

Certificate of Analysis

Tuning Solution for ICP-MS

Agilent Part Number: 5185-5959
Lot Number: 26-194GSX2

| 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 |
|---------|-----------|---------------|----------------|--------|----------------------------------------------------------------------|--------------------|---------|-----------|---------------|----------------|--------|-------------------------------|--------------------|
| Ce | 7440-45-1 | 1.00 µg/L | 0.990 µg/L | 3110* | Ce ₂ (CO ₃) ₃ ·x(H ₂ O) | 99.99+ | Mg | 7439-95-4 | 1.00 µg/L | 0.995 µg/L | 3131a* | Mg | 99.99+ |
| Co | 7440-48-4 | 1.00 µg/L | 1.00 µg/L | 3113* | Co | 99.99+ | Tl | 7440-28-0 | 1.00 µg/L | 1.00 µg/L | 3158* | TlNO ₃ | 99.99+ |
| Li | 7439-93-2 | 1.00 µg/L | 1.00 µg/L | 3129a* | Li ₂ CO ₃ | 99.99+ | Y | 7440-65-5 | 1.00 µg/L | 0.992 µg/L | 3167a* | Y ₂ O ₃ | 99.99+ |

* - indicates NIST SRM

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

Purity grades:

Starting Materials: Shown above

Matrix:

 2wt% 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: all 8, 26-147GS, 26-128GS.

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

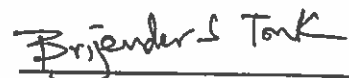
| Element | Conc. | Element | Conc. | Element | Conc. | Element | Conc. | Element | Conc. | Element | Conc. |
|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|
| Ag | <0.01 | Ce | <0.01 | Ho | <0.01 | Nd | <0.01 | Ru | <0.01 | Te | <0.01 |
| Al | <0.03 | Cu | <0.01 | In | <0.01 | Ni | <0.01 | Sb | <0.01 | Th | <0.01 |
| As | <0.01 | Dy | <0.01 | Ir | <0.01 | P | <10 | Sc | <0.01 | Ti | <0.01 |
| Au | <0.01 | Er | <0.01 | K | <0.1 | Pb | <0.01 | Se | <0.01 | Tm | <0.01 |
| B | <0.01 | Eu | <0.01 | La | <0.01 | Pd | <0.01 | Sj | <5 | U | <0.01 |
| Ba | <0.01 | Fe | <0.1 | Lu | <0.01 | Pr | <0.01 | Sm | <0.01 | V | <0.01 |
| Be | <0.01 | Ga | <0.01 | Mn | <0.01 | Pt | <0.01 | Sn | <0.01 | W | <0.01 |
| Bi | <0.01 | Gd | <0.01 | Mo | <0.01 | Rb | <0.01 | Sr | <0.01 | Yb | <0.01 |
| Ca | <0.1 | Ge | <0.01 | Na | <0.03 | Ra | <0.01 | Ta | <0.01 | Zn | <0.03 |
| Cd | <0.01 | Hf | <0.01 | Nb | <0.01 | Rh | <0.01 | Tb | <0.01 | Zr | <0.01 |
| Cr | <0.01 | Hg | <0.01 | | | | | | | | |

Balances are calibrated regularly with weight sets traceable to NIST.

Agilent reference standards are guaranteed stable and accurate to ±10% 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 Guide 34 regulations.

Date of release: April 15, 2018

Date of expiration: April 30, 2019



 QC Coordinator