



Certificate of Analysis

ICP-MS Stock Tuning Solution (100mL)

Agilent Part Number: 5188-6564

Lot Number: 21-113VYY2

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	9.95 µg/mL	3110*	Ce(NO ₃) ₂ ·6H 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	9.98 µg/mL	3113*	Co	99.99+	Y	7440-65-5	10.0 µg/mL	9.95 µg/mL	3167a*	Y ₂ O ₃	99.99+
Li	7439-93-2	10.0 µg/mL	9.89 µg/mL	3129a*	Li ₂ CO 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. 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: 17-263VY, 19-245VY, 20-122VY, 17-264VY.

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

Element	Conc.	Element	Conc.	Element	Conc.	Element	Conc.	Element	Conc.	Element	Conc.
Ag	<0.04	Cs	<0.01	Ho	<0.01	Nd	<0.01	Ru	<0.04	Te	<0.2
Al	0.5	Cu	<0.1	In	<0.01	Ni	<0.9	Sb	<0.03	Th	<0.01
As	1	Dy	<0.01	Ir	<0.03	P	<100	Sc	<0.2	Ti	0.09
Au	<0.1	Er	<0.01	K	<0.9	Pb	<0.03	Se	<0.7	Tm	<0.01
B	<8	Eu	<0.01	La	<0.01	Pd	<0.03	Si	<100	U	<0.01
Ba	<0.09	Fe	<0.2	Lu	<0.01	Pr	0.1	Sm	<0.01	V	<0.1
Be	<0.04	Ga	<0.5	Mg	<0.1	Pt	<0.03	Sr	<0.06	W	<0.2
Bi	<0.02	Gd	<0.05	Mn	<0.3	Rb	<0.02	Sr	<0.05	Yb	<0.01
Ca	1	Ge	<0.4	Mo	<0.09	Re	<0.01	Ta	<0.07	Zn	<2
Cd	<0.04	Hf	<0.01	Na	<2	Rh	<0.01	Tb	<0.1	Zr	<0.1
Cr	<0.5	Hg	<0.2	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. 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.

Date of release: November 15, 2014

Date of expiration: May 31, 2016

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