Agilent Technologies

Certificate of Analysis

Multi-Element Calibration Standard-4

Agilent Part Number: 8500-6942 **Lot Number:** 1-90MKBY2

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
B	7440-42-8	10.0 µg/mL	9.96 µg/mL	3107*	$(NH_4)_2B_8O_{13} \cdot 4H_2O$	99.99+	S	7783-20-2	10.0 µg/mL	10.1 µg/mL	3154*	$(NH_4)_2SO_4$	99.99+
Ge	7440-56-4	10.0 µg/mL	10.0 µg/mL	3120a*	$(NH_4)_2GeF_6$	99.99+	Si	7440-21-3	10.0 µg/mL	10.1 µg/mL	3150*	$(NH_4)_2SiF_6$	99.99+
Mo	7439-98-7	10.0 µg/mL	9.98 µg/mL	3134*	MoO_3	99.99+	Ta	7440-25-7	10.0 µg/mL	10.0 µg/mL	3155*	$(NH_4)TaF_6$	99.99+
Nb	7440-03-1	10.0 µg/mL	10.0 µg/mL	3137*	Nb_2O_5	99.99+	Ti	7440-32-6	10.0 µg/mL	9.99 µg/mL	3162a*	$(NH_4)_2TiF_6$	99.99+
P	7723-14-0	10.0 µg/mL	9.96 µg/mL	3139a*	$(NH_4)H_2PO_4$	99.99+	W	7440-33-7	10.0 µg/mL	9.93 µg/mL	3163*	WO_3	99.99+
Re	7440-15-5	10.0 µg/mL	10.1 µg/mL	3143*	$(NH_4)ReO_4$	99.99+	Zr	7440-67-7	10.0 µg/mL	9.89 µg/mL	3169*	$ZrO(NO_3)_2 \cdot H_2O$	99.99+

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

Purity grades:

Starting Materials: Shown above
Matrix:
0.2% HF: HF (CAS No. 7664-39-3) high purity grade
Tr. 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: CL6-173YP, CL12-86YP.

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	<2	Co	<0.2	Hf	0.5	Mn	<0.2	Rh	<0.1	Te	<0.6
Al	30	Cr	0.7	Hg	<1	Na	1	Ru	<0.1	Th	0.3
As	<0.9	Cs	0.1	Ho	0.02	Nd	<0.04	Sb	<0.2	Tl	0.4
Au	<10	Cu	<20	In	<0.06	Ni	<0.3	Sc	<5	Tm	<0.02
Ba	0.2	Dy	<0.01	Ir	<0.08	Pb	3	Se	<40	U	<0.01
Be	<0.2	Er	<0.01	K	4	Pd	<2	Sm	<0.01	V	0.2
Bi	<0.02	Eu	<0.01	La	<0.02	Pr	0.05	Sn	<0.3	Y	0.08
Ca	4	Fe	7	Li	<0.1	Pt	<0.06	Sr	0.2	Yb	<0.01
Cd	<3	Ga	<0.2	Lu	<0.01	Rb	<0.2	Tb	<0.01	Zn	3
Ce	0.04	Gd	<0.03	Mg	<0.5						

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

Brijender S Tonk
QC Coordinator

Visit Agilent on the world wide web: www.agilent.com/chem/supplies