



Agilent Technologies



Certificate of Analysis

Sodium Chloride Standards Kit for LC OQ/ PV

Part No.: 5190-0466

Lot: BCBN9089V

Manufacturing date: 29-Sep 2014

Expiration date: 29-Sep 2017

The standards were produced and certified in accordance with ISO/IEC 17025 and ISO Guide 34 under clean room conditions at Sigma-Aldrich Production GmbH, Industriestrasse 25, 9471 Buchs/Switzerland

Material description (on label)	Certified values for sodium chloride		Expanded uncertainty (95% confidence) relative to the certified value
	concentration	mass fraction	
LC OQ/ PV Std sodium chloride 800 µg/mL	800 µg/mL	801 µg/g	0.4 %
LC OQ/ PV Std sodium chloride 500 µg/mL	500 µg/mL	501 µg/g	0.4 %
LC OQ/ PV Std sodium chloride 100 µg/mL	100 µg/mL	100 µg/g	0.4 %
LC OQ/ PV Std sodium chloride 25 µg/mL	25.0 µg/mL	25.0 µg/g	0.4 %
LC OQ/ PV Std sodium chloride 10 µg/mL	10.0 µg/mL	10.0 µg/g	0.4 %

Composition: This kit contains five sodium chloride standards with nominal concentrations of 10, 25, 100, 500 and 800 µg/mL (certified at 20°C). High-purity sodium chloride (purity >99.980 %) and ultrapure water (Fluka product no. 14211, TraceSELECT® Ultra grade, >18 MΩ; 0.2µm filtered) are used as starting materials.

Intended use: For the qualification of High Performance Liquid Chromatography (HPLC) and Ion Chromatography (IC) systems where a conductivity detector makes up a part of the HPLC or IC system under test.

Storing and handling: These certified standards shall be stored between 5°C and 25°C until opening of the bottles. After opening the bottles should be stored between 2°C and 6°C. The bottle's temperature must be room temperature and shaken well before every use.

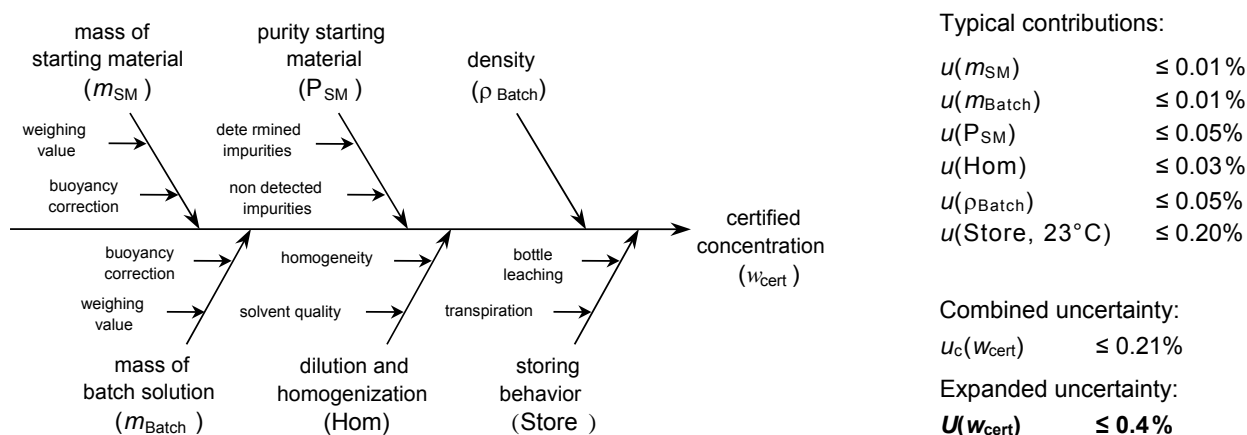
Certification laboratory	Certification body	Quality release date	Quality systems
 S. Matt	 K.-D. Schmidt, Ph.D.	24 OCT 2014	 SRMS 001 ISO Guide 34 STS 490 ISO 17025 16368-02 ISO 9001

1. CONCEPT OF CERTIFICATION AND TRACEABILITY

The certified values of the standard solutions are based on gravimetric preparation through high-precision weighing. The certified values therefore are directly traceable to the SI unit kilogram. Only comprehensively characterized materials of highest purity are used. All balances are certified by DKD and calibrated with OIML Class E2 (up to 12 kg) and F2 (up to 64 kg) weights. Additionally the mass fraction of the starting material sodium chloride is confirmed by measuring against the NIST Standard Reference Material 999 using argentometric titration.

2. UNCERTAINTY CALCULATION

The uncertainties of the certified sodium chloride standard solutions are calculated according to Eurachem/CITAC Guide "Quantifying Uncertainty in Analytical Measurement". Combined uncertainties at the 95% confidence level are reported (expanded uncertainty). The individual uncertainty contributions are illustrated by the following cause-effect diagram:



3. IMPURITY PROFILE

Based on comprehensive characterization by ICP-MS, ICP-OES and IC the following impurities are found to be the major impurities in the starting material (relative to the certified sodium chloride concentration):

Bromide	0.003 %
Potassium	0.0005 %

67 other elements/ anions were measured and all these values were found to be below the detection limit of the analytical technique listed above.