

READ AND UNDERSTAND MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR DISPOSING OF PRODUCT

**MSDS CODE AND NAME** : **GRADE 40 EXPANDABLE POLYSTYRENE (EPS)**  
**DATE ISSUED** : **9/20/2005**  
**DATE PRINTED** : **9/20/2005**

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### MATERIAL IDENTITY

##### MSDS CODE AND NAME

**GRADE 40 EXPANDABLE POLYSTYRENE (EPS)**

##### Chemical Name and/or Family or Description:

**Chemical Name:** Polystyrene thermoplastic polymer

**Synonym(s):** Modified EPS

**Molecular Formula:** (C<sub>8</sub>H<sub>8</sub>)<sub>x</sub>

##### COMPANY INFORMATION

Huntsman Corporation  
P.O. Box 4980  
The Woodlands, TX 77387-4980

##### TELEPHONE NUMBERS

Transportation Emergency  
Company: (800) 328-8501  
CHEMTREC: (800) 424-9300  
Medical Emergency: (409) 722-9673 (24 Hour)  
General MSDS Assistance: (281) 719-6432  
Technical Information: (800) 972-1010

### 2. COMPOSITION AND INFORMATION ON INGREDIENTS

THE CRITERIA FOR LISTING COMPONENTS IN THE COMPOSITION SECTION ARE AS FOLLOWS: CARCINOGENS ARE LISTED WHEN PRESENT AT 0.1 % OR GREATER; COMPONENTS WHICH ARE OTHERWISE HAZARDOUS ACCORDING TO OSHA ARE LISTED WHEN PRESENT AT 1.0 % OR GREATER; NON-HAZARDOUS COMPONENTS ARE LISTED AT 3.0 % OR GREATER. THIS IS NOT INTENDED TO BE COMPLETE COMPOSITIONAL DISCLOSURE. REFER TO SECTION 14 FOR APPLICABLE STATES' RIGHT TO KNOW AND OTHER REGULATORY INFORMATION.

Product and/or Component(s) Carcinogenic According to:

OSHA\_\_\_ IARC\_\_\_ NTP\_\_\_ OTHER\_\_\_ NONE X

#### Composition:

Chemical Name	CAS Number	Exposure Limits	Range in %
Benzene, ethenyl-, homopolymer			≥92.6
Pentane	109-66-0	600 ppm TWA ACGIH 1000 ppm TWA OSHA 750 ppm STEL OSHA 120 ppm TWA (Canada) 350 mg/m <sup>3</sup> TWA (Canada)	≤7

\* May contain trace amounts of styrene. See Section 11 for additional information.

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### 3. HAZARD IDENTIFICATION

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#### EMERGENCY OVERVIEW

**Appearance:**

Solid, white beads

**Odor:**

Slight hydrocarbon odor

#### WARNING STATEMENT

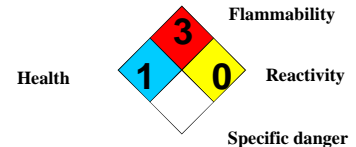
DANGER!

EXTREMELY FLAMMABLE VAPOR  
VAPOR MAY CAUSE FLASH FIRE  
VAPOR MAY CAUSE DIZZINESS AND DROWSINESS  
VAPOR MAY CAUSE IRRITATION TO EYES AND RESPIRATORY TRACT

**Hazardous Material  
Information System  
(United States)**

Health	1
Fire	3
Reactivity	0
Personal protection	

**National Fire Protection  
Association NFPA  
(United States)**



#### POTENTIAL HEALTH EFFECTS

**Primary Route of Exposure**

Eye X Skin X Inhalation X Ingestion     

**Effects of Overexposure**

**Acute:**

**Eyes:**

Vapor may cause irritation, experienced as discomfort, with excess tear production and blinking, and seen as excess redness of the eye. Product may contain residual amounts of dust or small particulates which may cause eye irritation or abrasion experienced as mild discomfort and slight excess redness of the eye.

