



MATERIAL SAFETY DATA SHEET

KLEER-KAST RESIN

Effective Date : March 2012

Page 1 of 7

Norski Holdings urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interests of safety, you should, (1) notify your employees, agents, and contractors, of the information on this sheet; (2) furnish a copy to each of your customers for the product; (3) request your customers to inform their employees and customers as well.

I. Identification

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

PRODUCT NAME: Kleer-kast Resin (3089)

PRODUCE CODE: Kleer-kast 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.

HSNO CLASSIFICATION:

- 3.1C – Substance that is a flammable liquid: medium hazard.
- 6.1C – Substance that is acutely toxic if inhaled.
- 6.1D – Substance that is moderately acutely toxic by ingestion.
- 6.3A – Substance that is irritating to the skin.
- 6.4A – Substance that is irritating to the eye.
- 6.5B – Substance that is a contact sensitiser.
- 6.6B – Substance that is a suspected human mutagen.
- 6.7B – Substance that is a suspected human carcinogen.
- 6.8B – Substance that is a suspected human reproductive or developmental toxicant.
- 6.9A – Substance that is ecotoxic to human target organs or systems if inhaled and if swallowed.
- 9.1A – Substance that is very ecotoxic in the aquatic environment.
- 9.3B – Substance that is ecotoxic to terrestrial vertebrates.

HAZARD STATEMENT CODE:

- H226 – Flammable liquid and vapour.
- H302 – Harmful if swallowed.
- H315 – Causes skin irritation.
- H317 – May cause an allergic skin reaction.
- H320 – Causes eye irritation.
- H331 – Toxic if inhaled.
- H341 – Suspected of causing genetic defects.
- H351 – Suspected of causing cancer.
- H361 – Suspected of damaging fertility or the unborn child.
- H370 – Causes damage to organs via inhalation.
- H410 – Very toxic to aquatic life with long lasting effects.
- H432 – Toxic to terrestrial vertebrates.

PRECAUTIONARY STATEMENT CODES – PREVENTION:

- P102 – Keep out of reach of children.
- P103* – Read label before use. This statement applies only where the substance is available to the general public.
- P104 – Read Safety Data Sheet before use.
- P201 – Obtain special instructions before use.
- P202 – Do not handle until all safety precautions have been read and understood.

While Norski Holdings Limited believes that the data contained herein is factual, and the opinions expressed are those of qualified experts regarding the test results, this data is not to be taken as a warranty or representation, for which Norski Holdings Limited assumes legal responsibility. It is offered solely for the recipients consideration, investigation and verification. Any use of this data, and information, must be determined by the user, to be in accordance with applicable local laws and regulations.



MATERIAL SAFETY DATA SHEET

KLEER-KAST RESIN

Effective Date : March 2012

Page 2 of 7

Norski Holdings urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interests of safety, you should, (1) notify your employees, agents, and contractors, of the information on this sheet; (2) furnish a copy to each of your customers for the product; (3) request your customers to inform their employees and customers as well.

P210 – Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 – Keep container tightly closed.
P240 – Ground/bond container and receiving equipment.
P241 – Use explosion-proof electrical/ventilating/lighting equipment.
P242 – Use only non-sparking tools.
P243 – Take precautionary measures against static discharge.
P260 – Do not breathe mist/vapours/spray.
P264 – Wash skin thoroughly after handling.
P270 – Do not eat, drink or smoke when using this product.
P271 – Use only outdoors or in a well-ventilated area.
P273 – Avoid release to the environment. This statement does not apply where this is the intended use.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.
P281 – Use personal protective equipment as required.

PRECAUTIONARY STATEMENT CODES – RESPONSE:

P101* - If medical advice is needed, have product container or label at hand. This statement applied only where the substance is available to the general public.

INHALATION:

P304+P340 If inhaled – Remove to fresh air and keep at rest in a position comfortable for breathing.
P312 – Call a Poison Centre or doctor/physician if you feel unwell.
P331 – Do NOT induce vomiting.

