



## ERAPOL EMP95A

Era Polymers Pty Ltd

Chemwatch Hazard Alert Code: 2

Version No: 5.5

Safety Data Sheet according to WHS and ADG requirements

Issue Date: 25/05/2017

Print Date: 25/05/2017

S.GHS.AUS.EN

### SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

#### Product Identifier

|                               |               |
|-------------------------------|---------------|
| Product name                  | ERAPOL EMP95A |
| Synonyms                      | Not Available |
| Other means of identification | Not Available |

#### Relevant identified uses of the substance or mixture and uses advised against

|                          |                         |
|--------------------------|-------------------------|
| Relevant identified uses | Polyurethane prepolymer |
|--------------------------|-------------------------|

#### Details of the supplier of the safety data sheet

|                         |                                       |
|-------------------------|---------------------------------------|
| Registered company name | Era Polymers Pty Ltd                  |
| Address                 | 25-27 Green Street NSW 2019 Australia |
| Telephone               | +61 (0)2 9666 3788                    |
| Fax                     | +61 (0)2 9666 4805                    |
| Website                 | www.erapol.com.au                     |
| Email                   | erapol@erapol.com.au                  |

#### Emergency telephone number

|                                   |               |
|-----------------------------------|---------------|
| Association / Organisation        | CHEMWATCH     |
| Emergency telephone numbers       | Not Available |
| Other emergency telephone numbers | Not Available |

#### CHEMWATCH EMERGENCY RESPONSE

| Primary Number | Alternative Number 1 | Alternative Number 2 |
|----------------|----------------------|----------------------|
| 1800 039 008   | 1800 039 008         | +612 9186 1132       |

Once connected and if the message is not in your preferred language then please dial 01

### SECTION 2 HAZARDS IDENTIFICATION

#### Classification of the substance or mixture

**HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS.** According to the WHS Regulations and the ADG Code.

|                               |  |
|-------------------------------|--|
| Poisons Schedule              | Not Applicable   |
| Classification <sup>[1]</sup> | Respiratory Sensitizer Category 1, Acute Toxicity (Inhalation) Category 4  |
| Legend:                       | 1. Classified by Chemwatch; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI |

#### Label elements

|                     |               |
|---------------------|---------------|
| Hazard pictogram(s) |               |
| SIGNAL WORD         | <b>DANGER</b> |

Continued...

## ERAPOL EMP95A

## Hazard statement(s)

|      |  |
|------|--|
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H332 | Harmful if inhaled.  |

## Precautionary statement(s) Prevention

|      |   |
|------|---|
| P101 | If medical advice is needed, have product container or label at hand. |
| P102 | Keep out of reach of children.  |
| P103 | Read label before use.  |
| P261 | Avoid breathing mist/vapours/spray.                                   |
| P271 | Use only outdoors or in a well-ventilated area.                       |
| P285 | In case of inadequate ventilation wear respiratory protection.        |

## Precautionary statement(s) Response

|           |  |
|-----------|--|
| P304+P340 | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. |
| P342+P311 | If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.                  |
| P312      | Call a POISON CENTER or doctor/physician if you feel unwell.                                     |

## Precautionary statement(s) Storage

Not Applicable

## Precautionary statement(s) Disposal

|      |   |
|------|---|
| P501 | Dispose of contents/container in accordance with local regulations. |
|------|---|

## SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

## Substances

See section below for composition of Mixtures

## Mixtures

| CAS No        | %[weight] | Name                                |
|---------------|-----------|-------------------------------------|
| Not Available | >99       | Polyurethane prepolymer (TDI/ETHER) |
| 26471-62-5    | <1        | <u>toluene diisocyanate</u>         |

## SECTION 4 FIRST AID MEASURES

## Description of first aid measures

|              |   |
|--------------|---|
| Eye Contact  | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with fresh running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>   |
| Skin Contact | <p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>   |
| Inhalation   | <ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor, without delay.</li> </ul> <p>Following uptake by inhalation, move person to an area free from risk of further exposure. Oxygen or artificial respiration should be administered as needed. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Treatment is essentially symptomatic. A physician should be consulted.</p> |
| Ingestion    | <ul style="list-style-type: none"> <li>▶ Immediately give a glass of water.</li> <li>▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.</li> </ul>   |

## Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Toluene diisocyanate is a known pulmonary sensitiser. Annual medical surveillance should be conducted including pulmonary history, examination of the heart and lungs, 14 x 17 inch (35 x 47 cm) x-ray and pulmonary function testing (FCV, FEV1).

In normal commercial preparations of toluene diisocyanate, the 2,4-isomer dominates in the ratio 4:1. However it is also hydrolysed, in air, more rapidly than the 2,6-isomer. Airway sensitivities may result from the appearance of immunoglobulins in the blood. Frequent inability to detect antibodies to TDI in clinical cases may result from the routine use of diagnostic antigens containing predominantly 2,4-TDI, whereas individuals may have been exposed to atmospheres in which 2,6-TDI was the predominant isomer. [Karol & Jin, Frontiers of Molecular Toxicology, pp 55-61, 1992]

## SECTION 5 FIREFIGHTING MEASURES

## Extinguishing media

- ▶ Foam.