**Skin:**

Product may contain residual amounts of dust or small particulates that may cause skin irritation or abrasion experienced as local redness with possible mild discomfort.

**Inhalation:**

Vapors or mist may cause irritation of the nose and throat. Inhalation may cause dizziness, drowsiness, euphoria, loss of coordination, disorientation, headache, nausea, and vomiting. In poorly ventilated areas or confined spaces, unconsciousness and asphyxiation may result. Prolonged or repeated overexposure may result in the absorption of potentially harmful amounts of material.

Dust may cause irritation of the nose and throat. Overexposure to high concentrations of dust may cause respiratory irritation, experienced as coughing and difficulty breathing.

**Ingestion:**

If more than several mouthfuls are swallowed, abdominal discomfort, nausea, and diarrhea may occur.

**Sensitization Properties:**

Unknown

**Chronic:**

Prolonged or repeated inhalation of dust or particulates may impair lung function or cause lung damage.

**Medical Conditions Aggravated by Exposure:**

Overexposure to vapor, dust or mist may aggravate existing respiratory conditions, such as asthma, bronchitis, and inflammatory or fibrotic respiratory disease.

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**Other Remarks:**

None

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#### **4. FIRST AID MEASURES**

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**Eyes:**

Flush eyes with plenty of water for several minutes. Remove larger particulates from the eye as one would any foreign object. Get medical attention if eye irritation persists or particulates are difficult to remove from the eye.

**Skin:**

Wash skin with plenty of soap and water for several minutes. Get medical attention if skin irritation develops or persists.

**Ingestion:**

If more than several mouthfuls of this material are swallowed, give two glasses of water (16 oz.). Get medical attention.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, clear person's airway and give artificial respiration. If breathing is difficult, qualified medical personnel may administer oxygen. Get medical attention immediately.

**Other Instructions:**

None.

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#### **5. FIRE-FIGHTING MEASURES**

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**Ignition Temperature - AIT (degrees C):**

260 (500 F) for Pentane  
471 (880 F) by ASTM D-1929 Expanded polystyrene

**Flash Point (degrees C):**

-40 (-40 F) CC for Pentane

**Flammable Limits % (Lower-Upper):**

Lower: 1.5 for Pentane  
Upper: 7.8 for Pentane

**Recommended Fire Extinguishing Agents And Special Procedures:**

Water may be ineffective on flames but should be used to cool fire-exposed containers and provide protection for persons attempting to stop the leak. Use water spray, dry chemical, foam or carbon dioxide to extinguish flames.

**Unusual or Explosive Hazards:**

Danger! Extremely flammable materials may release vapors that travel long distances, ignite, and flash back. Containers may explode in a fire. Do not expose to heat, sparks, flame, static, or other sources of ignition. When handling, use non-sparking tool, ground and bond all containers.

Explosive air-vapor mixtures may form. Fire gives off dense black smoke and acid gasses. Electrostatic discharge can be a source of ignition due to accumulated pentane vapors exceeding the L.E.L. (lower explosive limit) of 1.5% (15,000 ppm). Pentane vapors may be emitted from newly opened containers or when the product is heated. If ignited, there could be a very high rate of flame propagation.

"NO SMOKING - NO MATCHES - NO LIGHTERS - NO WELDING" rules should be enforced.

**Special Protective Equipment for Firefighters:**

Wear full protective clothing and positive pressure breathing apparatus.

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## **6. ACCIDENTAL RELEASE MEASURES (Transportation Spills: CHEMTREC (800)424-9300)**

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### **Procedures in Case of Accidental Release, Breakage or Leakage:**

Avoid the generation of dust clouds. Place in appropriate containers for disposal or recycle. Avoid breathing dust. Pressure demand air supplied respirators should always be worn when the airborne concentration of the contaminant or oxygen is unknown. Otherwise, wear respiratory protection and other personal protective equipment as appropriate for the potential exposure hazard. Wear gloves, goggles, and protective clothing to avoid contact with eyes, skin, or clothing. Use vacuuming or sweeping compound for clean-up. Do not dry sweep or use methods which increase dusting. Prevent entry into sewers and waterways.

