

SECTION 1 - INDENTIFICATION

Authorised Date: 01.07.2021

Product Identifier	
Product Name:	Multi Laminating Resin
Proper Shipping Name:	RESIN SOLUTION, Flammable
Other means of identification:	Resin Solution, Unsaturated Polyester Resin
Recommended use of the chemical: and restrictions on use	Resin for composite part manufacture
Details of manufacturer or importer:	TROJAN FIBREGLASS PTY LTD 18-20 Torrens Ave, Cardiff NSW 2285 Australia Ph: (02)49426940 Fax: (02)49426941
Emergency phone number:	Business Hours (02)49426940 After Hours 0425 292 391 Emergency 000
SECTION 2 - HAZARD(S) INDENTIFICATION	

Classification of the substance or mixture

Hazardous Chemical. Dangerous Goods. According to the WHS Regulations, ADG Code and Globalised Harmonised System of classification and labelling of Chemicals (GHS).

Flammable Liquid – Category 3 Acute Toxicity (Inhalation) – Category 4 Skin Corrosion/Irritation – Category 2 Eye Irritation – Category 2 Aspiration Hazard – Category 1

Poisons Schedule (Aus.) – S5

Label Elements

Pictograms:



Signal Word: DANGER

Hazards Statement(s)

H226	Flammable liquid and vapour
H332	Harmful if inhaled
H315	Causes skin irritation
H319	Causes serious eye irritation
H304	May be fatal if swallowed and enters airways

Precautionary Statement(s) Prevention

P210	Keep away from heat/sparks/open flames/hot surfaces – No smoking
P233	Keep container tightly closed
P271	Use in a well-ventilated area
P240	Ground/bond container and receiving equipment
P241	Use explosion-proof electrical/ventilation/lighting/intrinsically safe equipment
P242	Use only non -sparking tools
P243	Take precautionary measures against static discharge
P270	Do not eat, drink, or smoke when using this product
P270	Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/attention
P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam for extinction
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention
P301+P310	IF SWALLOWED: Call a POSION CENTER or doctor/physician if you feel unwell.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

P304+P340IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathingP332+P313If skin irritation occurs: Get medical advice/attention

Precautionary Statements(s) Storage

P403+P235 Store in a well-ventilated place. Keep Cool P405 Store locked up

Precautionary Statements(s) Disposal

P501 Dispose of contents/container in accordance with local regulations

SECTION 3 - COMPOSITION AND INFORMATION ON INGREDIENTS

Cas No	% Weight	Name	Hazardous Chemical (according to GHS standards)
Not Available	30-60	Unsaturated Polyester Resin	No
100-42-5	30-60	Styrene Monomer Inhibited	Yes
7631-86-9	<10	Silica Amorphous	No
Not Available	<10	Metal naphthenates and/or octoates	No
Not Available	<10	Quinone and/or phenolic inhibitors	No

SECTION 4 – FIRST AID MEASURES

Description of necessary first aid measures

Eye Contact	 If this product comes in contact with the eyes: Wash out immediately with fresh running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	 If skin contact occurs: Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available).
	Seek medical attention in event of irritation.
Inhalation	 If inhalation occurs: If fumes or combustion products are inhaled remove from contaminated area. Lay patient down. Keep warm and rested. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. Transport to hospital, or doctor.
Ingestion	 If ingestion occurs: If swallowed do NOT induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Seek medical advice. Avoid giving milk or oils. Avoid giving alcohol. If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Indication of any immediate medical attention and special treatment needed

For acute or short-term exposure to styrene:

Inhalation

- If inhaled the chemical, promptly contact a physician and obtain medical treatment.
- If breathing is difficult, give oxygen or artificial respiration. Get some distance from exposed place.

Ingestion

• If swallowed, give a glass of water. DO NOT induce vomiting. Lean victim forward to reduce the risk of aspiration. Transport to doctor or hospital quickly. For further advice call Poisons Information Centre (13 11 26)

Eye Contact

• Immediately flush the eyes with large amount of clean water for at least 15 minutes. Promptly contact with a physician and obtain medical treatment.

Skin Contact

Wash skin thoroughly with soap and plenty of water for at least 15 minutes. Take off contaminated clothing and shoes. Wash contaminated clothing before reuse. Contact physician if a skin problem occurs.

Advice to Doctor

• Treat symptomatically based on judgment of doctor or individual reactions of patient.

