

MATERIAL SAFETY DATA SHEET

SRM Supplier: National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2321
Gaithersburg, Maryland 20899-2321

SRM Number: 1478
MSDS Number: 1478
SRM Name: Polystyrene (Narrow Molecular Weight Distribution)
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SECTION I. MATERIAL IDENTIFICATION

Material Name: Polystyrene

Description: This material consists of granular polystyrene in a 2 gram unit.

Other Designations: Polystyrene (ethenylbenzene homopolymer; ethenylene; styrene polymer; oligostyrene)

Name	Chemical Formula	CAS Registry Number
Polystyrene	(C ₈ H ₈) _x	9009-53-6

DOT Classification: Polystyrene is not regulated by DOT.

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Component	Nominal Concentration (%)	Exposure Limits and Toxicity Data
Polystyrene	~100	No occupational limits established
		Rat, Intermittent Intravenous TD _{Lo} : 200 mg/kg/2 weeks

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Polystyrene	
Appearance and Odor: white solid; odorless	Melting Point: 240 °C
Nominal Weight-Average Molecular Weight (M_w): 3.74 x 10 ⁴ g/mol	Water Solubility: insoluble
Specific Gravity (Water = 1): 1.04 to 1.13	Solvent Solubility: soluble in ethyl benzene, methyl isobutyl ketone, tetrahydrofuran, benzene, toluene, dichloromethane, pyridines; insoluble in alcohols, alkali, nonoxidizing acids, phenol, acetone
Boiling Point: not applicable	

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: 345 °C to 360 °C

Autoignition Temperature: 488 °C to 496 °C

Flammability Limits in Air (Volume %): **UPPER:** Not Applicable

LOWER: Not Applicable

Unusual Fire and Explosion Hazards: This material is a slight fire hazard. Dust/air mixtures may ignite or explode.

Extinguishing Media: dry chemical, carbon dioxide, water, and regular foam

SECTION V. REACTIVITY DATA

Stability: X **Stable** **Unstable**

Polystyrene is stable at normal temperature and pressure.

Conditions to Avoid: Avoid heat, flames, sparks, and other sources of ignition. Avoid contact with incompatible materials.

Incompatibility (Materials to Avoid): Combustible materials, oxidizing materials

Hazardous Decomposition or Byproducts: Thermal decomposition of polystyrene can produce oxides of carbon and styrene.

Hazardous Polymerization **Will Occur** X **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: X **Inhalation** X **Skin** X **Ingestion**

Health Hazards (Acute and Chronic): Polystyrene dusts may cause mild irritation to the eyes. Inhalation of high concentrations of dust may cause irritation and coughing. Ingestion may also cause irritation. Fumes from burning material may cause irritation of the nose, throat, lungs, and tearing.

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	<u> </u>	<u> X </u>
In the International Agency for Research on Cancer (IARC) Monographs	<u> </u>	<u> X </u>
By the Occupational Safety and Health Administration (OSHA)	<u> </u>	<u> X </u>

EMERGENCY AND FIRST AID PROCEDURES:

Inhalation: Remove from exposure. If not breathing, give artificial respiration by qualified personnel, and get immediate medical attention.

Skin Contact: Wash effected area with copious amount of water and soap for at least 15 minutes. Get medical attention if necessary.

Eye Contact: Flush eyes with water for at least 15 minutes. Get medical attention if necessary.

Ingestion: Obtain medical attention immediately if a large amount is ingested.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Collect spilled material in appropriate container for proper disposal.

Waste Disposal: Follow all federal, state, and local regulations.

Handling and Storage: Keep material separated from incompatible substances. Store in tightly closed bottle under normal laboratory conditions. Store and handle in accordance with all current regulations and standards.

NOTE: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Polystyrene*, 19 March 2003.

SRM 1478 Certificate; *Polystyrene (Narrow Molecular Weight Distribution)*; National Institute of Standards and Technology, U.S. Department of Commerce: Gaithersburg, MD (1992).

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was carefully prepared, using current references; however, NIST does not certify the data in the MSDS. The certified value for this material is given in the NIST Certificate of Analysis.