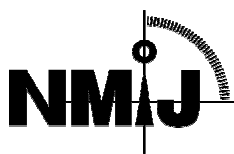


[This document is just explanation translated from the original Japanese certificate and some information is omitted from it.]



National Institute of Advanced Industrial Science and Technology

National Metrology Institute of Japan, Certificate

Reference Material Certificate

NMIJ CRM 8108 - a
No. +++



Polybrominated diphenyl ethers in polystyrene

This certified reference material (CRM) was produced on the basis of NMIJ's quality system under JIS Q 0034 (ISO Guide 34), and can be used to control the precision of analysis or to confirm the validity of analytical methods or instruments during the analysis of decabrominated diphenyl ether (DBDE) in polystyrene.

Certified Value

The certified value of DBDE in this CRM is given in the following Table. This CRM should be used without any drying. The expanded uncertainty was determined with the coverage factor $k = 2$; it defines an interval estimated to have a level of confidence of approximately 95%.

	CAS Number	Certified value: mass fraction (mg/kg)	Expanded uncertainty (mg/kg)
decabrominated diphenyl ether	1163-19-5	317	14

Determination of Certified Value

The certified value was determined by the following analytical methods and is traceable to the the International System of Units (SI):

- 1) Gas chromatography / mass spectrometry.
- 2) High performance liquid chromatography

Expiration of Certification

The certification of this CRM is valid until March 31, 2011., provided that the CRM is not opened and is stored in accordance with the instructions given in this certificate.

Sample Form:

Disk of average diameter 29.8 mm, average thickness 1.974 mm, average mass 1.43 g and density 1.048 g/cm³. (5 pieces in an aluminum coated pouch)

Homogeneity Testing:

The homogeneity of this CRM was tested by X-ray fluorescence spectrometry of randomly chosen 14 disks out of 2400 disks. The uncertainty of certified value includes the inhomogeneity.

Notice for Storage:

This CRM should be stored under 23 °C in a clean and sealed state and shielded from light.

Notice for Use:

[This document is just explanation translated from the original Japanese certificate and some information is omitted from it.]

This CRM is only used for chemical analysis and is not touched by bare hands to prevent contamination.

Information Value

The mass fraction of Br in this CRM was provided as information value only. The information value was 266 mg/kg, speculated by Gas chromatography / inductively coupled plasma mass spectrometry and HPLC.

NMIJ Analysts

S. Matsuyama, K. Kishine, K. Imanishi, S. Manabe, H. Tao, T. Nakazato, M. Akasaka and S. Kinugasa (Technical manager)

Technical Information

If important changes on this CRM including any change of certified values happen, it will be informed to the customers. Technical information on this CRM will be obtained from the home page and the other contact routes (*vide infra*).

Reproduction of Certificate

In case of producing a duplicate of this certificate, the fact of reproduction should be clearly indicated on it.

March 23, 2006

Hiroyuki Yoshikawa
President,

National Institute of Advanced Industrial Science and Technology (AIST)

If you have any questions about this CRM, please contact
Metrology Quality Office, Metrology Management Division, NMIJ/AIST
Tsukuba Central 3

Umezono 1-1-1, Tsukuba Ibaraki, 305-8563, Japan

Phone: +81-298-4050, Fax: +81-298-4240

Homepage: http://www.nmij.jp/index_en.html

Note: This certificate is a translation of the original Japanese certificate and is not an official document.