

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identification

Product identifier	UNIPOL R-EPS Regular Expandable Polystyrene
Synonyms	Regular-EPS, Expandable polystyrene, poly(phenylethene).

1.2 Relevant identified use of the substance or the mixture and uses advised against

Identified use	Used primarily for the manufacture of foamed thermal insulation and packaging.
Use advised against	This product should not be used for applications other than identified above without seeking advice from the manufacturer first.

1.3 Details of the supplier of the safety data sheet

Supplier	Unipol Holland BV Postbus 824 5340 AV Oss The Netherlands + 31 412 643 243
Telephone	
Email	algemeen@unipol.nl E-mail (competent person)

Emergency telephone number

Emergency telephone number	
Dutch National Poison Information Centre	+ 31 (0)412 643 243 + 31 (0)30 - 274 88 88 (only for professional emergency-services staff in case of emergencies)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

EU Regulation No 1272/2008 (CLP)	Not classified.
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2.2.2 Label elements

	According to Regulation (EC) No 1272/2008 (CLP).
Pictogram(s) None. Signal word None.	
Hazard statements	EUH018: In use may form flammable/explosive vapour-air mixture. EUH210: Safety data sheet available on request.
Precautionary statement(s)	P210: Keep away from heat, sparks, open flame, hot surfaces - No smoking. P233: Keep container tightly closed. P243: Take precautionary measures against static discharge. P403 + P235: Store in a well-ventilated place. Keep cool.

2.3 Other hazards

The product may release pentane, a flammable hydrocarbon. May cause irritation to skin and eyes.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixture

Mixture of expandable polystyrene (EPS) and pentane isomers as blowing agent

Chemical name	%W/W	CAS No	EC No	REACH Registration No	Hazard statements (CLP 1272/2008)
Pentane	< 6 %	109-66-0	203-692-4	01-2119459286-30	Flammable liquids, Cat 1; H224. Aspiration hazard. Cat 1; H304. STOT SE 3; H336. Aquatic chronic, Cat 2; H411. EUH066.
2-Methylbutane; isopentane	< 1.5 %	78-78-4	201-142-8	01-2119475602-38	Flammable liquids, Cat 1; H224. Aspiration hazard. Cat 1; H304. STOT SE 3; H336. Aquatic chronic, Cat 2; H411. EUH066.

For full text of H/P phrases, see section 16.

SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Inhalation	Move the victim into fresh air. If symptoms persist, obtain medical attention.
Contact with skin	Wash the skin with water and soap. If symptoms persist, obtain medical attention.
Contact with eyes	Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. If symptoms persist, obtain medical attention.
Ingestion	Unlikely to be hazardous if swallowed. If swallowed it will not lead to vomiting. Obtain medical attention immediately after swallowing.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: headache, dizziness.
Eye and skin contact: redness, irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Treat according to symptoms.

SECTION 5: FIREFIGHTING MEASURES

Product is not classified as flammable, but will burn on contact with flames or exposure to high temperature (see Section 9).

- 5.1 Extinguishing media**
Suitable extinguishing media Water spray, foam, dry powder or CO₂.
Unsuitable extinguishing media Do not use water jet.
- 5.2 Special hazards arising from the substance or mixture**
This product may give rise to hazardous fumes in a fire. Hazardous decomposition products Carbon monoxide, carbon dioxide, styrene, aliphatic hydrocarbons may be produced.
- 5.3 Advice for firefighters**
Firefighters should wear full protective clothing, including self-contained breathing apparatus. Wear hazmat suit. Keep containers cool by spraying with water if they have been exposed to fire. Flammable concentrations of pentane may accumulate during storage in closed containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures**
Caution - spilled beads may be slippery.
Pentane may form an explosive mixture with air. Pentane vapour is heavier than air, be careful near manholes and in 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 non-sparking tools.
- 6.2 Environmental precautions**
Prevent entry into drains and sewers.
- 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: Where practicable, use vacuum equipment suitable for use in hazardous locations to collect spilt materials. Transfer to a lidded container for disposal or recovery.
- 6.4 Reference to other sections**
See also sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

