

1. Product and Company Identification

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Product Name **Unsaturated Polyester Resin**
Product Type **RXSOL-18-1803-030**

Company Details:

RX MARINE INTERNATIONAL
105, A wing , BSEL , TECH PARK.
VASHI ,NEW BOMBAY 400703 INDIA

Phone +91 22 65113333/ 5555 / 9999 / 27611360 / 27815540
Fax +91 22 2781 1318 :::AOH :0091 9322594669
Email mail@rxmarine.com

2. Composition / Information on ingredients

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Chemical Composition:

| Ingredients | CAS Number | Maximum Content | Exposure limit |
|-----------------|-------------|-----------------|----------------|
| Polyester Resin | Propreitory | 62% | None assigne |
| Styrene Monomer | 1CO-42-5 | 44% | 50 ppm |
| Fumed Silica | - | 3% | N/A |

EEC CLASSIFICATION (Styrene)[R10; Xn; Xi] Flammable. Harmful, Irritant.
R PHRASES (Styrene)~R: 10, 20, 36/38, Flammable. Harmful by inhalation.Irritating to eyes and skin

3. Hazards Identification

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FLAMMABILITY: Styrene
FLAMMABILITY CLASS 1C
(ILO):
FLASH POINT Nominal: 35 DEG C

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|----------------------|---------|
| FLAMMABILITY LIMITS: | 11-61% |
| TOXICITY: | Styrene |
| TLV TWA : | 50 ppm |
| TLV STEL: | 100 ppm |
| PEL TLV: | 100ppm |
| PEL C: | 200 ppm |

4. First Aid Measures

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DO NOT MAKE THE CASUALTY VOMIT. Get immediate medical attention. Wash the mouth out with water and give large quantities of water to drink.

PRODUCT INHALED:

Remove victim from area of exposure to fresh air. If unconscious, do not give anything to drink, give artificial ventilation and chest compression or place in recovery position as necessary. If conscious make the casualty lie or sit down quietly, give oxygen if available. Get immediate medical attention. In all cases of exposure the patient should be transferred to hospital.

5. Fire-fighting Measures

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EXTINGUISHING MEDIA:

Water spray, foam, dry chemicals, carbon dioxide or any Class B type extinguishing agent. Water may be ineffective since it may not cool the styrene below its flash point.

SPECIAL HAZARDS:

FLAMMABILITY :

Styrene Monomer

FLAMMABILITY CLASS (ILO) IC

FLASH POINT (open cup) Nominal 35 DEG C

FLAMMABILITY LIMITS 1.1-6.1 %

At elevated temperature polymerisation may take place. If polymerisation takes place in enclosed container, there is a possibility of violent rupture of the container. Product vapours may form an explosive mixture in air.

SPECIAL FIRE FIGHTING PROCEDURES:

Evacuate area and fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours and toxic decomposition of products.

UNSUITABLE EXTINGUISHING MEDIA:

Water may be ineffective since it may not cool the Styrene below the flash point.

PROTECTIVE CLOTHING:

Firefighters and Others exposed to vapours or products of combustion should wear self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use. In situations of large fires, a fireman's normal protective clothing may not provide adequate protection and chemical resistant clothing may be required.

6. Accidental Release Measures

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PERSONAL PRECAUTION:

Prevent access to area until cleanup has been completed. If TLV in section 8 of this data sheet is exceeded, then suitable respiratory protection must be worn to prevent over exposure. Ensure cleanup is conducted by trained personnel only.

ENVIRONMENTAL PRECAUTIONS:

Prevent material entering the water systems, sewers and soil. This product contains styrene monomer, which if spilled or released in quantities greater than the Reportable Quantity (RQ) of 454 kg are subject to the reporting requirements of CERCLA and/or SARA (40 CFR Parts 320 & 355).

CLEAN-UP METHODS:

Spills:

Remove all source of ignition. Ventilate area. Dike the area to prevent the material from entering the water systems or sewers. Absorb spill with absorbent material such as saw dust, vermiculite, or sand and place in closed container for disposal. Note that contaminated absorbent material poses the same hazard as the spilled product.

ADDITIONAL ADVICE:

All resins Should be regarded as notifiable under the Ha:zardous Substances Act of 1973, and Hazardous Chemical Substances Regulation. Advice Should be sought fmm the Local Authority regarding dispOsal.

7. Handling and Storage

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SUITABLE MATERIALS:

Lacquer lined metal drums.

UNSUITABLE MATERIALS:

Most plastic containers.

