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 Material Office, Center for Quality Management of Metrology, The National Metrology Institute of Japan (NMIJ)
Person in Charge	:	Person in Charge of Certified Reference Materials
Telephone No.	:	+81-29-861-4059 Fax No. : +81-29-861-4009
Emergency Contact	:	Same as above
		Prepared on : May18, 2011
		Revised on : August 31, 2022
		ID Number : 5701001
Identity of Substance/Mixture	:	Certified Reference Material NMIJ CRM 5701-a Polystyrene latex nanoparticle, 120 nm
Recommended Use of the Chemical and Restriction on Use	:	This CRM is intended for use in controlling the precision of analysis or confirming the validity of analytical methods or instruments for the determination of light scattering intensity averaged diameter of nanoparticles in liquid phase using dynamic light scattering (DLS). Do not use this reference material for other purposes than testing/research. This CRM is a reference material (specified in the Japanese Industrial Standard (JIS) Q 0030).

2. Hazards Identification

GHS classification	:	Unclassifiable
GHS label element	:	—
Signal word	:	—
Hazard and toxicity	:	—
Other hazard and toxicity	:	Toxic if inhaled or swallowed
Precautionary statement	:	[Preventive measures] Toxic by oral ingestion [Response] When swallowed, drink a large amount of water to induce vomiting. Get medical assistance [Storage] Store in a clean place avoiding direct sunlight at the temperature above 4 °C and below 30 °C. Freezing prohibited. [Disposal] Outsource to a professional industrial waste disposal contractor licensed by the prefectural governor.

Hazardous and toxic properties not specified in the above are neither the object of the classification nor classifiable.

3. Composition/Information on Ingredients

Substance or mixture	:	Mixture
Ingredient 1		
Chemical name	:	Polystyrene
Synonym	:	Styrene polymer
Concentration	:	Approximately 1%
Chemical or structural formula	:	$(C_8H_8)_i$; (i: polymerization degree)
Molecular weight	:	-
CAS number	:	9003-53-6
Content	:	About 1 %
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	:	Water
Synonym	:	
Chemical formula	:	H_2O
Molecular weight	:	18.02
CAS number	:	7732-18-5
Content	:	About 99 %
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : - Industrial Safety and Health Act : -

4. First-aid Measures

If in eye	:	Rinse well with clean water. Get medical assistance
If on skin	:	Rinse well with clean water. In case of inflammation, get medical assistance
If inhaled	:	Move to a fresh air, rest., get medical assistance
If swallowed	:	Drink a large amount of water to induce vomiting. Get medical assistance
Anticipated acute and delayed symptoms	:	-
Most important characteristics and symptom	:	-
Measures to protect the person applying	:	Use personal protective equipment.

emergency first aid

5. Fire-fighting Measures

Extinguishing media	:	Early stage fire extinguishing activity with powder, carbon dioxide, powder fire extinguishing equipment, instrument. Foam extinguishing agent for water soluble liquid (alcohol-resistant foam), carbon dioxide, powder, sand, water
Specific hazards at the time of fire	:	May exude irritating or toxic fume (or gas) at the time of fire.
Specific extinguishing measures	:	Remove combustible sources away from the seat of the fire and extinguish with fire extinguishing agent. If possible, promptly transfer the container to safe area. If unable to transfer, cool down the periphery with water spray.
Protecting fire-fighting personnel	:	Extinguishing activities on windward side, avoid inhaling toxic gases. Use protective equipment such as fire-resistant clothing, heat-resistant protective clothing, protective clothing, air-breathing apparatus, closed-circuit self-contained oxygen breathing apparatus, rubber gloves, rubber boots, etc.

