Agilent Technologies

Certificate of Analysis

ICP-MS Tuning Solution 10 ppm 100mL

Agilent Part Number: 5190-0465 **Lot Number:** 23-98VYY2

Analyte	CAS#	Labeled Conc.	Measured Conc.	SRM	Start Matl Formula	Start Matl Purity	Analyte	CAS#	Labeled Conc.	Measured Conc.	SRM	Start Matl Formula	Start Matl Purity
Ce	7440-45-1	10.0 µg/mL	10.1 µg/mL	3110*	$Ce(NO_3)_3 \cdot 6H_2O$	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	9.94 µg/mL	3129a*	Li_2CO_3	99.99+	Y	7440-65-5	10.0 µg/mL	10.0 µg/mL	3167a*	Y_2O_3	99.99+

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

Purity grades:

Starting Materials: Shown above

Matrix:

2% HNO_3: HNO_3 (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: 20-11VY.

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	<3	Cs	<0.03	Ho	<0.03	Nd	<0.01	Ru	<0.3	Te	<0.4
Al	1	Cu	<0.2	In	<0.04	Ni	<0.3	Sb	<0.2	Th	<0.09
As	<4	Dy	<0.01	Ir	<0.3	P	<100	Sc	<0.6	Ti	<0.1
Au	<0.3	Er	<0.01	K	<10	Pb	<0.06	Se	<9	Tm	<0.01
B	<2	Eu	<0.01	La	<0.04	Pd	<1	Si	<100	U	<0.03
Ba	<0.1	Fe	5	Lu	<0.01	Pr	0.1	Sm	<0.05	V	<0.1
Be	<0.5	Ga	<0.5	Mn	<1	Pt	<0.04	Sn	<0.5	W	<0.3
Bi	<0.07	Gd	0.1	Mo	<1	Rb	0.07	Sr	<0.1	Yb	<0.01
Ca	3	Ge	<3	Na	1	Re	<0.02	Ta	<0.3	Zn	0.7
Cd	<0.2	Hf	<0.04	Nb	<0.4	Rh	<0.3	Tb	0.3	Zr	<0.1
Cr	<0.3	Hg	<0.4								

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, 2016

Date of expiration: November 30, 2017

Brijender S Tank

QC Coordinator

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