

**MATERIAL SAFETY  
DATA SHEET**

**STYROCHEM EPS-EXPANDABLE POLYSTYRENE-CUP GRADE**

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**SECTION I: PRODUCT IDENTIFICATION**

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<b>CHEMICAL NAME:</b> Expandable Polystyrene	<b>TRADE NAME:</b> EPS
<b>SYNONYMS:</b> Styrene polymer, EPS	<b>CHEMICAL FAMILY:</b> Polystyrene
<b>FORMULA:</b> [CH(C <sub>6</sub> H <sub>5</sub> )CH <sub>2</sub> ]	<b>MOLECULAR WEIGHT:</b> 150,000 - 350,000
<b>CAS NO:</b> 9003-53-6	<b>RTECS NO:</b> WL6475000
<b>GRADES:</b> EPS Cup Grade	<b>DOT HAZARD CLASS:</b> UN2211
<b>NFPA RATING:</b> 1 - Health 2 - Flammability 0 - Reactivity 0 - Other	
<b>PRODUCT GRADES:</b> C113, D480U, ES113, ES280, T104, T113G, T280A, T280C, T380U,	

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**SECTION II: PHYSICAL DATA**

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<b>BOILING POINT</b> (°F @ 760 mmHg):N/A	<b>SPECIFIC GRAVITY:</b> 1.0
<b>MELTING POINT</b> (°F @ 760 mmHg):N/A	<b>PERCENT VOLATILE BY VOLUME(%):</b> slight
<b>VAPOR PRESSURE</b> (mmHg @ 68 °F):500	<b>EVAPORATION RATE</b> (Butyl Acetate=1) N/A
<b>SOLUBILITY IN WATER:</b> negligible	<b>ODOR:</b> hydrocarbon
<b>APPEARANCE:</b> Colorless to white beads or pellets	

\*NOTE: N/A = Not Applicable  
N/E = Not Established

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**SECTION III: HAZARDOUS INGREDIENTS**

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NAME	CAS#	%	TLV FOR ACGHI	OSHA PEL/STEL			
Polystyrene	Polymer 9003-53-6	>93	10 mg/m3	OSHA PEL for particulates not otherwise regulated = 10 mg/m3			
Pentane	109-66-0	< 7	600 ppm	1989	1974		
				ppm	mg/m3	ppm	mg/m3
				OSHA PEL = 600	1800	1000	2950
				STEL = 750	2250	none	

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**SECTION IV: SPECIAL PRECAUTIONS**

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**WARNING:** Do not smoke in areas where this product is being used (see Section X).  
Not to be used as an article for implantation. Animal studies indicate possible carcinogen if used for implantation. (see Section VII; Health & Hazards Data).

Overexposure to vapors may cause narcosis and/or respiratory irritation. Use with adequate ventilation, (see Section VII; Inhalation). Avoid breathing dust. Keep away from heat, sparks and flames (see Section VI; Fire & Explosion Hazards Data). Keep container closed. Avoid spills. Avoid contact with eyes (see Section VII; Health Hazards Data). Do not swallow (see Section VII; Health Hazards Data.). Wash thoroughly after handling (see Section VIII; Emergency & First Aid).

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**SECTION V: REACTIVITY DATA**

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**STABILITY:** Stable under normal conditions of storage and use.

**HAZARDOUS DECOMPOSITION PRODUCTS:** carbon dioxide, carbon monoxide

**HAZARDOUS POLYMERIZATION:** Will not occur.

**INCOMPATIBILITIES:** Organic solvents, oil products, strong oxidizing agents, heat, sparks, open flames, do not smoke in areas where this product is being used.

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**SECTION VI: FIRE AND EXPLOSION HAZARD DATA**

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<u>FLASH POINT (METHOD):</u>		AUTO-IGNITION
		<u>TEMPERATURE (@ 760 mm hg)</u>
Polystyrene	600 - 650 °F (TAG Open Cup)	N/A
n-Pentane	-56 °F (-49 °C) (Closed Cup)	500 °F
EPS	140 °F (Closed Cup)	N/A

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### FLAMMABILITY LIMITS IN AIR (% BY VOL.):

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Polystyrene	N/A	N/A
n-Pentane	1.5	7.8

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<b>EXTINGUISHING MEDIA:</b>	Water Fog	Foam	CO2	Dry Chemical	Other*
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

\* Water, Water Spray

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**SPECIAL FIRE FIGHTING PROCEDURES:** Firefighters must be equipped with self-contained breathing apparatus and turn-out gear. Dense smoke produced during burning may obscure vision. Fight fire from a safe or protected area, or apply intermittent fog to cool and protect firefighters. Beads on hard smooth surfaces create a serious slipping hazard which may interfere with fire fighting. Quench large fires by targeting the molten mass center with copious amounts of water; uncooled interior may regenerate fire.

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**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When container is opened a flammable vapor is released which is heavier than air and may travel long distances, ignite and flash back to source. If exposed to fire, high heat will be developed and a dense black smoke will result. Emits toxic fumes during combustion (carbon dioxide, carbon monoxide). A static charge is generated during handling which can discharge in the form of a spark. Dissipation of the static is difficult due to insulating property of the material. Good grounding techniques must be employed. Do not store flammable materials near handling area.

