



Material Safety Data Sheet

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Issue date: August 2010

Erathane MF62 Isocyanate

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: Erathane MF62 Isocyanate

Synonym: None

Use: Polyurethane Isocyanate

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2. HAZARDS IDENTIFICATION

HAZARDOUS ACCORDING TO NOHSC CRITERIA

Hazard Category: Harmful (Xn), Irritant (Xi)

Hazard Classification: HAZARDOUS SUBSTANCE, NON-DANGEROUS GOOD

RISK PHRASES

R20 Harmful by inhalation.
R36/37/38 Irritating to eyes, respiratory system and skin.
R42/43 May cause sensitisation by inhalation and skin contact.

SAFETY PHRASES

S23 Do not breathe gas/fumes/vapour/spray.
S36/37 Wear suitable protective clothing and gloves.
S45 In case of accident or if you feel unwell, contact a doctor immediately and show this container or label.

Poison Schedule: S6 [Aust]

This material is a Scheduled **S6** Poison and must be stored, handled and used according to the appropriate regulations.

Warning Statement:

Avoid breathing vapours. Avoid skin and eye contact. Breathing vapours may produce asthma-like symptoms. Skin contact may cause allergic reaction.

3. COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE NAME	Proportion	CAS Number
DIPHENYLMETHANE DIISOCYANATE [MDI]	Greater than 60%	26447-40-5
TRIETHYL PHOSPHATE (Below Cut-off)	1 to 10%	78-40-0

All other ingredients not hazardous according to NOHSC Criteria.

4. FIRST AID MEASURES

Swallowed:

If swallowed, seek medical attention. DO NOT induce vomiting unless directed to do so by medical personnel. Never give fluids or induce vomiting if patient is unconscious or is having convulsions.



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Eye:

If material is splashed into eyes, immediately, flush with plenty of water for 15 minutes, ensuring eyelids are held open. If irritation persists seek medical attention.

Skin:

If material is splashed onto the skin, remove any contaminated clothing and wash skin thoroughly with water (preferably warm) and soap. Flush skin with water. Seek medical attention if irritation persists after washing. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water.

Inhaled:

Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Seek medical attention.

First Aid Facilities:

Eye wash fountain, safety shower and normal washroom facilities.

Advice to Doctor:

Treat symptomatically.

In case of poisoning, contact Poisons Information Centre

In Australia call Tel: 131126

In New Zealand Tel: 034747000

5. FIRE-FIGHTING MEASURES

Fire/Explosion Hazard

If safe to do so, move undamaged containers from fire area.

FIRE/EXPLOSION HAZARD: Product reacts with water. Reaction may produce heat and/or gases. Reaction may be violent. Container may rupture from gas generation in fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

HAZARDOUS DECOMPOSITION PRODUCTS: Decomposes on heating emitting toxic and/or irritating fumes including oxides of carbon and nitrogen, isocyanate vapours and hydrogen cyanide.

FIRE FIGHTING PROCEDURES: Keep people away. Isolate fire area and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water is not recommended, but may be applied in very large quantities as a fine spray when other extinguishing agents are not available. Contain firewater run-off if possible. Do not use direct water stream, may spread fire. Fight fire from protected location or safe distance. Consider use of unmanned hose holder or monitor nozzles. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out.

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: Wear positive pressure, self-contained breathing apparatus (SCBA) and protective fire-fighting clothing (includes fire-fighting helmet, coat, pants, boots and gloves). Avoid contact with the material during fire-fighting operations. If contact is likely, change to full chemical-resistant clothing with SCBA. If this will not provide sufficient fire protection, consider fighting fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, foam, water fog or fine spray. Alcohol-resistant foams (ATC type) are preferred if available. General-purpose synthetic foams (incl. AFFF) or protein foams may function, but much less effectively. DO NOT use direct water stream, may spread fire.

HAZCHEM CODE: None allocated [Aust]

FLAMMABILITY

Combustible liquid - Store in accordance with dangerous goods



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6. ACCIDENTAL RELEASE MEASURES

PROTECT PEOPLE:

Avoid any contact. Barricade area. Clear non-emergency personnel from area. Keep upwind of spill. Ventilate area of leak or spill. The area must be evacuated and re-entered by persons equipped for decontamination. Use appropriate safety equipment. If available, use foam to suppress vapours. For additional information, refer to Section 8 Exposure Controls / Personal Protection.

