se | 82 | 72 | 1 | No Gas | -0.656 | ug/l | 742.47 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 23772.54 |
| Sr | 88 | 72 | 1 | No Gas | -0.004 | ug/l | 422.50 |
| Sr | 88 | 72 | 3 | He | 0.002 | ug/l | 163.34 |
| Mo | 95 | 115 | 1 | No Gas | 0.061 | ug/l | 617.80 |
| Mo | 95 | 115 | 3 | He | 0.071 | ug/l | 232.22 |
| Mo | 98 | 115 | 1 | No Gas | 0.062 | ug/l | 1006.78 |
| Ag | 107 | 115 | 1 | No Gas | -0.004 | ug/l | 1496.68 |
| Ag | 109 | 115 | 1 | No Gas | -0.009 | ug/l | 1432.65 |
| Cd | 111 | 115 | 1 | No Gas | 0.013 | ug/l | 46.43 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.006 | ug/l | 12.33 |
| Cd | 114 | 115 | 1 | No Gas | 0.010 | ug/l | -38.30 |
| Cd | 114 | 115 | 3 | He | 0.005 | ug/l | 30.01 |
| Sn | 118 | 115 | 1 | No Gas | 0.011 | ug/l | 1360.71 |
| Sn | 118 | 115 | 3 | He | 0.015 | ug/l | 382.23 |
| Sb | 121 | 115 | 1 | No Gas | 0.071 | ug/l | 1879.32 |
| Sb | 121 | 115 | 3 | He | 0.064 | ug/l | 462.39 |
| Sb | 123 | 115 | 1 | No Gas | 0.071 | ug/l | 1437.22 |
| Sb | 123 | 115 | 3 | He | 0.065 | ug/l | 375.71 |
| Ba | 135 | 115 | 1 | No Gas | -0.002 | ug/l | 23.29 |
| Ba | 137 | 115 | 1 | No Gas | -0.001 | ug/l | 36.59 |
| La | 139 | 115 | 3 | He | 0.000 | ug/l | 10.00 |
| Ce | 140 | 115 | 3 | He | 0.000 | ug/l | 7.78 |
| Hg | 201 | 209 | 1 | No Gas | 0.000 | ug/l | 38.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.002 | ug/l | 86.65 |
| Hg | 202 | 209 | 3 | He | 0.002 | ug/l | 36.99 |
| Tl | 203 | 209 | 3 | He | 0.110 | ug/l | 891.06 |
| Tl | 205 | 209 | 1 | No Gas | 0.078 | ug/l | 3220.42 |
| Tl | 205 | 209 | 3 | He | 0.109 | ug/l | 2171.05 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.000 | ug/l | 144.45 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.001 | ug/l | 134.45 |
| Pb | 208 | 209 | 1 | No Gas | 0.000 | ug/l | 581.12 |
| Th | 232 | 209 | 3 | He | 0.036 | ug/l | 1105.16 |
| U | 238 | 209 | 1 | No Gas | 0.003 | ug/l | 129.98 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3952278.28 | 102.5 |
| Sc | 45 | 2 | H2 | 2005385.46 | 89.5 |
| Sc | 45 | 3 | He | 241890.96 | 91.6 |
| Ge | 72 | 1 | No Gas | 933115.34 | 97.9 |
| Ge | 72 | 2 | H2 | 686782.37 | 97.4 |
| Ge | 72 | 3 | He | 145991.14 | 92.4 |
| In | 115 | 1 | No Gas | 6056493.53 | 108.7 |
| In | 115 | 3 | He | 1445644.70 | 96.6 |
| Tb | 159 | 1 | No Gas | 7541951.37 | 107.5 |
| Tb | 159 | 3 | He | 3423898.00 | 101.9 |
| Ho | 165 | 1 | No Gas | 7493408.46 | 109.2 |
| Ho | 165 | 3 | He | 3330742.71 | 101.8 |
| Lu | 175 | 1 | No Gas | 7541237.49 | 110.2 |
| Lu | 175 | 3 | He | 2792495.52 | 97.9 |
| Bi | 209 | 1 | No Gas | 4689107.70 | 108.9 |
| Bi | 209 | 3 | He | 2295081.98 | 103.3 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | MB-163617 |
| **File Name** | 032ARef.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 14:38:50 |
| **Sample Type** | AllRef |
| **Total Dilution** | 1.0000 |
| **Comment** | ICPMS-6020-W-T |
| **Operator** | CAR/SRH/JPV/AEM |
| **Method** | SW6020/SW6020B |

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Li | 7 | 45 | 1 | No Gas | 1.409 | ug/l | 27354.78 |
| Be | 9 | 45 | 1 | No Gas | -0.053 | ug/l | 229.96 |
| B | 11 | 45 | 1 | No Gas | 1.302 | ug/l | 4718.64 |
| Na | 23 | 45 | 3 | He | 25.171 | ug/l | 52641.54 |
| Mg | 24 | 45 | 3 | He | 0.963 | ug/l | 1397.29 |
| Al | 27 | 45 | 1 | No Gas | 2.123 | ug/l | 55733.13 |
| Si | 28 | 45 | 2 | H2 | 18.881 | ug/l | 52912.85 |
| K | 39 | 72 | 3 | He | -7.273 | ug/l | 111394.68 |
| Ca | 40 | 72 | 2 | H2 | 13.958 | ug/l | 245824.76 |
| Ti | 47 | 72 | 1 | No Gas | 0.655 | ug/l | 1626.73 |
| V | 51 | 72 | 1 | No Gas | 2.555 | ug/l | 77280.34 |
| V | 51 | 72 | 3 | He | -5.001 | ug/l | 11487.86 |
| Cr | 52 | 72 | 1 | No Gas | -1.181 | ug/l | 82275.81 |
| Cr | 52 | 72 | 3 | He | 0.091 | ug/l | 1826.79 |
| Mn | 55 | 72 | 1 | No Gas | 1.011 | ug/l | 40018.18 |
| Mn | 55 | 72 | 3 | He | 0.031 | ug/l | 234.29 |
| Fe | 56 | 72 | 2 | H2 | 1.207 | ug/l | 27377.95 |
| Fe | 56 | 72 | 3 | He | 1.129 | ug/l | 10728.09 |
| Co | 59 | 72 | 1 | No Gas | 0.015 | ug/l | 741.89 |
| Ni | 60 | 72 | 1 | No Gas | 0.140 | ug/l | 1487.13 |
| Ni | 60 | 72 | 3 | He | 0.032 | ug/l | 166.67 |
| Cu | 63 | 72 | 1 | No Gas | 0.443 | ug/l | 7393.51 |
| Cu | 63 | 72 | 3 | He | 0.080 | ug/l | 700.21 |
| Cu | 65 | 72 | 1 | No Gas | 0.061 | ug/l | 1289.25 |
| Zn | 66 | 72 | 1 | No Gas | 0.692 | ug/l | 5535.73 |
| Zn | 66 | 72 | 3 | He | 0.812 | ug/l | 1251.17 |
| As | 75 | 72 | 1 | No Gas | -0.543 | ug/l | 15346.72 |
| As | 75 | 72 | 3 | He | -0.102 | ug/l | 593.73 |
| Se | 78 | 72 | 2 | H2 | -0.004 | ug/l | 41.22 |
| Br | 79 | 72 | 1 | No Gas | 1.383 | ug/l | 19761.17 |
| Br | 79 | 72 | 2 | H2 | 1.223 | ug/l | 11814.79 |
| Se | 82 | 72 | 1 | No Gas | 0.286 | ug/l | 948.51 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 23902.76 |
| Sr | 88 | 72 | 1 | No Gas | 0.015 | ug/l | 1041.31 |
| Sr | 88 | 72 | 3 | He | 0.015 | ug/l | 206.67 |
| Mo | 95 | 115 | 1 | No Gas | 0.218 | ug/l | 1670.11 |
| Mo | 95 | 115 | 3 | He | 0.235 | ug/l | 620.02 |
| Mo | 98 | 115 | 1 | No Gas | 0.228 | ug/l | 2815.44 |
| Ag | 107 | 115 | 1 | No Gas | -0.065 | ug/l | 161.40 |
| Ag | 109 | 115 | 1 | No Gas | -0.070 | ug/l | 150.73 |
| Cd | 111 | 115 | 1 | No Gas | 0.016 | ug/l | 50.83 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.010 | ug/l | 16.89 |
| Cd | 114 | 115 | 1 | No Gas | 0.022 | ug/l | 78.65 |
| Cd | 114 | 115 | 3 | He | 0.006 | ug/l | 30.37 |
| Sn | 118 | 115 | 1 | No Gas | 0.309 | ug/l | 4515.13 |
| Sn | 118 | 115 | 3 | He | 0.333 | ug/l | 1356.74 |
| Sb | 121 | 115 | 1 | No Gas | 0.077 | ug/l | 1715.28 |
| Sb | 121 | 115 | 3 | He | 0.080 | ug/l | 498.06 |
| Sb | 123 | 115 | 1 | No Gas | 0.077 | ug/l | 1312.86 |
| Sb | 123 | 115 | 3 | He | 0.077 | ug/l | 387.38 |
| Ba | 135 | 115 | 1 | No Gas | 0.012 | ug/l | 69.86 |
| Ba | 137 | 115 | 1 | No Gas | 0.015 | ug/l | 129.74 |
| La | 139 | 115 | 3 | He | 0.001 | ug/l | 23.33 |
| Ce | 140 | 115 | 3 | He | 0.002 | ug/l | 35.56 |
| Hg | 201 | 209 | 1 | No Gas | 0.012 | ug/l | 58.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.017 | ug/l | 148.97 |
| Hg | 202 | 209 | 3 | He | 0.028 | ug/l | 95.65 |
| Tl | 203 | 209 | 3 | He | 0.072 | ug/l | 588.92 |
| Tl | 205 | 209 | 1 | No Gas | 0.050 | ug/l | 2059.07 |
| Tl | 205 | 209 | 3 | He | 0.069 | ug/l | 1412.64 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.029 | ug/l | 412.23 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.033 | ug/l | 391.12 |
| Pb | 208 | 209 | 1 | No Gas | 0.031 | ug/l | 1697.83 |
| Th | 232 | 209 | 3 | He | 0.154 | ug/l | 3444.51 |
| U | 238 | 209 | 1 | No Gas | 0.003 | ug/l | 108.31 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3418633.76 | 88.6 |
| Sc | 45 | 2 | H2 | 1851374.22 | 82.6 |
| Sc | 45 | 3 | He | 216165.63 | 81.8 |
| Ge | 72 | 1 | No Gas | 830106.58 | 87.1 |
| Ge | 72 | 2 | H2 | 631110.23 | 89.5 |
| Ge | 72 | 3 | He | 132186.93 | 83.7 |
| In | 115 | 1 | No Gas | 5187207.39 | 93.1 |
| In | 115 | 3 | He | 1303241.09 | 87.1 |
| Tb | 159 | 1 | No Gas | 6587373.34 | 93.9 |
| Tb | 159 | 3 | He | 3182030.95 | 94.7 |
| Ho | 165 | 1 | No Gas | 6594729.34 | 96.1 |
| Ho | 165 | 3 | He | 3125829.78 | 95.6 |
| Lu | 175 | 1 | No Gas | 6599956.50 | 96.5 |
| Lu | 175 | 3 | He | 2646181.30 | 92.8 |
| Bi | 209 | 1 | No Gas | 4150305.77 | 96.4 |
| Bi | 209 | 3 | He | 2147114.27 | 96.7 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | LCS4-163617 |
| **File Name** | 033LCS4.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 14:45:04 |
| **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 | 95.409 | ug/l | 1225140.81 |
| Be | 9 | 45 | 1 | No Gas | 44.518 | ug/l | 229767.73 |
| B | 11 | 45 | 1 | No Gas | 102.054 | ug/l | 303296.03 |
| Na | 23 | 45 | 3 | He | 5546.478 | ug/l | 4388363.86 |
| Mg | 24 | 45 | 3 | He | 5499.281 | ug/l | 2435664.08 |
| Al | 27 | 45 | 1 | No Gas | 479.975 | ug/l | 9472548.26 |
| Si | 28 | 45 | 2 | H2 | 1000.460 | ug/l | 2140869.19 |
| K | 39 | 72 | 3 | He | 4879.341 | ug/l | 2588354.42 |
| Ca | 40 | 72 | 2 | H2 | 5139.232 | ug/l | 39012477.77 |
| Ti | 47 | 72 | 1 | No Gas | 91.879 | ug/l | 196703.05 |
| V | 51 | 72 | 1 | No Gas | 90.271 | ug/l | 2508682.55 |
| V | 51 | 72 | 3 | He | 94.382 | ug/l | 424511.72 |
| Cr | 52 | 72 | 1 | No Gas | 91.851 | ug/l | 2347792.50 |
| Cr | 52 | 72 | 3 | He | 102.917 | ug/l | 473065.44 |
| Mn | 55 | 72 | 1 | No Gas | 492.528 | ug/l | 15684080.58 |
| Mn | 55 | 72 | 3 | He | 521.631 | ug/l | 1593875.78 |
| Fe | 56 | 72 | 2 | H2 | 514.474 | ug/l | 8232973.31 |
| Fe | 56 | 72 | 3 | He | 530.171 | ug/l | 2224254.07 |
| Co | 59 | 72 | 1 | No Gas | 97.463 | ug/l | 2568691.22 |
| Ni | 60 | 72 | 1 | No Gas | 92.508 | ug/l | 559603.78 |
| Ni | 60 | 72 | 3 | He | 107.908 | ug/l | 180397.39 |
| Cu | 63 | 72 | 1 | No Gas | 95.733 | ug/l | 1377945.81 |
| Cu | 63 | 72 | 3 | He | 109.092 | ug/l | 482406.73 |
| Cu | 65 | 72 | 1 | No Gas | 94.828 | ug/l | 647991.27 |
| Zn | 66 | 72 | 1 | No Gas | 93.514 | ug/l | 473586.11 |
| Zn | 66 | 72 | 3 | He | 108.318 | ug/l | 109951.00 |
| As | 75 | 72 | 1 | No Gas | 98.378 | ug/l | 612765.36 |
| As | 75 | 72 | 3 | He | 100.115 | ug/l | 102794.49 |
| Se | 78 | 72 | 2 | H2 | 102.843 | ug/l | 63309.36 |
| Br | 79 | 72 | 1 | No Gas | 1.209 | ug/l | 19734.37 |
| Br | 79 | 72 | 2 | H2 | 1.344 | ug/l | 13070.09 |
| Se | 82 | 72 | 1 | No Gas | 98.999 | ug/l | 33729.28 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 47444.54 |
| Sr | 88 | 72 | 1 | No Gas | 102.724 | ug/l | 3950517.58 |
| Sr | 88 | 72 | 3 | He | 101.457 | ug/l | 486819.01 |
| Mo | 95 | 115 | 1 | No Gas | 90.744 | ug/l | 691628.30 |
| Mo | 95 | 115 | 3 | He | 105.535 | ug/l | 273362.14 |
| Mo | 98 | 115 | 1 | No Gas | 92.752 | ug/l | 1139997.49 |
| Ag | 107 | 115 | 1 | No Gas | 9.447 | ug/l | 184460.96 |
| Ag | 109 | 115 | 1 | No Gas | 9.359 | ug/l | 175840.59 |
| Cd | 111 | 115 | 1 | No Gas | 49.365 | ug/l | 205227.50 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 53.022 | ug/l | 73890.92 |
| Cd | 114 | 115 | 1 | No Gas | 48.123 | ug/l | 458509.89 |
| Cd | 114 | 115 | 3 | He | 51.755 | ug/l | 178208.35 |
| Sn | 118 | 115 | 1 | No Gas | 96.824 | ug/l | 1143458.28 |
| Sn | 118 | 115 | 3 | He | 104.619 | ug/l | 343597.70 |
| Sb | 121 | 115 | 1 | No Gas | 101.451 | ug/l | 1904316.67 |
| Sb | 121 | 115 | 3 | He | 104.433 | ug/l | 547452.70 |
| Sb | 123 | 115 | 1 | No Gas | 103.381 | ug/l | 1496645.70 |
| Sb | 123 | 115 | 3 | He | 104.732 | ug/l | 434295.07 |
| Ba | 135 | 115 | 1 | No Gas | 95.267 | ug/l | 338902.16 |
| Ba | 137 | 115 | 1 | No Gas | 91.873 | ug/l | 581330.83 |
| La | 139 | 115 | 3 | He | 107.255 | ug/l | 1973586.22 |
| Ce | 140 | 115 | 3 | He | 110.693 | ug/l | 2169251.01 |
| Hg | 201 | 209 | 1 | No Gas | 0.011 | ug/l | 59.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.018 | ug/l | 160.63 |
| Hg | 202 | 209 | 3 | He | 0.024 | ug/l | 90.31 |
| Tl | 203 | 209 | 3 | He | 98.750 | ug/l | 640241.95 |
| Tl | 205 | 209 | 1 | No Gas | 99.329 | ug/l | 2936217.28 |
| Tl | 205 | 209 | 3 | He | 99.228 | ug/l | 1549860.38 |
| [Pb] | 206 | 209 | 1 | No Gas | 98.312 | ug/l | 1001017.01 |
| [Pb] | 207 | 209 | 1 | No Gas | 98.248 | ug/l | 855430.86 |
| Pb | 208 | 209 | 1 | No Gas | 99.472 | ug/l | 3999645.46 |
| Th | 232 | 209 | 3 | He | 99.012 | ug/l | 2088691.22 |
| U | 238 | 209 | 1 | No Gas | 98.306 | ug/l | 3793920.17 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3566513.76 | 92.5 |
| Sc | 45 | 2 | H2 | 1858104.55 | 82.9 |
| Sc | 45 | 3 | He | 221727.16 | 83.9 |
| Ge | 72 | 1 | No Gas | 905272.94 | 95.0 |
| Ge | 72 | 2 | H2 | 655084.80 | 92.9 |
| Ge | 72 | 3 | He | 137357.96 | 87.0 |
| In | 115 | 1 | No Gas | 5438195.68 | 97.6 |
| In | 115 | 3 | He | 1343216.39 | 89.8 |
| Tb | 159 | 1 | No Gas | 7133682.55 | 101.7 |
| Tb | 159 | 3 | He | 3286794.42 | 97.9 |
| Ho | 165 | 1 | No Gas | 6973326.10 | 101.6 |
| Ho | 165 | 3 | He | 3176013.06 | 97.1 |
| Lu | 175 | 1 | No Gas | 7057459.29 | 103.2 |
| Lu | 175 | 3 | He | 2680524.49 | 94.0 |
| Bi | 209 | 1 | No Gas | 4331222.46 | 100.6 |
| Bi | 209 | 3 | He | 2203017.26 | 99.2 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-001A |
| **File Name** | 034SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 14:51:17 |
| **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 | 0.536 | ug/l | 20798.53 |
| Be | 9 | 45 | 1 | No Gas | -0.070 | ug/l | 179.30 |
| B | 11 | 45 | 1 | No Gas | 67.829 | ug/l | 240686.32 |
| Na | 23 | 45 | 3 | He | 63150.681 | ug/l | 59123543.56 |
| Mg | 24 | 45 | 3 | He | 24057.021 | ug/l | 12695953.73 |
| Al | 27 | 45 | 1 | No Gas | 5.963 | ug/l | 159544.32 |
| Si | 28 | 45 | 2 | H2 | 20734.033 | ug/l | 49647558.55 |
| K | 39 | 72 | 3 | He | 2708.245 | ug/l | 1747786.54 |
| Ca | 40 | 72 | 2 | H2 | 24835.966 | ug/l | 201753132.69 |
| Ti | 47 | 72 | 1 | No Gas | 1.495 | ug/l | 3844.38 |
| V | 51 | 72 | 1 | No Gas | 12.287 | ug/l | 380297.61 |
| V | 51 | 72 | 3 | He | 7.099 | ug/l | 72932.88 |
| Cr | 52 | 72 | 1 | No Gas | -1.830 | ug/l | 79559.71 |
| Cr | 52 | 72 | 3 | He | 1.416 | ug/l | 9350.79 |
| Mn | 55 | 72 | 1 | No Gas | 36.356 | ug/l | 1257304.29 |
| Mn | 55 | 72 | 3 | He | 36.880 | ug/l | 132359.82 |
| Fe | 56 | 72 | 2 | H2 | 5.825 | ug/l | 109785.28 |
| Fe | 56 | 72 | 3 | He | 5.454 | ug/l | 34306.04 |
| Co | 59 | 72 | 1 | No Gas | 0.193 | ug/l | 5929.48 |
| Ni | 60 | 72 | 1 | No Gas | 2.066 | ug/l | 14268.71 |
| Ni | 60 | 72 | 3 | He | 2.183 | ug/l | 4418.47 |
| Cu | 63 | 72 | 1 | No Gas | 2.265 | ug/l | 36881.06 |
| Cu | 63 | 72 | 3 | He | 2.104 | ug/l | 11346.12 |
| Cu | 65 | 72 | 1 | No Gas | 2.085 | ug/l | 16373.07 |
| Zn | 66 | 72 | 1 | No Gas | 7.661 | ug/l | 44255.25 |
| Zn | 66 | 72 | 3 | He | 6.526 | ug/l | 8302.42 |
| As | 75 | 72 | 1 | No Gas | -1.023 | ug/l | 14909.55 |
| As | 75 | 72 | 3 | He | -0.433 | ug/l | 327.40 |
| Se | 78 | 72 | 2 | H2 | 0.456 | ug/l | 350.34 |
| Br | 79 | 72 | 1 | No Gas | 36.649 | ug/l | 420649.01 |
| Br | 79 | 72 | 2 | H2 | 39.224 | ug/l | 281819.59 |
| Se | 82 | 72 | 1 | No Gas | 1.035 | ug/l | 1380.84 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 72146.52 |
| Sr | 88 | 72 | 1 | No Gas | 192.105 | ug/l | 7949783.92 |
| Sr | 88 | 72 | 3 | He | 182.569 | ug/l | 1027648.19 |
| Mo | 95 | 115 | 1 | No Gas | 0.382 | ug/l | 3345.97 |
| Mo | 95 | 115 | 3 | He | 0.423 | ug/l | 1315.63 |
| Mo | 98 | 115 | 1 | No Gas | 0.377 | ug/l | 5324.78 |
| Ag | 107 | 115 | 1 | No Gas | -0.063 | ug/l | 228.10 |
| Ag | 109 | 115 | 1 | No Gas | -0.068 | ug/l | 222.09 |
| Cd | 111 | 115 | 1 | No Gas | 0.048 | ug/l | 208.10 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.039 | ug/l | 68.56 |
| Cd | 114 | 115 | 1 | No Gas | 0.048 | ug/l | 371.60 |
| Cd | 114 | 115 | 3 | He | 0.039 | ug/l | 170.23 |
| Sn | 118 | 115 | 1 | No Gas | 0.170 | ug/l | 3453.59 |
| Sn | 118 | 115 | 3 | He | 0.159 | ug/l | 966.71 |
| Sb | 121 | 115 | 1 | No Gas | 0.096 | ug/l | 2393.11 |
| Sb | 121 | 115 | 3 | He | 0.091 | ug/l | 670.08 |
| Sb | 123 | 115 | 1 | No Gas | 0.100 | ug/l | 1892.99 |
| Sb | 123 | 115 | 3 | He | 0.081 | ug/l | 486.06 |
| Ba | 135 | 115 | 1 | No Gas | 24.172 | ug/l | 95952.03 |
| Ba | 137 | 115 | 1 | No Gas | 23.130 | ug/l | 163271.42 |
| La | 139 | 115 | 3 | He | 0.004 | ug/l | 83.33 |
| Ce | 140 | 115 | 3 | He | 0.005 | ug/l | 130.00 |
| Hg | 201 | 209 | 1 | No Gas | 0.005 | ug/l | 50.32 |
| Hg | 202 | 209 | 1 | No Gas | 0.006 | ug/l | 103.65 |
| Hg | 202 | 209 | 3 | He | 0.019 | ug/l | 82.65 |
| Tl | 203 | 209 | 3 | He | 0.228 | ug/l | 1732.82 |
| Tl | 205 | 209 | 1 | No Gas | 0.160 | ug/l | 5753.56 |
| Tl | 205 | 209 | 3 | He | 0.226 | ug/l | 4164.33 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.366 | ug/l | 4126.23 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.367 | ug/l | 3528.27 |
| Pb | 208 | 209 | 1 | No Gas | 0.368 | ug/l | 16346.28 |
| Th | 232 | 209 | 3 | He | 0.064 | ug/l | 1754.83 |
| U | 238 | 209 | 1 | No Gas | 0.028 | ug/l | 1169.49 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 4251036.58 | 110.2 |
| Sc | 45 | 2 | H2 | 2091516.51 | 93.4 |
| Sc | 45 | 3 | He | 264232.87 | 100.0 |
| Ge | 72 | 1 | No Gas | 973686.39 | 102.2 |
| Ge | 72 | 2 | H2 | 703361.87 | 99.7 |
| Ge | 72 | 3 | He | 161152.20 | 102.0 |
| In | 115 | 1 | No Gas | 6058132.17 | 108.8 |
| In | 115 | 3 | He | 1569762.27 | 104.9 |
| Tb | 159 | 1 | No Gas | 7736357.44 | 110.3 |
| Tb | 159 | 3 | He | 3554351.18 | 105.8 |
| Ho | 165 | 1 | No Gas | 7550836.14 | 110.0 |
| Ho | 165 | 3 | He | 3508726.00 | 107.3 |
| Lu | 175 | 1 | No Gas | 7587553.48 | 110.9 |
| Lu | 175 | 3 | He | 3063648.20 | 107.4 |
| Bi | 209 | 1 | No Gas | 4618835.15 | 107.3 |
| Bi | 209 | 3 | He | 2355054.86 | 106.0 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-001ADIL |
| **File Name** | 035ARef.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 14:57:31 |
| **Sample Type** | AllRef |
| **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 | 3.125 | ug/l | 19637.83 |
| Be | 9 | 45 | 1 | No Gas | -0.337 | ug/l | 175.30 |
| B | 11 | 45 | 1 | No Gas | 79.420 | ug/l | 50843.23 |
| Na | 23 | 45 | 3 | He | 65458.686 | ug/l | 10994277.20 |
| Mg | 24 | 45 | 3 | He | 24568.993 | ug/l | 2320850.19 |
| Al | 27 | 45 | 1 | No Gas | 16.379 | ug/l | 85535.09 |
| Si | 28 | 45 | 2 | H2 | 20385.895 | ug/l | 9252287.37 |
| K | 39 | 72 | 3 | He | 2445.507 | ug/l | 390447.57 |
| Ca | 40 | 72 | 2 | H2 | 24919.274 | ug/l | 38836509.72 |
| Ti | 47 | 72 | 1 | No Gas | 1.510 | ug/l | 1039.42 |
| V | 51 | 72 | 1 | No Gas | 11.754 | ug/l | 81656.12 |
| V | 51 | 72 | 3 | He | -6.519 | ug/l | 29037.52 |
| Cr | 52 | 72 | 1 | No Gas | -9.513 | ug/l | 73302.91 |
| Cr | 52 | 72 | 3 | He | 1.472 | ug/l | 3013.66 |
| Mn | 55 | 72 | 1 | No Gas | 37.645 | ug/l | 254957.08 |
| Mn | 55 | 72 | 3 | He | 37.054 | ug/l | 24255.74 |
| Fe | 56 | 72 | 2 | H2 | 9.089 | ug/l | 39204.77 |
| Fe | 56 | 72 | 3 | He | 9.134 | ug/l | 14972.74 |
| Co | 59 | 72 | 1 | No Gas | 0.208 | ug/l | 1553.67 |
| Ni | 60 | 72 | 1 | No Gas | 2.727 | ug/l | 4135.71 |
| Ni | 60 | 72 | 3 | He | 2.642 | ug/l | 1066.71 |
| Cu | 63 | 72 | 1 | No Gas | 4.267 | ug/l | 14185.91 |
| Cu | 63 | 72 | 3 | He | 4.019 | ug/l | 4179.43 |
| Cu | 65 | 72 | 1 | No Gas | 3.828 | ug/l | 6308.58 |
| Zn | 66 | 72 | 1 | No Gas | 12.453 | ug/l | 15327.02 |
| Zn | 66 | 72 | 3 | He | 14.314 | ug/l | 3589.36 |
| As | 75 | 72 | 1 | No Gas | -4.127 | ug/l | 15285.78 |
| As | 75 | 72 | 3 | He | -1.508 | ug/l | 440.13 |
| Se | 78 | 72 | 2 | H2 | 0.285 | ug/l | 82.78 |
| Br | 79 | 72 | 1 | No Gas | 41.888 | ug/l | 96374.62 |
| Br | 79 | 72 | 2 | H2 | 39.248 | ug/l | 57396.21 |
| Se | 82 | 72 | 1 | No Gas | 0.147 | ug/l | 976.37 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 33372.61 |
| Sr | 88 | 72 | 1 | No Gas | 193.759 | ug/l | 1514507.30 |
| Sr | 88 | 72 | 3 | He | 180.582 | ug/l | 184541.70 |
| Mo | 95 | 115 | 1 | No Gas | 0.486 | ug/l | 880.03 |
| Mo | 95 | 115 | 3 | He | 0.552 | ug/l | 348.90 |
| Mo | 98 | 115 | 1 | No Gas | 0.446 | ug/l | 1322.09 |
| Ag | 107 | 115 | 1 | No Gas | -0.324 | ug/l | 178.07 |
| Ag | 109 | 115 | 1 | No Gas | -0.355 | ug/l | 148.06 |
| Cd | 111 | 115 | 1 | No Gas | 0.098 | ug/l | 73.01 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.068 | ug/l | 24.89 |
| Cd | 114 | 115 | 1 | No Gas | 0.123 | ug/l | 113.19 |
| Cd | 114 | 115 | 3 | He | 0.055 | ug/l | 52.71 |
| Sn | 118 | 115 | 1 | No Gas | 0.455 | ug/l | 2302.31 |
| Sn | 118 | 115 | 3 | He | 0.486 | ug/l | 685.58 |
| Sb | 121 | 115 | 1 | No Gas | 0.230 | ug/l | 1286.19 |
| Sb | 121 | 115 | 3 | He | 0.234 | ug/l | 373.37 |
| Sb | 123 | 115 | 1 | No Gas | 0.244 | ug/l | 1025.48 |
| Sb | 123 | 115 | 3 | He | 0.242 | ug/l | 310.70 |
| Ba | 135 | 115 | 1 | No Gas | 24.502 | ug/l | 18542.34 |
| Ba | 137 | 115 | 1 | No Gas | 23.148 | ug/l | 31243.14 |
| La | 139 | 115 | 3 | He | 0.010 | ug/l | 45.56 |
| Ce | 140 | 115 | 3 | He | 0.014 | ug/l | 68.89 |
| Hg | 201 | 209 | 1 | No Gas | -0.002 | ug/l | 35.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.008 | ug/l | 80.65 |
| Hg | 202 | 209 | 3 | He | 0.014 | ug/l | 40.99 |
| Tl | 203 | 209 | 3 | He | 0.325 | ug/l | 599.59 |
| Tl | 205 | 209 | 1 | No Gas | 0.195 | ug/l | 1909.04 |
| Tl | 205 | 209 | 3 | He | 0.321 | ug/l | 1470.01 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.496 | ug/l | 1201.17 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.533 | ug/l | 1093.39 |
| Pb | 208 | 209 | 1 | No Gas | 0.507 | ug/l | 4820.37 |
| Th | 232 | 209 | 3 | He | 0.108 | ug/l | 799.01 |
| U | 238 | 209 | 1 | No Gas | 0.035 | ug/l | 297.94 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3774679.02 | 97.9 |
| Sc | 45 | 2 | H2 | 1979298.78 | 88.3 |
| Sc | 45 | 3 | He | 236395.82 | 89.5 |
| Ge | 72 | 1 | No Gas | 921197.79 | 96.7 |
| Ge | 72 | 2 | H2 | 672670.83 | 95.4 |
| Ge | 72 | 3 | He | 146211.14 | 92.6 |
| In | 115 | 1 | No Gas | 5810666.28 | 104.3 |
| In | 115 | 3 | He | 1476913.27 | 98.7 |
| Tb | 159 | 1 | No Gas | 7446428.46 | 106.2 |
| Tb | 159 | 3 | He | 3458848.80 | 103.0 |
| Ho | 165 | 1 | No Gas | 7268839.26 | 105.9 |
| Ho | 165 | 3 | He | 3469856.40 | 106.1 |
| Lu | 175 | 1 | No Gas | 7364613.21 | 107.7 |
| Lu | 175 | 3 | He | 2995005.92 | 105.0 |
| Bi | 209 | 1 | No Gas | 4531676.10 | 105.3 |
| Bi | 209 | 3 | He | 2352014.40 | 105.9 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-001AMS |
| **File Name** | 036MS.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 15:03:44 |
| **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 | 2365.437 | ug/l | 31512549.63 |
| Be | 9 | 45 | 1 | No Gas | 45.653 | ug/l | 246434.83 |
| B | 11 | 45 | 1 | No Gas | 120.249 | ug/l | 373544.23 |
| Na | 23 | 45 | 3 | He | 112876.645 | ug/l | 96573904.12 |
| Mg | 24 | 45 | 3 | He | 75241.632 | ug/l | 36296723.32 |
| Al | 27 | 45 | 1 | No Gas | 52.596 | ug/l | 1101898.76 |
| Si | 28 | 45 | 2 | H2 | 20669.714 | ug/l | 45149184.30 |
| K | 39 | 72 | 3 | He | 50913.835 | ug/l | 27647842.09 |
| Ca | 40 | 72 | 2 | H2 | 72558.315 | ug/l | 548632246.25 |
| Ti | 47 | 72 | 1 | No Gas | 54.053 | ug/l | 115116.27 |
| V | 51 | 72 | 1 | No Gas | 58.248 | ug/l | 1612908.17 |
| V | 51 | 72 | 3 | He | 58.628 | ug/l | 295942.12 |
| Cr | 52 | 72 | 1 | No Gas | 48.184 | ug/l | 1282801.88 |
| Cr | 52 | 72 | 3 | He | 49.928 | ug/l | 245998.30 |
| Mn | 55 | 72 | 1 | No Gas | 85.777 | ug/l | 2723295.66 |
| Mn | 55 | 72 | 3 | He | 86.248 | ug/l | 281637.80 |
| Fe | 56 | 72 | 2 | H2 | 5104.066 | ug/l | 81571511.14 |
| Fe | 56 | 72 | 3 | He | 5106.055 | ug/l | 22822589.08 |
| Co | 59 | 72 | 1 | No Gas | 48.504 | ug/l | 1270246.00 |
| Ni | 60 | 72 | 1 | No Gas | 48.857 | ug/l | 293966.65 |
| Ni | 60 | 72 | 3 | He | 53.324 | ug/l | 95291.37 |
| Cu | 63 | 72 | 1 | No Gas | 49.439 | ug/l | 707724.15 |
| Cu | 63 | 72 | 3 | He | 51.611 | ug/l | 244010.58 |
| Cu | 65 | 72 | 1 | No Gas | 48.922 | ug/l | 332532.24 |
| Zn | 66 | 72 | 1 | No Gas | 51.926 | ug/l | 262453.89 |
| Zn | 66 | 72 | 3 | He | 57.569 | ug/l | 62671.97 |
| As | 75 | 72 | 1 | No Gas | 51.919 | ug/l | 331109.40 |
| As | 75 | 72 | 3 | He | 50.488 | ug/l | 55778.40 |
| Se | 78 | 72 | 2 | H2 | 51.293 | ug/l | 31588.30 |
| Br | 79 | 72 | 1 | No Gas | 35.470 | ug/l | 376208.25 |
| Br | 79 | 72 | 2 | H2 | 34.261 | ug/l | 229815.71 |
| Se | 82 | 72 | 1 | No Gas | 51.452 | ug/l | 17892.41 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 80380.42 |
| Sr | 88 | 72 | 1 | No Gas | 240.990 | ug/l | 9205462.75 |
| Sr | 88 | 72 | 3 | He | 231.087 | ug/l | 1184175.31 |
| Mo | 95 | 115 | 1 | No Gas | 48.268 | ug/l | 358215.45 |
| Mo | 95 | 115 | 3 | He | 51.479 | ug/l | 138461.58 |
| Mo | 98 | 115 | 1 | No Gas | 48.211 | ug/l | 576891.84 |
| Ag | 107 | 115 | 1 | No Gas | 20.037 | ug/l | 379383.70 |
| Ag | 109 | 115 | 1 | No Gas | 19.834 | ug/l | 361407.25 |
| Cd | 111 | 115 | 1 | No Gas | 51.277 | ug/l | 207545.47 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 51.932 | ug/l | 75138.92 |
| Cd | 114 | 115 | 1 | No Gas | 49.703 | ug/l | 460967.86 |
| Cd | 114 | 115 | 3 | He | 50.940 | ug/l | 182103.02 |
| Sn | 118 | 115 | 1 | No Gas | 49.696 | ug/l | 571051.76 |
| Sn | 118 | 115 | 3 | He | 51.445 | ug/l | 175610.62 |
| Sb | 121 | 115 | 1 | No Gas | 52.305 | ug/l | 956010.43 |
| Sb | 121 | 115 | 3 | He | 52.205 | ug/l | 284152.54 |
| Sb | 123 | 115 | 1 | No Gas | 51.305 | ug/l | 723226.07 |
| Sb | 123 | 115 | 3 | He | 52.054 | ug/l | 224104.23 |
| Ba | 135 | 115 | 1 | No Gas | 77.352 | ug/l | 267989.62 |
| Ba | 137 | 115 | 1 | No Gas | 75.355 | ug/l | 463907.51 |
| La | 139 | 115 | 3 | He | 0.008 | ug/l | 162.23 |
| Ce | 140 | 115 | 3 | He | 52.006 | ug/l | 1058147.20 |
| Hg | 201 | 209 | 1 | No Gas | 1.000 | ug/l | 2144.08 |
| Hg | 202 | 209 | 1 | No Gas | 0.991 | ug/l | 4737.23 |
| Hg | 202 | 209 | 3 | He | 1.056 | ug/l | 2521.41 |
| Tl | 203 | 209 | 3 | He | 48.414 | ug/l | 305154.59 |
| Tl | 205 | 209 | 1 | No Gas | 48.563 | ug/l | 1369888.02 |
| Tl | 205 | 209 | 3 | He | 48.049 | ug/l | 729606.89 |
| [Pb] | 206 | 209 | 1 | No Gas | 49.523 | ug/l | 481666.55 |
| [Pb] | 207 | 209 | 1 | No Gas | 49.751 | ug/l | 413705.08 |
| Pb | 208 | 209 | 1 | No Gas | 49.922 | ug/l | 1916348.89 |
| Th | 232 | 209 | 3 | He | 50.229 | ug/l | 1030171.08 |
| U | 238 | 209 | 1 | No Gas | 50.965 | ug/l | 1877747.62 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3847398.58 | 99.7 |
| Sc | 45 | 2 | H2 | 1964833.12 | 87.7 |
| Sc | 45 | 3 | He | 248801.84 | 94.2 |
| Ge | 72 | 1 | No Gas | 926037.37 | 97.2 |
| Ge | 72 | 2 | H2 | 674591.89 | 95.6 |
| Ge | 72 | 3 | He | 151120.40 | 95.7 |
| In | 115 | 1 | No Gas | 5466685.21 | 98.1 |
| In | 115 | 3 | He | 1436049.59 | 96.0 |
| Tb | 159 | 1 | No Gas | 7143253.00 | 101.9 |
| Tb | 159 | 3 | He | 3491298.28 | 103.9 |
| Ho | 165 | 1 | No Gas | 7034456.45 | 102.5 |
| Ho | 165 | 3 | He | 3397211.13 | 103.9 |
| Lu | 175 | 1 | No Gas | 7119988.54 | 104.1 |
| Lu | 175 | 3 | He | 2964686.28 | 103.9 |
| Bi | 209 | 1 | No Gas | 4265203.88 | 99.1 |
| Bi | 209 | 3 | He | 2205430.66 | 99.3 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-001AMSD |
| **File Name** | 037MSD.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 15:09:58 |
| **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 | 2296.806 | ug/l | 32190104.63 |
| Be | 9 | 45 | 1 | No Gas | 44.396 | ug/l | 252177.11 |
| B | 11 | 45 | 1 | No Gas | 117.543 | ug/l | 384562.60 |
| Na | 23 | 45 | 3 | He | 113696.253 | ug/l | 98210029.65 |
| Mg | 24 | 45 | 3 | He | 74805.216 | ug/l | 36430664.19 |
| Al | 27 | 45 | 1 | No Gas | 51.720 | ug/l | 1140145.29 |
| Si | 28 | 45 | 2 | H2 | 20466.034 | ug/l | 43987700.73 |
| K | 39 | 72 | 3 | He | 51336.678 | ug/l | 27958276.53 |
| Ca | 40 | 72 | 2 | H2 | 72337.895 | ug/l | 545208822.95 |
| Ti | 47 | 72 | 1 | No Gas | 53.585 | ug/l | 119810.76 |
| V | 51 | 72 | 1 | No Gas | 57.011 | ug/l | 1656650.87 |
| V | 51 | 72 | 3 | He | 59.376 | ug/l | 300141.51 |
| Cr | 52 | 72 | 1 | No Gas | 46.790 | ug/l | 1310904.25 |
| Cr | 52 | 72 | 3 | He | 51.020 | ug/l | 252063.98 |
| Mn | 55 | 72 | 1 | No Gas | 83.653 | ug/l | 2787887.29 |
| Mn | 55 | 72 | 3 | He | 86.987 | ug/l | 284868.62 |
| Fe | 56 | 72 | 2 | H2 | 5141.051 | ug/l | 81907710.66 |
| Fe | 56 | 72 | 3 | He | 5130.094 | ug/l | 22996843.74 |
| Co | 59 | 72 | 1 | No Gas | 46.977 | ug/l | 1291418.19 |
| Ni | 60 | 72 | 1 | No Gas | 47.808 | ug/l | 301968.57 |
| Ni | 60 | 72 | 3 | He | 52.949 | ug/l | 94897.70 |
| Cu | 63 | 72 | 1 | No Gas | 48.166 | ug/l | 723712.05 |
| Cu | 63 | 72 | 3 | He | 52.173 | ug/l | 247378.99 |
| Cu | 65 | 72 | 1 | No Gas | 47.356 | ug/l | 337700.35 |
| Zn | 66 | 72 | 1 | No Gas | 49.027 | ug/l | 260118.02 |
| Zn | 66 | 72 | 3 | He | 56.622 | ug/l | 61832.86 |
| As | 75 | 72 | 1 | No Gas | 49.107 | ug/l | 330053.75 |
| As | 75 | 72 | 3 | He | 51.043 | ug/l | 56545.82 |
| Se | 78 | 72 | 2 | H2 | 51.534 | ug/l | 31640.65 |
| Br | 79 | 72 | 1 | No Gas | 34.702 | ug/l | 386316.81 |
| Br | 79 | 72 | 2 | H2 | 33.552 | ug/l | 224523.25 |
| Se | 82 | 72 | 1 | No Gas | 49.681 | ug/l | 18170.50 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 82006.37 |
| Sr | 88 | 72 | 1 | No Gas | 230.842 | ug/l | 9254555.30 |
| Sr | 88 | 72 | 3 | He | 235.110 | ug/l | 1208326.06 |
| Mo | 95 | 115 | 1 | No Gas | 45.239 | ug/l | 363898.66 |
| Mo | 95 | 115 | 3 | He | 51.263 | ug/l | 140256.49 |
| Mo | 98 | 115 | 1 | No Gas | 45.138 | ug/l | 586105.72 |
| Ag | 107 | 115 | 1 | No Gas | 18.676 | ug/l | 383314.81 |
| Ag | 109 | 115 | 1 | No Gas | 18.602 | ug/l | 367633.60 |
| Cd | 111 | 115 | 1 | No Gas | 47.742 | ug/l | 209518.35 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 51.785 | ug/l | 76226.46 |
| Cd | 114 | 115 | 1 | No Gas | 46.224 | ug/l | 464904.59 |
| Cd | 114 | 115 | 3 | He | 50.768 | ug/l | 184640.56 |
| Sn | 118 | 115 | 1 | No Gas | 47.094 | ug/l | 587306.82 |
| Sn | 118 | 115 | 3 | He | 51.252 | ug/l | 177997.46 |
| Sb | 121 | 115 | 1 | No Gas | 49.227 | ug/l | 975611.67 |
| Sb | 121 | 115 | 3 | He | 52.416 | ug/l | 290254.74 |
| Sb | 123 | 115 | 1 | No Gas | 48.190 | ug/l | 736552.02 |
| Sb | 123 | 115 | 3 | He | 51.957 | ug/l | 227579.23 |
| Ba | 135 | 115 | 1 | No Gas | 73.143 | ug/l | 274422.26 |
| Ba | 137 | 115 | 1 | No Gas | 71.018 | ug/l | 473836.53 |
| La | 139 | 115 | 3 | He | 0.007 | ug/l | 134.44 |
| Ce | 140 | 115 | 3 | He | 51.542 | ug/l | 1066960.08 |
| Hg | 201 | 209 | 1 | No Gas | 0.950 | ug/l | 2116.75 |
| Hg | 202 | 209 | 1 | No Gas | 0.987 | ug/l | 4894.93 |
| Hg | 202 | 209 | 3 | He | 1.073 | ug/l | 2565.74 |
| Tl | 203 | 209 | 3 | He | 49.207 | ug/l | 310510.71 |
| Tl | 205 | 209 | 1 | No Gas | 48.268 | ug/l | 1412949.82 |
| Tl | 205 | 209 | 3 | He | 48.391 | ug/l | 735607.53 |
| [Pb] | 206 | 209 | 1 | No Gas | 48.129 | ug/l | 485990.13 |
| [Pb] | 207 | 209 | 1 | No Gas | 48.746 | ug/l | 420402.94 |
| Pb | 208 | 209 | 1 | No Gas | 48.417 | ug/l | 1929642.94 |
| Th | 232 | 209 | 3 | He | 50.031 | ug/l | 1027382.84 |
| U | 238 | 209 | 1 | No Gas | 49.030 | ug/l | 1875249.12 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 4080844.82 | 105.8 |
| Sc | 45 | 2 | H2 | 1933431.85 | 86.3 |
| Sc | 45 | 3 | He | 251184.31 | 95.1 |
| Ge | 72 | 1 | No Gas | 974913.51 | 102.3 |
| Ge | 72 | 2 | H2 | 672435.06 | 95.3 |
| Ge | 72 | 3 | He | 151558.96 | 96.0 |
| In | 115 | 1 | No Gas | 5959077.34 | 107.0 |
| In | 115 | 3 | He | 1461000.87 | 97.7 |
| Tb | 159 | 1 | No Gas | 7506360.26 | 107.0 |
| Tb | 159 | 3 | He | 3498821.04 | 104.2 |
| Ho | 165 | 1 | No Gas | 7349608.57 | 107.1 |
| Ho | 165 | 3 | He | 3496416.68 | 106.9 |
| Lu | 175 | 1 | No Gas | 7382168.63 | 107.9 |
| Lu | 175 | 3 | He | 2980822.90 | 104.5 |
| Bi | 209 | 1 | No Gas | 4443628.17 | 103.2 |
| Bi | 209 | 3 | He | 2207203.88 | 99.4 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 038BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 15:16:13 |
| **Sample Type** | BlkVrfy |
| **Total Dilution** | 1.0000 |
| **Comment** | ICPMS-6020-W-D |
| **Operator** | CAR/SRH/JPV/AEM |
| **Method** | SW6020/SW6020B |

