Material Safety Data Sheet

Resin Unsaturated Polyester (RXSOL-18-1803-030)

1. Product and Company Identifaction

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

Company Details:

RX MARINE INTERNATIONAL
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2. Composition / informationon ingredients

Chemical Composition:

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

EEC CLASSIFICATION (Styrene)[R1O; 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

FLAMMABILITY:	Styrene
FLAMMABILITY CLASS (ILO):	1C
FLASH POINT Nominal:	35 DEG C
FLAMMABILITY LIMITS:	11-61%
TOXICITY:	Styrene
TLV TWA :	50 ppm
TLV STEL:	100 ppm
PEL TLV:	lOOppm

PEL C:	200 ppm

4. First Aid Measures

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

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 CLOTHIN(3 :
Fire.fighters and Others exposed to vapours or products of combustion ShOuld wear sclf-contained breathing ~pparatus. Equipment Should be thoroughly decontaminated after use. In situations of large fires, a fireman's normal protective clothing m~y not provide adequate protection and chemical resistant clothing may be required.m~y not provide adequate protection and chemical

resistant clothing may be required.

6. Accidental Release Measures

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 nreleased in quantities greater than the Reportable Quantity (RO) of 454 kg are subject to the reporting requirements of CERCLA and/or SARA (40 CFR Paris 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

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 onginal 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

OCCUPATIONAL EXPOSURE STANDARDS:
HSIE: Not availabe
MAK: Not available

ACGlH 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 andlor animal carninogen.

SKIN:
Contact with eyes. skin and mucous membranes can contribute to the overall exposure and may invalidate the TLV
OSHA PERMISSIABLE EXPOSURE LIMITS (PELs)
PEL- TLV(time weighted average) 100 ppm
PEL - C (celllng 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 condilions 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 envirnnment 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 suitahie 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 llfe 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 prnduct. 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, andior 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 he 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 rewearing. Inform laundry personnel of contaminated hazards. Do not eat, smoke or drink in work areas.

9. Physical and chemical properties

APPEARANCE	Pale yellow , purple pink , white or blue tinted.
ODOUR	Frulty odour at low concentrations. Sharp at 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.I % v/v (Styrene)
AUTOFLAMMAIBILITY	490 Deg C
EXPLOSIVE PROPERTIES	Stynene 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	DENSITY1.11 - 1.23gcm3
SOLUBILITY IN WATER	Practically insoluble in water 0.05%

10. Stability and reactivity

CONDITIONS TO AVOID:
Heat, sparks, Open flames, ignition Sources.

INCOMPATISLE MATERIALS:
Oxidi,zing agents and Strong Acids.

HAZARDOUS DECOMPOSITION PRODUCT5:
Heating to decomposition may cause the emission of irritating, acrid fumes. styrene may form slyrene oxide as decomposition product.

11. Toxicological information

ACUTE TOXICITY:
Acute oral LD 50 (rat) is 5000 mg./kg
SKIN AND EYE CONTACT
Causes moderate irritation to skin and eyes
SUB CHRONIC TOXICITY
Styrene is a direct skin irritant

CARCINOGENICITY:
The lARO (International Agency for Research on Cancer) has that there is inadequate evidence for the carcinogenicity of styrene in humans. The ARC classificstion for styrene is group 2B; Possibly carcinogenic to humans - Notice of intended change of Styrene classification to group A4. lnadequate data on which to Classify the substance as a human and /or animal carcinogen. Note that styrene oxide, a product of styrene metabolism in the body, is carcinogenic in animals.

MUTAGENICITY:
Most Studies conducted on styrene have proved inconclusive.

REPRODUCTIVE TOXICITY:
There is some evidence that at high exposures (400 mg /kg styrene dosed orally to rats for 60 days) styrene can affect the male reproductive system. In a three generation study, rats were exposed to 20O ppm styrene orally. Despite some reporting deficiencies, it appears there are no treatment related effects on male or female fertility or on their offspring.

12. Ecological information

AOUATIC TOXICITY- FISH	: No data available
AOUATIC TOXICITY- DAPHNIA	: No data available
AOUATIC TOXICITY- ALGAE	: No data available
BIODEGRADABILITY	: No data available
BlOACCUMULATION	: No data available
MOBILITY	: No data available
GERMAN WGK	: No data available

13. Disposal considerations

DISPOSAL METHODS:
Disposal of liquid resin should only occur under conditions approved by local authorities. See also section 6. It may he necessary to wet dust generated from polishing or grinding finished products in order to avoid airborne dispersal thereof,

DISPOSAL OF PACKAGING:

Empty drums etc. contain vapours of styrene and pose a health and fire hazard and Should be disposed of occur under conditions approved by local authorities.

14. Transport information

TARIFF No.	: 3907
UN No	: 1866
SUBSTANCE IDENTITY No	: Not available
ADR/RID CLASS	: Not available
ADR/RID ITEM No.	: Not available
ADR/RID HAZARD IDENTITY No.	: Not available
IMDG SHIPPING NAME	: Resin solution
lMDG - CLASS	: Class 3.3
IIVIDG PACKAGING GROUP	: 111
IMDG - MARINE POLLUTANT	: Yes
IMDG - EMS No,	: 3-05
IMDG - MFAG TABLE No.	: 310
lATA - SHIPPING NAME	: Resin solution
lATA _ CLASS	: Class 3
lATA - SUBSIDIARY RISK(S)	: None
ADNR - CLASS	: Not available
UK - DESCRIPTION	: Not available
UK - EMERGNCY ACTION CODE	: Not available
UK - CLASSIFICATION	: Not available
TREMCARD No.	: Not available

15. Regulatory information

HAZARD CLASSIFICATION	: Flammable, Harmful. Irritant. [Rio; Xn; Xi] (Styrene)
RISK PHRASES	: Flammable. Harmful by inhalation. Irritating to eyes and skin.- [R; 10,20, 3ii1~8J
SAFETY PHRASES	: Not available
NATIONAL LEGISLATION	: South African Hazardous Substance Act 15 of 1973 South African Occupational Health & Safety Act (85 OF 1993)

16. Other information

The Information provided about the product on this Safety Data Sheet has been compiled from knowledge of the individual constituents The data given here is based on current knowledge and experience. This Safety Data Sheet describes the product in terms of safety requirements and does not signify any warranty with regard to the product's properties The data given here only applies when product used for proper application(s). The product is not sold as suitable for other applications usage in such may cause risks not mentioned in this sheet. Do not use for other application(s) without seeking advice from manufacturer.

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