



MATERIAL SAFETY DATA SHEET

POUR IN FOAM BASE

Effective Date : March 2012

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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: Pour In Foam Base

RECOMMENDED USE: Polyurethane

II. Hazard Classification

NEW ZEALAND: Classified as hazardous according to criteria in the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001.

HSNO CLASSIFICATIONS:

6.1D – Acutely toxic (inhalation)

6.3B – Skin irritant

6.4A – Eye irritant

6.5A – Respiratory sensitisers

6.9B – Harmful to human target organs or systems (lung)

Not classified as Dangerous Goods by the criteria of the New Zealand Standard 5433:2007 Transport of Dangerous Goods on Land.

SIGNAL WORDS: Danger

HAZARD STATEMENTS:

- Causes mild skin irritation.
- Causes eye irritation.
- Harmful if inhaled.
- May cause allergic or asthmatic symptoms or breathing difficulties if inhaled.
- May cause damage to organs (lungs) through prolonged or repeated exposure by inhalation.

PRECAUTIONARY STATEMENT(S):

- Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves, protective clothing and eye/face protection.
- Do not breathe dust/fume/gas/mist/vapours/spray. In case of inadequate ventilation, wear respiratory protection.
- IF SWALLOWED: Rinse mouth. Call a POISON CENTRE or doctor/physician if you feel unwell.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE or doctor/physician.
- Avoid release to the environment.
- Collect spillage.

III. Composition/Information on Ingredients

Appearance: Liquid.

Name	CAS	%
Polymeric Diphenylmethane Diisocyanate (MDI)	9016-87-9	100

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IV. First Aid Measures

INGESTION: Do not induce vomiting. Do not swallow. Provided the patient is conscious, wash out mouth with water. Obtain immediate medical attention.

EYE CONTACT: Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediate medicate attention.

SKIN CONTACT: Remove contaminated clothing. After contact with skin, wash immediately with plenty of warm soapy water. If symptoms develop, obtain medical attention. Contaminated clothing should be thoroughly cleaned. An MDI study has demonstrated that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water.

INHALATION: Remove patient from exposure – avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If breathing laboured and patient cyanotic (blue), ensure airways are clear and have qualified person give oxygen through a face mask. If breathing has stopped apply artificial respiration at once. In event of cardiac arrest, apply external cardiac massage. Seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately. Show the Safety Data Sheet.

FIRST AID FACILITIES: Provide eye baths and safety showers close to areas where there is potential for eye and skin contact.

ADVICE TO DOCTOR: Treat symptomatically. Effects may be delayed. Following severe exposures, the patient should be kept under medical supervision for at least 48 hours.

EMERGENCY: 0800 POISON (764 766)

V. Fire-fighting Measures

EXTINGUISHING MEDIA: Combustible liquid, foam, dry agent (carbon dioxide, dry chemical powder). Water fog (or if unavailable fine water spray) may be used if no other extinguishing medium is available, and then in copious amounts. Prevent washings from entering water courses, keep fire exposed containers cool by spraying with water.

HAZARDS FROM COMBUSTION PRODUCTS: On burning will emit toxic fumes including those of carbon monoxide and carbon dioxide, nitrogen oxides, isocyanate vapours and hydrogen cyanide.

PRECAUTIONS FOR FIRE FIGHTERS AND SPECIAL PROTECTIVE EQUIPMENT: Fire fighters to wear self-contained breathing apparatus if risk of exposure to vapour or products of combustion. Due to the reaction with water producing carbon dioxide gas, a hazardous build-up of pressure could result if contaminated drums are resealed.

HAZCHEM CODE: Not applicable.

