

# Safety Data Sheet



## 1. Identification of the Substance/Mixture and the Supplier

Supplier : National Institute of Advanced Industrial Science and Technology (AIST)  
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 Office in Charge : Reference Materials Office, Center for Quality Management of Metrology, National Metrology Institute of Japan  
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 Emergency Contact : Same as above

Prepared on : June 08, 2006  
 Revised on : April 25, 2018  
 Reference No. : 8110001

Identity of Substance/Mixture : Certified Reference Material NMIJ CRM 8110-a Polybrominated diphenyl ethers in polystyrene (High Concentration)  
 Recommended Use of the Chemical and Restriction on Use : This reference material 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. Do not use this reference material for other purposes than testing/research.

## 2. Hazards Identification

GHS classification : Not applicable  
 GHS label element : Not applicable  
 Signal word : -  
 Hazard and toxicity : -  
 Other hazard and toxicity : Decabrominated diphenyl ether (DBDE) is contained. (Class 1 Specified Chemical Substances No.33)  
 Precautionary statement : [Preventive measures]  
 Toxic by ingestion  
 [Response]  
 If swallowed, drink a large amount of water to induce vomiting.  
 Seek medical advice  
 [Storage]  
 Store in clean environment at 15 °C to 35 °C, and avoid direct sunlight.  
 Store in a locked area.  
 [Disposal]  
 This CRM contains the class I specified chemicals, therefore handle

this CRM in accordance with Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. and Wastes Disposal and Public Cleansing Act.

Hazards not mentioned above are either not classifiable or not applicable.

### 3. Composition/Information on Ingredients

Single or compound product : Compound product

#### Ingredient 1

Chemical name : Polystyrene  
 Synonym : Styrene polymerization, Ethenylbenzene homopolymer  
 Chemical formula :  $(C_8H_8)_x$  ('x' is polymerization degree)  
 Molecular weight : -  
 CAS number : 9003-53-6  
 Content : -  
 Reference Number in : Act on the Evaluation of Chemical Substances and  
 Gazetted List in Japan Regulation of Their Manufacture, etc. : (6)-120  
 Industrial Safety and Health Act : Published

#### Ingredient 2

Chemical name : Decabrominated diphenyl ether (DBDE)  
 Synonym : Deca bromo diphenyl ether  
 Synonym : DBDE  
 Chemical formula :  $C_{12}Br_{10}O$   
 Molecular weight : 959.17  
 CAS number : 1163-19-5  
 Content : Content 886 mg/kg ( $C_{12}Br_{10}O$ )  
 Reference Number in : Act on the Evaluation of Chemical Substances and  
 Gazetted List in Japan Regulation of Their Manufacture, etc. : (3)-2846  
 Industrial Safety and Health Act : Published

### 4. First-aid Measures

◇If in eyes

1. Rinse well with clean water.
2. Seek medical advice.

◇If on skin

1. Rinse well with clean water
2. Take off contaminated clothing and shoes, etc. and seek medical advice.

◇If swallowed

1. Wash the mouth well with water.
2. Seek medical advice.

◇Measures to be taken to protect the person applying first aid

1. Use personal protective equipment.

## 5. Fire-fighting Measures

Extinguishing media	: Water, carbon dioxide, dry chemical powder, alcohol resistant polymer foam.
Specific hazards at the time of fire	: Neither ignitable nor flammable under general and normal environment. If at all possible, extinguish from the windward to avoid inhaling toxic gases because the combustion gas contains carbon monoxide, NO <sub>x</sub> and CN, etc.
Specific extinguishing measures	: Remove combustible sources from the seat of fire and extinguish using appropriate extinguishing agent. Transfer the movable container to a safe place promptly. If impossible to transfer, use water spray to cool the periphery. Extinguishing activities on windward side, avoid inhaling toxic gases
Protecting fire-fighting personnel	: Use protective clothing, air respirator, self-contained compressed air breathing apparatus, rubber boots.

## 6. Accidental Release Measures

- Sweep up the spilled material and collect them in an empty container
- Prevent this reference material from flowing into drain sewers and public waterways.

## 7. Handling and Storage

### Handling

- Avoid contact with eyes, skin, clothing, etc.
- Do not eat, drink or smoke when handling
- Do not handle with bare hands
- Wash hands well after handling.

