

Section 1. Chemical Product and Company Identification

Product name	Polystyrene	<u>In Case of Emergency</u>	Chemtrec: (800) 424-9300 Total Petrochemicals & Refining USA, Inc.: (800) 322-3462
Supplier	Total Petrochemicals & Refining USA, Inc. P O Box 674411 Houston, TX 77267-4411	<u>Technical Information</u>	For non-emergency product information: email product.stewardship@total.com
Chemical Family	Polymer.	MSDS#	PS0007 (EN)
CAS Registry Number	9003-53-6	Validation Date	8/7/2012
		Print Date	8/7/2012
Synonym	Crystal Polystyrene This MSDS covers all prime grades of General Purpose Polystyrene including but not limited to the following grades: 5##, 5##P# 5##W, 5##WP# 5##B, 5##BP# 5##L, 5##LP# 5##T, 5##TP# CX5## rePS-5		

where # can be any digit (0 - 9). This MSDS also covers compounded samples labeled Polystyrene Nxxxxx and Nxxxxx-x, where x can be any digit (0 - 9).

Section 2. Hazards Identification

Emergency Overview	Irritating vapors to respiratory system and eyes may form when polymer is processed at high temperatures. Molten or heated material in skin contact can cause severe burns.
Routes of Entry	FOR HOT MATERIAL: Skin contact. Eye contact. Inhalation.
Potential Acute Health Effects	<p>Eyes Dust may cause mechanical irritation to eye. Heated Polymer: Eye contact can cause serious thermal burns. Vapors formed when polymer is heated may be irritating to the eye.</p> <p>Skin No known acute effects of this product resulting from skin contact at room temperature. Heated Polymer: skin contact can cause serious thermal burns.</p> <p>Inhalation Negligible at room temperature. Nuisance dusts can be irritating to the upper respiratory tract. Irritating vapors may form when the polymer is processed at high temperatures.</p> <p>Ingestion No effects are expected for ingestion of small amounts. May be a choking hazard.</p>
Potential Chronic Health Effects	CARCINOGENIC EFFECTS: Polystyrene is not a known carcinogen. Not listed as a carcinogen by OSHA, NTP or IARC.
Medical Conditions Aggravated by Overexposure	Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.
Overexposure /Signs/ Symptoms	No adverse health effects anticipated from the solid pellet.
See Toxicological Information (Section 11)	

Section 3. Composition and Information on Ingredients

Occupational exposure limits, if available, are listed in Section 8.

Substance Name	CAS #	% by Weight
Polystyrene	9003-53-6	~100

Section 4. First Aid Measures

Eye Contact	Rinse with water for a few minutes. Seek medical attention if necessary.
Skin Contact	Polymer: NO known EFFECT on skin contact, rinse with water for few minutes. Heated Polymer: For serious burns from heated polymer, get medical attention. In case of skin contact, immediately immerse in or flush with clean, cold water.
Inhalation	Allow the victim to rest in a well-ventilated area.
Ingestion	No First Aid procedures are needed.

Section 5. Fire Fighting Measures

Flammability of the Product	May be combustible at high temperature.
Auto-ignition Temperature	440°C (824°F)
Flash Points	>200°C (>392°F)
Flammable Limits	Not available.
Products of Combustion	Carbon oxides (CO, CO ₂) and soot.
Fire Hazards in Presence of Various Substances	No specific information is available in our database regarding the flammability of this product in presence of various materials.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not expected. Risks of explosion of the product in presence of static discharge: Possible. Risk of explosion from dust accumulation of this product is possible. See MSDS section 7 Handling for more information.
Fire Fighting Media and Instructions	SMALL FIRE: Dry chemical extinguisher (ABC or AB). Use water spray or fog. LARGE FIRE: Use water spray or fog. Do not use water jet. May re-ignite itself after fire is extinguished.
Protective Clothing (Fire)	Wear MSHA/NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear.
Special Remarks on Fire Hazards	Fire may produce irritating gases and dense smoke. Flowing material may produce static discharge, igniting dust accumulations.
Special Remarks on Explosion Hazards	Processing or material handling equipment may generate dust of sufficiently small particle size, that when suspended in air may be explosive.