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Li | 7 | 45 | 1 | No Gas | 5.022 | ug/l | 79254.59 |
| Be | 9 | 45 | 1 | No Gas | -0.074 | ug/l | 142.64 |
| B | 11 | 45 | 1 | No Gas | 2.476 | ug/l | 8937.57 |
| Na | 23 | 45 | 3 | He | 32.811 | ug/l | 66628.82 |
| Mg | 24 | 45 | 3 | He | 1.743 | ug/l | 1976.22 |
| Al | 27 | 45 | 1 | No Gas | -0.314 | ug/l | 10836.19 |
| Si | 28 | 45 | 2 | H2 | -0.655 | ug/l | 12626.38 |
| K | 39 | 72 | 3 | He | -6.945 | ug/l | 127830.56 |
| Ca | 40 | 72 | 2 | H2 | 1.079 | ug/l | 165751.35 |
| Ti | 47 | 72 | 1 | No Gas | 0.143 | ug/l | 705.73 |
| V | 51 | 72 | 1 | No Gas | -3.058 | ug/l | -73120.39 |
| V | 51 | 72 | 3 | He | -0.988 | ug/l | 31537.10 |
| Cr | 52 | 72 | 1 | No Gas | -0.827 | ug/l | 101620.02 |
| Cr | 52 | 72 | 3 | He | 0.014 | ug/l | 1705.67 |
| Mn | 55 | 72 | 1 | No Gas | 0.331 | ug/l | 22735.84 |
| Mn | 55 | 72 | 3 | He | 0.003 | ug/l | 175.63 |
| Fe | 56 | 72 | 2 | H2 | 0.169 | ug/l | 12421.09 |
| Fe | 56 | 72 | 3 | He | 0.215 | ug/l | 8080.36 |
| Co | 59 | 72 | 1 | No Gas | -0.003 | ug/l | 349.31 |
| Ni | 60 | 72 | 1 | No Gas | 0.146 | ug/l | 1716.70 |
| Ni | 60 | 72 | 3 | He | -0.024 | ug/l | 87.78 |
| Cu | 63 | 72 | 1 | No Gas | 0.031 | ug/l | 2223.07 |
| Cu | 63 | 72 | 3 | He | -0.011 | ug/l | 357.60 |
| Cu | 65 | 72 | 1 | No Gas | -0.031 | ug/l | 803.01 |
| Zn | 66 | 72 | 1 | No Gas | -0.046 | ug/l | 2395.64 |
| Zn | 66 | 72 | 3 | He | -0.001 | ug/l | 527.79 |
| As | 75 | 72 | 1 | No Gas | -0.390 | ug/l | 18138.32 |
| As | 75 | 72 | 3 | He | -0.157 | ug/l | 619.13 |
| Se | 78 | 72 | 2 | H2 | -0.011 | ug/l | 41.11 |
| Br | 79 | 72 | 1 | No Gas | 0.781 | ug/l | 15757.41 |
| Br | 79 | 72 | 2 | H2 | 0.653 | ug/l | 8941.75 |
| Se | 82 | 72 | 1 | No Gas | -0.391 | ug/l | 839.02 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 24139.00 |
| Sr | 88 | 72 | 1 | No Gas | 0.002 | ug/l | 638.75 |
| Sr | 88 | 72 | 3 | He | 0.004 | ug/l | 181.11 |
| Mo | 95 | 115 | 1 | No Gas | 0.082 | ug/l | 755.58 |
| Mo | 95 | 115 | 3 | He | 0.079 | ug/l | 263.34 |
| Mo | 98 | 115 | 1 | No Gas | 0.084 | ug/l | 1246.52 |
| Ag | 107 | 115 | 1 | No Gas | -0.001 | ug/l | 1484.01 |
| Ag | 109 | 115 | 1 | No Gas | -0.006 | ug/l | 1441.99 |
| Cd | 111 | 115 | 1 | No Gas | 0.006 | ug/l | 12.69 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.006 | ug/l | 13.11 |
| Cd | 114 | 115 | 1 | No Gas | 0.004 | ug/l | -93.61 |
| Cd | 114 | 115 | 3 | He | 0.005 | ug/l | 30.06 |
| Sn | 118 | 115 | 1 | No Gas | 0.047 | ug/l | 1746.66 |
| Sn | 118 | 115 | 3 | He | 0.035 | ug/l | 471.12 |
| Sb | 121 | 115 | 1 | No Gas | 0.104 | ug/l | 2448.46 |
| Sb | 121 | 115 | 3 | He | 0.095 | ug/l | 662.75 |
| Sb | 123 | 115 | 1 | No Gas | 0.104 | ug/l | 1874.99 |
| Sb | 123 | 115 | 3 | He | 0.090 | ug/l | 509.06 |
| Ba | 135 | 115 | 1 | No Gas | 0.002 | ug/l | 39.92 |
| Ba | 137 | 115 | 1 | No Gas | -0.003 | ug/l | 26.61 |
| La | 139 | 115 | 3 | He | 0.000 | ug/l | 10.00 |
| Ce | 140 | 115 | 3 | He | 0.001 | ug/l | 28.89 |
| Hg | 201 | 209 | 1 | No Gas | -0.002 | ug/l | 30.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.005 | ug/l | 95.65 |
| Hg | 202 | 209 | 3 | He | 0.007 | ug/l | 51.99 |
| Tl | 203 | 209 | 3 | He | 0.089 | ug/l | 753.66 |
| Tl | 205 | 209 | 1 | No Gas | 0.055 | ug/l | 2288.00 |
| Tl | 205 | 209 | 3 | He | 0.081 | ug/l | 1727.48 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.005 | ug/l | 186.67 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.003 | ug/l | 143.33 |
| Pb | 208 | 209 | 1 | No Gas | 0.003 | ug/l | 658.90 |
| Th | 232 | 209 | 3 | He | 0.030 | ug/l | 971.76 |
| U | 238 | 209 | 1 | No Gas | 0.004 | ug/l | 183.30 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3806642.52 | 98.7 |
| Sc | 45 | 2 | H2 | 2030042.45 | 90.6 |
| Sc | 45 | 3 | He | 246237.72 | 93.2 |
| Ge | 72 | 1 | No Gas | 935915.05 | 98.2 |
| Ge | 72 | 2 | H2 | 688272.93 | 97.6 |
| Ge | 72 | 3 | He | 151498.15 | 95.9 |
| In | 115 | 1 | No Gas | 5802696.50 | 104.2 |
| In | 115 | 3 | He | 1505753.37 | 100.7 |
| Tb | 159 | 1 | No Gas | 7061800.98 | 100.7 |
| Tb | 159 | 3 | He | 3478751.47 | 103.6 |
| Ho | 165 | 1 | No Gas | 6968579.53 | 101.5 |
| Ho | 165 | 3 | He | 3403819.12 | 104.1 |
| Lu | 175 | 1 | No Gas | 7040949.24 | 102.9 |
| Lu | 175 | 3 | He | 2899132.26 | 101.6 |
| Bi | 209 | 1 | No Gas | 4335398.43 | 100.7 |
| Bi | 209 | 3 | He | 2319012.02 | 104.4 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-001B |
| **File Name** | 039SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 15:22:26 |
| **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 | 4.210 | ug/l | 65194.96 |
| Be | 9 | 45 | 1 | No Gas | -0.062 | ug/l | 196.30 |
| B | 11 | 45 | 1 | No Gas | 72.055 | ug/l | 217419.02 |
| Na | 23 | 45 | 3 | He | 65465.578 | ug/l | 51160188.13 |
| Mg | 24 | 45 | 3 | He | 24833.911 | ug/l | 10939637.57 |
| Al | 27 | 45 | 1 | No Gas | 17.286 | ug/l | 361056.81 |
| Si | 28 | 45 | 2 | H2 | 20949.441 | ug/l | 43602022.14 |
| K | 39 | 72 | 3 | He | 2715.551 | ug/l | 1476230.41 |
| Ca | 40 | 72 | 2 | H2 | 25248.237 | ug/l | 180170087.07 |
| Ti | 47 | 72 | 1 | No Gas | 2.374 | ug/l | 5424.81 |
| V | 51 | 72 | 1 | No Gas | 10.469 | ug/l | 299230.84 |
| V | 51 | 72 | 3 | He | 14.147 | ug/l | 90371.23 |
| Cr | 52 | 72 | 1 | No Gas | 2.103 | ug/l | 168509.32 |
| Cr | 52 | 72 | 3 | He | 1.797 | ug/l | 9605.41 |
| Mn | 55 | 72 | 1 | No Gas | 37.500 | ug/l | 1197233.05 |
| Mn | 55 | 72 | 3 | He | 39.477 | ug/l | 119370.71 |
| Fe | 56 | 72 | 2 | H2 | 47.461 | ug/l | 724411.54 |
| Fe | 56 | 72 | 3 | He | 46.387 | ug/l | 198186.45 |
| Co | 59 | 72 | 1 | No Gas | 0.239 | ug/l | 6664.99 |
| Ni | 60 | 72 | 1 | No Gas | 2.032 | ug/l | 12960.07 |
| Ni | 60 | 72 | 3 | He | 2.051 | ug/l | 3506.00 |
| Cu | 63 | 72 | 1 | No Gas | 1.988 | ug/l | 30098.97 |
| Cu | 63 | 72 | 3 | He | 1.813 | ug/l | 8291.69 |
| Cu | 65 | 72 | 1 | No Gas | 1.758 | ug/l | 12908.90 |
| Zn | 66 | 72 | 1 | No Gas | 6.206 | ug/l | 33638.01 |
| Zn | 66 | 72 | 3 | He | 7.351 | ug/l | 7816.58 |
| As | 75 | 72 | 1 | No Gas | -0.278 | ug/l | 18112.44 |
| As | 75 | 72 | 3 | He | 0.239 | ug/l | 953.34 |
| Se | 78 | 72 | 2 | H2 | 0.516 | ug/l | 342.34 |
| Br | 79 | 72 | 1 | No Gas | 8.203 | ug/l | 92387.94 |
| Br | 79 | 72 | 2 | H2 | 8.198 | ug/l | 54888.61 |
| Se | 82 | 72 | 1 | No Gas | -0.252 | ug/l | 852.23 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 63576.89 |
| Sr | 88 | 72 | 1 | No Gas | 186.848 | ug/l | 7138249.57 |
| Sr | 88 | 72 | 3 | He | 189.825 | ug/l | 900138.43 |
| Mo | 95 | 115 | 1 | No Gas | 0.476 | ug/l | 3740.52 |
| Mo | 95 | 115 | 3 | He | 0.549 | ug/l | 1444.53 |
| Mo | 98 | 115 | 1 | No Gas | 0.456 | ug/l | 5786.21 |
| Ag | 107 | 115 | 1 | No Gas | -0.061 | ug/l | 237.43 |
| Ag | 109 | 115 | 1 | No Gas | -0.065 | ug/l | 246.10 |
| Cd | 111 | 115 | 1 | No Gas | 0.051 | ug/l | 202.40 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.051 | ug/l | 74.44 |
| Cd | 114 | 115 | 1 | No Gas | 0.054 | ug/l | 386.59 |
| Cd | 114 | 115 | 3 | He | 0.044 | ug/l | 159.35 |
| Sn | 118 | 115 | 1 | No Gas | 0.413 | ug/l | 5989.45 |
| Sn | 118 | 115 | 3 | He | 0.433 | ug/l | 1715.67 |
| Sb | 121 | 115 | 1 | No Gas | 0.168 | ug/l | 3528.47 |
| Sb | 121 | 115 | 3 | He | 0.178 | ug/l | 1018.47 |
| Sb | 123 | 115 | 1 | No Gas | 0.174 | ug/l | 2798.56 |
| Sb | 123 | 115 | 3 | He | 0.178 | ug/l | 816.44 |
| Ba | 135 | 115 | 1 | No Gas | 25.239 | ug/l | 90389.81 |
| Ba | 137 | 115 | 1 | No Gas | 23.992 | ug/l | 152792.12 |
| La | 139 | 115 | 3 | He | 0.019 | ug/l | 358.90 |
| Ce | 140 | 115 | 3 | He | 0.031 | ug/l | 613.35 |
| Hg | 201 | 209 | 1 | No Gas | 0.020 | ug/l | 76.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.025 | ug/l | 186.63 |
| Hg | 202 | 209 | 3 | He | 0.038 | ug/l | 120.31 |
| Tl | 203 | 209 | 3 | He | 0.094 | ug/l | 739.65 |
| Tl | 205 | 209 | 1 | No Gas | 0.063 | ug/l | 2472.48 |
| Tl | 205 | 209 | 3 | He | 0.091 | ug/l | 1756.82 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.288 | ug/l | 2998.14 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.285 | ug/l | 2529.15 |
| Pb | 208 | 209 | 1 | No Gas | 0.283 | ug/l | 11632.06 |
| Th | 232 | 209 | 3 | He | 0.176 | ug/l | 3942.85 |
| U | 238 | 209 | 1 | No Gas | 0.032 | ug/l | 1224.81 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3632399.64 | 94.2 |
| Sc | 45 | 2 | H2 | 1818321.10 | 81.2 |
| Sc | 45 | 3 | He | 220568.68 | 83.5 |
| Ge | 72 | 1 | No Gas | 902273.77 | 94.7 |
| Ge | 72 | 2 | H2 | 618120.95 | 87.6 |
| Ge | 72 | 3 | He | 135780.79 | 86.0 |
| In | 115 | 1 | No Gas | 5472711.56 | 98.2 |
| In | 115 | 3 | He | 1334638.01 | 89.2 |
| Tb | 159 | 1 | No Gas | 7034041.92 | 100.3 |
| Tb | 159 | 3 | He | 3239195.88 | 96.4 |
| Ho | 165 | 1 | No Gas | 6745563.81 | 98.3 |
| Ho | 165 | 3 | He | 3224736.55 | 98.6 |
| Lu | 175 | 1 | No Gas | 6788453.47 | 99.2 |
| Lu | 175 | 3 | He | 2754345.21 | 96.5 |
| Bi | 209 | 1 | No Gas | 4226237.15 | 98.2 |
| Bi | 209 | 3 | He | 2163667.83 | 97.4 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-001BDIL |
| **File Name** | 040SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 15:28:40 |
| **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 | 9.172 | ug/l | 37527.07 |
| Be | 9 | 45 | 1 | No Gas | -0.385 | ug/l | 129.31 |
| B | 11 | 45 | 1 | No Gas | 76.184 | ug/l | 50987.82 |
| Na | 23 | 45 | 3 | He | 66796.899 | ug/l | 10905131.09 |
| Mg | 24 | 45 | 3 | He | 25544.467 | ug/l | 2345550.16 |
| Al | 27 | 45 | 1 | No Gas | 22.424 | ug/l | 115626.66 |
| Si | 28 | 45 | 2 | H2 | 21104.540 | ug/l | 9336981.66 |
| K | 39 | 72 | 3 | He | 2404.543 | ug/l | 383544.72 |
| Ca | 40 | 72 | 2 | H2 | 24972.390 | ug/l | 38936309.94 |
| Ti | 47 | 72 | 1 | No Gas | 2.482 | ug/l | 1491.58 |
| V | 51 | 72 | 1 | No Gas | 4.681 | ug/l | 41133.92 |
| V | 51 | 72 | 3 | He | 3.203 | ug/l | 37386.25 |
| Cr | 52 | 72 | 1 | No Gas | -3.679 | ug/l | 104347.85 |
| Cr | 52 | 72 | 3 | He | 1.861 | ug/l | 3371.52 |
| Mn | 55 | 72 | 1 | No Gas | 38.858 | ug/l | 268722.17 |
| Mn | 55 | 72 | 3 | He | 38.183 | ug/l | 24828.59 |
| Fe | 56 | 72 | 2 | H2 | 48.619 | ug/l | 168979.45 |
| Fe | 56 | 72 | 3 | He | 47.236 | ug/l | 48578.79 |
| Co | 59 | 72 | 1 | No Gas | 0.222 | ug/l | 1656.82 |
| Ni | 60 | 72 | 1 | No Gas | 2.446 | ug/l | 3876.17 |
| Ni | 60 | 72 | 3 | He | 1.852 | ug/l | 781.14 |
| Cu | 63 | 72 | 1 | No Gas | 2.217 | ug/l | 8391.78 |
| Cu | 63 | 72 | 3 | He | 1.939 | ug/l | 2208.06 |
| Cu | 65 | 72 | 1 | No Gas | 1.808 | ug/l | 3586.56 |
| Zn | 66 | 72 | 1 | No Gas | 6.106 | ug/l | 9029.85 |
| Zn | 66 | 72 | 3 | He | 7.023 | ug/l | 2007.93 |
| As | 75 | 72 | 1 | No Gas | -4.725 | ug/l | 14887.01 |
| As | 75 | 72 | 3 | He | -0.733 | ug/l | 604.33 |
| Se | 78 | 72 | 2 | H2 | 0.414 | ug/l | 99.11 |
| Br | 79 | 72 | 1 | No Gas | 10.042 | ug/l | 29184.95 |
| Br | 79 | 72 | 2 | H2 | 9.285 | ug/l | 16886.51 |
| Se | 82 | 72 | 1 | No Gas | -2.654 | ug/l | 793.42 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 30378.45 |
| Sr | 88 | 72 | 1 | No Gas | 192.495 | ug/l | 1537832.29 |
| Sr | 88 | 72 | 3 | He | 183.763 | ug/l | 186553.69 |
| Mo | 95 | 115 | 1 | No Gas | 0.465 | ug/l | 864.48 |
| Mo | 95 | 115 | 3 | He | 0.551 | ug/l | 345.56 |
| Mo | 98 | 115 | 1 | No Gas | 0.462 | ug/l | 1389.67 |
| Ag | 107 | 115 | 1 | No Gas | -0.325 | ug/l | 175.41 |
| Ag | 109 | 115 | 1 | No Gas | -0.354 | ug/l | 153.40 |
| Cd | 111 | 115 | 1 | No Gas | 0.091 | ug/l | 67.91 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.044 | ug/l | 17.44 |
| Cd | 114 | 115 | 1 | No Gas | 0.116 | ug/l | 102.95 |
| Cd | 114 | 115 | 3 | He | 0.048 | ug/l | 47.42 |
| Sn | 118 | 115 | 1 | No Gas | 0.670 | ug/l | 2894.61 |
| Sn | 118 | 115 | 3 | He | 0.617 | ug/l | 774.47 |
| Sb | 121 | 115 | 1 | No Gas | 0.235 | ug/l | 1329.53 |
| Sb | 121 | 115 | 3 | He | 0.246 | ug/l | 385.04 |
| Sb | 123 | 115 | 1 | No Gas | 0.247 | ug/l | 1053.15 |
| Sb | 123 | 115 | 3 | He | 0.258 | ug/l | 322.70 |
| Ba | 135 | 115 | 1 | No Gas | 25.024 | ug/l | 19365.12 |
| Ba | 137 | 115 | 1 | No Gas | 23.980 | ug/l | 32986.92 |
| La | 139 | 115 | 3 | He | 0.018 | ug/l | 76.66 |
| Ce | 140 | 115 | 3 | He | 0.031 | ug/l | 137.78 |
| Hg | 201 | 209 | 1 | No Gas | 0.013 | ug/l | 43.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.031 | ug/l | 107.98 |
| Hg | 202 | 209 | 3 | He | 0.070 | ug/l | 70.32 |
| Tl | 203 | 209 | 3 | He | 0.199 | ug/l | 429.51 |
| Tl | 205 | 209 | 1 | No Gas | 0.125 | ug/l | 1504.54 |
| Tl | 205 | 209 | 3 | He | 0.182 | ug/l | 1012.45 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.292 | ug/l | 783.36 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.304 | ug/l | 691.14 |
| Pb | 208 | 209 | 1 | No Gas | 0.307 | ug/l | 3203.51 |
| Th | 232 | 209 | 3 | He | 0.100 | ug/l | 765.00 |
| U | 238 | 209 | 1 | No Gas | 0.031 | ug/l | 268.28 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3938812.94 | 102.1 |
| Sc | 45 | 2 | H2 | 1929601.27 | 86.1 |
| Sc | 45 | 3 | He | 229805.89 | 87.0 |
| Ge | 72 | 1 | No Gas | 939765.38 | 98.6 |
| Ge | 72 | 2 | H2 | 672736.83 | 95.4 |
| Ge | 72 | 3 | He | 145238.49 | 92.0 |
| In | 115 | 1 | No Gas | 5899386.85 | 105.9 |
| In | 115 | 3 | He | 1465962.44 | 98.0 |
| Tb | 159 | 1 | No Gas | 7736492.78 | 110.3 |
| Tb | 159 | 3 | He | 3443507.27 | 102.5 |
| Ho | 165 | 1 | No Gas | 7446504.21 | 108.5 |
| Ho | 165 | 3 | He | 3468576.13 | 106.1 |
| Lu | 175 | 1 | No Gas | 7460232.89 | 109.1 |
| Lu | 175 | 3 | He | 2941716.17 | 103.1 |
| Bi | 209 | 1 | No Gas | 4630364.29 | 107.6 |
| Bi | 209 | 3 | He | 2364440.19 | 106.4 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-001BPDS1 |
| **File Name** | 041ARef.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 15:34:53 |
| **Sample Type** | AllRef |
| **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 | 2244.068 | ug/l | 27819433.13 |
| Be | 9 | 45 | 1 | No Gas | 43.068 | ug/l | 216395.90 |
| B | 11 | 45 | 1 | No Gas | 122.186 | ug/l | 353315.27 |
| Na | 23 | 45 | 3 | He | 114871.870 | ug/l | 89569249.78 |
| Mg | 24 | 45 | 3 | He | 76366.921 | ug/l | 33572421.86 |
| Al | 27 | 45 | 1 | No Gas | 60.824 | ug/l | 1183038.34 |
| Si | 28 | 45 | 2 | H2 | 20787.449 | ug/l | 40571084.16 |
| K | 39 | 72 | 3 | He | 49634.290 | ug/l | 25017513.79 |
| Ca | 40 | 72 | 2 | H2 | 71526.479 | ug/l | 496507016.19 |
| Ti | 47 | 72 | 1 | No Gas | 52.010 | ug/l | 110338.55 |
| V | 51 | 72 | 1 | No Gas | 53.816 | ug/l | 1485279.86 |
| V | 51 | 72 | 3 | He | 64.789 | ug/l | 300011.78 |
| Cr | 52 | 72 | 1 | No Gas | 49.347 | ug/l | 1305474.76 |
| Cr | 52 | 72 | 3 | He | 51.077 | ug/l | 233470.08 |
| Mn | 55 | 72 | 1 | No Gas | 81.699 | ug/l | 2583968.12 |
| Mn | 55 | 72 | 3 | He | 87.617 | ug/l | 265493.74 |
| Fe | 56 | 72 | 2 | H2 | 5172.926 | ug/l | 75929250.74 |
| Fe | 56 | 72 | 3 | He | 5180.320 | ug/l | 21485278.27 |
| Co | 59 | 72 | 1 | No Gas | 44.604 | ug/l | 1163498.27 |
| Ni | 60 | 72 | 1 | No Gas | 45.577 | ug/l | 273247.72 |
| Ni | 60 | 72 | 3 | He | 52.266 | ug/l | 86668.99 |
| Cu | 63 | 72 | 1 | No Gas | 46.496 | ug/l | 663119.95 |
| Cu | 63 | 72 | 3 | He | 52.382 | ug/l | 229801.80 |
| Cu | 65 | 72 | 1 | No Gas | 45.836 | ug/l | 310400.78 |
| Zn | 66 | 72 | 1 | No Gas | 47.731 | ug/l | 240423.25 |
| Zn | 66 | 72 | 3 | He | 56.215 | ug/l | 56800.41 |
| As | 75 | 72 | 1 | No Gas | 48.702 | ug/l | 310747.17 |
| As | 75 | 72 | 3 | He | 50.510 | ug/l | 51781.40 |
| Se | 78 | 72 | 2 | H2 | 51.758 | ug/l | 29273.92 |
| Br | 79 | 72 | 1 | No Gas | 9.021 | ug/l | 100655.39 |
| Br | 79 | 72 | 2 | H2 | 8.624 | ug/l | 56117.14 |
| Se | 82 | 72 | 1 | No Gas | 47.980 | ug/l | 16682.63 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 74650.97 |
| Sr | 88 | 72 | 1 | No Gas | 222.011 | ug/l | 8447143.43 |
| Sr | 88 | 72 | 3 | He | 232.073 | ug/l | 1103435.00 |
| Mo | 95 | 115 | 1 | No Gas | 48.240 | ug/l | 342543.64 |
| Mo | 95 | 115 | 3 | He | 52.464 | ug/l | 131824.27 |
| Mo | 98 | 115 | 1 | No Gas | 47.661 | ug/l | 545631.36 |
| Ag | 107 | 115 | 1 | No Gas | 19.420 | ug/l | 351759.07 |
| Ag | 109 | 115 | 1 | No Gas | 19.451 | ug/l | 338908.20 |
| Cd | 111 | 115 | 1 | No Gas | 49.594 | ug/l | 192014.77 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 52.078 | ug/l | 70404.12 |
| Cd | 114 | 115 | 1 | No Gas | 47.915 | ug/l | 425183.30 |
| Cd | 114 | 115 | 3 | He | 51.164 | ug/l | 170900.15 |
| Sn | 118 | 115 | 1 | No Gas | 50.422 | ug/l | 554893.58 |
| Sn | 118 | 115 | 3 | He | 53.065 | ug/l | 169243.57 |
| Sb | 121 | 115 | 1 | No Gas | 50.904 | ug/l | 889988.20 |
| Sb | 121 | 115 | 3 | He | 52.334 | ug/l | 266156.66 |
| Sb | 123 | 115 | 1 | No Gas | 49.847 | ug/l | 672324.19 |
| Sb | 123 | 115 | 3 | He | 52.257 | ug/l | 210217.91 |
| Ba | 135 | 115 | 1 | No Gas | 76.520 | ug/l | 253634.55 |
| Ba | 137 | 115 | 1 | No Gas | 73.369 | ug/l | 432408.42 |
| La | 139 | 115 | 3 | He | 0.015 | ug/l | 268.89 |
| Ce | 140 | 115 | 3 | He | 52.542 | ug/l | 998904.40 |
| Hg | 201 | 209 | 1 | No Gas | 0.955 | ug/l | 1959.09 |
| Hg | 202 | 209 | 1 | No Gas | 1.010 | ug/l | 4607.55 |
| Hg | 202 | 209 | 3 | He | 1.046 | ug/l | 2417.41 |
| Tl | 203 | 209 | 3 | He | 49.038 | ug/l | 298783.10 |
| Tl | 205 | 209 | 1 | No Gas | 48.622 | ug/l | 1310172.30 |
| Tl | 205 | 209 | 3 | He | 48.285 | ug/l | 708743.74 |
| [Pb] | 206 | 209 | 1 | No Gas | 49.065 | ug/l | 455723.57 |
| [Pb] | 207 | 209 | 1 | No Gas | 49.060 | ug/l | 389258.03 |
| Pb | 208 | 209 | 1 | No Gas | 49.366 | ug/l | 1809804.37 |
| Th | 232 | 209 | 3 | He | 49.693 | ug/l | 985244.30 |
| U | 238 | 209 | 1 | No Gas | 49.773 | ug/l | 1750889.81 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3576570.07 | 92.7 |
| Sc | 45 | 2 | H2 | 1756244.46 | 78.4 |
| Sc | 45 | 3 | He | 226743.17 | 85.8 |
| Ge | 72 | 1 | No Gas | 921960.39 | 96.8 |
| Ge | 72 | 2 | H2 | 619444.73 | 87.8 |
| Ge | 72 | 3 | He | 140250.91 | 88.8 |
| In | 115 | 1 | No Gas | 5213129.85 | 93.6 |
| In | 115 | 3 | He | 1341771.72 | 89.7 |
| Tb | 159 | 1 | No Gas | 6781241.94 | 96.7 |
| Tb | 159 | 3 | He | 3295405.34 | 98.1 |
| Ho | 165 | 1 | No Gas | 6749308.55 | 98.3 |
| Ho | 165 | 3 | He | 3255419.65 | 99.5 |
| Lu | 175 | 1 | No Gas | 6697873.89 | 97.9 |
| Lu | 175 | 3 | He | 2805682.30 | 98.3 |
| Bi | 209 | 1 | No Gas | 4062671.37 | 94.4 |
| Bi | 209 | 3 | He | 2132036.28 | 96.0 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-001BMS4 |
| **File Name** | 042MS4.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 15:41:08 |
| **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 | 94.655 | ug/l | 1301014.37 |
| Be | 9 | 45 | 1 | No Gas | 43.745 | ug/l | 241637.53 |
| B | 11 | 45 | 1 | No Gas | 166.799 | ug/l | 529813.57 |
| Na | 23 | 45 | 3 | He | 69264.656 | ug/l | 57308325.26 |
| Mg | 24 | 45 | 3 | He | 29575.499 | ug/l | 13794477.03 |
| Al | 27 | 45 | 1 | No Gas | 479.111 | ug/l | 10121768.88 |
| Si | 28 | 45 | 2 | H2 | 21587.040 | ug/l | 45972790.06 |
| K | 39 | 72 | 3 | He | 7445.633 | ug/l | 4121006.85 |
| Ca | 40 | 72 | 2 | H2 | 29695.253 | ug/l | 220693165.39 |
| Ti | 47 | 72 | 1 | No Gas | 94.406 | ug/l | 211844.65 |
| V | 51 | 72 | 1 | No Gas | 102.982 | ug/l | 2996874.71 |
| V | 51 | 72 | 3 | He | 113.793 | ug/l | 535632.46 |
| Cr | 52 | 72 | 1 | No Gas | 94.831 | ug/l | 2536001.55 |
| Cr | 52 | 72 | 3 | He | 99.385 | ug/l | 484255.40 |
| Mn | 55 | 72 | 1 | No Gas | 506.862 | ug/l | 16916389.53 |
| Mn | 55 | 72 | 3 | He | 548.679 | ug/l | 1777497.55 |
| Fe | 56 | 72 | 2 | H2 | 560.079 | ug/l | 8805014.81 |
| Fe | 56 | 72 | 3 | He | 549.134 | ug/l | 2442629.89 |
| Co | 59 | 72 | 1 | No Gas | 93.668 | ug/l | 2587845.86 |
| Ni | 60 | 72 | 1 | No Gas | 91.743 | ug/l | 581809.76 |
| Ni | 60 | 72 | 3 | He | 106.554 | ug/l | 188805.37 |
| Cu | 63 | 72 | 1 | No Gas | 94.442 | ug/l | 1424812.87 |
| Cu | 63 | 72 | 3 | He | 104.797 | ug/l | 491395.38 |
| Cu | 65 | 72 | 1 | No Gas | 92.816 | ug/l | 664768.42 |
| Zn | 66 | 72 | 1 | No Gas | 92.789 | ug/l | 492433.55 |
| Zn | 66 | 72 | 3 | He | 107.099 | ug/l | 115287.03 |
| As | 75 | 72 | 1 | No Gas | 93.629 | ug/l | 612228.90 |
| As | 75 | 72 | 3 | He | 99.465 | ug/l | 108278.25 |
| Se | 78 | 72 | 2 | H2 | 103.560 | ug/l | 62634.45 |
| Br | 79 | 72 | 1 | No Gas | 7.639 | ug/l | 91251.93 |
| Br | 79 | 72 | 2 | H2 | 7.870 | ug/l | 55055.36 |
| Se | 82 | 72 | 1 | No Gas | 95.600 | ug/l | 34176.37 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 98165.10 |
| Sr | 88 | 72 | 1 | No Gas | 282.294 | ug/l | 11378630.01 |
| Sr | 88 | 72 | 3 | He | 295.171 | ug/l | 1501347.13 |
| Mo | 95 | 115 | 1 | No Gas | 91.613 | ug/l | 725377.43 |
| Mo | 95 | 115 | 3 | He | 103.181 | ug/l | 281472.34 |
| Mo | 98 | 115 | 1 | No Gas | 91.843 | ug/l | 1172411.60 |
| Ag | 107 | 115 | 1 | No Gas | 9.052 | ug/l | 183599.90 |
| Ag | 109 | 115 | 1 | No Gas | 9.049 | ug/l | 176630.77 |
| Cd | 111 | 115 | 1 | No Gas | 48.930 | ug/l | 211313.31 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 51.817 | ug/l | 76073.36 |
| Cd | 114 | 115 | 1 | No Gas | 47.272 | ug/l | 467829.60 |
| Cd | 114 | 115 | 3 | He | 50.823 | ug/l | 184346.31 |
| Sn | 118 | 115 | 1 | No Gas | 98.641 | ug/l | 1209212.84 |
| Sn | 118 | 115 | 3 | He | 103.789 | ug/l | 359063.56 |
| Sb | 121 | 115 | 1 | No Gas | 101.208 | ug/l | 1973263.84 |
| Sb | 121 | 115 | 3 | He | 103.928 | ug/l | 573882.56 |
| Sb | 123 | 115 | 1 | No Gas | 101.842 | ug/l | 1531567.51 |
| Sb | 123 | 115 | 3 | He | 105.626 | ug/l | 461321.50 |
| Ba | 135 | 115 | 1 | No Gas | 120.045 | ug/l | 443838.54 |
| Ba | 137 | 115 | 1 | No Gas | 114.804 | ug/l | 754690.82 |
| La | 139 | 115 | 3 | He | 106.577 | ug/l | 2066326.62 |
| Ce | 140 | 115 | 3 | He | 107.417 | ug/l | 2217346.93 |
| Hg | 201 | 209 | 1 | No Gas | 0.018 | ug/l | 72.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.029 | ug/l | 210.63 |
| Hg | 202 | 209 | 3 | He | 0.037 | ug/l | 120.98 |
| Tl | 203 | 209 | 3 | He | 99.066 | ug/l | 644551.32 |
| Tl | 205 | 209 | 1 | No Gas | 98.758 | ug/l | 2870539.05 |
| Tl | 205 | 209 | 3 | He | 98.623 | ug/l | 1545680.15 |
| [Pb] | 206 | 209 | 1 | No Gas | 98.391 | ug/l | 986108.47 |
| [Pb] | 207 | 209 | 1 | No Gas | 100.159 | ug/l | 857580.60 |
| Pb | 208 | 209 | 1 | No Gas | 100.215 | ug/l | 3964111.60 |
| Th | 232 | 209 | 3 | He | 102.481 | ug/l | 2169720.59 |
| U | 238 | 209 | 1 | No Gas | 100.508 | ug/l | 3815219.41 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3821343.09 | 99.1 |
| Sc | 45 | 2 | H2 | 1860262.83 | 83.0 |
| Sc | 45 | 3 | He | 233553.06 | 88.4 |
| Ge | 72 | 1 | No Gas | 948252.32 | 99.5 |
| Ge | 72 | 2 | H2 | 643569.95 | 91.2 |
| Ge | 72 | 3 | He | 145690.45 | 92.3 |
| In | 115 | 1 | No Gas | 5643014.42 | 101.3 |
| In | 115 | 3 | He | 1414969.94 | 94.6 |
| Tb | 159 | 1 | No Gas | 7114829.52 | 101.5 |
| Tb | 159 | 3 | He | 3343169.22 | 99.5 |
| Ho | 165 | 1 | No Gas | 6957949.11 | 101.4 |
| Ho | 165 | 3 | He | 3318432.80 | 101.5 |
| Lu | 175 | 1 | No Gas | 7146463.66 | 104.5 |
| Lu | 175 | 3 | He | 2891325.42 | 101.3 |
| Bi | 209 | 1 | No Gas | 4256508.91 | 98.9 |
| Bi | 209 | 3 | He | 2209643.50 | 99.5 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | CCV |
| **File Name** | 043_CCV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 15:47:22 |
| **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 | 620.399 | ug/l | 8686136.17 |
| Be | 9 | 45 | 1 | No Gas | 46.726 | ug/l | 264886.98 |
| B | 11 | 45 | 1 | No Gas | 53.939 | ug/l | 176647.13 |
| Na | 23 | 45 | 3 | He | 13742.174 | ug/l | 12519168.15 |
| Mg | 24 | 45 | 3 | He | 13608.905 | ug/l | 6972390.40 |
| Al | 27 | 45 | 1 | No Gas | 50.191 | ug/l | 1103522.26 |
| Si | 28 | 45 | 2 | H2 | 223.758 | ug/l | 531245.50 |
| K | 39 | 72 | 3 | He | 12564.304 | ug/l | 7473828.50 |
| Ca | 40 | 72 | 2 | H2 | 12872.628 | ug/l | 105635411.69 |
| Ti | 47 | 72 | 1 | No Gas | 48.297 | ug/l | 114400.24 |
| V | 51 | 72 | 1 | No Gas | 48.883 | ug/l | 1504447.52 |
| V | 51 | 72 | 3 | He | 47.049 | ug/l | 263124.98 |
| Cr | 52 | 72 | 1 | No Gas | 47.730 | ug/l | 1410010.47 |
| Cr | 52 | 72 | 3 | He | 49.908 | ug/l | 265596.14 |
| Mn | 55 | 72 | 1 | No Gas | 49.342 | ug/l | 1746595.94 |
| Mn | 55 | 72 | 3 | He | 50.947 | ug/l | 179786.71 |
| Fe | 56 | 72 | 2 | H2 | 1370.282 | ug/l | 23745010.01 |
| Fe | 56 | 72 | 3 | He | 1328.358 | ug/l | 6420130.64 |
| Co | 59 | 72 | 1 | No Gas | 49.113 | ug/l | 1429992.80 |
| Ni | 60 | 72 | 1 | No Gas | 47.936 | ug/l | 320730.41 |
| Ni | 60 | 72 | 3 | He | 52.378 | ug/l | 101115.93 |
| Cu | 63 | 72 | 1 | No Gas | 48.627 | ug/l | 773937.67 |
| Cu | 63 | 72 | 3 | He | 52.434 | ug/l | 267783.08 |
| Cu | 65 | 72 | 1 | No Gas | 48.385 | ug/l | 365575.96 |
| Zn | 66 | 72 | 1 | No Gas | 47.313 | ug/l | 265993.43 |
| Zn | 66 | 72 | 3 | He | 52.644 | ug/l | 61944.50 |
| As | 75 | 72 | 1 | No Gas | 50.594 | ug/l | 358553.60 |
| As | 75 | 72 | 3 | He | 50.039 | ug/l | 59703.08 |
| Se | 78 | 72 | 2 | H2 | 51.497 | ug/l | 34375.70 |
| Br | 79 | 72 | 1 | No Gas | 0.541 | ug/l | 14042.33 |
| Br | 79 | 72 | 2 | H2 | 0.596 | ug/l | 8818.63 |
| Se | 82 | 72 | 1 | No Gas | 49.849 | ug/l | 19280.60 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 38975.35 |
| Sr | 88 | 72 | 1 | No Gas | 51.536 | ug/l | 2189394.16 |
| Sr | 88 | 72 | 3 | He | 50.416 | ug/l | 279202.39 |
| Mo | 95 | 115 | 1 | No Gas | 48.526 | ug/l | 395612.95 |
| Mo | 95 | 115 | 3 | He | 51.858 | ug/l | 151967.64 |
| Mo | 98 | 115 | 1 | No Gas | 48.793 | ug/l | 641398.94 |
| Ag | 107 | 115 | 1 | No Gas | 19.988 | ug/l | 415389.91 |
| Ag | 109 | 115 | 1 | No Gas | 19.783 | ug/l | 395806.28 |
| Cd | 111 | 115 | 1 | No Gas | 51.557 | ug/l | 229192.07 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 52.695 | ug/l | 83070.64 |
| Cd | 114 | 115 | 1 | No Gas | 50.278 | ug/l | 512313.05 |
| Cd | 114 | 115 | 3 | He | 51.248 | ug/l | 199618.33 |
| Sn | 118 | 115 | 1 | No Gas | 49.796 | ug/l | 629166.42 |
| Sn | 118 | 115 | 3 | He | 51.947 | ug/l | 193191.11 |
| Sb | 121 | 115 | 1 | No Gas | 52.531 | ug/l | 1054737.90 |
| Sb | 121 | 115 | 3 | He | 51.903 | ug/l | 307827.28 |
| Sb | 123 | 115 | 1 | No Gas | 51.568 | ug/l | 798409.91 |
| Sb | 123 | 115 | 3 | He | 52.305 | ug/l | 245357.36 |
| Ba | 135 | 115 | 1 | No Gas | 52.333 | ug/l | 199132.88 |
| Ba | 137 | 115 | 1 | No Gas | 49.599 | ug/l | 335666.86 |
| La | 139 | 115 | 3 | He | 51.527 | ug/l | 1072728.54 |
| Ce | 140 | 115 | 3 | He | 52.579 | ug/l | 1165685.63 |
| Hg | 201 | 209 | 1 | No Gas | 0.993 | ug/l | 2348.41 |
| Hg | 202 | 209 | 1 | No Gas | 0.998 | ug/l | 5255.99 |
| Hg | 202 | 209 | 3 | He | 1.039 | ug/l | 2764.41 |
| Tl | 203 | 209 | 3 | He | 48.286 | ug/l | 339087.45 |
| Tl | 205 | 209 | 1 | No Gas | 49.406 | ug/l | 1537594.84 |
| Tl | 205 | 209 | 3 | He | 47.475 | ug/l | 803099.69 |
| [Pb] | 206 | 209 | 1 | No Gas | 49.421 | ug/l | 530197.82 |
| [Pb] | 207 | 209 | 1 | No Gas | 50.114 | ug/l | 459267.76 |
| Pb | 208 | 209 | 1 | No Gas | 50.292 | ug/l | 2129584.09 |
| Th | 232 | 209 | 3 | He | 48.091 | ug/l | 1099006.64 |
| U | 238 | 209 | 1 | No Gas | 49.628 | ug/l | 2016467.24 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3920848.61 | 101.6 |
| Sc | 45 | 2 | H2 | 2019541.36 | 90.1 |
| Sc | 45 | 3 | He | 256491.76 | 97.1 |
| Ge | 72 | 1 | No Gas | 999630.97 | 104.9 |
| Ge | 72 | 2 | H2 | 709869.65 | 100.6 |
| Ge | 72 | 3 | He | 158507.10 | 100.4 |
| In | 115 | 1 | No Gas | 5816304.03 | 104.4 |
| In | 115 | 3 | He | 1519162.57 | 101.6 |
| Tb | 159 | 1 | No Gas | 7481394.20 | 106.7 |
| Tb | 159 | 3 | He | 3560621.46 | 106.0 |
| Ho | 165 | 1 | No Gas | 7337378.32 | 106.9 |
| Ho | 165 | 3 | He | 3468635.75 | 106.1 |
| Lu | 175 | 1 | No Gas | 7363805.21 | 107.6 |
| Lu | 175 | 3 | He | 3020181.09 | 105.9 |
| Bi | 209 | 1 | No Gas | 4556892.53 | 105.9 |
| Bi | 209 | 3 | He | 2384708.14 | 107.4 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | CCB |
| **File Name** | 044_CCB.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 15:53:37 |
| **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 | 2.313 | ug/l | 43279.21 |
| Be | 9 | 45 | 1 | No Gas | -0.069 | ug/l | 168.64 |
| B | 11 | 45 | 1 | No Gas | 1.788 | ug/l | 6864.31 |
| Na | 23 | 45 | 3 | He | 21.292 | ug/l | 55316.65 |
| Mg | 24 | 45 | 3 | He | 1.724 | ug/l | 1922.97 |
| Al | 27 | 45 | 1 | No Gas | -0.398 | ug/l | 9220.66 |
| Si | 28 | 45 | 2 | H2 | -0.099 | ug/l | 13886.00 |
| K | 39 | 72 | 3 | He | -18.539 | ug/l | 118087.84 |
| Ca | 40 | 72 | 2 | H2 | 0.002 | ug/l | 158255.96 |
| Ti | 47 | 72 | 1 | No Gas | 0.019 | ug/l | 440.45 |
| V | 51 | 72 | 1 | No Gas | -1.679 | ug/l | -32411.17 |
| V | 51 | 72 | 3 | He | -1.361 | ug/l | 29025.22 |
| Cr | 52 | 72 | 1 | No Gas | -0.865 | ug/l | 102933.61 |
| Cr | 52 | 72 | 3 | He | 0.029 | ug/l | 1732.33 |
| Mn | 55 | 72 | 1 | No Gas | 0.289 | ug/l | 21829.58 |
| Mn | 55 | 72 | 3 | He | 0.000 | ug/l | 160.30 |
| Fe | 56 | 72 | 2 | H2 | 0.078 | ug/l | 10958.48 |
| Fe | 56 | 72 | 3 | He | 0.126 | ug/l | 7461.08 |
| Co | 59 | 72 | 1 | No Gas | -0.001 | ug/l | 415.85 |
| Ni | 60 | 72 | 1 | No Gas | 0.036 | ug/l | 1047.96 |
| Ni | 60 | 72 | 3 | He | -0.019 | ug/l | 95.56 |
| Cu | 63 | 72 | 1 | No Gas | -0.002 | ug/l | 1770.16 |
| Cu | 63 | 72 | 3 | He | -0.008 | ug/l | 363.60 |
| Cu | 65 | 72 | 1 | No Gas | -0.045 | ug/l | 717.64 |
| Zn | 66 | 72 | 1 | No Gas | -0.115 | ug/l | 2082.73 |
| Zn | 66 | 72 | 3 | He | -0.053 | ug/l | 457.79 |
| As | 75 | 72 | 1 | No Gas | -0.591 | ug/l | 17339.69 |
| As | 75 | 72 | 3 | He | -0.170 | ug/l | 587.27 |
| Se | 78 | 72 | 2 | H2 | -0.007 | ug/l | 43.89 |
| Br | 79 | 72 | 1 | No Gas | 0.291 | ug/l | 10696.13 |
| Br | 79 | 72 | 2 | H2 | 0.290 | ug/l | 6468.63 |
| Se | 82 | 72 | 1 | No Gas | -0.052 | ug/l | 967.31 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 23106.15 |
| Sr | 88 | 72 | 1 | No Gas | -0.001 | ug/l | 552.25 |
| Sr | 88 | 72 | 3 | He | 0.003 | ug/l | 166.67 |
| Mo | 95 | 115 | 1 | No Gas | 0.040 | ug/l | 427.79 |
| Mo | 95 | 115 | 3 | He | 0.036 | ug/l | 137.78 |
| Mo | 98 | 115 | 1 | No Gas | 0.047 | ug/l | 777.46 |
| Ag | 107 | 115 | 1 | No Gas | -0.002 | ug/l | 1475.34 |
| Ag | 109 | 115 | 1 | No Gas | -0.007 | ug/l | 1429.98 |
| Cd | 111 | 115 | 1 | No Gas | 0.010 | ug/l | 33.38 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.006 | ug/l | 13.56 |
| Cd | 114 | 115 | 1 | No Gas | 0.007 | ug/l | -63.48 |
| Cd | 114 | 115 | 3 | He | 0.006 | ug/l | 33.08 |
| Sn | 118 | 115 | 1 | No Gas | 0.009 | ug/l | 1274.21 |
| Sn | 118 | 115 | 3 | He | 0.007 | ug/l | 363.34 |
| Sb | 121 | 115 | 1 | No Gas | 0.110 | ug/l | 2591.17 |
| Sb | 121 | 115 | 3 | He | 0.086 | ug/l | 604.07 |
| Sb | 123 | 115 | 1 | No Gas | 0.106 | ug/l | 1922.66 |
| Sb | 123 | 115 | 3 | He | 0.084 | ug/l | 474.05 |
| Ba | 135 | 115 | 1 | No Gas | -0.001 | ug/l | 26.61 |
| Ba | 137 | 115 | 1 | No Gas | -0.005 | ug/l | 13.31 |
| La | 139 | 115 | 3 | He | 0.001 | ug/l | 17.78 |
| Ce | 140 | 115 | 3 | He | 0.001 | ug/l | 18.89 |
| Hg | 201 | 209 | 1 | No Gas | -0.001 | ug/l | 33.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.007 | ug/l | 109.98 |
| Hg | 202 | 209 | 3 | He | 0.006 | ug/l | 48.66 |
| Tl | 203 | 209 | 3 | He | 0.172 | ug/l | 1300.59 |
| Tl | 205 | 209 | 1 | No Gas | 0.114 | ug/l | 4195.15 |
| Tl | 205 | 209 | 3 | He | 0.174 | ug/l | 3197.01 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.004 | ug/l | 184.45 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.004 | ug/l | 156.67 |
| Pb | 208 | 209 | 1 | No Gas | 0.003 | ug/l | 698.90 |
| Th | 232 | 209 | 3 | He | 0.048 | ug/l | 1337.28 |
| U | 238 | 209 | 1 | No Gas | 0.004 | ug/l | 163.30 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3875716.97 | 100.5 |
| Sc | 45 | 2 | H2 | 2025675.68 | 90.4 |
| Sc | 45 | 3 | He | 240720.07 | 91.1 |
| Ge | 72 | 1 | No Gas | 959576.75 | 100.7 |
| Ge | 72 | 2 | H2 | 692758.30 | 98.2 |
| Ge | 72 | 3 | He | 147442.11 | 93.4 |
| In | 115 | 1 | No Gas | 5865692.40 | 105.3 |
| In | 115 | 3 | He | 1483893.17 | 99.2 |
| Tb | 159 | 1 | No Gas | 7346381.96 | 104.8 |
| Tb | 159 | 3 | He | 3461737.66 | 103.1 |
| Ho | 165 | 1 | No Gas | 7126427.58 | 103.8 |
| Ho | 165 | 3 | He | 3429956.08 | 104.9 |
| Lu | 175 | 1 | No Gas | 7228013.44 | 105.7 |
| Lu | 175 | 3 | He | 2876483.60 | 100.8 |
| Bi | 209 | 1 | No Gas | 4535773.89 | 105.4 |
| Bi | 209 | 3 | He | 2276718.11 | 102.5 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-001BMSD4 |
| **File Name** | 045MSD4.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 15:59:51 |
| **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 | 91.750 | ug/l | 1204499.87 |
| Be | 9 | 45 | 1 | No Gas | 42.672 | ug/l | 225099.29 |
| B | 11 | 45 | 1 | No Gas | 167.966 | ug/l | 509396.45 |
| Na | 23 | 45 | 3 | He | 68204.160 | ug/l | 54162954.19 |
| Mg | 24 | 45 | 3 | He | 29460.468 | ug/l | 13188262.88 |
| Al | 27 | 45 | 1 | No Gas | 479.062 | ug/l | 9660990.13 |
| Si | 28 | 45 | 2 | H2 | 21546.631 | ug/l | 44698118.22 |
| K | 39 | 72 | 3 | He | 7366.897 | ug/l | 3871581.82 |
| Ca | 40 | 72 | 2 | H2 | 28783.496 | ug/l | 212965683.18 |
| Ti | 47 | 72 | 1 | No Gas | 90.540 | ug/l | 199128.99 |
| V | 51 | 72 | 1 | No Gas | 95.822 | ug/l | 2733926.66 |
| V | 51 | 72 | 3 | He | 112.509 | ug/l | 502990.20 |
| Cr | 52 | 72 | 1 | No Gas | 93.788 | ug/l | 2460129.00 |
| Cr | 52 | 72 | 3 | He | 102.010 | ug/l | 471913.33 |
| Mn | 55 | 72 | 1 | No Gas | 508.225 | ug/l | 16627840.79 |
| Mn | 55 | 72 | 3 | He | 542.807 | ug/l | 1669224.35 |
| Fe | 56 | 72 | 2 | H2 | 554.043 | ug/l | 8672096.79 |
| Fe | 56 | 72 | 3 | He | 558.996 | ug/l | 2359849.25 |
| Co | 59 | 72 | 1 | No Gas | 91.450 | ug/l | 2476267.69 |
| Ni | 60 | 72 | 1 | No Gas | 89.368 | ug/l | 555476.80 |
| Ni | 60 | 72 | 3 | He | 106.804 | ug/l | 179698.36 |
| Cu | 63 | 72 | 1 | No Gas | 92.412 | ug/l | 1366611.53 |
| Cu | 63 | 72 | 3 | He | 106.641 | ug/l | 474624.75 |
| Cu | 65 | 72 | 1 | No Gas | 92.252 | ug/l | 647681.80 |
| Zn | 66 | 72 | 1 | No Gas | 91.529 | ug/l | 476010.13 |
| Zn | 66 | 72 | 3 | He | 108.652 | ug/l | 110995.40 |
| As | 75 | 72 | 1 | No Gas | 95.099 | ug/l | 609172.91 |
| As | 75 | 72 | 3 | He | 100.733 | ug/l | 104092.30 |
| Se | 78 | 72 | 2 | H2 | 102.566 | ug/l | 61758.79 |
| Br | 79 | 72 | 1 | No Gas | 8.032 | ug/l | 93655.78 |
| Br | 79 | 72 | 2 | H2 | 8.137 | ug/l | 56514.31 |
| Se | 82 | 72 | 1 | No Gas | 96.175 | ug/l | 33690.90 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 91022.24 |
| Sr | 88 | 72 | 1 | No Gas | 275.968 | ug/l | 10901680.46 |
| Sr | 88 | 72 | 3 | He | 289.095 | ug/l | 1395884.98 |
| Mo | 95 | 115 | 1 | No Gas | 93.608 | ug/l | 700511.38 |
| Mo | 95 | 115 | 3 | He | 104.940 | ug/l | 271133.13 |
| Mo | 98 | 115 | 1 | No Gas | 95.850 | ug/l | 1156535.71 |
| Ag | 107 | 115 | 1 | No Gas | 9.176 | ug/l | 175894.95 |
| Ag | 109 | 115 | 1 | No Gas | 9.222 | ug/l | 170147.13 |
| Cd | 111 | 115 | 1 | No Gas | 49.780 | ug/l | 203219.70 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 53.265 | ug/l | 74043.19 |
| Cd | 114 | 115 | 1 | No Gas | 48.403 | ug/l | 452795.02 |
| Cd | 114 | 115 | 3 | He | 52.190 | ug/l | 179240.00 |
| Sn | 118 | 115 | 1 | No Gas | 99.906 | ug/l | 1157710.45 |
| Sn | 118 | 115 | 3 | He | 106.992 | ug/l | 350484.90 |
| Sb | 121 | 115 | 1 | No Gas | 104.638 | ug/l | 1928482.53 |
| Sb | 121 | 115 | 3 | He | 107.086 | ug/l | 559862.55 |
| Sb | 123 | 115 | 1 | No Gas | 105.184 | ug/l | 1495125.28 |
| Sb | 123 | 115 | 3 | He | 106.832 | ug/l | 441769.75 |
| Ba | 135 | 115 | 1 | No Gas | 121.555 | ug/l | 424848.94 |
| Ba | 137 | 115 | 1 | No Gas | 117.638 | ug/l | 730848.49 |
| La | 139 | 115 | 3 | He | 109.087 | ug/l | 2002224.71 |
| Ce | 140 | 115 | 3 | He | 110.328 | ug/l | 2156384.05 |
| Hg | 201 | 209 | 1 | No Gas | 0.021 | ug/l | 78.98 |
| Hg | 202 | 209 | 1 | No Gas | 0.025 | ug/l | 187.30 |
| Hg | 202 | 209 | 3 | He | 0.028 | ug/l | 98.31 |
| Tl | 203 | 209 | 3 | He | 98.318 | ug/l | 623893.54 |
| Tl | 205 | 209 | 1 | No Gas | 100.940 | ug/l | 2864017.28 |
| Tl | 205 | 209 | 3 | He | 99.174 | ug/l | 1515544.97 |
| [Pb] | 206 | 209 | 1 | No Gas | 98.599 | ug/l | 964693.10 |
| [Pb] | 207 | 209 | 1 | No Gas | 99.553 | ug/l | 831992.05 |
| Pb | 208 | 209 | 1 | No Gas | 100.935 | ug/l | 3897264.43 |
| Th | 232 | 209 | 3 | He | 101.372 | ug/l | 2093219.45 |
| U | 238 | 209 | 1 | No Gas | 100.442 | ug/l | 3721938.57 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3643799.47 | 94.5 |
| Sc | 45 | 2 | H2 | 1812190.67 | 80.9 |
| Sc | 45 | 3 | He | 224142.53 | 84.8 |
| Ge | 72 | 1 | No Gas | 929553.38 | 97.6 |
| Ge | 72 | 2 | H2 | 640681.71 | 90.8 |
| Ge | 72 | 3 | He | 138244.40 | 87.5 |
| In | 115 | 1 | No Gas | 5334897.17 | 95.8 |
| In | 115 | 3 | He | 1339835.46 | 89.6 |
| Tb | 159 | 1 | No Gas | 7017110.30 | 100.1 |
| Tb | 159 | 3 | He | 3220910.88 | 95.9 |
| Ho | 165 | 1 | No Gas | 6913576.14 | 100.7 |
| Ho | 165 | 3 | He | 3204416.00 | 98.0 |
| Lu | 175 | 1 | No Gas | 6856307.89 | 100.2 |
| Lu | 175 | 3 | He | 2796528.12 | 98.0 |
| Bi | 209 | 1 | No Gas | 4154960.48 | 96.5 |
| Bi | 209 | 3 | He | 2155291.30 | 97.0 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | Rinse |
| **File Name** | 046BLKV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 16:06:05 |
| **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 | 1.115 | ug/l | 27120.98 |
| Be | 9 | 45 | 1 | No Gas | -0.069 | ug/l | 171.63 |
| B | 11 | 45 | 1 | No Gas | 1.770 | ug/l | 6892.34 |
| Na | 23 | 45 | 3 | He | 24.147 | ug/l | 57485.90 |
| Mg | 24 | 45 | 3 | He | 1.400 | ug/l | 1759.95 |
| Al | 27 | 45 | 1 | No Gas | -0.395 | ug/l | 9377.41 |
| Si | 28 | 45 | 2 | H2 | 1.590 | ug/l | 17656.81 |
| K | 39 | 72 | 3 | He | -28.096 | ug/l | 112790.86 |
| Ca | 40 | 72 | 2 | H2 | 0.148 | ug/l | 159779.37 |
| Ti | 47 | 72 | 1 | No Gas | -0.028 | ug/l | 338.68 |
| V | 51 | 72 | 1 | No Gas | -1.765 | ug/l | -37233.23 |
| V | 51 | 72 | 3 | He | -2.584 | ug/l | 23556.71 |
| Cr | 52 | 72 | 1 | No Gas | -1.346 | ug/l | 91685.60 |
| Cr | 52 | 72 | 3 | He | 0.002 | ug/l | 1601.21 |
| Mn | 55 | 72 | 1 | No Gas | 0.231 | ug/l | 20110.59 |
| Mn | 55 | 72 | 3 | He | 0.003 | ug/l | 169.97 |
| Fe | 56 | 72 | 2 | H2 | 0.043 | ug/l | 10394.15 |
| Fe | 56 | 72 | 3 | He | 0.023 | ug/l | 6992.04 |
| Co | 59 | 72 | 1 | No Gas | 0.000 | ug/l | 459.10 |
| Ni | 60 | 72 | 1 | No Gas | 0.030 | ug/l | 1024.68 |
| Ni | 60 | 72 | 3 | He | -0.010 | ug/l | 110.00 |
| Cu | 63 | 72 | 1 | No Gas | -0.002 | ug/l | 1791.50 |
| Cu | 63 | 72 | 3 | He | -0.002 | ug/l | 391.60 |
| Cu | 65 | 72 | 1 | No Gas | -0.034 | ug/l | 804.35 |
| Zn | 66 | 72 | 1 | No Gas | -0.098 | ug/l | 2196.99 |
| Zn | 66 | 72 | 3 | He | -0.072 | ug/l | 435.56 |
| As | 75 | 72 | 1 | No Gas | -1.504 | ug/l | 11733.82 |
| As | 75 | 72 | 3 | He | -0.226 | ug/l | 526.53 |
| Se | 78 | 72 | 2 | H2 | -0.015 | ug/l | 38.55 |
| Br | 79 | 72 | 1 | No Gas | 0.355 | ug/l | 11535.11 |
| Br | 79 | 72 | 2 | H2 | 0.326 | ug/l | 6738.24 |
| Se | 82 | 72 | 1 | No Gas | -0.418 | ug/l | 857.03 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 22466.39 |
| Sr | 88 | 72 | 1 | No Gas | 0.001 | ug/l | 628.77 |
| Sr | 88 | 72 | 3 | He | 0.009 | ug/l | 198.89 |
| Mo | 95 | 115 | 1 | No Gas | 0.025 | ug/l | 308.90 |
| Mo | 95 | 115 | 3 | He | 0.022 | ug/l | 96.67 |
| Mo | 98 | 115 | 1 | No Gas | 0.021 | ug/l | 450.15 |
| Ag | 107 | 115 | 1 | No Gas | -0.003 | ug/l | 1509.36 |
| Ag | 109 | 115 | 1 | No Gas | -0.007 | ug/l | 1468.67 |
| Cd | 111 | 115 | 1 | No Gas | 0.007 | ug/l | 16.38 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.005 | ug/l | 12.11 |
| Cd | 114 | 115 | 1 | No Gas | 0.005 | ug/l | -85.79 |
| Cd | 114 | 115 | 3 | He | 0.005 | ug/l | 29.08 |
| Sn | 118 | 115 | 1 | No Gas | 0.004 | ug/l | 1257.56 |
| Sn | 118 | 115 | 3 | He | 0.000 | ug/l | 334.45 |
| Sb | 121 | 115 | 1 | No Gas | 0.094 | ug/l | 2313.09 |
| Sb | 121 | 115 | 3 | He | 0.075 | ug/l | 535.07 |
| Sb | 123 | 115 | 1 | No Gas | 0.097 | ug/l | 1825.64 |
| Sb | 123 | 115 | 3 | He | 0.072 | ug/l | 416.38 |
| Ba | 135 | 115 | 1 | No Gas | 0.004 | ug/l | 46.57 |
| Ba | 137 | 115 | 1 | No Gas | 0.003 | ug/l | 66.53 |
| La | 139 | 115 | 3 | He | 0.000 | ug/l | 13.33 |
| Ce | 140 | 115 | 3 | He | 0.001 | ug/l | 24.44 |
| Hg | 201 | 209 | 1 | No Gas | -0.004 | ug/l | 27.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.002 | ug/l | 84.65 |
| Hg | 202 | 209 | 3 | He | 0.000 | ug/l | 33.99 |
| Tl | 203 | 209 | 3 | He | 0.212 | ug/l | 1639.43 |
| Tl | 205 | 209 | 1 | No Gas | 0.160 | ug/l | 5725.74 |
| Tl | 205 | 209 | 3 | He | 0.207 | ug/l | 3900.15 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.005 | ug/l | 195.56 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.004 | ug/l | 162.23 |
| Pb | 208 | 209 | 1 | No Gas | 0.005 | ug/l | 764.46 |
| Th | 232 | 209 | 3 | He | 0.046 | ug/l | 1359.29 |
| U | 238 | 209 | 1 | No Gas | 0.003 | ug/l | 142.97 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3896219.82 | 101.0 |
| Sc | 45 | 2 | H2 | 2008781.80 | 89.7 |
| Sc | 45 | 3 | He | 239630.91 | 90.7 |
| Ge | 72 | 1 | No Gas | 968152.75 | 101.6 |
| Ge | 72 | 2 | H2 | 694482.57 | 98.5 |
| Ge | 72 | 3 | He | 147258.70 | 93.2 |
| In | 115 | 1 | No Gas | 5996575.64 | 107.7 |
| In | 115 | 3 | He | 1472550.59 | 98.4 |
| Tb | 159 | 1 | No Gas | 7590662.89 | 108.2 |
| Tb | 159 | 3 | He | 3383053.01 | 100.7 |
| Ho | 165 | 1 | No Gas | 7200363.76 | 104.9 |
| Ho | 165 | 3 | He | 3395004.76 | 103.8 |
| Lu | 175 | 1 | No Gas | 7230659.88 | 105.7 |
| Lu | 175 | 3 | He | 2901460.45 | 101.7 |
| Bi | 209 | 1 | No Gas | 4584069.42 | 106.5 |
| Bi | 209 | 3 | He | 2380580.43 | 107.2 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-006A |
| **File Name** | 047SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 16:12:19 |
| **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 | 0.879 | ug/l | 26453.53 |
| Be | 9 | 45 | 1 | No Gas | -0.079 | ug/l | 127.98 |
| B | 11 | 45 | 1 | No Gas | 61.507 | ug/l | 222188.83 |
| Na | 23 | 45 | 3 | He | 41708.160 | ug/l | 38697935.54 |
| Mg | 24 | 45 | 3 | He | 10563.216 | ug/l | 5522640.80 |
| Al | 27 | 45 | 1 | No Gas | 3.782 | ug/l | 110329.73 |
| Si | 28 | 45 | 2 | H2 | 27041.294 | ug/l | 65907385.44 |
| K | 39 | 72 | 3 | He | 1988.943 | ug/l | 1307449.20 |
| Ca | 40 | 72 | 2 | H2 | 9648.328 | ug/l | 80137864.21 |
| Ti | 47 | 72 | 1 | No Gas | 2.323 | ug/l | 5865.43 |
| V | 51 | 72 | 1 | No Gas | 0.662 | ug/l | 35399.28 |
| V | 51 | 72 | 3 | He | -5.249 | ug/l | 12665.51 |
| Cr | 52 | 72 | 1 | No Gas | -3.067 | ug/l | 48232.97 |
| Cr | 52 | 72 | 3 | He | -0.041 | ug/l | 1504.53 |
| Mn | 55 | 72 | 1 | No Gas | 509.686 | ug/l | 17829665.30 |
| Mn | 55 | 72 | 3 | He | 513.459 | ug/l | 1822056.69 |
| Fe | 56 | 72 | 2 | H2 | 451.963 | ug/l | 7932220.64 |
| Fe | 56 | 72 | 3 | He | 440.329 | ug/l | 2146534.58 |
| Co | 59 | 72 | 1 | No Gas | 0.395 | ug/l | 11894.58 |
| Ni | 60 | 72 | 1 | No Gas | 0.872 | ug/l | 6638.39 |
| Ni | 60 | 72 | 3 | He | 0.880 | ug/l | 1845.69 |
| Cu | 63 | 72 | 1 | No Gas | 0.333 | ug/l | 7135.28 |
| Cu | 63 | 72 | 3 | He | 0.156 | ug/l | 1235.14 |
| Cu | 65 | 72 | 1 | No Gas | 0.178 | ug/l | 2417.84 |
| Zn | 66 | 72 | 1 | No Gas | 1.199 | ug/l | 9437.47 |
| Zn | 66 | 72 | 3 | He | 1.569 | ug/l | 2397.99 |
| As | 75 | 72 | 1 | No Gas | -0.539 | ug/l | 18439.16 |
| As | 75 | 72 | 3 | He | 0.055 | ug/l | 902.61 |
| Se | 78 | 72 | 2 | H2 | -0.020 | ug/l | 36.55 |
| Br | 79 | 72 | 1 | No Gas | 11.634 | ug/l | 141590.47 |
| Br | 79 | 72 | 2 | H2 | 10.731 | ug/l | 82102.28 |
| Se | 82 | 72 | 1 | No Gas | -0.510 | ug/l | 847.42 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 41817.52 |
| Sr | 88 | 72 | 1 | No Gas | 73.219 | ug/l | 3093388.51 |
| Sr | 88 | 72 | 3 | He | 68.228 | ug/l | 380234.54 |
| Mo | 95 | 115 | 1 | No Gas | 0.319 | ug/l | 2916.98 |
| Mo | 95 | 115 | 3 | He | 0.358 | ug/l | 1110.05 |
| Mo | 98 | 115 | 1 | No Gas | 0.301 | ug/l | 4454.20 |
| Ag | 107 | 115 | 1 | No Gas | -0.066 | ug/l | 165.40 |
| Ag | 109 | 115 | 1 | No Gas | -0.070 | ug/l | 176.07 |
| Cd | 111 | 115 | 1 | No Gas | 0.008 | ug/l | 24.37 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.003 | ug/l | 9.11 |
| Cd | 114 | 115 | 1 | No Gas | 0.015 | ug/l | 17.55 |
| Cd | 114 | 115 | 3 | He | 0.002 | ug/l | 20.28 |
| Sn | 118 | 115 | 1 | No Gas | -0.016 | ug/l | 1051.40 |
| Sn | 118 | 115 | 3 | He | -0.035 | ug/l | 220.00 |
| Sb | 121 | 115 | 1 | No Gas | 1.087 | ug/l | 24006.81 |
| Sb | 121 | 115 | 3 | He | 1.166 | ug/l | 7202.57 |
| Sb | 123 | 115 | 1 | No Gas | 1.072 | ug/l | 18257.00 |
| Sb | 123 | 115 | 3 | He | 1.164 | ug/l | 5691.06 |
| Ba | 135 | 115 | 1 | No Gas | 4.197 | ug/l | 17306.56 |
| Ba | 137 | 115 | 1 | No Gas | 3.989 | ug/l | 29299.38 |
| La | 139 | 115 | 3 | He | 0.005 | ug/l | 103.33 |
| Ce | 140 | 115 | 3 | He | 0.019 | ug/l | 437.79 |
| Hg | 201 | 209 | 1 | No Gas | 0.010 | ug/l | 61.32 |
| Hg | 202 | 209 | 1 | No Gas | 0.218 | ug/l | 1252.48 |
| Hg | 202 | 209 | 3 | He | 0.183 | ug/l | 517.24 |
| Tl | 203 | 209 | 3 | He | 0.146 | ug/l | 1185.20 |
| Tl | 205 | 209 | 1 | No Gas | 0.103 | ug/l | 4058.47 |
| Tl | 205 | 209 | 3 | He | 0.131 | ug/l | 2646.00 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.019 | ug/l | 357.79 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.019 | ug/l | 311.12 |
| Pb | 208 | 209 | 1 | No Gas | 0.018 | ug/l | 1383.38 |
| Th | 232 | 209 | 3 | He | 0.011 | ug/l | 565.57 |
| U | 238 | 209 | 1 | No Gas | 0.011 | ug/l | 469.25 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 4334721.71 | 112.4 |
| Sc | 45 | 2 | H2 | 2129441.64 | 95.0 |
| Sc | 45 | 3 | He | 261766.01 | 99.1 |
| Ge | 72 | 1 | No Gas | 993867.59 | 104.3 |
| Ge | 72 | 2 | H2 | 718260.90 | 101.8 |
| Ge | 72 | 3 | He | 159521.33 | 101.0 |
| In | 115 | 1 | No Gas | 6299411.25 | 113.1 |
| In | 115 | 3 | He | 1558282.13 | 104.2 |
| Tb | 159 | 1 | No Gas | 7806247.38 | 111.3 |
| Tb | 159 | 3 | He | 3670195.12 | 109.3 |
| Ho | 165 | 1 | No Gas | 7693149.29 | 112.1 |
| Ho | 165 | 3 | He | 3604160.88 | 110.2 |
| Lu | 175 | 1 | No Gas | 7719468.63 | 112.8 |
| Lu | 175 | 3 | He | 3034256.37 | 106.4 |
| Bi | 209 | 1 | No Gas | 4726592.59 | 109.8 |
| Bi | 209 | 3 | He | 2401737.25 | 108.1 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-006B |
| **File Name** | 048SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 16:18:33 |
| **Sample Type** | Sample |
| **Total Dilution** | 1.0000 |
| **Comment** | ICPMS-6020-W-T |
| **Operator** | CAR/SRH/JPV/AEM |
| **Method** | SW6020/SW6020B |

