



HONG KONG PETROCHEMICAL CO. LTD.

MATERIAL SAFETY DATA SHEET

Polystyrene

IDENTIFICATION

Trade Name	:	HK PETRO
Common Name	:	General Purpose Polystyrene (GPPS); Crystal Polystyrene
Chemical and Other Names	:	Homopolymer Polystyrene; PS (Styrene thermoplastic resin)
CAS Number	:	9003-53-6
Chemical Formula	:	(C ₈ H ₈) _n

PHYSICAL AND CHEMICAL PROPERTIES

Appearance, physical state	:	Cylindrical pellets, diameter and length about 3 mm
Odour	:	Odourless
Colour	:	Crystal clear
Solubility in water	:	Insoluble
Solubility in organic solvents	:	Soluble in aromatic and halogenated hydrocarbons, esters, and ketones
Softening point (Vicat temperature)	:	80-100°C
Processing temperature	:	180-250°C
Decomposition temperature	:	> 300°C
Self-ignition temperature	:	> 350°C
Flash point	:	> 450°C
Specific gravity	:	1050 kg/m ³
Bulk density	:	650 kg/m ³

<u>Component</u>	<u>CAS#</u>	<u>% by weight</u>
Polystyrene	9003-53-6	~100%

Monomer used for polymerization
Styrene C₈H₈ CAS# 100-42-5

Hazardous Reactions

None.

The product is stable in normal handling and storage conditions. It is combustible and by direct ignition it burns with a sooty flame. Since the elements contained in HK PETRO normal types are C (carbon) and H (hydrogen), by its complete combustion only CO₂ (carbon dioxide) and H₂O (water vapor) develop.

Overheating/pyrolysis develops fumes made up of monomers, low polymers and their corresponding oxidation products.

CLASSIFICATION AND LABELLING

The product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200 and as such does not require reporting under the requirements of 40 CFR 370, Hazardous Chemical Reporting: Community Right-To-Know.

Not controlled under WHMIS (Canada) CEPA-DSL and EEC Directive 67/548

EINECS : Not available

TOXICOLOGICAL INFORMATION, EXPOSURE LIMITS

No evidence of acute/chronic toxicity have been reported.
Powder may cause eyes and/or respiratory organs irritation.
During processing traces of monomer may develop.

Exposure limits are the following :

- powders of the product :
 - ACGIH: 10 mg/m³ TWA (inhalable particulate);
3 mg/m³ TWA (respirable particulate)
* These values are for particulate matter containing no asbestos and <1% crystalline silica
* Related to Particulates Not Otherwise Classified (PNOC)
 - OSHA : Total dust: 15 mg/m³ TWA; respirable fraction: 5 mg/m³ TWA
* Related to Particulates not otherwise regulated
- monomer possibly developed during processing :
 - Styrene TLV-TWA : 100ppm OSHA PELS
20ppm ACGIH

STORAGE

Packaging : 25 kg polypropylene woven or polyethylene bags

The product can be stored and shipped in bulk.

Special Recommendations

- Keep away from sources of ignition, heat and sparks and from flammable products
- In storage and working areas avoid pellets spillage as a possible cause of slippage
- Avoid contact with solvents and with strong oxidizing agents
- Stored in dry place.

TRANSPORT REGULATIONS

DOT (US)

Not classified as hazardous material for transportation.

TDG (Canada)

Not classified as hazardous material for transportation.

RID / ADR (Europe)

Not classified as hazardous material for transportation.

ICAO / IATA

Not classified as hazardous material for transportation.

IMO / IMDG

Not classified as hazardous material for transportation.

CEFIC TEC (R)

Not applicable.

HANDLING AND PROCESSING INFORMATION

Protective Equipment :

- In normal conditions masks with anti-dust filter shall be available when requested.
- In case of fire / overheating, toxic gas and fumes are developed and self-contained breathing apparatus has to be used when requested.

Special Precautions :

- During the processing (moulding, extrusion) vapour of styrene monomers may develop; particularly at unusually high processing temperatures (>> 250°C).
- Work rooms must be provided with adequate ventilation and/or fume and dust collectors, so as to prevent their concentrations to exceed the fixed TLV-TWA values (see above : Toxicological Information).
- Use gloves and other suitable protective items, when requested.
- During extrusion under vacuum monomers and/or other low boiling substances are extracted so water waste treatment may be requested before discharging.

EMERGENCY AND FIRST AID PROCEDURES

First Aid :

- Contact with eyes (dust) : wash with plenty of water.
- Inhalation (dust or fumes from thermal degradation) : remove the patient from polluted area; require medical assistance.

Spills / Leaks :

- Collect mechanically.
- Not reusable products may be disposed in a controlled landfill or burned in incinerator, according to national and local rules.

Fire :

- The product is combustible (see above : Hazardous Reactions).
Heat of combustion : about 10,000 kcal/kg
- Recommended extinguishing media : water spray, foam, dry chemicals, carbon dioxide.
- Suitable protective devices have to be used by operators employed in extinguishing fire and removal of residual combustion product.

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Note :

The information contained herein is based on the present state of Hong Kong Petrochemical Co. Ltd.'s knowledge and is intended to describe the product from the safety requirement point of view. It should not therefore be construed as guaranteeing specific properties. Hong Kong Petrochemical Co. Ltd. will not accept liability for any loss or damage that may occur from the use of this information. Regulatory requirements are subject to change and may differ between various locations.

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