National Institute of Advanced Industrial Science and Technology

National Metrology Institute of Japan

Reference Material Certificate

NMIJ CRM 6008-a
No. +++

Uric Acid

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 primarily intended for use in calibration of the analytical instruments and reagents used for determination of uric acid. It is also intended for use in controlling the precision of analyses and validating analytical methods and instruments.

Certified Value

The certified value for the purity (in mass fraction) of uric acid is given in the table below. The uncertainty of the certified value is the half-width of the expanded uncertainty interval calculated using a coverage factor (k) of 2, which gives a level of confidence of approximately 95 %.

	CAS No.	Certified value, Mass fraction (kg/kg)	Expanded uncertainty, Mass fraction (kg/kg)
Uric Acid (2,3,6,7,8,9-hexahydro-1*H*-purine-2,6,8-trione)	69-93-2	0.996	0.003

Analysis

The certified value of this CRM is the weighted mean of the results obtained by the acidimetric titration and the nitrogen determination using the Kjeldahl method, by giving consideration to the impurity determination performed by the high performance liquid chromatography (HPLC).

Metrological Traceability

The certified value was determined by titrimetry as the primary method of measurement with NMIJ CRM 3005a (sodium carbonate) as a primary standard. It is traceable to the International System of Units (SI).

Mutual Recognition Arrangement under Meter Convention

The certified value and expanded uncertainty of this CRM (mass fraction) is consistent with the calibration and measurement capabilities (CMCs) that are included in Appendix C of the Mutual Recognition Arrangement (MRA) drawn up by the International Committee for Weights and Measures (CIPM). Under the MRA, all participating institutes recognize the validity of each other's calibration and measurement certificates for the quantities, ranges and measurement uncertainties specified in Appendix C (as for Appendix C of MRA, see http://kcdb.bipm.org/AppendixC/default.asp).

Expiration of Certification

This certificate is valid for one year from the date of shipment, provided that the material remains unopened and is stored in accordance with the instructions given in this certificate.

Sample Form

This CRM is in the form of a white powder. This CRM of ca. 2 g is kept in a glass vial. The vial is sealed in an aluminum-

laminated plastic bag.

Homogeneity

The homogeneity of the CRM was measured by the acidimetric titration, analyzing seven vials sampled from 100 vials. The homogeneity has been incorporated into the uncertainty of the certified value.

Instructions for Storage

Uric acid is stable at room temperature. This CRM should be stored at a temperature between 15 °C and 25 °C in a clean desiccator and shielded from light.

Instruction for Use

To ensure the homogeneity, more than 100 mg of this CRM should be used for each analysis. This CRM should be used promptly once the vial is opened. This CRM is for laboratory use only and it is not intended for in vivo use. To prepare calibration solution, uric acid must be dissolved completely. Uric acid dissolves slightly in water and more easily in alkaline media.

Precautions for Handling

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

Preparation

This CRM was prepared by Wako Pure Chemical Industries, Ltd. Reagent-grade uric acid was bottled into vials under the argon gas atmosphere, and each vial was sealed in an aluminum-laminated bag.

Technical Information

The values given below are not certified values but information values. Moisture determined by the Karl Fischer titration was 2.2 g/kg at the time of certification. The mass fraction of sodium determined by the inductively coupled plasma atomic emission spectrometry was 0.3 g/kg at the time of certification.

NMIJ Analysts

The technical manager for this CRM is TAKATSU A. and production manager is TAKATSU A. The analysts are KAWAGUCHI M., EYAMA S., YOSHIOKA M. and TAKASE K.

Information

If substantive technical changes occur that affect the certification before the expiration of this certificate, NMIJ will notify the registered customer. 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.

April 1, 2020

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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Revision history
April 1, 2015: "Metrology Management Center" was renamed to "Center for Quality Management of Metrology."
Feb 20, 2019: The description on "Mutual Recognition Arrangement under Meter Convention"` was added.
The description in "Expiration of Certification" was changed to "one year from the date of shipment."