VI. Accidental Release Measures

EMERGENCY PROCEDURES: Evacuate the area. Keep upwind to avoid inhalation of vapours. Clean up should only be performed by trained personnel. Splash goggles. Full suit, boots, gloves to prevent skin and eye contamination. Self-contained breathing apparatus should be used to avoid inhalation of the product.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN UP PROCEDURES: Prevent further leakage, spillage or entry into drains. Absorb spillages onto sand, earth or any suitable absorbent material. Leave to react for at least 30 minutes. Do not absorb onto sawdust or other combustible materials. Shovel into open-top drums for further decontamination. Wash the spillage area with water. Test atmosphere for MDI vapour. Neutralise small spillages with decontaminant. Remove and dispose of residues. The compositions of liquid decontaminants are given in Section 16. See also brochure PU193-1 (see section 16).

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VII. Handling and Storage

PRECAUTIONS FOR SAFE HANDLING: Do not breathe vapour/spray. Avoid contact with skin and eyes. Atmospheric concentrations should be minimised and kept as low as reasonably practicable below the occupational exposure limit. The efficiency of the ventilation system must be monitored regularly because of the possibility of blockage. When the product is sprayed or heated, suitable respiratory protection equipment with positive air supply may be required. Keep equipment clean. A basic essential in sampling, handling and storage is the prevention of contact with water. Keep stocks of decontaminant easily available. The compositions of liquid decontaminants are given in Section 16. See also brochure PU 193-1 (see section 16).

CONDITIONS FOR SAFE STORAGE: Keep containers properly sealed and store indoors in a well ventilated area. Keep away from frost. Keep away from moisture. If a container is contaminated, do not reseal it. Due to reaction with water producing CO₂-gas, a hazardous build-up of pressure could result if contaminated containers are resealed. Unsuitable containers: copper, copper alloy and galvanised surfaces. Suitable containers: stainless steel or mild steel. Storage temperature: See Product Data Sheet. Storage Life: See Product Data Sheet.

VIII. Exposure Controls/Personal Protection

EXPOSURE STANDARDS:

No value assigned for this specific material by the New Zealand Occupational Safety and Health Service (OSH). However, Workplace Exposure Standard for constituents:

	8-hr TWA		STEL (15 mins)		Peak Limitation		Carcinogen Category	Notices
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³		
Isocyanate, all (as-NCO)	-	0.02	-	0.07	-	-	-	'Sen'

As published by the New Zealand Occupational Safety and Health Service (OSH).

WES-TWA: The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Medical supervision of all employees who handle or come in contact with respiratory sensitizers is recommended. Personnel with a history of asthma-type conditions, bronchitis or skin sensitisation conditions should not work with MDI based products.

The Occupational Exposure Standards do not apply to previously sensitised individuals. Sensitised individuals should be removed from any further exposure.

BIOLOGICAL LIMIT VALUES: Not relevant.

ENGINEERING CONTROLS: Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Exposure Standards. Use with local exhaust ventilation or while wearing air supplied mask. Vapour heavier than air – prevent concentration in hollows or sumps. Do not ENTER CONFINED SPACES WHERE VAPOUR MAY HAVE COLLECTED. Keep containers closed when not in use. MDI can only be smelt if the occupational exposure limit has been exceeded considerably.

PERSONAL PROTECTIVE EQUIPMENT: Overalls, safety shoes, face shield or air mask, gloves (long).

Wear suitable protective clothing, gloves and eye/face protection.

- Respirators – suitable respiratory equipment with positive air supply should be used in cases of insufficient ventilation or where

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operational procedures demand it.

- Eye Protection – Chemical safety glasses. Full face shield if splashing is possible.
- Gloves – The following protective materials are recommended:
 - Neoprene
 - Nitrile butadiene rubber
 - Butyl rubber
 - PVC (heavy duty)
 - Thin disposable gloves should be avoided for repeated or long term use
- Other – Overall (preferably heavy cotton) or Tyvek-Pro Tech 'C', Tyvek-Pro 'F' disposable coverall. Contaminated clothing should be thoroughly cleaned before re-use.

IX. Physical and Chemical Properties

APPEARANCE: Dark brown liquid.

ODOUR: Earthy.

