

	MSDS	ISSUE DATE	19/Jan/2022
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	EPS STANDARD GRADES	IRAN/TABRIZ/TABRIZ PETROCHEMICAL COMPANY/P.O.BOX:51745-354/TEL:+984134282612 Page:1/6	

1. Identification of the Substance/Preparation and Company

Product names: Tabriz EPS (expandable polystyrene) standard grades

121HS, 221HS, 321HS, 422FC, 522FC, 526WP

Synonyms: EPS, expandable polystyrene, poly (phenylethene)

Use: used primarily for the manufacture of foamed thermal insulation and packaging.

manufacture's address: Iran-E.Azarbayjan-Azarshahr Road-TPC-P.O.POX:51745-354

2. Hazards identification

This assessment is based on information available on similar products.

Hazards:

In use, may form flammable/explosive vapors-air mixture. Product releases pentane, a flammable hydrocarbon. May cause irritation to skin and eyes.

3. Composition / Information on ingredients

Product description: Polystyrene (CAS No.: 9003-53-6), containing pentane isomers as blowing agent

Hazardous ingredient(s)	CAS No.	% [w/w]	Hazard Symbol	Risk Phrases
Pentane (mixed isomers)	109-66-0 (78-78-4)	< 7	F+, Xn, N	R12, R51/53, R65, R66, R67

For full text of R phrases see section 16.

4. First aid measures

Effects and symptoms: may cause irritation to skin and eyes.

Inhalation: remove persons affected by vapour to fresh air. If symptoms persist, obtain medical attention.

Ingestion: unlikely to be hazardous if swallowed. Unlikely to be required but if necessary treat symptomatically.

Skin contact: wash skin with soap and water.

Eye contact: irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. If symptoms persist, obtain medical attention.

Further medical treatment: unlikely to be required but if necessary treat symptomatically.

	MSDS		ISSUE DATE	19/Jan/2022
			WWW.TPCO.IR	
	EPS STANDARD GRADES		IRAN/TABRIZ/TABRIZ PETROCHEMICAL COMPANY/P.O.BOX:51745-354/TEL:+984134282612 Page:2/6	

5. Fire fighting measures

General: product is not classified as flammable, but will burn on contact with flame or exposure to high temperature (see section 9). Flammable concentrations of pentane may accumulate on storage in closed containers. This product may give rise to hazardous fumes in a fire (carbon monoxide, carbon dioxide).

Extinguishing media: water spray, dry powder or carbon dioxide.

Unsuitable extinguishing media: do not use water jet.

Fire fighting protective equipment: a self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

Other: keep fire exposed containers cool by spraying with water.

6. Accidental release measures

Caution - spillages may be slippery. Pentane 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. Prevent entry into drains. Methods for 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 for collecting spilt materials, where practicable. Transfer to a lidded container for disposal or recovery.

Other: see also section 13.

7. Handling and storage

Handling: provide adequate ventilation including appropriate local extraction. Do not breathe fumes/vapour. Avoid generation 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. When using do not smoke. Take precautionary measures against static discharges. Ensure adequate earthing. avoid release to the environment. Permission must be obtained from the appropriate local authority before disposing of waste material.

Process hazards: take precautionary measures against static discharges. To avoid the buildup of static electric charge, and also the formation of an explosive pentane-air mixture, containers should be fully emptied when processing. Ventilate freight containers for one hour before unloading.

Line velocity should not exceed 8m/s during normal pumping operations. All parts of the plant and equipment should be electrically bonded together and connected to earth. Electrical continuity should be checked at regular intervals. Antistatic clothing and footwear should be used.

Storage: flammable concentrations of pentane may accumulate on storage in closed containers. Keep container tightly closed, in a cool, well ventilated place. Keep away from

	MSDS		ISSUE DATE	19/Jan/2022
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direct sunlight and other sources of heat or ignition. Keep away from rain and moist 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 fiberboard octabins. It is recommended not to double stack octabins. Suitable containers: steel (drums).

specific design for storage rooms or vessels: storage rooms should be kept cool to reduce pentane release, and provided with a suitable ventilation system to prevent accumulation of pentane. In addition, safety devices to alert any build up of pentane/air explosive mixtures 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/ecl.

8. Exposure controls / personal protection

General: use only in well-ventilated areas.

Respirators: an approved dust mask should be worn if dust is generated during processing or handling.

Eye protection: safety spectacles.

Gloves: wear suitable gloves. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

Other: wear suitable protective clothing antistatic safety shoes or antistatic boots.

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.

Occupational exposure limits: TLV (TWA) =15 mg/m³ (total dust) from OSHA

The following are limits for the expanding agent; during the conversion process (expansion) the preparation evolves pentane.

