



Certificate of Analysis

ICP-MS Tuning Solution 10 ppm 100mL

Agilent Part Number: 5190-0465

Lot Number: 20-11VYY2

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 mg/L	9.89 mg/L	3110*	Ce(NO ₃) ₆ · 6H ₂ O	99.99+	Mg	7439-95-4	10.0 mg/L	9.89 mg/L	3131a*	Mg	99.99+
Co	7440-48-4	10.0 mg/L	9.93 mg/L	3113*	Co	99.99+	Tl	7440-28-0	10.0 mg/L	9.87 mg/L	3158*	TlNO ₃	99.99+
Li	7439-93-2	10.0 mg/L	10.0 mg/L	3129a*	Li ₂ CO ₃	99.99+	Y	7440-65-5	10.0 mg/L	9.88 mg/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:

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: 13-165VY.

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	<0.1	Cs	<0.08	Ho	<0.01	Nd	<0.03	Ru	<0.01	Te	<0.6
Al	<1	Cu	<0.09	In	<0.05	Ni	<0.2	Sb	<0.1	Th	<0.04
As	<20	Dy	<0.01	Ir	<0.03	P	<100	Sc	<0.5	Tl	<0.2
Au	<0.02	Er	<0.01	K	<0.3	Pb	<0.02	Se	<0.3	Tm	<0.01
B	<0.3	Eu	<0.01	La	0.4	Pd	<0.1	Si	<100	U	<0.01
Ba	<0.5	Fe	<1	Lu	<0.02	Pr	0.1	Sm	<0.01	V	<0.1
Be	<0.4	Ga	<1	Mn	0.3	Pt	<0.05	Sn	<0.1	W	<0.2
Bi	<0.03	Gd	<1	Mo	<0.08	Rb	<0.1	Sr	<0.09	Yb	<0.01
Ca	4	Ge	<0.2	Na	1	Re	<0.04	Ta	<0.01	Zn	<0.5
Cd	<0.09	Hf	<0.02	Nb	<0.04	Rh	<0.01	Tb	<0.2	Zr	<0.3
Cr	<0.06	Hg	<0.3								

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: June 15, 2013

Date of expiration: December 31, 2014

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