PROTECT THE ENVIRONMENT:

Contain the liquid to prevent contamination of soil, surface water or ground water. Keep out of ditches, sewers, drains, and water supplies. Should the product enter sewers or drains, it should be pumped into an OPEN vessel. Emergency services may need to be called to assist in the cleanup operation.

CLEANUP:

Supplies of suitable decontaminant should always be kept available. Absorb with material such as: sawdust, vermiculite, dirt, sand, and clay. Avoid materials such as cement powder. Collect material in suitable and properly labelled OPEN containers. DO NOT place in sealed container. Prolonged contact with water results in rupture of the container. Place in poly-lined fibre packs, plastic drums, or properly labelled metal containers. Remove to well ventilated area. Clean up floor areas. Attempt to neutralise using suitable decontaminant solutions.

DECONTAMINANT SOLUTIONS:

1. Sodium carbonate 5-10%; liquid detergent 0.2-2%; and water to make up to 100%.
2. Conc. ammonia solution 3-8%; liquid detergent 0.2-2%; and water to make up to 100%

Note: if ammonia is used, use good ventilation to prevent vapour exposure.

7. HANDLING AND STORAGE

STORAGE PRECAUTIONS:

Store in a dry place. Store between 24-41°C. Keep containers tightly closed when not in use. Protect from atmospheric moisture. Maintain a nitrogen atmosphere. Do not store product contaminated with water to prevent potentially hazardous reaction (see Section 10 Stability and Reactivity).

HANDLING:

Avoid contact of this product with water at all times during handling and storage. Use only with adequate ventilation. Keep equipment clean. Use disposable containers and tools where possible. Do not eat, drink or smoke in working area. For further information, refer to Section 8 Exposure Controls / Personal Protection.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Standards

No exposure standards are available for this product, however, the following exposure standards have been assigned by [NOHSC] to the following components of the product:

DIPHENYLMETHANE DIISOCYANATE [MDI]

Isocyanate exposure standards (Worksafe Australia)

[TWA] 0.02 mg/m³

[STEL] 0.07 mg/m³

Notices: Sen

TRIETHYL PHOSPHATE (Below Cut-off)

No exposure standards have been assigned by the National Occupational Health & Safety Commission (NOHSC)

Engineering Controls

Use only with adequate ventilation. Provide general and/or local exhaust ventilation to control airborne levels below the exposure standard. Exhaust systems should be designed to move the air away from the source of vapour/aerosol generation and people working at this point. Odour is inadequate warning of excessive exposure. If exhaust ventilation is not available or inadequate, use approved respirator to Australian Standards.



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Personal Protection Equipment

CLOTHING/GLOVES: Use protective clothing impervious to this material to prevent skin contact. Selection of specific items such as gloves, boots, apron, or full body suit will depend on operation. Remove contaminated clothing immediately and launder before reuse. Items that cannot be decontaminated should be removed and destroyed.

EYES: Use approved safety glasses with side shields, chemical goggles or face shield to protect eyes.

RESPIRATORY PROTECTION: Avoid inhalation of mists or vapour, particularly from heated product. Atmospheric levels should be maintained below the exposure standard. When atmospheric levels may exceed the exposure standard, use an approved air-purifying respirator equipped with an organic vapour sorbent and a particulate filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use an positive-pressure air-supplying respirator (airline or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus. Select and use respirators in accordance with AS/NZS 1715/1716.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear to pale yellow liquid
Boiling Point Melting Point:	BP = 314°C (decomposes)
Vapour Pressure:	0.0003 mmHg @ 25°C
Specific Gravity:	1.2 @ 20°C
Flash Point:	> 177°C (ASTM D-93, PMCC)
Flammability Limits:	Not Applicable
Solubility in Water:	Reacts with water liberating carbon dioxide

Other Properties

None determined.

10. STABILITY AND REACTIVITY

STABILITY:

Stable under recommended storage conditions (see Section 7 Handling and Storage).

