



# Material Safety Data Sheet

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Issue date: March 2008

## Erapol OC93A Part A

### 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product Name:** Erapol OC93A Part A

**Synonym:** None

**Use:** Polyurethane elastomer prepolymer

**Era Polymers Pty Ltd**

**25-27 Green Street**

**Banksmeadow NSW 2019**

**Australia**

**Ph: +61 2 9666 3788**

**Fax: +61 2 9666 4805**

**Emergency Advice All Hours:**

Technical Manager +61 2 9666 3788

### 2. HAZARDS IDENTIFICATION

HAZARDOUS ACCORDING TO NOHSC CRITERIA

**Hazard Category:** Toxic (T), Irritant (Xi)

**Hazard Classification:** HAZARDOUS SUBSTANCE, DANGEROUS GOOD

#### RISK PHRASES

R23 Toxic 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 fumes/vapour/spray.

S24/25 Avoid contact with skin and eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and contact a doctor.

S28 After contact with skin, wash immediately with plenty of water and soap.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S38 In case of insufficient ventilation, wear suitable respiratory protection.

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 vapour may produce asthma-like symptoms. Skin contact may cause allergic reaction.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE NAME	Proportion	CAS Number
PREPOLYMER [Dicyclohexylmethane-4,4'-diisocyanate / Polyether]	30 to 60%	Mixture
DICYCLOHEXYLMETHANE-4,4'-DIISOCYANATE	30 to 60%	5124-30-1

All other ingredients not hazardous according to NOHSC Criteria.

### 4. FIRST AID MEASURES

#### Swallowed:

If swallowed, DO NOT induce vomiting. Affected person should be made to rest. Obtain medical attention.



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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. Obtain medical attention.

### Skin:

If material is splashed onto the skin, remove any contaminated clothing and shoes and wash skin thoroughly with water (preferably warm) and soap. Obtain medical attention. It is important to clean material off skin as soon as possible. Dispose of contaminated clothing and shoes or decontaminate before reuse.

### Inhaled:

Remove victim to fresh air and away from risk of further exposure. Keep victim warm and allow them to rest. Apply resuscitation if victim is not breathing. If trained personnel available administer oxygen if breathing is difficult. Obtain medical attention immediately. The onset of symptoms may occur several hours after exposure has taken place.

### First Aid Facilities:

Eye wash fountain, safety shower and normal washroom facilities.

### Advice to Doctor:

Treat symptomatically.

The product irritates the respiratory tract and may trigger sensitisation of the skin and respiratory tract. Treatment of acute irritation or bronchial constriction is primarily symptomatic. Extended medical care may be necessary, depending on the extent of the exposure and the symptoms.

### 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

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

FIRE FIGHTING PROCEDURES: All non-essential members of the workforce should be moved upwind of the fire and only trained and well-equipped personnel allowed near to the fire until the fire service takes control of the situation. Fire fighters should wear Self-contained breathing apparatus (SCBA). Full protective clothing is also recommended. Do not let contaminated extinguishing water enter soil, groundwater or surface waters. Fire in vicinity of containers poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area.

EXTINGUISHING MEDIA: Use carbon dioxide, foam or dry chemical. Water should not be applied unless from a safe distance (e.g. by hoses) and in large quantities. For large fires, can use large volumes of water, as normally applied from a distance by hoses.

HAZCHEM CODE: None allocated [Aust]

### FLAMMABILITY

This material is not flammable.

## 6. ACCIDENTAL RELEASE MEASURES

All spills should be attended to immediately. Evacuate from the immediate area everyone not essential to dealing with the spill, and keep them upwind to avoid breathing vapour. Isolate the area and prevent access. Wear protective equipment to prevent skin and eye contact, as outlined under personal protection in this MSDS (see Section 8). Control the source of the leak, where possible. Ventilate area. Contain the spill to prevent further spread of material and prevent run off into drains and waterways. Use absorbent material such as wet sand, wet earth, wet sawdust or absorbent clays. These materials will not only contain the spill, but also absorb and partially neutralise the diisocyanate content of the material. Neutralise used absorbent materials and any remaining product with neutraliser (see below) and



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decontaminate all surfaces and equipment that have been in contact. Dispose of all clean-up materials in accordance with government regulations (see Section 13 of this MSDS for more details).

Neutraliser formulations include:

- (a) surfactant 1 - 20% and water to make up to 100%;
- (b) liquid surfactant 0.2 - 2%, sodium carbonate 5 - 10%, and water to make up to 100%;
- (c) liquid surfactant 0.2 - 2%, concentrated ammonia 3 - 8% and water to make up to 100%.

