

Description:

**Expanded polystyrene**

Issued under the Health &amp; Safety at Work Act 1974 and the Consumer Protection Act 1987

**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY**

Product: Expanded Polystyrene (EPS), Euroclass F and E

**Application** Blocks and cut profiles for formwork

**Suppliers Address** Caswick Ltd, Sandtoft Road, Belton, Doncaster, DN9 1PN  
 Tel: 01427 872017 Fax: 01427 873541

**2. HAZARDS IDENTIFICATION**
**2.1 Classification of the substance or mixture**

Regulation (EC)No. 1272/2008 (CLP) None assigned.

**2.2 Label Elements** According to Regulation (EC) No. 1272/2008 (CLP)

|                          |      |
|--------------------------|------|
| Hazard Pictogram         | None |
| Signal word(s)           | None |
| Hazard statement(s)      | None |
| Precautionary statements | None |

Self assessed precautionary P210: Keep away from heat, sparks, open flame, hot surfaces - no smoking  
 P243: Take precautionary measures against static discharge.  
 P403: Store in a well ventilated place.  
 P281: Use personal protective equipment as required.

**2.3 Other hazards** Product initially releases pentane, a flammable hydrocarbon.  
 May cause irritation to skin and eyes.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**
**Description:**

Expanded polystyrene (EPS) contains residual amounts of Pentane (blowing agent)(&lt;5.5%wt), Styrene Monomer and Hydrogen Bromide Type E (FRA Grades only identified by our part number F).

| Mixtures - Preparation based on: polystyrene (CAS No. 9003-53-6), propellant, polymeric flame-proofing agent |  |                |                  |
|--|--|----------------|------------------|
| Component Name   | CAS No.  | Content range  | EC Hazard F      |
| Pentane  | 109-66-0   | < 5.5 wt-% max | Highly Flammable |
| Other information  | CAS number for polymer component (>97 wt-%) : 9003-53-6 (Polystyrene ) |                |                  |
| Bromated Polymer (FRA Grade only)  | 1195978-93-8   | <1 wt-% max    | -                |
| 2-Methylbutane (isopentane)  | 78-78-4  | <1.5 wt-% max  | 201-142-8        |

## 4. FIRST AID

|                                 |  |
|---------------------------------|--|
| <b>Inhalation:</b>              | If dust produced from machining EPS or small particles have been inhaled. Clear the respiratory tracts. If recovery does not occur, obtain medical attention.<br>If fumes from hot wire cutting have been inhaled, treat as per Fire Inhalation below.                                 |
| <b>Skin &amp; Skin contact:</b> | No specific measures maintain good standards of hygiene during use. Molten material - Immediately flood affected area and adhering molten polymer with plenty of cold water. DO NOT attempt to remove molten or solidified material from the skin. Obtain immediate medical attention. |
| <b>Eyes:</b>                    | Rinse eye with plenty of clean water or emergency eyewash. (Sodium Chloride pH Eur 0.9%w/v) if dust EPS particles come into contact with the eye. If rapid recovery does not occur obtain medical attention  |
| <b>Ingestion:</b>               | No specific measures. If swallowed consult medical advice  |
| <b>Fire Inhalation:</b>         | Remove from exposure into fresh air. Keep warm and at rest. If rapid recovery does not occur, obtain medical attention   |

## 5. FIRE FIGHTING MEASURES

Product is classified as flammable except for the FRA version, but will burn on contact with flame or exposure to high temperature (see Section 9).

### 5.1 Extinguishing Media Suitable Extinguishing Media.

Water spray, foam, dry powder or CO<sub>2</sub>.  
Unsuitable Extinguishing Media. Do not use waterjet.

### 5.2 Special hazards arising from the substance or mixture

This product may give rise to hazardous fumes in a fire. Hazardous the substance or mixture Decomposition Products: Carbon monoxide, carbon dioxide, styrene, aliphatic hydrocarbons and traces of hydrogen bromide can be produced.

### 5.3 Advice for fire fighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Chemical protection suit. Keep containers cool by spraying with water if exposed to fire. Flammable concentrations of pentane may accumulate on storage in closed containers.

IF IT IS NECESSARY TO SUMMON ASSISTANCE, ADVISE THE FIRE SERVICE THAT EXPANDED POLYSTYRENE IS INVOLVED.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Caution - spillages may be slippery.

Pentane may be present initially in the moulded material and can form explosive mixture with air. The pentane vapour is heavier than air; beware of pits and confined spaces. Remove or make safe all sources of ignition. Avoid friction, sparks, or other means of ignition. Take precautionary measures against static discharges. Use only tools which cannot create a spark.

### 6.2 Environmental precautions

Prevent entry into drains.

### 6.3 Methods and material for containment and cleaning up

If safe to do so: Small spillages: Sweep up and shovel into waste drums or plastic bags. Transfer to a lidded container for disposal or recovery. Large spillages: Use vacuum equipment suitable for use in hazardous locations for collecting spilt materials, where practicable. Transfer to a lidded container for disposal or recovery.