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Li | 7 | 45 | 1 | No Gas | 2.010 | ug/l | 37202.82 |
| Be | 9 | 45 | 1 | No Gas | -0.063 | ug/l | 191.30 |
| B | 11 | 45 | 1 | No Gas | 65.735 | ug/l | 200848.01 |
| Na | 23 | 45 | 3 | He | 42182.269 | ug/l | 31716387.58 |
| Mg | 24 | 45 | 3 | He | 10714.193 | ug/l | 4540092.33 |
| Al | 27 | 45 | 1 | No Gas | 44.844 | ug/l | 923854.46 |
| Si | 28 | 45 | 2 | H2 | 27095.016 | ug/l | 56719338.43 |
| K | 39 | 72 | 3 | He | 1833.114 | ug/l | 1006707.02 |
| Ca | 40 | 72 | 2 | H2 | 9195.976 | ug/l | 66790468.95 |
| Ti | 47 | 72 | 1 | No Gas | 5.244 | ug/l | 11337.47 |
| V | 51 | 72 | 1 | No Gas | -1.394 | ug/l | -26249.70 |
| V | 51 | 72 | 3 | He | 3.296 | ug/l | 44600.73 |
| Cr | 52 | 72 | 1 | No Gas | 1.698 | ug/l | 156270.59 |
| Cr | 52 | 72 | 3 | He | 0.304 | ug/l | 2766.95 |
| Mn | 55 | 72 | 1 | No Gas | 487.400 | ug/l | 15201389.70 |
| Mn | 55 | 72 | 3 | He | 523.020 | ug/l | 1536571.39 |
| Fe | 56 | 72 | 2 | H2 | 511.621 | ug/l | 7847803.41 |
| Fe | 56 | 72 | 3 | He | 507.401 | ug/l | 2046596.42 |
| Co | 59 | 72 | 1 | No Gas | 0.401 | ug/l | 10749.36 |
| Ni | 60 | 72 | 1 | No Gas | 1.125 | ug/l | 7410.55 |
| Ni | 60 | 72 | 3 | He | 1.047 | ug/l | 1796.79 |
| Cu | 63 | 72 | 1 | No Gas | 1.205 | ug/l | 18615.97 |
| Cu | 63 | 72 | 3 | He | 0.927 | ug/l | 4300.44 |
| Cu | 65 | 72 | 1 | No Gas | 0.952 | ug/l | 7325.46 |
| Zn | 66 | 72 | 1 | No Gas | 1.574 | ug/l | 10242.30 |
| Zn | 66 | 72 | 3 | He | 1.936 | ug/l | 2341.32 |
| As | 75 | 72 | 1 | No Gas | 1.627 | ug/l | 28959.12 |
| As | 75 | 72 | 3 | He | 0.661 | ug/l | 1341.23 |
| Se | 78 | 72 | 2 | H2 | 0.026 | ug/l | 59.00 |
| Br | 79 | 72 | 1 | No Gas | 6.786 | ug/l | 76479.85 |
| Br | 79 | 72 | 2 | H2 | 6.319 | ug/l | 43919.25 |
| Se | 82 | 72 | 1 | No Gas | -0.346 | ug/l | 808.62 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 38038.28 |
| Sr | 88 | 72 | 1 | No Gas | 69.971 | ug/l | 2635462.37 |
| Sr | 88 | 72 | 3 | He | 67.444 | ug/l | 311213.33 |
| Mo | 95 | 115 | 1 | No Gas | 0.280 | ug/l | 2240.19 |
| Mo | 95 | 115 | 3 | He | 0.328 | ug/l | 835.59 |
| Mo | 98 | 115 | 1 | No Gas | 0.261 | ug/l | 3373.07 |
| Ag | 107 | 115 | 1 | No Gas | -0.039 | ug/l | 670.29 |
| Ag | 109 | 115 | 1 | No Gas | -0.046 | ug/l | 602.26 |
| Cd | 111 | 115 | 1 | No Gas | 0.011 | ug/l | 32.41 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.008 | ug/l | 14.56 |
| Cd | 114 | 115 | 1 | No Gas | 0.018 | ug/l | 48.75 |
| Cd | 114 | 115 | 3 | He | 0.005 | ug/l | 25.69 |
| Sn | 118 | 115 | 1 | No Gas | 0.237 | ug/l | 3906.15 |
| Sn | 118 | 115 | 3 | He | 0.310 | ug/l | 1254.51 |
| Sb | 121 | 115 | 1 | No Gas | 0.680 | ug/l | 13196.83 |
| Sb | 121 | 115 | 3 | He | 0.726 | ug/l | 3698.53 |
| Sb | 123 | 115 | 1 | No Gas | 0.645 | ug/l | 9653.29 |
| Sb | 123 | 115 | 3 | He | 0.732 | ug/l | 2957.28 |
| Ba | 135 | 115 | 1 | No Gas | 4.509 | ug/l | 16177.42 |
| Ba | 137 | 115 | 1 | No Gas | 4.286 | ug/l | 27349.39 |
| La | 139 | 115 | 3 | He | 0.029 | ug/l | 506.68 |
| Ce | 140 | 115 | 3 | He | 0.097 | ug/l | 1806.80 |
| Hg | 201 | 209 | 1 | No Gas | 0.008 | ug/l | 53.32 |
| Hg | 202 | 209 | 1 | No Gas | 0.150 | ug/l | 827.53 |
| Hg | 202 | 209 | 3 | He | 0.129 | ug/l | 337.94 |
| Tl | 203 | 209 | 3 | He | 0.103 | ug/l | 797.68 |
| Tl | 205 | 209 | 1 | No Gas | 0.064 | ug/l | 2605.84 |
| Tl | 205 | 209 | 3 | He | 0.099 | ug/l | 1891.57 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.067 | ug/l | 837.81 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.064 | ug/l | 686.69 |
| Pb | 208 | 209 | 1 | No Gas | 0.063 | ug/l | 3123.49 |
| Th | 232 | 209 | 3 | He | 0.131 | ug/l | 2994.22 |
| U | 238 | 209 | 1 | No Gas | 0.011 | ug/l | 459.92 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3673934.49 | 95.2 |
| Sc | 45 | 2 | H2 | 1828659.00 | 81.6 |
| Sc | 45 | 3 | He | 212147.62 | 80.3 |
| Ge | 72 | 1 | No Gas | 887217.54 | 93.1 |
| Ge | 72 | 2 | H2 | 627920.37 | 89.0 |
| Ge | 72 | 3 | He | 132104.77 | 83.7 |
| In | 115 | 1 | No Gas | 5473606.97 | 98.3 |
| In | 115 | 3 | He | 1274399.67 | 85.2 |
| Tb | 159 | 1 | No Gas | 7109851.22 | 101.4 |
| Tb | 159 | 3 | He | 3223118.87 | 96.0 |
| Ho | 165 | 1 | No Gas | 6970757.60 | 101.6 |
| Ho | 165 | 3 | He | 3196833.28 | 97.7 |
| Lu | 175 | 1 | No Gas | 6895040.37 | 100.8 |
| Lu | 175 | 3 | He | 2719669.42 | 95.3 |
| Bi | 209 | 1 | No Gas | 4426991.68 | 102.8 |
| Bi | 209 | 3 | He | 2165795.48 | 97.5 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-011A |
| **File Name** | 049SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 16:24:47 |
| **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 | 0.779 | ug/l | 24945.73 |
| Be | 9 | 45 | 1 | No Gas | -0.079 | ug/l | 126.31 |
| B | 11 | 45 | 1 | No Gas | 41.740 | ug/l | 151423.80 |
| Na | 23 | 45 | 3 | He | 39449.152 | ug/l | 36548411.95 |
| Mg | 24 | 45 | 3 | He | 18012.570 | ug/l | 9402711.48 |
| Al | 27 | 45 | 1 | No Gas | 4.212 | ug/l | 120623.54 |
| Si | 28 | 45 | 2 | H2 | 26492.479 | ug/l | 64293865.40 |
| K | 39 | 72 | 3 | He | 3196.366 | ug/l | 2007761.52 |
| Ca | 40 | 72 | 2 | H2 | 16893.819 | ug/l | 136353361.89 |
| Ti | 47 | 72 | 1 | No Gas | 1.951 | ug/l | 4924.13 |
| V | 51 | 72 | 1 | No Gas | 8.515 | ug/l | 270153.40 |
| V | 51 | 72 | 3 | He | 1.599 | ug/l | 45477.80 |
| Cr | 52 | 72 | 1 | No Gas | -1.833 | ug/l | 79943.95 |
| Cr | 52 | 72 | 3 | He | 0.791 | ug/l | 5904.55 |
| Mn | 55 | 72 | 1 | No Gas | 8.138 | ug/l | 292734.44 |
| Mn | 55 | 72 | 3 | He | 8.143 | ug/l | 28934.25 |
| Fe | 56 | 72 | 2 | H2 | 1.706 | ug/l | 38781.37 |
| Fe | 56 | 72 | 3 | He | 1.206 | ug/l | 13257.86 |
| Co | 59 | 72 | 1 | No Gas | 0.055 | ug/l | 2012.82 |
| Ni | 60 | 72 | 1 | No Gas | 0.862 | ug/l | 6471.96 |
| Ni | 60 | 72 | 3 | He | 0.814 | ug/l | 1710.11 |
| Cu | 63 | 72 | 1 | No Gas | 0.644 | ug/l | 11864.91 |
| Cu | 63 | 72 | 3 | He | 0.486 | ug/l | 2915.71 |
| Cu | 65 | 72 | 1 | No Gas | 0.512 | ug/l | 4848.76 |
| Zn | 66 | 72 | 1 | No Gas | 1.473 | ug/l | 10828.42 |
| Zn | 66 | 72 | 3 | He | 1.310 | ug/l | 2083.50 |
| As | 75 | 72 | 1 | No Gas | -1.207 | ug/l | 13814.60 |
| As | 75 | 72 | 3 | He | -0.446 | ug/l | 307.73 |
| Se | 78 | 72 | 2 | H2 | 0.210 | ug/l | 186.00 |
| Br | 79 | 72 | 1 | No Gas | 14.265 | ug/l | 169457.47 |
| Br | 79 | 72 | 2 | H2 | 14.089 | ug/l | 103411.71 |
| Se | 82 | 72 | 1 | No Gas | -0.063 | ug/l | 995.04 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 67971.60 |
| Sr | 88 | 72 | 1 | No Gas | 180.128 | ug/l | 7501335.23 |
| Sr | 88 | 72 | 3 | He | 167.814 | ug/l | 930782.40 |
| Mo | 95 | 115 | 1 | No Gas | 0.327 | ug/l | 2955.89 |
| Mo | 95 | 115 | 3 | He | 0.373 | ug/l | 1148.95 |
| Mo | 98 | 115 | 1 | No Gas | 0.314 | ug/l | 4589.45 |
| Ag | 107 | 115 | 1 | No Gas | -0.063 | ug/l | 218.09 |
| Ag | 109 | 115 | 1 | No Gas | -0.069 | ug/l | 198.08 |
| Cd | 111 | 115 | 1 | No Gas | 0.007 | ug/l | 17.94 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.006 | ug/l | 14.11 |
| Cd | 114 | 115 | 1 | No Gas | 0.016 | ug/l | 35.23 |
| Cd | 114 | 115 | 3 | He | 0.004 | ug/l | 27.10 |
| Sn | 118 | 115 | 1 | No Gas | -0.065 | ug/l | 372.60 |
| Sn | 118 | 115 | 3 | He | -0.062 | ug/l | 115.56 |
| Sb | 121 | 115 | 1 | No Gas | 0.091 | ug/l | 2348.44 |
| Sb | 121 | 115 | 3 | He | 0.099 | ug/l | 707.09 |
| Sb | 123 | 115 | 1 | No Gas | 0.093 | ug/l | 1836.97 |
| Sb | 123 | 115 | 3 | He | 0.100 | ug/l | 571.40 |
| Ba | 135 | 115 | 1 | No Gas | 4.498 | ug/l | 18395.75 |
| Ba | 137 | 115 | 1 | No Gas | 4.337 | ug/l | 31536.83 |
| La | 139 | 115 | 3 | He | 0.003 | ug/l | 62.22 |
| Ce | 140 | 115 | 3 | He | 0.006 | ug/l | 148.89 |
| Hg | 201 | 209 | 1 | No Gas | -0.002 | ug/l | 35.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.002 | ug/l | 89.32 |
| Hg | 202 | 209 | 3 | He | 0.007 | ug/l | 53.66 |
| Tl | 203 | 209 | 3 | He | 0.084 | ug/l | 750.99 |
| Tl | 205 | 209 | 1 | No Gas | 0.046 | ug/l | 2286.89 |
| Tl | 205 | 209 | 3 | He | 0.083 | ug/l | 1830.20 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.013 | ug/l | 305.56 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.012 | ug/l | 253.34 |
| Pb | 208 | 209 | 1 | No Gas | 0.012 | ug/l | 1162.25 |
| Th | 232 | 209 | 3 | He | -0.005 | ug/l | 212.09 |
| U | 238 | 209 | 1 | No Gas | 0.010 | ug/l | 468.25 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 4330603.18 | 112.3 |
| Sc | 45 | 2 | H2 | 2119899.20 | 94.6 |
| Sc | 45 | 3 | He | 261387.00 | 98.9 |
| Ge | 72 | 1 | No Gas | 980026.83 | 102.9 |
| Ge | 72 | 2 | H2 | 698512.87 | 99.0 |
| Ge | 72 | 3 | He | 158803.00 | 100.6 |
| In | 115 | 1 | No Gas | 6237059.60 | 112.0 |
| In | 115 | 3 | He | 1548730.24 | 103.5 |
| Tb | 159 | 1 | No Gas | 7935720.96 | 113.2 |
| Tb | 159 | 3 | He | 3631746.93 | 108.1 |
| Ho | 165 | 1 | No Gas | 7727463.44 | 112.6 |
| Ho | 165 | 3 | He | 3519075.98 | 107.6 |
| Lu | 175 | 1 | No Gas | 7935925.33 | 116.0 |
| Lu | 175 | 3 | He | 3099436.36 | 108.6 |
| Bi | 209 | 1 | No Gas | 4881136.86 | 113.4 |
| Bi | 209 | 3 | He | 2405040.48 | 108.3 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-011B |
| **File Name** | 050SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 16:31:03 |
| **Sample Type** | Sample |
| **Total Dilution** | 1.0000 |
| **Comment** | ICPMS-6020-W-T |
| **Operator** | CAR/SRH/JPV/AEM |
| **Method** | SW6020/SW6020B |

