

Certificate of Analysis

ICP-MS Internal Std Mix

Agilent Part Number: 5188-6525
Lot Number: 54-079CRY2

| Analyte | CAS# | Labeled Conc. | Measured Conc. | SRM | Start Mat'l Formula | Start Mat'l Purity | Analyte | CAS# | Labeled Conc. | Measured Conc. | SRM | Start Mat'l Formula | Start Mat'l Purity |
|-----------------|-----------|---------------|----------------|--------|--|--------------------|---------|-----------|---------------|----------------|--------|---|--------------------|
| Bi | 7440-69-9 | 100 µg/mL | 101 µg/mL | 3106* | Bi | 99.99+ | Lu | 7439-94-3 | 100 µg/mL | 99.8 µg/mL | 3130a* | Lu ₂ O ₃ | 99.99+ |
| Ge | 7440-56-4 | 100 µg/mL | 99.8 µg/mL | 3120a* | GeO ₂ | 99.99+ | Rh | 7440-16-6 | 100 µg/mL | 101 µg/mL | 3144* | Rh(NO ₃) ₃ -H ₂ O | 99.99+ |
| In | 7440-74-6 | 100 µg/mL | 101 µg/mL | 3124a* | In | 99.99+ | Sc | 7440-20-2 | 100 µg/mL | 100 µg/mL | 3148a* | Sc ₂ O ₃ | 99.99+ |
| Li ^e | 7439-93-2 | 100 µg/mL | 100 µg/mL | 3129a* | ⁶ Li ₂ CO ₃ | 99.99+ | Tb | 7440-27-9 | 100 µg/mL | 100 µg/mL | 3157a* | Tb ₄ O ₇ | 99.99+ |

* - indicates NIST SRM

† - indicates CRM (when NIST SRM is not available)

Purity grades:

Starting Materials: Shown above

Matrix:

 10% HNO₃: HNO₃ (CAS No. 7697-37-2) high purity grade

Traceability:

This standard has been produced gravimetrically and volumetrically using ISO 9001 quality procedures. Agilent ICP / ICP-MS Spectrometer was used to determine the concentration of the main elements via NIST SRMs shown above, as well as the impurities. Other reference standards used: 53-103CR, 52-230CR, 53-104CR.

Trace Metallic Impurities in the Actual Solution, in µg/L, via Agilent ICP-MS Analysis, results are accurate to ±10%:

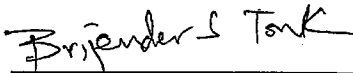
| Element | Conc. | Element | Conc. | Element | Conc. | Element | Conc. | Element | Conc. | Element | Conc. |
|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|
| Ag | 0.2 | Co | <0.2 | Hf | 0.4 | Nb | 0.2 | Ru | 0.3 | Ti | <1 |
| Al | 5 | Cr | <0.9 | Hg | <0.04 | Nd | <0.01 | Sb | 0.3 | Tl | 0.5 |
| As | <6 | Cs | <0.01 | Ho | 0.03 | Ni | <0.9 | Se | <4 | Tm | 0.06 |
| Au | <0.04 | Cu | 1 | Ir | <10 | P | <200 | Si | <200 | U | <0.01 |
| B | 9 | Dy | 0.08 | K | <500 | Pb | 1 | Sm | <0.02 | V | <0.2 |
| Ba | 1 | Er | <0.06 | La | 0.09 | Pd | 0.2 | Sn | <0.6 | W | <0.08 |
| Be | 0.04 | Eu | 0.05 | Mg | 5 | Pr | <0.01 | Sr | <0.7 | Y | 1 |
| Ca | <30 | Fe | 8 | Mn | <0.01 | Pt | 0.1 | Ta | <0.02 | Yb | <0.6 |
| Cd | 0.1 | Ga | 0.08 | Mo | <0.2 | Rb | <0.3 | Te | <0.2 | Zn | <10 |
| Ce | 0.05 | Gd | <0.03 | Na | 10 | Re | 0.1 | Th | 0.4 | Zr | 4 |

Balances are calibrated regularly with weight sets traceable to NIST.

Agilent reference standards are guaranteed stable and accurate to ±0.5% of measured analyte concentration. This uncertainty is at 95% confidence interval, a coverage factor of 2. For these solutions we use the highest purity acids applicable, 18 megohm double deionized water and acid-leached, triple rinsed bottles. All glassware used is class A. This standard was manufactured following the guidelines set forth under ISO 17025 and ISO 17034 regulations.

Date of release: April 15, 2020

Date of expiration: October 31, 2021



 QC Coordinator