### 6.4 Reference to other sections

See also Section 8 and 13

## 7. HANDLING AND STORAGE

Expanded polystyrene (EPS) is a CFC and HCPC free material and is physically and chemically inert. It contains no known biological or physiological irritant.

Static build up whilst transferring EPS Bead can create a fire risk. Ensure EPS bead is transferred at slowest speed possible and that all transfer equipment is suitably earthed.

EPS is organic and therefore combustible. Although not exhaustive the following guide line and recommendations should be included when assessing the fire precautions of EPS product

Polystyrene dust, like other hydrocarbon based polymers in this form, is classified as a Group (A) flammable dust and precautions should be taken as required by Section 31 of the Factories Act 1961 and therefore no smoking and naked flames must be avoided.

Individual storage areas on building and civil engineering sites, generally, should not contain more than 60 cubic metres (about 1 tonne) of material. If a bigger volume needs to be stored, it should be divided into 2 or more areas, at least 20 metres apart.

If stored outside for more than 1 week it should be covered and at all times stored in a fenced compound to avoid arson.

Large stockpiles should have consideration to siting so that if a fire occurs the molten liquid generated is adequately banded and cannot flow down slopes, stairs etc. The bund needs to be liquid tight and fire-resisting and have capacity 3% of the total area. Wherever possible do not store on floors above ground level. The use of sprinkler systems should be considered and adequate access ways provided.

EPS should be stored away from highly inflammable material such as paint, solvents or petroleum products. Care should also be taken to avoid contact with aromatic, oils, and materials such as coal tar, pitch and creosote.

Expanded polystyrene (EPS) insulation boards and the lighter blocks tend to be relatively light and can easily be handled on site. Although the boards can be lifted by a single person, it is recommended that the polystyrene boards are carried by two people (especially in windy conditions) to avoid injury to the carrier or damage to the boards.

When forming, cutting or shaping expanded polystyrene (EPS) care must be taken to avoid ignition by burning or hot-wire cutting methods. Adequate ventilation must be provided to prevent respiratory tract and eye irritation which may be caused by any fumes which may be generated. Forming and shaping of expanded polystyrene (EPS) must be undertaken away, and at a safe distance from, the main stockpile to minimise any risk of fire or flame spread.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

### 8.1 Control Parameters

#### Occupational Exposure Limits

The following are the Occupational Exposure Limits for the expansion agent and for decomposition products.

| Component Name                    | Limit Type      | Value | Unit  | Other Info. |
|-----------------------------------|-----------------|-------|-------|-------------|
| Pentane                           | TWA 8hr         | 600   | ppm   | ACGIH       |
| Pentane                           | STEL 15min      | 750   | ppm   | ACGIH       |
| Styrene Monomer                   | TWA 8hr         | 430   | mg/m3 | EH40/00     |
| Styrene Monomer                   | TEL 15min (MEL) | 1050  | mg/m3 | EH40/00     |
| Hydrogen Bromide<br>(Type A only) | STEL 15min      | 10    | mg/m3 | EH40/00     |

TWA = Time Weighted Average STEL = Short Term Exposure Limit MEL = Maximum exposure limit

### 8.2 Exposure controls

**8.2.1 Appropriate engineering controls** Use only in well-ventilated areas.

#### 8.2.2 Personal protection equipment



Eye/face protection Safety spectacles.



Skin protection (Hand protection) Wear suitable gloves. Recommended: Impervious gloves (EN 374). Breakthrough time of the glove material: refer to the information provided by the gloves' producer. Wear suitable protective clothing. Antistatic safety shoes or antistatic boots.



Respiratory protection An approved dust mask should be worn if dust is generated during handling and processing.

Thermal hazards Not applicable.

**8.2.3 Environmental Exposure Controls** European Community and local provisions on Volatile Organic Substances (VOC), are to be fulfilled when they are applicable to the EPS industry.

### 8.2.4 Further information

Further protection required when handling expanded polystyrene, other than those stated under Section 16 should not normally be required, however individual exceptions may be established as the end user should ensure a suitable and sufficient risk assessment is undertaken when Interacting with Polystyrene (EPS) and its processors or operations.

EPS is not known to lead to any skin irritations is chemically stable, biologically inert and non-toxic. EPS is flammable and contains residual amounts of pentane and styrene monomer.

Precautions must be taken in storing, cutting with hot wire, bandsaws, sanding discs and applying the polystyrene material to ensure protection against ignition, contact with solvent based products and PVC-e.g. Electrical cable Insulation-due to the migration properties of plasticisers in PVC.

Where substantial dust is produced in subsequent re-working or processing of EPS (e.g. band sawing or grinding), suitable dust extraction should be provided, to ensure that exposure does not exceed 10mg/m<sup>3</sup> 8 hours TWA (Occupational Exposure} and adequate fume extraction must be considered dependant on any hot wire process used.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                               |   |
|-------------------------------|---|
| Physical State:               | Cellular Foam   |
| Form:                         | Moulded / Cut shapes, sheets or small spherical beads   |
| Colour:                       | White   |
| Density:                      | Ranges from 9 kg/m <sup>3</sup> to 55 kg/m <sup>3</sup> |
| Solubility in water:          | Not soluble   |
| Solubility in other solvents: | Soluble in aromatic, halogenated solvents and ketones   |
| Softening point:              | 95-100  |
| Ignition temperature in air:  | 350   |

## 10. STABILITY/REACTIVITY

**Stability:** EPS is stable under normal use conditions and decomposes above 200

**Conditions to avoid:** Heat, flames and sparks. Strong sunlight for prolonged periods

**Hazardous Decomposition Products:** Styrene Monomer, Carbon Monoxide, Carbon Dioxide when burned Hydrogen Bromide (FRA Grade)

## 11. TOXICOLOGICAL INFORMATION

This assessment is based on information available on similar products.

