

FIBREGLASS AND RESIN SAFETY FACTSHEET



Objective

To provide guidance on the safe use and handling of fibreglass reinforced products.

Background

Fibreglass is a synthetic fibre formed by melting glass in a furnace. The molten material is then forced through small holes to form the filaments or fibre. The coarser fibres are woven to form a cloth which can be used to form fibre reinforced plastics (FRP), widely used to manufacture sinks, baths, boats, pools, spas and pipes, or as a reinforcement in building materials. Exposure to fibreglass reinforced products may cause some people to suffer from skin and eye irritation. The inhalation of fibres may irritate the upper respiratory tract. The resin used in FRP requires precautions to be taken to ensure safe handling. The chemical resins used are polyester or epoxy, and both can be hazardous.

Polyester Resin

Styrene monomer is the chief constituent in polyester resins. It is an irritant to the eyes, nose, throat and skin, and is a central nervous system depressant. It has a low odour threshold and hence gives good warning properties of its presence. The evaporation of styrene vapours constitutes the main hazard to the user. Inhalation of vapours can cause headache, nausea, loss of co-ordination and drowsiness. Repeated or prolonged skin contact may lead to dermatitis due to the defatting of the skin. Styrene is absorbed through the skin and is thought to affect the liver.

The catalyst or hardener is a chemical called Methyl Ethyl Ketone Peroxide (MEKP). This is extremely hazardous being flammable and potentially explosive, as well as very damaging to the eyes and skin.

Safety glasses and gloves must be worn when using MEKP catalyst. If the substance comes into contact with the eyes it should be washed out within seconds with copious quantities of water to avoid blindness. Medical treatment should then be urgently obtained. Heat is generated during mixing and curing, resulting in flammable vapours being given off. There must be no ignition sources present during mixing and curing. Additional care is needed to dispose of unused mixed resin to avoid a fire. Designated bins partly filled with water are ideal for this.

Epoxy Resin

Epoxy resins are caustic and can cause burns and dermatitis. Contact with the eyes can cause severe damage. Vapours may cause irritation to the eyes, nose and throat. Cured resins are practically non-toxic.

Risk control measures

- Avoid skin contact when handling resins, solvents and compounds. Use suitable Personal Protective Equipment (PPE) such as aprons, eye protection and gloves.
- The Person Conducting a Business or Undertaking (PCBU) is responsible for providing and maintaining PPE. A worker issued with safety clothing and equipment must wear it while working.
- Do not wear contact lenses, as they may absorb irritants and concentrate them.
- A respirator mask with suitable organic vapour cartridges must be worn if vapour build-up is likely. An air -supplied respirator will be necessary if fibreglass work is performed in a confined work area.
- A system that ensures adequate and effective ventilation must be provided in a workplace where gas, vapour or impurity is generated, which can affect health and safety.

- As the solvents, compounds and resins used in FRP are mostly flammable, precautions should be taken during their mixing, use and storage. The mixing of resins with catalyst and accelerator needs special care and the manufacturer's specifications and Safety Data Sheets (SDS) should be consulted before use.

Hazards of compounds used

The following compounds used in fibreglass reinforced products can present a variety of hazards:

Catalysts

Compounds called organic peroxides are the most common catalysts. These are skin irritants and sensitisers, and require careful handling because they are also fire or explosion hazards.

Clean-up solvents

Washing yourself with solvents can lead to dermatitis. Solvents are also fire hazards. High vapour concentration of some solvents can cause you to pass out and can also affect your nervous system or lungs.

Epoxy resins

Uncured, liquid epoxy resins are mildly irritating to the skin with some causing sensitisation, dermatitis and lung problems. When fully cured they are not irritating.

Fibreglass reinforcement

Fibreglass reinforcement can cause glass itch, a temporary skin irritation. The fine dusts from the finishing may be damaging to the lungs.

Hardening agents

Many hardening agents are potent irritants as well as skin and lung sensitisers, with hazards varying depending on the type. The types used in room temperature curing are the strongest irritants and can burn the skin and eye tissue. In addition, sensitisation can result in asthma or rashes. The hardeners used for oven curing are usually less hazardous.

Polyester resins

Polyester resins are usually mixed with monomers that are skin irritants and skin sensitisers, and could be harmful.

Promoters, activators, accelerators and inhibitors

Can be potential skin irritants and sensitisers.

Reactive diluents

Can be moderately to severely irritating to skin, and some are sensitisers.

Solvents

Continued skin contact with solvents can lead to dermatitis. Excessive breathing of vapours can affect the nervous system and other parts of the body.

Styrene monomer

Can be irritating to skin, eyes, nose and lungs. High vapour concentrations cause nausea, headache, dizziness or drowsiness. **NOTE:** SDS should be consulted and adhered to.

Seek medical advice

You should seek prompt medical advice, ideally from an occupational physician or dermatologist, if you experience any symptoms related to exposure to any of the products and substances mentioned above.

Know your chemical labelling



Skull and Crossbones

Acute toxicity via oral, dermal, or inhalation



Flame Over Circle

Oxidising substances



Health Hazard

Aspiratory or respiratory hazard, carcinogenicity, mutagenicity



Environment

Hazardous to the environment



Exploding Bomb

Explosives, self-reactive substances, organic peroxides



Gas Cylinder

Compressed, liquefied, or dissolved gases



Flame

Flammable, pyrophoric, self-heating substances, water reactive



Corrosion

Corrosive, skin damage, eye damage



Exclamation Mark

May cause immediate health effect - eye, skin, respiratory

For specific and accurate information regarding safety and handling of materials always consult the manufacturers current Safety Data Sheet.



This factsheet was prepared by Trojan Fibreglass PTY LTD. This factsheet is to be used as a guide only, at no point should the information in this factsheet be used as advice over the products Safety Data Sheet. Trojan Fibreglass insists on reading and understanding the safety and handling information displayed in the safety data sheet. Information provided in this factsheet may not be taken as law, and all federal, state and local regulations should be followed and adhered.