

Approved by General Administration of Quality Supervision,

Inspection and Quarantine of the People's Republic of China

GBW(E) 130107- GBW(E) 130108

Certificate of Reference Material

KCl Electrolytic Conductivity Solution

Sample Number:

Date of Certification:

National Institute of Metrology (NIM)

No.18, Bei San Huan Dong Lu, Chaoyang Dist., Beijing, 100013, P.R.China

Tel: +86(10) 64271639, 64278838, 64204432

Fax: +86(10) 64271639, 64213149

Website: www.nim.ac.cn ; www.ncrm.org.cn

1. Description of Material & Intended Use

This certified reference material (CRM) can be formulated into aqueous solution, and mainly used for verification and calibration of conductivity meter, resistivity instrument, salinometer based on conductivity principle and total dissolved solid (TDS) measuring instrument, as well as measuring conductivity cell constant.

2. Sample Preparation

This CRM is formulated with secondary conductivity RM KCl GBW(E)130106 and de-ionized water according to gravimetric-volumetric method.

3. Traceability and Certification

The traceability linkage is established using measuring protocols and instruments which meet the needs of the metrological community to be served. The CRM is formulated into solution according to JJG376-1985 verification regulation for conductivity meter (try out), and checked by relative measurement method using high precision conductivity meter. The formulated value can be traced to GBW13120 primary conductivity RM KCl.

4. Property Value and Uncertainty

Certified value of conductivity under different temperature is shown in the following table, relative expanded uncertainty is 0.25% ($k=2$). The uncertainty consideration is a sum of uncertainty of certified value, reproducibility, consistency and stability.

No.	conductivity ($\mu\text{S}\cdot\text{cm}^{-1}$)				
	15°C	18°C	20°C	25°C	35°C
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5. Consistency Check and Stability Test

According to the requirement of national technique criterion on primary CRM, the CRM aliquots are randomly sampled, and consistency check and stability test are performed by relative measurement method using high precision conductivity meter, the results demonstrates good consistency by F test; and the certified value of conductivity doesn't vary significantly within 1 year following the date of certification, and demonstrates good stability.

The period of validity of this CRM is set for 1 year from the Date of Certification. The stability of this CRM will be monitored by NIM in the future. The user will be promptly informed, if the value is found to vary during the period of validity.

6. Instructions for Package, Storage and Usage

1. This RM is for single-use, the minimum package is 100ml, and kept in cool place.
2. Temperature coefficient of KCl solution conductivity is about $+2\%\cdot^{\circ}\text{C}^{-1}$, therefore measurement should be performed at constant temperature. The accuracy of temperature

control depends on the requirement on measurement.

4. formula for conductivity cell constant: $K_{cell} = \frac{\kappa}{G}$.

In which, κ is the conductivity of KCl conductivity solution; G is conductance at the end of conductivity cell.



STATEMENT

1. This CRM has a limited use in scientific research and analytical measurement. NIM is not responsible for any loss caused by improper use and storage of this CRM by the customer.
2. Please check the status of reference materials as soon as the sample arrives. The incurred maximum compensation will be exclusively restricted to the CRM itself, and no others should be claimed.
3. The certificate is only valid with the complete file stamped by NIM RM. Please keep the integrality of the certificate.
4. If more information about the CRM is required, please contact the technical service section.