INGESTION:

P331 – Do NOT induce vomiting.

SKIN:

P302+P352 If on Skin – Wash with plenty of soap and water.
P303+P361+P353 If on Clothing – Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
P332+P313 If skin irrigation occurs – Get medical advice/attention.
P362 – Take off contaminated clothing and wash before re-use.

EYES:

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.
P370+P378 In case of fire – Use foam, CO₂, dry chemical for extinction.
P391 – Collect spillage.

PRECAUTIONARY STATEMENT CODES:

Storage:

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

Disposal:

P501 – *In the case of a substance that is in compliance with a HSNO approval other than a Part 6A (Group Standards) approval, a label must provide a description of one or more appropriate and achievable methods for the disposal of a substance in accordance with the Hazardous Substances (Disposal) Regulations 2001. This may also include any method of disposal that must be avoided.

While Norski Holdings Limited believes that the data contained herein is factual, and the opinions expressed are those of qualified experts regarding the test results, this data is not to be taken as a warranty or representation, for which Norski Holdings Limited assumes legal responsibility. It is offered solely for the recipients consideration, investigation and verification. Any use of this data, and information, must be determined by the user, to be in accordance with applicable local laws and regulations.



MATERIAL SAFETY DATA SHEET

KLEER-KAST RESIN

Effective Date : March 2012

Page 3 of 7

Norski Holdings urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interests of safety, you should, (1) notify your employees, agents, and contractors, of the information on this sheet; (2) furnish a copy to each of your customers for the product; (3) request your customers to inform their employees and customers as well.

RISK PHRASE(S):

R10 – Flammable.
R20 – Harmful by inhalation.
R36/38 – Irritating to eyes and skin.
R43 – May cause sensitization by skin contact.

SAFETY PHRASE(S):

S16 – Keep away from sources of ignition – no smoking.
S23 – Do not breathe gas/fumes/vapour/spray.
S45 – In case of accident or if you feel unwell, seek medical advice immediately.
S61 – Avoid release to the environment. Refer to special instructions/safety data sheets.
S24/25 – Avoid contact with skin and eyes.
S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection.

III. Composition/Information on Ingredients

Name	CAS	Einecs	Proportion
Styrene Monomer	100-42-5	202-851-5	30-60%
Methyl methacrylate	80-62-6	201-297-1	0-2%
Ingredients determined not to be hazardous			Balance

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. Immediately wash mouth with water. If symptoms develop, seek 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 with copious amounts of water holding eyelid(s) open. Take care not to rinse contaminated water into the non-affected eye. If symptoms persist, seek medical attention.

FIRST AID FACILITIES: Eye wash fountains and safety showers should be easily accessible.

ADVICE TO DOCTOR: Treat symptomatically.

EMERGENCY: 0800 POISON (764 766)

V. Fire-fighting Measures

SUITABLE EXTINGUISHING MEDIA: Foam, dry chemical powder or carbon dioxide.

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

SPECIFIC METHODS: Water spray may be used to keep fire exposed containers cool.

SPECIFIC HAZARDS: Polymerisation may occur at elevated temperatures, such as a fire. If polymerisation occurs in a closed container, violent rupture may result. 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.

While Norski Holdings Limited believes that the data contained herein is factual, and the opinions expressed are those of qualified experts regarding the test results, this data is not to be taken as a warranty or representation, for which Norski Holdings Limited assumes legal responsibility. It is offered solely for the recipients consideration, investigation and verification. Any use of this data, and information, must be determined by the user, to be in accordance with applicable local laws and regulations.



MATERIAL SAFETY DATA SHEET

KLEER-KAST RESIN

Effective Date : March 2012

Page 4 of 7

Norski Holdings urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interests of safety, you should, (1) notify your employees, agents, and contractors, of the information on this sheet; (2) furnish a copy to each of your customers for the product; (3) request your customers to inform their employees and customers as well.

