

## CERTIFIED REFERENCE MATERIAL

**Solution of Chlorites(ClO<sub>2</sub><sup>-</sup>) concentration 1000 mg/l Matrix: 0.1% NaOH**

Lot N: XXXXXX  
Barcode: XXXXXXXXX

Ref N: H028.01O.L1.L1

Certification Date: XXXXXX

Component	Certified Value and uncertainty [mg/l]	Metrological traceability
ClO <sub>2</sub> <sup>-</sup>	999.4 ± 4.3 <sup>(t)</sup>	BAM CRM No 42019-50-G-F Lot BCBV2009

**Notes:**

(t) WQP 5.15.1/15 *The certified value was obtained using calibration through classical volumetric analysis*

Density\* 0.999 g/cm<sup>3</sup> at 20°C

Starting Material, Purity*	Batch
NaClO <sub>2</sub> 99.9%	82104061

\* These values are not certified

Storage Conditions: Store under normal laboratory conditions, at temperatures between 15° to 25°C

Shelf-life: XXXXXXXXXXXX Date of opening: .....

*(Recommended period of use should not exceed 12 months from date of opening)*

**Concept of Certification and traceability statement:**

*This certified reference material is produced using a high purity starting material, acid from sub-boiling and 18 MOhm deionized water. 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 metrological traceability is assured through calibration on Ion Chromatographs. The calibration curve is drawn using a series of standard solutions prepared from a certified reference material traceable to SI of NIST (SRM) or BAM (CRM). All contributions in relation to the certification of standard solutions are considered when evaluating the uncertainty.*

*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**

Calibration of Ion Chromatographs  
Preparation of "working reference samples"  
This statement is not intended to restrict the use for other purposes.

Validation of analytical methods  
Detection limit and linearity studies

**Instructions for the correct use of this reference material:**

This certified reference material can be used directly or can be diluted in an appropriate high purity matrix. Only a clean class A glassware should be used. Do not pipet from container. Obtained concentration (in mg/l) after dilution is a result from the multiplication of certified value of CRM concentration and the CRM's volume used for dilution and divided into the flask's volume used for dilution.

**Stability and storage:**

This CRM is with a guaranteed stability until ±0.5% 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:**

This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. To ensure sufficient homogeneity of the sample prior to use thoroughly mix by inversion.

**Names of certifying officers:**

Laboratory:  Tihomir Stoyanov

Manager:  Krassimira Taralova

*This document QF 5.17.1/1 version 1 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)

**Trace impurities in the actual solution reported in ppm:**

(all values below are nominal and not certified)

Trace impurities in the actual solution reported in ppm:	
F <sup>-</sup>	<0.004
NO <sub>3</sub> <sup>-</sup>	<0.002
Cl <sup>-</sup>	0.831
NO <sub>2</sub> <sup>-</sup>	<0.003
Br <sup>-</sup>	<0.002
PO <sub>4</sub> <sup>3-</sup>	<0.005
SO <sub>4</sub> <sup>2-</sup>	<0.006
ClO <sub>3</sub> <sup>-</sup>	1.85

Operating Conditions Ion Chromatography:	
Column:	IonPac AS14 4 mm
Anion Self regenerating	DIONEX AERS 500 4 mm
Suppressor:	
Eluent Flow Rate:	1.0 ml/min
Eluent:	3.5 mM Na <sub>2</sub> CO <sub>3</sub> / 1 mM NaHCO <sub>3</sub>
Sample Concentration:	20 mg/l
Sample Volume:	25 µl loop

