

Certificate of Analysis

ICP-MS Stock Tuning Solution (100 mL)

Agilent Part Number: 5188-6564

Lot Number: 5-180MKBY2

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	9.99 µg/mL	3110*	Ce ₂ (CO ₃) ₃ ·x(H ₂ O)	99.99+	Tl	7440-28-0	10.0 µg/mL	9.97 µg/mL	3158*	TlNO ₃	99.99+
Co	7440-48-4	10.0 µg/mL	9.99 µg/mL	3113*	Co	99.99+	Y	7440-65-5	10.0 µg/mL	10.1 µg/mL	3167a*	Y ₂ O ₃	99.99+
Li	7439-93-2	10.0 µg/mL	10.0 µg/mL	3129a*	LiCO ₃	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: 4-57MKB, 4-58MKB, 4-123MKB, 4-124MKB.

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	Ce	<0.09	Ho	<0.01	Nd	<0.01	Ru	<0.06	Te	<0.2
Al	0.3	Cu	<0.07	In	<0.03	Ni	0.1	Sb	<0.05	Th	<0.01
As	0.2	Dy	0.01	Ir	<0.05	P	<100	Sc	<0.07	Ti	<0.01
Au	<0.06	Er	<0.01	K	<200	Pb	0.08	Se	<4	Tm	<0.01
B	<0.2	Eu	<0.01	La	<0.01	Pd	<0.03	Si	<100	U	<0.02
Ba	0.05	Fe	1	Lu	<0.01	Pr	0.2	Sm	<0.01	V	<0.1
Be	<0.1	Ga	0.5	Mg	0.2	Pt	<0.08	Sn	<0.02	W	<0.2
Bi	<0.01	Gd	0.1	Mn	0.1	Rb	<0.06	Sr	<0.03	Yb	<0.01
Ce	3	Ge	<0.09	Mo	<0.04	Re	<0.01	Ta	<0.02	Zn	0.2
Cd	<0.01	Hf	<0.01	Na	3	Rh	<0.2	Tb	1	Zr	<0.02
Cr	<0.3	Hg	<0.1	Nb	<0.03						

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 Guide 34 regulations.

Date of release: May 15, 2018

Date of expiration: November 30, 2019

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