Agilent Technologies

Certificate of Analysis

ICP-MS Tuning Solution 10 ppm 100mL

Agilent Part Number: 5190-0465 **Lot Number:** 55-190CRY2

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*	$Ce_2(CO_3)_3.x(H_2O)$	99.99+	Mg	7439-95-4	10.0 µg/mL	9.99 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	9.97 µg/mL	3158*	$TlNO_3$	99.99+
Li	7439-93-2	10.0 µg/mL	10.0 µg/mL	3129a*	Li_2CO_3	99.99+	Y	7440-65-5	10.0 µg/mL	10.1 µg/mL	3167a*	$Y(NO_3)_3$-$6H_2O$	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: 2-60YJ, 1-135YJ, 1-201YJ.

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	0.5	Cs	<0.02	Ho	0.05	Nd	0.1	Ru	0.06	Te	<0.4
Al	0.3	Cu	<0.07	In	<0.02	Ni	<0.2	Sb	<0.05	Th	<0.02
As	1	Dy	0.1	Ir	<0.03	P	<100	Sc	<0.2	Ti	<0.08
Au	<0.08	Er	<0.01	K	1	Pb	0.04	Se	<4	Tm	<0.01
B	<1	Eu	<0.01	La	4	Pd	<0.01	Si	<100	U	<0.01
Ba	0.07	Fe	0.4	Lu	<0.01	Pr	5	Sm	<0.04	V	<0.03
Be	<0.08	Ga	<0.4	Mn	0.03	Pt	<0.07	Sn	<0.02	W	<0.02
Bi	<0.01	Gd	<0.8	Mo	<0.02	Rb	0.03	Sr	<0.06	Yb	<0.01
Ca	3	Ge	0.1	Na	2	Re	<0.03	Ta	<0.06	Zn	0.4
Cd	<0.05	Hf	<0.01	Nb	<0.03	Rh	<0.01	Tb	0.6	Zr	<0.06
Cr	<0.3	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: April 30, 2021

Date of expiration: October 31, 2022

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QC Coordinator

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