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### SECTION VII: HEALTH HAZARDS DATA:

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**PRIMARY ROUTE OF ENTRY:** Inhalation

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**ROUTE OF EXPOSURE:**

**INHALATION:** Emits toxic (carbon dioxide, carbon monoxide) fumes when heated to decomposition. Nuisance EPS may cause mechanical irritation with possible difficulty breathing, sneezing and coughing. Pentane vapors may cause irritation to mucus membranes, central nervous system, depression, dizziness and loss of coordination.

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**INGESTION:** Ingestion of EPS may cause gastrointestinal irritation.

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**SKIN CONTACT:** Pentane vapors may cause defatting of skin.

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**EYE CONTACT:** EPS particles may cause mechanical irritation or injury to the eye. Noticeable discomfort, redness and tearing can occur. Pentane vapors may cause irritation.

**CHRONIC EXPOSURE:** No adverse effects reported.

**POTENTIAL AGGRAVATION OF PRE-EXISTING CONDITIONS:** No adverse effects reported. Pentane may defat skin. EPS may irritate an open cut.

### SECTION VIII: EMERGENCY & FIRST AID

**INHALATION:** Remove to fresh air. Aid in breathing if necessary. Seek medical attention.

**INGESTION:** Not expected to require first aid. If gastrointestinal irritation exists, seek medical attention.

**SKIN EXPOSURE:** Wash with soap and water.

**EYE EXPOSURE:** Flush eyes with copious amounts of water for 20 minutes, retracting eyelids frequently. If irritation persists, seek medical attention.

### SECTION IX: TOXICITY DATA

**CARCINOGENIC REVIEW:** Animal positive (subcutaneous implantation)  
IARC 19, 231, 79.  
Pentane - LC50 - mouse 364 g/m<sup>3</sup> - 4 hours (per RETECS)

### SECTION X: OCCUPATIONAL CONTROL MEASURES

Substance	Source	AIRBORNE EXPOSURE LIMITS			Time	
		Date	Type	Value/Units		
Nuisance EPS Dust	OSHA	1989	PEL	10 mg/m <sup>3</sup>	8 hr.	
	ACGIH	1985	TLV	10 mg/m <sup>3</sup>	8 hr.	
Pentane				ppm	mg/m <sup>3</sup>	
	OSHA	1989	PEL	600	1800	8 hr.
	ACGIH	1985	TLV	600	1800	8 hr.
	OSHA	1985	STEL	750	2250	15 min.
	OSHA	1974	PEL	600	1800	8 hr.
	OSHA	1974	STEL	none		

**ENGINEERING CONTROLS:** Handling and storage areas must be sufficiently and appropriately ventilated.

#### RESPIRATORY

**PROTECTION:** Use NIOSH/OSHA-approved respirator if exposure may exceed TLV/PEL.

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**SKIN PROTECTION:** Wash skin with soap and water before eating, drinking, and when leaving work. If skin may be irritated by contact with EPS, plastic gloves are recommended.

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**EYE PROTECTION:** Safety glasses with side guards or goggles.

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**OTHER HYGIENIC AND WORK PRACTICES:** No smoking in any area where EPS is present. Non-static creating shoes and clothing should be worn. Keep work area floors clean. Beads on hard, smooth surface create a serious slipping hazard. Walk ways should be covered with open gratings or a coarse granular material. Electrically ground all equipment used in processing and handling.

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**PRECAUTIONS IF MATERIAL IS SPILLED OR RELEASED:** Do not smoke in area of spill or release. Flammable vapors may be present. Remove all sources of ignition. Ventilate area before entering, or use an NIOSH/OSHA-approved respirator. Sweep, shovel, or vacuum into suitable containers for reuse or disposal.

Material is a RCRA non-hazardous waste if disposed. Do not smoke in area of spill or release.

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**WASTE DISPOSAL METHODS:** Manage as a RCRA non-hazardous waste, unless mixed with other wastes. Manage according to state and local laws and regulations.

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**SECTION XI: SHIPPING DATA**

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**DOT INFORMATION** UN/NA ID number: UN2211  
Hazard Class: 9  
Packing Group: III  
Proper shipping name: Polystyrene, expandable, 9, UN2211, PG III

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**BILL OF LADING DESCRIPTION:** Polystyrene Beads, Expandable, 9, UN2211, PG III

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### SECTION XII: REGULATORY INFORMATION

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OSHA Regulations:

OSHA Hazard Communication Rule, 29 CFR 1910.1200:

Based on a hazard evaluation, the following ingredient in this product is hazardous and the reasons are listed below.

Pentane - Air contaminate/Flammable - 600 PPM (1800 mg/m3) OSHA PEL; STEL 750 ppm (2250 mg/m3)

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This is an updated MSDS as required by OSHA's Hazardous Communications Rule, 29 CFR 1910. 1200.

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