Section 6. Accidental Release Measures

Small Spill and Leak	Pellets on the floor could present a serious slipping problem. Good housekeeping must be maintained at all times to avoid this hazard. Sweep, shovel, or vacuum material into clean containers.
Large Spill and Leak	Use a shovel to put the material into a convenient waste disposal container. Do not allow any potentially contaminated water with pellets to enter any waterway, sewer or drain.

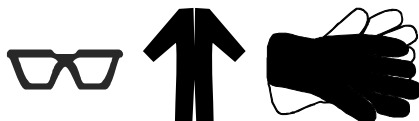
Section 7. Handling and Storage

Handling	<p>Avoid Temperatures of 600°F (316°C) or above.</p> <p>Handling of plastic may form nuisance dust. Protect personnel.</p> <p>Pneumatic material handling and processing equipment may generate dust of sufficiently small particle size that, when suspended in air, may be explosive. Dust accumulations should be controlled through a comprehensive dust control program that includes, but is not limited to, source capture, inspection and repair of leaking equipment, routine housekeeping and employee training in hazards. See NFPA 654.</p> <p>Dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.</p> <p>When handled in bulk quantities, this product and its associated packaging may present a crushing hazard due to the large masses involved, possibly resulting in severe injury or death.</p>
Storage	<p>Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.</p>

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below established levels. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	
<i>Eyes</i>	Safety glasses with side shields.
<i>Body</i>	Coveralls.
<i>Respiratory</i>	Ventilation is normally required when handling this product at high temperatures. Wear appropriate respirator when ventilation is inadequate.
<i>Hands</i>	Thermally insulated gloves required when handling hot material.
<i>Feet</i>	Shoes.

Protective Clothing (Pictograms)



Personal Protection in Case of a Large Spill	Safety glasses. Gloves. Coveralls
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Product Name	Exposure Limits
Polystyrene	Not established.

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Solid. Pellets.
Color	Polystyrene is translucent.
Odor	Odorless.
Molecular Weight	Not available.
Molecular Formula	$(-CH(C_6H_5)-CH_2-)_x (-CH_2-CH=CH-CH_2-)_y$
Melting/Freezing Point	>132.22°C (270°F)
Specific Gravity	1.04 (Water = 1)
Volatility	Negligible.
VOC	0 (%)
Solubility in Water	Insoluble in water.

Section 10. Stability and Reactivity

Stability and Reactivity	The product is stable. Avoid Temperatures of 600°F (316°C) or above.
Conditions of Instability	Keep away from heat and flame.
Incompatibility with Various Substances	Reactive with strong oxidizing agents.
Hazardous Decomposition Products	Hazardous decomposition products are carbon monoxide, carbon dioxide, dense smoke, and various hydrocarbons. Exposure of polystyrene to extremely high temperatures (600 deg F or higher) may cause partial decomposition. Chemicals that may be released include styrene monomer, benzene, and other hydrocarbons.
Hazardous Polymerization	Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological Information

Toxicity to Animals	Very low toxicity to humans or animals.
Chronic Effects on Humans	CARCINOGENIC EFFECTS: Not listed as a carcinogen by OSHA, NTP or IARC.
Other Toxic Effects on Humans	Not considered to be dangerous to humans.



Section 12. Ecological Information

Ecotoxicity	Avoid release to the environment. This substance is not expected to bioaccumulate through food chains in the environment.
Biodegradable/OECD	Not readily biodegradable. Persistent in the environment.
Mobility	Because of its physico-chemical properties, the product has a low soil mobility.

Section 13. Disposal Considerations

Waste Information	Transfer to an approved disposal area in accordance with federal, state, and local regulations.
Consult your local or regional authorities.	