HANDLING(STORAGE PRECAUTIONS:

Avoid eye and prolonged skin contact. Use of a barrier cream is recommended. Avoid inhalation. Avoid improper addition of accelerator and catalyst. The promoter and catalyst should always be mixed into the prnduct separately and never mixed together. The product should be stored below 25 Deg C. in closed Containers away from all sources of heat and ignition. The store should be well ventilated and flame proof. Keep Storage area away from working area. Post warning signs and have appropriatc fire exlinguishers and spill cleanup equipment in or near the storage area. Empty drums contain vapours. the monomers present in the oniginal resin solution and therefore are at fire, explosion and noxious vapour risk. They should be disposed of by methods that follow recognised safe procedures.

8. Exposure controls and personal protection

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OCCUPATIONAL EXPOSURE STANDARDS:

HSIE: Not available

MAK: Not available

ACGIH Styrene

TLV-TWA (time weighted average) 50 ppm (213 mg

TLV- STEL(short-term exposure limit) 100 ppm (4~6 mg

NOTICE OF INTENDED CHANGE:

For styrene the reduction of TLV to 20 ppm (85 mg m³ and STEL to 40 ppm (170

mg m³ and designation of the carcinogen A4 notation has been proposed.
Carcinogen A4: Not classifiable as human.

carcinogen: Inadequate data on which to classify the substance as a human and/or animal carcinogen.

SKIN:

Contact with eyes, skin and mucous membranes can contribute to the overall exposure and may invalidate the TLV

OSHA PERMISSIBLE EXPOSURE LIMITS (PELs)

PEL- TLV(time weighted average) 100 ppm

PEL - C (ceiling exposure limit) 200 ppm

Acceptable maximum peak above the acceptable ceiling concentration for an 8-hour shift: 600ppm (5 minutes in any three hours).

ENGINEERING CONTROL MEASURES:

Methods to control hazardous conditions are preferred. Methods include a good mechanical ventilation with a non sparking, grounded ventilation system exhausting directly to the outside, separate from other exhaust ventilation systems. Care should be taken in controlling the emission of fumes into the environment. Note that provision should be made for adequate replacement of displaced air. Electric lighting and plugs to be explosion proof

PERSONAL PROTECTION - RESPIRATORY:

If TLV level in section 3 is exceeded, then suitable respiratory protection must be worn. Up to 500 ppm a chemical cartridge respirator with organic vapour cartridge(s). Above 500 ppm then full face supplied air respirator, or self contained breathing apparatus should be used. Note that the IDL (immediately dangerous to life or health) concentration of styrene is 700 ppm.

PERSONAL PROTECTION - HAND:

Impervious gloves, Note that the resistance of specific materials can vary from product to product. Evaluate the resistance of the product under conditions of use

PERSONAL PROTECTION - EYE:

Wear a face shield or chemical goggles or approved safety glasses, Have an emergency eyewash station readily available in the working area,

PERSONAL PROTECTION SKIN:

Impervious gloves, coveralls, boots, and/or other resistant protective clothing. Have a safety shower eye wash fountain readily available in the immediate work area,

PERSONAL PROTECTION COMMENTS:

Dust generated by grinding or polishing finished products is regarded as hazardous and precautions should be taken to ensure dust concentrations to be maintained below a TLV of 10 mg m³ - Where dust concentrations exceed these values, appropriate dust masks should be worn.

OTHER PROTECTIVE MEASURE:

Remove contaminated clothing immediately. Keep contaminated clothing in closed containers. Discard or launder before re-wearing. Inform laundry personnel of contaminated hazards. Do not eat, smoke or drink in work areas.

9. Physical and chemical properties

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| APPEARANCE | Pale yellow , purple pink , white or blue tinted. |
| ODOUR | Fruity odour at low concentrations. Sharp high concentrations. |
| pH | Not applicable. |
| BOILING POINT RANGE | 145 - 148 deg C |
| FREEZING POINT | -30.6 Deg C |
| FLASH POINT | 35 Styrene (closed cup) |
| FLAMMABILITY | 1.1 - 6.1 % v/v (Styrene) |
| AUTOFLAMMABILITY | 490 Deg C |
| EXPLOSIVE PROPERTIES | Styrene LEL 1.1% UEL 6.1% |
| OXIDISING PROPERTIES | None |
| VAPOUR PRESSURE | Styrene 0,60 kPa at 20 DEG C 0.81 kPa at 25 DEG C |
| DENSITY | DENSITY 1.11 - 1.23 g/cm ³ |
| SOLUBILITY IN WATER | |