

National Institute of Advanced Industrial Science and Technology  
National Metrology Institute of Japan



## Reference Material Certificate

NMIJ CRM 5133-b03

No. +++



Secondary Electrolytic Conductivity Standard Solution  
–Aqueous Solution of Potassium Chloride (0.01 mol kg<sup>-1</sup>)

This certified reference material (CRM) is produced in accordance with the NMIJ's management system and is in compliance with ISO 17034 and ISO/IEC 17025. This CRM is intended for use in the calibration of electrolytic conductivity.

**Certified Value**

The certified value of this CRM is given in the table below. The uncertainty of the certified value is the expanded uncertainty obtained by multiplying the combined standard uncertainty by a coverage factor ( $k$ ) of 2, and it is the half-width of an interval estimated to have a level of confidence of approximately 95 %.

Property	Certified value S m <sup>-1</sup>	Expanded uncertainty S m <sup>-1</sup>
Electrolytic Conductivity (25 °C)	0.14065	0.00093

**Analysis**

The certified value of this CRM was determined by using NMIJ CRM 5123-a06 (Electrolytic Conductivity Standard Solution, Aqueous Solution of Potassium Chloride (0.01 mol kg<sup>-1</sup>)), and the secondary glass cell for electrolytic conductivity.

**Metrological Traceability**

The certified value was determined based on NMIJ CRM 5123-a06 (Electrolytic Conductivity Standard Solution, Aqueous Solution of Potassium Chloride (0.01 mol kg<sup>-1</sup>)). The certified value, therefore, is traceable to the International System of Units (SI).

**Mutual Recognition Arrangement under Metre Convention**

The certified value of this CRM is recognized for international equivalence based on the Mutual Recognition Arrangement under the Metre Convention (CIPM MRA). The calibration measurement capability (CMC) of NMIJ related to this CRM is registered in the Key Comparison Database (KCDB) (see <https://www.bipm.org/kcdb/>) of the International Bureau of Weights and Measures (BIPM).

**Expiration of Certification**

This certificate is valid for 6 months from the date of shipment or until October 19, 2026, whichever comes earlier, provided that this CRM remains unopened and is stored in accordance with the instructions given in this certificate.

**Description of the material**

This CRM is aqueous solution of potassium chloride (0.01 mol kg<sup>-1</sup>). This CRM is in the form of a colorless and transparent liquid at ordinary temperature, and approximately 250 mL is kept in a glass bottle sealed in a plastic bag.

**Instructions for Storage**

This CRM should be kept in the glass bottle sealed in a plastic bag. This CRM should be stored in a clean place at a temperature

Date of Shipment: Xxxxx xx, 20xx

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between 15 °C and 30 °C.

#### **Instructions for Use**

The bottle should be opened after reaching to room temperature. Prior to use, the bottle should be shaken gently to be homogenized avoiding the formation of air bubbles. This CRM should be used promptly once the bottle is opened.

#### **Precautions for Handling**

Refer to the safety data sheet (SDS) on this CRM before use.

#### **Preparation**

The prescribed amount of potassium chloride was dissolved in the prescribed amount of pure water; the nominal molality was 0.01 mol kg<sup>-1</sup>. The solution was equilibrated with atmospheric carbon dioxide and then divided into glass bottles; each bottle contains approximately 250 mL of the solution.

#### **NMIJ Analysts**

The technical manager for this CRM is OHATA M., the production manager is HIBINO Y., and the analyst is HIBINO Y., ONUMA S. and SUZUKI T.

#### **Information**

If substantive technical changes occur that affect the certification before the expiration of this certificate, NMIJ will notify the registered customers. Customer registration on the NMIJ Website (given below) will facilitate notification. Technical reports regarding this CRM can be obtained from the contact details given below.

#### **Reproduction of Certificate**

In reproducing this certificate, it should be clearly indicated that the document is a copy.

November 24, 2022

ISHIMURA Kazuhiko  
President

National Institute of Advanced Industrial Science and Technology

If you have any questions about this CRM, please contact:  
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