Material Safety Data Sheet

ULTRATECH LSE LAMINATING RESIN 45'

Infosafe No.	1HLC2	**Version No.**	2.3	**ISSUED Date**	October 2012	**Status**	ISSUED by NUPLEXIN

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name
ULTRATECH LSE LAMINATING RESIN 45'

Product Code
C200006

Company Name
NUPLEX COMPOSITES a division of Nuplex Industries (Aust) Pty Ltd (ABN 25 000 045 572)

Address
Australia: 49 - 61 Stephen Road, BOTANY NSW 2019
AUSTRALIA
New Zealand: NUPLEX COMPOSITES a division of Nuplex Industries Limited, 6 Winston Place HENDERSON
Auckland
NEW ZEALAND

Emergency Tel.
Australia: 1800 022 037 (24H)
New Zealand: 0800 154 666 (24H)

Telephone/Fax Number
Telephone: Australia: +61 (02) 9839 4000(BH); New Zealand: +64 (09) 579 4100(BH) Fax number: Australia: +61 (02) 9674 6225; New Zealand: +64 (09) 571 0542

Recommended Use
Composite fabrications

2. HAZARDS IDENTIFICATION

Hazard Classification
Classified as Hazardous according to criteria of National Occupational Health and Safety Commission (NOHSC), Australia.
Classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

Risk Phrase(s)
R10 Flammable.
R20 Harmful by inhalation.
R36/38 Irritating to eyes and skin.

Safety Phrase(s)
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S38 In case of insufficient ventilation, wear suitable respiratory equipment.
S24/25 Avoid contact with skin and eyes.
S37/39 Wear suitable gloves and eye/face protection.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characterization
Liquid

Information on Composition

May contain non-hazardous tints/pigments.

Ingredients

Name	CAS	Proportion
Styrene	100-42-5	30-60 %
Polyester resin	Proprietary	30-60 %
Amine and/or aniline derivatives	Proprietary	0-1 %
Quinone and/or phenolic inhibitors	Proprietary	0-0.5 %
Ingredients determined not to be hazardous		Balance

4. FIRST AID MEASURES

Inhalation
If inhaled, remove affected person from contaminated area. Apply artificial respiration if not breathing. Seek medical attention.

Ingestion
Do not induce vomiting. Wash out mouth thoroughly with water. Seek immediate medical attention.

Skin
Remove all contaminated clothing immediately. Wash affected area thoroughly with soap and water. Wash contaminated clothing before reuse or discard. Seek medical attention.

Eye
If in eyes, hold eyelids apart and flush the eyes continuously with running water. Remove contact lenses. Continue flushing for several minutes until all contaminants are washed out completely. Seek medical attention.

First Aid Facilities
Eyewash, safety shower and normal washroom facilities.

Advice to Doctor
Treat symptomatically.

Other Information
For advice in an emergency, contact a Poisons Information Centre or a doctor at once. (13 1126)

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media
Carbon dioxide, dry chemical or foam. Alcohol resistant foam is preferred. If not available normal foam can be used.

Hazards from Combustion Products
Under fire conditions this product may emit toxic and/or irritating fumes and gases including oxides of nitrogen, carbon monoxide and carbon dioxide.

Specific Hazards
Flammable liquid and vapour. Heavier than air. Flashback along the vapour trail may occur. Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limit.

Hazchem Code
•3Y

Decomposition Temperature
Not available

Precautions in connection with Fire
Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. In case of fire the product may be violently or explosively reactive. Use water spray to disperse vapours. This product should be prevented from entering drains and watercourses.

Unsuitable Extinguishing Media
Do not use water jet.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures
Wear appropriate personal protective equipment and clothing to prevent exposure. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unprotected personnel. If possible contain the spill. Place inert absorbent, non-combustible material onto spillage. Use clean non-sparking tools to collect the material and place into suitable labelled containers for subsequent recycling or disposal. Dispose of waste according to the applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water and waste management authorities in accordance with local regulations.

7. HANDLING AND STORAGE

Precautions for Safe Handling
Avoid contact with skin and eyes. Wear overalls, impervious gloves and safety glasses. Use in designated areas with local exhaust ventilation, away from sparks, flames and other ignition sources. Use approved flammable liquid storage containers in the work area. Prevent release of vapours and mists into workplace air. Keep containers tightly closed. Take precautionary measures against static discharges. Do not empty into drains. Ensure a high level of personal hygiene is maintained when using this product, that is, always wash hands before eating, drinking, smoking or using the toilet facilities.

