TOTAL PETROCHEMICALS
TOTAL PETROCHEMICALS USA, INC.

Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Trade name	**TOTAL Polystyrene**
Supplier	TOTAL PETROCHEMICALS USA, INC. P O Box 674411 Houston,TX 77267-4411
Synonym	Crystal Polystyrene This MSDS covers all prime grades of General Purpose Polystyrene including but not limited to the following grades: 5##, 5##P1, or 5##P0 CX5### where # can be any number. This MSDS also covers compounded samples labeled TOTAL PETROCHEMICALS USA Polystyrene Nxxxxx and Nxxxxx-x, where x can be any number.
MSDS Name	Polystyrene
Chemical Family	Polymer.
CAS Registry Number	9003-53-6
Threshold Limit Value	Not available.
Manufacturer	TOTAL PETROCHEMICALS USA, INC. P.O. Box 98 Carville, LA 70721

Code	PS_GPPS_PELLETS
MSDS#	P82
Validation Date	**10/7/2009**
Print Date	10/7/2009
Responsible for Preparation	**Paul Bradley**
In Case of Emergency	**Chemtrec:** (800) 424-9300 **TOTAL PETROCHEMICALS USA, INC:** (800) 322-3462
Technical Information	TOTAL PETROCHEMICALS USA, INC. La Porte Research and Technology PO Box 1200 Deer Park,Tx. 77536 281-884-7500

Section 2. Composition and Information on Ingredients

Name	CAS #	% by Weight	Exposure Limits
Polystyrene	9003-53-6	~100	Not available.

Section 3. Hazards Identification

Physical State and Appearance	Solid. Pellets.
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

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.
Skin	No known acute effects of this product resulting from skin contact at room temperature. **Heated Polymer:** skin contact can cause serious thermal burns.
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.
Ingestion	No effects are expected for ingestion of small amounts. May be a choking hazard.

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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	There is no known effect from chronic exposure to this product. Repeated or prolonged exposure is not known to aggravate any medical condition.
Overexposure /Signs/Symptoms	No adverse health effects anticipated from the solid pellet.

See Toxicological Information (Section 11)

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.

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Section 7. Handling and Storage

Handling

Avoid Temperatures of 600°F (316°C) or above.

Handling of plastic may form nuisance dust. Protect personnel.

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.

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.

Storage

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.

Section 8. Exposure Controls/Personal Protection

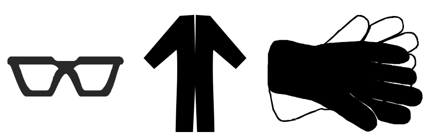
Engineering Controls

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

Eyes	Safety glasses.
Body	Coveralls.
Respiratory	Ventilation is normally required when handling this product at high temperatures. Wear appropriate respirator when ventilation is inadequate.
Hands	Thermally insulated gloves required when handling hot material.
Feet	Shoes.

Protective Clothing (Pictograms)



Personal Protection in Case of a Large Spill

Safety glasses. Gloves. Coveralls

Product Name	Exposure Limits
Polystyrene	Not available.

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Solid. Pellets.
Odor	Odorless.
Taste	Not available.
Color	Clear.
Molecular Weight	Not available.
Molecular Formula	(-CH(C6H5)-CH2-)x (-CH2-CH=CH-CH2-)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.

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Section 10. Stability and Reactivity

Stability and Reactivity	The product is stable. Avoid Temperatures of 600°F (316°C) or above.
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	No.

Section 11. Toxicological Information

Toxicity to Animals	LD50: Not available. LC50: Not available.
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

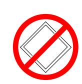
Ecotoxicity	Not available.
BOD5 and COD	Not available.
Biodegradable/OECD	Not available.
Mobility	Not available.
Toxicity of the Products of Biodegradation	No additional information.

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 bulk shipments, non-bulk shipments may differ)

DOT Classification for Bulk Shipments (non bulk shipments may differ)	Not a DOT controlled material (United States). 
DOT Proper Shipping Name	Not applicable.
UN Number	Not established
Packing Group	Not applicable.
USCG Proper Shipping Name	Not Available
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).

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ADR/RID Classification	Not controlled under ADR (Europe).
IMO/IMDG Classification	Not controlled under IMDG.
ICAO/IATA Classification	Not controlled under IATA.

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

TSCA inventory: **All components listed**

SARA 301/302/303

No chemicals in this product are listed as extremely hazardous substances in 40 CFR 355, Emergency Planning And Notification (Appendix A to Part 355).

SARA 304

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).

SARA 313

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).

SARA 311/312

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.

Specific state and local regulations should be consulted to determine if there are any additional requirements. Because many states and localities have added requirements or incorporated the Federal contents in their own forms, Tier I & II forms should be obtained from the State Emergency Response Commission (SERC).

Clean water act (CWA) 307: No products were found.
Clean water act (CWA) 311: No products were found.

Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

International Regulations

WHMIS (Canada)

Not controlled under WHMIS (Canada).

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is not listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

DSCL (EEC)

This product is not classified according to EU legislation.

International Lists

Australia inventory (AICS): This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory (ENCS): This material is listed or exempted.
Japan inventory (ISHL): Not determined.
Korea inventory (KECI): This material is listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.

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.

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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 USA, INC. provides a "clear and reasonable" warning concerning the presence of this listed chemical at low levels in polystyrene. TOTAL PETROCHEMICALS USA, INC. 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. TOTAL PETROCHEMICALS USA, INC. 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

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.

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 USA, INC. sales representative. Without such documented business terms, TOTAL PETROCHEMICALS USA, INC. makes no representations and disclaims all warranties, express or implied, concerning biocompatibility and/or suitability of this product for medical device applications.

Validated by Paul Bradley on 10/7/2009.

Verified by Karen Scheel.

Printed 10/7/2009.

Chemtrec:
(800) 424-9300
TOTAL PETROCHEMICALS 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.

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