

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

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Revised on : August 11, 2020
ID Number : 8158001

Identity of Substance/Mixture : Reference material: NMIJ RM 8158-a
Polystyrene for Raman Spectrometer

Recommended Use of the Chemical and Restriction on Use : This reference material(RM) is intended for use in the calibration of instruments, and validation of and instruments.
Do not use this RM for other purposes than testing/research.

2. Hazards Identification

GHS Classification : Not applicable

GHS Label Element : Not applicable

Signal Word : Not applicable

Hazards Statement : Not applicable

Other Hazards Statement : Toxic if inhaled or swallowed

Precautionary Statement : [Precaution]
Not applicable
[Action]
Not applicable
[Storage]
Store in an original aluminum laminated plastic bag, and keep out direct sun light and store clean place at 15 °C to 25 °C.
[Disposal]
Dispose of this reference material in accordance with applicable legislation and local government ordinance.
Entrust disposal of this reference material to a professional waste disposal company licensed by prefectural governor.

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

3. Composition/Information on Ingredients

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|----------------------|--|
| Substance/Mixture | : Single substance |
| Chemical name | : Polystyrene for Raman Spectrometer |
| Ingredient | : Polystyrene |
| Synonym | : Styrene polymer |
| Amount | : 99 % or higher |
| Chemical formula | : (C ₈ H ₈) _i ; (i:Degree of polymerization) |
| Molecular weight | : - |
| Official Gazette | : Act on the Evaluation of Chemical Substances and Regulation of |
| Reference No. | Their Manufacture, etc. : (6)-120 |
| | Industrial Safety and Health Act : Published |
| CAS number | : 9003-53-6 |
| Hazardous Ingredient | : - |

4. First-aid Measures

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| If in Eyes | : If dust or decomposed gas gets into eyes, rinse cautiously with clean water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention immediately. |
| If on Skin | : Remove/Take off contaminated clothing, etc. Rinse thoroughly with clean water. Wash polluted clothing, if reuse them. |
| If Inhaled | : If dust or decomposed gas is inhaled, remove victim to fresh air and keep at rest and warm. Get medical advice/attention immediately. |
| If Ingested | : Rinse mouth thoroughly with water. Drink a lot of water then it induces vomiting. Immediately call a physician. |
| Predicted immediate and delayed symptoms | : No data available |
| Most important symptom/effect | : No data available |
| Protecting Personnel in emergency measures | : Use personal protective equipment. |

5. Fire-fighting Measures

| | |
|-------------------------------|--|
| Extinguishing Media | : Water, carbon dioxide, dry chemical powder, alcohol resistant, polymer foam. |
| Fire-Specific Hazards | : In the case of fire, irritating or toxic gas (CO, styrene monomer) may be generated. Extinguish fire from upwind as far as possible and avoid inhalation. |
| Specific Fire-Fighting Method | : Eliminate ignition sources at the origin of a fire and put out fire by using extinguishing media. Remove movable containers promptly to a safe place. In the case of immovable containers, cool their surroundings with sprayed water. |
| Protection of | : Use personal protective equipment such as fire protection |

Fire-Fighters : clothing, protective clothing, breathing apparatus, circulating oxygen respirator, and rubber boots.

6. Accidental Release Measures

- Personal Precaution : Use appropriate personal protective equipment during the operation to avoid skin contact and inhalation of dust and decomposed gas.
- Personal Protective Equipment and Emergency Procedures : If indoors, provide adequate ventilation until treatment is complete. Use appropriate personal protective equipment during the operation to avoid skin contact of splash etc. and inhalation of dust and gas.
- Environmental Precautions : Take precautions to prevent spillage from draining into rivers etc. Make it sure to appropriately treat contaminated wastewater in order to prevent untreated wastewater from being released into the surrounding environment.
- Recovery and Neutralization : Collect the scattered material or contaminated items in an empty container.
- Prevention of Secondary Disaster : Promptly remove nearby ignition sources and prepare extinguishing media.

7. Handling and Storage

Handling

- Engineering Precautions : Keep away from hot surfaces, sparks, and strong oxidizer. Provide appropriate ventilation.
- Local and General Ventilation : When dust or decomposed gas is generated, seal the source, and provide local exhaust ventilation or central ventilation.
- Precautions for Safe Handling : Avoid contact with eyes, skin and clothing. Do not eat, drink or smoke while working. Do not touch it directly with your hands. Wash hands thoroughly after handling.