- 7.1 Precautions for safe handling of the substance or mixture**
Provide adequate ventilation, including appropriate local extraction. Do not breathe fumes/vapour. Prevent formation of dust clouds. Should be kept away from naked flames and other sources of ignition. Extinguish any other fire. Remove or make safe all sources of ignition. Avoid friction, sparks, or other means of ignition. The electrical system should be spark-free. Do not smoke during use. Take precautionary measures against static discharges. Ensure adequate earthing. Prevent release to the environment. Permission must be obtained from the appropriate Local Authority prior to disposing of spilt material.

Process Hazards

Take precautionary measures against static discharges. To prevent the build-up of static electric charge and the formation of an explosive pentane-air mixture, containers should be emptied completely during processing. Line velocity should not exceed 8 m/s during normal pumping operations.

All parts of the plant and equipment should be electrically bonded and earthed. Electrical bonding and earthing should be checked at regular intervals. Wear antistatic clothing and footwear.

7.2 Conditions for safe storage, including any incompatibilities

Flammable concentrations of pentane may accumulate during storage in closed containers. Prior to unloading freight containers, open the doors and ventilate for one hour. Keep container tightly closed in a cool, well ventilated place. Keep away from direct sunlight and other sources of heat or ignition. Protect against rain and damp conditions.

Bulk: Keep under inert gas.

Open-top tanks should be covered with an open rigid grid.

Take precautionary measures against static discharges.

The electrical system should be spark-free. The product is usually supplied in fibreboard octabins. It is not recommended to double stack octabins.

Specific requirements for storage rooms or drums

Storage rooms should be kept cool to reduce pentane release, and fitted with a suitable ventilation system to prevent accumulation of pentane. In addition, measuring devices that alert to any build-up of an explosive pentane/air mixture should be used. The electrical system should be spark-free.

Equipment to be installed in potentially explosive atmospheres should conform to the requirements of ATEX Directive 94/9/EC.

Ambient.

Storage temperature

Stable under normal conditions.

Storage life

Incompatible materials

Avoid storing or handling in conjunction with UN Class 1 explosives.

Suitable containers

Steel (drums).

7.3 Specific end use

Mainly used to produce foamed thermal insulation.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational exposure limit values

The following limit values for the blow agent. During processing (expansion), pentane is released during production.

n-pentane (CAS no 109-66-0; EC no 203-692-4). Source www.ser.nl					
Source	OEL (8 hr TGG mg/m ³)	OEL (8 hr TGG ppm)	STEL (mg/m ³)	STEL (ppm)	Comment
Netherlands (2006)	1800	-	-	-	Statutory limit value
Europe (SCOEL; 2006)	3000	1000	-	-	

Isopentane (CAS no 78-78-4; EC no 201-142-8). Source www.ser.nl					
Source	OEL (8 hr TGG mg/m ³)	OEL (8 hr TGG ppm)	STEL (mg/m ³)	STEL (ppm)	Comment
Netherlands (2006)	1800	-	-	-	Statutory limit value
SCOEL (Europe; 2006)	3000	1000	-	-	

8.1.2 Biological limit value

Not established.

8.1.3 PNECs and DNELs

n-pentane (CAS no 109-66-0; EC no 203-692-4). Source www.echa.europa.eu		
Limit value (REACH)	Value	Comment
DNEL inhalation, long-term, systemic (mg/m ³)	3000	
DNEL dermal, long-term, systemic (mg/ kg)	432	
PNEC freshwater & marine water (µg/L)	230	
PNEC freshwater & marine water, sediment (mg/kg sediment, dry weight)	1.2	
PNEC freshwater, intermittent discharges (µg/L)	880	
PNEC sewage-treatment plant (mg/L)	3.6	

