Engineered Foam Products

Safety Data Sheet

Expanded Polystyrene

Section 1 - Identification

Product Type: Expanded Polystyrene (EPS)

Product Use: Construction / Insulation

Manufacturer: Engineered Foam Products
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Northampton
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Section 2 - Hazardous Identification

Human Health Hazard:

Expanded Polystyrene is not known to lead to any skin irritations and is regarded as biologically inert. Residual quantities of Pentane and Styrene Monomer are insignificant. However during hot wire cutting of EPS, if ventilation is not adequate the fumes generated can cause irritation to the respiratory tract and eyes. Where substantial dust is produced in subsequent processing of EPS (e.g. band sawing or grinding), suitable dust extraction must be provided, to ensure that exposure does not exceed 10mg/m^3 8 Hours TWA (Occupational Exposure Limit for total inhaled dust).

Safety Hazards:

Expanded Polystyrene is combustible therefore the following fire precautions should be taken:

- Smoking should be prohibited in any storage or processing areas.
- Expanded Polystyrene should not be stored near flammable material such as paint or petrol.
- Storage and working areas should be kept free from waste Expanded Polystyrene.
- Fire extinguishers should be available at recognisable fire points and close at hand if any hot works are taking place near Expanded Polystyrene.
- If there is an outbreak of fire, the Fire Brigade should be called immediately and the area evacuated.

Section 3 - Composition and Information on Ingredients

Description:

Expanded Polystyrene is a foam material manufactured by the expansion (blowing) of the organic polymer polystyrene. After manufacture, Expanded Polystyrene contains residual amounts of the flammable blowing agent Pentane, however most of this "off-gases" prior to shipment. Euroclass E products also contain a polymerised flame retardant.

Component	CAS No.	EC No.	Content	Hazard
Polystyrene	9003-53-6	500-008-9	95-100%	-
Pentane	109-66-0	203-692-4	< 1% wt	H220
Isopentane (Methylbutane)	78-78-4	201-142-8	< 1% wt	H220

Section 4 - First Aid Measures

Inhalation:

Only dust particles produced from cutting Expanded Polystyrene by machine are likely to be inhaled. Remove patient from exposure and seek medical attention if ill effects occur. In the event of inhalation of smoke or fumes from fire remove from exposure into fresh air. Keep warm and at rest. If there is respiratory distress, give oxygen. If breathing stops or shows signs of failing, apply artificial respiration. Obtain immediate medical attention.

Skin Contact:

In its normal state Expanded Polystyrene can be washed from the skin with soap and water. If molten material, from hot wire cutting or fire, comes into contact with skin, treat the affected area immediately with cold water and seek immediate medical attention, do not attempt to remove any molten or solidified material from the skin.

Eye Contact:

Remove particles by washing with eye wash or clean water, holding the eye lids apart. If quick recovery does not occur seek medical attention.

Ingestion:

Ingestion of small quantities of this material under normal circumstances would not cause harmful effects.

If any adverse reaction or discomfort continues from any of the above exposures, seek medical advice.

Section 5 - Fire Fighting Measures

Specific Hazards:

Hazardous organic hydrocarbon will include carbon monoxide and carbon dioxide, may contain hydrogen bromide and trace amounts of styrene monomer.

Extinguishing Media:

Foam, water spray or fog. Dry chemical powder or carbon dioxide.

Advice for Firefighters:

Burning Expanded Polystyrene may emit dense black smoke therefore suitable breathing apparatus and protective clothing should be worn.

Section 6 - Accidental Release Measures

Environmental & Personal Precautions:

Expanded Polystyrene in its solid form will release no harmful substances but if accidentally released should be cleaned up and disposed of in accordance with section 13. No specific personal protection is required.

Section 7 - Handling and Storage

Always handle and store Expanded Polystyrene following recommendations for fire safety in Section 2.