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Li | 7 | 45 | 1 | No Gas | 1.558 | ug/l | 31199.73 |
| Be | 9 | 45 | 1 | No Gas | -0.066 | ug/l | 178.97 |
| B | 11 | 45 | 1 | No Gas | 43.794 | ug/l | 133929.20 |
| Na | 23 | 45 | 3 | He | 40169.427 | ug/l | 29980174.00 |
| Mg | 24 | 45 | 3 | He | 18771.414 | ug/l | 7894159.96 |
| Al | 27 | 45 | 1 | No Gas | 98.302 | ug/l | 2000765.98 |
| Si | 28 | 45 | 2 | H2 | 26794.076 | ug/l | 55156870.15 |
| K | 39 | 72 | 3 | He | 3083.354 | ug/l | 1592875.06 |
| Ca | 40 | 72 | 2 | H2 | 16398.006 | ug/l | 116713392.62 |
| Ti | 47 | 72 | 1 | No Gas | 6.666 | ug/l | 14485.03 |
| V | 51 | 72 | 1 | No Gas | 6.870 | ug/l | 201926.06 |
| V | 51 | 72 | 3 | He | 11.353 | ug/l | 75703.77 |
| Cr | 52 | 72 | 1 | No Gas | 2.724 | ug/l | 182750.63 |
| Cr | 52 | 72 | 3 | He | 1.285 | ug/l | 6989.48 |
| Mn | 55 | 72 | 1 | No Gas | 17.134 | ug/l | 551529.77 |
| Mn | 55 | 72 | 3 | He | 17.567 | ug/l | 51041.92 |
| Fe | 56 | 72 | 2 | H2 | 74.103 | ug/l | 1122545.89 |
| Fe | 56 | 72 | 3 | He | 72.887 | ug/l | 295243.62 |
| Co | 59 | 72 | 1 | No Gas | 0.175 | ug/l | 4997.62 |
| Ni | 60 | 72 | 1 | No Gas | 1.196 | ug/l | 7929.79 |
| Ni | 60 | 72 | 3 | He | 1.128 | ug/l | 1901.25 |
| Cu | 63 | 72 | 1 | No Gas | 0.991 | ug/l | 15802.88 |
| Cu | 63 | 72 | 3 | He | 0.802 | ug/l | 3715.73 |
| Cu | 65 | 72 | 1 | No Gas | 0.809 | ug/l | 6444.69 |
| Zn | 66 | 72 | 1 | No Gas | 2.097 | ug/l | 12987.11 |
| Zn | 66 | 72 | 3 | He | 3.137 | ug/l | 3462.66 |
| As | 75 | 72 | 1 | No Gas | 2.093 | ug/l | 32333.31 |
| As | 75 | 72 | 3 | He | 0.259 | ug/l | 934.08 |
| Se | 78 | 72 | 2 | H2 | 0.235 | ug/l | 178.89 |
| Br | 79 | 72 | 1 | No Gas | 7.197 | ug/l | 81663.56 |
| Br | 79 | 72 | 2 | H2 | 7.361 | ug/l | 49532.95 |
| Se | 82 | 72 | 1 | No Gas | -0.159 | ug/l | 879.16 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 61983.55 |
| Sr | 88 | 72 | 1 | No Gas | 173.366 | ug/l | 6605460.65 |
| Sr | 88 | 72 | 3 | He | 172.772 | ug/l | 786089.31 |
| Mo | 95 | 115 | 1 | No Gas | 0.767 | ug/l | 6005.74 |
| Mo | 95 | 115 | 3 | He | 0.888 | ug/l | 2224.63 |
| Mo | 98 | 115 | 1 | No Gas | 0.767 | ug/l | 9687.87 |
| Ag | 107 | 115 | 1 | No Gas | -0.055 | ug/l | 363.49 |
| Ag | 109 | 115 | 1 | No Gas | -0.061 | ug/l | 328.14 |
| Cd | 111 | 115 | 1 | No Gas | 0.017 | ug/l | 57.72 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.009 | ug/l | 15.33 |
| Cd | 114 | 115 | 1 | No Gas | 0.023 | ug/l | 90.43 |
| Cd | 114 | 115 | 3 | He | 0.006 | ug/l | 29.41 |
| Sn | 118 | 115 | 1 | No Gas | 0.239 | ug/l | 3959.39 |
| Sn | 118 | 115 | 3 | He | 0.307 | ug/l | 1252.29 |
| Sb | 121 | 115 | 1 | No Gas | 0.134 | ug/l | 2886.26 |
| Sb | 121 | 115 | 3 | He | 0.157 | ug/l | 874.45 |
| Sb | 123 | 115 | 1 | No Gas | 0.137 | ug/l | 2260.08 |
| Sb | 123 | 115 | 3 | He | 0.153 | ug/l | 681.42 |
| Ba | 135 | 115 | 1 | No Gas | 4.843 | ug/l | 17476.40 |
| Ba | 137 | 115 | 1 | No Gas | 4.641 | ug/l | 29759.53 |
| La | 139 | 115 | 3 | He | 0.029 | ug/l | 518.90 |
| Ce | 140 | 115 | 3 | He | 0.066 | ug/l | 1245.62 |
| Hg | 201 | 209 | 1 | No Gas | 0.006 | ug/l | 46.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.016 | ug/l | 145.64 |
| Hg | 202 | 209 | 3 | He | 0.018 | ug/l | 73.99 |
| Tl | 203 | 209 | 3 | He | 0.060 | ug/l | 524.89 |
| Tl | 205 | 209 | 1 | No Gas | 0.040 | ug/l | 1775.69 |
| Tl | 205 | 209 | 3 | He | 0.059 | ug/l | 1288.58 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.029 | ug/l | 417.79 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.028 | ug/l | 345.56 |
| Pb | 208 | 209 | 1 | No Gas | 0.029 | ug/l | 1638.94 |
| Th | 232 | 209 | 3 | He | 0.070 | ug/l | 1749.49 |
| U | 238 | 209 | 1 | No Gas | 0.012 | ug/l | 455.25 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3655336.95 | 94.8 |
| Sc | 45 | 2 | H2 | 1798431.60 | 80.3 |
| Sc | 45 | 3 | He | 210556.33 | 79.7 |
| Ge | 72 | 1 | No Gas | 896355.25 | 94.1 |
| Ge | 72 | 2 | H2 | 616023.29 | 87.3 |
| Ge | 72 | 3 | He | 130267.78 | 82.5 |
| In | 115 | 1 | No Gas | 5502383.46 | 98.8 |
| In | 115 | 3 | He | 1281202.47 | 85.6 |
| Tb | 159 | 1 | No Gas | 7018202.38 | 100.1 |
| Tb | 159 | 3 | He | 3219910.63 | 95.9 |
| Ho | 165 | 1 | No Gas | 6833778.80 | 99.6 |
| Ho | 165 | 3 | He | 3191537.99 | 97.6 |
| Lu | 175 | 1 | No Gas | 6909447.12 | 101.0 |
| Lu | 175 | 3 | He | 2715127.64 | 95.2 |
| Bi | 209 | 1 | No Gas | 4185581.61 | 97.2 |
| Bi | 209 | 3 | He | 2188336.19 | 98.5 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-017A |
| **File Name** | 051SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 16:37:18 |
| **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 | 2.160 | ug/l | 45809.06 |
| Be | 9 | 45 | 1 | No Gas | -0.081 | ug/l | 116.31 |
| B | 11 | 45 | 1 | No Gas | 76.210 | ug/l | 272403.32 |
| Na | 23 | 45 | 3 | He | 99102.989 | ug/l | 91276266.42 |
| Mg | 24 | 45 | 3 | He | 40269.965 | ug/l | 20911268.63 |
| Al | 27 | 45 | 1 | No Gas | 3.087 | ug/l | 92728.52 |
| Si | 28 | 45 | 2 | H2 | 24317.776 | ug/l | 56691496.63 |
| K | 39 | 72 | 3 | He | 2761.625 | ug/l | 1751195.76 |
| Ca | 40 | 72 | 2 | H2 | 39138.062 | ug/l | 309061830.94 |
| Ti | 47 | 72 | 1 | No Gas | 1.735 | ug/l | 4413.45 |
| V | 51 | 72 | 1 | No Gas | 16.563 | ug/l | 509677.45 |
| V | 51 | 72 | 3 | He | 9.813 | ug/l | 84791.80 |
| Cr | 52 | 72 | 1 | No Gas | -2.090 | ug/l | 73085.81 |
| Cr | 52 | 72 | 3 | He | 0.690 | ug/l | 5359.89 |
| Mn | 55 | 72 | 1 | No Gas | 2.000 | ug/l | 81155.88 |
| Mn | 55 | 72 | 3 | He | 2.003 | ug/l | 7236.34 |
| Fe | 56 | 72 | 2 | H2 | 14.453 | ug/l | 250722.99 |
| Fe | 56 | 72 | 3 | He | 13.719 | ug/l | 73687.45 |
| Co | 59 | 72 | 1 | No Gas | 0.113 | ug/l | 3663.22 |
| Ni | 60 | 72 | 1 | No Gas | 0.705 | ug/l | 5440.24 |
| Ni | 60 | 72 | 3 | He | 0.484 | ug/l | 1073.38 |
| Cu | 63 | 72 | 1 | No Gas | 0.950 | ug/l | 16608.76 |
| Cu | 63 | 72 | 3 | He | 0.561 | ug/l | 3298.05 |
| Cu | 65 | 72 | 1 | No Gas | 0.665 | ug/l | 5969.62 |
| Zn | 66 | 72 | 1 | No Gas | 1.856 | ug/l | 12852.81 |
| Zn | 66 | 72 | 3 | He | 1.892 | ug/l | 2761.39 |
| As | 75 | 72 | 1 | No Gas | -0.353 | ug/l | 19348.54 |
| As | 75 | 72 | 3 | He | 0.441 | ug/l | 1351.10 |
| Se | 78 | 72 | 2 | H2 | 0.393 | ug/l | 299.78 |
| Br | 79 | 72 | 1 | No Gas | 60.372 | ug/l | 690895.20 |
| Br | 79 | 72 | 2 | H2 | 58.988 | ug/l | 409881.71 |
| Se | 82 | 72 | 1 | No Gas | 0.863 | ug/l | 1324.55 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 98985.16 |
| Sr | 88 | 72 | 1 | No Gas | 304.699 | ug/l | 12665637.28 |
| Sr | 88 | 72 | 3 | He | 306.051 | ug/l | 1695468.58 |
| Mo | 95 | 115 | 1 | No Gas | 1.802 | ug/l | 15695.35 |
| Mo | 95 | 115 | 3 | He | 2.017 | ug/l | 6115.79 |
| Mo | 98 | 115 | 1 | No Gas | 1.781 | ug/l | 25007.20 |
| Ag | 107 | 115 | 1 | No Gas | -0.046 | ug/l | 594.92 |
| Ag | 109 | 115 | 1 | No Gas | -0.051 | ug/l | 572.24 |
| Cd | 111 | 115 | 1 | No Gas | 0.016 | ug/l | 59.88 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.006 | ug/l | 13.78 |
| Cd | 114 | 115 | 1 | No Gas | 0.022 | ug/l | 93.29 |
| Cd | 114 | 115 | 3 | He | 0.006 | ug/l | 34.63 |
| Sn | 118 | 115 | 1 | No Gas | -0.047 | ug/l | 612.13 |
| Sn | 118 | 115 | 3 | He | -0.051 | ug/l | 157.78 |
| Sb | 121 | 115 | 1 | No Gas | 0.032 | ug/l | 1067.48 |
| Sb | 121 | 115 | 3 | He | 0.032 | ug/l | 302.70 |
| Sb | 123 | 115 | 1 | No Gas | 0.032 | ug/l | 808.77 |
| Sb | 123 | 115 | 3 | He | 0.031 | ug/l | 244.03 |
| Ba | 135 | 115 | 1 | No Gas | 11.600 | ug/l | 46899.36 |
| Ba | 137 | 115 | 1 | No Gas | 11.122 | ug/l | 79946.84 |
| La | 139 | 115 | 3 | He | 0.003 | ug/l | 63.33 |
| Ce | 140 | 115 | 3 | He | 0.005 | ug/l | 114.45 |
| Hg | 201 | 209 | 1 | No Gas | 0.041 | ug/l | 137.64 |
| Hg | 202 | 209 | 1 | No Gas | 0.879 | ug/l | 4842.26 |
| Hg | 202 | 209 | 3 | He | 0.772 | ug/l | 2084.09 |
| Tl | 203 | 209 | 3 | He | 0.059 | ug/l | 570.24 |
| Tl | 205 | 209 | 1 | No Gas | 0.023 | ug/l | 1475.65 |
| Tl | 205 | 209 | 3 | He | 0.050 | ug/l | 1268.58 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.015 | ug/l | 320.01 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.015 | ug/l | 273.34 |
| Pb | 208 | 209 | 1 | No Gas | 0.015 | ug/l | 1254.48 |
| Th | 232 | 209 | 3 | He | -0.006 | ug/l | 183.41 |
| U | 238 | 209 | 1 | No Gas | 0.074 | ug/l | 3172.42 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 4284971.78 | 111.1 |
| Sc | 45 | 2 | H2 | 2036544.03 | 90.9 |
| Sc | 45 | 3 | He | 260011.05 | 98.4 |
| Ge | 72 | 1 | No Gas | 977983.47 | 102.6 |
| Ge | 72 | 2 | H2 | 683985.65 | 97.0 |
| Ge | 72 | 3 | He | 158601.68 | 100.4 |
| In | 115 | 1 | No Gas | 6171017.58 | 110.8 |
| In | 115 | 3 | He | 1563115.15 | 104.5 |
| Tb | 159 | 1 | No Gas | 7987281.84 | 113.9 |
| Tb | 159 | 3 | He | 3718593.64 | 110.7 |
| Ho | 165 | 1 | No Gas | 7817762.33 | 113.9 |
| Ho | 165 | 3 | He | 3605771.27 | 110.3 |
| Lu | 175 | 1 | No Gas | 7937003.44 | 116.0 |
| Lu | 175 | 3 | He | 3151899.11 | 110.5 |
| Bi | 209 | 1 | No Gas | 4753514.34 | 110.4 |
| Bi | 209 | 3 | He | 2408408.10 | 108.4 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-017B |
| **File Name** | 052SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 16:43:32 |
| **Sample Type** | Sample |
| **Total Dilution** | 1.0000 |
| **Comment** | ICPMS-6020-W-T |
| **Operator** | CAR/SRH/JPV/AEM |
| **Method** | SW6020/SW6020B |

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Li | 7 | 45 | 1 | No Gas | 1.284 | ug/l | 27984.20 |
| Be | 9 | 45 | 1 | No Gas | -0.066 | ug/l | 179.63 |
| B | 11 | 45 | 1 | No Gas | 79.354 | ug/l | 244887.92 |
| Na | 23 | 45 | 3 | He | 103308.130 | ug/l | 81149496.57 |
| Mg | 24 | 45 | 3 | He | 41312.389 | ug/l | 18296921.83 |
| Al | 27 | 45 | 1 | No Gas | 19.023 | ug/l | 405762.09 |
| Si | 28 | 45 | 2 | H2 | 24663.668 | ug/l | 50021369.73 |
| K | 39 | 72 | 3 | He | 2740.218 | ug/l | 1520933.50 |
| Ca | 40 | 72 | 2 | H2 | 39090.713 | ug/l | 275100083.73 |
| Ti | 47 | 72 | 1 | No Gas | 3.052 | ug/l | 6791.76 |
| V | 51 | 72 | 1 | No Gas | 9.430 | ug/l | 273981.63 |
| V | 51 | 72 | 3 | He | 19.049 | ug/l | 112893.78 |
| Cr | 52 | 72 | 1 | No Gas | 2.977 | ug/l | 187680.12 |
| Cr | 52 | 72 | 3 | He | 1.090 | ug/l | 6541.49 |
| Mn | 55 | 72 | 1 | No Gas | 3.719 | ug/l | 127752.28 |
| Mn | 55 | 72 | 3 | He | 2.803 | ug/l | 8800.21 |
| Fe | 56 | 72 | 2 | H2 | 78.764 | ug/l | 1180165.71 |
| Fe | 56 | 72 | 3 | He | 75.127 | ug/l | 323975.90 |
| Co | 59 | 72 | 1 | No Gas | 0.139 | ug/l | 4032.58 |
| Ni | 60 | 72 | 1 | No Gas | 1.144 | ug/l | 7580.33 |
| Ni | 60 | 72 | 3 | He | 0.643 | ug/l | 1206.72 |
| Cu | 63 | 72 | 1 | No Gas | 1.155 | ug/l | 18028.35 |
| Cu | 63 | 72 | 3 | He | 0.601 | ug/l | 3063.04 |
| Cu | 65 | 72 | 1 | No Gas | 0.808 | ug/l | 6397.32 |
| Zn | 66 | 72 | 1 | No Gas | 4.284 | ug/l | 23734.13 |
| Zn | 66 | 72 | 3 | He | 4.792 | ug/l | 5376.58 |
| As | 75 | 72 | 1 | No Gas | 2.532 | ug/l | 34806.25 |
| As | 75 | 72 | 3 | He | 1.322 | ug/l | 2089.44 |
| Se | 78 | 72 | 2 | H2 | 0.441 | ug/l | 294.78 |
| Br | 79 | 72 | 1 | No Gas | 18.338 | ug/l | 195964.44 |
| Br | 79 | 72 | 2 | H2 | 17.952 | ug/l | 113909.65 |
| Se | 82 | 72 | 1 | No Gas | 0.229 | ug/l | 996.78 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 92318.73 |
| Sr | 88 | 72 | 1 | No Gas | 297.786 | ug/l | 11270671.24 |
| Sr | 88 | 72 | 3 | He | 307.557 | ug/l | 1490288.54 |
| Mo | 95 | 115 | 1 | No Gas | 1.897 | ug/l | 14800.01 |
| Mo | 95 | 115 | 3 | He | 2.331 | ug/l | 5970.17 |
| Mo | 98 | 115 | 1 | No Gas | 1.890 | ug/l | 23794.64 |
| Ag | 107 | 115 | 1 | No Gas | -0.039 | ug/l | 679.62 |
| Ag | 109 | 115 | 1 | No Gas | -0.045 | ug/l | 638.27 |
| Cd | 111 | 115 | 1 | No Gas | 0.017 | ug/l | 59.51 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.011 | ug/l | 18.78 |
| Cd | 114 | 115 | 1 | No Gas | 0.024 | ug/l | 100.65 |
| Cd | 114 | 115 | 3 | He | 0.010 | ug/l | 44.65 |
| Sn | 118 | 115 | 1 | No Gas | 0.308 | ug/l | 4807.98 |
| Sn | 118 | 115 | 3 | He | 0.370 | ug/l | 1494.53 |
| Sb | 121 | 115 | 1 | No Gas | 0.061 | ug/l | 1511.90 |
| Sb | 121 | 115 | 3 | He | 0.070 | ug/l | 456.38 |
| Sb | 123 | 115 | 1 | No Gas | 0.068 | ug/l | 1266.18 |
| Sb | 123 | 115 | 3 | He | 0.069 | ug/l | 360.71 |
| Ba | 135 | 115 | 1 | No Gas | 11.459 | ug/l | 41506.33 |
| Ba | 137 | 115 | 1 | No Gas | 11.289 | ug/l | 72800.36 |
| La | 139 | 115 | 3 | He | 0.018 | ug/l | 322.23 |
| Ce | 140 | 115 | 3 | He | 0.038 | ug/l | 743.36 |
| Hg | 201 | 209 | 1 | No Gas | 0.061 | ug/l | 162.30 |
| Hg | 202 | 209 | 1 | No Gas | 1.182 | ug/l | 5635.41 |
| Hg | 202 | 209 | 3 | He | 0.954 | ug/l | 2291.74 |
| Tl | 203 | 209 | 3 | He | 0.055 | ug/l | 483.54 |
| Tl | 205 | 209 | 1 | No Gas | 0.033 | ug/l | 1562.33 |
| Tl | 205 | 209 | 3 | He | 0.047 | ug/l | 1089.15 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.072 | ug/l | 828.92 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.066 | ug/l | 663.35 |
| Pb | 208 | 209 | 1 | No Gas | 0.069 | ug/l | 3173.50 |
| Th | 232 | 209 | 3 | He | 0.048 | ug/l | 1263.90 |
| U | 238 | 209 | 1 | No Gas | 0.078 | ug/l | 2886.41 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3706389.27 | 96.1 |
| Sc | 45 | 2 | H2 | 1771737.30 | 79.1 |
| Sc | 45 | 3 | He | 221772.32 | 83.9 |
| Ge | 72 | 1 | No Gas | 891380.65 | 93.6 |
| Ge | 72 | 2 | H2 | 609571.59 | 86.4 |
| Ge | 72 | 3 | He | 138744.00 | 87.9 |
| In | 115 | 1 | No Gas | 5531705.69 | 99.3 |
| In | 115 | 3 | He | 1322462.96 | 88.4 |
| Tb | 159 | 1 | No Gas | 7014780.42 | 100.0 |
| Tb | 159 | 3 | He | 3276324.94 | 97.5 |
| Ho | 165 | 1 | No Gas | 6768052.40 | 98.6 |
| Ho | 165 | 3 | He | 3223183.20 | 98.6 |
| Lu | 175 | 1 | No Gas | 6904899.55 | 100.9 |
| Lu | 175 | 3 | He | 2799261.59 | 98.1 |
| Bi | 209 | 1 | No Gas | 4136228.78 | 96.1 |
| Bi | 209 | 3 | He | 2150001.00 | 96.8 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-022A |
| **File Name** | 053SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 16:49:47 |
| **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 | 0.505 | ug/l | 20839.27 |
| Be | 9 | 45 | 1 | No Gas | -0.084 | ug/l | 95.98 |
| B | 11 | 45 | 1 | No Gas | 42.085 | ug/l | 153469.80 |
| Na | 23 | 45 | 3 | He | 31947.053 | ug/l | 30175543.72 |
| Mg | 24 | 45 | 3 | He | 10110.424 | ug/l | 5380545.98 |
| Al | 27 | 45 | 1 | No Gas | 5.417 | ug/l | 150341.79 |
| Si | 28 | 45 | 2 | H2 | 21710.972 | ug/l | 51204961.81 |
| K | 39 | 72 | 3 | He | 2037.527 | ug/l | 1339855.62 |
| Ca | 40 | 72 | 2 | H2 | 10424.508 | ug/l | 84148208.58 |
| Ti | 47 | 72 | 1 | No Gas | 1.637 | ug/l | 4151.47 |
| V | 51 | 72 | 1 | No Gas | 15.176 | ug/l | 465112.43 |
| V | 51 | 72 | 3 | He | 10.012 | ug/l | 86486.97 |
| Cr | 52 | 72 | 1 | No Gas | -0.930 | ug/l | 102893.24 |
| Cr | 52 | 72 | 3 | He | 1.991 | ug/l | 12350.78 |
| Mn | 55 | 72 | 1 | No Gas | 0.402 | ug/l | 26011.38 |
| Mn | 55 | 72 | 3 | He | 0.348 | ug/l | 1410.12 |
| Fe | 56 | 72 | 2 | H2 | 0.985 | ug/l | 26505.61 |
| Fe | 56 | 72 | 3 | He | 0.757 | ug/l | 11173.91 |
| Co | 59 | 72 | 1 | No Gas | 0.025 | ug/l | 1171.06 |
| Ni | 60 | 72 | 1 | No Gas | 0.704 | ug/l | 5403.62 |
| Ni | 60 | 72 | 3 | He | 0.648 | ug/l | 1400.08 |
| Cu | 63 | 72 | 1 | No Gas | 0.790 | ug/l | 14043.04 |
| Cu | 63 | 72 | 3 | He | 0.624 | ug/l | 3646.40 |
| Cu | 65 | 72 | 1 | No Gas | 0.661 | ug/l | 5896.23 |
| Zn | 66 | 72 | 1 | No Gas | 2.238 | ug/l | 14887.82 |
| Zn | 66 | 72 | 3 | He | 2.288 | ug/l | 3250.39 |
| As | 75 | 72 | 1 | No Gas | -1.152 | ug/l | 13978.51 |
| As | 75 | 72 | 3 | He | -0.421 | ug/l | 340.33 |
| Se | 78 | 72 | 2 | H2 | 0.076 | ug/l | 98.11 |
| Br | 79 | 72 | 1 | No Gas | 11.333 | ug/l | 135079.22 |
| Br | 79 | 72 | 2 | H2 | 10.361 | ug/l | 77201.83 |
| Se | 82 | 72 | 1 | No Gas | -0.118 | ug/l | 955.84 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 42024.53 |
| Sr | 88 | 72 | 1 | No Gas | 74.023 | ug/l | 3058760.09 |
| Sr | 88 | 72 | 3 | He | 68.741 | ug/l | 384146.28 |
| Mo | 95 | 115 | 1 | No Gas | 0.098 | ug/l | 985.60 |
| Mo | 95 | 115 | 3 | He | 0.098 | ug/l | 338.90 |
| Mo | 98 | 115 | 1 | No Gas | 0.090 | ug/l | 1488.63 |
| Ag | 107 | 115 | 1 | No Gas | -0.064 | ug/l | 202.75 |
| Ag | 109 | 115 | 1 | No Gas | -0.071 | ug/l | 172.07 |
| Cd | 111 | 115 | 1 | No Gas | 0.010 | ug/l | 32.55 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.004 | ug/l | 10.33 |
| Cd | 114 | 115 | 1 | No Gas | 0.018 | ug/l | 48.41 |
| Cd | 114 | 115 | 3 | He | 0.002 | ug/l | 19.69 |
| Sn | 118 | 115 | 1 | No Gas | -0.027 | ug/l | 904.91 |
| Sn | 118 | 115 | 3 | He | -0.021 | ug/l | 278.89 |
| Sb | 121 | 115 | 1 | No Gas | 0.067 | ug/l | 1893.32 |
| Sb | 121 | 115 | 3 | He | 0.072 | ug/l | 561.07 |
| Sb | 123 | 115 | 1 | No Gas | 0.069 | ug/l | 1484.57 |
| Sb | 123 | 115 | 3 | He | 0.069 | ug/l | 436.72 |
| Ba | 135 | 115 | 1 | No Gas | 3.622 | ug/l | 15278.13 |
| Ba | 137 | 115 | 1 | No Gas | 3.578 | ug/l | 26802.62 |
| La | 139 | 115 | 3 | He | 0.002 | ug/l | 47.78 |
| Ce | 140 | 115 | 3 | He | 0.004 | ug/l | 96.67 |
| Hg | 201 | 209 | 1 | No Gas | -0.006 | ug/l | 25.33 |
| Hg | 202 | 209 | 1 | No Gas | 0.006 | ug/l | 113.65 |
| Hg | 202 | 209 | 3 | He | 0.009 | ug/l | 60.99 |
| Tl | 203 | 209 | 3 | He | 0.038 | ug/l | 435.52 |
| Tl | 205 | 209 | 1 | No Gas | 0.017 | ug/l | 1323.41 |
| Tl | 205 | 209 | 3 | He | 0.035 | ug/l | 1041.79 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.016 | ug/l | 341.12 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.013 | ug/l | 256.67 |
| Pb | 208 | 209 | 1 | No Gas | 0.014 | ug/l | 1243.37 |
| Th | 232 | 209 | 3 | He | -0.008 | ug/l | 130.05 |
| U | 238 | 209 | 1 | No Gas | 0.017 | ug/l | 771.20 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 4361082.01 | 113.1 |
| Sc | 45 | 2 | H2 | 2060081.40 | 92.0 |
| Sc | 45 | 3 | He | 266443.38 | 100.8 |
| Ge | 72 | 1 | No Gas | 975270.19 | 102.4 |
| Ge | 72 | 2 | H2 | 698148.28 | 99.0 |
| Ge | 72 | 3 | He | 159970.32 | 101.3 |
| In | 115 | 1 | No Gas | 6433480.83 | 115.5 |
| In | 115 | 3 | He | 1598828.66 | 106.9 |
| Tb | 159 | 1 | No Gas | 7852727.87 | 112.0 |
| Tb | 159 | 3 | He | 3667122.12 | 109.2 |
| Ho | 165 | 1 | No Gas | 7613986.58 | 110.9 |
| Ho | 165 | 3 | He | 3631038.67 | 111.0 |
| Lu | 175 | 1 | No Gas | 7907801.59 | 115.6 |
| Lu | 175 | 3 | He | 3157718.26 | 110.7 |
| Bi | 209 | 1 | No Gas | 4860289.72 | 112.9 |
| Bi | 209 | 3 | He | 2476057.50 | 111.5 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-022B |
| **File Name** | 054SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 16:56:00 |
| **Sample Type** | Sample |
| **Total Dilution** | 1.0000 |
| **Comment** | ICPMS-6020-W-T |
| **Operator** | CAR/SRH/JPV/AEM |
| **Method** | SW6020/SW6020B |