SOLUBILITY: Insoluble in water. Soluble in many organic solvents.

SPECIFIC GRAVITY (water=1): 1.24

REL VAPOUR DENSITY (air=1): >1

VAPOUR PRESSURE AT 20°C (mmHg): 1×10^{-6} kPa

FLASH POINT (PMCC) (°C): 200-250

FLAMMABILITY LIMITS: (%): N AP

AUTOIGNITION TEMP (°C): N Av

% VOLATILE BY WEIGHT: N Av

SOLUBILITY IN WATER: Insoluble

MELTING POINT (°C): N Av

BOILING POINT (°C): N Av

DECOMP. POINT (°C): N Av

SUBLIMATION POINT (°C): N App

Ph (NEAT): N App

VISCOSITY (20°C): N Av

EVAPORATION RATE: N Av

ODOUR THRESHOLD (ppm): 0.4

(Typical values only – consult specification sheet)

N Av – Not available. N App – Not applicable

X. Stability and Reactivity

STABILITY: Stable at room temperature. Reacts with water (moisture) produced CO₂ gas. Reacts exothermically with water and all organic compounds containing active hydrogen groups. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of the reaction partners is good or is supported by stirring or by the presence of solvents. MDI is insoluble with, and heavier than water and sinks to the bottom but reacts slowly at the interface. A solid water-insoluble layer of polyuria is formed at the interface by liberating carbon dioxide gas.

CONDITIONS TO AVOID: Avoid high temperatures.

INCOMPATIBILITY (MATERIALS TO AVOID): Water, alcohols, amines, bases and acids.

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HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide and carbon dioxide.

HAZARDOUS REACTIONS: As above.

XI. Toxicological Information

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms that may arise if the product is mishandled are:

ACUTE EFFECTS:

INGESTION: Swallowing may result in irritation of the gastrointestinal tract.

EYE CONTACT: Both vapour and liquid are eye irritants.

SKIN CONTACT: Contact with skin will result in moderate irritation. Repeated or prolonged contact may cause skin sensitisation. Animal studies have shown that respiratory sensitisation can be induced by skin contact with known respiratory sensitisers including diisocyanates. These results emphasise the need for protective clothing including gloves to be worn when handling these chemicals or in maintenance work.

INHALED: A respiratory irritant and potential respiratory sensitiser; repeated inhalation of vapour or aerosol at levels above the occupational exposure standard could cause respiratory sensitisation. Symptoms may include irritation of the eyes, nose, throat and lungs, possibly with dryness of the throat, tightness of the chest and difficulty in breathing. Onset of respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response may develop to even minimal concentrations of MDI in sensitised individuals.

LONG TERM EFFECTS: There are reports that chronic exposure by inhalation may result in a permanent decrease in lung function.

ACUTE TOXICITY/CHRONIC TOXICITY:

Based on information available on similar products: (1)

Oral LD50 (rat): >5000 mg/kg

Dermal LD50 (rabbit): >5000 mg/kg

Inhalation LC50 (rat): 0.49 mg/l (4 hour/hours) (respirable aerosol)

EYES (rabbit): 100 ug – Draize – MILD (2).

Rats were exposed for two years to a respirable aerosol of polymeric MDI. Chronic pulmonary irritation was observed where rats were exposed to high levels of MDI. Only at the 6mg/m³ was there a significant incidence of a benign tumour of the lung (adenoma) and one malignant tumour (adenocarcinoma). There were no lung tumours at 1 mg/m³ and no effects at 0.2 mg/m³. The increased incidence of lung tumours was associated with prolonged respiratory irritation and a concurrent accumulation of yellow material in the lung.

In the absence of prolonged, high levels of exposure causing chronic irritation and lung damage, it is highly unlikely that tumour formation could occur. Industrial experience in humans has not shown a correlation between MDI exposure and cancer development. No birth defects were seen in two independent animal (rat) studies.