Symptoms caused by exposure

BIOLOGICAL EXPOSURE INDEX (BEI) - Styrene Monomer

These represent the determinants observed in specimens collected from a healthy worker who has been exposed at the Exposure Standards (ES-TLV)

Determinant	Index	Sampling Time	Comments	
Mandelic acid in urine	800 mg/gm creatinine	End of shift	NS	
	300 mg/gm creatinine	Prior to next shift	NS	
Phenylglyoxylic acid in urine	240 mg/gm creatinine	End of shift	NS	
	100 mg/gm creatinine	Prior to next shift		
Styrene in venous blood	0.55 mg/L	End of shift	SQ	
	0.02 mg/L	Prior to next shift	SQ	

NS: Non-specific determinant; also seen after exposure to other materials.

SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

B: Background levels occur in specimens collected from subjects NOT exposed

SECTION 5 - FIRE FIGHTING MEASURES

Suitable extinguisher equipment

Foam, Dry Chemical Powder, CO2, BCF (where regulations permit) Large Fire: General extinguisher powder, water spray or fog.

Specific hazards arising from the chemical

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

Special protective equipment and precautions for fire fighters

Fire Fighting

- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- If safe, switch off electrical equipment until vapour fire hazard removed.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.

Fire/Explosion Hazard

- Liquid and vapour are flammable.
- Moderate fire hazard when exposed to heat or flame.
- Vapour forms an explosive mixture with air.
- Moderate explosion hazard when exposed to heat or flame.
- Vapour may travel a considerable distance to source of ignition.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

Hazchem Code:

SECTION 6 - ACCIDENTAL RELEASE MEASURES

3Y

Personal precautions, protective equipment and emergency procedures

Refer to Section 8 of this SDS.

Methods and materials for containment and cleaning up

Minor Spills

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb small quantities with vermiculite or other absorbent material.
- Wipe up.
- Collect residues in a flammable waste container.

Major Spills

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Personal Protective Equipment advice is contained in Section 8 of the SDS.

Evacuate zone: 0.8 Km (1/2 mile)

Environmental precautions

Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- **DO NOT** enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights or ignition sources.
- Avoid generation of static electricity.
- Store in original containers in approved flame-proof area.
- No smoking, naked lights, heat or ignition sources.
- **DO NOT** store in pits, depressions, basements or areas where vapours may be trapped.
- Keep containers securely sealed.
- Store away from incompatible materials in a cool, dry well-ventilated area.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this MSDS.
- Avoid prolonged storage over 38°c.

Conditions for safe storage, including any incompatibilities

Suitable Container

- Packing as supplied by manufacturer.
- Plastic containers may only be used if approved for flammable liquid.
- Check that containers are clearly labelled and free from leaks.

Storage Incompatibility

Avoid storage with oxidisers

- Contamination with polymerisation catalysts peroxides, persulfates, oxidising agents also strong acids, strong alkalies, will cause
- polymerisation with exotherm generation of heat.
- Polymerisation of large quantities may be violent even explosive.

Must not be stored together



SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control Parameters

Emergency Limits

Ingredient	TEEL-0	TEEL-1	TEEL-2	TEEL-3
Styrene Monomer	20 ppm	20 ppm	130 ppm	1100 ppm
Silica Amorphous	0.3 / 6 / 10 / 2 ppm	15 / 0.9 / 30 / 6 / 18 ppm	50 / 1.5 / 200 / 125 / 10 / 30 ppm	500 / 250 / 50 ppm
Ingredient		Original IDLH	Revised IDLI	4

Original IDLH	Revised IDLH
Not Available	Not Available
	Not Available Not Available Not Available Not Available Not Available

Appropriate Engineering Controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

Personal Protection



Eye and Face Protection

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the
 wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption
 for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable
 equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as
 practicable.

Skin Protection

PE/EVAL/PE/PVA/TEFLON/LATEX are the most ideal choice for using this product.

Respiratory Protection

Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent).

Thermal Hazards

See Section 5 - Fire Fighting Measures of the SDS for specific fire/chemical PPE advice.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Hazy Blue	Relative Density (Air=1)	1.1
Physical State	Liquid	Partition coefficient n-octanol / water	Not Available
Odour	Characteristic Styrene	Auto-ignition temperature (°C)	Not Available
Odour Threshold	Not Available	Decomposition temperature	Not Available
Ph (as supplied)	Not Applicable	Viscosity (cps)	Not Available
Melting point/freezing point (°c)	Not Available	Molecular weight (g/mol)	Not Applicable
Initial boiling point and boiling range (°C)	145	Taste	Not Available
Flash Point (°c)	31 (TCC)	Explosive properties	Not Available
Evaporation point	0.49 BuAC = 1	Oxidising properties	Not Available
Flammability	Flammable	Surface Tension (dyn/cm or mN/m)	Not Available
Upper Explosive Limit (%)	6.1	Volatile Component (%vol)	Not Available
Lower Explosive Limit (%)	1.1	Gas group	Not Available
Vapour Pressure (kPa)	0.6 @ 20°c	pH as a solution (1%)	Not Applicable
Solubility in water (g/L)	Immiscible	VOC g/L	Not Available
Vapour Density (Air=1)	3.6		

SECTION 10 – STABILITY AND REACTIVITY

Reactivity

See Section 7

Chemical Stability

Hazardous polymerisation may occur if contaminated, or at elevated temperatures.