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## **7. HANDLING AND STORAGE**

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### **Precautions to be Taken in**

#### **Handling:**

Use spark-proof tools. Material may be at elevated temperatures and/or pressures. Exercise care when opening bleeders and sampling ports.

#### **Storage:**

Ground and bond shipping container, transfer line, and receiving container. Keep away from heat, sparks, flame, and other sources of ignition.

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## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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### **Protective Equipment (Type)**

#### **Eye/Face Protection:**

Avoid eye contact. Chemical type goggles should be worn. Do not wear contact lenses.

#### **Skin Protection:**

Workers should wash exposed skin several times daily with soap and water. Soiled work clothing should be laundered or dry-cleaned.

#### **Respiratory Protection:**

Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air supplied respirator after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.

#### **Ventilation:**

Use explosion-proof equipment to maintain adequate ventilation to meet occupational exposure limits, if applicable (see below), prevent accumulation of explosive air-gas mixtures, and avoid significant oxygen displacement. Oxygen levels should be at least 19.5% in confined spaces or other work areas (OSHA value).

#### **Exposure Limit for the Total Product:**

None established for product; refer to Section 2 for component exposure limits.

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## **9. PHYSICAL AND CHEMICAL PROPERTIES**

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### **Appearance:**

Solid, white beads

### **Odor:**

Slight hydrocarbon odor

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**Boiling Point (degrees C):**

Not applicable

**Melting/Freezing Point (degrees C):**

Softens and expands at 93.3-101.7 C (200-215 F)

**Specific Gravity (water=1):**

Depending on bulk density of the product, the material may float on top of water.

**pH:**

Not applicable.

**Vapor Pressure:**

Negligible

**Viscosity:**

Not applicable

**VOC Content:**

Not determined.

**Vapor Density (Air=1):**

>1

**Solubility in Water (%):**

< 0.1

**Other:**

None

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## **10. STABILITY AND REACTIVITY**

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**This Material Reacts Violently With:**

Air\_\_\_ Water\_\_\_ Heat X Strong Oxidizers X Others\_\_\_ None of these\_\_\_

**Comments:**

None

**Products Evolved When Subjected to Heat or Combustion:**

Toxic levels of carbon monoxide, carbon dioxide, irritating aldehydes and ketones.

**Hazardous Polymerizations:**

DO NOT OCCUR

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## **11. TOXICOLOGICAL INFORMATION**

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**TOXICOLOGICAL INFORMATION (ANIMAL TOXICITY DATA)**

**Oral:**

LD50 Believed to be > 5.00 g/kg (rat) practically non-toxic

**Inhalation:**

Not determined.

**Dermal:**

LD50 Believed to be > 2.00 g/kg (rabbit) practically non-toxic

**IRRITATION INDEX, ESTIMATION OF IRRITATION (SPECIES)**

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**Skin:**

(Draize) Believed to be > .50 - 3.00 /8.0 (rabbit) slightly irritating

**Eyes:**

(Draize) Believed to be > 15.00 - 25.00 /110 (rabbit) slightly irritating

**Sensitization:**

Not determined.

**Other:**

Product may contain dust or particulates that may cause eye irritation or abrasion.

This product may contain residual styrene. Typical concentrations are less than 0.1%. Please refer to product-specific purchasing specifications for information on residual styrene content of this product.

Chronic (lifetime) exposure to styrene resulted in bronchoalveolar (lung) tumors in mice, but not in rats. The relevance of these cell-type specific mouse lung tumors to humans is not known. Nasal effects were also observed in these rats and mice exposed to styrene. In subchronic exposure studies, repeated exposures of female mice to styrene resulted in liver toxicity, however, this effect was not observed in rats.

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**12. DISPOSAL CONSIDERATIONS:**

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**Waste Disposal Methods:**

This material should be disposed of in accordance with local, state and federal regulations.

**Remarks:**

Do not allow to enter drains or sewers.

