

# Certificate of Analysis

## Multi-element Calibration Standard 2A

**Agilent Part Number: 8500-6940**
**Lot Number: 2-134MKBY2**

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
Ag	7440-22-4	10.0 µg/mL	9.94 µg/mL	3151*	AgNO <sub>3</sub>	99.99+	Li	7439-93-2	10.0 µg/mL	9.91 µg/mL	3129a*	Li <sub>2</sub> CO <sub>3</sub>	99.99+
Al	7429-90-5	10.0 µg/mL	9.88 µg/mL	3101a*	Al	99.99+	Mg	7439-95-4	10.0 µg/mL	9.93 µg/mL	3131a*	Mg(NO <sub>3</sub> ) <sub>2</sub> · 6H <sub>2</sub> O	99.99+
As	7440-38-2	10.0 µg/mL	9.95 µg/mL	3103a*	As	99.99+	Mn	7439-96-5	10.0 µg/mL	9.92 µg/mL	3132*	Mn	99.99+
Ba	7440-39-3	10.0 µg/mL	9.96 µg/mL	3104a*	BaCO <sub>3</sub>	99.99+	Na	7440-23-5	10.0 µg/mL	9.90 µg/mL	3152a*	NaHCO <sub>3</sub>	99.99+
Be	7440-41-7	10.0 µg/mL	9.99 µg/mL	3105a*	Be <sub>2</sub> O(CH <sub>3</sub> COO) <sub>2</sub>	99.99+	Ni	7440-02-0	10.0 µg/mL	9.93 µg/mL	3136*	Ni	99.99+
Ca	7440-70-2	10.0 µg/mL	9.97 µg/mL	3109a*	CaCO <sub>3</sub>	99.99+	Pb	7439-92-1	10.0 µg/mL	9.96 µg/mL	3128*	PbO	99.99+
Cd	7440-43-8	10.0 µg/mL	9.92 µg/mL	3108*	Cd	99.99+	Rb	7440-17-7	10.0 µg/mL	9.85 µg/mL	3145a*	RbNO <sub>3</sub>	99.99+
Co	7440-48-4	10.0 µg/mL	9.91 µg/mL	3113*	Co	99.99+	Se	7782-49-2	10.0 µg/mL	10.0 µg/mL	3149*	Se	99.99+
Cr	7440-47-3	10.0 µg/mL	9.93 µg/mL	3112a*	Cr(NO <sub>3</sub> ) <sub>3</sub> · 9H <sub>2</sub> O	99.99+	Sr	7440-24-8	10.0 µg/mL	9.97 µg/mL	3153a*	SrCO <sub>3</sub>	99.99+
Cu	7440-48-2	10.0 µg/mL	10.0 µg/mL	3111a*	CuNO <sub>3</sub>	99.99+	Tl	7440-28-0	10.0 µg/mL	9.92 µg/mL	3158*	TlNO <sub>3</sub>	99.99+
Cu	7440-50-8	10.0 µg/mL	9.88 µg/mL	3114*	Cu	99.99+	U	7440-51-1	10.0 µg/mL	9.91 µg/mL	3164*	UO <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> · 6H <sub>2</sub> O	99.99+
Fe	7439-89-6	10.0 µg/mL	9.95 µg/mL	3126a*	Fe	99.99+	V	7440-62-2	10.0 µg/mL	9.91 µg/mL	3165*	NH <sub>4</sub> VO <sub>3</sub>	99.99+
Ga	7440-55-3	10.0 µg/mL	9.90 µg/mL	3119a*	Ga	99.99+	Zn	7440-69-6	10.0 µg/mL	9.92 µg/mL	3168a*	Zn	99.99+
K	7440-09-7	10.0 µg/mL	9.89 µg/mL	3141a*	KNO <sub>3</sub>	99.99+							

\* - indicates NIST SRM

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

**Purity grades:**

Starting Materials: Shown above

Matrix:

 5% HNO<sub>3</sub>: HNO<sub>3</sub> (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: CL12-113YP, CL1-78MKB.

**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.
Au	<0.04	Gd	0.03	La	0.09	Pr	<0.01	Si	<100	Ti	<9
B	<1	Ge	<0.8	Lu	<0.01	Pt	<0.09	Sm	1	Tm	0.04
Bi	0.2	Hf	<0.01	Mo	<0.3	Re	<0.03	Sn	<0.3	W	<1
Ce	0.08	Hg	<0.05	Nb	<0.2	Rh	0.8	Ta	<0.2	Y	0.2
Dy	0.2	Ho	<0.01	Nd	<0.03	Ru	0.5	Tb	<0.01	Yb	<0.01
Er	<0.01	In	<0.02	P	<100	Sb	<0.6	Te	<0.3	Zr	<0.1
Eu	0.7	Ir	<0.06	Pd	<5	Sc	<0.2	Th	<0.05		

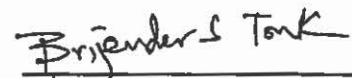
Balances are calibrated regularly with weight sets traceable to NIST.

Density: 1.025 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: October 31, 2016

Date of expiration: April 30, 2018


  
 QC Coordinator