HAZARDOUS DECOMPOSITION PRODUCTS:

Emits toxic and/or irritating fumes including oxides of carbon and nitrogen, isocyanate vapours and hydrogen cyanide when heated to decomposition.

HAZARDOUS POLYMERIZATION:

Can occur. Polymerisation can be catalysed by strong bases and water. Can react with itself at temperatures above 160°C.

INCOMPATIBILITIES:

Avoid contact with acids, water, alcohols, amines, ammonia, bases, moist air, and strong oxidisers. Avoid contact with metals such as aluminium, brass, copper, galvanised metals, tin, and zinc. Avoid contact with moist organic absorbents. Reaction with water will generate carbon dioxide and heat. Generation of gas can cause pressure build-up in closed systems. Avoid unintended contact with polyols. The reaction of polyols and isocyanates generates heat. Diisocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact. These reactions can become violent. Contact is increased by stirring or if the other material mixes with the diisocyanate.

CONDITIONS TO AVOID:

Avoid temperatures above 41°C. Avoid temperatures below 24°C. Can react with itself at temperatures above 160°C. Product can decompose at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid moisture. Material reacts slowly with water, releasing carbon dioxide, which can cause pressure build-up and rupture of closed containers. Elevated temperatures accelerate this reaction. Avoid heat, flames, ignition sources and incompatible materials.



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11. TOXICOLOGICAL INFORMATION

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

ACUTE HEALTH EFFECTS:

Swallowed:

Single dose oral toxicity is considered to be extremely low. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. May cause irritation to mouth, throat and stomach with effects including mucous build up, irritation to the tongue and lips and pains in the stomach, which may lead to nausea, vomiting and diarrhoea.

Eye:

May cause irritation to the eyes, with effects including: tearing, pain, stinging and blurred vision. Depending upon duration of exposure, eye damage may occur. May cause very slight transient (temporary) corneal injury.

Skin:

Prolonged exposure may cause moderate skin irritation. Material may stick to skin causing skin irritation upon removal. May cause allergic skin reaction in susceptible individuals. Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitisation. May stain skin. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amount. Other effects may include: redness, itchiness, and possible dermatitis.

Inhaled:

Harmful if inhaled.

At room temperature, vapours are minimal due to low vapour pressure. However, certain operations may generate vapour or aerosol concentrations sufficient to cause irritation or other adverse effects. Such operations include those in which the material is heated, sprayed or otherwise mechanically dispersed such as pumping. Excessive exposure may cause irritation to upper respiratory tract and lungs and pulmonary oedema (fluid in the lungs). May cause respiratory sensitisation in susceptible individuals. MDI concentrations below the exposure standards may cause allergic respiratory reactions in individuals already sensitised. Symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Effects may be delayed. Decreased lung function has been associated with overexposure to isocyanates.

Chronic:

Prolonged or repeated skin contact may lead to dermatitis.

Prolonged contact may cause severe eye irritation.

Prolonged or repeated exposure may lead to irreversible damage to health.

Prolonged or repeated contact with this substance will cause sensitisation by inhalation.

Prolonged or repeated contact with this substance will cause sensitisation by skin contact.

Toxicological Data:

Swallowed: LD50 (oral, rat) > 5000 mg/kg

Skin: LD50 (dermal, rabbit) > 2000 mg/kg

Inhalation: LC50 (4hr, rat) = 490 mg/m³ (aerosol). The experimentally produced respirable aerosol had an aerodynamic diameter of < 5 µm.

Mutagenicity: Mutagenicity data on MDI are inconclusive. MDI was weakly positive in some in vitro (test tube) studies; other in vitro studies were negative. A mutagenicity study in animals was negative.

Teratogenicity: In laboratory animals, MDI/polymeric MDI did not cause birth defects. Other foetal effects occurred only at high doses, which were toxic to the mother.

Reproductive Toxicity: Contains component that has been shown to interfere with reproduction in animal studies (Triethyl phosphate). The dose required to produce such effects is highly unlikely with the use of this product.

Carcinogenicity: Lung tumours have been observed in laboratory animals exposed to aerosol droplets of MDI/polymeric MDI (6mg/m³) for their lifetime. Tumour occurred concurrently with respiratory irritation and lung injury. Current exposure standards are expected to protect against these effects reported for MDI.