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Li | 7 | 45 | 1 | No Gas | 1.056 | ug/l | 24645.78 |
| Be | 9 | 45 | 1 | No Gas | -0.075 | ug/l | 129.31 |
| B | 11 | 45 | 1 | No Gas | 44.572 | ug/l | 136260.46 |
| Na | 23 | 45 | 3 | He | 33153.272 | ug/l | 25345946.01 |
| Mg | 24 | 45 | 3 | He | 10262.109 | ug/l | 4418851.37 |
| Al | 27 | 45 | 1 | No Gas | 9.832 | ug/l | 215029.25 |
| Si | 28 | 45 | 2 | H2 | 22016.556 | ug/l | 45369940.27 |
| K | 39 | 72 | 3 | He | 1906.189 | ug/l | 1067954.31 |
| Ca | 40 | 72 | 2 | H2 | 10274.636 | ug/l | 73245633.89 |
| Ti | 47 | 72 | 1 | No Gas | 2.189 | ug/l | 5049.35 |
| V | 51 | 72 | 1 | No Gas | 10.662 | ug/l | 308716.27 |
| V | 51 | 72 | 3 | He | 20.596 | ug/l | 116467.52 |
| Cr | 52 | 72 | 1 | No Gas | 6.527 | ug/l | 276439.88 |
| Cr | 52 | 72 | 3 | He | 4.759 | ug/l | 22944.58 |
| Mn | 55 | 72 | 1 | No Gas | 1.548 | ug/l | 60640.71 |
| Mn | 55 | 72 | 3 | He | 0.455 | ug/l | 1515.11 |
| Fe | 56 | 72 | 2 | H2 | 20.843 | ug/l | 322097.27 |
| Fe | 56 | 72 | 3 | He | 20.226 | ug/l | 89694.67 |
| Co | 59 | 72 | 1 | No Gas | 0.051 | ug/l | 1776.60 |
| Ni | 60 | 72 | 1 | No Gas | 1.509 | ug/l | 9880.44 |
| Ni | 60 | 72 | 3 | He | 1.422 | ug/l | 2458.00 |
| Cu | 63 | 72 | 1 | No Gas | 0.517 | ug/l | 9123.86 |
| Cu | 63 | 72 | 3 | He | 0.273 | ug/l | 1558.11 |
| Cu | 65 | 72 | 1 | No Gas | 0.357 | ug/l | 3415.78 |
| Zn | 66 | 72 | 1 | No Gas | 6.602 | ug/l | 35751.41 |
| Zn | 66 | 72 | 3 | He | 7.889 | ug/l | 8328.00 |
| As | 75 | 72 | 1 | No Gas | 1.608 | ug/l | 29729.08 |
| As | 75 | 72 | 3 | He | 0.350 | ug/l | 1062.42 |
| Se | 78 | 72 | 2 | H2 | 0.142 | ug/l | 125.22 |
| Br | 79 | 72 | 1 | No Gas | 5.475 | ug/l | 64335.15 |
| Br | 79 | 72 | 2 | H2 | 5.345 | ug/l | 37080.56 |
| Se | 82 | 72 | 1 | No Gas | -0.369 | ug/l | 816.88 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 39015.48 |
| Sr | 88 | 72 | 1 | No Gas | 69.945 | ug/l | 2687142.45 |
| Sr | 88 | 72 | 3 | He | 68.035 | ug/l | 321692.63 |
| Mo | 95 | 115 | 1 | No Gas | 0.174 | ug/l | 1420.08 |
| Mo | 95 | 115 | 3 | He | 0.198 | ug/l | 524.46 |
| Mo | 98 | 115 | 1 | No Gas | 0.168 | ug/l | 2211.10 |
| Ag | 107 | 115 | 1 | No Gas | -0.062 | ug/l | 223.42 |
| Ag | 109 | 115 | 1 | No Gas | -0.069 | ug/l | 174.07 |
| Cd | 111 | 115 | 1 | No Gas | 0.010 | ug/l | 27.56 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.003 | ug/l | 8.33 |
| Cd | 114 | 115 | 1 | No Gas | 0.018 | ug/l | 45.72 |
| Cd | 114 | 115 | 3 | He | 0.003 | ug/l | 18.34 |
| Sn | 118 | 115 | 1 | No Gas | 0.347 | ug/l | 5190.66 |
| Sn | 118 | 115 | 3 | He | 0.415 | ug/l | 1604.55 |
| Sb | 121 | 115 | 1 | No Gas | 0.143 | ug/l | 3036.30 |
| Sb | 121 | 115 | 3 | He | 0.158 | ug/l | 889.79 |
| Sb | 123 | 115 | 1 | No Gas | 0.145 | ug/l | 2359.11 |
| Sb | 123 | 115 | 3 | He | 0.158 | ug/l | 709.76 |
| Ba | 135 | 115 | 1 | No Gas | 3.829 | ug/l | 13669.69 |
| Ba | 137 | 115 | 1 | No Gas | 3.686 | ug/l | 23390.03 |
| La | 139 | 115 | 3 | He | 0.004 | ug/l | 75.55 |
| Ce | 140 | 115 | 3 | He | 0.008 | ug/l | 163.34 |
| Hg | 201 | 209 | 1 | No Gas | 0.001 | ug/l | 37.33 |
| Hg | 202 | 209 | 1 | No Gas | 0.020 | ug/l | 161.97 |
| Hg | 202 | 209 | 3 | He | 0.021 | ug/l | 81.65 |
| Tl | 203 | 209 | 3 | He | 0.033 | ug/l | 355.48 |
| Tl | 205 | 209 | 1 | No Gas | 0.022 | ug/l | 1270.07 |
| Tl | 205 | 209 | 3 | He | 0.032 | ug/l | 868.38 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.033 | ug/l | 461.13 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.034 | ug/l | 398.90 |
| Pb | 208 | 209 | 1 | No Gas | 0.032 | ug/l | 1772.28 |
| Th | 232 | 209 | 3 | He | 0.033 | ug/l | 984.43 |
| U | 238 | 209 | 1 | No Gas | 0.018 | ug/l | 670.22 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3652523.30 | 94.7 |
| Sc | 45 | 2 | H2 | 1799865.64 | 80.3 |
| Sc | 45 | 3 | He | 215713.64 | 81.6 |
| Ge | 72 | 1 | No Gas | 903880.10 | 94.9 |
| Ge | 72 | 2 | H2 | 616385.91 | 87.4 |
| Ge | 72 | 3 | He | 135332.97 | 85.7 |
| In | 115 | 1 | No Gas | 5441155.92 | 97.7 |
| In | 115 | 3 | He | 1294734.02 | 86.5 |
| Tb | 159 | 1 | No Gas | 6982917.73 | 99.6 |
| Tb | 159 | 3 | He | 3191815.30 | 95.0 |
| Ho | 165 | 1 | No Gas | 6733995.11 | 98.1 |
| Ho | 165 | 3 | He | 3210454.77 | 98.2 |
| Lu | 175 | 1 | No Gas | 6879730.16 | 100.6 |
| Lu | 175 | 3 | He | 2752925.72 | 96.5 |
| Bi | 209 | 1 | No Gas | 4201686.24 | 97.6 |
| Bi | 209 | 3 | He | 2203480.75 | 99.2 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-027A |
| **File Name** | 055SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 17:02:13 |
| **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 | 0.203 | ug/l | 16008.82 |
| Be | 9 | 45 | 1 | No Gas | -0.082 | ug/l | 109.31 |
| B | 11 | 45 | 1 | No Gas | 55.133 | ug/l | 199162.53 |
| Na | 23 | 45 | 3 | He | 51084.641 | ug/l | 47762209.29 |
| Mg | 24 | 45 | 3 | He | 20254.230 | ug/l | 10673876.06 |
| Al | 27 | 45 | 1 | No Gas | 0.782 | ug/l | 38521.69 |
| Si | 28 | 45 | 2 | H2 | 20927.719 | ug/l | 49158778.05 |
| K | 39 | 72 | 3 | He | 2589.499 | ug/l | 1685458.34 |
| Ca | 40 | 72 | 2 | H2 | 19656.003 | ug/l | 160472266.61 |
| Ti | 47 | 72 | 1 | No Gas | 1.327 | ug/l | 3503.96 |
| V | 51 | 72 | 1 | No Gas | 14.472 | ug/l | 451346.80 |
| V | 51 | 72 | 3 | He | 9.389 | ug/l | 84498.70 |
| Cr | 52 | 72 | 1 | No Gas | -1.304 | ug/l | 94544.98 |
| Cr | 52 | 72 | 3 | He | 1.914 | ug/l | 12092.80 |
| Mn | 55 | 72 | 1 | No Gas | 1.693 | ug/l | 71207.59 |
| Mn | 55 | 72 | 3 | He | 1.635 | ug/l | 6064.04 |
| Fe | 56 | 72 | 2 | H2 | 1.355 | ug/l | 33224.22 |
| Fe | 56 | 72 | 3 | He | 1.053 | ug/l | 12768.40 |
| Co | 59 | 72 | 1 | No Gas | 0.026 | ug/l | 1217.64 |
| Ni | 60 | 72 | 1 | No Gas | 0.303 | ug/l | 2844.65 |
| Ni | 60 | 72 | 3 | He | 0.180 | ug/l | 495.57 |
| Cu | 63 | 72 | 1 | No Gas | 2.210 | ug/l | 36510.71 |
| Cu | 63 | 72 | 3 | He | 2.038 | ug/l | 11057.64 |
| Cu | 65 | 72 | 1 | No Gas | 2.021 | ug/l | 16108.70 |
| Zn | 66 | 72 | 1 | No Gas | 2.656 | ug/l | 17357.30 |
| Zn | 66 | 72 | 3 | He | 2.730 | ug/l | 3816.08 |
| As | 75 | 72 | 1 | No Gas | -1.117 | ug/l | 14518.79 |
| As | 75 | 72 | 3 | He | -0.497 | ug/l | 252.47 |
| Se | 78 | 72 | 2 | H2 | 0.263 | ug/l | 223.56 |
| Br | 79 | 72 | 1 | No Gas | 27.855 | ug/l | 325721.36 |
| Br | 79 | 72 | 2 | H2 | 25.910 | ug/l | 188631.39 |
| Se | 82 | 72 | 1 | No Gas | 0.450 | ug/l | 1186.67 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 61766.12 |
| Sr | 88 | 72 | 1 | No Gas | 159.102 | ug/l | 6671977.21 |
| Sr | 88 | 72 | 3 | He | 144.687 | ug/l | 818421.83 |
| Mo | 95 | 115 | 1 | No Gas | 0.265 | ug/l | 2410.22 |
| Mo | 95 | 115 | 3 | He | 0.280 | ug/l | 891.15 |
| Mo | 98 | 115 | 1 | No Gas | 0.270 | ug/l | 3959.47 |
| Ag | 107 | 115 | 1 | No Gas | -0.065 | ug/l | 184.08 |
| Ag | 109 | 115 | 1 | No Gas | -0.070 | ug/l | 178.07 |
| Cd | 111 | 115 | 1 | No Gas | 0.010 | ug/l | 31.12 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.005 | ug/l | 13.44 |
| Cd | 114 | 115 | 1 | No Gas | 0.019 | ug/l | 64.70 |
| Cd | 114 | 115 | 3 | He | 0.004 | ug/l | 28.32 |
| Sn | 118 | 115 | 1 | No Gas | -0.065 | ug/l | 372.60 |
| Sn | 118 | 115 | 3 | He | -0.066 | ug/l | 103.34 |
| Sb | 121 | 115 | 1 | No Gas | 0.045 | ug/l | 1357.54 |
| Sb | 121 | 115 | 3 | He | 0.050 | ug/l | 418.71 |
| Sb | 123 | 115 | 1 | No Gas | 0.047 | ug/l | 1068.82 |
| Sb | 123 | 115 | 3 | He | 0.047 | ug/l | 322.70 |
| Ba | 135 | 115 | 1 | No Gas | 7.388 | ug/l | 30139.56 |
| Ba | 137 | 115 | 1 | No Gas | 7.067 | ug/l | 51249.50 |
| La | 139 | 115 | 3 | He | 0.001 | ug/l | 22.22 |
| Ce | 140 | 115 | 3 | He | 0.000 | ug/l | 15.56 |
| Hg | 201 | 209 | 1 | No Gas | -0.004 | ug/l | 30.33 |
| Hg | 202 | 209 | 1 | No Gas | -0.003 | ug/l | 62.66 |
| Hg | 202 | 209 | 3 | He | 0.002 | ug/l | 40.99 |
| Tl | 203 | 209 | 3 | He | 0.022 | ug/l | 314.13 |
| Tl | 205 | 209 | 1 | No Gas | 0.005 | ug/l | 932.26 |
| Tl | 205 | 209 | 3 | He | 0.022 | ug/l | 797.01 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.083 | ug/l | 1117.83 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.081 | ug/l | 925.60 |
| Pb | 208 | 209 | 1 | No Gas | 0.079 | ug/l | 4206.96 |
| Th | 232 | 209 | 3 | He | -0.009 | ug/l | 120.05 |
| U | 238 | 209 | 1 | No Gas | 0.024 | ug/l | 1080.50 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 4327555.89 | 112.2 |
| Sc | 45 | 2 | H2 | 2052057.59 | 91.6 |
| Sc | 45 | 3 | He | 263886.44 | 99.9 |
| Ge | 72 | 1 | No Gas | 986691.66 | 103.6 |
| Ge | 72 | 2 | H2 | 706913.85 | 100.2 |
| Ge | 72 | 3 | He | 161982.17 | 102.6 |
| In | 115 | 1 | No Gas | 6220920.99 | 111.7 |
| In | 115 | 3 | He | 1580388.35 | 105.6 |
| Tb | 159 | 1 | No Gas | 8040898.90 | 114.7 |
| Tb | 159 | 3 | He | 3554615.90 | 105.8 |
| Ho | 165 | 1 | No Gas | 7749730.76 | 112.9 |
| Ho | 165 | 3 | He | 3596806.73 | 110.0 |
| Lu | 175 | 1 | No Gas | 7867214.28 | 115.0 |
| Lu | 175 | 3 | He | 3145992.94 | 110.3 |
| Bi | 209 | 1 | No Gas | 4892677.92 | 113.7 |
| Bi | 209 | 3 | He | 2439860.81 | 109.8 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | CCV |
| **File Name** | 056_CCV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 17:08:29 |
| **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 | 583.742 | ug/l | 8152279.14 |
| Be | 9 | 45 | 1 | No Gas | 43.571 | ug/l | 246354.35 |
| B | 11 | 45 | 1 | No Gas | 51.078 | ug/l | 166848.15 |
| Na | 23 | 45 | 3 | He | 13463.703 | ug/l | 11681509.13 |
| Mg | 24 | 45 | 3 | He | 13306.366 | ug/l | 6491687.52 |
| Al | 27 | 45 | 1 | No Gas | 46.890 | ug/l | 1029709.13 |
| Si | 28 | 45 | 2 | H2 | 215.361 | ug/l | 486881.10 |
| K | 39 | 72 | 3 | He | 12273.160 | ug/l | 6986619.13 |
| Ca | 40 | 72 | 2 | H2 | 12442.999 | ug/l | 96474681.28 |
| Ti | 47 | 72 | 1 | No Gas | 48.119 | ug/l | 109684.55 |
| V | 51 | 72 | 1 | No Gas | 45.603 | ug/l | 1354203.54 |
| V | 51 | 72 | 3 | He | 47.781 | ug/l | 255002.88 |
| Cr | 52 | 72 | 1 | No Gas | 47.469 | ug/l | 1350194.44 |
| Cr | 52 | 72 | 3 | He | 48.956 | ug/l | 249247.78 |
| Mn | 55 | 72 | 1 | No Gas | 49.270 | ug/l | 1677187.04 |
| Mn | 55 | 72 | 3 | He | 49.966 | ug/l | 168675.24 |
| Fe | 56 | 72 | 2 | H2 | 1362.315 | ug/l | 22306690.28 |
| Fe | 56 | 72 | 3 | He | 1326.666 | ug/l | 6133210.44 |
| Co | 59 | 72 | 1 | No Gas | 47.618 | ug/l | 1333538.41 |
| Ni | 60 | 72 | 1 | No Gas | 47.300 | ug/l | 304489.09 |
| Ni | 60 | 72 | 3 | He | 52.282 | ug/l | 96548.12 |
| Cu | 63 | 72 | 1 | No Gas | 47.663 | ug/l | 730236.76 |
| Cu | 63 | 72 | 3 | He | 51.656 | ug/l | 252355.83 |
| Cu | 65 | 72 | 1 | No Gas | 47.519 | ug/l | 345480.99 |
| Zn | 66 | 72 | 1 | No Gas | 46.244 | ug/l | 250283.55 |
| Zn | 66 | 72 | 3 | He | 51.035 | ug/l | 57453.13 |
| As | 75 | 72 | 1 | No Gas | 51.945 | ug/l | 353825.60 |
| As | 75 | 72 | 3 | He | 49.618 | ug/l | 56634.62 |
| Se | 78 | 72 | 2 | H2 | 51.408 | ug/l | 32424.59 |
| Br | 79 | 72 | 1 | No Gas | 0.985 | ug/l | 18438.53 |
| Br | 79 | 72 | 2 | H2 | 0.886 | ug/l | 10289.91 |
| Se | 82 | 72 | 1 | No Gas | 48.741 | ug/l | 18152.80 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 35809.97 |
| Sr | 88 | 72 | 1 | No Gas | 50.140 | ug/l | 2049125.16 |
| Sr | 88 | 72 | 3 | He | 49.388 | ug/l | 261652.46 |
| Mo | 95 | 115 | 1 | No Gas | 46.338 | ug/l | 374363.79 |
| Mo | 95 | 115 | 3 | He | 50.840 | ug/l | 143097.24 |
| Mo | 98 | 115 | 1 | No Gas | 46.192 | ug/l | 601734.56 |
| Ag | 107 | 115 | 1 | No Gas | 19.093 | ug/l | 393328.30 |
| Ag | 109 | 115 | 1 | No Gas | 18.956 | ug/l | 375805.73 |
| Cd | 111 | 115 | 1 | No Gas | 49.335 | ug/l | 217362.85 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 51.637 | ug/l | 78188.53 |
| Cd | 114 | 115 | 1 | No Gas | 47.856 | ug/l | 483219.78 |
| Cd | 114 | 115 | 3 | He | 50.518 | ug/l | 189002.20 |
| Sn | 118 | 115 | 1 | No Gas | 48.516 | ug/l | 607643.71 |
| Sn | 118 | 115 | 3 | He | 50.071 | ug/l | 178852.31 |
| Sb | 121 | 115 | 1 | No Gas | 50.130 | ug/l | 997491.45 |
| Sb | 121 | 115 | 3 | He | 51.537 | ug/l | 293571.56 |
| Sb | 123 | 115 | 1 | No Gas | 49.666 | ug/l | 762030.94 |
| Sb | 123 | 115 | 3 | He | 51.376 | ug/l | 231484.80 |
| Ba | 135 | 115 | 1 | No Gas | 50.691 | ug/l | 191097.67 |
| Ba | 137 | 115 | 1 | No Gas | 48.622 | ug/l | 326055.88 |
| La | 139 | 115 | 3 | He | 50.343 | ug/l | 1006652.63 |
| Ce | 140 | 115 | 3 | He | 50.473 | ug/l | 1074739.88 |
| Hg | 201 | 209 | 1 | No Gas | 0.952 | ug/l | 2164.42 |
| Hg | 202 | 209 | 1 | No Gas | 0.974 | ug/l | 4927.93 |
| Hg | 202 | 209 | 3 | He | 1.006 | ug/l | 2589.41 |
| Tl | 203 | 209 | 3 | He | 46.432 | ug/l | 315386.87 |
| Tl | 205 | 209 | 1 | No Gas | 48.029 | ug/l | 1435419.48 |
| Tl | 205 | 209 | 3 | He | 46.617 | ug/l | 762740.20 |
| [Pb] | 206 | 209 | 1 | No Gas | 48.170 | ug/l | 496321.05 |
| [Pb] | 207 | 209 | 1 | No Gas | 49.526 | ug/l | 435915.36 |
| Pb | 208 | 209 | 1 | No Gas | 48.967 | ug/l | 1991223.97 |
| Th | 232 | 209 | 3 | He | 46.309 | ug/l | 1023571.81 |
| U | 238 | 209 | 1 | No Gas | 49.207 | ug/l | 1920000.66 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3906007.77 | 101.3 |
| Sc | 45 | 2 | H2 | 1921141.37 | 85.7 |
| Sc | 45 | 3 | He | 244259.11 | 92.4 |
| Ge | 72 | 1 | No Gas | 961896.90 | 101.0 |
| Ge | 72 | 2 | H2 | 670819.15 | 95.1 |
| Ge | 72 | 3 | He | 151628.36 | 96.0 |
| In | 115 | 1 | No Gas | 5759755.87 | 103.4 |
| In | 115 | 3 | He | 1459121.86 | 97.5 |
| Tb | 159 | 1 | No Gas | 7331692.32 | 104.5 |
| Tb | 159 | 3 | He | 3443911.42 | 102.5 |
| Ho | 165 | 1 | No Gas | 7201137.92 | 104.9 |
| Ho | 165 | 3 | He | 3410347.60 | 104.3 |
| Lu | 175 | 1 | No Gas | 7272564.23 | 106.3 |
| Lu | 175 | 3 | He | 2969824.31 | 104.1 |
| Bi | 209 | 1 | No Gas | 4375370.20 | 101.6 |
| Bi | 209 | 3 | He | 2306528.39 | 103.8 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | CCB |
| **File Name** | 057_CCB.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 17:14:43 |
| **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 | 0.656 | ug/l | 20690.99 |
| Be | 9 | 45 | 1 | No Gas | -0.071 | ug/l | 163.64 |
| B | 11 | 45 | 1 | No Gas | 1.169 | ug/l | 4934.79 |
| Na | 23 | 45 | 3 | He | 29.858 | ug/l | 61508.37 |
| Mg | 24 | 45 | 3 | He | 0.781 | ug/l | 1443.88 |
| Al | 27 | 45 | 1 | No Gas | -0.496 | ug/l | 7196.20 |
| Si | 28 | 45 | 2 | H2 | -0.702 | ug/l | 11892.18 |
| K | 39 | 72 | 3 | He | -28.543 | ug/l | 110802.42 |
| Ca | 40 | 72 | 2 | H2 | 0.130 | ug/l | 154793.55 |
| Ti | 47 | 72 | 1 | No Gas | 0.026 | ug/l | 450.46 |
| V | 51 | 72 | 1 | No Gas | -0.120 | ug/l | 11347.88 |
| V | 51 | 72 | 3 | He | 0.255 | ug/l | 35624.13 |
| Cr | 52 | 72 | 1 | No Gas | -0.113 | ug/l | 120745.41 |
| Cr | 52 | 72 | 3 | He | 0.020 | ug/l | 1664.55 |
| Mn | 55 | 72 | 1 | No Gas | 0.236 | ug/l | 19797.47 |
| Mn | 55 | 72 | 3 | He | 0.001 | ug/l | 159.97 |
| Fe | 56 | 72 | 2 | H2 | 0.121 | ug/l | 11355.84 |
| Fe | 56 | 72 | 3 | He | 0.143 | ug/l | 7416.01 |
| Co | 59 | 72 | 1 | No Gas | -0.002 | ug/l | 375.93 |
| Ni | 60 | 72 | 1 | No Gas | 0.055 | ug/l | 1157.75 |
| Ni | 60 | 72 | 3 | He | -0.017 | ug/l | 95.56 |
| Cu | 63 | 72 | 1 | No Gas | -0.006 | ug/l | 1695.45 |
| Cu | 63 | 72 | 3 | He | -0.017 | ug/l | 314.94 |
| Cu | 65 | 72 | 1 | No Gas | -0.047 | ug/l | 694.29 |
| Zn | 66 | 72 | 1 | No Gas | -0.238 | ug/l | 1410.27 |
| Zn | 66 | 72 | 3 | He | -0.166 | ug/l | 328.90 |
| As | 75 | 72 | 1 | No Gas | 0.337 | ug/l | 23091.29 |
| As | 75 | 72 | 3 | He | -0.108 | ug/l | 644.73 |
| Se | 78 | 72 | 2 | H2 | -0.014 | ug/l | 37.89 |
| Br | 79 | 72 | 1 | No Gas | 0.518 | ug/l | 13043.38 |
| Br | 79 | 72 | 2 | H2 | 0.463 | ug/l | 7463.84 |
| Se | 82 | 72 | 1 | No Gas | -0.517 | ug/l | 802.22 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 22702.85 |
| Sr | 88 | 72 | 1 | No Gas | -0.001 | ug/l | 532.29 |
| Sr | 88 | 72 | 3 | He | -0.001 | ug/l | 145.56 |
| Mo | 95 | 115 | 1 | No Gas | 0.027 | ug/l | 313.34 |
| Mo | 95 | 115 | 3 | He | 0.026 | ug/l | 104.44 |
| Mo | 98 | 115 | 1 | No Gas | 0.029 | ug/l | 539.95 |
| Ag | 107 | 115 | 1 | No Gas | -0.003 | ug/l | 1466.00 |
| Ag | 109 | 115 | 1 | No Gas | -0.009 | ug/l | 1409.31 |
| Cd | 111 | 115 | 1 | No Gas | 0.002 | ug/l | -7.02 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.004 | ug/l | 10.00 |
| Cd | 114 | 115 | 1 | No Gas | 0.008 | ug/l | -58.41 |
| Cd | 114 | 115 | 3 | He | 0.004 | ug/l | 25.67 |
| Sn | 118 | 115 | 1 | No Gas | -0.007 | ug/l | 1091.22 |
| Sn | 118 | 115 | 3 | He | -0.002 | ug/l | 316.67 |
| Sb | 121 | 115 | 1 | No Gas | 0.060 | ug/l | 1586.58 |
| Sb | 121 | 115 | 3 | He | 0.047 | ug/l | 363.71 |
| Sb | 123 | 115 | 1 | No Gas | 0.062 | ug/l | 1246.18 |
| Sb | 123 | 115 | 3 | He | 0.043 | ug/l | 275.36 |
| Ba | 135 | 115 | 1 | No Gas | -0.006 | ug/l | 9.98 |
| Ba | 137 | 115 | 1 | No Gas | -0.002 | ug/l | 29.94 |
| La | 139 | 115 | 3 | He | 0.001 | ug/l | 15.56 |
| Ce | 140 | 115 | 3 | He | 0.000 | ug/l | 16.67 |
| Hg | 201 | 209 | 1 | No Gas | -0.002 | ug/l | 31.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.000 | ug/l | 74.99 |
| Hg | 202 | 209 | 3 | He | 0.001 | ug/l | 35.66 |
| Tl | 203 | 209 | 3 | He | 0.090 | ug/l | 766.33 |
| Tl | 205 | 209 | 1 | No Gas | 0.065 | ug/l | 2728.09 |
| Tl | 205 | 209 | 3 | He | 0.092 | ug/l | 1905.58 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.001 | ug/l | 154.45 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.002 | ug/l | 138.89 |
| Pb | 208 | 209 | 1 | No Gas | 0.001 | ug/l | 603.34 |
| Th | 232 | 209 | 3 | He | 0.025 | ug/l | 861.71 |
| U | 238 | 209 | 1 | No Gas | 0.003 | ug/l | 130.31 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3888680.39 | 100.8 |
| Sc | 45 | 2 | H2 | 1929290.03 | 86.1 |
| Sc | 45 | 3 | He | 236481.94 | 89.5 |
| Ge | 72 | 1 | No Gas | 945458.59 | 99.2 |
| Ge | 72 | 2 | H2 | 673314.09 | 95.5 |
| Ge | 72 | 3 | He | 144998.82 | 91.8 |
| In | 115 | 1 | No Gas | 5888890.76 | 105.7 |
| In | 115 | 3 | He | 1425815.89 | 95.3 |
| Tb | 159 | 1 | No Gas | 7379609.30 | 105.2 |
| Tb | 159 | 3 | He | 3354712.12 | 99.9 |
| Ho | 165 | 1 | No Gas | 7162572.37 | 104.4 |
| Ho | 165 | 3 | He | 3294865.82 | 100.7 |
| Lu | 175 | 1 | No Gas | 7183430.68 | 105.0 |
| Lu | 175 | 3 | He | 2820530.46 | 98.9 |
| Bi | 209 | 1 | No Gas | 4569640.77 | 106.2 |
| Bi | 209 | 3 | He | 2319542.04 | 104.4 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-027B |
| **File Name** | 058SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 17:20:57 |
| **Sample Type** | Sample |
| **Total Dilution** | 1.0000 |
| **Comment** | ICPMS-6020-W-T |
| **Operator** | CAR/SRH/JPV/AEM |
| **Method** | SW6020/SW6020B |

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Li | 7 | 45 | 1 | No Gas | 1.010 | ug/l | 23628.43 |
| Be | 9 | 45 | 1 | No Gas | -0.062 | ug/l | 194.30 |
| B | 11 | 45 | 1 | No Gas | 56.845 | ug/l | 170392.97 |
| Na | 23 | 45 | 3 | He | 51276.390 | ug/l | 38360434.98 |
| Mg | 24 | 45 | 3 | He | 20517.120 | ug/l | 8650553.80 |
| Al | 27 | 45 | 1 | No Gas | 2.345 | ug/l | 62939.64 |
| Si | 28 | 45 | 2 | H2 | 20893.614 | ug/l | 41723731.20 |
| K | 39 | 72 | 3 | He | 2522.535 | ug/l | 1337965.99 |
| Ca | 40 | 72 | 2 | H2 | 19277.872 | ug/l | 136753979.16 |
| Ti | 47 | 72 | 1 | No Gas | 1.789 | ug/l | 4136.43 |
| V | 51 | 72 | 1 | No Gas | 11.376 | ug/l | 322951.36 |
| V | 51 | 72 | 3 | He | 19.841 | ug/l | 110286.83 |
| Cr | 52 | 72 | 1 | No Gas | 4.507 | ug/l | 224373.39 |
| Cr | 52 | 72 | 3 | He | 2.300 | ug/l | 11520.10 |
| Mn | 55 | 72 | 1 | No Gas | 2.629 | ug/l | 93711.01 |
| Mn | 55 | 72 | 3 | He | 1.697 | ug/l | 5110.21 |
| Fe | 56 | 72 | 2 | H2 | 2.661 | ug/l | 48429.76 |
| Fe | 56 | 72 | 3 | He | 2.530 | ug/l | 16305.46 |
| Co | 59 | 72 | 1 | No Gas | 0.048 | ug/l | 1650.16 |
| Ni | 60 | 72 | 1 | No Gas | 0.402 | ug/l | 3154.09 |
| Ni | 60 | 72 | 3 | He | 0.233 | ug/l | 487.79 |
| Cu | 63 | 72 | 1 | No Gas | 0.466 | ug/l | 8285.01 |
| Cu | 63 | 72 | 3 | He | 0.147 | ug/l | 981.17 |
| Cu | 65 | 72 | 1 | No Gas | 0.253 | ug/l | 2670.66 |
| Zn | 66 | 72 | 1 | No Gas | 0.789 | ug/l | 6425.97 |
| Zn | 66 | 72 | 3 | He | 0.958 | ug/l | 1387.85 |
| As | 75 | 72 | 1 | No Gas | 1.050 | ug/l | 26016.71 |
| As | 75 | 72 | 3 | He | 0.308 | ug/l | 992.48 |
| Se | 78 | 72 | 2 | H2 | 0.327 | ug/l | 231.45 |
| Br | 79 | 72 | 1 | No Gas | 8.065 | ug/l | 90158.41 |
| Br | 79 | 72 | 2 | H2 | 8.105 | ug/l | 53983.24 |
| Se | 82 | 72 | 1 | No Gas | 0.333 | ug/l | 1034.78 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 57156.37 |
| Sr | 88 | 72 | 1 | No Gas | 148.863 | ug/l | 5640303.81 |
| Sr | 88 | 72 | 3 | He | 144.459 | ug/l | 664255.91 |
| Mo | 95 | 115 | 1 | No Gas | 0.530 | ug/l | 4065.05 |
| Mo | 95 | 115 | 3 | He | 0.606 | ug/l | 1525.65 |
| Mo | 98 | 115 | 1 | No Gas | 0.506 | ug/l | 6266.28 |
| Ag | 107 | 115 | 1 | No Gas | -0.066 | ug/l | 144.06 |
| Ag | 109 | 115 | 1 | No Gas | -0.071 | ug/l | 138.06 |
| Cd | 111 | 115 | 1 | No Gas | 0.015 | ug/l | 50.13 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.007 | ug/l | 13.00 |
| Cd | 114 | 115 | 1 | No Gas | 0.022 | ug/l | 77.11 |
| Cd | 114 | 115 | 3 | He | 0.005 | ug/l | 27.26 |
| Sn | 118 | 115 | 1 | No Gas | 0.211 | ug/l | 3520.13 |
| Sn | 118 | 115 | 3 | He | 0.238 | ug/l | 1035.60 |
| Sb | 121 | 115 | 1 | No Gas | 0.036 | ug/l | 1005.14 |
| Sb | 121 | 115 | 3 | He | 0.042 | ug/l | 297.70 |
| Sb | 123 | 115 | 1 | No Gas | 0.043 | ug/l | 864.45 |
| Sb | 123 | 115 | 3 | He | 0.036 | ug/l | 218.69 |
| Ba | 135 | 115 | 1 | No Gas | 7.006 | ug/l | 24579.66 |
| Ba | 137 | 115 | 1 | No Gas | 6.962 | ug/l | 43422.11 |
| La | 139 | 115 | 3 | He | 0.001 | ug/l | 18.89 |
| Ce | 140 | 115 | 3 | He | 0.002 | ug/l | 40.00 |
| Hg | 201 | 209 | 1 | No Gas | 0.002 | ug/l | 37.66 |
| Hg | 202 | 209 | 1 | No Gas | 0.010 | ug/l | 114.31 |
| Hg | 202 | 209 | 3 | He | 0.017 | ug/l | 68.99 |
| Tl | 203 | 209 | 3 | He | 0.055 | ug/l | 480.87 |
| Tl | 205 | 209 | 1 | No Gas | 0.038 | ug/l | 1726.79 |
| Tl | 205 | 209 | 3 | He | 0.059 | ug/l | 1258.57 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.025 | ug/l | 372.23 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.029 | ug/l | 354.45 |
| Pb | 208 | 209 | 1 | No Gas | 0.025 | ug/l | 1465.59 |
| Th | 232 | 209 | 3 | He | 0.102 | ug/l | 2355.83 |
| U | 238 | 209 | 1 | No Gas | 0.027 | ug/l | 1020.17 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3586642.51 | 93.0 |
| Sc | 45 | 2 | H2 | 1744558.66 | 77.9 |
| Sc | 45 | 3 | He | 211107.26 | 79.9 |
| Ge | 72 | 1 | No Gas | 891418.96 | 93.6 |
| Ge | 72 | 2 | H2 | 614150.53 | 87.1 |
| Ge | 72 | 3 | He | 131653.00 | 83.4 |
| In | 115 | 1 | No Gas | 5349911.59 | 96.0 |
| In | 115 | 3 | He | 1280926.55 | 85.6 |
| Tb | 159 | 1 | No Gas | 6965475.18 | 99.3 |
| Tb | 159 | 3 | He | 3197101.49 | 95.2 |
| Ho | 165 | 1 | No Gas | 6750314.66 | 98.3 |
| Ho | 165 | 3 | He | 3176026.12 | 97.1 |
| Lu | 175 | 1 | No Gas | 6854888.61 | 100.2 |
| Lu | 175 | 3 | He | 2660734.49 | 93.3 |
| Bi | 209 | 1 | No Gas | 4143260.76 | 96.2 |
| Bi | 209 | 3 | He | 2127558.47 | 95.8 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-032A |
| **File Name** | 059SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 17:27:11 |
| **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 | 0.267 | ug/l | 16169.73 |
| Be | 9 | 45 | 1 | No Gas | -0.075 | ug/l | 144.30 |
| B | 11 | 45 | 1 | No Gas | 56.192 | ug/l | 193031.77 |
| Na | 23 | 45 | 3 | He | 49050.101 | ug/l | 45100499.33 |
| Mg | 24 | 45 | 3 | He | 20188.486 | ug/l | 10461872.78 |
| Al | 27 | 45 | 1 | No Gas | 1.306 | ug/l | 48552.11 |
| Si | 28 | 45 | 2 | H2 | 20596.642 | ug/l | 48373383.24 |
| K | 39 | 72 | 3 | He | 2585.601 | ug/l | 1663356.82 |
| Ca | 40 | 72 | 2 | H2 | 19417.473 | ug/l | 157348221.01 |
| Ti | 47 | 72 | 1 | No Gas | 1.318 | ug/l | 3448.89 |
| V | 51 | 72 | 1 | No Gas | 15.192 | ug/l | 468605.03 |
| V | 51 | 72 | 3 | He | 9.330 | ug/l | 83222.78 |
| Cr | 52 | 72 | 1 | No Gas | -1.316 | ug/l | 93368.98 |
| Cr | 52 | 72 | 3 | He | 1.883 | ug/l | 11779.22 |
| Mn | 55 | 72 | 1 | No Gas | 0.731 | ug/l | 37500.22 |
| Mn | 55 | 72 | 3 | He | 0.725 | ug/l | 2755.38 |
| Fe | 56 | 72 | 2 | H2 | 0.996 | ug/l | 26811.55 |
| Fe | 56 | 72 | 3 | He | 0.743 | ug/l | 11107.06 |
| Co | 59 | 72 | 1 | No Gas | 0.023 | ug/l | 1117.83 |
| Ni | 60 | 72 | 1 | No Gas | 0.306 | ug/l | 2841.32 |
| Ni | 60 | 72 | 3 | He | 0.181 | ug/l | 492.23 |
| Cu | 63 | 72 | 1 | No Gas | 0.582 | ug/l | 10890.44 |
| Cu | 63 | 72 | 3 | He | 0.381 | ug/l | 2397.05 |
| Cu | 65 | 72 | 1 | No Gas | 0.413 | ug/l | 4109.57 |
| Zn | 66 | 72 | 1 | No Gas | 0.639 | ug/l | 6230.54 |
| Zn | 66 | 72 | 3 | He | 0.853 | ug/l | 1562.32 |
| As | 75 | 72 | 1 | No Gas | -1.241 | ug/l | 13568.94 |
| As | 75 | 72 | 3 | He | -0.499 | ug/l | 247.33 |
| Se | 78 | 72 | 2 | H2 | 0.245 | ug/l | 210.33 |
| Br | 79 | 72 | 1 | No Gas | 29.099 | ug/l | 336940.65 |
| Br | 79 | 72 | 2 | H2 | 28.214 | ug/l | 203441.52 |
| Se | 82 | 72 | 1 | No Gas | 0.186 | ug/l | 1081.59 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 62090.13 |
| Sr | 88 | 72 | 1 | No Gas | 155.760 | ug/l | 6473764.88 |
| Sr | 88 | 72 | 3 | He | 142.630 | ug/l | 797238.41 |
| Mo | 95 | 115 | 1 | No Gas | 0.270 | ug/l | 2411.33 |
| Mo | 95 | 115 | 3 | He | 0.274 | ug/l | 861.15 |
| Mo | 98 | 115 | 1 | No Gas | 0.258 | ug/l | 3725.10 |
| Ag | 107 | 115 | 1 | No Gas | -0.064 | ug/l | 201.42 |
| Ag | 109 | 115 | 1 | No Gas | -0.070 | ug/l | 174.07 |
| Cd | 111 | 115 | 1 | No Gas | 0.012 | ug/l | 39.95 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.005 | ug/l | 12.00 |
| Cd | 114 | 115 | 1 | No Gas | 0.018 | ug/l | 54.37 |
| Cd | 114 | 115 | 3 | He | 0.004 | ug/l | 28.95 |
| Sn | 118 | 115 | 1 | No Gas | -0.062 | ug/l | 409.19 |
| Sn | 118 | 115 | 3 | He | -0.064 | ug/l | 108.89 |
| Sb | 121 | 115 | 1 | No Gas | 0.001 | ug/l | 414.05 |
| Sb | 121 | 115 | 3 | He | 0.001 | ug/l | 113.68 |
| Sb | 123 | 115 | 1 | No Gas | 0.003 | ug/l | 339.04 |
| Sb | 123 | 115 | 3 | He | 0.000 | ug/l | 96.34 |
| Ba | 135 | 115 | 1 | No Gas | 6.930 | ug/l | 27739.36 |
| Ba | 137 | 115 | 1 | No Gas | 6.750 | ug/l | 48041.17 |
| La | 139 | 115 | 3 | He | 0.000 | ug/l | 11.11 |
| Ce | 140 | 115 | 3 | He | 0.001 | ug/l | 26.66 |
| Hg | 201 | 209 | 1 | No Gas | -0.005 | ug/l | 26.99 |
| Hg | 202 | 209 | 1 | No Gas | -0.003 | ug/l | 59.66 |
| Hg | 202 | 209 | 3 | He | 0.001 | ug/l | 37.99 |
| Tl | 203 | 209 | 3 | He | 0.047 | ug/l | 490.87 |
| Tl | 205 | 209 | 1 | No Gas | 0.019 | ug/l | 1310.08 |
| Tl | 205 | 209 | 3 | He | 0.040 | ug/l | 1096.49 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.009 | ug/l | 247.78 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.011 | ug/l | 227.78 |
| Pb | 208 | 209 | 1 | No Gas | 0.011 | ug/l | 1040.03 |
| Th | 232 | 209 | 3 | He | -0.008 | ug/l | 135.39 |
| U | 238 | 209 | 1 | No Gas | 0.026 | ug/l | 1102.49 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 4113954.38 | 106.7 |
| Sc | 45 | 2 | H2 | 2051706.34 | 91.6 |
| Sc | 45 | 3 | He | 259462.96 | 98.2 |
| Ge | 72 | 1 | No Gas | 977792.42 | 102.6 |
| Ge | 72 | 2 | H2 | 701548.23 | 99.5 |
| Ge | 72 | 3 | He | 160028.02 | 101.3 |
| In | 115 | 1 | No Gas | 6104823.74 | 109.6 |
| In | 115 | 3 | He | 1562810.74 | 104.5 |
| Tb | 159 | 1 | No Gas | 7748207.36 | 110.5 |
| Tb | 159 | 3 | He | 3557394.02 | 105.9 |
| Ho | 165 | 1 | No Gas | 7582809.42 | 110.5 |
| Ho | 165 | 3 | He | 3558333.73 | 108.8 |
| Lu | 175 | 1 | No Gas | 7762202.35 | 113.5 |
| Lu | 175 | 3 | He | 3123376.13 | 109.5 |
| Bi | 209 | 1 | No Gas | 4651414.48 | 108.1 |
| Bi | 209 | 3 | He | 2410175.93 | 108.5 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | B22020415-032B |
| **File Name** | 060SMPL.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 17:33:27 |
| **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 | 0.720 | ug/l | 20225.52 |
| Be | 9 | 45 | 1 | No Gas | -0.065 | ug/l | 181.96 |
| B | 11 | 45 | 1 | No Gas | 56.018 | ug/l | 170499.12 |
| Na | 23 | 45 | 3 | He | 51321.653 | ug/l | 39134246.08 |
| Mg | 24 | 45 | 3 | He | 20495.401 | ug/l | 8808653.55 |
| Al | 27 | 45 | 1 | No Gas | 2.394 | ug/l | 64884.96 |
| Si | 28 | 45 | 2 | H2 | 20604.937 | ug/l | 41283716.87 |
| K | 39 | 72 | 3 | He | 2538.311 | ug/l | 1390068.54 |
| Ca | 40 | 72 | 2 | H2 | 19467.877 | ug/l | 138334159.29 |
| Ti | 47 | 72 | 1 | No Gas | 1.561 | ug/l | 3702.53 |
| V | 51 | 72 | 1 | No Gas | 9.836 | ug/l | 284453.89 |
| V | 51 | 72 | 3 | He | 18.753 | ug/l | 109465.33 |
| Cr | 52 | 72 | 1 | No Gas | 4.411 | ug/l | 224808.72 |
| Cr | 52 | 72 | 3 | He | 2.145 | ug/l | 11203.20 |
| Mn | 55 | 72 | 1 | No Gas | 1.803 | ug/l | 68650.11 |
| Mn | 55 | 72 | 3 | He | 0.799 | ug/l | 2564.05 |
| Fe | 56 | 72 | 2 | H2 | 1.717 | ug/l | 34329.45 |
| Fe | 56 | 72 | 3 | He | 1.612 | ug/l | 13042.29 |
| Co | 59 | 72 | 1 | No Gas | 0.042 | ug/l | 1523.73 |
| Ni | 60 | 72 | 1 | No Gas | 0.460 | ug/l | 3546.75 |
| Ni | 60 | 72 | 3 | He | 0.212 | ug/l | 470.01 |
| Cu | 63 | 72 | 1 | No Gas | 0.456 | ug/l | 8237.65 |
| Cu | 63 | 72 | 3 | He | 0.135 | ug/l | 961.51 |
| Cu | 65 | 72 | 1 | No Gas | 0.253 | ug/l | 2705.34 |
| Zn | 66 | 72 | 1 | No Gas | 0.698 | ug/l | 6057.00 |
| Zn | 66 | 72 | 3 | He | 0.805 | ug/l | 1280.06 |
| As | 75 | 72 | 1 | No Gas | 1.802 | ug/l | 30853.50 |
| As | 75 | 72 | 3 | He | 0.319 | ug/l | 1035.62 |
| Se | 78 | 72 | 2 | H2 | 0.306 | ug/l | 219.56 |
| Br | 79 | 72 | 1 | No Gas | 8.952 | ug/l | 100561.89 |
| Br | 79 | 72 | 2 | H2 | 8.724 | ug/l | 57897.13 |
| Se | 82 | 72 | 1 | No Gas | 0.151 | ug/l | 992.38 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 57513.76 |
| Sr | 88 | 72 | 1 | No Gas | 147.083 | ug/l | 5645473.26 |
| Sr | 88 | 72 | 3 | He | 141.908 | ug/l | 674227.99 |
| Mo | 95 | 115 | 1 | No Gas | 0.663 | ug/l | 5155.41 |
| Mo | 95 | 115 | 3 | He | 0.794 | ug/l | 2025.72 |
| Mo | 98 | 115 | 1 | No Gas | 0.663 | ug/l | 8319.09 |
| Ag | 107 | 115 | 1 | No Gas | -0.066 | ug/l | 135.39 |
| Ag | 109 | 115 | 1 | No Gas | -0.071 | ug/l | 143.39 |
| Cd | 111 | 115 | 1 | No Gas | 0.011 | ug/l | 33.99 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.006 | ug/l | 11.67 |
| Cd | 114 | 115 | 1 | No Gas | 0.017 | ug/l | 40.04 |
| Cd | 114 | 115 | 3 | He | 0.005 | ug/l | 25.16 |
| Sn | 118 | 115 | 1 | No Gas | 0.192 | ug/l | 3367.08 |
| Sn | 118 | 115 | 3 | He | 0.222 | ug/l | 1002.26 |
| Sb | 121 | 115 | 1 | No Gas | 0.018 | ug/l | 678.09 |
| Sb | 121 | 115 | 3 | He | 0.023 | ug/l | 208.69 |
| Sb | 123 | 115 | 1 | No Gas | 0.026 | ug/l | 636.41 |
| Sb | 123 | 115 | 3 | He | 0.021 | ug/l | 163.02 |
| Ba | 135 | 115 | 1 | No Gas | 6.902 | ug/l | 24659.67 |
| Ba | 137 | 115 | 1 | No Gas | 6.776 | ug/l | 43037.73 |
| La | 139 | 115 | 3 | He | 0.001 | ug/l | 26.67 |
| Ce | 140 | 115 | 3 | He | 0.002 | ug/l | 47.78 |
| Hg | 201 | 209 | 1 | No Gas | -0.001 | ug/l | 31.99 |
| Hg | 202 | 209 | 1 | No Gas | 0.006 | ug/l | 98.65 |
| Hg | 202 | 209 | 3 | He | 0.009 | ug/l | 53.32 |
| Tl | 203 | 209 | 3 | He | 0.029 | ug/l | 326.81 |
| Tl | 205 | 209 | 1 | No Gas | 0.018 | ug/l | 1188.95 |
| Tl | 205 | 209 | 3 | He | 0.026 | ug/l | 766.33 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.016 | ug/l | 294.45 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.017 | ug/l | 257.78 |
| Pb | 208 | 209 | 1 | No Gas | 0.016 | ug/l | 1153.37 |
| Th | 232 | 209 | 3 | He | 0.045 | ug/l | 1227.22 |
| U | 238 | 209 | 1 | No Gas | 0.025 | ug/l | 970.84 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3653463.90 | 94.7 |
| Sc | 45 | 2 | H2 | 1750222.63 | 78.1 |
| Sc | 45 | 3 | He | 215194.57 | 81.4 |
| Ge | 72 | 1 | No Gas | 904957.81 | 95.0 |
| Ge | 72 | 2 | H2 | 615147.80 | 87.2 |
| Ge | 72 | 3 | He | 136021.22 | 86.1 |
| In | 115 | 1 | No Gas | 5468955.23 | 98.2 |
| In | 115 | 3 | He | 1303464.89 | 87.1 |
| Tb | 159 | 1 | No Gas | 7191860.04 | 102.6 |
| Tb | 159 | 3 | He | 3192593.45 | 95.1 |
| Ho | 165 | 1 | No Gas | 6890739.20 | 100.4 |
| Ho | 165 | 3 | He | 3163066.45 | 96.7 |
| Lu | 175 | 1 | No Gas | 6991949.41 | 102.2 |
| Lu | 175 | 3 | He | 2799483.79 | 98.1 |
| Bi | 209 | 1 | No Gas | 4251763.03 | 98.8 |
| Bi | 209 | 3 | He | 2164599.13 | 97.4 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | CCV |
| **File Name** | 061_CCV.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 17:39:41 |
| **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 | 622.471 | ug/l | 8361122.59 |
| Be | 9 | 45 | 1 | No Gas | 45.725 | ug/l | 248603.15 |
| B | 11 | 45 | 1 | No Gas | 52.923 | ug/l | 166232.16 |
| Na | 23 | 45 | 3 | He | 13618.908 | ug/l | 11781678.85 |
| Mg | 24 | 45 | 3 | He | 13375.042 | ug/l | 6506331.20 |
| Al | 27 | 45 | 1 | No Gas | 49.878 | ug/l | 1052115.26 |
| Si | 28 | 45 | 2 | H2 | 214.431 | ug/l | 478578.89 |
| K | 39 | 72 | 3 | He | 11985.961 | ug/l | 6945933.09 |
| Ca | 40 | 72 | 2 | H2 | 12042.821 | ug/l | 93979687.21 |
| Ti | 47 | 72 | 1 | No Gas | 47.402 | ug/l | 107723.45 |
| V | 51 | 72 | 1 | No Gas | 43.733 | ug/l | 1292709.39 |
| V | 51 | 72 | 3 | He | 47.657 | ug/l | 258949.37 |
| Cr | 52 | 72 | 1 | No Gas | 47.491 | ug/l | 1346120.45 |
| Cr | 52 | 72 | 3 | He | 48.442 | ug/l | 250887.73 |
| Mn | 55 | 72 | 1 | No Gas | 49.541 | ug/l | 1681477.25 |
| Mn | 55 | 72 | 3 | He | 49.265 | ug/l | 169222.86 |
| Fe | 56 | 72 | 2 | H2 | 1341.676 | ug/l | 22117644.99 |
| Fe | 56 | 72 | 3 | He | 1280.496 | ug/l | 6023487.02 |
| Co | 59 | 72 | 1 | No Gas | 47.597 | ug/l | 1329380.62 |
| Ni | 60 | 72 | 1 | No Gas | 47.168 | ug/l | 302750.92 |
| Ni | 60 | 72 | 3 | He | 52.075 | ug/l | 97831.68 |
| Cu | 63 | 72 | 1 | No Gas | 48.494 | ug/l | 740232.51 |
| Cu | 63 | 72 | 3 | He | 51.317 | ug/l | 255105.22 |
| Cu | 65 | 72 | 1 | No Gas | 47.764 | ug/l | 346069.67 |
| Zn | 66 | 72 | 1 | No Gas | 47.435 | ug/l | 255501.44 |
| Zn | 66 | 72 | 3 | He | 51.037 | ug/l | 58466.79 |
| As | 75 | 72 | 1 | No Gas | 50.194 | ug/l | 341821.12 |
| As | 75 | 72 | 3 | He | 48.584 | ug/l | 56445.17 |
| Se | 78 | 72 | 2 | H2 | 50.602 | ug/l | 32133.93 |
| Br | 79 | 72 | 1 | No Gas | 0.867 | ug/l | 17049.65 |
| Br | 79 | 72 | 2 | H2 | 0.794 | ug/l | 9730.65 |
| Se | 82 | 72 | 1 | No Gas | 49.975 | ug/l | 18522.36 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 36577.18 |
| Sr | 88 | 72 | 1 | No Gas | 51.671 | ug/l | 2105763.14 |
| Sr | 88 | 72 | 3 | He | 48.551 | ug/l | 261763.98 |
| Mo | 95 | 115 | 1 | No Gas | 46.297 | ug/l | 376112.11 |
| Mo | 95 | 115 | 3 | He | 50.319 | ug/l | 142438.52 |
| Mo | 98 | 115 | 1 | No Gas | 47.115 | ug/l | 617434.74 |
| Ag | 107 | 115 | 1 | No Gas | 19.070 | ug/l | 395084.81 |
| Ag | 109 | 115 | 1 | No Gas | 19.239 | ug/l | 383594.91 |
| Cd | 111 | 115 | 1 | No Gas | 50.641 | ug/l | 224360.04 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 51.521 | ug/l | 78466.52 |
| Cd | 114 | 115 | 1 | No Gas | 48.878 | ug/l | 496297.72 |
| Cd | 114 | 115 | 3 | He | 50.779 | ug/l | 191079.78 |
| Sn | 118 | 115 | 1 | No Gas | 49.782 | ug/l | 626572.58 |
| Sn | 118 | 115 | 3 | He | 50.605 | ug/l | 181803.35 |
| Sb | 121 | 115 | 1 | No Gas | 51.179 | ug/l | 1023827.63 |
| Sb | 121 | 115 | 3 | He | 51.596 | ug/l | 295624.63 |
| Sb | 123 | 115 | 1 | No Gas | 50.423 | ug/l | 778098.34 |
| Sb | 123 | 115 | 3 | He | 51.534 | ug/l | 233534.30 |
| Ba | 135 | 115 | 1 | No Gas | 50.935 | ug/l | 193289.08 |
| Ba | 137 | 115 | 1 | No Gas | 49.258 | ug/l | 332650.58 |
| La | 139 | 115 | 3 | He | 50.992 | ug/l | 1025594.42 |
| Ce | 140 | 115 | 3 | He | 50.773 | ug/l | 1087522.93 |
| Hg | 201 | 209 | 1 | No Gas | 0.976 | ug/l | 2268.41 |
| Hg | 202 | 209 | 1 | No Gas | 0.986 | ug/l | 5108.96 |
| Hg | 202 | 209 | 3 | He | 1.008 | ug/l | 2640.41 |
| Tl | 203 | 209 | 3 | He | 47.045 | ug/l | 325262.96 |
| Tl | 205 | 209 | 1 | No Gas | 48.469 | ug/l | 1484692.86 |
| Tl | 205 | 209 | 3 | He | 46.278 | ug/l | 770701.76 |
| [Pb] | 206 | 209 | 1 | No Gas | 49.429 | ug/l | 521152.04 |
| [Pb] | 207 | 209 | 1 | No Gas | 50.334 | ug/l | 453643.76 |
| Pb | 208 | 209 | 1 | No Gas | 49.917 | ug/l | 2078288.59 |
| Th | 232 | 209 | 3 | He | 46.892 | ug/l | 1054988.97 |
| U | 238 | 209 | 1 | No Gas | 49.208 | ug/l | 1965409.69 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3764412.50 | 97.6 |
| Sc | 45 | 2 | H2 | 1896473.15 | 84.6 |
| Sc | 45 | 3 | He | 243549.41 | 92.2 |
| Ge | 72 | 1 | No Gas | 961194.94 | 100.9 |
| Ge | 72 | 2 | H2 | 675439.36 | 95.8 |
| Ge | 72 | 3 | He | 154306.21 | 97.7 |
| In | 115 | 1 | No Gas | 5799979.66 | 104.1 |
| In | 115 | 3 | He | 1467639.10 | 98.1 |
| Tb | 159 | 1 | No Gas | 7410084.30 | 105.7 |
| Tb | 159 | 3 | He | 3454878.09 | 102.9 |
| Ho | 165 | 1 | No Gas | 7276454.43 | 106.0 |
| Ho | 165 | 3 | He | 3375748.88 | 103.2 |
| Lu | 175 | 1 | No Gas | 7290316.26 | 106.6 |
| Lu | 175 | 3 | He | 2888393.55 | 101.2 |
| Bi | 209 | 1 | No Gas | 4485358.48 | 104.2 |
| Bi | 209 | 3 | He | 2347808.14 | 105.7 |

