National Certified Reference Material (NCRM)

Code：GBW08611

Reference Material Certificate

Standard Solution of As

Batch Number：18126

Certification Date：March, 2019

Period of Validity：March, 2024

Reference Material Producer：National Institute of Metrology

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Version：1.0

This certified reference material (CRM) can be served as a value traceable standard for lower-class CRMs or as a stock standard solution for single element. The working standard solutions, obtained from the CRM by using stepwise dilution method, are mainly intended for calibration of analytical instruments, validation and evaluation of analytical methods, quality control on measurement process and technology arbitration and certificate assessment on analytical results.

1. Preparation

The starting materials of this reference material, primary reagent arsenic trioxide (As_2O_3) with accurately known purity, high purity sodium hydroxide and nitric acid, are diluted with organic-component-free water in clean room at 20℃±2℃ by using gravimetric method. The water is purified for three times by using reverse osmosis method, ion exchange method and quartz distiller.

2. Traceability and certification

The purity of As_2O_3 was determined using constant current coulometry method which can be traceable to the national primary standard on the purity of primary reagent of China. The preparing value (formulated value) of concentration, checked with controlled potential coulometry method, is considered as the certified value of the concentration of this CRM.

The traceability of the certified value is ensured by using measurement methods and measuring instruments that meet the requirements of metrology.

3. Property value and uncertainty

The property value and the expanded uncertainty of the CRM are as follows:

Code	property value / μg·ml^{-1}	Expanded uncertainty / μg·ml^{-1}, k=2	Matrix（V/V）
GBW08611	1000	1	1% HNO_3

Contributions from purity of materials, sample weighing for high purity materials and solution and change of temperature were considered in uncertainty evaluation of the reference material.

4. Homogeneity and Stability Assessment

According to national technical specification of JJF1343（equivalent to ISO Guide 35），the homogeneity and long-term stability testing were carried out through random sampling by using controlled potential coulometry method. The F-test method was used and no statistically significant difference among bottles was observed. The reference material is in good homogeneity and stability.

The stability of this RM is regularly monitored by NIM. Any change of the certified value during this period will be informed to the customers in time.

5. Instructions for use

- This certified reference material is sealed up in glass ampoules and each ampoule contains about 20ml of the standard solution.
- This certified reference material should be kept in cold and dark place. Prior to use, the CRM should be equilibrated to room temperature (20±2℃) and thoroughly mixed by inverting the ampoule.
- This certified reference material should be used one time after being opened and **cannot** be used repeatedly. And it should be prevented from contamination while using.

Statement

1. The reference material is only for lab study and analytical testing. In case of any complaint due to the improper use or storage by the user, the institute will bear no responsibility.
2. After receiving it, please immediately check variety, quantity and packaging. Relevant compensation is only limited to the reference material itself.
3. The institute is only responsible for the complete certificate affixed with the “Dedicated Seal for Reference Material of National Institute of Metrology”. Please properly keep this certificate.
4. To obtain more application related information, please contact the Department of Technical Consultation.

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