Isopentane (CAS no 78-78-4; EC no 201-142-8). Source www.echa.europa.eu		
Limit value (REACH)	Value	Comment
DNEL inhalation, long-term, systemic (mg/m ³)	3000	
DNEL dermal, long-term, systemic (mg/ kg)	432	
PNEC freshwater & marine water (µg/L)	-	
PNEC freshwater & marine water, sediment (mg/kg sediment, dry weight)	-	
PNEC freshwater, intermittent discharges (µg/L)	-	
PNEC sewage-treatment plant (µg/L)	-	

8.2 Exposure controls

8.2.2 Individual protective measures, such as personal protective equipment

Eye/face protection

Safety glasses.



Skin/hand protection

Wear suitable gloves. Recommend: impervious gloves (EN 374). Material NBR, thickness 0.50mm, impermeable to solids (e.g. Ribiflex S NB 27 S, breakthrough >480 min.) Antistatic shoes type S1, S2 of S3 with PU sole or ESD shoes/boots.



Respiratory protection

An approved dust mask should be worn if dust is generated whilst handling the product. Type P1 (EN 143) or FFP1 (EN 149) "nose type" (e.g. GISS FFP1 839959).



Thermal hazards

Not applicable.

8.2.3 Environmental exposure controls

European Community and local provisions for Volatile Organic Substances (VOC) are to be met when they apply to the EPS industry.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 9.1 Information on basic physical and chemical properties

Physical state	Solid, small round beads
Colour	White
Odour	Odourless
Odour (Threshold (ppm))	Not established.
pH (Value)	N/A
Melting point (°C)	Not available.

Issue date : 14-09-2020 Replaces : 31-03-2016

Boiling point (°C)	Not available.
Flashpoint (°C)	< -50°C (Pentane).
Upper Explosive Limit (UEL)	7.8% (v/v) (Pentane).
Lower Explosive Limit (LEL)	1.3% (v/v) (Pentane).
Auto-ignition temperature (°C)	285°C (Pentane) (ASTM E-659).
Evaporation rate	Not available.
Flammability (solid, gas)	Not flammable.
Vapour pressure (mm Hg)	Not available.
Vapour density (Air=1)	2.5 (Pentane).
Density (g/ml)	1.02 – 1.05 (1020–1050 kg/m ³) @ 20°C (beads).
Bulk density (g/ml)	Approximately 0.6 (600 kg/m ³) @ 20°C.
Softening point (°C)	70-75°C (beads expand with release of pentane).
Solubility (Water)	Insoluble.
Solubility (Other)	Soluble in aromatic hydrocarbons, halogenated solvents and ketones.
Partition coefficient (n-Octanol/water)	Not available.
Decomposition temperature (°C)	Not available.
Viscosity (mPa.s)	Not established.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2 Other information

None.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	Stable under normal conditions.
10.2 Chemical stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	In use, may form flammable/explosive vapour-air mixture
10.4 Conditions to avoid	Keep away from heat, sources of ignition and direct sunlight.
10.5 Incompatible materials	Avoid storing or handling in conjunction with UN Class 1 explosives.
10.6 Hazardous decomposition products	Pentane, styrene monomer, carbon monoxide (in case of fire or during hot wire cutting). When beads are expanded, pentane is released (the release of pentane increases with rising temperatures).

SECTION 11: TOXICOLOGICAL INFORMATION

This assessment is based on information available on similar products

11.1 Information on toxicological effects

Acute toxicity

Inhalation

The product may release pentane vapours, which may lead to dizziness, headache and anaesthetic effects at high concentrations.

Ingestion

Unlikely to be hazardous if swallowed.

Irritation

May cause irritation to skin and eyes.

Sensitisation

No data.

Repeated dose toxicity

No data.

Carcinogenicity

No data.

Mutagenicity

No data.

Toxicity for reproduction

No data.

11.2 Information on other hazards

None.

