



MATERIAL SAFETY DATA SHEET FLOWCOAT

Effective Date : March 2012

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I. Identification

MANUFACTURER: Norski Holdings Ltd, 10 Northpoint Street, Plimmerton, 5024 New Zealand

PRODUCT NAME: Flowcoat Resin.

PRODUCE CODE: Flowcoat Resin.

RECOMMENDED USE: Composites fabrication.

II. Hazard Classification

NEW ZEALAND: Classified as Hazardous according to the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001. Classified as Dangerous Goods for transport, according to the New Zealand Standard NZS5433:2007 Transport of Dangerous Goods on Land.

RISK PHRASES:

R 10 – Flammable.

R20 – Harmful by inhalation.

R36/38 – Irritating to eyes and skin.

SAFETY PHRASE(S):

S23 – Do not breathe gas/fumes/vapour/spray.

S38 – If insufficient ventilation, wear suitable respiratory equipment.

S36/37 – Wear suitable protective clothing and gloves.

III. Composition/Information on Ingredients

Ingredients

| Name | CAS | Proportion |
|--|-----------|------------|
| Styrene Monomer | 100-42-5 | 30-60% |
| Ingredients determined not to be hazardous | | |
| Fumed Silica | 7631-86-9 | 0-10% |

IV. First Aid Measures

INHALATION: Remove the source of contamination or move the victim to fresh air. Ensure airways are clear and have qualified person give oxygen through a face mask if breathing is difficult. Apply artificial respiration if not breathing. Seek medical attention.

INGESTION: Do not induce vomiting. Wash out mouth with water and give plenty of water to drink. Seek immediate medical attention.

SKIN: Wash affected area thoroughly with copious amounts of running water. Remove contaminated clothing and wash before reuse. If symptoms develop seek medical attention.

EYES: If contact with the eye(s) occurs, wash immediately with water. If symptoms persist seek medical attention.

FIRST AID FACILITIES: Eye wash station, safety shower and normal washroom facilities.

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ADVICE TO DOCTOR: Treat symptomatically.
EMERGENCY: 0800 POISON (764 766)

V. Fire-fighting Measures

SUITABLE EXTINGUISHING MEDIA: Use dry agent or foam.

HAZARDS FROM COMBUSTION PRODUCTS: Under fire conditions, this product may emit toxic and/or irritating fumes including carbon monoxide and carbon dioxide.

SPECIFIC METHODS: Fire-fighters should wear full protective clothing and self contained breathing apparatus (SCBA) operated in positive pressure mode.

SPECIFIC HAZARDS: This product is flammable. Vapours are heavier than air and will 'travel' to low level areas eg sumps, drains, etc, and flashback. Precautions should be taken to eliminate the build up of explosive mixtures. Polymerisation may occur at elevated temperatures, such as a fire. If polymerisation occurs in a closed container, violent rupture may result.

HAZCHEM: 3[Y].

PRECAUTIONS IN CONNECTION WITH FIRE: Water spray may be used to keep fire exposed containers cool.

VI. Accidental Release Measures

EMERGENCY PROCEDURES: Remove all sources of ignition. Increase ventilation. Evacuate all unnecessary personnel. Wear sufficient respiratory protection where required and protective clothing to minimise skin and eye exposure. If possible contain the spill. Place inert absorbent such as vermiculite, sand and dirt onto material. Use clean non-sparking tools to collect the material and place into a suitable labelled container. Do not dilute material but contain. Mop up the remaining material and place into the same container. If large quantities of this material enter the waterways contact the Environmental Protection Authority, or your local Waste Management Authority.

VII. Handling and Storage

PRECAUTIONS FOR SAFE HANDLING: Keep material away from sparks, flames and other ignition sources. Have emergency equipment (for fires, spills, leaks, etc) readily available. Label containers. Keep containers closed when not in use. Whenever possible, fire-resistant containers should be used. Wear appropriate protective equipment to prevent inhalation, skin and eye contact.

CONDITIONS FOR SAFE STORAGE: Store in a cool, dry, well-ventilated area away from sources of ignition. This product should be stored away from foodstuffs and strong oxidising agents. For information on the design of the storeroom, reference should be made to the Australian Standard AS1940 – The Storage and Handling of flammable and combustible liquids. Reference should also be made to all State and Federal regulations.

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VIII. Exposure Controls/Personal Protection

NATIONAL EXPOSURE STANDARDS:

| Name | STEL (mgm3) | STEL (ppm) | TWA (mgm3) | TWA (ppm) | FootNote |
|-----------------|----------------|---------------|---------------|--------------|----------|
| Styrene Monomer | 426 | 100 | 213 | 50 | |
| Fumed silica | | | 2 | | |

BIOLOGICAL LIMIT VALUES: No biological limit allocated.

OTHER EXPOSURE INFORMATION: No exposure standards have been established for this material by the Australian National Occupational Health and Safety Commission (NOHSC) or the Occupational Safety and Health Service (OSH) of the New Zealand Department of Labour. However, the available exposure limits on the ingredients, as assigned by both authorities, are given.

ENGINEERING CONTROLS: Ensure sufficient ventilation to keep airborne concentrations below exposure limits. Mechanical/local exhaust ventilation may be required.

RESPIRATORY PROTECTION: If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable organic vapour filter should be used. Final choice of appropriate breathing protection is dependant upon actual airborne concentrations and the type of breathing protection required will vary according to individual circumstances. Expert advice may be required to make this decision. Reference should be made to Australian Standards AS/NZS1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS1716, Respiratory Protective Devices.

