

# SAFETY DATA SHEET

Issue No. One

Based on Directive 91/155/EEC et seq. of the  
Commission of the European Communities

## PF2000 RESIN

### 1. Identification of the substance/preparation and the company

#### 1.1 Identification of the substance or preparation:

Unsaturated Polyester Resin in Styrene Monomer.

#### 1.2 Use of substance or preparation:

Unsaturated polyester resin in styrene monomer for GRP laminating

#### 1.3 Company/undertaking identification:

Polyfibre UK Ltd  
Wainwright Street  
Aston  
Birmingham  
B6 5TJ  
UK

#### 1.4 Telephone number for emergency:

Tel +44 (0)121 327 2360

### 2. Composition/information on ingredients

Hazardous ingredients (CAS Number)	EINECS No.	Conc % w/w	Hazard Classification	Risks ( R Phases)
STYRENE (100-42-5)	202-851-5	30 – 35	Xn	R10,20,36/38, R52/53

### 3. Hazards identification

- Harmful by inhalation.
- Irritating to eyes, respiratory system and skin.
- Flammable.
- Heat may cause pressure rise with explosion of tanks/drums.
- The mixture of product vapour and air could be explosive.
- Strongly exothermic reactions may be caused by:  
heat, free radical formers, peroxides.

### 4. First aid measures

#### 4.1 Eye contact:

- Rinse immediately with plenty of water for at least 15 minutes, whilst opening eyelids.
- Obtain medical attention.
- Consult a doctor/medical service if irritation persists.

#### 4.2 Skin contact:

- Remove contaminated clothing immediately.
- Wash immediately with lots of water and soap for 15 minutes.
- Do not apply (chemical) neutralizing agents.
- Consult a doctor/medical service if irritation persists.

#### 4.3 After inhalation:

- Remove the victim from contaminated area and into fresh air.
- Unconscious: maintain adequate airway and respiration.
- Consult a doctor/medical service if breathing problems develop.

## PF2000 resin

### 4.4 After ingestion:

- Never give water to an unconscious person.
- Do NOT make victim drink milk or fatty fluids.
- DO NOT INDUCE VOMITING.
- Consult a doctor/medical service as soon as possible, and show the container or label to the doctor.

## 5. Fire-fighting measures

### 5.1 Suitable extinguishing media:

- Polyvalent foam.
- Alcohol foam.
- BC powder.
- Carbon dioxide.
- Sand/earth.

### 5.2 Unsuitable extinguishing media:

- Avoid use of water due to boil over danger. Resin does not mix with water. Fight as for an oil or fat fire. Do not use water in a jet, which will only spread burning material over a wider area.

### 5.3 Special exposure hazards:

- Vapour may travel along the ground and ignite.
- Flammable vapours will be released at or above the flashpoint of the liquid.
- Forms explosive mixtures with air.
- Fire creates toxic gases/vapours/fumes
- In case of fire and/or explosion, do not breathe fumes.

### 5.4 Instructions:

- Cool tanks/drums with water spray/remove them to safety, if without personal risk.
- Take account of the toxicity of used firefighting water. Keep run-off water away from water courses.
- Use firefighting water moderately as cooling medium only and contain it.

### 5.5 Special protective equipment for firefighters:

- Heat/fire exposure: compressed air/oxygen apparatus.
- Heat/fire exposure: gas-tight suit.

## 6. Accidental release measures

### 6.1 Personal protection: see 8.3. Avoid inhaling vapours.

### 6.2 Environmental precautions:

- Prevent soil and water pollution. Do not allow this resin solution to enter the environment.
- Substance must not be discharged into the sewer, notify appropriate authority if resin enters sewer/drain, in accordance with local regulations.
- Contain leaking substance, pump over into suitable containers.
- Plug the leak, cut off the supply.
- Dam up the liquid spill.

### 6.3 Clean-up:

- Wear necessary protective equipment, provide ventilation and confine spill.
- Avoid contact with skin or inhalation of spillage.
- Damaged/cooled tanks must be emptied.
- Do not use compressed air for pumping over spills.
- Take up liquid spill into a non combustible material e.g.: sand/earth.
- Do not allow run-off to sewers or to water courses.
- Scoop absorbed substance into closing containers.
- Carefully collect the spill/leftovers.
- Take collected spill to manufacturer/competent authority.
- Clean contaminated surfaces with an excess of water.

