

CERTIFICATE OF ANALYSIS

Agilent Product Name: Pharma Internal Standard 1, in 2% HNO₃, tr. HF

Agilent Part No: 5190-9770

Lot No: 0013636675

Product Specifications

Analyte	Starting Material	CAS #	Certified Conc.	Analyte	Starting Material	CAS #	Certified Conc.
Bi	Bi	7440-69-9	5.000 ± 0.025 µg/mL	Lu	Lu ₂ O ₃	12032-20-1	5.019 ± 0.025 µg/mL
Ge	(NH ₄) ₂ GeF ₆	16962-47-3	5.006 ± 0.025 µg/mL	Sc	Sc ₂ O ₃	256652-08-1	10.01 ± 0.05 µg/mL
In	In	7440-74-6	4.999 ± 0.025 µg/mL	Te	Te	13494-80-9	25.00 ± 0.13 µg/mL

Matrix: 2% HNO₃, tr. HF

Intended Use: This solution is intended for use as an internal standard for inductively coupled plasma mass spectrometry (ICP-MS) or inductively coupled plasma optical emission spectroscopy (ICP-OES).

Certification & Traceability: This CRM was manufactured under a quality management system that is accredited to **ISO 17034, ISO/IEC 17025**, and registered to **ISO 9001**. This CRM was prepared to the certified concentrations shown above by gravimetric methods using single-element concentrates that were certified using the "High Performance ICP-OES" protocol developed by NIST and are directly traceable to the NIST SRMs listed below. This solution was stabilized using high purity nitric acid (HNO₃), trace hydrofluoric acid (HF) and diluted with ASTM Type I Water. The balances used in the preparation this CRM are calibrated regularly with traceability to NIST. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentrations were determined based upon gravimetric procedures. Secondary verification of the certified concentrations was performed using ICP-OES that was calibrated and/or referenced against NIST SRMs: **3106, 3120a, 3124a, 3130a, 3148a, and 3156**. The uncertainty associated with each certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Uncertified Values: Agilent ICP-MS was used to determine trace metal concentrations for this product (nd = not determined).

Trace Concentrations (µg/L)

Ag	<0.5	Co	<1	Ge	MAJOR	Lu	MAJOR	P	<100	Sb	<0.5	Te	MAJOR
Al	<2	Cs	<0.5	Hf	0.3	Mg	<5	Pb	<1	Sc	MAJOR	Ti	<2
As	<2	Cr	<0.5	Hg	<0.5	Mn	<1	Pd	<0.5	Se	<2	Tl	<0.5
Au	<0.5	Cu	<1	Ho	<0.2	Mo	<0.5	Pr	<0.2	Si	<100	Tm	<0.2
B	<5	Dy	<0.2	In	nd	Na	<25	Pt	<0.5	Sm	<0.2	V	<1
Ba	<1	Er	<0.2	Ir	<0.2	Nb	<0.5	Rb	<0.5	Sn	5	W	<0.5
Bi	MAJOR	Eu	<0.2	K	<25	Nd	<0.2	Re	<0.2	Sr	<1	Y	<0.5
Ca	<25	Fe	<10	La	<0.5	Ni	<2	Rh	<0.5	Ta	<0.5	Yb	<0.2
Cd	<0.5	Ga	<0.5	Li	<2	Os	<0.5	Ru	<0.5	Tb	<0.5	Zn	3
Ce	<0.2	Gd	<0.2										

Instructions for Use: Agilent recommends that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy the analyst should: (1) use only pre-cleaned containers and transferware, (2) avoid pipetting directly from the CRM's original container, (3) use a minimum sub-sample size of 500µL, (4) make dilutions using calibrated balances or certified volumetric class A flasks and pipettes, (5) dilute to volume using the same matrix as the original CRM, and (6) never pour used product back into the original container. The solution should be kept tightly capped. Store at controlled room temperature per USP 35 (10.30.60). Do not freeze, heat, or expose to direct sunlight. Minimize exposure to moisture or high humidity.