### Storage

- Store in clean environment at 15 °C to 35 °C, and avoid direct sunlight.
- Lock and store strictly.

## 8. Exposure Controls/Personal Protection

Consideration for safety management

Not established

Occupational exposure level (Decabrominated diphenyl ether)

Not established

Occupational exposure level (Polystyrene)

Not established for disc sample

Facility engineering

◇ Cautions for storage

•Avoid direct sunlight. Store in a dark clean place in an airtight container at a temperature below 23 °C

Protective equipment

- Not particularly necessary if handling under normal condition.

## 9. Physical and Chemical Properties

- Appearance, etc. : Solid
- Color : Clear and colorless
- Odor : No data
- pH : No data
- Melting point : Approximately 240 °C
- Boiling point : No data
- Flashing point : 427 °C
- Explosive range : No data
- Vapor pressure : No data
- Relative vapor density(Air=1) : No data
- Specific gravity or bulk specific gravity : 1.05 g/cm<sup>3</sup>
- Solubility : Non soluble in water, ether. Readily soluble in organic solvents such as toluene, chloroform, tetrahydrofuran, etc.
- *n*-Octanol/water partition coefficient (Log Po/w) : No data
- Auto-ignition temperature : No data
- Flammable point : 345 °C to 360 °C

## 10. Stability and Reactivity

- ◇ Stability
  1. Stable when stored or handled under normal condition.
- ◇ Reactivity
  1. May generate NO<sub>x</sub>, CN, etc. by thermal decomposition.
- ◇ Conditions to avoid
  1. May react in contact with strong oxidizers.
- ◇ Hazardous decomposition products
  1. Carbon monoxide

## 11. Toxicological Information

Not in particular.

## 12. Ecological Information

Degradability, concentration

- Non-biodegradable.

Bioaccumulation

- Considered as neither concentrative nor accumulative in fish and shellfish, or low in accumulation.

Also considered as not highly concentrative. (Japan Existing Chemical Data Base under Act on the

Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.)

Ecotoxicity

◇ Degradability : 1 % to 3% (by BOD)

◇ Concentration (concentration rate): Carp 58 to 144-fold (2 mg/L)  
Carp 358 to 821-fold (0.2 mg/L)

◇ Fish toxicity : Red killifish LC50/48H >500 mg/L

### 13. Disposal Considerations

- Residual Waste : · This standard substance contains decabrominated diphenyl ether and should be handled appropriately, taking into account that it is Class I Specified Chemical Substance of the Law Concerning the Examination and Regulation of Manufacture, etc.  
· It corresponds to industrial waste and waste plastics of "Waste Disposal and Public Cleaning Law" (Waste Disposal Law). In accordance with the waste disposal method, Disposal of this reference material should be entrusted to a professional waste disposal company licensed by a prefectural governor.
- Contaminated Container and Package : Dispose of this CRM in accordance with applicable legislation and local government ordinance. Entrust disposal of this CRM to a professional waste disposal company licensed by the prefectural governor.

### 14. Transport Information

- UN No. : Not applicable
- UN classification : -
- Chemical name : -
- Container grade : -
- ICAO/IATA : Not applicable
- Marine pollutant : Not applicable
- Precautions : Transport carefully avoiding direct sunlight, spillage due to fall, dropping, etc., and fire.

### 15. Regulatory Information

◇ Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (Chemical Substances Control Law)

· Type 1 Specific Compound (Decabrominated diphenyl ether, No. 33)

◇ Act on grasping emission amount of specified chemical substances to the environment and promoting improvement of management

· Class I designated chemical substances (Decabrominated diphenyl ether, No. 1 - 255)

**This SDS is originally prepared for the use of the material in Japan, thus the stated laws and regulations are stipulated and carried out in Japan. The use of the material in other countries should be referred to and by application of the relevant laws and regulations of the country in**

which the material will be used.

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## 16. Other Information

### Others

The information in this document is not intended to be exhaustive and is based on currently available information and data. The measures given in this document are applicable only to normal handling conditions. When handling this reference material under special conditions etc., it is recommended to take safety measures appropriate to each specific application and context of use. This document is intended to provide information and not intended to guarantee anything in handling this reference material.

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