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CERTIFICATE OF GRAVIMETRIC PREPARATION

PRODUCT: ICP Standard Copper 10,000 mg/L

PRODUCT No.: PCU4B2

MATRIX: 2-5% HNO_3

LOT NO.: PCU4223M1

DATE OF PREPARATION: 19th December 2023

EXPIRY DATE: 28th December 2025

DENSITY VALUE: 1.034 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.

Raw Material	Purity %	Nominal mg/kg	Actual mg/kg
Copper	99.999	10000	9686 ± 0.2 %

9686 mg/kg is equivalent to 10016 mg/L @ 20°C

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. The solute was weighed on a balance calibrated by Reagecon engineers using 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 and by Acidimetric Titration according to in-house test methods. 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:  Quality Manager

Date: 21/12/2023