

## **CERTIFICATE OF GRAVIMETRIC PREPARATION**

**PRODUCT:** ICP Standard Copper 10,000 mg/L  
**PRODUCT No.:** PCU4B2  
**MATRIX:** 2-5% HNO<sub>3</sub>  
**LOT NO.:** PCU4221C1  
**DATE OF PREPARATION:** 8<sup>th</sup> March 2021  
**EXPIRY DATE:** 28<sup>th</sup> March 2023  
**DENSITY VALUE:** 1.023 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	9775	9792 ± 0.2 %

**9792 mg/kg is equivalent to 10017 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 (265C). 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.

**BALANCE ID No.:** RRD077

**CALIBRATION DATE OF BALANCE:** 2<sup>nd</sup> March 2021

**BALANCE ID No.:** A-0944

**CALIBRATION DATE OF BALANCE:** 24<sup>th</sup> July 2020

**BALANCE ID No.:** RRD078

**CALIBRATION DATE OF BALANCE:** 17<sup>th</sup> June 2020

**CALIBRATION AUTHORITY OF BALANCE:** Reagecon Diagnostics Ltd, ISO17025 Accreditation No. 265C.

**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:** Paul O'Sullivan

**Date:** 22<sup>nd</sup> March 2021

This certificate must not be reproduced except in full.