

# Certificate of Analysis

## ICP-MS Tuning Solution 10 ppm 100mL

**Agilent Part Number: 5190-0465**
**Lot Number: 57-203CRY2**

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	10.0 µg/mL	9.93 µg/mL	3110*	Ce <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub> ·x(H <sub>2</sub> O)	99.99+	Mg	7439-95-4	10.0 µg/mL	10.1 µg/mL	3131a*	Mg	99.99+
Co	7440-48-4	10.0 µg/mL	10.1 µg/mL	3113*	Co	99.99+	Tl	7440-28-0	10.0 µg/mL	10.0 µg/mL	3158*	TlNO <sub>3</sub>	99.99+
Li	7439-93-2	10.0 µg/mL	9.94 µg/mL	3129a*	Li <sub>2</sub> CO <sub>3</sub>	99.99+	Y	7440-65-5	10.0 µg/mL	9.92 µg/mL	3167a*	Y(NO <sub>3</sub> ) <sub>3</sub> ·6H <sub>2</sub> O	99.99+

\* - indicates NIST SRM

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

**Purity grades:**

Starting Materials: Shown above

Matrix:

 2% HNO<sub>3</sub>: HNO<sub>3</sub> (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: 57-037CR, 56-103CR.

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

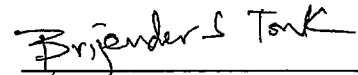
Element	Conc.	Element	Conc.	Element	Conc.	Element	Conc.	Element	Conc.	Element	Conc.
Ag	<0.2	Cs	<0.01	Ho	0.05	Nd	<0.03	Ru	<0.07	Te	<0.09
Al	1	Cu	<0.08	In	0.02	Ni	0.2	Sb	<0.04	Th	<0.01
As	<1	Dy	0.1	Ir	<0.02	P	<100	Sc	<0.2	Ti	<0.3
Au	<0.09	Er	<0.02	K	1	Pb	0.02	Se	<0.9	Tm	<0.01
B	3	Eu	<0.01	La	0.2	Pd	<0.05	Si	<100	U	<0.01
Ba	0.09	Fe	<5	Lu	0.03	Pr	0.2	Sm	<0.04	V	<0.2
Be	<0.03	Ga	0.8	Mn	0.3	Pt	<0.02	Sn	0.4	W	<0.07
Bi	0.02	Gd	0.4	Mo	<0.06	Rb	0.01	Sr	<0.2	Yb	<0.01
Ca	7	Ge	<0.6	Na	8	Re	<0.02	Ta	<0.01	Zn	2
Cd	<0.2	Hf	<0.01	Nb	<0.07	Rh	<0.04	Tb	0.6	Zr	<0.2
Cr	<0.6	Hg	<0.2								

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:** February 28, 2022

**Date of expiration:** August 31, 2023


  
 QC Coordinator