Agilent Technologies

# Certificate of Analysis

## ICP-MS Internal Std Mix

**Agilent Part Number:** 5188-6525 **Lot Number:** 59-099CRY2

| 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 | 99.2 µg/mL | 3106* | Bi | 99.99+ | Lu | 7439-94-3 | 100 µg/mL | 99.5 µg/mL | 3130a* | $Lu_2O_3$ | 99.99+ |
| Ge | 7440-56-4 | 100 µg/mL | 99.4 µg/mL | 3120a* | GeO2 | 99.99+ | Rh | 7440-16-6 | 100 µg/mL | 99.5 µg/mL | 3144* | Rh | 99.99+ |
| In | 7440-74-6 | 100 µg/mL | 99.1 µg/mL | 3124a* | In | 99.99+ | Sc | 7440-20-2 | 100 µg/mL | 99.5 µg/mL | 3148a* | $Sc_2O_3$ | 99.99+ |
| $Li^6$ | 7439-93-2 | 100 µg/mL | 99.9 µg/mL | 3129a* | $^6Li_2CO_3$ | 99.99+ | Tb | 7440-27-9 | 100 µg/mL | 100 µg/mL | 3157a* | $Tb_4O_7$ | 99.99+ |

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

**Purity grades:**

Starting Materials: Shown above

Matrix:

10% $HNO_3$: $HNO_3$ (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: 59-046CR, 59-098CR, 58-257CR.

**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 | <0.1 | Co | <0.08 | Hf | 0.4 | Nb | 0.5 | Ru | <0.3 | Ti | <0.01 |
| Al | 4 | Cr | <0.9 | Hg | <0.5 | Nd | <0.05 | Sb | 0.4 | Tl | 0.3 |
| As | <10 | Cs | <0.1 | Ho | 0.02 | Ni | 0.5 | Se | <2 | Tm | 0.05 |
| Au | <0.07 | Cu | 2 | Ir | 4 | P | <100 | Si | 200 | U | 0.4 |
| B | 10 | Dy | 0.07 | K | <200 | Pb | 0.7 | Sm | 0.05 | V | <0.6 |
| Ba | 2 | Er | 0.05 | La | 0.07 | Pd | <0.1 | Sn | 0.5 | W | <0.3 |
| Be | <0.1 | Eu | <0.02 | Mg | 6 | Pr | 0.8 | Sr | <7 | Y | 2 |
| Ca | <80 | Fe | 0.8 | Mn | <0.1 | Pt | <0.1 | Ta | 0.02 | Yb | <0.7 |
| Cd | <0.5 | Ga | <0.1 | Mo | 0.9 | Rb | <0.08 | Te | <0.6 | Zn | 4 |
| Ce | 0.08 | Gd | <0.04 | Na | <10 | Re | <0.04 | Th | 0.2 | Zr | 10 |

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:** October 31, 2022

**Date of expiration:** April 30, 2024

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QC Coordinator

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