

Safety Data Sheet



1. Identification of the Substance/Mixture and the Supplier

Supplier : National Institute of Advanced Industrial Science and Technology (AIST)
 Address : 1-3-1 Kasumigaseki, Chiyoda, Tokyo, Japan
 Office in charge : Reference Materials Office, Center for Quality Management of Metrology, National Metrology Institute of Japan
 Person in charge : Certified Reference Material Staff
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 Emergency contact : Same as above

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Revised on :

Reference No. : 8110002

Identity of substance/mixture : Certified Reference Material NMIJ CRM 8110-b
 Polybrominated diphenyl ethers in polystyrene (High Concentration)
 Recommended use of the chemical and restriction on use : This reference material is intended for use in the quality control of analysis and the validation analytical methods or instruments for quantification of decabrominated diphenyl ether (DBDE) in polystyrene.
 Do not use this reference material for other purposes than testing/research.

2. Hazard Identification

GHS classification : Not classified

GHS-labeling element : —

Signal word : —

Hazard statement : —

Precautionary statement : [Precaution]
 Use personal protective equipment.

Toxic if swallowed.

[Response]

If swallowed, give a large amount of water to induce vomiting. Get medical advice/attention.

[Storage]

Store in a clean and dark place at temperature of 5 °C to 35 °C

Protect from direct sunlight. Keep container tightly closed.

[Disposal]

Handle this reference material, which contains DBDE, Class 1

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

Abide by applicable legislation and ordinances set by local governments.

Entrust disposal of this reference material to a professional waste disposal company licensed by prefectural governor.

Other hazards : This reference material contains decabrominated diphenyl ether information (DBDE), Class 1 Specified Chemical Substance No.33.

The other hazards than the above do not result in classification or are not classifiable

3. Composition/Information on Ingredients

Substance or mixture : Mixture
Chemical name : Polybrominated diphenyl ethers in polystyrene (High Concentration)

Ingredient 1

Chemical name : Polystyrene
Synonym : Styrene polymerization, Ethenylbenzene homopolymer
CAS number : 9003-53-6
Content : About 99 %
Chemical formula : $(C_8H_8)_x$ ('x' is polymerization degree)
Molecular weight : —
Reference number in gazetted list in Japan : Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (6)-120
Industrial Safety and Health Act : Published

Ingredient 2

Chemical name : Decabrominated diphenyl ether (DBDE)
Synonym : Decabromodiphenyl ether
CAS number : 1163-19-5
Content : 978 mg/kg ($C_{12}Br_{10}O$)
Chemical formula : $C_{12}Br_{10}O$
Molecular weight : 959.17
Reference number in gazetted list in Japan : Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : (3)-2846
Industrial Safety and Health Act : existing substance

4. First-Aid Measures

If inhaled : Remove victim to fresh air and keep at rest and warm.
If you feel unwell, get medical advice/attention.

If on skin : Rinse well with clean water.
Remove/Take off contaminated clothing and shoes, etc.
If skin irritation or rash occurs: Get medical advice/attention.

If in eyes : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Get medical advice/attention.

- If swallowed : Rinse mouth thoroughly with water.
Get medical advice/attention.
- Protection of first-aiders : Use personal protective equipment.

5. Fire-Fighting Measures

- Suitable extinguishing media : Water, Carbon dioxide, Dry chemical powder, Alcohol-resistant polymer foam
- Unsuitable extinguishing media : No data available
- Fire-specific hazard : Neither ignitable nor flammable under normal environment.
Fight fire from the windward as much as possible to avoid breathing hazardous or toxic substances such as carbon monoxide, NOx and CN contained in combustion gas.
- Specific fire-fighting method : Eliminate ignition sources from the origin of fire and put out fire by using appropriate extinguishing media.
Move movable containers to a safe place promptly. If containers are immovable, cool their surroundings with water spray.
- Protection of fire-fighters : Fight fire from the windward side to avoid breathing hazardous gases.
Use personal protective equipment such as fire-resistant clothing, heat-resistant clothing, protective clothing, air respirator, self-contained compressed air breathing apparatus, rubber boots.

6. Accidental Release Measures

- Personal precautions, personal protective equipment and emergency procedures : Use appropriate personal protective equipment during the operation to avoid skin contact of splash, etc. and inhalation of dust and gas.
- Environmental precautions : Prevent spillages from flowing into drain sewers and waterways.
- Recovery and neutralization : Collect spillages in empty containers. Rinse away the remains with plenty of water.
- Prevention of secondary disaster : Mark the restricted area with rope etc. to keep out unauthorized people.
Carry out the clean-up operation from the windward and make people on the leeward side evacuate.