PRECAUTIONS IN CONNECTION WITH FIRE: Fire-fighters should wear self contained breathing apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes. Water spray may be used to keep fire exposed containers cool.

HAZCHEM: 3Y.

VI. Accidental Release Measures

EMERGENCY PROCEDURES: Remove all sources of ignition and increase ventilation. Clear area of all unnecessary personnel. Wear sufficient respiratory protection where required and full protective clothing to minimise skin and eye exposure. If possible contain the spill. Place inert absorbent such as vermiculite, sand or 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, oxidising agents, foodstuffs, and clothing and out of direct sunlight. Keep containers closed when not in use and securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Always keep in containers made of the same material as the supply container. Have appropriate fire extinguishers available in and near the storage area. Take precautions against static electricity discharges. Use proper grounding procedures. Do not stack more than three pallets high.

STORAGE TEMPERATURES: Ideally below 27°C. Avoid prolonged storage over 38°C.

VIII. Exposure Controls/Personal Protection

National Exposure Standards:

Substance	Regulations	Exposure Duration	Exposure Limits	Units
Styrene, monomer	NOHSC:1003	TWA	50	ppm
	NOHSC:1003	TWA	213	mg/m3
	NOHSC:1003	STEL	100	ppm
	NOHSC:1003	STEL	426	mg/m3

BIOLOGICAL LIMIT VALUES: No biological limit allocated.

OTHER EXPOSURE INFORMATION: No exposure standards have been established for this material by the Occupational Safety and Health Service (OSH) of the New Zealand Department of Labour. However, exposure standards for ingredients are stated above: As published by the New Zealand Occupational Safety and Health Service (OSH):

TWA – The Time-Weighted Average airborne concentration over an 8-hour working day, for a 5-day working week over an entire working life.

While Norski Holdings Limited believes that the data contained herein is factual, and the opinions expressed are those of qualified experts regarding the test results, this data is not to be taken as a warranty or representation, for which Norski Holdings Limited assumes legal responsibility. It is offered solely for the recipients consideration, investigation and verification. Any use of this data, and information, must be determined by the user, to be in accordance with applicable local laws and regulations.



MATERIAL SAFETY DATA SHEET

KLEER-KAST RESIN

Effective Date : March 2012

Page 5 of 7

Norski Holdings urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interests of safety, you should, (1) notify your employees, agents, and contractors, of the information on this sheet; (2) furnish a copy to each of your customers for the product; (3) request your customers to inform their employees and customers as well.

STEL (Short Term Exposure Limit) – the average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal 8-hour work day. According to current knowledge these concentrations should neither impair the health of, nor cause undue discomfort to, nearly all workers.

ENGINEERING CONTROLS: Provide sufficient ventilation to keep airborne levels below the exposure limit. Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a flameproof exhaust ventilation system is required. AS/NZS 2430.3.1: Classification of hazardous areas – Examples of area classification – General, 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 organic vapour filter should be used suitable for protecting against vapours and fumes. 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/New Zealand Standards AS/NZS1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS1716, Respiratory Protective Devices.

EYE PROTECTION: Safety glasses with side shields or chemical goggles 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.

VIX. Physical and Chemical Properties

APPEARANCE: Clear to hazy liquid. May be tinted blue.

ODOUR: Aromatic/fruity odour.

MELTING POINT: Not available.

BOILING 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: 28°C.

FLAMMABILITY: Flammable liquid. Keep away from heat, sparks or naked flames.

AUTO-IGNITION TEMPERATURE: Not available.

FLAMMABLE LIMITS – LOWER: 1.1%.

FLAMMABLE LIMITS – UPPER: 6.1%.

X. Stability and Reactivity

CHEMICAL STABILITY: Stable under normal conditions.

CONDITIONS TO AVOID: Heat, direct sunlight, open flames or other sources of ignition. Prolonged storage above 38°C.

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

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, fumes and smoke.

