Agilent Technologies

Certificate of Analysis

ICP-MS Stock Tuning Solution (100 mL)

Agilent Part Number: 5188-6564 **Lot Number:** 2-62YJY2

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+	Tl	7440-28-0	10.0 µg/mL	10.0 µg/mL	3158*	$TlNO_3$	99.99+
Co	7440-48-4	10.0 µg/mL	10.1 µg/mL	3113*	Co	99.99+	Y	7440-65-5	10.0 µg/mL	10.1 µg/mL	3167a*	$Y(NO_3)_3$-$6H_2O$	99.99+
Li	7439-93-2	10.0 µg/mL	10.0 µg/mL	3129a*	Li_2CO_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: 51-237CR, 1-211YJ, 2-61YJ, 1-210YJ.

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	<0.02	Cs	<0.02	Ho	0.04	Nd	0.02	Ru	<0.2	Te	<0.2
Al	1	Cu	<0.2	In	<0.01	Ni	0.2	Sb	<0.05	Th	<0.01
As	<0.3	Dy	0.09	Ir	<0.02	P	<100	Sc	<0.05	Ti	<0.08
Au	<0.2	Er	<0.01	K	1	Pb	<0.02	Se	1	Tm	<0.01
B	0.2	Eu	<0.01	La	0.05	Pd	<0.2	Si	<100	U	<0.01
Ba	0.05	Fe	1	Lu	<0.01	Pr	0.2	Sm	0.02	V	<0.02
Be	<0.04	Ga	<0.5	Mg	0.2	Pt	<0.2	Sn	<0.02	W	<0.2
Bi	<0.02	Gd	0.2	Mn	0.2	Rb	<0.04	Sr	<0.07	Yb	<0.01
Ca	7	Ge	<0.3	Mo	<0.2	Re	<0.01	Ta	<0.1	Zn	0.8
Cd	<0.02	Hf	<0.01	Na	0.6	Rh	<0.05	Tb	<0.03	Zr	0.03
Cr	<0.3	Hg	<0.2	Nb	<0.04						

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: September 15, 2019

Date of expiration: March 31, 2021

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QC Coordinator

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