Possibility of hazardous reactions

See Section 7

<u>Conditions to avoid</u> See Section 7

Incompatible materials See Section 7

SECTION 11 - TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled

Central nervous system (CNS) depression is seen at styrene exposures exceeding 50 ppm, whilst headache, fatigue, nausea and dizziness are reported consistently at exposures of 100 ppm. Eye and throat irritation occurred in human volunteers exposed to 376 ppm styrene for 1 hour and was accompanied by increased nasal secretion at exposures of 800 ppm for 4 hours. At the end of an 8-hour work shift, workers exposed to 212 ppm styrene had higher urinary levels of alanineaminopeptidase and N-acetyl-glucosaminidase than unexposed workers, indicating potential renal effects of styrene. Evidence exists that 5% to 10% reductions in sensory nerve conduction occur at 100 ppm and that slowed reaction times occur after exposure to 50 ppm. Exposure at 370 ppm produces unpleasant subjective symptoms and signs of neurological impairment. High vapour concentrations may have a toxic and anaesthetic effect which may lead to unconsciousness or death. Exposure at 1000 ppm can rapidly lead to unconsciousness whilst exposure to 10000 ppm may cause death in less than one hour.

Ingestion

Accidental ingestion of the material may be damaging to the health of the individual. Styrene is absorbed into the body following oral or inhalation exposure. Complete absorption occurred in fasted rats given a total of 3.147 mg styrene by gavage in an aqueous solution. A peak blood level of 6 micrograms/mL was reached within minutes. Following oral administration of 20 mg/kg of radiolabeled styrene to rats, the highest organ levels were found in the kidney, liver, and pancreas. Styrene is presumed to be metabolised to styrene oxide which is then converted to styrene glycol. Styrene glycol is metabolised to either mandelic acid or to benzoic acid and then hippuric acid.

Skin Contact

Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there

may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Eye

Evidence exists, or practical experience predicts, that the material may cause severe eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Eye contact may cause significant inflammation with pain. Corneal injury may occur; permanent impairment of vision may result unless treatment is prompt and adequate. Repeated or prolonged exposure to irritants may cause inflammation characterised by a temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

Chronic

Exposure to styrene may aggravate central nervous system disorders, chronic respiratory disease, skin disease, kidney disease and liver disease. Workers engaged in the manufacture of styrene polymers with exposure to generally <1 ppm for 1-36 years had low erythrocyte counts and altered liver enzyme profiles. Blood and liver effects do not appear to be of concern for human exposures to styrene. Occupational studies in humans show styrene to be a neurotoxicant. Occupational styrene exposure causes central and peripheral nervous system effects. It causes a reversible decrease in colour discrimination and in some studies effects on hearing have been reported. Neuro-optic pathways have been shown to be particularly vulnerable to organic solvent exposure and studies support the proposition that styrene exposure can induce dose-dependent colour vision loss.

	Toxicity	Irritation
Unsaturated Polyester Resin	Not Available	Not Available
Styrene Monomer	Inhalation (Mouse) LC50: 9500 mg/m3/4h	Eye (rabbit): 100 mg/24h – moderate
	Inhalation (Rat) LC50: 24000 mg/m3/4h	Skin (rabbit): 500 mg - mild
	Intraperitoneal (Mouse) LD50: 660 mg/kg	
	Intraperitoneal (Rat) LD50: 898 mg/kg	
	Intravenous (Mouse) LD50: 90 mg/kg	
	Oral (Mouse) LD50: 316 mg/kg	
	Oral (Rat) LD50: 2650 mg/kg	
Silica Amorphous	Dermal (rabbit) LD50: >5000 mg/kg *	* [Grace]
	Inhalation (rat) LC50: >0.139 mg/l/14h *	Eye (rabbit): non-irritating *
	Oral (rat) LD50: 3160 mg/kg	Skin (rabbit): non-irritating *