### 7. HANDLING AND STORAGE

Ensure there is adequate ventilation or exhaust ventilation in the working area. Exhaust ventilation is necessary if the product is sprayed. Avoid contact with skin and eyes.

Water, either as liquid or as vapour, must be rigorously excluded from the material during both handling and storage, as the product will react with water giving insoluble polyurea and liberating carbon dioxide gas. In a closed container, this could cause the container to rupture.

Store in a cool place and out of direct sunlight. Store away from sources of heat or ignition. Store away from strong oxidizing agents. Keep containers tightly closed, when not using the product. Store in original packages as approved by manufacturer. Purge with nitrogen and close container when not in use. Do not eat, drink or smoke in the workplace.

### 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:

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#### *PREPOLYMER [Dicyclohexylmethane-4,4'-diisocyanate / Polyether]*

No Exposure details available

#### *DICYCLOHEXYLMETHANE-4,4'-DIISOCYANATE*

Isocyanate exposure standards (Worksafe Australia)

[TWA] 0.02 mg/m<sup>3</sup>

[STEL] 0.07 mg/m<sup>3</sup>

Notices: Sen

#### Engineering Controls

Maintain adequate general and local exhaust ventilation at all times. If exhaust ventilation is not available or inadequate, use approved respirator to Australian Standards. Respiratory protection will be necessary when carrying out spraying operations externally, and also when spraying internally in the absence of proper spray containment and removal facilities. Respiratory protection should also be used when heating diisocyanates.

#### Personal Protection Equipment

CLOTHING: Wear suitable protective clothing to prevent risk of skin contact.

GLOVES: Wear impervious gloves to prevent risk of skin contact - butyl rubber or nitrile rubber. Contaminated gloves should be disposed of.

EYES: Wear protective eyewear, such as safety glasses with side shields, chemical goggles or face shield to protect eyes.

RESPIRATORY PROTECTION: Avoid breathing of vapours/gases. Select and use respirators in accordance with AS/NZS 1715/1716. The use of a respirator for organic vapours with (disposable) or with replaceable filters is recommended. Filter capacity and respirator type depends on exposure levels and type of contaminant. If entering spaces where the airborne concentration of a contaminant is unknown then the use of a Self-contained breathing apparatus (SCBA) with positive pressure air supply complying with AS/NZS 1715 / 1716, or any other acceptable International Standard is recommended.



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### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Water-clear liquid
<b>Boiling Point Melting Point:</b>	Not determined
<b>Vapour Pressure:</b>	Not determined
<b>Specific Gravity:</b>	1.02 @ 25°C
<b>Flash Point:</b>	> 150°C
<b>Flammability Limits:</b>	Not determined
<b>Solubility in Water:</b>	Reacts with water liberating carbon dioxide

#### Other Properties

None determined.

### 10. STABILITY AND REACTIVITY

#### STABILITY:

Stable under normal conditions of use.

#### HAZARDOUS DECOMPOSITION PRODUCTS:

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

#### HAZARDOUS POLYMERIZATION:

Will not occur under normal conditions of use.

#### INCOMPATIBILITIES:

Strong alkalis, strong acids, strong oxidizing agents, alcohols, amines, carboxylic acids and water. Reactions with amines, alcohols, acids and alkalis are exothermic. Reaction with water will form carbon dioxide, which in closed containers causes a risk of bursting due to the increase in pressure.

#### CONDITIONS TO AVOID:

Heat, flames, ignition sources, moisture and incompatibles.

### 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:

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:

Will cause irritation to the eyes, with effects including: tearing, pain, stinging and blurred vision. Depending upon duration of exposure, eye damage may occur.

##### Skin:

Will cause irritation to the skin, with effects including: redness, itchiness, and possible dermatitis.

##### Inhaled:

Toxic if inhaled.

The effects may be immediate or delayed. Mild cases: there may be a slight irritation of the nose and throat, there may be dryness of the throat, wheezing, tightness of the chest, coughing or shortness of breath. Severe cases: the victim may suffer acute bronchial irritation with difficulty in breathing, or even bronchospasm.



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### Chronic:

Prolonged or repeated contact with this substance will cause sensitisation by inhalation. Overexposure to dicyclohexylmethane-4,4'-diisocyanate can lead to adverse respiratory effects, which may include the development of asthma. Once asthma has developed and a person has become sensitised to a diisocyanate, even concentration well below the permitted exposure levels can be sufficient to induce an asthmatic attack.

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:

There is no other toxicological information available for this product.

