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CERTIFICATE OF GRAVIMETRIC PREPARATION

PRODUCT: ICP Multi-Element Standard,
23 elements at 100 mg/L in 5% HNO_3 + 0.2% HF

PRODUCT No.: ICP23A20

LOT NO.: ICP232025B1

DATE OF PREPARATION: 07th March 2025

EXPIRY DATE: 28th February 2027

DENSITY VALUE: 1.035 g/mL @ 20 °C

PREPARATION OF STANDARD:

All standard components have been pre-qualified/verified before use. All analytical measuring devices and instrumentation have been pre-calibrated. The actual concentrations reported below are based on this preparation methodology and compound impurities.

Elements	Nominal mg/kg	Actual mg/kg	Actual mg/L @ 20 °C
As	96.6	96.6	100.0
Be	96.6	96.6	100.0
Ca	96.6	96.6	100.0
Cd	96.6	96.6	100.0
Co	96.6	96.6	100.0
Cr	96.6	96.6	100.0
Cu	96.6	96.6	100.0
Fe	96.6	96.6	100.0
Li	96.6	96.6	100.0
Mg	96.6	96.6	100.0
Mn	96.6	96.6	100.0
Mo	96.6	96.6	100.0
Ni	96.6	96.6	100.0
P	96.6	96.6	100.0
Pb	96.6	96.6	100.0
Sb	96.6	96.6	100.0
Se	96.6	96.6	100.0
Sn	96.6	96.6	100.0
Sr	96.6	96.6	100.0
Ti	96.6	96.6	100.0
Tl	96.6	96.6	100.0
V	96.6	96.6	100.0
Zn	96.6	96.6	100.0

The expanded uncertainty (k=2) due to weighing, volumetric preparation and homogeneity is calculated in compliance with EURACHEM/CITAC Guide: Quantifying Uncertainty in Analytical Measurements as ± 0.2 %. All values are verified by ICP-MS analysis using externally sourced ISO 17034 accredited Certified Reference Materials as calibrants/quality controls where possible.

TRACEABILITY IN THE PRODUCTION OF THIS STANDARD:

This product was prepared gravimetrically on a mass/mass basis, using balances calibrated by Reagecon engineers with mass standards traceable to the National and International primary standard of mass. Reagecon holds ISO 17025 accreditation for calibration of non-automatic weighing machines. The resulting Balance Certificate of Calibration was issued in accordance with the requirements of ISO/IEC 17025. The balance was calibrated under monitored environmental conditions and atmospheric pressure. Tests were performed for capacity, readability, repeatability, eccentricity, and linearity.

TEST METHOD:

The mean result of this standard was verified using a calibrated ICP-MS system according to an in-house test method. The result reported in this certificate was confirmed by analysis of a sample of this lot taken at time of manufacture. The density of this standard was determined using a high-performance calibrated density meter.

This certificate relates solely to the lot number given above.

Approved By: QC Supervisor

Date: 10th March 2025