6. Accidental Release Measures

Personal precaution	:	Treat the spill carefully and clean it thoroughly. If the material remains on the floor, it becomes very slippery and dangerous.
Protective equipment and emergency procedure	:	Use appropriate protective equipment to prevent the skin from contact with airborne droplets or to protect from inhaling dust and gas.
Environmental precaution	:	To prevent causing environmental impact, do not release the spilled material into rivers, etc. directly. Treat the contaminated waste water appropriately before discharging to the environment.
Recovery, neutralization	:	Adsorb the spilled liquid to liquid absorbent (sand, diatom earth, acid-binding agent, universal binding agent, sawdust) etc. and collect the contaminated items in an empty container.
Measures to prevent secondary accident	:	Rope-off the spilled/leaked area and restrict access to the area to the authorized personnel only. Evacuate the people on the leeward and work on the windward side.

7. Handling and Storage

Handling

Technological counter measures	:	—
Local ventilation/ general ventilation	:	
Precautions for safe	:	Do not handle the container roughly to fall, drop, give a shock

handling	or drag, etc. Prevent from leaking, spilling, or scattering. Do not exude vapor without reason. Seal the container airtight after handling. Wash hands, face, etc., well and gargle after handling. Drinking, eating and smoking only in the designated area. Do not take the contaminated protective equipment such as gloves, etc. into the resting area. Entrance to the handling area only by the authorized persons. Use appropriate protective equipment to protect from inhaling dust or gas and to prevent the skin, eyes and clothing from contact with airborne droplets. Use local exhaust ventilation system when handling in an indoor workshop

Storage

Appropriate conditions	:	Store in a clean place avoiding direct sunlight at the temperature above 4 °C below 30 °C. Freezing prohibited.
Materials for safe packaging	:	Polypropylene

8. Exposure Controls/Personal Protection

Administrative level

Not established

Occupational exposure limit (Chemical name)

・ACGIH TLV-TWA (2000)	:	Not established
・Japan Society for Occupational Health Recommended Reference Value (1998)	:	Not established
・OSHA PEL TWA	:	Not established

Facility engineering

Ventilation, exhaust	:	Local exhaust ventilation system or general ventilation system
Safety management/gas detector	:	Measuring instrument、detector tube
Storing precaution	:	Ventilate along floor surface. Seal. Keep away from flammable substances, reducing agents and strong oxidizers.

Protective equipment

Respiratory organ	:	Not necessary
Hands	:	Not necessary
Eyes	:	Protective eyeglasses
Skin and body	:	Protective clothing

Sanitary measures

Strictly observe the general precautions for the handlings of chemical products

9. Physical and Chemical Properties

・Appearance, etc.	:	Polystyrene latex nanoparticle dispersion aqueous solution
・Color	:	White
・Odor	:	No data
・pH	:	No data
・Melting point	:	No data
・Boiling point	:	No data
・Flashing point	:	No data
・Explosive range	:	No data
・Vapor pressure	:	No data
・Relative vapor density(Air=1)	:	No data
・Specific gravity or bulk specific gravity	:	No data
・Solubility	:	No data
・*n*-Octanol/water partition coefficient (Log Po/w)	:	No data
・Auto-ignition temperature	:	No data

10. Stability and Reactivity

◇Stability

・Has stability in acid and alkali, but weak in oil resistant.

◇Reactivity

・Decomposes when heated above 300 °C, and exudes toxic fume, etc. such as styrene.

◇Conditions to avoid

・Contact with sunlight, heat and oxidizers.

◇Hazardous decomposition products

・Carbon monoxide

11. Toxicological Information

No data available

12. Ecological Information

Degradability, concentration

・No microbial, etc. degradability

Bio accumulation

・This material is considered to have neither bioaccumulation nor bioconcentration effect, or very low in bioaccumulation or bioconcentration in fish and shellfish.

Ecotoxicity

・No data available

13. Disposal Considerations

・Outsource to a professional industrial waste disposal contractor licensed by the prefectural governor.

14. Transport Information

UN Number	:	Not applicable
UN Classification	:	Not applicable
Material name	:	Not applicable
Container grade	:	—
ICAO/IATA	:	Not applicable
Marine pollutant	:	Not applicable
Precautions	:	Avoid direct sunlight, transfer carefully and prevent leak, spill due to dropping, falling, etc. and fire

15. Regulatory Information

No applicable laws and regulations

◎ **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.**

16. Other Information

Other

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.