Substance	CAS No	LTEL (8hrTWA _{ppm})	LTEL (8hrTWA mg/m ³)	STEL (ppm)	STEL (mg/m ³)	Note
Pentane(mixed isomers)	109-66-078-78-4	600	-	-	-	TLV (ACGIH)

TLV: Threshold Limit Value (ACGIH)

9. Physical and chemical properties

Form: solid, small spherical beads

Color: white or dyed

Flash point (°C): < -50°C (pentane)

Flammable limits (upper): (%v/v) 7.8% (v/v) (pentane)

Flammable limits (lower): (%v/v) 1.3% (v/v) (pentane)

Auto ignition temperature (°C): 285°C (pentane) (ASTM E-659)

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			WWW.TPCO.IR	
	EPS STANDARD GRADES		IRAN/TABRIZ/TABRIZ PETROCHEMICAL COMPANY/P.O.BOX:51745-354/TEL:+984134282612 Page:4/6	

Density: 1020–1050kg/m³ @ 20°C (beads)

Bulk density: circa. 600kg/m³ @ 20°C

Vapour density: (air=1) 2.5 (pentane)

Partition coefficient (n-octane/water): not available

Softening point (°C): 70-75°C (beads expand with evolution of pentane)

Solubility (water): insoluble

Solubility (other): soluble in aromatic hydrocarbons, halogenated solvents and ketones.

10. Stability / reactivity

Conditions to avoid: keep away from heat sources of ignition and direct sunlight

Materials to avoid: avoid storing or handling in conjunction with UN class 1 explosive.

Hazardous decomposition product(s): pentane, styrene monomer, carbon monoxide (in case of fire or during hot wire cutting). release of pentane increases with temperature. (Beads expand with evolution of pentane) @ 70-75°C

11. Toxicological information

This assessment is based on information available on similar products.

Inhalation: the product can evolve pentane vapours, which at high concentrations may lead to dizziness, headache and anaesthetic effects.

Ingestion: unlikely to be hazardous if swallowed. LD50 > 2000 mg/kg

Skin contact: may cause irritation. LD50 > 2000 mg/kg

Eye contact: irritating to eyes

Long term exposure: no data

12. Ecological information

This environmental hazard assessment is based on information available on similar products. Small particles may have physical effects on aquatic and terrestrial organisms.

Environmental fate and distribution: the product is essentially insoluble in water. The product has low potential for bioaccumulation.

Bio concentration factor (BCF): < 100

Expandable polystyrene sinks in fresh water, may float or sink in sea water.

Persistence and degradation: 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.

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. Pentane has very low global warming potential (<0.00044) and zero ozone depletion potential. Effect on effluent

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treatment: practically non-toxic, $EC_{50} > 100$ mg/l, to organisms in sewage treatment plants (estimated).

13. Disposal considerations

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

Regulatory information: European Union directive 94/62/EC

Recommended: recover or recycle if possible. Remove all packaging for recovery or disposal. Normal disposal is via incineration operated by an accredited disposal contractor.

14. Transport information

UN No. 2211

UN Class 9

UN Pack. Group III

Proper Shipping Name: POLYMERIC BEADS, EXPANDABLE, evolving flammable vapour (PENTANE)

Road/Rail

ADR/RID Class: 9

HAZARDS IDENTIFICATION: 90

ADR Si 2211

Tunnel restriction code: (D/E)

Special Provisions: 633: Keep away from any source of ignition.

SEA

IMDG

Primary Class: 9

UN Packing group Sea: III

Marine Pollutant: Not classified as a Marine Pollutant.

IMDG EMS: F-A, S-I

AIR

ICAO/IATA

Primary Class: 9

UN Packing group Air: III

CEFIC TEC®: 90GM3-III

Additional information: transport or conveyance within the manufacturing premises: refer to the internal procedures and information provided by this document. Transport or conveyance outside the manufacturing premises: apply the requirements of the regulations on transport of dangerous goods and the manufacturer's recommendation on safe loading, transporting, unloading of the material.

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15. Regulatory information

Risk Phrases: R18: In use may form flammable/explosive vapour air mixture.

Safety Phrases

S3/7: Keep container tightly closed in a cool place.

S9: Keep container in a well-ventilated place.

S16: Keep away from sources of ignition - No smoking.

S33: Take precautionary measures against static discharges.

16. Other Information

Risk Phrases:

R12: Extremely flammable.

R18: In use, may form flammable/explosive vapour air mixture.

R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R65: Harmful: may cause lung damage if swallowed.

R66: Repeated exposure may cause skin dryness or cracking.

R67: Vapours may cause drowsiness and dizziness.

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