



MATERIAL SAFETY DATA SHEET

High Impact Polystyrene (Polystyrene modified with Elastomers)

IDENTIFICATION

Trade Name	:	HK PETRO
Common Name	:	High Impact Polystyrene, HIPS
Chemical and Other Names	:	Rubber modified Polystyrene; BS, SB (Butadiene-Styrene thermoplastic resin); Styrene-butadiene copolymer
CAS Number	:	9003-55-8
Chemical Formula	:	$(C_8H_8)_n(C_4H_6)_m$

PHYSICAL AND CHEMICAL PROPERTIES

Appearance, physical state	:	Cylindrical pellets, diameter and length about 3 mm
Odour	:	Odourless
Colour	:	Natural (translucent milky)
Solubility in water	:	Insoluble
Solubility in organic solvents	:	Soluble in aromatic and halogenated hydrocarbons, esters and ketones
Softening point (Vicat temperature)	:	80-95°C
Processing temperature	:	180-250°C
Decomposition temperature	:	> 300°C
Self-ignition temperature	:	> 450°C
Specific gravity	:	1040 kg/m ³
Bulk density	:	650 kg/m ³

<u>Component</u>	<u>CAS#</u>	<u>% by weight</u>
Styrene-butadiene copolymer	9003-55-8	~100%

Monomer used for polymerization

Styrene C₈H₈ CAS# 100-42-5 > 85%

Homopolymer

Butadiene Rubber (C₄H₆)_m CAS# 9003-17-2 <15%

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 High Impact 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 monomers 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
- Store in a 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, and possibly trace of butadiene, 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 :

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