

# Certificate of Analysis

## 7500 Series PA Tuning 1

Agilent Part Number: 5188-6524

Lot Number: 3-43MKBY2

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
As	7440-38-2	20.0 µg/mL	20.1 µg/mL	3103a*	As	99.99+	In	7440-74-6	5.00 µg/mL	4.93 µg/mL	3124a*	In	99.99+
Be	7440-41-7	20.0 µg/mL	20.2 µg/mL	3105a*	Be <sub>2</sub> O(CH <sub>3</sub> COO) <sub>2</sub>	99.99+	Li*	7439-93-2	5.00 µg/mL	5.02 µg/mL	3129a*	Li <sub>2</sub> CO <sub>3</sub>	99.99+
Cd	7440-43-9	20.0 µg/mL	19.8 µg/mL	3108*	Cd	99.99+	Lu	7439-94-3	5.00 µg/mL	4.93 µg/mL	3130a*	Lu <sub>2</sub> O <sub>3</sub>	99.99+
Zn	7440-66-6	20.0 µg/mL	19.8 µg/mL	3168a*	Zn	99.99+	Mn	7439-96-5	5.00 µg/mL	4.99 µg/mL	3132*	Mn	99.99+
Mg	7439-95-4	10.0 µg/mL	10.2 µg/mL	3131a*	Mg	99.99+	Na	7440-23-6	5.00 µg/mL	5.03 µg/mL	3152a*	NaHCO <sub>3</sub>	99.99+
Ni	7440-02-0	10.0 µg/mL	9.99 µg/mL	3138*	Ni	99.99+	Sc	7440-20-2	5.00 µg/mL	4.95 µg/mL	3148a*	Sc <sub>2</sub> O <sub>3</sub>	99.99+
Pb	7439-92-1	10.0 µg/mL	9.97 µg/mL	3128*	PbO	99.99+	Sr	7440-24-8	5.00 µg/mL	4.97 µg/mL	3153a*	SrCO <sub>3</sub>	99.99+
Al	7429-90-5	5.00 µg/mL	5.00 µg/mL	3101a*	Al	99.99+	Th	7440-29-1	5.00 µg/mL	4.93 µg/mL	3159*	Th(NO <sub>3</sub> ) <sub>4</sub> · 4H <sub>2</sub> O	99.99+
Ba	7440-39-3	5.00 µg/mL	5.00 µg/mL	3104a*	Ba(NO <sub>3</sub> ) <sub>2</sub>	99.99+	Tl	7440-28-0	5.00 µg/mL	5.07 µg/mL	3158*	Tl <sub>2</sub> O <sub>3</sub>	99.99+
Bi	7440-69-9	5.00 µg/mL	4.97 µg/mL	3108*	Bi	99.99+	U	7440-81-1	5.00 µg/mL	4.96 µg/mL	3164*	UO <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> · 6H <sub>2</sub> O	99.99+
Co	7440-48-4	5.00 µg/mL	4.98 µg/mL	3113*	Co	99.99+	V	7440-82-2	5.00 µg/mL	4.95 µg/mL	3165*	NH <sub>4</sub> VO <sub>3</sub>	99.99+
Cr	7440-47-3	5.00 µg/mL	4.95 µg/mL	3112a*	Cr(NO <sub>3</sub> ) <sub>3</sub> · 9H <sub>2</sub> O	99.99+	Y	7440-65-5	2.50 µg/mL	2.50 µg/mL	3167a*	Y <sub>2</sub> O <sub>3</sub>	99.99+
Cu	7440-50-8	5.00 µg/mL	4.97 µg/mL	3114*	Cu	99.99+	Yb	7440-64-4	2.50 µg/mL	2.48 µg/mL	3166a*	Yb <sub>2</sub> O <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: 23-52VY, 23-53VY.

### 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	0.1	Er	<0.4	Hg	<0.4	Nd	<0.06	Rh	<0.8	Ta	<0.3
Au	<0.1	Eu	0.2	Ho	<0.02	P	<200	Ru	<0.5	Tb	<0.04
B	<8	Fa	3	Ir	<0.3	Pd	<20	Sb	0.2	Te	<0.8
Cs	<10	Ga	<0.01	K	8	Pr	<0.01	Se	<30	Tl	<0.01
Ca	0.04	Gd	<0.08	La	0.03	Pt	<0.3	Si	<100	Tm	0.2
Ce	<0.09	Ge	<0.8	Mo	<0.2	Rb	0.3	Sm	<0.07	W	<0.06
Dy	<0.06	Hf	<0.06	Nb	<0.08	Ra	<0.07	Sr	<0.3	Zr	<0.3

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: February 15, 2017

Date of expiration: August 31, 2018

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