Foetotoxicity was observed, only at maternally toxic doses. The doses used in these studies were maximal, respirable, concentrations, which were well in excess of defined occupational exposure limits.

There is no substantial evidence of a mutagenic potential for MDI.

Respiratory hypersensitivity in guinea pigs has resulted from dermal exposure to MDI.

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XII. Ecological Information

ECOTOXICITY: By comparison with an analogous product, the following values are anticipated. The measured ecotoxicity is that of the hydrolysed product, generally under conditions maximising production of soluble species. Evens o, the observed ecotoxicity is low/very low. A pond study showed gross contamination caused no significant toxic effects on a wide variety of flora in all trophic levels (including dish), no detectable diaminodiphenylmethane (MDA), and no evidence of the bioaccumulation of MDI nor MDA.

Ingredient Name	Species	Period	Result
Diphenylmethane 4, 4' -	Zebra Fish (LC50)	96 hours	>1000 mg/l
Diisocyanata	Daphnia magna (EC50)	48 hours	>1000 mg/l

PERSISTENCE/DEGRADABILITY: Immiscible with water, but will react with water to produce inert and non-biodegradable solids. Conversion to soluble products, including diamino-diphenylmethane (MDA), is very low under the optimal laboratory conditions of good dispersion and low concentration. In air, the predominant degradation process is predicted to be a relatively rapid OH radical attack, by calculation and by analogy with related diisocyanates.

MOBILITY: By considering the production and use of the substance, it is unlikely that significant environmental exposure in the air or water will arise.

XIII. Disposal Considerations

DISPOSAL METHOD: Refer to Local City, District or Regional Council Waste Management Authority. Empty containers MUST BE decontaminated. Dispose of material through a licensed waste contractor. The generation of waste should be avoided or minimised wherever possible. Untreated material is not suitable for disposal. Waste, even small quantities, should never be poured down drains, sewers or water courses. Small quantities and empty drums – pretreat to neutralise prior to disposal. Large quantities – incinerate under approved controlled conditions, using incinerators suitable for the disposal of hazardous chemical waste. Empty drums should be decontaminated and either passed to an approved drum reconditioner or destroyed. See also brochure PU 193-1 (see section 16).

SPECIAL PRECAUTIONS FOR LANDFILL OR INCINERATION: Small quantities and empty drums – pretreat to neutralise prior to disposal. Large quantities – incinerate under approved controlled conditions, using incinerators suitable for the disposal of hazardous chemical waste.

XIV. Transport Information

ROAD AND RAIL TRANSPORT: Not classified as a Dangerous Good under NZS 5433:1999 Transport of Dangerous Goods on Land.

MARINE TRANSPORT: Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

AIR TRANSPORT: Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

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XV. Regulatory Information

HSNO GROUP STANDARD: Polymers (Toxic [6.1]) Group Standard 2006.

XVI. Other Information

REASONS FOR ISSUE: Amendments to the HSNO Classification / Hazard and Precautionary statements.

LITERACY REFERENCE:

- 1) 'Huntsman MDI-Based Compositions: Hazards and Safe-Handling Procedures'. No. PU 193-1E (4ed) 2001.
- 2) 'In Registry of Toxic Effects of Chemical Substances 1998' (Ed D Sweet), (US Dept of Health and Human Services: Cincinnati) 1998.
- 3) International Isocyanate Institute Inc. Scientific Office, Compendium of Technical Information, Volume 2 1990- (Ed. III) p 1.4, 1992.

LIQUID MDI DECONTAMINANTS:

Decontaminant 1:

- Water 90%
- Concentrated sodium hydroxide solution 8%
- Liquid detergent 2%

Decontaminant 2:

- Water 90-95%
- Sodium carbonate 5-10%
- Liquid detergent 0.2-0.5%

Note : Decontaminant 2 reacts slower with MDI but is more environmentally friendly than Decontaminant 1.

SOLID MDI DECONTAMINANTS

May use sand, sawdust, Newsorb.

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