Styrene Monomer

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

Silica Amorphous

When experimental animals inhale synthetic amorphous silica (SAS) dust, it dissolves in the lung fluid and is rapidly eliminated. If swallowed, the vast majority of SAS is excreted in the faeces and there is little accumulation in the body. Following absorption across the gut, SAS is eliminated via urine without modification in animals and humans. SAS is not expected to be broken down (metabolised) in mammals. After ingestion, there is limited accumulation of SAS in body tissues and rapid elimination occurs. Intestinal absorption has not been calculated, but appears to be insignificant in animals and humans. SASs injected subcutaneously are subjected to rapid dissolution and removal. Reports indicate high/prolonged exposures to amorphous silicas induced lung fibrosis in experimental animals; in some experiments these effects were reversible. [PATTYS]

Acute Toxicity	 Image: A second s	Carcinogenicity	X	
Skin Irritation/Corrosion	√	Reproductivity	X	
Serious Eye Damage/Irritation	√	STOT – Single Exposure	X	
Respiratory or Skin Sensitisation	X	STOT – Repeated Exposure	X	
Mutagenicity	X	Aspiration Hazard	<	,

SECTION 12 – ECOLOGICAL INFORMATION

<u>Toxicity</u>

DO NOT discharge into sewer or waterways.

For Styrene:

Transport:

Styrene is expected to volatilise from surface waters as predicted by its Henry's Law constant. The chemical is also removed from waters by adsorption onto soils and sediments. Under certain conditions, styrene may leach through soil (particularly sandy soils) and enter ground water

Transformation/ Persistence:

Air: In the atmosphere, styrene reacts with both hydroxyl radicals and ozone with estimated half-lives of 3.5 and 9 hours, respectively. The chemical is also degraded in the presence of NOX and natural sunlight. Styrene contributes to the formation of photochemical smog due to indirect photochemical reactions. Smog chamber experiments with simulated sunlight and auto exhaust as a source of styrene, showed a 55% disappearance of styrene in 2 hours.

Persistence and degradability

Ingredient	Persistence: Soil/Water	Persistence: Air
Not Available	Not Available	Not Available

Bio accumulative potential

Ingredient	Bioaccumulation
Not Available	Not Available

Mobility in soil

Ingredient	Mobility
Not Available	Not Available

SECTION 13 – DISPOSAL CONSIDERATIONS

Water treatment methods

Product /Packaging disposal

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container cannot be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

SECTION 14 – TRANSPORT INFORMATION

Labels Required



Marine Pollutant: HAZCHEM: No .3Y

1866

Land Transport (ADG)

UN Number: Packaging Group: UN proper shipping name: Environmental hazard: Transport hazard:

Special precautions for user:

III RESIN SOLUTION, flammable No relevant data Class 3 Sub Risk -Special Provisions 223* Limited quantity 5L

Sea Transport (IMDG-Code)

UN Number: Packaging Group: UN proper shipping name: Environmental hazard: Transport hazard:

Special precautions for user:

1866 III RESIN SOLUTION, flammable No relevant data Class 3 Sub Risk -EMS Number F-E, S-E Special Provisions 223 995 Limited quantity 5L

SECTION 15 – REGULATORY INFORMATION

Regulatory Information

Australia: Classified as hazardous according to the criteria of National Occupational Health and Safety Commission (NOHSC)

Poison Schedule

S5

International Inventories

Abbreviation	Inventory Name	Notes
AICS	Australian Inventory of Chemical Substances	Listed or Exempt
DSL	Canadian Domestic Substances List	Listed or Exempt
IECSC	China Inventory of Existing Chemical Substances	Listed or Exempt
EINECS/ELINCS	European Inventory of Existing Chemical Substances	Listed or Exempt
ENCS	Japan Existing and New Chemical Substances	Not Listed
KECL	Korean Existing and Evaluated Chemical Substances	Listed or Exempt
NZIOC	New Zealand Inventory of Chemicals	Listed or Exempt
PICCS	Philippines Inventory of Chemicals and Chemical Substances	Listed or Exempt
CICR	Turkey Chemical Inventory Control Regulation	No Information Available
NCSR	Taiwan National Chemical Substance Registry	No Information Available
TSCA	United States Toxic Substances Control Act Section 8(b) Inventory	Listed or Exempt

International Regulations

Ozone-depleting substances(ODS):	Not Applicable
Persistent Organic Pollutants:	Not Applicable
Export Notification requirements:	Not Applicable

SECTION 16 – OTHER INFORMATION

Contact Person/Point:

Managing Director/Operations Manager (+61 2 49426940) 18-20 Torrens Ave, Cardiff NSW 2285, Australia

The information provided in this safety data sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not considered a warrant 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 materials or in any process, unless specified in the text.

END OF SAFETY DATA SHEET