## 7. Handling and storage

### 7.1 Handling:

- Keep away from sources of ignition.
- Avoid spilling, skin and eye contact.
- Take precautionary measures against electrostatic discharges.
- Observe normal hygiene standards (see 8.4).
- Do not discharge the waste into the drain.
- Remove contaminated clothing immediately.
- Clean contaminated clothing.

## PF2000 resin

### 7.2 Storage:

- Keep container tightly closed.
- Store in a cool area, in original container.
- Provide for a tub to collect spills.
- Keep out of direct sunlight.
- Provide ventilation at floor level.
- Keep away from: heat sources, ignition sources, oxidizing agents, acids, bases, peroxides and other sensitive material.

#### Storage temperature:

- Store below 30°C in a well ventilated area.

### 7.3 Materials for packaging:

Flammable liquid storage.

- Suitable : Steel, stainless steel, glass.
- Not suitable : aluminium, copper or copper alloy, some plastics.

## 8. Exposure controls/Personal protection

### 8.1 Recommended engineering controls:

Occupational exposure Limits EH 40/2002 UK (HSE)  
{MEL} Maximum Exposure Limit  
Refer to HSE Guidance Notes EH40

### 8.2 Exposure limits- Styrene

8 Hours (TLV-TWA)		15min. - Short period (TLV-STEL)		Reference
ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	
100*	430	250	1080	UK (HSE) EH 40/2002

\*50ppm voluntary limit agreed in the UK, differing limits in other countries.

### 8.3 Personal protection:

#### Eye protection:

- Approved face shield, safety glasses or goggles as appropriate.

#### Hand protection:

- Wear solvent-proof gloves - Neoprene, nitrile, Viton, polyurethane gloves to be worn.

#### Skin protection:

- Wear appropriate protective clothing to prevent any possibility of liquid contact.
- Remove contaminated clothing to avoid skin contact.
- Wear safety boots when handling drums.

#### Respiratory protection:

- Do not breathe vapours.
- Ensure good ventilation and vapour extraction to ensure exposure to vapours does not exceed OEL. Prevent repeated or prolonged vapour contact. Use fresh air fed respiration equipment if necessary.

### 8.4 Hygienic work practises

- DO NOT SMOKE IN WORK AREA!
- No eating or drinking while working with this material.
- Wash at the end of each work shift and before eating, smoking and using the toilet.
- Promptly remove any clothing that becomes contaminated.
- Remove working clothes after work.
- Wash promptly with soap & water if skin becomes contaminated.
- Use appropriate skin cream to prevent drying of skin.

## PF2000 resin

### 9. Physical and chemical properties

9.1 Appearance (at 20°C)	:	Liquid, viscous	
9.2 Odour	:	Strong ,sweet, aromatic.	
9.3 Colour	:	Pink	
9.4 pH value	:	N.D.	
9.5 Boiling point/boiling range	:	145	°C
9.6 Melting point/melting range	:	N.D.	°C
9.7 Flashpoint (T.C.C.)	:	32	°C
9.8 Auto-ignition point	:	490	°C
9.9 Explosion limits (for styrene):	:	1.1 - 6.1	% vol. in air
9.10 Vapour pressure (at 20°C)	:	<5mm Hg	
9.11 Relative density (at 20°C)	:	1.1	
9.12 Water solubility	:	Negligible	
9.13 % volatile by weight	:	40-43	
9.14 Relative vapour density	:	N.D.	
9.15 Saturation concentration	:	N.D.	g/m <sup>3</sup>
9.16 Viscosity (@ 25°C)	:	250	mPa.s

### 10. Stability and reactivity

#### 10.1 Stability:

- Stable under normal storage conditions, but may polymerise on heating.

#### 10.2 Reactivity/Hazardous decomposition products:

- On thermal degradation: release of carbon monoxide - carbon dioxide.
- Reacts violently with (strong) oxidizers and organic peroxides.

#### 10.3 Conditions/materials to avoid:

- Heat sources, ignition sources, oxidizing agents.
- Never mix peroxide and accelerator together.