SECTION 12: ECOLOGICAL INFORMATION

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

This product contains substances that are classified as dangerous to the environment. However recent studies on aquatic organisms have shown that although EPS beads contain these substances, they do not need to be classified as an 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. Toxic effects were not observed 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. Toxic effects were not observed within the range of solubility.

12.2 Persistence and degradability

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

12.3 Bioaccumulative potential

The product has low potential for bioaccumulation. Bioconcentration factor (BCF) < 100.

12.4 Mobility in soil

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

12.5 Results of PBT and vPvB assessment

The product does not comply with the criteria for PBT or vPvB.

12.6 Other adverse effects

Effect on effluent treatment: Essentially non-toxic, EC50>100mg/l, for organisms in water-treatment plants (estimate).
Pentane has an extremely low Global Warming Potential (< 0.00044) and no Ozone Depletion Potential.

SECTION 13: DISPOSAL CONSIDERATIONS

Surplus, unused, old beads may still contain residual pentane. Therefore, the product has to be treated using all the safety measures in place for the fresh material. See also Section 7.

13.1 Waste-treatment methods

Recover or recycle if possible. Remove all packaging for recovery or disposal. Normal disposal is by means of incineration by an accredited waste processor.

13.2 Other information

Dispose of contents in accordance with local, regional or national legislation.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

UN2211

14.2 Proper shipping name

POLYMERE BEADS, EXPANDABLE, develops flammable vapour (PENTANE).

14.3 Transport hazard class(es)

9.

14.4 Packing group

III.

14.5 Environmental hazards

None.
Not classified as a marine pollutant.

14.6 Special precautions for the user

Keep away from sources of ignition.

Transport or conveyance on own production site: Refer to the internal procedures and information provided by this document.

Transport or conveyance outside own production site: Apply the requirements and regulations for the transport of hazardous substances and the manufacturer's recommendations for loading, transporting, and unloading the material safely.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

14.8 Additional information

Hazard Identification Number: 90.
Tunnel Restriction Code: D/E.
IMDG EMS F-A, S-I.

Hazard label(s)

Sea transport (IMDG)

Air transport (ICAO/IATA)



UN Class 9 miscellaneous hazard label.

SECTION 15: REGULATORY INFORMATION

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- EU Regulation**
- | | |
|---|-----------------|
| Authorisations and/or restrictions on use | None |
| National regulations | Not applicable. |
- 15.2 Chemical safety assessment** Not applicable.

SECTION 16: OTHER INFORMATION

This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 453/2010.

The following sections were revised or contain new information: 1.1, 1.2, 2.2, section 3, 4.3, 8.1, section 16

KEY

OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit.
STOT	Specific Target Organ Toxicity.
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration.
PBT	PBT: Persistent, Bioaccumulative and Toxic.
STOT SE 3	Specific target organ toxicity — single exposure Category 3.
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit.
STOT	Specific Target Organ Toxicity.

Hazard statements and Safety phrases: EU No 1272/2008 (CLP)

H224	Extremely flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H336	May cause sleepiness or dizziness
H411	Toxic to aquatic life with long lasting effects.
EUH018	In use, may form flammable/explosive vapour-air mixture
EUH066	Repeated exposure may cause skin dryness or cracking.

Training advice

Suitable information on safety during handling, storage and processing of the product should be given to employees based on all the existing information. A DVD on Fire Safety is available from Plastics Europe in 18 European languages. Please contact your EPS beads supplier for a copy.

Disclaimer

The information included in this publication or provided to the user in any other way we believe to be correct and is provided in good faith. However, it is up to the user to check whether the product is suitable for the intended use. Unipol Holland BV does not provide any guarantee that the product is suitable for any intended use. Every guarantee, implicit or explicit, is excluded, unless legislation does not permit exclusion. Unipol Holland BV does not accept liability for loss or damage, other than caused due to death or personal injury as a result of a product with proven shortcomings, that is the result of relying on this information. This publication may not be considered a licence to breach patents, copyright or designs.

Annex with exposure scenario(s) with the extended safety data sheet ("extended SDS") Not applicable.