Conditions for Safe Storage
Store in the shade, in a well-ventilated area preferably below 30°C and well away from sources of ignition. This product should be stored away from foodstuffs, strong oxidising agents and other incompatible materials. Handle and store in accordance with applicable local and national regulations for flammable liquids. The product has a limited storage life due to inhibitor depletion and should be used within six months of delivery. Rapid polymerisation resulting in violent rupture of closed containers and possible fire from flammable vapours may be initiated by high temperatures or certain contaminants. Oxidising agents (e.g. organic peroxides), strong acids (e.g. sulphuric acid), ferrous salts present in rust, and some metal halides promote polymerisation. Alkalis reduce the inhibitor concentration and increase the risk of spontaneous polymerisation. Contamination of the product with these substances should be avoided. Exposure to UV radiation (including from light fittings), can initiate slow polymerisation that may continue in a sealed container.
For information on the design of the storeroom, reference should be made to Australian Standard AS1940 - The storage and handling of flammable and combustible liquids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards

Substance	Regulations	Exposure Duration	Exposure Limit	Units	Notes
Styrene	Safe Work Australia	TWA	50	ppm	
	Safe Work Australia	TWA	213	mg/m3	
	Safe Work Australia	STEL	100	ppm	
	Safe Work Australia	STEL	426	mg/m3	

Biological Limit Values
Name: styrene [100-42-5]
Determinant: Mandelic acid plus phenylglyoxylic acid in urine
BEI®: 400 mg/g creatinine
Sampling time: end of shift.

Source: American Conference of Industrial Hygienists (ACGIH)

Engineering Controls

Provide sufficient ventilation to keep airborne levels below the exposure limits or as low as possible.

This substance is hazardous and should be used with a local exhaust ventilation system, drawing vapours away from workers' breathing zone. A flame-proof exhaust ventilation system is required. If the engineering controls are not sufficient to maintain concentrations of vapours/mists below the exposure standards, suitable respiratory protection must be worn. Refer to relevant regulations for further information concerning ventilation requirements.
Refer to AS 1940 - The storage and handling of flammable and combustible liquids and AS/NZS 60079.10.1:2009 Explosive atmospheres - Classification of areas - Explosive gas atmospheres, for further information concerning ventilation requirements.

Respiratory Protection
If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements.
Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

Eye Protection
Safety glasses with side shields, chemical goggles or full-face shield as appropriate should be used. Final choice of appropriate eye/face protection will vary according to individual circumstances. i.e. methods of handling or according to risk assessments undertaken.
Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

Hand Protection
Wear gloves of impervious material such as laminated film. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken.
Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

Body Protection
Suitable protective work wear, e.g. cotton overalls or overalls of anti-static, flame retardant material, buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled. Wear safety footwear. Final choice will vary according to individual circumstances.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form
Liquid

Appearance
Viscous liquid

Odour
Styrene odour

Decomposition Temperature
Not available

Melting Point
Not available

Boiling Point
145°C (styrene)May polymerise below boiling point.

Solubility in Water
insoluble

Specific Gravity
0.95-1.15

pH Value
Not applicable

Vapour Pressure
5 mmHg (20°C)(styrene)

Vapour Density (Air=1)

3.6(styrene)

Evaporation Rate
0.49 (styrene)

Odour Threshold
Not available

Viscosity
Refer to Section 9: Kinematic Viscosity and Dynamic Viscosity

Colour
Clear to hazy, may be tinted

Volatile Component
Not applicable

Octanol/Water Partition Coefficient
Not available

Flash Point
31°C (Tag Closed Cup) (styrene)

Flammability
Flammable Liquid

Auto-Ignition Temperature
490°C(styrene)

Flammable Limits - Lower
1.1% (styrene)

Flammable Limits - Upper
6.1% (styrene)

Oxidising Properties
Not applicable

Kinematic Viscosity
Not available

Dynamic Viscosity
Not available

10. STABILITY AND REACTIVITY

Stability and Reactivity
Refer to Section 10: Possibility of hazardous reactions

Chemical Stability
Stable under normal conditions of storage and handling.

Conditions to Avoid
Heat, open flames and other sources of ignition. Prevent the build up of mists or vapours in the work atmosphere. Avoid prolonged storage above 38°C.

Incompatible Materials
Alkylation catalysts and strong acids (H2S04, H3P04, BF3, A1C13), halogens and hydrogen halides. Contact with copper and copper alloys. Oxidising agents

Hazardous Decomposition Products
Thermal decomposition may result in the release of toxic and/or irritating fumes including oxides of nitrogen, carbon dioxide and carbon monoxide .

Hazardous Reactions
Reacts with incompatible materials

Hazardous Polymerization
May occur in the presence of polymerisation accelerators.

11. TOXICOLOGICAL INFORMATION

Toxicology Information
Toxicity data for ingredients given below.