Section 14. Transport Information (for domestic bulk shipments, non-bulk shipments may differ)

DOT Classification for Bulk Shipments (non bulk shipments may differ)	Not a DOT controlled material (United States).	
Proper Shipping Name/Description	Not applicable.	
UN Number	Not established	
Packing Group	Not applicable.	
Marine Pollutant	Not listed in Appendix B to 49CFR172.101	
Hazardous Substances Reportable Quantity	Not listed in Appendix A to 49CFR172.101	
Special Provisions for Transport	Not applicable.	
TDG Classification	Not controlled under TDG (Canada).	
IMO/IMDG Classification	Not controlled under IMDG.	
ICAO/IATA Classification	Not controlled under IATA.	
USCG Proper Shipping Name	Not Available	

Section 15. Regulatory Information

HCS Classification	This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
U.S. Federal Regulations	<p>TSCA inventory: All components listed</p> <p>SARA 301/302/303</p> <p>No chemicals in this product are listed as extremely hazardous substances in 40 CFR 355, Emergency Planning And Notification (Appendix A to Part 355).</p> <p>SARA 304</p> <p>No chemicals in this product require reporting under the requirement of 40 CFR 355, Emergency Planning And Notification (SARA extremely hazardous substances listed in Appendix A to Part 355 or CERCLA hazardous substances listed in Table 302.4 of 40 CFR Part 302).</p> <p>SARA 313</p> <p>This product contains no chemicals in excess of the applicable de minimis concentration that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 (Table 372.65).</p> <p>SARA 311/312</p> <p>This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and as such does not require reporting under the requirements of 40 CFR 370, Hazardous Chemical Reporting: Community Right-To-Know.</p>

International Regulations

WHMIS (Canada)	Not controlled under WHMIS (Canada).
DSCL (EEC)	This product is not classified according to EU legislation.
CEPA DSL/NDL	This material is listed or exempted.
International Lists	<p>Australia inventory (AICS): This material is listed or exempted.</p> <p>China inventory (IECSC): This material is listed or exempted.</p> <p>Japan inventory (ENCS): This material is listed or exempted.</p> <p>Japan inventory (ISHL): Not determined.</p> <p>Korea inventory (KECI): This material is listed or exempted.</p> <p>New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.</p> <p>Philippines inventory (PICCS): This material is listed or exempted.</p>

State Regulations

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986.

Ethylbenzene was listed on California Proposition 65 in June 2004. Under the law, a warning must be given unless a business demonstrates that the exposure to the listed chemical poses no significant risk. With this notification Total Petrochemicals & Refining USA, Inc. (TPRI) provides a "clear and reasonable" warning concerning the presence of this listed chemical at low levels in polystyrene. TPRI has chosen to provide a warning simply based on its knowledge about the presence of the listed chemical as a constituent of the starting materials.

The Office of Environmental Health Hazard Assessment's Proposition 65 Implementation Office has published a No Significant Risk Level (NSRL) for ethylbenzene of 54 micrograms/day for exposure by inhalation and 41 micrograms/day for oral exposure. TPRI worked with industry groups to develop a workbook to assist our customers to comply with the California regulations with respect to ethylbenzene. This workbook is available to our customers upon request (please contact customer service at 1-800-344-3462). We have no scientific information to suggest that the presence of the very low levels of ethylbenzene in polystyrene poses any significant risk to the consumer.

Section 16. Other Information

Label requirements	<p>Irritating vapors to respiratory system and eyes may form when polymer is processed at high temperatures.</p> <p>Molten or heated material in skin contact can cause severe burns.</p>
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**Hazardous Material
Information System
(U.S.A.)**

Health	0
Fire Hazard	1
Reactivity	0
Personal Protection	

**National Fire
Protection
Association
(U.S.A.)**

References

HSDB - Hazardous Substances Data Bank

**Other Special
Considerations**

Acceptable business/technical terms necessary for medical device applications must be developed by contacting your Total Petrochemicals & Refining USA, Inc. sales representative. Without such documented business terms, Total Petrochemicals & Refining USA, Inc. makes no representations and disclaims all warranties, express or implied, concerning biocompatibility and/or suitability of this product for medical device applications.

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Chemtrec:

(800) 424-9300

Total Petrochemicals & Refining USA, Inc.:

(800) 322-3462

Notice to Reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

MSDS Name

General Purpose Polystyrene

MSDS Code

PS_GPPS_PELLETS

11.01

To obtain an electronic copy of this MSDS, please email: product.stewardship@total.com.