While Norski Holdings Limited believes that the data contained herein is factual, and the opinions expressed are those of qualified experts regarding the test results, this data is not to be taken as a warranty or representation, for which Norski Holdings Limited assumes legal responsibility. It is offered solely for the recipients consideration, investigation and verification. Any use of this data, and information, must be determined by the user, to be in accordance with applicable local laws and regulations.



MATERIAL SAFETY DATA SHEET

KLEER-KAST RESIN

Effective Date : March 2012

Page 6 of 7

Norski Holdings urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interests of safety, you should, (1) notify your employees, agents, and contractors, of the information on this sheet; (2) furnish a copy to each of your customers for the product; (3) request your customers to inform their employees and customers as well.

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

XI. Toxicological Information

TOXICOLOGY INFORMATION: FOR STYRENE: LD50 (inhalation, rat) = 2770 ppm/4h (11.8 mg/L/4H).

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

Eye Irritation (Rabbit) (Standard Draize); mild to moderately.

INHALATION: Harmful by inhalation. Vapour can cause severe irritation to the respiratory tract. Styrene at 400 ppm 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: Substance is moderately toxic by ingestion. Ingestion of this product may irritate the gastric tract causing nausea and vomiting.

SKIN: A severe skin irritant. May cause sensitization by skin contact. 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: Not available.

REPRODUCTIVE TOXICITY: Substance is a suspected human reproductive or developmental toxicant.

CARCINOGENICITY: Styrene is classified as 'possibly carcinogenic to humans' by the International Agency for Research on Cancer (IARC). Detailed toxicological information is available on request.

XII. Ecological Information

ECOTOXICITY: No data is available for this material.

PERSISTENCE/DEGRADABILITY: Not available.

MOBILITY: Not available.

ENVIRONMENT PROTECTION: Avoid contaminating waterways.

XIII. Disposal Considerations

DISPOSAL CONSIDERATIONS: Dispose of waste according to regulations.

OTHER INFORMATION: May be treated to convert to solid resin.

XIV. Transport Information

This material is classified as a Class 3 – Flammable Liquid according to NZS 5433:2007 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

While Norski Holdings Limited believes that the data contained herein is factual, and the opinions expressed are those of qualified experts regarding the test results, this data is not to be taken as a warranty or representation, for which Norski Holdings Limited assumes legal responsibility. It is offered solely for the recipients consideration, investigation and verification. Any use of this data, and information, must be determined by the user, to be in accordance with applicable local laws and regulations.



MATERIAL SAFETY DATA SHEET

KLEER-KAST RESIN

Effective Date : March 2012

Page 7 of 7

Norski Holdings urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interests of safety, you should, (1) notify your employees, agents, and contractors, of the information on this sheet; (2) furnish a copy to each of your customers for the product; (3) request your customers to inform their employees and customers as well.

- Class 5.1, Oxidising substances
- Class 5.2, Organic peroxides, or
- Class 7, Radioactive materials unless specifically exempted.

It must not be loaded in 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.

This product is a packing group III flammable liquid, and 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

DG CLASS: 3

HAZCHEM CODE: .3Y

SPECIAL PRECAUTIONS FOR USER: IMDG 3.3 Marine Pollutant.

PACKING GROUP: III

IERG NUMBER: 14

XV. Regulatory Information

NATIONAL AND/OR INTERNATIONAL REGULATORY INFORMATION: Classified as Hazardous according to the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001. Additives, Process Chemicals and Raw Materials (Flammable, Toxic [6.7]) Group Standard 2006.

HSNO APPROVAL NUMBER: HSR002502.

HAZARD CATEGORY: Harmful, Irritant, Flammable, Sensitising.

While Norski Holdings Limited believes that the data contained herein is factual, and the opinions expressed are those of qualified experts regarding the test results, this data is not to be taken as a warranty or representation, for which Norski Holdings Limited assumes legal responsibility. It is offered solely for the recipients consideration, investigation and verification. Any use of this data, and information, must be determined by the user, to be in accordance with applicable local laws and regulations.
