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The experts in custom-made Certified Reference Materials

Certificate of Analysis

CERTIFIED REFERENCE MATERIAL

Solution for Chemical Oxygen Demand (COD)
Calibration Solution 400 mg/l in Water

Lot N: XXXXXX
Barcode: XXXXXXXX

Ref N: COD400.L5

Certification Date:XXXXXX

Certified value: 399.9 +/- 3.4 mg/l $O_{2(y)}$

Metrological traceability: $K_2Cr_2O_7$ - BAM 42019 Lot No BCBV2009
$C_8H_5O_4K$ - BAM 60357 Lot No BCBT3524

Notes:
(y) WQP 5.15.1.32 and WQP 5.15.1.33 The certified value was obtained by a weighted mean of the results of two independent calibration methods among: Classical Volumetric and Instrumental (digestion of the chemically bonded organic carbon in the presence of a chemical oxidant and subsequent absorption measurement at 430 nm, using a spectrophotometer according to the WQP 5.15.1/32 calibration procedure)

Starting Material	Batch
$C_8H_5O_4K$	82106515

Storage Conditions: Store in a refrigerator at temperatures between 2°C to 8°C

Shelf-life: XXXXXXXXXX

Date of opening: .....

(Recommended period of use should not exceed one month from date of opening)

Concept of Certification and traceability statement:

The metrological traceability is assured through calibration on Spectrophotometer. The calibration curve is drawn using standard solutions prepared gravimetrically. All contributions in relation to the preparation of standard solutions are considered when evaluating the uncertainty.
This certified reference material is produced by dissolving reagent grade starting material in 18 MOhm deionized water (filtered through a 0.22 ?m filter).
The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA 4/02
Property of the result of a measurement whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties (ISO VIM)
The measurement results are traceable to SI. All analytical balances used for the preparation of the solution are calibrated yearly under an in-house procedure with analytical weights, traceable to DKD, and are checked daily.
Class A laboratory glassware is used.
The results from temperature measurement are traceable to SI. The thermometers used for solution's calibration are calibrated from an ISO 17025 accredited laboratory. The ambient conditions are controlled with a hygrometer calibrated from an ISO 17025 accredited laboratory.

Intended use:

For Laboratory Use Only

This CRM is intended for:

- Calibration of COD
- Validation of analytical methods
- Preparation of "working reference samples"
- Detection limit and linearity studies

This statement is not intended to restrict the use for other purposes.

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CERTIFIED ISO 9001
ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER
C.P.A. chem Ltd is accredited to ISO 17034 and ISO/IEC 17025

CPAchem Ltd
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for France, Belgium and Switzerland:
e-mail: acsd2@wanadoo.fr; tel.:01 30 57 57 32 / fax: 01 30 57 57 33

Instructions for the correct use of this reference material:
This certified reference material can be used directly. No sample preparation is required.

Stability and storage:
This CRM is with a guaranteed stability until +/-1% of the certified concentration within its shelf life. Stability is guaranteed, provided that the solution is kept in its original packaging, tightly closed stored, as written in the section: Storage Conditions. The laboratory performs stability tests according to MQP 5.14.1 therefore solutions with one and the same bar-code number might have different expiration dates.

Hazardous situation:
The normal laboratory safety precautions should be observed when working with this CRM. Further details for the handling of this CRM are available as safety data sheet.

Level of homogeneity:
The material was tested for homogeneity by analyzing randomly selected samples according to an in-house procedure. The material was judged to be homogeneous. The level of homogeneity proved satisfactory for a sample volume of 2 ml. The uncertainty incorporates the sample standard deviation combined with the uncertainty calculated from homogeneity and stability studies.
To ensure sufficient homogeneity of the sample follow the Instruction for the correct use.

Names of certifying officers:
Laboratory: Ognyan Todorov

Manager: Krassimira Taralova

This document is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31, ISO Guide 35,and Eurachem / CITAC Guides

This certificate relates solely to the lot number given above.
All processes (including generating of this certificate) are completely controlled by the specialized Computer-Aided-Manufacturing (CAM) software.

This Certified Reference Material was produced under a quality management system that is:
- Registered to ISO 9001 Quality Management System (Lloyd's Register Quality Assurance Ltd Cert No 0039638)
- Accredited according to ISO/IEC 17025 – Testing (ANAB Cert No AT-1836)
- Accredited according to ISO 17034 - Reference Material Producer (ANAB Cert No AR-1835)

Signed by: Taralova, Chemical Production Manager

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