Storage

- Store under cover in dry conditions at ambient temperature.
- Do not stockpile more than $60m^3$.
- If more than $60m^3$ is to be stored divide it into two or more stockpiles at least 20m apart.
- Do not stockpile in such a way that it would cause the spread of fire to other combustible materials or to other areas of a building.
- Store flat and at ground level without bearers.
- Bunds should be provided where storage on upper floors is unavoidable (particularly to the edges of floors without upstands and around staircases). The bund walls should be of fire-resisting and liquid-tight construction. The capacity of the bund areas should be at least 3% of the maximum volume of Expanded Polystyrene stored.
- Stockpiles of product should not impede marked access and walk ways or sprinkler systems.
- Where large quantities of Expanded Polystyrene are stored it is recommended that a sprinkler system is installed.
- Storage on site should be in a fenced compound or building which can be secured, under cover protected from high winds and raised above damp surfaces.
- If the Expanded Polystyrene is going to be exposed outside for more than one week then it must be protected from direct sunlight.

Handling

- When cutting ensure adequate ventilation or in the case of using power tools provide dust extraction or use respirator and eye protection.
- Be cautious of carrying sheet material during strong winds especially if working at height.

Section 8 - Exposure Controls / Personal Protection

No specific protection is required for handling Expanded Polystyrene, however when cutting ensure adequate ventilation or in the case of using power tools provide dust extraction or use respirator and eye protection.

Exposure Standards

The table below shows the Maximum Exposure Limits (MEL) for the expansion agent (Pentane) and the hazardous decomposition product (Styrene Monomer).

	Time Weighted Average		Short Term Exposure Limit	
Component	**Limit**	**Value**	**Limit**	**Value**
Pentane	8 hours	1770 mg/m^3	15 minutes	2210 mg/m^3
Styrene Monomer	8 hours	430 mg/m^3	15 minutes	1080 mg/m^3

Section 9 - Physical and Chemical Properties

Physical State: Cellular foam

Appearance: Moulded block, sheet or moulded shapes

Colour: White or Grey

Density: Available from 15 - 55kg/m^3

Solubility: Not soluble in water.

Soluble in aromatic compounds, halogenated solvents and ketones

Softening Point: 95-100^{o}C

Flash Point: 350^{o}C

Section 10 - Stability and Reactivity

Stability: Stable under normal conditions.

Decomposition begins at temperatures above 200^{o}C

Conditions to avoid: Heating above 110°C, ignition sources and prolonged sunlight.

Incompatibility: Organic solvents.

Hazardous Decomposition Products: Styrene Monomer and Carbon Monoxide when burned.

Section 11 - Toxicological Information

Expanded Polystyrene is non toxic, and not a chemical irritant to the skin or eyes.

Note: Dust from EPS can cause mechanical irritation to eyes.

Section 12 - Ecological Information

Expanded Polystyrene is not biodegradable and non toxic, but small particles may have physical effects on aquatic and terrestrial organisms. It has a zero Ozone Depleting Potential (ODP) and virtually zero Global Warming Potential (GWP). Products may contain some residual Pentane that has a very low Global Warming Potential of <0.00044.

Section 13 - Disposal Considerations

Waste Disposal

Recover or recycle if possible, otherwise dispose of in accordance with regulations and procedures in force in the country of use or disposal. European Waste Catalogue (EWC) Code 07 02 13 - Non hazardous waste plastic.

Section 14 - Transportation Information

UN Number: 2211

Name: Polymeric Beads, Expandable, evolving flammable vapour.

Class: 9

Section 15 - Regulatory Information

EC Label Name: Expanded Polystyrene

EUH018: In use, may form flammable / explosive vapour-air mixture.

P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Section 16 - Other Information

Uses and Restrictions: Insulation of walls, roofs and floors in domestic and other buildings.

Civil engineering and void fill applications.

Cut or moulded pieces for packaging.

Floatation applications such as pontoons.

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