### 11. Toxicological information – refers to solvent only.

11.1 The material is harmful by inhalation

11.2 Over-exposure may cause fatigue, loss of appetite, headache, dizziness, drowsiness and unconsciousness. Concentrations greater than 10,000ppm may cause death in less than 1 hour.

11.3 May cause irritation to the skin, eyes and respiratory tract.  
Skin contact may cause dermatitis.

11.4 Ingestion may cause systemic effects, unconsciousness and death.  
May affect the central nervous system.

### 12. Ecological information – refers to solvent only.

#### 12.1 Aquatic toxicity:

- LC50 (96hr): in range 10-100mg/l (various fish species) for styrene
- Harmful to aquatic organisms; may cause long term adverse effects in the aquatic environment
- Classified as a marine pollutant for transport (I.M.O.) only.
- Do not discharge into drains or to the environment; dispose to an authorised waste collection point.

## PF2000 resin

### 12.2 Mobility:

- Negligible solubility in water, viscous liquid becomes solid after solvent evaporation.

### 12.3 Persistence/degradability:

- **Soil:** Resin solids not readily biodegradable, solvent evaporates/degrades more rapidly

### 12.4 Bioaccumulative potential:

- **Log P<sub>ow</sub>** : N.D.
- **BCF** : 13.5
- Not expected to be bioaccumulative

### 12.5 Other adverse effects:

- **Effect on the ozone layer** : N.D.
- **Waste water purification** : N.D.

## 13. Waste disposal considerations

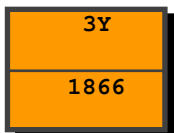
### 13.1 Provisions relating to waste:

- Containers must be closed, sealed and clearly labelled.
- Liquids should be incinerated.
- Cured solids may be landfilled after appropriate authorisation from local/national authorities.

### 13.2 Disposal methods:

- Landfill or incinerate at an approved site in accordance with national and local regulations.
- Recycle/reuse.
- Empty drums are a fire/explosion hazard, dispose in accordance with local and national regulations.
- Cleaned packaging may be recycled by a recognised drum reconditioner.

## 14. Transport information



**14.1 Proper shipping name:** Resin solution, flammable (UN 1866)

**14.2 Substance identification number (UN number):** 1866  
**Packing:** III

**14.3 Maritime transport (IMDG code):** Class 3  
**Marine pollutant:** Yes

**14.4 Emergency action code 3Y, Hazard Ident Number 30, Flammable Substance**

**14.5 Hazard No. (ADR):** 30 Flammable liquid (flash point between 23°C and 61°C, inclusive) or flammable liquid or solid in the molten state with a flash point above 61°C, heated to a temperature equal to or above its flash point, or self heating liquid.

## PF2000 resin

### EEC labelling:

Dir. 2001/59/EC : Commission Directive of 06/08/2001 adapting to the 28th time Council Directive 67/548/EC relating to classification, packaging and labelling of dangerous substances, OJ n° L 225, 21/08/2001.  
Dangerous preparations : Directive 99/45 amended by Directive 2001/60/EC - OJEC L226 - 22/08/2001.  
Directive 91/155/EEC amended by Directive 93/112/EEC and Directive 2001/58/EC : Safety data sheets.

## 15. Regulatory information

Labelling in accordance with EC directives 67/548/EEC and 1999/45/EEC



### Risk phrases:

R10 : FLAMMABLE  
R20 : HARMFUL BY INHALATION  
R36/38 : IRRITATING TO EYES AND SKIN  
R52/53 : HARMFUL TO AQUATIC ORGANISMS; MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT

### Safety phrases:

S16 : KEEP AWAY FROM SOURCES OF IGNITION. NO SMOKING  
S23 : DO NOT BREATHE FUMES OR VAPOUR  
S24/25 : AVOID CONTACT WITH EYES AND SKIN  
S26 : IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE  
S28 : AFTER CONTACT WITH SKIN, WASH IMMEDIATELY WITH PLENTY OF SOAP AND WATER  
S43 : IN CASE OF FIRE, USE SAND, FOAM, DRY POWDER OR CARBON DIOXIDE EXTINGUISHER

## 16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text. This data does not constitute an assesment of risk.

N.A. = NOT APPLICABLE  
N.D. = NOT DETERMINED  
\* = INTERNAL CLASSIFICATION

This MSDS established : 22nd August 2010  
Reference number : P-926