Inhalation
Harmful by inhalation. Inhalation of product dust/vapours can cause irritation of the nose, throat and respiratory system.

Ingestion
Ingestion of this product may irritate the gastric tract causing nausea and vomiting.

Skin
Irritating to skin. Skin contact will cause redness, itching and swelling. Repeated exposure may cause skin dryness and cracking and may lead to dermatitis.

Eye
Irritating to eyes. On eye contact this product will cause tearing, stinging, blurred vision, and redness.

Chronic Effects
Prolonged inhalation of vapours may cause respiratory tract obstruction and lung damage. Long-term exposure to styrene may cause peripheral neuropathy, CNS depression, and damage to the liver and kidneys.

Carcinogenicity
Styrene is listed as a Group 2B: Possibly carcinogenic to humans according to International Agency for Research on Cancer (IARC).

Acute Toxicity - Oral
Styrene :
LD50 (rat): 2650 mg/kg

Acute Toxicity - Dermal
Styrene :
LD50 (Rabbit): >5, 010 mg/kg

Acute Toxicity - Inhalation
Styrene :
LD50 (rat): 2770 ppm/4h

12. ECOLOGICAL INFORMATION

Ecotoxicity
No ecological data available for this material.

Persistence / Degradability
Styrene:
Not expected to persist in the environment.
Styrene:
Volatility (Henry's law constant): 0.00275 atm m^3/mol (25°C)

Mobility
Styrene:
Expected to bind to soils and sediments.
Styrene:
log Koc:2.42-2.96(estimated)

Bioaccumulative Potential
Moderate potential to bioaccumulate
Styrene:Partition Coefficient: n-octanol/water
log Kow=2.95

Environmental Protection
Do not discharge this material into waterways, drains and sewers.

Acute Toxicity - Fish
LD50 (fathead minnow):10 mg/L/48h (styrene)

Acute Toxicity - Daphnia
EC50 (daphnia magna): 4.7 mg/L/48h (styrene)

Acute Toxicity - Algae
EC50 (green algae): 0.72 mg/L/48h (styrene)

13. DISPOSAL CONSIDERATIONS

Disposal Considerations
Dispose of waste according to applicable local and national regulations. Labels should not be removed from containers until they have been cleaned. Do not cut, puncture or weld on or near containers. Empty containers may contain flammable residues. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers. Advise flammable nature. Controlled incineration is recommended. Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes including emptied containers are controlled wastes and should be disposed of in accordance with all applicable local and national regulations.

14. TRANSPORT INFORMATION

Transport Information
This material is a Class 3 - Flammable Liquid according to The Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)
Class 3 - Flammable Liquids are incompatible in a placard load with any of the following:
Class 1: Explosives
Division 2.1: Flammable Gases, if both the Class 3 and Division 2.1 dangerous goods are in bulk.
Division 2.3: Toxic gases
Division 4.2: Spontaneously combustible substances
Division 5.1: Oxidising substances
Division 5.2: Organic peroxides
Class 6 Toxic or Infectious Substances
Class 7: Radioactive materials unless specifically exempted

U.N. Number
1866

Proper Shipping Name
RESIN SOLUTION

DG Class
3

Packing Group
III

Hazchem Code
•3Y

IERG Number
14

UN Number (Air Transport, ICAO)
1866

IATA/ICAO Proper Shipping Name
RESIN SOLUTION

IATA/ICAO Hazard Class
3

IATA/ICAO Packing Group
III

IATA/ICAO Symbol
Flammable liquid.

IMDG UN No

1866

IMDG Proper Shipping Name
RESIN SOLUTION

IMDG Hazard Class
3

IMDG Pack. Group
III

IMDG Marine Pollutant
No

IMDG EMS
F-E,S-E

15. REGULATORY INFORMATION

Regulatory Information
Classified as Hazardous according to criteria of National Occupational Health and Safety Commission (NOHSC), Australia.
Classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)

Poisons Schedule
S5

Hazard Category
Harmful, Irritant, Flammable

16. OTHER INFORMATION

Date of preparation or last revision of MSDS
SDS amendment: February 2013
8. Exposure controls/personal protection

SDS amendment: January 2013
1. Identification of the Material and Supplier

SDS amendment: November 2012
1. Identification of the Material and Supplier

SDS Reviewed: October 2012, Supersedes: November 2007

Contact Person/Point
IMPORTANT ADVICE: This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including its use in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact the supplier listed in section 1 of the SDS. Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

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Technical Contact Numbers
For further information ask for: For specialist advice in emergencies: 1800 022 037

End of MSDS

Print Date: 18/04/2013 BS: 4.4.9