7. Handling and Storage

- Handling Engineering : Keep away from hot surfaces, sparks and open flames.

precautions/Local and general ventilation	:	If mist or vapor is emitted: Seal the emission source and install local exhaust system.
Precautions for safe handling	:	Avoid contact with eyes, skin, clothing, etc. Do not eat, drink or smoke when using this reference material. Do not handle with bare hands Wash hands thoroughly after handling.
Incompatible substances or mixtures	:	No data available
Hygiene controls	:	Handle this reference material in accordance with industrial health and safety codes.
Storage		
Appropriate storage conditions	:	Store in a clean and dark place at temperature of 5 °C to 35 °C Protect from direct sunlight. Keep container tightly closed.
Safe container packaging material	:	Aluminum laminated plastic bag
※Refer to the Certificate for appropriate storage conditions and instructions for use as a reference material.		

8. Exposure Controls/Personal Protection

Threshold limit value	:	Not specified
Permissible concentration (Decabrominated diphenyl ether and polystyrene)		
• ACGIH TLV-TWA (2000)	:	Not specified
• Values recommended by Japan Society for Occupational Health	:	Not specified
• OSHA PEL TWA	:	Not specified
Engineering control		
• Ventilation/exhaust	:	Local exhaust ventilation system or general ventilation system
• Safety management/ Gas detector	:	No data available
• Storage precaution	:	Avoid direct sunlight.
Personal protective equipment		
• Respiratory system	:	Protective mask
• Hands	:	Protective gloves
• Eyes	:	Eye protector
• Skin and body	:	Protective clothing

9. Physical and Chemical Properties and Safety Characteristics

As the ingredients are mostly polystyrene, the properties of polystyrene are described.

Appearance, etc.	: Solid Disk with 30 mm diameter and 2 mm thickness.
Color	: Clear and colorless
Odor	: No data available
Melting point	: Approximately 240 °C
Boiling point	: No data available
Flammability	: No data available
Explosive range	: No data available
Flashing point	: 345 °C to 360 °C
Auto-ignition temperature	: No data available
pH	: No data available
Kinematic viscosity	: No data available
Solubility	: Insoluble in water and ethanol. Readily soluble in organic solvents such as toluene, chloroform, tetrahydrofuran, etc.
<i>n</i> -Octanol/water partition coefficient (log Po/w)	: No data available
Vapor pressure	: No data available
Density and/or relative density	: About 1050 kg/m ³
Relative vapor density (air=1)	: No data available
Particle characteristics	: No data available

10. Stability and Reactivity

Reactivity	: No data available
Stability	: Stable when stored or handled under normal condition.
Possibility of hazardous reactions	: No data available
Conditions to avoid	: Sunlight, Heat
Incompatible materials	: Strong oxidizers
Hazardous decomposition products	: Carbon monoxide

11. Toxicological Information

Note: No information on toxicity is available. However, care should be taken when handling it as it may feature unknown toxicity.

※ Section “Toxicological Information” is prepared based on the information on the raw material because no information on the mixture is available.

This reference material is stable under normal conditions and there is no risk of elution of harmful additives. In case of handling this material under special conditions, such as high

temperatures, however, it is recommended to take sufficient safety precautions.

12. Ecological Information

Ecotoxicity	: Oryzias latipes LC ₅₀ /48 hours > 500 mg/L
Persistence and degradability	: Not biodegradable
Bioaccumulative potential	: Bio-concentration factor (BCF) : Carp 58 to 144 (2 mg/L) 358 to 821 (0.2 mg/L)
Mobility in soil	: No data available
Harmful effects on ozone layer	: No data available

13. Disposal Considerations

Residual wastes	: Handle this reference material, which contains decabrominated diphenyl ether (DBDE), Class 1 Specified Chemical Substance, by giving considerations to Law Concerning the Examination and Regulation of Manufacture, etc. Entrust disposal of this reference material, which is categorized as “industrial waste; plastic waste” specified in Waste Disposal and Public Cleaning Law (Waste Disposal Law), to a professional waste disposal company or to a local government if it is responsible for disposal.
Contaminated container and package	: Dispose of containers after thoroughly removing their contents.

14. Transport Information

International regulations	Not applicable
UN number	: —
Shipping name	: —
UN classification	: —
Packing group	: —
Marine pollutant	: —
Japanese domestic regulations	
Transport by road/rail	: Comply with Fire Service Act, Poisonous and Deleterious Substances Control Act
Transport by sea	: Comply with Ship Safety Act and Act on Port Regulations
Transport by air	: Comply with Civil Aeronautics Act

15. Regulatory Information

◇Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

- (Chemical Substances Control Law)
- Class 1 Specified Chemical Substance (Article 2-2, Enforcement Order Article 1: 1,1'-Oxybis(2,3,4,5,6-pentabromobenzen), Decabromodiphenylether, No. 33)
 - ◇ Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Law)
 - Class I designated chemical substances (Article 2-2, Enforcement Order Article 1 Appendix-1: Bis(pentabromophenyl)ether, No. 1-255)
- ◎ **This SDS was originally prepared for the use of the reference material in Japan, and therefore Section 15 “Regulatory Information” covers only those laws and regulations which are enacted and enforced in Japan. In case of using this reference material, it is necessary to refer to and apply relevant laws and regulations of the country in which it is 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.
