

Certificate of Analysis

Initial Calibration Verification Standard

Agilent Part Number: 5183-4682
Lot Number: 1-89MKBY2

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
Ca	7440-70-2	1000 µg/mL	993 µg/mL	3109a*	CaCO ₃	99.99+	Cr	7440-47-3	10.0 µg/mL	10.0 µg/mL	3112a*	Cr(NO ₃) ₃ ·9H ₂ O	99.99+
Fe	7439-89-6	1000 µg/mL	997 µg/mL	3126a*	Fe	99.99+	Cu	7440-50-8	10.0 µg/mL	9.92 µg/mL	3114*	Cu	99.99+
K	7440-09-7	1000 µg/mL	998 µg/mL	3141a*	KNO ₃	99.99+	Mn	7439-96-5	10.0 µg/mL	10.0 µg/mL	3132*	Mn	99.99+
Mg	7439-95-4	1000 µg/mL	1005 µg/mL	3131a*	Mg	99.99+	Mo	7439-98-7	10.0 µg/mL	10.0 µg/mL	3134*	MoO ₃	99.99+
Na	7440-23-5	1000 µg/mL	999 µg/mL	3152a*	Na ₂ CO ₃	99.99+	Ni	7440-02-0	10.0 µg/mL	9.98 µg/mL	3136*	Ni	99.99+
Sr	7440-24-6	100 µg/mL	98.9 µg/mL	3153a*	SrCO ₃	99.99+	Pb	7439-92-1	10.0 µg/mL	10.0 µg/mL	3128*	PbO	99.99+
Ag	7440-22-4	10.0 µg/mL	9.99 µg/mL	3151*	Ag	99.99+	Sb	7440-36-0	10.0 µg/mL	9.97 µg/mL	3102a*	Sb	99.99+
Al	7429-90-5	10.0 µg/mL	9.99 µg/mL	3101a*	Al	99.99+	Se	7782-49-2	10.0 µg/mL	9.98 µg/mL	3149*	Se	99.99+
As	7440-38-2	10.0 µg/mL	10.0 µg/mL	3103a*	As	99.99+	Th	7440-29-1	10.0 µg/mL	10.0 µg/mL	3159*	Th(NO ₃) ₄ ·4H ₂ O	99.99+
Ba	7440-39-3	10.0 µg/mL	10.0 µg/mL	3104a*	BaCO ₃	99.99+	Tl	7440-28-0	10.0 µg/mL	10.0 µg/mL	3158*	TlNO ₃	99.99+
Be	7440-41-7	10.0 µg/mL	10.0 µg/mL	3105a*	Be ₂ O(CH ₃ COO) ₂	99.99+	U	7440-61-1	10.0 µg/mL	9.99 µg/mL	3164*	UO ₂ (NO ₃) ₂ ·6H ₂ O	99.99+
Cd	7440-43-9	10.0 µg/mL	10.0 µg/mL	3108*	Cd	99.99+	V	7440-62-2	10.0 µg/mL	10.1 µg/mL	3165*	NH ₄ VO ₃	99.99+
Co	7440-48-4	10.0 µg/mL	10.0 µg/mL	3113*	Co	99.99+	Zn	7440-66-6	10.0 µg/mL	9.98 µg/mL	3168a*	Zn	99.99+

* - indicates NIST SRM

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

Purity grades:

Starting Materials: Shown above

Matrix:

 5% HNO₃: HNO₃ (CAS No. 7697-37-2) high purity grade

Tr. Tart. Acid: Tart. Acid (CAS No. 87-69-4) 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: CL10-72YP, CL2-210YP.

Trace Metallic Impurities in the Actual Solution, in µg/L, via Agilent ICP-MS Analysis, results are accurate to ±10%:

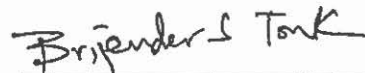
Element	Conc.	Element	Conc.	Element	Conc.	Element	Conc.	Element	Conc.	Element	Conc.
Au	0.3	Eu	<0.1	In	0.2	P	<1000	Ru	<0.8	Ta	<5
B	<10	Ga	<1	Ir	<0.8	Pd	<30	Sc	<4	Ti	<10
Bi	<0.6	Gd	<0.2	La	2	Pr	0.1	Si	<500	Tm	0.02
Ce	2	Ge	<1	Li	<3	Pt	<0.3	Sm	<1	W	<0.9
Cs	<0.3	Hf	<0.09	Lu	0.02	Rb	50	Sn	<0.2	Y	0.6
Dy	<0.2	Hg	<1	Nb	<0.8	Re	<0.2	Ta	<0.3	Yb	<0.1
Er	<0.01	Ho	<0.06	Nd	<0.2	Rh	2	Tb	0.08	Zr	<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. 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.

Date of release: January 15, 2016

Date of expiration: July 31, 2017



 QC Coordinator