### 11.1 Information on toxicological effects

#### 11.1 Polymer Acute toxicity

|                           |   |
|---------------------------|---|
| Inhalation                | The product can initially evolve pentane vapours, which at high concentrations may lead to dizziness, headache and anaesthetic effects. |
| Ingestion                 | Unlikely to be hazardous if swallowed.  |
| Skin Contact              | No data.  |
| Eye Contact               | No data.  |
| Irritation                | May cause irritation to skin and eyes.  |
| Corrosivity               | No data.  |
| Sensitisation             | No data.  |
| Repeated dose toxicity    | No data.  |
| Carcinogenicity           | No data.  |
| Mutagenicity              | No data.  |
| Toxicity for reproduction | No data.  |

**11.2 Other information** None.

## 12. ECOLOGICAL INFORMATION

This environmental hazard assessment is based on information available on similar products.

This product contains substances which are classified as dangerous for the environment. However recent studies on aquatic organisms have shown that EPS beads, while containing these substances, do not need to be classified for environmental hazard.

### 12.1 Toxicity

Aquatic invertebrates: EC50 (48 h) > 100 mg/l, *Daphnia magna* (OECD Guideline 202, part 1, static) Nominal concentration. The product has low solubility in the test medium. An eluate has been tested. No toxic effects occur within the range of solubility.  
Aquatic plants: EC50 (48 h) > 100 mg/l, EC50 (72 h) > 100 mg/l (growth rate), *Desmodesmus subspicatus* (OECD Guideline 202, part 1, static) Nominal concentration. The product has low solubility in the test medium. An eluate has been tested.

### 12.2 Persistence and degradability

The product itself has not been tested. In accordance with the required stability the product is not readily biodegradable. The statement has been derived from the structure of the product. It can be largely eliminated from the water by abiotic processes, e.g. mechanical separation.

### 12.3 Bioaccumulative potential

The product has low potential for bioaccumulation.

### 12.4 Mobility in soil

The product is essentially insoluble in water. Expandable polystyrene sinks in fresh water, may float or sink in sea water.

### 12.5 Results of PBT and vPvB assessment

Not classified as PBT or vPvB

### 12.6 Other adverse effects

Pentane has very low Global Warming Potential (<0.00044) and zero Ozone Depletion Potential.

## 13. DISPOSAL

Recover or recycle if possible using a registered re-cycler. Scrap expanded polystyrene is not classified as "Notifiable Waste" and may be disposed of at suitable landfill sites or by incineration under approved conditions. The Local Authority Waste Disposal Officer should be contacted for advice on the correct method to be used. Flame retardant grades contain a halogen complex flame retardant additive encapsulated in the polystyrene which can give rise to the emission of gases such as hydrogen bromide during incineration of waste product. Unofficial dumping or incineration of polystyrene waste is not allowed.

European Waste catalogue number:170604

## 14. TRANSPORT INFORMATION

U.N. Number (United Nations) 2211

EPS products may contain residual amounts of pentane so good ventilation should be provided during transportation

No smoking and controls against exposure to ignition sources should be enforced whilst transporting, loading and unloading operations.

## 15. REGULATORY INFORMATION

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.

The data should be considered when making any assessment under the Control of Substances Hazardous to Health Regulations (COSHH) and related guidance, for example, "COSHH Essentials" (United Kingdom). Directive 94/62/EC on packaging and packaging waste.

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

### 15.2 Chemical Safety Assessment

Chemical Safety Assessment not required.

## 16. OTHER INFORMATION

**Uses range** - Insulation of walls, roofs and floors in domestic and other buildings. Cut pieces for packaging, civil engineering and floatation, protection of foundations from clay movement.

**Manufactures Safety Data Sheet Listing** - Edition 03 Revised October 2018

**Safety Data Sheet Distribution** - This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation, responsible for advising on safety matters.

**Risk Phrases and Safety Phrases**

- R12 Extremely flammable
- R65 Harmful if swallowed can cause lung damage
- R66 Repeated exposure may cause skin dryness or cracking skin
- R67 Vapours may cause drowsiness and dizziness

**Regulation (EC) No. 1272/2008 (CLP)**

### Hazard statements, precautionary statements and codes of danger:

- H224 Extremely flammable liquid and vapor
- H304 May be fatal if swallowed and enters airways
- H336 May cause drowsiness or dizziness
- H411 Toxic to aquatic life with long lasting effects.
- EUH066 Repeated exposure may cause skin dryness or cracking skin.

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