

**National Certified Reference Material (NCRM)**

**Code: GBW08758**



## **Reference Material Certificate**

### **Three Bisphenols in Methanol**



Batch Number:

Certification Date:

Period of Validity:



Reference Material Producer: National Institute of Metrology

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Version: 1.0

the sample of certificate for reference

The present CRM is mainly used for bisphenol A, bisphenol F, bisphenol S determination in areas such as environmental consumer products and food safety analysis, and for quality control, calibration of instruments, assessment of measurement methods.

### 1. Sample Preparation

This CRM is formulated with bisphenol A (molecular formula:  $C_{15}H_{16}O_2$ , CAS: 80-05-7), bisphenol F (molecular formula:  $C_{13}H_{12}O_2$ , CAS: 620-92-8) bisphenol S (molecular formula:  $C_{12}H_{10}O_4S$ , CAS: 80-09-1) as the starting material and mixture of methanol as the solvent based on gravimetric-volumetric method.

### 2. Traceability and Characterization Methods

This CRM used the preparation concentration as the certified value, and the concentrations were verified by liquid chromatography (CAD detector). Bisphenols was qualitatively analyzed by liquid chromatography-mass spectrum, infrared spectrum and nuclear magnetic technology analysis and qualitative analysis. The purity was analyzed by mass balance method and differential scanning calorimetry method. The organic purity was analyzed by liquid chromatography (CAD detector), and the content of water, inorganic impurities and volatile organic compounds was determined by Karl Fischer method, ICP-MS method and headspace gas chromatography, respectively. The formulated values are taken as certified value of the concentration of this CRM.

Through the use of validated measurement methods and calibrated instruments meeting metrological traceability requirements, the property values of this CRM can be traced to the SI unit kilogram (kg), mole (mol) and the national legal measurement unit (L) of volume.

### 3. Property Values and Uncertainties

The property values and expanded uncertainties are listed as bellow:

Code	Name	Property Value ( $\mu\text{g/mL}$ )		Uncertainty (%), ( $k=2$ )
GBW08758	Three bisphenols in methanol	Bisphenol A	100.0	1.6
		Bisphenol F	100.0	2.2
		Bisphenol S	100.0	2.2

The coverage factor was chosen to obtain an approximate 95% level of confidence. The uncertainty evaluation considered sources from characterization, homogeneity, and stability.

### 4. Homogeneity and Stability Assessment

According to national technical specification of JJF1343 (equivalent to ISO Guide 35), homogeneity and stability study for this certified reference were carried out through random sampling by using HPLC-CAD. The results demonstrated good homogeneity and stability of this CRM.

The period of validity of this CRM is 12 months since the date of certification. The  
the sample of certificate for reference

stability of this CRM will be regularly monitored by NIM. During the validity period, the customer will be informed of any change of the certified value just-in-less-time.

## 5. Packaging, Storage and Use

**Packaging:** This CRM is packaged in a glass ampoule, and each ampoule contains no less than 1.0 mL samples.

**Storage and transportation:** This CRM should be stored under cool and dark condition for long term storage.

**Use:** This CRM is toxic and harmful. Caution shall be taken in use. The operator shall wear a face mask and latex gloves to avoid inhalation or skin contact. This CRM is only for single use. The vials of the CRM should be opened just before use.



## 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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