

Certificate of Analysis

Multi-Element Calibration Standard-3

Agilent Part Number: 8500-6948

Lot Number: 3-87MKBY2

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
Au	7440-57-5	10.0 µg/mL	9.97 µg/mL	3121*	Au	99.99+	Rh	7440-18-6	10.0 µg/mL	10.0 µg/mL	3144*	RhCl ₃ · 3H ₂ O	99.99+
Hf	7440-58-8	10.0 µg/mL	9.92 µg/mL	3122*	HfOCl ₄	99.99+	Ru	7440-18-8	10.0 µg/mL	9.95 µg/mL	0512A†	RuCl ₃ · 3H ₂ O	99.99+
Ir	7439-88-5	10.0 µg/mL	9.95 µg/mL	1112A†	IrCl ₃ · 3H ₂ O	99.99+	Sb	7440-38-0	10.0 µg/mL	10.1 µg/mL	3102a*	Sb ₂ O ₃	99.99+
Pd	7440-05-3	10.0 µg/mL	9.99 µg/mL	3138*	Pd	99.99+	Sn	7440-31-5	10.0 µg/mL	10.0 µg/mL	3181a*	Sn	99.99+
Pt	7440-06-4	10.0 µg/mL	9.97 µg/mL	3140*	Pt	99.99+	Te	13494-80-9	10.0 µg/mL	9.95 µg/mL	3158*	TeO ₂	99.99+

* - Indicates NIST SRM

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

Purity grades:

Starting Materials: Shown above

Matrix:

10% HCl: HCl (CAS No. 7647-01-0) high purity grade

1% HNO₃: HNO₃ (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: CL12-155YP, CL1-127MKB, 40-227CR.

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	0.4	Co	<0.1	Ge	<0.5	Mo	<0.3	Sc	<0.3	Tl	<0.5
Al	3	Cr	<0.5	Hg	<0.3	Na	8	Se	<3	Tm	<0.01
As	<5	Cs	0.09	Ho	<0.01	Nb	<0.1	Si	<100	U	<0.01
B	<0.2	Cu	<0.2	In	<4	Nd	0.2	Sm	<0.03	V	<7
Ba	<0.07	Dy	<0.05	K	<100	Ni	3	Sr	0.1	W	<0.2
Be	<0.2	Er	<0.02	La	<0.5	P	<100	Ta	<0.2	Y	0.5
Bi	<0.5	Eu	<0.01	Li	<0.2	Pb	0.5	Tb	0.01	Yb	<0.01
Ca	<0.5	Fe	7	Lu	<0.01	Pr	0.02	Th	<0.02	Zn	0.3
Cd	<0.3	Ga	0.2	Mg	1	Rb	<0.02	Ti	<0.1	Zr	10
Ce	0.03	Gd	<0.05	Mn	0.4	Ra	<0.06				

Balances are calibrated regularly with weight sets traceable to NIST.

Density: 1.022 g/mL @ 20°C

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: January 31, 2017

Date of expiration: July 31, 2018

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