



Certificate of Analysis

ICP-MS Tuning Solution 10 ppm 100mL

Agilent Part Number: 5190-0465

Lot Number: 59-010CRY2

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	10.1 µg/mL	3110*	Ce ₂ (CO ₃) ₃ ·x(H ₂ 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	10.0 µg/mL	3113*	Co	99.99+	Tl	7440-28-0	10.0 µg/mL	10.1 µg/mL	3158*	TlNO ₃	99.99+
Li	7439-93-2	10.0 µg/mL	10.1 µg/mL	3129a*	Li ₂ CO ₃	99.99+	Y	7440-65-5	10.0 µg/mL	10.1 µg/mL	3167a*	Y(NO ₃) ₃ ·6H ₂ O	99.99+

* - indicates NIST SRM

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

Purity grades:

Starting Materials: Shown above

Matrix:

2% 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: 57-203CR, 58-192CR.

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	<0.7	Cs	0.2	Hb	0.04	Nd	<0.01	Ru	<0.1	Te	<0.01
Al	<3	Cu	<0.3	In	<0.01	Ni	<0.6	Sb	<0.05	Th	<0.02
As	0.6	Dy	0.1	Ir	<0.04	P	<100	Sc	<0.2	Ti	<0.01
Au	<0.06	Er	<0.01	K	<30	Pb	<0.1	Se	<5	Tm	<0.01
B	<2	Eu	0.05	La	0.07	Pd	0.3	Si	<100	U	<0.01
Ba	<0.2	Fe	<3	Lu	<0.02	Pr	0.2	Sm	<0.06	V	<0.01
Be	0.03	Ga	0.6	Mn	<0.9	Pt	<0.01	Sr	<0.03	W	<0.06
Bi	<0.01	Gd	0.4	Mo	<0.2	Rb	0.07	Sr	<0.1	Yb	<0.04
Ca	10	Ge	<0.01	Na	9	Re	<0.02	Ta	<0.01	Zn	2
Cd	<0.01	Hf	0.02	Nb	<0.02	Rh	<0.02	Tb	1	Zr	<0.3
Cr	0.9	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: October 15, 2022

Date of expiration: April 30, 2024

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