EYE PROTECTION: Safety glasses with side shields, goggles or full face shield should be worn as described in Australian Standard AS/NZS1337 – Eye Protectors for Industrial Applications.

HAND PROTECTION: Wear impervious gloves conforming to AS/NZS2161: Occupational protective gloves. Laminated film gloves offer good protection for prolonged contact with the liquid. Consult a glove supplier to determine other appropriate glove types and, if necessary, test gloves before use.

BODY PROTECTION: Suitable protective clothing should be worn eg cotton overalls buttoned at neck and wrist. When large quantities are handled the use of plastic aprons and rubber boots is recommended.

HYGIENE MEASURES: Ensure a high level of personal hygiene is maintained when using this product. Always wash hands before eating, drinking, smoking or using the toilet.

IX. Physical and Chemical Properties

APPEARANCE: Coloured (as paints), paste-like.

ODOUR: Characteristic styrene odour.

MELTING POINT: 145°C. *

SOLUBILITY IN WATER: Insoluble.

SPECIFIC GRAVITY: 0.95 – 1.15 (water = 1). Dependant on non-volatile content.

pH VALUE: Not available.

VAPOUR PRESSURE: 0.6 kPa at 20°C. *

VAPOUR DENSITY: 3.6 (Air = 1). *

EVAPORATION RATE: 0.49 (Butyl acetate = 1) *

FLASH POINT: 31°C TCC *

FLAMMABILITY: Flammable. This product should be stored and used in a well ventilated area away from naked flames, heat, sparks and other sources of ignition. Electrically link and ground metal containers for transfers of the product to prevent accumulation of static electricity. Keep the container tightly closed.

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FLAMMABLE LIMITS – LOWER: 1.1% *

FLAMMABLE LIMITS – UPPER: 6.1% *

OTHER INFORMATION: * For styrene

X. Stability and Reactivity

CHEMICAL STABILITY: Stable under normal conditions.

INCOMPATIBLE MATERIALS: Alkylation catalysts and strong acids (H₂SO₄, H₃PO₄, BF₃, AlCl₃), halogens and hydrogen halides. Contact with copper and copper alloys. Oxidising agents.

HAZARDOUS REACTIONS: Avoid sunlight, open flames, contamination and prolonged storage above 38°C.

HAZARDOUS POLYMERISATION: May occur if contaminated, or at elevated temperatures.

XI. Toxicological Information

TOXICOLOGY INFORMATION: Styrene.

LD50 (oral, rat) = 2,650mg/kg.

LD50 (dermal, rabbit) > 5,010mg/kg.

Eye irritation (rabbit) (standard draize); moderate to severe

Skin irritation (rabbit) (standard draize); mild to moderate.

INHALATION: Harmful by inhalation. Vapour can cause severe irritation to the respiratory tract. Styrene at 400ppm is irritating to all parts of the respiratory tract. Styrene possesses narcotic-like properties; excessive exposure may result in headache, dizziness, incoordination, fatigue, nausea, loss of appetite and loss of consciousness.

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

SKIN: Irritating to skin. Prolonged contact with skin may cause blistering, and repeated contact may have a defatting effect causing dryness and cracking.

EYE: Irritating to eyes. On eye contact this product will cause tearing, stinging, blurred vision, redness and possible conjunctivitis.

CHRONIC EFFECTS: Continued exposures to levels near 400 ppm can cause respiratory tract irritation; prolonged inhalation of vapours can cause respiratory tract obstruction. Peripheral neuropathy is possible upon long-term exposure to styrene. CNS depression is possible upon long-term exposure to styrene. It is important to note that styrene is classified as 'possibly carcinogenic to humans' (Group 2B) by the International Agency for Research on Cancer (IARC).

XII. Ecological Information

ECOTOXICITY: No data available for this specific product.

PERSISTENCE/DEGRADABILITY: No data available for this specific product.

MOBILITY: No data available for this specific product.

ENVIRONMENT PROTECTION: Do not allow product to enter drains, waterways or sewers.

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XIII. Disposal Considerations

DISPOSAL CONSIDERATIONS: The spilled or waste material must be disposed of in accordance with relevant local, state and federal regulations. Uncleaned packaging must be disposed of in the same manner as the material. Contaminated packaging if empties of all residues and appropriately cleaned, may be sent to a recycling plant.

XIV. Transport Information

This material is classified as a Class 3 – Flammable Liquid according to NZS 5433:1999 Transport of Dangerous Goods on Land.

It must not be loaded in the same freight container or on the same vehicle with:

- Class 1, Explosives.
- Class 2.1, Flammable gases
- Class 2.3, Toxic gases
- Class 4.2, Spontaneously combustible substances
- Class 5.1, Oxidising substances
- Class 5.2, Organic peroxides
- Class 7, Radioactive materials unless specifically exempted

Must not be loaded within the same freight container; and on the same vehicle must be separated horizontally by at least three metres unless all but one are packed in separate freight containers with:

- Class 4.3, Dangerous when wet substances

Goods of packing group II or III may be loaded in the same freight container or on the same vehicle if transported in segregation devices with:

- Class 4.2, Spontaneously combustible substances
- Class 4.3, Dangerous when wet substances
- Class 5.1, Oxidising substances
- Class 5.2, Organic peroxides

UN NUMBER: 1866

PROPER SHIPPING NAME: Resin Solution - flammable

DG CLASS: 3

HAZCHEM CODE: 3[Y]

PACKING METHOD: 3.8.3RT1, RT7

PACKING GROUP: III

EPG NUMBER: 3A1

IERG NUMBER: 14

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