# ICPMS207-B Analytical Data

| | |
|---|---|
| **Sample Name** | CCB |
| **File Name** | 062_CCB.d |
| **Data Path Name** | D:\Agilent\ICPMH\1\DATA\220214A.b |
| **Acq Time** | 2022-02-14 17:45:56 |
| **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 | 0.621 | ug/l | 19506.30 |
| Be | 9 | 45 | 1 | No Gas | -0.066 | ug/l | 180.96 |
| B | 11 | 45 | 1 | No Gas | 0.910 | ug/l | 3956.11 |
| Na | 23 | 45 | 3 | He | 28.050 | ug/l | 58750.72 |
| Mg | 24 | 45 | 3 | He | 0.980 | ug/l | 1503.77 |
| Al | 27 | 45 | 1 | No Gas | -0.516 | ug/l | 6529.23 |
| Si | 28 | 45 | 2 | H2 | -0.917 | ug/l | 11069.87 |
| K | 39 | 72 | 3 | He | -40.372 | ug/l | 105681.56 |
| Ca | 40 | 72 | 2 | H2 | 0.080 | ug/l | 151849.16 |
| Ti | 47 | 72 | 1 | No Gas | 0.004 | ug/l | 402.08 |
| V | 51 | 72 | 1 | No Gas | -3.869 | ug/l | -96638.74 |
| V | 51 | 72 | 3 | He | -0.120 | ug/l | 34372.32 |
| Cr | 52 | 72 | 1 | No Gas | -0.294 | ug/l | 115883.53 |
| Cr | 52 | 72 | 3 | He | -0.001 | ug/l | 1577.87 |
| Mn | 55 | 72 | 1 | No Gas | 0.180 | ug/l | 17875.44 |
| Mn | 55 | 72 | 3 | He | -0.003 | ug/l | 149.97 |
| Fe | 56 | 72 | 2 | H2 | 0.102 | ug/l | 10873.29 |
| Fe | 56 | 72 | 3 | He | 0.072 | ug/l | 7182.33 |
| Co | 59 | 72 | 1 | No Gas | -0.001 | ug/l | 419.17 |
| Ni | 60 | 72 | 1 | No Gas | 0.060 | ug/l | 1187.70 |
| Ni | 60 | 72 | 3 | He | 0.001 | ug/l | 130.00 |
| Cu | 63 | 72 | 1 | No Gas | -0.016 | ug/l | 1531.36 |
| Cu | 63 | 72 | 3 | He | -0.018 | ug/l | 317.61 |
| Cu | 65 | 72 | 1 | No Gas | -0.054 | ug/l | 642.94 |
| Zn | 66 | 72 | 1 | No Gas | -0.267 | ug/l | 1257.09 |
| Zn | 66 | 72 | 3 | He | -0.215 | ug/l | 280.01 |
| As | 75 | 72 | 1 | No Gas | 0.569 | ug/l | 24476.41 |
| As | 75 | 72 | 3 | He | -0.123 | ug/l | 636.20 |
| Se | 78 | 72 | 2 | H2 | -0.018 | ug/l | 34.55 |
| Br | 79 | 72 | 1 | No Gas | 0.459 | ug/l | 12377.45 |
| Br | 79 | 72 | 2 | H2 | 0.440 | ug/l | 7177.59 |
| Se | 82 | 72 | 1 | No Gas | -0.202 | ug/l | 910.77 |
| Kr | 84 | 72 | 1 | No Gas | | ug/l | 22036.47 |
| Sr | 88 | 72 | 1 | No Gas | 0.000 | ug/l | 562.23 |
| Sr | 88 | 72 | 3 | He | -0.003 | ug/l | 135.56 |
| Mo | 95 | 115 | 1 | No Gas | 0.028 | ug/l | 323.34 |
| Mo | 95 | 115 | 3 | He | 0.028 | ug/l | 110.00 |
| Mo | 98 | 115 | 1 | No Gas | 0.026 | ug/l | 506.33 |
| Ag | 107 | 115 | 1 | No Gas | -0.003 | ug/l | 1483.35 |
| Ag | 109 | 115 | 1 | No Gas | -0.011 | ug/l | 1366.62 |
| Cd | 111 | 115 | 1 | No Gas | 0.010 | ug/l | 29.82 |

# ICPMS207-B Analytical Data

| Name | Mass | ISTD | Tune Step | Tune Mode | Conc. | Units | CPS |
|---|---|---|---|---|---|---|---|
| Cd | 111 | 115 | 3 | He | 0.004 | ug/l | 9.89 |
| Cd | 114 | 115 | 1 | No Gas | 0.008 | ug/l | -53.24 |
| Cd | 114 | 115 | 3 | He | 0.004 | ug/l | 23.40 |
| Sn | 118 | 115 | 1 | No Gas | -0.003 | ug/l | 1137.79 |
| Sn | 118 | 115 | 3 | He | -0.001 | ug/l | 314.45 |
| Sb | 121 | 115 | 1 | No Gas | 0.058 | ug/l | 1561.58 |
| Sb | 121 | 115 | 3 | He | 0.044 | ug/l | 341.04 |
| Sb | 123 | 115 | 1 | No Gas | 0.059 | ug/l | 1200.51 |
| Sb | 123 | 115 | 3 | He | 0.040 | ug/l | 259.70 |
| Ba | 135 | 115 | 1 | No Gas | 0.000 | ug/l | 29.94 |
| Ba | 137 | 115 | 1 | No Gas | -0.004 | ug/l | 19.96 |
| La | 139 | 115 | 3 | He | 0.000 | ug/l | 6.67 |
| Ce | 140 | 115 | 3 | He | 0.000 | ug/l | 7.78 |
| Hg | 201 | 209 | 1 | No Gas | -0.005 | ug/l | 26.33 |
| Hg | 202 | 209 | 1 | No Gas | -0.001 | ug/l | 71.66 |
| Hg | 202 | 209 | 3 | He | -0.001 | ug/l | 30.99 |
| Tl | 203 | 209 | 3 | He | 0.102 | ug/l | 836.36 |
| Tl | 205 | 209 | 1 | No Gas | 0.073 | ug/l | 3015.93 |
| Tl | 205 | 209 | 3 | He | 0.103 | ug/l | 2056.32 |
| [Pb] | 206 | 209 | 1 | No Gas | 0.000 | ug/l | 151.12 |
| [Pb] | 207 | 209 | 1 | No Gas | 0.000 | ug/l | 127.78 |
| Pb | 208 | 209 | 1 | No Gas | 0.001 | ug/l | 594.46 |
| Th | 232 | 209 | 3 | He | 0.025 | ug/l | 859.71 |
| U | 238 | 209 | 1 | No Gas | 0.003 | ug/l | 148.64 |

| Name | Mass | Tune Step | Tune Mode | CPS | ISTD Recovery % |
|---|---|---|---|---|---|
| Sc | 45 | 1 | No Gas | 3753281.87 | 97.3 |
| Sc | 45 | 2 | H2 | 1870920.16 | 83.5 |
| Sc | 45 | 3 | He | 231615.20 | 87.7 |
| Ge | 72 | 1 | No Gas | 943068.34 | 99.0 |
| Ge | 72 | 2 | H2 | 662113.52 | 93.9 |
| Ge | 72 | 3 | He | 146637.22 | 92.9 |
| In | 115 | 1 | No Gas | 5896338.55 | 105.9 |
| In | 115 | 3 | He | 1409672.87 | 94.2 |
| Tb | 159 | 1 | No Gas | 7437000.07 | 106.0 |
| Tb | 159 | 3 | He | 3384892.22 | 100.8 |
| Ho | 165 | 1 | No Gas | 7251934.02 | 105.7 |
| Ho | 165 | 3 | He | 3312095.86 | 101.3 |
| Lu | 175 | 1 | No Gas | 7238610.85 | 105.8 |
| Lu | 175 | 3 | He | 2833342.15 | 99.3 |
| Bi | 209 | 1 | No Gas | 4627093.71 | 107.5 |
| Bi | 209 | 3 | He | 2286237.56 | 102.9 |

# Energy Laboratories Inc

# Spike LOG

Standard ID: ME220208 AUDIGSPK
Standard Name AUDIGSPK
Date Prepared 1/28/2022
Date Expires: 10/25/2022
Department ME
Vendor:
Lot Number:
Balance ID:

Type: Secondary
BY: Amanda E. McDani
Status: Empty/Disposed

Comments:

---

**Final Volume:** 50 mL

| Stock Source | | Base Units | Amount Added |
|---|---|---|---|
| ME211202A | U Stock | ug/mL | 5 mL |
| ME 211025 Th Sec | Th Seondary Stock | ug/mL | 5 mL |
| ME211222 Ce 2nd | Ce Secondary Stock | ug/mL | 5 mL |
| ME211222 La Sec | La Secondary Stock | ug/mL | 5 mL |
| ME211229A AU 2n | Au 2nd source Stock | ug/mL | 15 mL |
| ME211025A | Te Stock | ug/mL | 15 mL |

| Analytes | CAS | Conc: | ug/mL |
|---|---|---|---|

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211202A | | |
| Standard Name | U Stock | Type: | Primary |
| Date Prepared | 12/2/2021 | BY: | Amanda E. McDani |
| Date Expires: | 12/2/2022 | | |
| Department | ME | Status: | New |
| Vendor: | SCP Science | | |
| Lot Number: | S210517021 | | |
| Balance ID: | | | |

Comments:

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

**Final Volume:**
500 mL

**Stock Source** **Base Units** **Amount Added**

**Analytes** **CAS** Conc: **ug/mL**

SCP SCIENCE

Providing Innovative Solutions to Analytical Chemists

# Certificate of Analysis

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% $HNO_3$ (See Section 3 for actual matrix)

Expiration Date (End of month): **May 2023** (or 15 months after bottle is opened, whichever comes first)

## 2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1004 µg/ml +/- 4 µg/ml**

**985 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3164 Lot: **080521**

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

## 3.0 REFERENCE VALUES:

Density: **1.020 g/ml @ 24.0 °C**

Actual Matrix: **4.0% (v/v) $HNO_3$**

% abundance of stable isotopes : $^{238}U$ : 99. 82% ; $^{235}U$ : 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
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | <0.0010 | Fe | <0.0018 | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0252** | Ga | <0.0010 | Ni | <0.0010 | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | <0.0010 | Ge | <0.0010 | P | <0.0026 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | * | Pd | <0.0010 | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | <0.0010 | Tl | <0.0011 |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | <0.0024 | Re | <0.0010 | U | N/A |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | <0.0010 | Mg | <0.0020 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | <0.0010 | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.0010 | Zr | <0.0010 |
| Er | <0.0010 | Na | <0.0010 | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Yaling Sui, Chemist

Certification Date: May 27, 2021

Yaling Sui

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ*:

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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Fax: +49 (0) 8342-89560-69

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME 211025 TH SECONDARY STOCK | | |
| Standard Name | Th Seondary Stock | Type: | Primary |
| Date Prepared | 10/25/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 10/25/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | S2-TH706436 | | |
| Balance ID: | | | |
| Comments: | Opened 10/25/2021; Expires 10/25/2022 | | |

| 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**

INORGANIC VENTURES
Refine your results. Redefine your industry.

# Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Single Analyte Custom Grade Solution |
| Catalog Number: | CGTH1 |
| Lot Number: | S2-TH706436 |
| Matrix: | 5% (v/v) HNO3 |
| Value / Analyte(s): | 1 000 µg/mL ea: Thorium |
| Starting Material: | TH(NO3)4*4H2O |
| Starting Material Lot#: | 2250 |
| Starting Material Purity: | 99.9905% |

ID #: 14318
Opened:
Thorium Single Analyte Custom Grade Solutic
Expires: 7/4/2025
Rec'd: 9/24/2021
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Value:** 1001 ± 4 µg/mL

**Density:** 1.026 g/mL (measured at 20 ± 4 °C)

**Assay Information:**

**Assay Method #1** **1001 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

**Assay Method #2** **1001 ± 6 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

### Characterization of CRM/RM by Two or More Methods

**Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Ag < | 0.000448 | M | Eu < | 0.000224 | O | Na | 0.064077 | M | Se < | 0.005827 | M | Zn | 0.003183 |
| O | Al | 0.010962 | M | Fe | 0.012392 | M | Nb < | 0.003138 | i | Si < | | M | Zr < | 0.010310 |
| M | As < | 0.038776 | M | Ga < | 0.004931 | M | Nd | 0.004697 | M | Sm | 0.000871 | | | |
| M | Au < | 0.000224 | M | Gd | 0.000300 | M | Ni < | 0.006724 | M | Sn < | 0.028242 | | | |
| M | B < | 0.021293 | M | Ge < | 0.008965 | M | Os < | 0.000224 | M | Sr | 0.002582 | | | |
| M | Ba | 0.001317 | M | Hf < | 0.000224 | i | P < | | M | Ta < | 0.001344 | | | |
| M | Be < | 0.000224 | M | Hg < | 0.000448 | M | Pb | 0.003287 | M | Tb < | 0.001793 | | | |
| M | Bi < | 0.001793 | M | Ho < | 0.001344 | M | Pd < | 0.000448 | M | Te < | 0.010086 | | | |
| O | Ca | 0.051969 | M | In | 0.000134 | M | Pr | 0.001202 | s | Th < | | | | |
| M | Cd < | 0.001344 | M | Ir < | 0.000224 | M | Pt < | 0.000224 | M | Ti < | 0.004258 | | | |
| M | Ce | 0.015420 | O | K | 0.028928 | M | Rb < | 0.005155 | M | Tl < | 0.000224 | | | |
| M | Co < | 0.001344 | M | La | 0.003577 | M | Re < | 0.000224 | M | Tm < | 0.000224 | | | |
| M | Cr < | 0.015465 | M | Li < | 0.000448 | M | Rh < | 0.000224 | M | U | 0.006564 | | | |
| M | Cs < | 0.013896 | M | Lu < | 0.000224 | M | Ru < | 0.000224 | M | V < | 0.001793 | | | |
| M | Cu | 0.001472 | O | Mg | 0.027914 | i | S < | | M | W < | 0.000224 | | | |
| M | Dy | 0.000197 | M | Mn | 0.001814 | M | Sb < | 0.004931 | M | Y | 0.000860 | | | |
| M | Er < | 0.002241 | M | Mo < | 0.000896 | M | Sc < | 0.000672 | M | Yb < | 0.000224 | | | |

M - Checked by ICP-MS  O - Checked by ICP-OES  i - Spectral Interference
n - Not Checked For  s - Solution Standard Element

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution -** 232.04 +4 8 Th(OH) 3+ and Th(OH)22+

**Chemical Compatibility -**Soluble in HCl, and HNO3. Avoid H3PO4, H2SO4 and HF although solubilities may not be a problem depending upon pH and matrix (For example: ThF4 is soluble in acids). Avoid neutral to basic media. Th4+ is stable with most metals and inorganic anions forming an insoluble carbonate, oxide, fluoride, oxalate, sulfate and phosphate in neutral to slightly acidic media.

**Stability -** 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

**Th Containing Samples (Preparation and Solution) -**Metal (Soluble in Aqua Regia); Oxide (The heated oxide is not soluble in acids except hot conc. H2SO4 ); Ores ( Na2O2 fusion at 480 ± 20EC for 7 minutes, cool and treat sintered mass with 50 mL cold water and stand until disintegrated. The mass is transferred to a beaker and acidified with HCl with 25 mL excess HCl added. Any residue is collected on a Whatman No. 42 filter, dried and ignited to 1000 EC in Pt0 crucible and the ash treated with H2SO4 / HF and fumed. If residue remains, then treat it by peroxide fusion as above.)

**Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):**

| **Technique/Line** | **Estimated D.L.** | **Order** | **Interferences** (underlined indicates severe) |
|---|---|---|---|
| ICP-MS 232 amu | 1 ppt | N/A | |
| ICP-OES 274.716 nm | 0.08 / 0.008 µg/mL | 1 | Ti, Ta, Fe, V |
| ICP-OES 283.231 nm | 0.07 / 0.007 µg/mL | 1 | U, Mo, Ti, Fe, Cr |
| ICP-OES 283.730 nm | 0.07 / 0.007 µg/mL | 1 | U, Zr |

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

July 04, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

### 11.2 Lot Expiration Date

**- July 04, 2025**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

### 11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Director, Quality Control

Michael J Booth

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

Paul R Gaines

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211222 CE 2ND SOURCE | | |
| Standard Name | Ce Secondary Stock | Type: | Primary |
| Date Prepared | 12/22/2021 | BY: | Amanda E. McDani |
| Date Expires: | 12/22/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S210208003 | | |
| Balance ID: | | | |
| 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 |

SCP SCIENCE

Providing Innovative Solutions to Analytical Chemists

# Certificate of Analysis

## 1.0 DESCRIPTION:

***Plasma*CAL 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% $HNO_3$ (See Section 3 for actual matrix)

Expiration Date (End of month): **February 2023** (or 15 months after bottle is opened, whichever comes first)

Ce

## 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) $HNO_3$**

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

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 | **0.0102** | Sn | <0.0010 |
| Al | **0.0148** | Ga | **0.0526** | Ni | **0.0064** | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | <0.0010 | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | * | Pd | <0.0010 | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | **0.0235** | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | <0.0010 | Tl | <0.0011 |
| Ca | **0.0375** | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | <0.0024 | Re | <0.0010 | U | <0.0010 |
| Ce | N/A | La | <0.10 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | <0.0010 | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0121** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.0010 | Zr | <0.0010 |
| Er | <0.0010 | Na | <0.0010 | Si | <0.10 | | |
| Eu | **0.0035** | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Yaling Sui, Chemist

Certification Date: February 22, 2021

Yaling Sui

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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Fax: +1 (800) 253-5549

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**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 | Type: | Primary |
| Date Prepared | 12/22/2021 | BY: | Amanda E. McDani |
| Date Expires: | 12/22/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S210803016 | | |
| Balance ID: | | | |
| Comments: | opened 12/22/2021, expires 12/22/2022 | | |

| 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**

SCP SCIENCE

Providing Innovative Solutions to Analytical Chemists

# Certificate of Analysis

## 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% $HNO_3$ (See Section 3 for actual matrix)

Expiration Date (End of month): **August 2023** (or 15 months after bottle is opened, whichever comes first)

La

## 2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1005 µg/ml +/- 4 µg/ml**

**985 µg/g +/- 3 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3127a Lot: **151030**

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

## 3.0 REFERENCE VALUES:

Density: **1.020 g/ml @ 23.2 °C**

Actual Matrix: **4.0% (v/v) $HNO_3$**

**ID #: 14326**
Opened:_____
Lanthanum PlasmaCal Standard
**Expires: 8/31/2023**
Rec'd: 9/29/2021
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | <0.0010 | Fe | <0.0018 | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0106** | Ga | <0.0010 | Ni | <0.0010 | Sr | <0.0025 |
| As | <0.0010 | Gd | **0.0889** | Os | <0.0010 | Ta | <0.0010 |
| Au | <0.0010 | Ge | <0.0010 | P | <0.0026 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | **0.0031** | Hg | * | Pd | <0.0010 | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0062 |
| Bi | <0.0010 | In | <0.0010 | Pt | <0.0010 | Tl | <0.0011 |
| Ca | **0.0169** | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | <0.0024 | Re | <0.0010 | U | <0.0010 |
| Ce | **0.0272** | La | N/A | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | **0.0020** |
| Cs | <0.0010 | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | <0.0010 | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.0010 | Zr | <0.0010 |
| Er | <0.0010 | Na | **0.0156** | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist

Certification Date: August 12, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des 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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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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: | ME211229A AU 2ND SOURCE | | |
| Standard Name | Au 2nd source Stock | Type: | Primary |
| Date Prepared | 12/29/2021 | BY: | Amanda E. McDani |
| Date Expires: | 12/29/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S211129013 | | |
| Balance ID: | | | |
| Comments: | opened 12/29/2021; expires 12/29/2022 | | |

| 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
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

SCP SCIENC
Providing Innovative Solutions to Analytical

# Certificate of Analysis

Au

**1.0 DESCRIPTION:**

| | |
|---|---|
| | ***Plasma*CAL ICP/ICPMS Standard - Gold 1000 µg/ml** |
| Catalogue Number: | 140-052-790/-791/-795 |
| Starting Material: | Gold Metal 99.99+% |
| Lot Number: | **S211129013** |
| Matrix: | 10% HCl (See Section 3 for actual matrix) |
| Expiration Date (End of month): | **December 2023** (or 15 months after bottle is opened, whichever comes first) |

**2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:**

Certified Concentration: **1001 µg/ml +/- 4 µg/ml**
**982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

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

**3.0 REFERENCE VALUES:**

Density: **1.019 g/ml @ 22.4 °C**
Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | **0.3851** | Fe | <0.0090 | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0062** | Ga | <0.0010 | Ni | <0.0010 | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | N/A | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | * | Pd | **0.0434** | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | **0.0048** | Tl | <0.0011 |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | **0.0362** | Re | <0.0010 | U | <0.0010 |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | **0.0029** | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0023** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.01 | Zr | <0.0010 |
| Er | <0.0010 | Na | **0.0070** | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

**4.0 APPROVAL AND DATE OF CERTIFICATION:**

Certification Approval: Daniel Boisvert, Chemist
Certification Date: December 10, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

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

For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter **SCP SCIENCE**.*

## 6.0 INSTRUCTIONS FOR USE / *INSTRUCTIONS D'UTILISATION*:

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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**
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Fax: +33 (0) 1 60 92 05 67

**GERMANY**
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Phone: +49 (0) 8342-89560-61
Fax: +49 (0) 8342-89560-69

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211025A | | |
| Standard Name | Te Stock | Type: | Primary |
| Date Prepared | 10/25/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 10/25/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S200130018 | | |
| Balance ID: | | | |
| Comments: | Opened 10/25/2021; Expires 10/25/2022 | | |

| 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** |
|---|---|---|
| **Analytes** | **CAS** | Conc: **ug/mL** |

SCP SCIENCE

Providing Innovative Solutions to Analytical Chemists

# Certificate of Analysis

## 1.0 DESCRIPTION:

**PlasmaCAL ICP/ICPMS Standard - Tellurium 1000 µg/ml**

Catalogue Number: 140-051-520/-521/-525

Starting Material: Tellurium Metal 99.99+%

Lot Number: **S210615004**

Matrix: 10% HNO3 (See Section 3 for actual matrix)

Expiration Date (End of month): **June 2023** (or 15 months after bottle is opened, whichever comes first)

Te

## 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.

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

## 3.0 REFERENCE VALUES:

Density: **1.049 g/ml @ 25.5 °C**

Actual Matrix: **10.0% (v/v) HNO3**

Trace Metal Impurities as tested by ICP-AES:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | <0.0010 | Fe | <0.0018 | Nd | **0.0449** | Sn | <0.0010 |
| Al | <0.0010 | Ga | <0.0010 | Ni | <0.0010 | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | <0.0010 | Ge | <0.0010 | P | **0.0184** | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | N/A |
| Ba | <0.0010 | Hg | * | Pd | <0.0010 | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | **0.0028** | Ti | <0.0012 |
| Bi | <0.0010 | In | **0.0020** | Pt | <0.0010 | Tl | <0.0011 |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | <0.0024 | Re | <0.0010 | U | <0.0010 |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | <0.0010 | Mg | <0.0020 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | <0.0010 | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.1 | Zr | <0.0010 |
| Er | <0.0010 | Na | <0.0025 | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist

Certification Date: June 30, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage 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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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# Energy Laboratories Inc

# Standard LOG

Standard ID: ME220114A TUNE SOLUTION
Standard Name: Tune Solution
Type: Secondary
Date Prepared: 1/14/2022
BY: Stacy R. Hendricks
Date Expires: 12/7/2022
Department: ME
Status: Open
Vendor:
Lot Number:
Balance ID:

Comments: All elements except Be at 10 ppb. Be is spiked at 210 ppb.

| Chemical / Solvent Used | BottleNo | Amt | Units | Exp |
|---|---|---|---|---|
| Nitric Acid, 69.0-70.0%,0000282671 | 14178 | 5 | mL | 4/11/ |
| Milli-Q H2O | 391 | 493 | mL | 6/1/2 |
| Multi Analyte Custom Grade Solution | 13795 | 0.5 | mL | 12/7/ |
| Beryliium Single Analyte Custom Grad | 14679 | 0.2 | mL | 9/17/ |

**Final Volume:** 500 mL

| Stock Source | Base Units | Amount Added |
|---|---|---|
| ME220114 TUNE S Tune Solution Stock | ug/mL | 1 mL |

| Analytes | CAS | Conc: ug/mL |
|---|---|---|

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 - USA
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 ; 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | 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, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

April 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

INORGANIC VENTURES
Refine your results. Redefine your industry.

# Certificate of Analysis

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## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Single Analyte Custom Grade Solution |
| Catalog Number: | CGBE1 |
| Lot Number: | S2-BE708103 |
| Matrix: | 3% (v/v) HNO3 |
| Value / Analyte(s): | 1 000 µg/mL ea: Beryllium |
| Starting Material: | Beryllium Acetate |
| Starting Material Lot#: | 2354 |
| Starting Material Purity: | 99.9997% |

ID #: 14679
Opened:
Beryllium Single Analyte Custom Grade Solut
Expires: 9/17/2026
Rec'd: 12/28/2021
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Value:** 1002 ± 5 µg/mL

**Density:** 1.020 g/mL (measured at 20 ± 4 °C)

**Assay Information:**

| | |
|---|---|
| **Assay Method #1** | **1003 ± 5 µg/mL**<br>ICP Assay NIST SRM 3105a Lot Number: 090514 |
| **Assay Method #2** | **1002 ± 6 µg/mL**<br>Calculated NIST SRM Lot Number: See Sec. 4.2 |

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

### Characterization of CRM/RM by Two or More Methods

**Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Ag | < | 0.000940 | 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 | Nd | < | 0.000240 | M | Sm | < | 0.000240 | | | | |
| M | Au | < | 0.000240 | M | Gd | < | 0.000240 | M | Ni | < | 0.004700 | M | Sn | < | 0.003300 | | | | |
| M | B | < | 0.045000 | M | Ge | < | 0.003100 | M | Os | < | 0.000240 | M | Sr | < | 0.001900 | | | | |
| M | Ba | < | 0.001900 | M | Hf | < | 0.000240 | O | P | < | 0.130000 | M | Ta | < | 0.000240 | | | | |
| s | Be | < | | 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 | < | | M | W | < | 0.001700 | | | | |
| M | Dy | < | 0.000240 | O | Mn | < | 0.001900 | M | Sb | < | 0.000940 | M | Y | < | 0.000940 | | | | |
| M | Er | < | 0.000240 | M | Mo | < | 0.001700 | M | Sc | < | 0.003600 | M | Yb | < | 0.000240 | | | | |

M - Checked by ICP-MS  O - Checked by ICP-OES  i - Spectral Interference
n - Not Checked For  s - Solution Standard Element

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution -** 9.01 ; +2 ; 4 ; $Be(H_2O)_4^{+2}$

**Chemical Compatibility -**Soluble in HCl, $HNO_3$, $H_2SO_4$ and HF aqueous matrices. Stable with all metals and inorganic anions.

**Stability -** 2-100 ppb levels stable for months in 1 % $HNO_3$ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 5-10 % $HNO_3$ / LDPE container.

**Be Containing Samples (Preparation and Solution) -** Meta l(is best dissolved in diluted $H_2SO_4$ ); BeO (boiling nitric, hydrochloric, or sulfuric acids or $KHSO_4$ fusion); Ores ($H_2SO_4$/HF digestion or carbonate fusion in Pt0); Organic Matrices (sulfuric/peroxide digestion or nitric/sulfuric/perchloric acid decomposition, or dry ash and dissolution according to the BeO procedure above).

**Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):**

| **Technique/Line** | **Estimated D.L.** | **Order** | **Interferences** (underlined indicates severe) |
|---|---|---|---|
| ICP-MS 9 amu | 4 ppt | N/A | |
| ICP-OES 234.861 nm | 0.0003/0.00016 µg/mL | 1 | Fe, Ta, Mo |
| ICP-OES 313.042 nm | 0.0003/0.00009 µg/mL | 1 | V, Ce, U |
| ICP-OES 313.107 nm | 0.0007/0.0005 µg/mL | 1 | Ce, Th, Tm |

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

**11.1 Certification Issue Date**

September 17, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

**11.2 Lot Expiration Date**

**- September 17, 2026**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

**11.3 Period of Validity**

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Director, Quality Control

Michael J Booth

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

Paul R Gaines

# 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:

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

Comments: Solution is 1% HNO3 preserved

| Chemical / Solvent Used | BottleNo | Amt | Units | Exp |
|---|---|---|---|---|
| Nitric Acid Instra Analyzed 000026478 | 13061 | 5 | mL | 5/12/ |
| Milli-Q H2O | 391 | 482.25 | mL | 6/1/2 |
| Yittrium Single Analyte Custom Grade | 14210 | 2.5 | mL | 1/25/ |
| Cerium PlasmaCal Standard | 14327 | 2.5 | mL | 12/22 |
| Cobalt Single Analyte Custom Grade S | 14683 | 2.5 | mL | 3/22/ |
| Lithium Single Analyte Custom Grade | 14687 | 2.5 | mL | 2/11/ |
| Magnesium Single Analyte Custom Gr | 14688 | 0.25 | mL | 4/23/ |
| Thallium Single Analyte Custom Grade | 14693 | 2.5 | mL | 8/5/2 |

**Final Volume:** 500 mL

**Stock Source** **Base Units** **Amount Added**

**Analytes** **CAS** Conc: **ug/mL**

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 - USA
inorganicventures.com
tel: 800.669.6799 - 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

# CERTIFICATE OF ANALYSIS

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Single Analyte Custom Grade Solution |
| Catalog Number: | CGY1 |
| Lot Number: | S2-Y700840 |
| Matrix: | 2% (v/v) HNO3 |
| Value / Analyte(s): | 1 000 µg/mL ea: Yttrium |
| Starting Material: | Yttrium Oxide |
| Starting Material Lot#: | 623052 |
| Starting Material Purity: | 99.9991% |

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Value:** 1000 ± 4 µg/mL

**Density:** 1.011 g/mL (measured at 20 ± 4 °C)

**Assay Information:**

| | |
|---|---|
| **Assay Method #1** | **999 ± 3 µg/mL**<br>EDTA NIST SRM 928 Lot Number: 928 |
| **Assay Method #2** | **1000 ± 5 µg/mL**<br>ICP Assay NIST SRM 3167a Lot Number: 120314 |
| **Assay Method #3** | **1001 ± 3 µg/mL**<br>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 Solutio
**Expires: 1/25/2025**
Rec'd: 8/27/2021
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:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Ag | < | 0.038000 | M | Eu | | 0.002235 | O | Na | < | 0.060000 | M | Se | < | 0.027000 | O | Zn | | 0.002642 |
| O | Al | < | 0.016000 | O | Fe | | 0.000193 | M | Nb | < | 0.000570 | O | Si | | 0.003658 | O | Zr | < | 0.012000 |
| M | As | < | 0.002300 | M | Ga | < | 0.000570 | M | Nd | < | 0.000570 | M | Sm | < | 0.000570 | | | | |
| M | Au | < | 0.008000 | M | Gd | < | 0.000570 | M | Ni | < | 0.004600 | M | Sn | < | 0.001800 | | | | |
| O | B | < | 0.022000 | M | Ge | < | 0.001200 | M | Os | < | 0.000570 | O | Sr | < | 0.003100 | | | | |
| M | Ba | < | 0.001200 | M | Hf | < | 0.000570 | n | P | < | | M | Ta | < | 0.000570 | | | | |
| O | Be | < | 0.002900 | M | Hg | < | 0.002900 | M | Pb | | 0.000833 | M | Tb | < | 0.000570 | | | | |
| M | Bi | < | 0.005600 | M | Ho | | 0.001524 | i | Pd | < | | M | Te | < | 0.006900 | | | | |
| O | Ca | | 0.000304 | M | In | < | 0.002500 | M | Pr | < | 0.000570 | M | Th | < | 0.000570 | | | | |
| M | Cd | < | 0.000570 | M | Ir | < | 0.000570 | M | Pt | < | 0.000570 | M | Ti | < | 0.005700 | | | | |
| M | Ce | < | 0.000570 | O | K | | 0.001117 | M | Rb | < | 0.001400 | M | Tl | < | 0.000570 | | | | |
| M | Co | < | 0.000570 | M | La | < | 0.000570 | M | Re | < | 0.000570 | M | Tm | < | 0.001200 | | | | |
| M | Cr | < | 0.003500 | O | Li | < | 0.004200 | M | Rh | < | 0.011000 | M | U | < | 0.000570 | | | | |
| M | Cs | < | 0.005700 | M | Lu | < | 0.000570 | M | Ru | < | 0.000570 | O | V | < | 0.013000 | | | | |
| M | Cu | | 0.000365 | O | Mg | | 0.000223 | n | S | < | | M | W | < | 0.006900 | | | | |
| M | Dy | | 0.000508 | O | Mn | < | 0.001400 | M | Sb | | 0.000365 | s | Y | < | | | | | |
| M | Er | | 0.000197 | M | Mo | < | 0.006200 | O | Sc | < | 0.011000 | M | Yb | < | 0.003500 | | | | |

M - Checked by ICP-MS  O - Checked by ICP-OES  i - Spectral Interference
n - Not Checked For  s - Solution Standard Element

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution -** 88.91 +3 6 Y(OH)(H2O)x+2

**Chemical Compatibility -**Soluble in HCl, H2SO4 and HNO3. Avoid HF, H3PO4 and neutral to basic media. Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride. Avoid mixing with elements / solutions containing moderate amounts of fluoride.

**Stability -** 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

**Y Containing Samples (Preparation and Solution) -** Metal (Soluble in acids); Oxide (Dissolve by heating in H2O/ HNO3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H2O / HCl or HNO3).

**Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):**

| Technique/Line | Estimated D.L. | Order | Interferences (underlined indicates severe) |
|---|---|---|---|
| ICP-MS 89 amu | 0.8 ppt | N/A | 73Ge16O, 178Hf+2 |
| ICP-OES 360.073 nm | 0.005 / 0.000036 µg/mL | 1 | Ce, Th |
| ICP-OES 371.030 nm | 0.004 / 0.00007 µg/mL | 1 | Ce |
| ICP-OES 377.433 nm | 0.005 / 0.0009 µg/mL | 1 | Ta, Th |

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

January 25, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

### 11.2 Lot Expiration Date

**- January 25, 2025**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

### 11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Director, Quality Control

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

SCP SCIENCE

Providing Innovative Solutions to Analytical Chemists

# Certificate of Analysis

## 1.0 DESCRIPTION:

***Plasma*CAL 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% $HNO_3$ (See Section 3 for actual matrix)

Expiration Date (End of month): **February 2023** (or 15 months after bottle is opened, whichever comes first)

Ce

## 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) $HNO_3$**

Trace Metal Impurities as tested by ICP-MS:

**ID #: 14327**
Opened:_____
Cerium PlasmaCal Standard
**Expires: 2/28/2023**
Rec'd: 9/29/2021
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | <0.0010 | Fe | <0.0018 | Nd | **0.0102** | Sn | <0.0010 |
| Al | **0.0148** | Ga | **0.0526** | Ni | **0.0064** | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | <0.0010 | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | * | Pd | <0.0010 | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | **0.0235** | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | <0.0010 | Tl | <0.0011 |
| Ca | **0.0375** | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | <0.0024 | Re | <0.0010 | U | <0.0010 |
| Ce | N/A | La | <0.10 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | <0.0010 | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0121** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.0010 | Zr | <0.0010 |
| Er | <0.0010 | Na | <0.0010 | Si | <0.10 | | |
| Eu | **0.0035** | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Yaling Sui, Chemist

Certification Date: February 22, 2021

Yaling Sui

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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inorganicventures.com

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F: 540-585-3012
info@inorganicventures.com

# Certificate of Analysis

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Single Analyte Custom Grade Solution |
| Catalog Number: | 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:**

| | |
|---|---|
| **Assay Method #1** | **994 ± 5 µg/mL**<br>ICP Assay NIST SRM 3113 Lot Number: 190630 |
| **Assay Method #2** | **997 ± 3 µg/mL**<br>EDTA NIST SRM 928 Lot Number: 928 |
| **Assay Method #3** | **1001 ± 3 µg/mL**<br>Calculated NIST SRM Lot Number: See Sec. 4.2 |

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

### Characterization of CRM/RM by Two or More Methods

**Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Ag | | 0.001515 | M | Eu | < | 0.000590 | O | Na | | 0.000778 | M | Se | < | 0.019000 | M | Zn | | 0.000357 |
| M | Al | < | 0.024000 | M | Fe | | 0.005262 | M | Nb | < | 0.000590 | O | Si | | 0.007789 | M | Zr | < | 0.001200 |
| i | As | < | | M | Ga | < | 0.000590 | M | Nd | < | 0.000590 | M | Sm | < | 0.000590 | | | | |
| M | Au | < | 0.004100 | M | Gd | < | 0.000590 | O | Ni | | 0.044207 | M | Sn | < | 0.001200 | | | | |
| M | B | < | 0.031000 | M | Ge | < | 0.003000 | M | Os | < | 0.000590 | O | Sr | < | 0.000260 | | | | |
| M | Ba | < | 0.000590 | M | Hf | < | 0.000590 | n | P | < | | M | Ta | < | 0.001200 | | | | |
| O | Be | < | 0.001300 | M | Hg | < | 0.001800 | M | Pb | | 0.000336 | M | Tb | < | 0.000590 | | | | |
| M | Bi | < | 0.003000 | M | Ho | < | 0.000590 | M | Pd | < | 0.000590 | M | Te | < | 0.005300 | | | | |
| O | Ca | | 0.001094 | M | In | < | 0.001200 | M | Pr | < | 0.000590 | M | Th | < | 0.000590 | | | | |
| M | Cd | < | 0.004700 | M | Ir | < | 0.001200 | M | Pt | < | 0.002400 | M | Ti | < | 0.014000 | | | | |
| M | Ce | < | 0.000590 | O | K | | 0.000842 | M | Rb | < | 0.000590 | M | Tl | | 0.000273 | | | | |
| s | Co | < | | M | La | < | 0.000590 | M | Re | < | 0.000590 | M | Tm | < | 0.000590 | | | | |
| M | Cr | < | 0.021000 | O | Li | < | 0.000130 | M | Rh | < | 0.000590 | M | U | < | 0.000590 | | | | |
| M | Cs | < | 0.002400 | M | Lu | < | 0.000590 | M | Ru | < | 0.007100 | O | V | < | 0.000880 | | | | |
| M | Cu | | 0.019577 | O | Mg | | 0.000195 | n | S | < | | M | W | < | 0.000590 | | | | |
| M | Dy | < | 0.000590 | M | Mn | < | 0.001800 | M | Sb | < | 0.003600 | M | Y | < | 0.000590 | | | | |
| M | Er | < | 0.000590 | M | Mo | < | 0.002400 | O | Sc | < | 0.001600 | M | Yb | < | 0.000590 | | | | |

M - Checked by ICP-MS  O - Checked by ICP-OES  i - Spectral Interference
n - Not Checked For  s - Solution Standard Element

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution -** 58.93 +2 6 $Co(H_2O)_6^{2+}$

**Chemical Compatibility -**Stable in HCl, $HNO_3$, $H_2SO_4$ ,HF, $H_3PO_4$. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

**Stability -** 2-100 ppb levels stable for months in 1% $HNO_3$ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% $HNO_3$ / LDPE container.

**Co Containing Samples (Preparation and Solution) -** Metal (soluble in $HNO_3$ ); Oxides ( Soluble in HCl ); Ores (dissolve in HCl / $HNO_3$).

**Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):**

| Technique/Line | Estimated D.L. | Order | Interferences (underlined indicates severe) |
|---|---|---|---|
| ICP-MS 59 amu | 2 ppt | n/a | 42Ca16O1H , 40Ar18O1H , 36Ar23Na, 43Ca16O, 24Mg35Cl |
| ICP-OES 228.616 nm | 0.01/0.001 µg/mL | 1 | |
| ICP-OES 237.862 nm | 0.01/0.002 µg/mL | 1 | W, Re, Al, Ta |
| ICP-OES 238.892 nm | 0.01/0.002 µg/mL | 1 | Fe, W, Ta |

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Single Analyte Custom Grade Solution |
| Catalog Number: | CGLI1 |
| Lot Number: | S2-LI701641 |
| Matrix: | 0.1% (v/v) HNO3 |
| Value / Analyte(s): | 1 000 µg/mL ea: Lithium |
| Starting Material: | Lithium Carbonate |
| Starting Material Lot#: | 1613 |
| Starting Material Purity: | 99.9962% |

ID #: 14687
Opened:
Lithium Single Analyte Custom Grade Solution
Expires: 2/11/2025
Rec'd: 12/28/2021
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Value:** 1000 ± 3 µg/mL

**Density:** 1.005 g/mL (measured at 20 ± 4 °C)

**Assay Information:**

| | |
|---|---|
| **Assay Method #1** | **997 ± 4 µg/mL**<br>ICP Assay NIST SRM 3129a Lot Number: 100714 |
| **Assay Method #2** | **1000 ± 1 µg/mL**<br>Gravimetric NIST SRM Lot Number: See Sec. 4.2 |
| **Assay Method #3** | **1001 ± 3 µg/mL**<br>Calculated NIST SRM Lot Number: See Sec. 4.2 |

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

### Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Ag | < | 0.000500 | M | Eu | < | 0.000500 | O | Na | | 0.018534 | M | Se | < | 0.011000 | M | Zn | 0.003494 |
| O | Al | | 0.000741 | O | Fe | | 0.004342 | M | Nb | < | 0.000500 | M | Si | | 0.111204 | M | Zr | < 0.002000 |
| M | As | < | 0.011000 | M | Ga | < | 0.000500 | M | Nd | < | 0.000500 | M | Sm | < | 0.000500 | | | |
| M | Au | < | 0.010000 | M | Gd | < | 0.000500 | M | Ni | < | 0.007000 | M | Sn | < | 0.001000 | | | |
| O | B | | 0.000503 | M | Ge | < | 0.004500 | M | Os | < | 0.001000 | M | Sr | | 0.000243 | | | |
| O | Ba | | 0.000381 | M | Hf | < | 0.000500 | O | P | < | 0.045000 | M | Ta | < | 0.000500 | | | |
| O | Be | | 0.000046 | M | Hg | < | 0.000500 | M | Pb | < | 0.003000 | M | Tb | < | 0.000500 | | | |
| M | Bi | < | 0.000500 | M | Ho | < | 0.000500 | M | Pd | < | 0.000500 | M | Te | < | 0.005000 | | | |
| O | Ca | | 0.058249 | M | In | < | 0.000500 | M | Pr | < | 0.000500 | M | Th | < | 0.000500 | | | |
| M | Cd | < | 0.000500 | M | Ir | < | 0.000500 | M | Pt | < | 0.000500 | M | Ti | < | 0.002500 | | | |
| M | Ce | < | 0.000500 | O | K | | 0.029124 | M | Rb | < | 0.001000 | M | Tl | < | 0.000500 | | | |
| M | Co | < | 0.000500 | M | La | < | 0.000500 | M | Re | < | 0.000500 | M | Tm | < | 0.000500 | | | |
| M | Cr | | 0.000153 | s | Li | < | | M | Rh | < | 0.000500 | M | U | < | 0.000500 | | | |
| M | Cs | < | 0.000500 | M | Lu | < | 0.000500 | M | Ru | < | 0.000500 | M | V | | 0.000953 | | | |
| M | Cu | < | 0.002000 | O | Mg | | 0.011649 | O | S | | 0.031772 | M | W | < | 0.001000 | | | |
| M | Dy | < | 0.000500 | O | Mn | | 0.000164 | M | Sb | < | 0.003000 | M | Y | < | 0.000500 | | | |
| M | Er | < | 0.000500 | M | Mo | < | 0.000500 | M | Sc | < | 0.001500 | M | Yb | < | 0.000500 | | | |

M - Checked by ICP-MS  O - Checked by ICP-OES  i - Spectral Interference
n - Not Checked For  s - Solution Standard Element

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution -** 6.94 +1 (6) Li+(aq) large effective radius due to hydration sphere

**Chemical Compatibility -**Soluble in HCl, HNO3, H2SO4 and HF aqueous matrices. Stable with all metals and inorganic anions.

**Stability -** 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.

**Li Containing Samples (Preparation and Solution) -**Metal (Dissolves very rapidly in water); Ores (Sodium carbonate fusion in Pt0 followed by HCl dissolution-blank levels of Li in sodium carbonate critical); Organic Matrices (Sulfuric / peroxide digestion or nitric / sulfuric / perchloric acid decomposition).

**Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):**

| **Technique/Line** | **Estimated D.L.** | **Order** | **Interferences** (underlined indicates severe) |
|---|---|---|---|
| ICP-MS 7 amu | 10 ppt | n/a | |
| ICP-OES 323.261 nm | 1.1 / 0.05 micro;g/mL | 1 | Sb, Th, Ni |
| ICP-OES 460.286 nm | 0.9 / 0.04 µg/mL | 1 | Zr, Th |
| ICP-OES 670.784 nm | 0.002 / 0.00002 µg/mL | 1 | 2nd order radiation from R.E.s on some optical designs |

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

**11.1 Certification Issue Date**

February 11, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

**11.2 Lot Expiration Date**

**- February 11, 2025**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

**11.3 Period of Validity**

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Director, Quality Control

Michael 2 Booth

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

Paul R Gaines

INORGANIC VENTURES
Refine your results. Redefine your industry.

# Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | 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
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Value:** 10053 ± 30 µg/mL

**Density:** 1.053 g/mL (measured at 20 ± 4 °C)

**Assay Information:**

| | |
|---|---|
| **Assay Method #1** | **10022 ± 62 µg/mL**<br>ICP Assay NIST SRM 3131a Lot Number: 140110 |
| **Assay Method #2** | **10078 ± 26 µg/mL**<br>EDTA NIST SRM 928 Lot Number: 928 |
| **Assay Method #3** | **10033 ± 26 µg/mL**<br>Calculated NIST SRM Lot Number: See Sec. 4.2 |

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

### Characterization of CRM/RM by Two or More Methods

**Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O | Ag | | 0.002106 | M | Eu | < | 0.000910 | O | Na | | 0.071075 | O | Se | < | 0.048000 | O | Zn | | 0.003299 |
| M | Al | | 0.003553 | M | Fe | | 0.002538 | M | Nb | < | 0.000460 | O | Si | < | 0.032000 | O | Zr | < | 0.002700 |
| M | As | < | 0.001400 | M | Ga | < | 0.000460 | M | Nd | < | 0.000910 | M | Sm | < | 0.000460 | | | | |
| M | Au | < | 0.001400 | M | Gd | < | 0.000460 | O | Ni | < | 0.001600 | M | Sn | < | 0.002300 | | | | |
| O | B | | 0.006853 | M | Ge | < | 0.001400 | M | Os | < | 0.000460 | O | Sr | | 0.000279 | | | | |
| O | Ba | | 0.000964 | M | Hf | < | 0.000460 | O | P | | 0.015230 | M | Ta | < | 0.000460 | | | | |
| O | Be | < | 0.000120 | M | Hg | < | 0.000460 | M | Pb | < | 0.000460 | M | Tb | < | 0.000460 | | | | |
| M | Bi | < | 0.000460 | M | Ho | < | 0.000460 | M | Pd | < | 0.003200 | M | Te | < | 0.007300 | | | | |
| O | Ca | | 0.053306 | M | In | < | 0.000460 | M | Pr | < | 0.000460 | M | Th | < | 0.000460 | | | | |
| O | Cd | < | 0.000360 | M | Ir | < | 0.000460 | M | Pt | < | 0.001900 | O | Ti | < | 0.001700 | | | | |
| M | Ce | < | 0.002300 | M | K | | 0.048229 | M | Rb | | 0.002411 | M | Tl | | 0.003046 | | | | |
| M | Co | < | 0.000910 | M | La | < | 0.002800 | M | Re | < | 0.000460 | M | Tm | < | 0.000460 | | | | |
| M | Cr | < | 0.002300 | O | Li | | 0.027922 | M | Rh | < | 0.000460 | M | U | < | 0.000460 | | | | |
| M | Cs | | 0.001040 | M | Lu | < | 0.000460 | M | Ru | < | 0.000460 | M | V | < | 0.000460 | | | | |
| O | Cu | < | 0.003000 | s | Mg | < | | O | S | < | 0.190000 | M | W | < | 0.000460 | | | | |
| M | Dy | < | 0.000460 | O | Mn | | 0.015230 | M | Sb | | 0.020814 | O | Y | < | 0.000720 | | | | |
| M | Er | < | 0.000460 | M | Mo | < | 0.000910 | O | Sc | < | 0.000480 | M | Yb | < | 0.000460 | | | | |

M - Checked by ICP-MS  O - Checked by ICP-OES  i - Spectral Interference
n - Not Checked For  s - Solution Standard Element

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution -** 24.31 +2 6 $Mg(H_2O)_6^{+2}$

**Chemical Compatibility -**Soluble in HCl, $HNO_3$, and $H_2SO_4$ avoid HF, $H_3PO_4$ 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% $HNO_3$ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-10% $HNO_3$ / LDPE container.

**Mg Containing Samples (Preparation and Solution) -**Metal (Best dissolved in diluted $HNO_3$ ); Oxide (Readily soluble in above compatible aqueous acidic solutions); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Sulfuric / peroxide digestion or nitric / sulfuric / perchloric acid decomposition, or dry ash and dissolution in dilute HCl).

**Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):**

| **Technique/Line** | **Estimated D.L.** | **Order** | **Interferences** (underlined indicates severe) |
|---|---|---|---|
| ICP-MS 24 amu | 42 ppt | n/a | 7Li17O, 48Ti+2 , 48Ca+2 |
| ICP-OES 279.553 nm | 0.0002 / 0.00003 µg/mL | 1 | Th |
| ICP-OES 280.270 nm | 0.0003 / 0.00005 µg/mL | 1 | U, V |
| ICP-OES 285.213 nm | 0.002 / 0.00003 µg/mL | 1 | U, Hf, Cr, Zr |

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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 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

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 - USA
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 - 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | 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: | TlNO3 |
| Starting Material Lot#: | 2118 |
| Starting Material Purity: | 99.9998% |

ID #: 14693
Opened:
Thallium Single Analyte Custom Grade Solutic
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:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Ag | < | 0.000200 | 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 | Nd | < | 0.000200 | M | Sm | < | 0.000200 | | | |
| O | Au | < | 0.002824 | M | Gd | < | 0.000200 | M | Ni | | 0.000177 | M | Sn | < | 0.000601 | | | |
| O | B | < | 0.004184 | M | Ge | < | 0.000801 | M | Os | < | 0.000198 | O | Sr | < | 0.000313 | | | |
| M | Ba | < | 0.000400 | M | Hf | < | 0.000200 | O | P | < | 0.010460 | M | Ta | < | 0.000200 | | | |
| O | Be | < | 0.000104 | M | Hg | < | 0.000794 | M | Pb | | 0.000083 | M | Tb | < | 0.000200 | | | |
| M | Bi | < | 0.005209 | M | Ho | < | 0.000200 | M | Pd | < | 0.000400 | M | Te | < | 0.005008 | | | |
| O | Ca | | 0.000250 | M | In | < | 0.000200 | M | Pr | < | 0.000200 | M | Th | < | 0.000200 | | | |
| M | Cd | | 0.000135 | M | Ir | < | 0.000198 | M | Pt | < | 0.000801 | O | Ti | < | 0.001255 | | | |
| M | Ce | < | 0.000200 | O | K | | 0.000636 | M | Rb | < | 0.000200 | s | Tl | < | | | | |
| M | Co | < | 0.000601 | M | La | < | 0.000200 | M | Re | < | 0.000200 | M | Tm | < | 0.000200 | | | |
| M | Cr | < | 0.000801 | O | Li | < | 0.000177 | M | Rh | < | 0.000200 | M | U | < | 0.000200 | | | |
| M | Cs | < | 0.003606 | M | Lu | < | 0.000200 | M | Ru | < | 0.000397 | M | V | < | 0.002203 | | | |
| M | Cu | < | 0.001001 | O | Mg | | 0.000054 | O | S | < | 0.015690 | M | W | < | 0.000601 | | | |
| M | Dy | < | 0.000200 | M | Mn | < | 0.000801 | M | Sb | < | 0.000400 | M | Y | < | 0.000200 | | | |
| M | Er | < | 0.000200 | M | Mo | < | 0.001202 | O | Sc | < | 0.000711 | M | Yb | < | 0.000200 | | | |

M - Checked by ICP-MS  O - Checked by ICP-OES  i - Spectral Interference
n - Not Checked For  s - Solution Standard Element

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution -** 204.38 +1 6 Tl(H2O)61+

**Chemical Compatibility -** Soluble in HCl, HNO3, and H2SO4. Stable with most metals and inorganic anions. The sulfite, thiocyanate and oxalate are moderately soluble; the phosphate and arsenite are slightly soluble and the sulfide is insoluble.

**Stability -** 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

**Tl Containing Samples (Preparation and Solution) -**Metal (Best dissolved in HNO3 which forms chiefly the Tl1+ ion.); Oxide (The thallous oxide is readily soluble in water. The thallic oxide requires high levels of acid); Ores (Carbonate fusion in Pt0 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

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**

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
Type: Secondary
Date Prepared 1/12/2022
BY: Cindy Rohrer
Date Expires: 11/18/2022
Department ME
Status: Open
Vendor:
Lot Number:
Balance ID:

Comments: Made fresh daily

| Chemical / Solvent Used | BottleNo | Amt | Units | Expires |
|---|---|---|---|---|
| Hydrochloric Acid E1421 | 14721 | 0.25 | mL | 1/4/2027 |
| Nitric Acid 69.0- 70.0% D0521 | 14626 | 0.5 | mL | 12/14/2026 |
| Milli-Q H2O | 391 | 48.25 | mL | 6/1/2100 |

**Final Volume:**
50 mL

| **Stock Source** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| 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 |

| **Analytes** | **CAS** | Conc: | **mg/L** |
|---|---|---|---|

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211208 MSCAL2B | | |
| Standard Name | MSCAL 2B | Type: | Primary |
| Date Prepared | 12/8/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 12/8/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | S2-MEB704403 | | |
| Balance ID: | | | |
| Comments: | Opened 12/08/2021; Expires 12/08/2022 | | |

| 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**

INORGANIC VENTURES™
Refine your results. Redefine your industry.

# Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | 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:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2 (u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

**Certified Abundance:**

**IV's Certified Abundance**

| Isotope | Atom % |
|---|---|
| Uranium 238U | 99.8 ± 0.1 |
| Uranium 235U | 0.24 ± 0.05 |

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

April 21, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

### 11.2 Lot Expiration Date

**- April 21, 2025**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

### 11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Director, Quality Control

Michael J Booth

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

Paul R Gaines

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211118 MSCAL-5A | | |
| Standard Name | EL-MSCAL-5A | Type: | Primary |
| Date Prepared | 11/18/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 11/18/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | P2-MEB687200 | | |
| Balance ID: | | | |
| Comments: | Opened 11/18/2021; Expires 11/18/2022 | | |

| 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**

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | EL-MSCAL-5A |
| Lot Number: | P2-MEB687200 |
| Matrix: | 3% (v/v) HNO3 |
| Value / Analyte(s): | 5 000 µg/mL ea: Calcium, Potassium, Magnesium, Sodium,<br>500 µg/mL ea: Phosphorus, Iron,<br>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:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2 (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

**Characterization of CRM/RM by One Method**

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed 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"

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## 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 | Type: | Primary |
| Date Prepared | 12/29/2021 | BY: | Amanda E. McDani |
| Date Expires: | 12/29/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S211129013 | | |
| Balance ID: | | | |
| Comments: | opened 12/29/2021; expires 12/29/2022 | | |

| 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
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

SCP SCIENC
Providing Innovative Solutions to Analytical

# Certificate of Analysis

## 1.0 DESCRIPTION:

**PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Au

Catalogue Number: 140-052-790/-791/-795
Starting Material: Gold Metal 99.99+%
Lot Number: **S211129013**
Matrix: 10% HCl (See Section 3 for actual matrix)
Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)

## 2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1001 µg/ml +/- 4 µg/ml**
**982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

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

## 3.0 REFERENCE VALUES:

Density: **1.019 g/ml @ 22.4 °C**
Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | **0.3851** | Fe | <0.0090 | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0062** | Ga | <0.0010 | Ni | <0.0010 | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | N/A | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | * | Pd | **0.0434** | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | **0.0048** | Tl | <0.0011 |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | **0.0362** | Re | <0.0010 | U | <0.0010 |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | **0.0029** | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0023** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.01 | Zr | <0.0010 |
| Er | <0.0010 | Na | **0.0070** | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
Certification Date: December 10, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des 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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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Fax: +49 (0) 8342-89560-69

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME220112 100 PPB STANDARD | | |
| Standard Name | 100 ppb Standard | Type: | Secondary |
| Date Prepared | 1/12/2022 | BY: | Cindy Rohrer |
| Date Expires: | 11/18/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |

Comments: Made Fresh Daily

| 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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| 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 |

| **Analytes** | **CAS** | Conc: | **mg/L** |
|---|---|---|---|

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211221 MSCAL 3C | | |
| Standard Name | MSCAL 3C | Type: | Primary |
| Date Prepared | 12/21/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 12/21/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | S2-MEB700780 | | |
| Balance ID: | | | |
| Comments: | Opened 12/21/21; expires 12/21/22 | | |

| 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**

INORGANIC VENTURES

# CERTIFICATE OF ANALYSIS

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | EL-MSCAL-3C |
| Lot Number: | S2-MEB700780 |
| Matrix: | 3% (v/v) HNO3<br>tr. HF |
| Value / Analyte(s): | 400 µg/mL ea:<br>Silicon,<br>100 µg/mL ea:<br>Tin,<br>Molybdenum,<br>Titanium,<br>Antimony |

1-6-2025

**ID #: 13473**
Opened:_____
Multi Analyte Custom Grade Solution
**Expires: 1/6/2025**
Rec'd: 1/15/2021
Energy Laboratories Inc 1120 So 27th Street
Billings MT 59107

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

| ANALYTE | CERTIFIED VALUE | ANALYTE | CERTIFIED VALUE |
|---|---|---|---|
| Antimony, Sb | 100.0 ± 0.8 µg/mL | Molybdenum, Mo | 100.0 ± 0.6 µg/mL |
| Silicon, Si | 399.9 ± 3.0 µg/mL | Tin, Sn | 100.0 ± 0.6 µg/mL |
| Titanium, Ti | 100.0 ± 0.7 µg/mL | | |

**Density:** 1.018 g/mL (measured at 20 ± 4 °C)

### Assay Information:

| ANALYTE | METHOD | NIST SRM# | SRM LOT# |
|---|---|---|---|
| Mo | ICP Assay | 3134 | 130418 |
| Sb | ICP Assay | 3102a | 140911 |
| Si | ICP Assay | 3150 | 130912 |
| Sn | ICP Assay | 3161a | 140917 |
| Ti | ICP Assay | 3162a | 130925 |

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

### Characterization of CRM/RM by Two or More Methods

**Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

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

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

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

Michael J Booth

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

Paul R Gaines

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211118 MSCAL-5A | | |
| Standard Name | EL-MSCAL-5A | Type: | Primary |
| Date Prepared | 11/18/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 11/18/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | P2-MEB687200 | | |
| Balance ID: | | | |
| Comments: | Opened 11/18/2021; Expires 11/18/2022 | | |

| 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**

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | EL-MSCAL-5A |
| Lot Number: | P2-MEB687200 |
| Matrix: | 3% (v/v) HNO3 |
| Value / Analyte(s): | 5 000 µg/mL ea: Calcium, Potassium, Magnesium, Sodium,<br>500 µg/mL ea: Phosphorus, Iron,<br>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:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2 (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

**Characterization of CRM/RM by One Method**

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed outer bag.

- While stored in the sealed outer bag, transpiration of this CRM/RM is negligible. After opening the sealed outer bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed outer bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; Inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

December 02, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

### 11.2 Lot Expiration Date

**- December 02, 2023**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

### 11.3 Period of Validity

- Sealed outer Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Manager, Quality Control

**Certifying Officer:**

Paul Gaines
CEO, Senior Technical Director

# Energy Laboratories Inc

# Spike LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME220105 HGPRIMARY | | |
| Standard Name | Primary Hg Stock 2 PPM | Type: | Secondary |
| Date Prepared | 1/5/2022 | BY: | Amanda E. McDani |
| Date Expires: | 12/29/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |

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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME220110HG | HG Stock | ug/mL | 0.05 mL |
| ME211229A AU 2N | Au 2nd source Stock | ug/mL | 0.05 mL |

| **Analytes** | **CAS** | Conc: | **ug/mL** |
|---|---|---|---|

Page:*1 of 1*

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME220110HG | | |
| Standard Name | HG Stock | Type: | Primary |
| Date Prepared | 1/10/2022 | BY: | Amanda E. McDani |
| Date Expires: | 1/10/2023 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S210729017 | | |
| Balance ID: | | | |

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

## 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% $HNO_3$ (See Section 3 for actual matrix)
Expiration Date (End of month): **July 2023** (or 15 months after bottle is opened, whichever comes first)

Hg

## 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) $HNO_3$**

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | <0.0010 | Fe | **0.0322** | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0042** | Ga | <0.0010 | Ni | **0.0039** | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | <0.0010 | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | N/A | Pd | <0.0010 | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | <0.0010 | Tl | **0.0117** |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | <0.0024 | Re | <0.0010 | U | <0.0010 |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | **0.0112** | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | <0.0010 | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0060** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.0010 | Zr | <0.0010 |
| Er | <0.0010 | Na | **0.0092** | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
Certification Date: August 12, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des 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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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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: | ME211229A AU 2ND SOURCE | | |
| Standard Name | Au 2nd source Stock | Type: | Primary |
| Date Prepared | 12/29/2021 | BY: | Amanda E. McDani |
| Date Expires: | 12/29/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S211129013 | | |
| Balance ID: | | | |
| Comments: | opened 12/29/2021; expires 12/29/2022 | | |

| 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
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

SCP SCIENC
Providing Innovative Solutions to Analytical

# Certificate of Analysis

## 1.0 DESCRIPTION:

**PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Au

Catalogue Number: 140-052-790/-791/-795
Starting Material: Gold Metal 99.99+%
Lot Number: **S211129013**
Matrix: 10% HCl (See Section 3 for actual matrix)
Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)

## 2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1001 µg/ml +/- 4 µg/ml**
**982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

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

## 3.0 REFERENCE VALUES:

Density: **1.019 g/ml @ 22.4 °C**
Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | **0.3851** | Fe | <0.0090 | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0062** | Ga | <0.0010 | Ni | <0.0010 | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | N/A | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | * | Pd | **0.0434** | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | **0.0048** | Tl | <0.0011 |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | **0.0362** | Re | <0.0010 | U | <0.0010 |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | **0.0029** | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0023** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.01 | Zr | <0.0010 |
| Er | <0.0010 | Na | **0.0070** | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
Certification Date: December 10, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des 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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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Fax: +33 (0) 1 60 92 05 67

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Fax: +49 (0) 8342-89560-69

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211208 MSCAL2B | | |
| Standard Name | MSCAL 2B | Type: | Primary |
| Date Prepared | 12/8/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 12/8/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | S2-MEB704403 | | |
| Balance ID: | | | |
| Comments: | Opened 12/08/2021; Expires 12/08/2022 | | |

| 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**

INORGANIC VENTURES™
Refine your results. Redefine your industry.

# Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | 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:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

**Certified Abundance:**

**IV's Certified Abundance**

| Isotope | Atom % |
|---|---|
| Uranium 238U | 99.8 ± 0.1 |
| Uranium 235U | 0.24 ± 0.05 |

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

April 21, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

### 11.2 Lot Expiration Date

**- April 21, 2025**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

### 11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Director, Quality Control

Michael J Booth

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

Paul R Gaines

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211229A AU 2ND SOURCE | | |
| Standard Name | Au 2nd source Stock | Type: | Primary |
| Date Prepared | 12/29/2021 | BY: | Amanda E. McDani |
| Date Expires: | 12/29/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S211129013 | | |
| Balance ID: | | | |
| Comments: | opened 12/29/2021; expires 12/29/2022 | | |

| 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
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

SCP SCIENC
Providing Innovative Solutions to Analytical

# Certificate of Analysis

## 1.0 DESCRIPTION:

**PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Au

Catalogue Number: 140-052-790/-791/-795
Starting Material: Gold Metal 99.99+%
Lot Number: **S211129013**
Matrix: 10% HCl (See Section 3 for actual matrix)
Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)

## 2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1001 µg/ml +/- 4 µg/ml**
**982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

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

## 3.0 REFERENCE VALUES:

Density: **1.019 g/ml @ 22.4 °C**
Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | **0.3851** | Fe | <0.0090 | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0062** | Ga | <0.0010 | Ni | <0.0010 | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | N/A | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | * | Pd | **0.0434** | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | **0.0048** | Tl | <0.0011 |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | **0.0362** | Re | <0.0010 | U | <0.0010 |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | **0.0029** | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0023** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.01 | Zr | <0.0010 |
| Er | <0.0010 | Na | **0.0070** | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
Certification Date: December 10, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des 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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME220106-CE | Ce Primary Stock | ug/mL | 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 | Type: | Secondary |
| Date Prepared | 1/12/2022 | BY: | Cindy Rohrer |
| Date Expires: | 11/18/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |
| Comments: | Made Fresh Daily | | |

| 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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| 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 |

| **Analytes** | **CAS** | Conc: | **mg/L** |
|---|---|---|---|

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211221 MSCAL 3C | | |
| Standard Name | MSCAL 3C | Type: | Primary |
| Date Prepared | 12/21/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 12/21/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | S2-MEB700780 | | |
| Balance ID: | | | |
| Comments: | Opened 12/21/21; expires 12/21/22 | | |

| 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**

INORGANIC VENTURES

# CERTIFICATE OF ANALYSIS

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | EL-MSCAL-3C |
| Lot Number: | S2-MEB700780 |
| Matrix: | 3% (v/v) HNO3<br>tr. HF |
| Value / Analyte(s): | 400 µg/mL ea:<br>Silicon,<br>100 µg/mL ea:<br>Tin,<br>Molybdenum,<br>Titanium,<br>Antimony |

1-6-2025

**ID #: 13473**
Opened:_____
Multi Analyte Custom Grade Solution
**Expires: 1/6/2025**
Rec'd: 1/15/2021
Energy Laboratories Inc 1120 So 27th Street
Billings MT 59107

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

| ANALYTE | CERTIFIED VALUE | ANALYTE | CERTIFIED VALUE |
|---|---|---|---|
| Antimony, Sb | 100.0 ± 0.8 µg/mL | Molybdenum, Mo | 100.0 ± 0.6 µg/mL |
| Silicon, Si | 399.9 ± 3.0 µg/mL | Tin, Sn | 100.0 ± 0.6 µg/mL |
| Titanium, Ti | 100.0 ± 0.7 µg/mL | | |

**Density:** 1.018 g/mL (measured at 20 ± 4 °C)

### Assay Information:

| ANALYTE | METHOD | NIST SRM# | SRM LOT# |
|---|---|---|---|
| Mo | ICP Assay | 3134 | 130418 |
| Sb | ICP Assay | 3102a | 140911 |
| Si | ICP Assay | 3150 | 130912 |
| Sn | ICP Assay | 3161a | 140917 |
| Ti | ICP Assay | 3162a | 130925 |

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

**Characterization of CRM/RM by Two or More Methods**

**Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

**Characterization of CRM/RM by One Method**

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

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

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

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 | Type: | Primary |
| Date Prepared | 11/18/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 11/18/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | P2-MEB687200 | | |
| Balance ID: | | | |
| Comments: | Opened 11/18/2021; Expires 11/18/2022 | | |

| 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**

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | EL-MSCAL-5A |
| Lot Number: | P2-MEB687200 |
| Matrix: | 3% (v/v) HNO3 |
| Value / Analyte(s): | 5 000 µg/mL ea: Calcium, Potassium, Magnesium, Sodium,<br>500 µg/mL ea: Phosphorus, Iron,<br>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:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2 (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

**Characterization of CRM/RM by One Method**

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed outer bag.

- While stored in the sealed outer bag, transpiration of this CRM/RM is negligible. After opening the sealed outer bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed outer bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; Inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

December 02, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

### 11.2 Lot Expiration Date

**- December 02, 2023**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

### 11.3 Period of Validity

- Sealed outer Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Manager, Quality Control

**Certifying Officer:**

Paul Gaines
CEO, Senior Technical Director

# Energy Laboratories Inc

# Spike LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME220105 HGPRIMARY | | |
| Standard Name | Primary Hg Stock 2 PPM | Type: | Secondary |
| Date Prepared | 1/5/2022 | BY: | Amanda E. McDani |
| Date Expires: | 12/29/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |

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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME220110HG | HG Stock | ug/mL | 0.05 mL |
| ME211229A AU 2N | Au 2nd source Stock | ug/mL | 0.05 mL |

| **Analytes** | **CAS** | Conc: | **ug/mL** |
|---|---|---|---|

Page:*1 of 1*

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME220110HG | | |
| Standard Name | HG Stock | Type: | Primary |
| Date Prepared | 1/10/2022 | BY: | Amanda E. McDani |
| Date Expires: | 1/10/2023 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S210729017 | | |
| Balance ID: | | | |

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

## 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% $HNO_3$ (See Section 3 for actual matrix)
Expiration Date (End of month): **July 2023** (or 15 months after bottle is opened, whichever comes first)

Hg

## 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) $HNO_3$**

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | <0.0010 | Fe | **0.0322** | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0042** | Ga | <0.0010 | Ni | **0.0039** | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | <0.0010 | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | N/A | Pd | <0.0010 | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | <0.0010 | Tl | **0.0117** |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | <0.0024 | Re | <0.0010 | U | <0.0010 |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | **0.0112** | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | <0.0010 | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0060** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.0010 | Zr | <0.0010 |
| Er | <0.0010 | Na | **0.0092** | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
Certification Date: August 12, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des 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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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**
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Fax: +49 (0) 8342-89560-69

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211229A AU 2ND SOURCE | | |
| Standard Name | Au 2nd source Stock | Type: | Primary |
| Date Prepared | 12/29/2021 | BY: | Amanda E. McDani |
| Date Expires: | 12/29/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S211129013 | | |
| Balance ID: | | | |
| Comments: | opened 12/29/2021; expires 12/29/2022 | | |

| 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
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

SCP SCIENC
Providing Innovative Solutions to Analytical

# Certificate of Analysis

## 1.0 DESCRIPTION:

**PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Au

Catalogue Number: 140-052-790/-791/-795
Starting Material: Gold Metal 99.99+%
Lot Number: **S211129013**
Matrix: 10% HCl (See Section 3 for actual matrix)
Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)

## 2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1001 µg/ml +/- 4 µg/ml**
**982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

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

## 3.0 REFERENCE VALUES:

Density: **1.019 g/ml @ 22.4 °C**
Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | **0.3851** | Fe | <0.0090 | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0062** | Ga | <0.0010 | Ni | <0.0010 | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | N/A | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | * | Pd | **0.0434** | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | **0.0048** | Tl | <0.0011 |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | **0.0362** | Re | <0.0010 | U | <0.0010 |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | **0.0029** | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0023** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.01 | Zr | <0.0010 |
| Er | <0.0010 | Na | **0.0070** | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
Certification Date: December 10, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des 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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211208 MSCAL2B | | |
| Standard Name | MSCAL 2B | Type: | Primary |
| Date Prepared | 12/8/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 12/8/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | S2-MEB704403 | | |
| Balance ID: | | | |
| Comments: | Opened 12/08/2021; Expires 12/08/2022 | | |

| 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**

INORGANIC VENTURES™
Refine your results. Redefine your industry.

# Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | 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:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2 (u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

**Certified Abundance:**

**IV's Certified Abundance**

| Isotope | Atom % |
|---|---|
| Uranium 238U | 99.8 ± 0.1 |
| Uranium 235U | 0.24 ± 0.05 |

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

April 21, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

### 11.2 Lot Expiration Date

**- April 21, 2025**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

### 11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Director, Quality Control

Michael J Booth

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

Paul R Gaines

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211229A AU 2ND SOURCE | | |
| Standard Name | Au 2nd source Stock | Type: | Primary |
| Date Prepared | 12/29/2021 | BY: | Amanda E. McDani |
| Date Expires: | 12/29/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S211129013 | | |
| Balance ID: | | | |
| Comments: | opened 12/29/2021; expires 12/29/2022 | | |

| 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
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

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Providing Innovative Solutions to Analytical

# Certificate of Analysis

Au

## 1.0 DESCRIPTION:

**PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Catalogue Number: 140-052-790/-791/-795
Starting Material: Gold Metal 99.99+%
Lot Number: **S211129013**
Matrix: 10% HCl (See Section 3 for actual matrix)
Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)

## 2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1001 µg/ml +/- 4 µg/ml**
**982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

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

## 3.0 REFERENCE VALUES:

Density: **1.019 g/ml @ 22.4 °C**
Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | **0.3851** | Fe | <0.0090 | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0062** | Ga | <0.0010 | Ni | <0.0010 | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | N/A | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | * | Pd | **0.0434** | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | **0.0048** | Tl | <0.0011 |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | **0.0362** | Re | <0.0010 | U | <0.0010 |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | **0.0029** | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0023** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.01 | Zr | <0.0010 |
| Er | <0.0010 | Na | **0.0070** | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
Certification Date: December 10, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des 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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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# 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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME220106-CE | Ce Primary Stock | ug/mL | 5 mL |

| **Analytes** | **CAS** | Conc: | **ug/mL** |
|---|---|---|---|

Page:*1 of 1*

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME220112 10 PPB STANDARD | | |
| Standard Name | 10 ppb Standard | Type: | Secondary |
| Date Prepared | 1/12/2022 | BY: | Cindy Rohrer |
| Date Expires: | 11/18/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |
| Comments: | Made Fresh Daily | | |

| 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** | **Base Units** | **Amount Added** |
|---|---|---|
| ME220112 100 PP 100 ppb Standard | ug/mL | 5 mL |

| **Analytes** | **CAS** | Conc: | **mg/L** |
|---|---|---|---|

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME220112 1 PPB STANDARD | | |
| Standard Name | 1 ppb Standard | Type: | Secondary |
| Date Prepared | 1/12/2022 | BY: | Cindy Rohrer |
| Date Expires: | 11/18/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |
| Comments: | Made Fresh Daily | | |

| 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** | **Base Units** | **Amount Added** |
|---|---|---|
| ME220112 10 PPB 10 ppb Standard | ug/mL | 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 | Type: | Secondary |
| Date Prepared | 1/12/2022 | BY: | Cindy Rohrer |
| Date Expires: | 11/18/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |
| Comments: | Made Fresh Daily | | |

| 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** | **Base Units** | **Amount Added** |
|---|---|---|
| ME220112 10 PPB 10 ppb Standard | ug/mL | 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 | Type: | Secondary |
| Date Prepared | 1/12/2022 | BY: | Cindy Rohrer |
| Date Expires: | 11/18/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |
| Comments: | Made Fresh Daily | | |

| 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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME220112 1 PPB | 1 ppb Standard | ug/mL | 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 | Type: | Secondary |
| Date Prepared | 1/12/2022 | BY: | Cindy Rohrer |
| Date Expires: | 11/18/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |
| Comments: | Made Fresh Daily | | |

| 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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME220112 0.5 PP | 0.5 ppb Standard | ug/mL | 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 | Type: | Secondary |
| Date Prepared | 1/12/2022 | BY: | Cindy Rohrer |
| Date Expires: | 11/18/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |
| Comments: | Made Fresh Daily | | |

| 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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME220112 0.5 PP | 0.5 ppb Standard | ug/mL | 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:

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

Comments: Made fresh daily

| 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

| Stock Source | | Base Units | Amount Added |
|---|---|---|---|
| ME210211 U Seco | U 2' QCS | ug/mL | 0.05 mL |
| ME211206 Th QC | Th QCS Stock | ug/mL | 0.05 mL |
| ME210901 Hg Sec | Secondary Hg Stock 2 PPM | ug/mL | 0.05 mL |
| ME211124 EL-MSI | EL-MSICV-2 | ug/mL | 0.05 mL |
| ME210817 ICV-1A | EL-MSICV-1A | ug/mL | 0.05 mL |
| ME210903 Ce, La | Ce, La Secondary solution | ug/mL | 0.05 mL |

| Analytes | 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:

Type: Secondary
BY: Alyssa A. Olson
Status: Open

Comments:

| 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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME200624A | U Stock | ug/mL | 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:

Type: Primary
BY: Ron Hunt

Status: Empty/Disposed

Comments:

| 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** |
|---|---|---|
| **Analytes** | **CAS** | Conc: **ug/mL** |
| A Uranium | 7440-61-1 | 1000 |

Page: *1 of 1*

SCP SCIENCE

Providing Innovative Solutions to Analytical Chemists

# Certificate of Analysis

**1.0 DESCRIPTION:** ***Plasma*CAL 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% $HNO_3$ (See Section 3 for actual matrix)

Expiration Date (End of month): **April 2022** (or 15 months after bottle is opened, whichever comes first)

U

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

ID #: 12767
Opened:
PlasmaCal Standard Uranium
Expires: 4/30/2022
Rec'd: 6/15/2020
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

**3.0 REFERENCE VALUES:**

Density: **1.020 g/ml @ 21.7 °C**

Actual Matrix: **4.0% (v/v) $HNO_3$**

% abundance of stable isotopes : $^{238}U$ : 99.79% ; $^{235}U$ : 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 | **0.0073** | Ga | <0.0010 | Ni | **0.0038** | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | * | Ta | <0.0010 |
| Au | <0.0010 | Ge | <0.0010 | P | <0.0026 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0031 |
| Ba | <0.0010 | Hg | * | Pd | <0.0010 | Th | **0.0020** |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | <0.0010 | Tl | <0.0011 |
| Ca | **0.0340** | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | <0.0024 | Re | <0.0010 | U | N/A |
| Ce | <0.0010 | La | * | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | <1.0000 | Y | **0.0049** |
| Cs | <0.0010 | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | <0.0010 | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | * | Zr | <0.0010 |
| Er | <0.0010 | Na | <0.0010 | Si | <1.0000 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

**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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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Marktoberdorf

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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:

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

Comments:

| 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** | **Base Units** | **Amount Added** |
|---|---|---|
| ME 211025 Th Sec Th Seondary Stock | ug/mL | 2.5 mL |

| **Analytes** | **CAS** | Conc: | **ug/mL** |
|---|---|---|---|

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME 211025 TH SECONDARY STOCK | | |
| Standard Name | Th Seondary Stock | Type: | Primary |
| Date Prepared | 10/25/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 10/25/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | S2-TH706436 | | |
| Balance ID: | | | |
| Comments: | Opened 10/25/2021; Expires 10/25/2022 | | |

| 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**

INORGANIC VENTURES
Refine your results. Redefine your industry.

# Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Single Analyte Custom Grade Solution |
| Catalog Number: | CGTH1 |
| Lot Number: | S2-TH706436 |
| Matrix: | 5% (v/v) HNO3 |
| Value / Analyte(s): | 1 000 µg/mL ea: Thorium |
| Starting Material: | TH(NO3)4*4H2O |
| Starting Material Lot#: | 2250 |
| Starting Material Purity: | 99.9905% |

ID #: 14318
Opened:
Thorium Single Analyte Custom Grade Solutic
Expires: 7/4/2025
Rec'd: 9/24/2021
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

**Certified Value:** 1001 ± 4 µg/mL

**Density:** 1.026 g/mL (measured at 20 ± 4 °C)

**Assay Information:**

**Assay Method #1** **1001 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

**Assay Method #2** **1001 ± 6 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

### Characterization of CRM/RM by Two or More Methods

**Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Ag < | 0.000448 | M | Eu < | 0.000224 | O | Na | 0.064077 | M | Se < | 0.005827 | M | Zn | 0.003183 |
| O | Al | 0.010962 | M | Fe | 0.012392 | M | Nb < | 0.003138 | i | Si < | | M | Zr < | 0.010310 |
| M | As < | 0.038776 | M | Ga < | 0.004931 | M | Nd | 0.004697 | M | Sm | 0.000871 | | | |
| M | Au < | 0.000224 | M | Gd | 0.000300 | M | Ni < | 0.006724 | M | Sn < | 0.028242 | | | |
| M | B < | 0.021293 | M | Ge < | 0.008965 | M | Os < | 0.000224 | M | Sr | 0.002582 | | | |
| M | Ba | 0.001317 | M | Hf < | 0.000224 | i | P < | | M | Ta < | 0.001344 | | | |
| M | Be < | 0.000224 | M | Hg < | 0.000448 | M | Pb | 0.003287 | M | Tb < | 0.001793 | | | |
| M | Bi < | 0.001793 | M | Ho < | 0.001344 | M | Pd < | 0.000448 | M | Te < | 0.010086 | | | |
| O | Ca | 0.051969 | M | In | 0.000134 | M | Pr | 0.001202 | s | Th < | | | | |
| M | Cd < | 0.001344 | M | Ir < | 0.000224 | M | Pt < | 0.000224 | M | Ti < | 0.004258 | | | |
| M | Ce | 0.015420 | O | K | 0.028928 | M | Rb < | 0.005155 | M | Tl < | 0.000224 | | | |
| M | Co < | 0.001344 | M | La | 0.003577 | M | Re < | 0.000224 | M | Tm < | 0.000224 | | | |
| M | Cr < | 0.015465 | M | Li < | 0.000448 | M | Rh < | 0.000224 | M | U | 0.006564 | | | |
| M | Cs < | 0.013896 | M | Lu < | 0.000224 | M | Ru < | 0.000224 | M | V < | 0.001793 | | | |
| M | Cu | 0.001472 | O | Mg | 0.027914 | i | S < | | M | W < | 0.000224 | | | |
| M | Dy | 0.000197 | M | Mn | 0.001814 | M | Sb < | 0.004931 | M | Y | 0.000860 | | | |
| M | Er < | 0.002241 | M | Mo < | 0.000896 | M | Sc < | 0.000672 | M | Yb < | 0.000224 | | | |

M - Checked by ICP-MS  O - Checked by ICP-OES  i - Spectral Interference
n - Not Checked For  s - Solution Standard Element

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution -** 232.04 +4 8 Th(OH) 3+ and Th(OH)22+

**Chemical Compatibility -**Soluble in HCl, and HNO3. Avoid H3PO4, H2SO4 and HF although solubilities may not be a problem depending upon pH and matrix (For example: ThF4 is soluble in acids). Avoid neutral to basic media. Th4+ is stable with most metals and inorganic anions forming an insoluble carbonate, oxide, fluoride, oxalate, sulfate and phosphate in neutral to slightly acidic media.

**Stability -** 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

**Th Containing Samples (Preparation and Solution) -**Metal (Soluble in Aqua Regia); Oxide (The heated oxide is not soluble in acids except hot conc. H2SO4 ); Ores ( Na2O2 fusion at 480 ± 20EC for 7 minutes, cool and treat sintered mass with 50 mL cold water and stand until disintegrated. The mass is transferred to a beaker and acidified with HCl with 25 mL excess HCl added. Any residue is collected on a Whatman No. 42 filter, dried and ignited to 1000 EC in Pt0 crucible and the ash treated with H2SO4 / HF and fumed. If residue remains, then treat it by peroxide fusion as above.)

**Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):**

| **Technique/Line** | **Estimated D.L.** | **Order** | **Interferences** (underlined indicates severe) |
|---|---|---|---|
| ICP-MS 232 amu | 1 ppt | N/A | |
| ICP-OES 274.716 nm | 0.08 / 0.008 µg/mL | 1 | Ti, Ta, Fe, V |
| ICP-OES 283.231 nm | 0.07 / 0.007 µg/mL | 1 | U, Mo, Ti, Fe, Cr |
| ICP-OES 283.730 nm | 0.07 / 0.007 µg/mL | 1 | U, Zr |

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

July 04, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

### 11.2 Lot Expiration Date

**- July 04, 2025**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

### 11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Director, Quality Control

Michael J Booth

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

Paul R Gaines

# Energy Laboratories Inc

# Spike LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME210901 HG SECOND SOURCE | | |
| Standard Name | Secondary Hg Stock 2 PPM | Type: | Secondary |
| Date Prepared | 9/1/2021 | BY: | Alyssa A. espinoza |
| Date Expires: | 7/26/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |

Comments:

| 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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME210726 | Hg Secondary Source | ug/mL | 0.1 mL |

| **Analytes** | **CAS** | Conc: | **ug/mL** |
|---|---|---|---|

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# 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:

Type:
BY: Jordan A. Gjerde
Status: New

Comments:

| 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**

**Analytes** **CAS** Conc: **ug/mL**

Page: *1 of 1*

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 - USA
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.2799 - 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 — ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | 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 Solutic
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:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O | Ag | | 0.001159 | M | Eu | < | 0.000201 | O | Na | | 0.000435 | M | Se | < | 0.015915 | O | Zn | < | 0.001510 |
| O | Al | | 0.000090 | O | Fe | | 0.000113 | M | Nb | < | 0.000201 | O | Si | | 0.000525 | M | Zr | < | 0.000201 |
| M | As | < | 0.000402 | M | Ga | < | 0.000201 | M | Nd | < | 0.000201 | M | Sm | < | 0.000201 | | | | |
| M | Au | < | 0.003631 | M | Gd | < | 0.000201 | M | Ni | < | 0.000402 | M | Sn | < | 0.001007 | | | | |
| M | B | < | 0.001208 | M | Ge | < | 0.000201 | M | Os | < | 0.000605 | M | Sr | < | 0.000201 | | | | |
| M | Ba | < | 0.000201 | M | Hf | < | 0.000201 | O | P | < | 0.032370 | M | Ta | < | 0.000201 | | | | |
| M | Be | < | 0.000201 | s | Hg | < | | M | Pb | < | 0.000201 | M | Tb | < | 0.000201 | | | | |
| M | Bi | < | 0.000201 | M | Ho | < | 0.000201 | M | Pd | < | 0.000403 | M | Te | < | 0.002216 | | | | |
| O | Ca | | 0.000746 | M | In | < | 0.000201 | M | Pr | < | 0.000201 | M | Th | < | 0.000201 | | | | |
| M | Cd | < | 0.000201 | M | Ir | < | 0.000201 | M | Pt | < | 0.000402 | M | Ti | < | 0.000402 | | | | |
| M | Ce | < | 0.000201 | O | K | | 0.002007 | M | Rb | < | 0.000201 | O | Tl | < | 0.016508 | | | | |
| M | Co | < | 0.000201 | M | La | < | 0.000201 | M | Re | < | 0.000201 | M | Tm | < | 0.000201 | | | | |
| O | Cr | < | 0.003021 | O | Li | < | 0.000107 | M | Rh | < | 0.000201 | M | U | < | 0.008058 | | | | |
| M | Cs | < | 0.001208 | M | Lu | < | 0.000201 | M | Ru | < | 0.000201 | M | V | < | 0.000201 | | | | |
| M | Cu | < | 0.000402 | O | Mg | | 0.000096 | O | S | < | 0.053950 | M | W | < | 0.000604 | | | | |
| M | Dy | < | 0.000201 | M | Mn | < | 0.000604 | M | Sb | < | 0.001208 | M | Y | < | 0.000201 | | | | |
| M | Er | < | 0.000201 | M | Mo | | 0.000971 | M | Sc | < | 0.000201 | M | Yb | < | 0.000201 | | | | |

M - Checked by ICP-MS  O - Checked by ICP-OES  i - Spectral Interference
n - Not Checked For  s - Solution Standard Element

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

**Atomic Weight; Valence; Coordination Number; Chemical Form in Solution -** 200.59 +2 4 Hg(OH)(aq) 1+

**Chemical Compatibility -** Stable in HNO3. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

**Stability -** 2-100 ppb levels not stable in 1% HNO3 / LDPE container, stable in 10% HNO3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO3 / LDPE container.

**Hg Containing Samples (Preparation and Solution) -** Metal (soluble in HNO3 ); Oxide ( Soluble in HNO3); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).

**Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):**

| Technique/Line | Estimated D.L. | Order | Interferences (underlined indicates severe) |
|---|---|---|---|
| ICP-MS 202 amu | 9 ppt | n/a | 186W16O |
| ICP-OES 184.950 nm | 0.03 / 0.005 µg/mL | 1 | |
| ICP-OES 194.227 nm | 0.03 / 0.005 µg/mL | 1 | V |
| ICP-OES 253.652 nm | 0.1 / 0.03 µg/mL | 1 | Ta, Co, Th ,Rh , Fe, U |

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

September 15, 2020

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

### 11.2 Lot Expiration Date

- **September 15, 2024**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

### 11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Director, Quality Control

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

# Energy Laboratories Inc

# Standard LOG

Standard ID: ME211124 EL-MSICV-2
Standard Name EL-MSICV-2
Date Prepared 11/24/2021
Date Expires: 11/24/2022
Department ME
Vendor: Inorganic Ventures
Lot Number:
Balance ID:

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

Comments:

| 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**

**Analytes** **CAS** Conc: **ug/mL**

Page: *1 of 1*

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 - USA
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 - 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | EL-MSICV-2 |
| Lot Number: | R2-MEB696849 |
| Matrix: | 3% (v/v) $HNO_3$<br>tr. HF |
| Value / Analyte(s): | 1 000 µg/mL ea:<br>Silicon,<br><br>100 µg/mL ea:<br>Tin, Titanium,<br>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 follow ing 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
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:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2 (u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- 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

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## 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

Michael J Booth

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

Paul R Gaines

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME210817 ICV-1A | | |
| Standard Name | EL-MSICV-1A | Type: | Primary |
| Date Prepared | 8/17/2021 | BY: | Alyssa A. espinoza |
| Date Expires: | 8/17/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | R2-MEB688457 | | |
| Balance ID: | | | |
| Comments: | Opened 8/17/2021; Expires 8/17/2022 | | |

| 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** |
|---|---|---|
| **Analytes** | **CAS** | Conc: **ug/mL** |

INORGANIC VENTURES™
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | EL-MSICV-1A |
| Lot Number: | R2-MEB688457 |
| Matrix: | 5% (v/v) HNO3 |
| Value / Analyte(s): | 5 000 µg/mL ea: Calcium, Potassium, Magnesium, Sodium, |
| | 1 000 µg/mL ea: Phosphorus, |
| | 500 µg/mL ea: Manganese, Iron, Aluminum, |
| | 100 µg/mL ea: Arsenic, Boron, Barium, Cobalt, Chromium, Copper, Lithium, Nickel, Lead, Selenium, Strontium, Thallium, Vanadium, Zinc, |
| | 50 µg/mL ea: Silver, Cadmium, Beryllium |

ID #: 13475
Opened:_____
Multi Analyte Custom Grade Solution
**Expires: 1/10/2024**
Rec'd: 1/15/2021
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

**Second Source:** Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

| ANALYTE | CERTIFIED VALUE | ANALYTE | CERTIFIED VALUE |
|---|---|---|---|
| Aluminum, Al | 500.3 ± 1.8 µg/mL | Arsenic, As | 100.0 ± 0.8 µg/mL |
| Barium, Ba | 99.9 ± 0.4 µg/mL | Beryllium, Be | 49.96 ± 0.33 µg/mL |
| Boron, B | 100.0 ± 0.6 µg/mL | Cadmium, Cd | 50.10 ± 0.22 µg/mL |
| Calcium, Ca | 5 001 ± 20 µg/mL | Chromium, Cr | 100.0 ± 0.6 µg/mL |
| Cobalt, Co | 100.0 ± 0.5 µg/mL | Copper, Cu | 100.1 ± 0.4 µg/mL |
| Iron, Fe | 499.7 ± 2.1 µg/mL | Lead, Pb | 100.1 ± 0.4 µg/mL |
| Lithium, Li | 100.0 ± 0.4 µg/mL | Magnesium, Mg | 5 000 ± 21 µg/mL |
| Manganese, Mn | 499.8 ± 1.9 µg/mL | Nickel, Ni | 100.1 ± 0.4 µg/mL |
| Phosphorus, P | 1 000 ± 5 µg/mL | Potassium, K | 5 000 ± 18 µg/mL |
| Selenium, Se | 100.1 ± 0.8 µg/mL | Silver, Ag | 50.02 ± 0.22 µg/mL |
| Sodium, Na | 5 000 ± 18 µg/mL | Strontium, Sr | 100.1 ± 0.4 µg/mL |
| Thallium, Tl | 100.0 ± 0.7 µg/mL | Vanadium, V | 99.9 ± 0.5 µg/mL |
| Zinc, Zn | 100.0 ± 0.4 µg/mL | | |

**Density:** 1.098 g/mL (measured at 20 ± 4 °C)

**Assay Information:**

| 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, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method I with standard uncertainty $u_{char\ I}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ I})^2 / (\Sigma(1/(u_{char\ I})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2 (u_{char\ I})^2)]^{1/2}$ where $u_{char\ I}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

**Characterization of CRM/RM by One Method**

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed outer bag.

- While stored in the sealed outer bag, transpiration of this CRM/RM is negligible. After opening the sealed outer bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed outer bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

January 10, 2020

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

### 11.2 Lot Expiration Date

**- January 10, 2024**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

### 11.3 Period of Validity

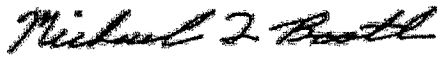
- Sealed outer Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Manager, Quality Control



**Certifying Officer:**

Paul Gaines
CEO, Senior Technical Director

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME210903 CE, LA SECONDARY | | |
| Standard Name | Ce, La Secondary solution | Type: | Secondary |
| Date Prepared | 9/3/2021 | BY: | Parker A. Pearsall |
| Date Expires: | 5/25/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | | | |
| Lot Number: | | | |
| Balance ID: | | | |
| Comments: | Second Source Stock Solution | | |

| 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 | | Base Units | Amount Added |
|---|---|---|---|
| ME210903 La Sec | La Secondary Stock | ug/mL | 5 mL |
| ME210525 Ce 2nd | Ce Secondary Stock | ug/mL | 5 mL |

| Analytes | CAS | Conc: | ug/mL |
|---|---|---|---|

Page: *1 of 1*

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME210903 LA SECOND SOURCE | | |
| Standard Name | La Secondary Stock | Type: | Primary |
| Date Prepared | 9/3/2021 | BY: | Alyssa A. espinoza |
| Date Expires: | 9/3/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S201029004 | | |
| Balance ID: | | | |
| Comments: | Opened 9/3/2021; Expires 9/3/2022 | | |

| 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**

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Providing Innovative Solutions to Analytical Chemists

# Certificate of Analysis

## 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% $HNO_3$ (See Section 3 for actual matrix)

Expiration Date (End of month): **November 2022** (or 15 months after bottle is opened, whichever comes first)

La

## 2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1005 µg/ml +/- 4 µg/ml**

**985 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3127a Lot: **151030**

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

**ID #: 14019**
Opened:_____
**Lanthanum PlasmaCal Standard**
**Expires: 11/30/2022**
Rec'd: 7/6/2021
Energy 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) $HNO_3$**

Trace Metal Impurities as tested by ICP-AES:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | <0.0049 | Fe | <0.0102 | Nd | <0.1595 | Sn | <0.0307 |
| Al | <0.0280 | Ga | <0.0260 | Ni | <0.0139 | Sr | <0.0004 |
| As | <0.0525 | Gd | <0.0685 | Os | * | Ta | <0.0635 |
| Au | <0.0085 | Ge | <0.0548 | P | <0.0104 | Tb | <0.0146 |
| B | <0.2535 | Hf | <0.0339 | Pb | <0.2460 | Te | <0.4025 |
| Ba | <0.0025 | Hg | * | Pd | <0.1410 | Th | <0.0471 |
| Be | <0.0022 | Ho | <0.0065 | Pr | <0.0274 | Ti | <0.0013 |
| Bi | <0.0780 | In | <0.0105 | Pt | <0.0533 | Tl | <0.5600 |
| Ca | **0.0164** | Ir | <0.0243 | Rb | * | Tm | <0.0105 |
| Cd | <0.0048 | K | <0.0128 | Re | <0.0076 | U | <0.2490 |
| Ce | <0.0393 | La | N/A | Rh | <0.0163 | V | <0.0049 |
| Co | <0.0224 | Li | <0.0006 | Ru | <0.0304 | W | <0.0443 |
| Cr | <0.0063 | Lu | <0.0021 | S | <0.0515 | Y | <0.0033 |
| Cs | * | Mg | <0.0045 | Sb | <0.0197 | Yb | <0.0057 |
| Cu | <0.0040 | Mn | <0.0018 | Sc | <0.0055 | Zn | <0.0045 |
| Dy | <0.0043 | Mo | <0.0229 | Se | <0.0249 | Zr | <0.0061 |
| Er | <0.0070 | Na | <0.0038 | Si | <0.0455 | | |
| Eu | <0.0086 | Nb | <0.0112 | Sm | <0.1105 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist

Certification Date: November 04, 2020

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

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

For any inquiries, please contact **SCP SCIENCE**. / *Pour toute question, veuillez contacter* ***SCP SCIENCE***.

## 6.0 INSTRUCTIONS FOR USE / *INSTRUCTIONS D'UTILISATION*:

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

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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**
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Baie D'Urfé (Montréal), Quebec,
H9X 4B6 Canada
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Fax: +1 (800) 253-5549

**USA**
3rd Party Distribution Center
348 Route 11, Champlain,
N.Y. 12919-4816

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Fax: +1 (800) 253-5549

**FRANCE**
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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 | Type: | Primary |
| Date Prepared | 5/25/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 5/25/2022 | | |
| Department | ME | Status: | Empty/Disposed |
| Vendor: | SCP Science | | |
| Lot Number: | S210208003 | | |
| Balance ID: | | | |
| Comments: | opened 5/25/2021, expires 5/25/2022 | | |

| 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**

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# Certificate of Analysis

## 1.0 DESCRIPTION:

**_Plasma_CAL 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% $HNO_3$ (See Section 3 for actual matrix)
Expiration Date (End of month): **February 2023** (or 15 months after bottle is opened, whichever comes first)

Ce

## 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) $HNO_3$**

Trace Metal Impurities as tested by ICP-MS:

**ID #: 13642**
Opened:_____
ICP/ICPMS Standard Cerium
**Expires: 2/28/2023**
Rec'd: 3/16/2021
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | <0.0010 | Fe | <0.0018 | Nd | **0.0102** | Sn | <0.0010 |
| Al | **0.0148** | Ga | **0.0526** | Ni | **0.0064** | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | <0.0010 | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | * | Pd | <0.0010 | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | **0.0235** | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | <0.0010 | Tl | <0.0011 |
| Ca | **0.0375** | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | <0.0024 | Re | <0.0010 | U | <0.0010 |
| Ce | N/A | La | <0.10 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | <0.0010 | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0121** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.0010 | Zr | <0.0010 |
| Er | <0.0010 | Na | <0.0010 | Si | <0.10 | | |
| Eu | **0.0035** | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Yaling Sui, Chemist
Certification Date: February 22, 2021

Yaling Sui

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME210901 ICSAB | | |
| Standard Name | ICSAB | Type: | Secondary |
| Date Prepared | 9/1/2021 | BY: | Cindy Rohrer |
| Date Expires: | 9/1/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | | | |
| Lot Number: | | | |
| Balance ID: | | | |

Comments: Made fresh every Monday, Wednesday, and Friday

| Chemical / Solvent Used | BottleNo | Amt | Units | Exp |
|---|---|---|---|---|
| Nitric Acid, 69.0-70.0%,0000282671 | 14178 | 1 | mL | 4/11/ |
| Milli-Q H2O | 391 | 46.45 | mL | 6/1/2 |
| Hydrochloric Acid Instra Analyzed 000 | 14028 | 0.5 | mL | 3/29/ |

**Final Volume:** 50 mL

| **Stock Source** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME210901 6020IC | 6020ICS-8A | ug/mL | 2 mL |
| ME 210901 6020IC | 6020ICS-9B | ug/mL | 0.05 mL |

| **Analytes** | **CAS** | Conc: | **mg/L** |
|---|---|---|---|

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME 210901 6020ICS-9B | | |
| Standard Name | 6020ICS-9B | Type: | Primary |
| Date Prepared | 9/1/2021 | BY: | Alyssa A. espinoza |
| Date Expires: | 9/1/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | P2-MEB678862 | | |
| Balance ID: | | | |
| Comments: | Opened 9/1/2021; Expires 9/1/2022 | | |

| 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** |

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

# CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | 6020ICS-9B |
| Lot Number: | P2-MEB678862 |
| Matrix: | 3% (v/v) HNO3 |
| 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:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method I with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

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

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2 (u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

**Characterization of CRM/RM by One Method**

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 *Balance Calibration*

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

**Low Silver Note:** This solution contains "LOW" levels of Silver. Please store this entire bottle inside a sealed glass jar.

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

**11.1 Certification Issue Date**

May 17, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

**11.2 Lot Expiration Date**

**- May 17, 2023**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

**11.3 Period of Validity**

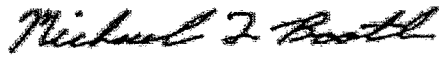
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Supervisor, Quality Control



**Certifying Officer:**

Paul Gaines
CEO, Senior Technical Director

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME220112 SS1 | | |
| Standard Name | SS1 ICPMS Spiking Solution | Type: | Secondary |
| Date Prepared | 1/12/2022 | BY: | Stacy R. Hendricks |
| Date Expires: | 12/8/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |

Comments:

| 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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME220105 HgPrim | Primary Hg Stock 2 PPM | ug/mL | 2 mL |
| ME211208 MSCAL | MSCAL 2B | ug/mL | 2 mL |
| ME211221 MSCAL | MSCAL 3C | ug/mL | 2 mL |
| ME220110 Ce, La | Ce, La Primary | ug/mL | 2 mL |

| **Analytes** | **CAS** | Conc: | **mg/L** |
|---|---|---|---|

# Energy Laboratories Inc

# Spike LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME220105 HGPRIMARY | | |
| Standard Name | Primary Hg Stock 2 PPM | Type: | Secondary |
| Date Prepared | 1/5/2022 | BY: | Amanda E. McDani |
| Date Expires: | 12/29/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | | | |
| Balance ID: | | | |

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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME220110HG | HG Stock | ug/mL | 0.05 mL |
| ME211229A AU 2N | Au 2nd source Stock | ug/mL | 0.05 mL |

| **Analytes** | **CAS** | Conc: | **ug/mL** |
|---|---|---|---|

Page:*1 of 1*

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME220110HG | | |
| Standard Name | HG Stock | Type: | Primary |
| Date Prepared | 1/10/2022 | BY: | Amanda E. McDani |
| Date Expires: | 1/10/2023 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S210729017 | | |
| Balance ID: | | | |

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

## 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% $HNO_3$ (See Section 3 for actual matrix)
Expiration Date (End of month): **July 2023** (or 15 months after bottle is opened, whichever comes first)

Hg

## 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) $HNO_3$**

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | <0.0010 | Fe | **0.0322** | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0042** | Ga | <0.0010 | Ni | **0.0039** | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | <0.0010 | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | N/A | Pd | <0.0010 | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | <0.0010 | Tl | **0.0117** |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | <0.0024 | Re | <0.0010 | U | <0.0010 |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | **0.0112** | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | <0.0010 | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0060** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.0010 | Zr | <0.0010 |
| Er | <0.0010 | Na | **0.0092** | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
Certification Date: August 12, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des 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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ*:

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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.*

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Marktoberdorf
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 | Type: | Primary |
| Date Prepared | 12/29/2021 | BY: | Amanda E. McDani |
| Date Expires: | 12/29/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | SCP Science | | |
| Lot Number: | S211129013 | | |
| Balance ID: | | | |
| Comments: | opened 12/29/2021; expires 12/29/2022 | | |

| 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
Energy Laboratories Inc 1120 So. 27th Street
Billings MT 59107

SCP SCIENC
Providing Innovative Solutions to Analytical

# Certificate of Analysis

Au

## 1.0 DESCRIPTION:

**PlasmaCAL ICP/ICPMS Standard - Gold 1000 µg/ml**

Catalogue Number: 140-052-790/-791/-795
Starting Material: Gold Metal 99.99+%
Lot Number: **S211129013**
Matrix: 10% HCl (See Section 3 for actual matrix)
Expiration Date (End of month): **December 2023** (or 15 months after bottle is opened, whichever comes first)

## 2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **1001 µg/ml +/- 4 µg/ml**
**982 µg/g +/- 4 µg/g**

Method of analysis: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

Traceability: NIST Standard Reference Material 3121 Lot: **991806**

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

## 3.0 REFERENCE VALUES:

Density: **1.019 g/ml @ 22.4 °C**
Actual Matrix: **10.0% (v/v) HCl**

Trace Metal Impurities as tested by ICP-MS:

| Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) | Element | Conc. (ppm) |
|---|---|---|---|---|---|---|---|
| Ag | **0.3851** | Fe | <0.0090 | Nd | <0.0010 | Sn | <0.0010 |
| Al | **0.0062** | Ga | <0.0010 | Ni | <0.0010 | Sr | <0.0025 |
| As | <0.0010 | Gd | <0.0010 | Os | <0.0010 | Ta | <0.0010 |
| Au | N/A | Ge | <0.0010 | P | <0.0132 | Tb | <0.0010 |
| B | <0.0015 | Hf | <0.0010 | Pb | <0.0010 | Te | <0.0010 |
| Ba | <0.0010 | Hg | * | Pd | **0.0434** | Th | <0.0010 |
| Be | <0.0010 | Ho | <0.0010 | Pr | <0.0010 | Ti | <0.0012 |
| Bi | <0.0010 | In | <0.0010 | Pt | **0.0048** | Tl | <0.0011 |
| Ca | <0.0135 | Ir | <0.0010 | Rb | <0.0010 | Tm | <0.0010 |
| Cd | <0.0010 | K | **0.0362** | Re | <0.0010 | U | <0.0010 |
| Ce | <0.0010 | La | <0.0010 | Rh | <0.0010 | V | <0.0010 |
| Co | <0.0010 | Li | <0.0010 | Ru | <0.0010 | W | <0.0020 |
| Cr | <0.0010 | Lu | <0.0010 | S | * | Y | <0.0010 |
| Cs | **0.0029** | Mg | <0.0010 | Sb | <0.0010 | Yb | <0.0010 |
| Cu | **0.0023** | Mn | <0.0010 | Sc | <0.0010 | Zn | <0.0010 |
| Dy | <0.0010 | Mo | <0.0010 | Se | <0.01 | Zr | <0.0010 |
| Er | <0.0010 | Na | **0.0070** | Si | <0.1 | | |
| Eu | <0.0010 | Nb | <0.0010 | Sm | <0.0010 | *: Not tested | |

## 4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Daniel Boisvert, Chemist
Certification Date: December 10, 2021

Daniel Boisvert

## 5.0 INTENDED USE / *UTILISATION PRÉVUE*:

- ICP Standards: For the calibration of, including but not limited to: ICP-AES, ICP-MS, FAAS, GFAA, XRF and DCP. / *Étalons ICP : Pour l'étalonnage d'instruments de mesure tels que: ICP-AES, ICP-MS, FAAS, GFAA, XRF et DCP.*
- AA Standards: For the calibration of Flame (FAAS) and Graphite Furnace (GFAA) Atomic Absorption Spectrometers. / *Étalons AA : Pour l'étalonnage de spectromètres d'absorption atomique flamme (GFAA) et four au graphite (GFAA).*
- Matrix Modifiers: For the optimization of analytical conditions to provide better Graphite Furnace Atomic Absorption (GFAA) instrument response and improved detection limits. / *Modificateur de matrice : Pour l'optimisation des conditions analytiques afin de fournir des 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 contentant. Conserver dans des conditions normales de laboratoire. Éviter l'exposition à des sources de chaleur et d'humidité excessives ou à l'exposition solaire directe.*

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

## 7.0 HAZARDOUS INFORMATION / *INFORMATION SUR LES RISQUES POTENTIELS*:

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

## 8.0 HOMOGENEITY / *HOMOGÉNÉITÉ:*

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

## 9.0 TRACEABILITY / *TRAÇABILITÉ*:

This CRM (Certified Reference Material) is traceable to the NIST SRM (Standard Reference Material) indicated in section 2 through an unbroken chain of comparisons. In addition, balances used are regularly calibrated using weights which are traceable to NIST (National Institute of Standards and Technology) or NRC (National Research Council of Canada) standards. All conductivity meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable Thermometer and standards. All pH meters used to analyze this standard have been regularly calibrated using a NIST or NRC traceable thermometer and pH/MV simulator. / *Ce matériel de référence certifié est traçable au Matériel de Référence Standardisé de NIST indiqué à la section 2 par une chaine 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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**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.*

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# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211208 MSCAL2B | | |
| Standard Name | MSCAL 2B | Type: | Primary |
| Date Prepared | 12/8/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 12/8/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | S2-MEB704403 | | |
| Balance ID: | | | |
| Comments: | Opened 12/08/2021; Expires 12/08/2022 | | |

| 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**

INORGANIC VENTURES™
Refine your results. Redefine your industry.

# Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | 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:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2 (u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

### Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)(u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

**Certified Abundance:**

**IV's Certified Abundance**

| Isotope | Atom % |
|---|---|
| Uranium 238U | 99.8 ± 0.1 |
| Uranium 235U | 0.24 ± 0.05 |

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

### 10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

## 11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

### 11.1 Certification Issue Date

April 21, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

### 11.2 Lot Expiration Date

**- April 21, 2025**

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

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

### 11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

## 12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

**Certificate Approved By:**

Michael Booth
Director, Quality Control

Michael J Booth

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

Paul R Gaines

# Energy Laboratories Inc

# Standard LOG

| | | | |
|---|---|---|---|
| Standard ID: | ME211221 MSCAL 3C | | |
| Standard Name | MSCAL 3C | Type: | Primary |
| Date Prepared | 12/21/2021 | BY: | Stacy R. Hendricks |
| Date Expires: | 12/21/2022 | | |
| Department | ME | Status: | Open |
| Vendor: | Inorganic Ventures | | |
| Lot Number: | S2-MEB700780 | | |
| Balance ID: | | | |
| Comments: | Opened 12/21/21; expires 12/21/22 | | |

| 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**

INORGANIC VENTURES

# CERTIFICATE OF ANALYSIS

## 1.0 ACCREDITATION / REGISTRATION

**INORGANIC VENTURES** is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

## 2.0 PRODUCT DESCRIPTION

| | |
|---|---|
| Product Code: | Multi Analyte Custom Grade Solution |
| Catalog Number: | EL-MSCAL-3C |
| Lot Number: | S2-MEB700780 |
| Matrix: | 3% (v/v) HNO3<br>tr. HF |
| Value / Analyte(s): | 400 µg/mL ea:<br>Silicon,<br>100 µg/mL ea:<br>Tin,<br>Molybdenum,<br>Titanium,<br>Antimony |

1-6-2025

**ID #: 13473**
Opened:_____
Multi Analyte Custom Grade Solution
**Expires: 1/6/2025**
Rec'd: 1/15/2021
Energy Laboratories Inc 1120 So 27th Street
Billings MT 59107

## 3.0 CERTIFIED VALUES AND UNCERTAINTIES

| ANALYTE | CERTIFIED VALUE | ANALYTE | CERTIFIED VALUE |
|---|---|---|---|
| Antimony, Sb | 100.0 ± 0.8 µg/mL | Molybdenum, Mo | 100.0 ± 0.6 µg/mL |
| Silicon, Si | 399.9 ± 3.0 µg/mL | Tin, Sn | 100.0 ± 0.6 µg/mL |
| Titanium, Ti | 100.0 ± 0.7 µg/mL | | |

**Density:** 1.018 g/mL (measured at 20 ± 4 °C)

**Assay Information:**

| ANALYTE | METHOD | NIST SRM# | SRM LOT# |
|---|---|---|---|
| Mo | ICP Assay | 3134 | 130418 |
| Sb | ICP Assay | 3102a | 140911 |
| Si | ICP Assay | 3150 | 130912 |
| Sn | ICP Assay | 3161a | 140917 |
| Ti | ICP Assay | 3162a | 130925 |

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

**Characterization of CRM/RM by Two or More Methods**

**Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:**

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

$X_i$ = mean of Assay Method i with standard uncertainty $u_{char\ i}$

$w_i$ = the weighting factors for each method calculated using the inverse square of the variance:

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

**Characterization of CRM/RM by One Method**

**Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:**

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

$X_a$ = mean of Assay Method A with

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

**CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$**

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

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

$u_{lts}$ = long term stability standard uncertainty (storage)

$u_{ts}$ = transport stability standard uncertainty

## 4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

### 4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

### 4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

### 4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

## 5.0 TRACE METALLIC IMPURITIES (TMI ) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

## 6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

## 7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

### 7.1 Storage and Handling Recommendations

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- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

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

## 8.0 HAZARDOUS INFORMATION

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

## 9.0 HOMOGENEITY

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

## 10.0 QUALITY STANDARD DOCUMENTATION

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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

Michael J Booth

**Certifying Officer:**

Paul Gaines
Chairman / Senior Technical Director

Paul R Gaines

# 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** | | **Base Units** | **Amount Added** |
|---|---|---|---|
| ME220106-CE | Ce Primary Stock | ug/mL | 5 mL |

| **Analytes** | **CAS** | Conc: | **ug/mL** |
|---|---|---|---|