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12. ECOLOGICAL INFORMATION

Ecotoxicity:

The measure ecotoxicity is that of the hydrolysed product, generally under conditions maximising production of soluble species. Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50 > 100 mg/L in most sensitive species).

LC50 (earthworm, Eisenia foetida) > 1000 mg/kg.

Mobility:

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water, forming predominantly insoluble polyureas.

Persistence / Degradability:

In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas, which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, base on calculations and by analogy with related isocyanates.

Chemical Fate Information:

Avoid contaminating waterways, drains, sewers or ground.

13. DISPOSAL CONSIDERATIONS

Do not allow into any sewers, drains, on the ground or into any body of water. Any disposal must be in accordance with applicable State, Territory and/or Local government regulations. The preferred waste management option for unused, uncontaminated, unformulated, or not otherwise altered material, is to send to an approved recycler, reclaimer, or incinerator. The same waste options are recommended for used or contaminated material, although additional evaluation is required. Waste characterisation and disposal compliance are the responsibility solely of the party generating the waste or deciding to discard or dispose of the material. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate.

Contaminated Packaging:

Any disposal of contaminated packaging and washings must be in accordance with State, Territory and/or Local government regulations. After container has been cleaned and labelling has been removed, empty containers can be sent for recycling or disposal. If the container is to be reconditioned, the reconditioning company should be made aware of the nature of the original contents.

14. TRANSPORT INFORMATION

Road Transport

UN Number: None allocated

Proper Shipping Name: NONE ALLOCATED

Dangerous Goods Class: None allocated

Packing Group: None allocated

Label: Harmful (Xn), Irritant (Xi)

Air Transport

UN Number: None allocated

Proper Shipping Name: NONE ALLOCATED

Dangerous Goods Class: None allocated

Packing Group: None allocated

Label: Harmful (Xn), Irritant (Xi)

Sea Transport

UN Number: None allocated

Proper Shipping Name: NONE ALLOCATED

Dangerous Goods Class: None allocated

Packing Group: None allocated

Label: Harmful (Xn), Irritant (Xi)



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15. REGULATORY INFORMATION

Poison Schedule: S6 [Aust]

Inventory Status:

<i>Inventory</i>	<i>Status</i>
Australia (AICS)	Y

Y = all ingredients are on the inventory.

16. OTHER INFORMATION

Date of Preparation:

Issue date: 5 August 2010

Supersedes: August 2005

Reasons for Update:

Periodic review

Key Legend Information:

NOHSC - National Occupational Health & Safety Commission {Formerly Worksafe}[Aust]

SUSDP - Standard for the Uniform Scheduling of Drugs and Poisons [Aust]

TWA - Time Weighted Average [Int]

STEL - Short Term Exposure Limit [Int]

AICS - Australian Inventory of Chemical Substances

EPA - Environmental Protection Agency [Int]

NIOSH - National Institute for Occupational Safety and Health [US]

AS/NZS 1715 - Selection, use and maintenance of respiratory protective devices. [Aust/NZ]

AS/NZS 1716 - Respiratory protective devices. [Aust/NZ]

IATA - International Aviation Transport Authority [Int]

ICAO - International Civil Aviation Organization [Int]

IMO - International Maritime Organisation. [Int]

IMDG - International Maritime Dangerous Goods [Int]

United Nations Recommendations for the Transport of Dangerous Goods and Globally Harmonized System for the classification and labelling of Chemicals. [Int]

EU - European Union

[Aust/NZ] = Australian New Zealand

[Int] = International

[US] = United States of America

Removal of the heading of *Poison Schedule [Aust]*, in section 3 and 15 of this Material Safety Data Sheet (MSDS) makes this a valid health and safety document in other international jurisdictions/countries. For full compliance please contact your Federal, State or Local regulators for further information.

Disclaimer

This MSDS summarises our best knowledge of the health and safety hazard information available on the product and the measures to be used to handle and use the product safely. Each user should read this MSDS and consider the information in connection with the way the product is intended to be handled or used.

Principal References:

Information supplied by manufacturer, reference sources including the public domain.

END OF MSDS