National Institute of Advanced Industrial Science and Technology

National Metrology Institute of Japan

Reference Material Certificate

NMIJ CRM 4030-a
No. +++

Bisphenol A

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. It is primarily intended for use in the calibration of analytical instruments. In addition, it is intended for use in quality control of analytical instruments, and in validation of analytical techniques and instruments.

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 %.

Substance	CAS No.	Certified value, Amount-of-substance fraction (mol/mol)	Expanded uncertainty, Amount-of-substance fraction (mol/mol)
Bisphenol A (2,2-bis(4-hydroxyphenyl)propane)	80-05-7	0.9992	0.0010

Analysis

The certified value of this CRM was determined by the freezing point depression method with a differential scanning calorimeter (DSC) by using the stepwise scan method. The combined standard uncertainty was evaluated as a combination of standard uncertainties due to purity determination, homogeneity test and stability test.

Metrological Traceability

The certified value was determined by the freezing point depression method carried out using a DSC. The scale of temperature of the DSC was calibrated in accordance with NIST SRM 2225 (mercury) and NIST SRM 1745 (indium). The scale of enthalpy of the DSC was calibrated in accordance with NIST SRM 2225 (mercury). The certified value, therefore, is traceable to the International System of Units (SI).

Indicative Value

The indicative value of this CRM is given in the table below. It was obtained by converting the purity in the amount-of-substance fraction using the estimated average molecular weight of impurities. The uncertainty of the indicative 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 %.

Substance	CAS No.	Indicative value, Mass fraction (kg/kg)	Expanded uncertainty Mass fraction (kg/kg)
Bisphenol A (2,2-bis(4-hydroxyphenyl)propane)	80-05-7	0.9997	0.0005

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 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.

Description of the material

This CRM is bisphenol A in the form of a white powder at room temperature. It of ca. 1.5 g in net volume is kept in an amber glass vial containing nitrogen gas. The vial is sealed in an aluminum-laminated bag containing nitrogen gas.

Instructions for Storage

This CRM should be stored at a temperature between –15 °C and –25 °C in clean place and shielded from light.

Instructions for Use

This CRM is for laboratory use only. The vial of this CRM should be allowed to warm to room temperature before opening. This CRM should be used promptly once the vial is opened.

Precautions for Handling

Keep away from heat and ignition sources. Wear personal protective equipment such as safety glasses, safety mask, and safety gloves in handling. Refer to the safety data sheet (SDS) on this CRM before use.

Preparation

This CRM was purified and subdivided by Wako Pure Chemical Industries, Ltd. It was purified by recrystallization using toluene, vacuum drying, mixing with dichloromethane, filtration, and drying. Bisphenol A of 1.5 g was filled into an amber glass vial in a dry nitrogen atmosphere. The vial was then sealed in an aluminum-laminated bag in a nitrogen atmosphere.

NMIJ Analysts

For this CRM, the technical manager is KATO K., the production manager is SHIMIZU Y., and the production analysts are SHIMIZU Y., ISHIKAWA K., IWASAWA R., BAO X., HIGUCHI K., OTSUKA S., FUJIKI N., KITAMAKI Y., YAMAZAKI T. and NAKAMURA S.

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.

Note

Stability monitoring until 2005 were performed by National Institute of Technology and Evaluation.

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

February 1, 2012:	The expiration date of this certificate was changed to March 31, 2019, from March 31, 2013.
	The format of this certificate was updated.
	The description on "Mutual Recognition Arrangement under Metre Convention" was added.
April 1, 2015:	"Metrology Management Center" was renamed to "Center for Quality Management of Metrology."
February 20, 2019:	The description in "Expiration of Certification" was changed to "one year from the date of shipment."
	"Precautions for Handling" and "Collaborator" were added.
March 24, 2022:	Expanded uncertainties in "Certified Value" and "Indicative Value" were changed.