### Toxicological Data for Ingredient(s):

DICYCLOHEXYLMETHANE-4,4'-DIISOCYANATE:

LD50 (oral, rat) > 11,000 mg/kg

LD50 (dermal, rabbit) > 10,000 mg/kg

LC50 (inhalation, rat, 4hr) = 434 mg/m<sup>3</sup> as aerosol

Concentration of the saturated vapour pressure @ 25°C = 0.22 mg/m<sup>3</sup>

Skin 24hr exposure (guinea pig) - irritation and sensitisation

Eye exposure (rabbit) - slightly irritating, reversible.

Ames test - no indication of mutagenic effects.

### Special Properties/Effects:

Over-exposure, especially during spraying operations without the necessary precautions, entails the risk of concentration-dependent irritating effects on eyes, nose, throat and respiratory tract. Delayed appearance of the complaints and development of hypersensitivity (difficult breathing, coughing, asthma) are possible. Hypersensitive persons may suffer from these effects even at low isocyanate concentrations. On the skin the product causes severe irritation and possibly sensitisation (reddening of the skin, swelling and inflammations).

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity:

There is no information available for this product.

### Ecotoxicity Data for Ingredient(s):

DICYCLOHEXYLMETHANE-4,4'-DIISOCYANATE:

Acute fish toxicity (Brachydanio rerio, 96hr): LC0 > 8.1 mg/L

Acute toxicity for Daphnia (Daphnia magna, 48hr): EC0 > 8.3 mg/L

Acute toxicity for algae (Scenedesmus subs., 72hr): EC50 > 5.0 mg/L

Acute bacteria toxicity (activate sludge micro-organism, 3hr): EC50 = 191 mg/L

### Mobility:

The product is insoluble in water and does not disperse readily. It reacts with water forming polyurea, which is solid, insoluble and stable in the environment to both chemical and biological attack.

### Persistence / Degradability:

This substance is not persistent in the environment as it reacts with water or moisture in the air. The reaction product, an inert, insoluble polyurea, is not readily degradable.

### Chemical Fate Information:

The product reacts with water at the interface forming carbon dioxide and a solid, insoluble high melting-point polyurea. This reaction is accelerated by surfactants (e.g. detergents) or by water-soluble solvents. Do not allow to escape into waters, wastewater or soil.



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### 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.

**Product Waste:** The disposal of large quantities of product should normally be undertaken only by a specialist contractor. The product may be incinerated in a suitable facility, however consult with local authorities before doing so to ensure that all local regulations are observed.

In the case of only a small quantity of product waste, the following method may be applied, with caution, by a technically competent person: The waste product is reacted with an excess of Polyol to form a foam or solid polyurethane. The product of the reaction can then be incinerated or disposed of in landfill. This process should be carried out slowly in an open drum to avoid rapid heat generation and release of gases.

**Container Disposal:** Any disposal of contaminated packaging and washings must be in accordance with State, Territory and/or Local government regulations. When containers/drums have been drained to leave as little residue as possible, either seal the drum and send it to a drum-handling specialist, or decontaminate the drum using a slow reacting water-based neutraliser (see below). Add (several centimetres of) neutraliser to the drum, slowly shake and roll to allow contact. Leave open until all reaction is completed, then dispose of drum and washings in approved manner. If the container is to be reconditioned, the reconditioning company should be made aware of the nature of the original contents.

**Neutraliser formulations:**

- (a) surfactant 1-20% and water to make up to 100%;
- (b) liquid detergent 2%, PEG400 35% and water to make up to 100%.

### 14. TRANSPORT INFORMATION

#### Road Transport

**UN Number:** None allocated

**Proper Shipping Name:** NONE ALLOCATED

**Dangerous Goods Class:** None allocated

**Packing Group:** None allocated

**Label:** Toxic (T), Irritant (Xi)

#### Air Transport

**UN Number:** 3334

**Proper Shipping Name:** AVIATION REGULATED LIQUID, N.O.S. (contains DICYCLOHEXYLMETHANE-4,4'-DIISOCYANATE)

**Dangerous Goods Class:** 9

**Packing Group:** None allocated

**Label:** Toxic (T), Irritant (Xi)

#### Sea Transport

**UN Number:** None allocated

**Proper Shipping Name:** NONE ALLOCATED

**Dangerous Goods Class:** None allocated

**Packing Group:** None allocated

**Label:** Toxic (T), Irritant (Xi)

### 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.



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### 16. OTHER INFORMATION

**Date of Preparation:**

Issue date: 14 March 2008

Supersedes: April 2006

**Reasons for Update:**

Review at section 14

**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**