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**13. TRANSPORT INFORMATION**

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**Transportation**

**DOT:**

**Proper Shipping Name:**

Polymeric beads, expandable

**Hazard Class:**

9

**Identification Number:**

UN 2211

**Packing Group:**

III

**Label Required:**

Class 9

**IMDG**

**Proper Shipping Name:**

Polymeric beads, expandable

**Hazard Class**

9

**Identification Number**

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**Packing Group**

III

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**Label Required**  
Class 9 (See Section 16 for additional information)

**ICAO**

**Proper Shipping Name:**  
Polymeric beads, expandable

**Hazard Class**  
9

**Identification Number**  
UN 2211

**Packing Group**  
III

**Label Required**  
Class 9 (See Section 16 for additional information)

**TDG**

**Proper Shipping Name:**  
Polymeric beads, expandable

**Hazard Class:**  
9

**Identification Number:**  
UN 2211

**Label Required:**  
Class 9 (per UN recommendations, black vertical stripes)

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**14. REGULATORY INFORMATION**

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**Federal Regulations:**

**SARA Title III:**

**Section 302/304 Extremely Hazardous Substances**

<b>Chemical Name</b>	<b>CAS Number</b>	<b>Range in %</b>	<b>TPQ</b>	<b>RQ</b>
None.				

**Section 311 Hazardous Categorization:**

Acute  X  Chronic  X  Fire  X  Pressure   Reactive   N/A

**Section 313 Toxic Chemical**

<b>Chemical Name</b>	<b>CAS Number</b>	<b>Concentration</b>
Styrene (residual)	100-42-5	0 - 0.3

**CERCLA 102(a)/DOT Hazardous Substances:**

<b>Chemical Name</b>	<b>CAS Number</b>	<b>Range in %</b>	<b>RQ</b>
Styrene (residual)	100-42-5	0 - 0.3	1000

**States Right-to-Know Regulations:**

<b>Chemical Name</b>	<b>State Right-to-know</b>
Pentane	FL, MA, MN, NJ, PA, RI
Styrene (residual)	CT, FL, IL, MA, MI, MN, NJ, PA, RI

**California Prop. 65:**

The following detectable components of this product are substances, or belong to classes of substances, known to the State of California to cause cancer and/or reproductive toxicity.

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**Chemical Name**

None.

**CAS Number**

#### **INTERNATIONAL REGULATIONS:**

**TSCA Inventory Status:**

This product, or its components, are listed on, or are exempt from the Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

**WHMIS Classification:**

Not determined.

**Canadian Inventory Status:**

This product, or its components, are listed on or are exempt from the Canadian Domestic Substance List (DSL).

**EINECS Inventory Status:**

This product, or its components, are listed on or are exempt from the European Inventory of Existing Chemical Substances (EINECS) or the European List of Notified Chemical Substances (ELINCS).

**Australian Inventory Status:**

This product, or its components, are listed on or are exempt from the Australian Inventory of Chemical Substances (AICS).

**Japan Inventory Status:**

This product, or its components, are listed on or are exempt from the Japanese Ministry of International Trade and Industry (MITI) inventory.

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#### **15. ENVIRONMENTAL INFORMATION**

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**Aquatic Toxicity:**

Not applicable.

**Mobility:**

Not applicable.

**Persistence and Biodegradability:**

This product is expected to persist in the environment.

**Potential to Bioaccumulate:**

Not applicable.

**Remarks:**

Sewer/waterways obstruction; fish may eat beads and obstruct their digestive tract.

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#### **16. OTHER INFORMATION 9/20/2005**

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European, ADR regulations require additional marking (see item 2912) "Keep Away From Any Source of Ignition." Vessel carriers request marking warning "No Smoking or Open Flame" on box doors.

**Supersedes:** 3/31/2003

**The following sections have been revised:** 2, 11, 14

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**HUNTSMAN  
MANAGER, PRODUCT SAFETY  
P.O. BOX 4980  
THE WOODLANDS, TX 77387-4980**

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