Storage

- Appropriate Storage Conditions : Store and seal in an original aluminum laminated plastic bag. Avoid direct sun light and store in a place at room temperature from 15 °C to 25 °C.
- Safe Container Packaging Material : Aluminum laminated plastic bag

8. Exposure Controls/Personal Protection

Threshold Limit Value

- Not specified

Permissible Concentration

Japan Society for Occupational Health has not set a permissible concentration for polystyrene dust, but it is considered appropriate to apply the following values.

2 mg/m³ (Inhalable dust)

8 mg/m³ (Total dust)

- ACGIH TLV-TWA : Not specified
- Values recommended by Japan Society for Occupational Health : Not specified
- OSHA PEL TWA : Not specified

Facility engineering

- Ventilation, exhaust : Use closed processing equipment or install local ventilation system when dust is generated.
During high-temperature processing decomposed gas is generated, it is desirable to install facilities to rinse eyes and to wash hands and body in the vicinity of a place handling this reference material and label them.
- Safety management/ gas detector : Measuring instrument, detector tube
- Storing precaution : Store and seal in an original aluminum laminated plastic bag. Avoid direct sun light and store in a place at room temperature from 15 °C to 25 °C.
Keep away from flammable substances and strong oxidizers.

Personal Protective equipment

- Respiratory protection : Use protective mask when dust is generated.
During high-temperature processing, decomposed gas is generated, use protective mask for organic gases.
- Hands : Protective gloves
- Eyes : Eye protector (Goggle type as necessary)
- Skin and Body : Protective clothing (long sleeve), protective boots

Hygiene measure

Treat in accordance with rules on Industrial hygiene and Industrial safety.

9. Physical and Chemical Properties

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|---|--|
| Appearance, etc. | : Solid. Disk with 25 mm diameter and 4 mm thickness. |
| Color | : Colorless and transparent. |
| Odor | : No data available |
| pH | : No data available |
| Melting point | : About 240 °C |
| Boiling point | : No data available |
| Flashing point | : 345 °C~427 °C |
| Explosive range | : No data available |
| Vapor pressure | : No data available |
| Relative vapor density (Air=1) | : No data available |
| Specific gravity or bulk specific gravity | : 1.05 g/cm ³ |
| Solubility | : Not soluble in water, ether. Easily soluble in organic solvents such as toluene chloroform, tetrahydrofuran. |
| <i>n</i> -Octanol/water partition | : No data available |

coefficient (Log Po/w)

Auto-ignition temperature : 427 °C

10. Stability and Reactivity

Stability : Stable in normal conditions
 Reactivity : Flammable material.
 Possibility of hazardous reaction : No data available
 Conditions to avoid : Sunlight, Heat, contact with strong oxidizing agent.
 Incompatible materials : Strong oxidizing agent
 Hazardous decomposition products : Carbon monoxide, styrene monomer

11. Toxicological Information

Acute toxicity : No data available
 Skin corrosivity/irritation : No data available
 Serious eye damage/ Eye irritation : No data available
 Respiratory sensitization : No data available
 Skin sensitization : No data available
 Germ cell mutagenicity : No data available
 Carcinogenicity : Evaluated as Group 3 (cannot be classified as carcinogenic to humans) by IARC.
 Reproductive toxicity : No data available
 Specific organ toxicity (single exposure) : No data available
 Specific organ toxicity (repeated exposure) : Rats were fed 2% polystyrene in 5% diet and had no effect.
 Aspiration hazard : No data available

※This reference material is stable under normal conditions, and there is no danger of the noxious additive ingredient being eluted. However, when handling this reference material under special conditions, such as high temperatures, etc., safety precautions for appropriate use are recommended.

12. Ecological Information

Ecotoxicity : No data available
 Persistence and Degradability : No data available
 Bioaccumulative Potential : No data available
 Mobility in soil : No data available
 Influence to the ozone layer : No data available

13. Disposal Considerations

- Residual waste : Dispose of this reference material in accordance with applicable legislation and local government ordinance. When the above-mentioned treatments are not possible, entrust disposal of residual waste to a professional waste disposal company licensed by prefectural governor.
- Contaminated container and package : Dispose of containers after thoroughly removing their contents.

14. Transport Information

- UN Number : Not applicable
- UN Classification : Not applicable
- Material name : Not applicable
- Container grade : Not applicable
- ICAO/IATA : Not applicable
- Marine pollutant : Not applicable
- Precautions : Transport this reference material carefully while keeping it away from direct sunlight and fire and preventing accidental release due to falling, overturning, and etc.

15. Regulatory Information

- No applicable laws and regulations
- ◎ **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 outside of Japan, it is necessary to refer to and apply relevant laws and regulations of the country in which it is used.**

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.