Continued...

- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.
- ▶ Water spray or fog - Large fires only.

### Special hazards arising from the substrate or mixture

|                             |  |
|-----------------------------|--|
| <b>Fire Incompatibility</b> | ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
|-----------------------------|--|

### Advice for firefighters

|                              |  |
|------------------------------|--|
| <b>Fire Fighting</b>         | <ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear full body protective clothing with breathing apparatus.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Use water delivered as a fine spray to control fire and cool adjacent area.</li> <li>▶ Avoid spraying water onto liquid pools.</li> <li>▶ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>▶ Cool fire exposed containers with water spray from a protected location.</li> <li>▶ If safe to do so, remove containers from path of fire.</li> </ul>                         |
| <b>Fire/Explosion Hazard</b> | <ul style="list-style-type: none"> <li>▶ Combustible.</li> <li>▶ Slight fire hazard when exposed to heat or flame.</li> <li>▶ Heating may cause expansion or decomposition leading to violent rupture of containers.</li> <li>▶ On combustion, may emit toxic fumes of carbon monoxide (CO).</li> <li>▶ May emit acrid smoke.</li> <li>▶ Mists containing combustible materials may be explosive.</li> </ul> <p>Combustion products include:<br/>carbon dioxide (CO<sub>2</sub>)<br/>isocyanates<br/>and minor amounts of<br/>hydrogen cyanide<br/>other pyrolysis products typical of burning organic material.<br/>May emit poisonous fumes.<br/>May emit corrosive fumes.</p> |
| <b>HAZCHEM</b>               | Not Applicable   |

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

|                     |   |
|---------------------|---|
| <b>Minor Spills</b> | <ul style="list-style-type: none"> <li>▶ Remove all ignition sources.</li> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> <li>▶ Contain and absorb spill with sand, earth, inert material or vermiculite.</li> <li>▶ Wipe up.</li> <li>▶ Place in a suitable, labelled container for waste disposal.</li> </ul>  |
| <b>Major Spills</b> | <p>Moderate hazard.</p> <ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ No smoking, naked lights or ignition sources.</li> <li>▶ Increase ventilation.</li> <li>▶ Stop leak if safe to do so.</li> <li>▶ Contain spill with sand, earth or vermiculite.</li> <li>▶ Collect recoverable product into labelled containers for recycling.</li> <li>▶ Absorb remaining product with sand, earth or vermiculite.</li> <li>▶ Collect solid residues and seal in labelled drums for disposal.</li> <li>▶ Wash area and prevent runoff into drains.</li> <li>▶ If contamination of drains or waterways occurs, advise emergency services.</li> </ul> |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 HANDLING AND STORAGE

### Precautions for safe handling

|                      |   |
|----------------------|---|
| <b>Safe handling</b> | <ul style="list-style-type: none"> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Wear protective clothing when risk of exposure occurs.</li> <li>▶ Use in a well-ventilated area.</li> <li>▶ Prevent concentration in hollows and sumps.</li> <li>▶ <b>DO NOT enter confined spaces until atmosphere has been checked.</b></li> <li>▶ Avoid smoking, naked lights or ignition sources.</li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ When handling, <b>DO NOT eat, drink or smoke.</b></li> <li>▶ Keep containers securely sealed when not in use.</li> </ul> |
|----------------------|---|

|                          |  |
|--------------------------|--|
|                          | <ul style="list-style-type: none"> <li>▶ Avoid physical damage to containers.</li> <li>▶ Always wash hands with soap and water after handling.</li> <li>▶ Work clothes should be laundered separately.</li> <li>▶ Use good occupational work practice.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.</li> <li>▶ <b>DO NOT allow clothing wet with material to stay in contact with skin</b></li> </ul> |
| <b>Other information</b> | <p>Consider storage under inert gas.</p> <ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ No smoking, naked lights or ignition sources.</li> <li>▶ Store in a cool, dry, well-ventilated area.</li> <li>▶ Store away from incompatible materials and foodstuff containers.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul>                              |

#### Conditions for safe storage, including any incompatibilities

|                                |   |
|--------------------------------|---|
| <b>Suitable container</b>      | <ul style="list-style-type: none"> <li>▶ Metal can or drum</li> <li>▶ Packaging as recommended by manufacturer.</li> <li>▶ Check all containers are clearly labelled and free from leaks.</li> </ul>                              |
| <b>Storage incompatibility</b> | <ul style="list-style-type: none"> <li>▶ Avoid reaction with oxidising agents</li> <li>▶ <b>NOTE:</b> May develop pressure in containers; open carefully. Vent periodically.</li> <li>▶ Segregate from alcohol, water.</li> </ul> |

### SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Control parameters

##### OCCUPATIONAL EXPOSURE LIMITS (OEL)

##### INGREDIENT DATA

Not Available

##### EMERGENCY LIMITS

| Ingredient           | Material name                        | TEEL-1        | TEEL-2        | TEEL-3        |
|----------------------|--------------------------------------|---------------|---------------|---------------|
| toluene diisocyanate | Toluene diisocyanate (mixed isomers) | 0.02 ppm      | 0.083 ppm     | 0.51 ppm      |
| toluene diisocyanate | Toluene-2,4-diisocyanate; (TDI)      | Not Available | Not Available | Not Available |
| toluene diisocyanate | Toluene-2,6-diisocyanate             | Not Available | Not Available | Not Available |

| Ingredient                          | Original IDLH | Revised IDLH  |
|-------------------------------------|---------------|---------------|
| Polyurethane prepolymer (TDI/ETHER) | Not Available | Not Available |
| toluene diisocyanate                | Not Available | Not Available |

#### Exposure controls

| <b>Appropriate engineering controls</b>   | <p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <p>Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.</p> <p>An approved self contained breathing apparatus (SCBA) may be required in some situations.</p> <p>Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.</p> <table border="1" style="width: 100%;"> <thead> <tr> <th>Type of Contaminant:</th> <th>Air Speed:</th> </tr> </thead> <tbody> <tr> <td>solvent, vapours, degreasing etc., evaporating from tank (in still air).</td> <td>0.25-0.5 m/s (50-100 f/min.)</td> </tr> <tr> <td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td> <td>0.5-1 m/s (100-200 f/min.)</td> </tr> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 f/min.)</td> </tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td> <td>2.5-10 m/s (500-2000 f/min.)</td> </tr> </tbody> </table> <p>Within each range the appropriate value depends on:</p> <table border="1" style="width: 100%;"> <thead> <tr> <th>Lower end of the range</th> <th>Upper end of the range</th> </tr> </thead> <tbody> <tr> <td>1: Room air currents minimal or favourable to capture</td> <td>1: Disturbing room air currents</td> </tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only.</td> <td>2: Contaminants of high toxicity</td> </tr> <tr> <td>3: Intermittent, low production.</td> <td>3: High production, heavy use</td> </tr> </tbody> </table> | Type of Contaminant: | Air Speed: | solvent, vapours, degreasing etc., evaporating from tank (in still air). | 0.25-0.5 m/s (50-100 f/min.) | aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) | 0.5-1 m/s (100-200 f/min.) | direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion) | 1-2.5 m/s (200-500 f/min.) | grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion). | 2.5-10 m/s (500-2000 f/min.) | Lower end of the range | Upper end of the range | 1: Room air currents minimal or favourable to capture | 1: Disturbing room air currents | 2: Contaminants of low toxicity or of nuisance value only. | 2: Contaminants of high toxicity | 3: Intermittent, low production. | 3: High production, heavy use |
|---|---|----------------------|------------|--|------------------------------|---|----------------------------|--|----------------------------|--|------------------------------|------------------------|------------------------|---|---------------------------------|--|----------------------------------|----------------------------------|-------------------------------|
| Type of Contaminant:  | Air Speed:  |                      |            |  |                              |   |                            |  |                            |  |                              |                        |                        |   |                                 |  |                                  |                                  |                               |
| solvent, vapours, degreasing etc., evaporating from tank (in still air).  | 0.25-0.5 m/s (50-100 f/min.)  |                      |            |  |                              |   |                            |  |                            |  |                              |                        |                        |   |                                 |  |                                  |                                  |                               |
| aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) | 0.5-1 m/s (100-200 f/min.)  |                      |            |  |                              |   |                            |  |                            |  |                              |                        |                        |   |                                 |  |                                  |                                  |                               |
| direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)  | 1-2.5 m/s (200-500 f/min.)  |                      |            |  |                              |   |                            |  |                            |  |                              |                        |                        |   |                                 |  |                                  |                                  |                               |
| grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).  | 2.5-10 m/s (500-2000 f/min.)  |                      |            |  |                              |   |                            |  |                            |  |                              |                        |                        |   |                                 |  |                                  |                                  |                               |
| Lower end of the range  | Upper end of the range  |                      |            |  |                              |   |                            |  |                            |  |                              |                        |                        |   |                                 |  |                                  |                                  |                               |
| 1: Room air currents minimal or favourable to capture   | 1: Disturbing room air currents   |                      |            |  |                              |   |                            |  |                            |  |                              |                        |                        |   |                                 |  |                                  |                                  |                               |
| 2: Contaminants of low toxicity or of nuisance value only.  | 2: Contaminants of high toxicity  |                      |            |  |                              |   |                            |  |                            |  |                              |                        |                        |   |                                 |  |                                  |                                  |                               |
| 3: Intermittent, low production.  | 3: High production, heavy use   |                      |            |  |                              |   |                            |  |                            |  |                              |                        |                        |   |                                 |  |                                  |                                  |                               |

|                         |   |                                  |
|-------------------------|---|----------------------------------|
|                         | 4: Large hood or large air mass in motion   | 4: Small hood-local control only |
|                         | Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.   |                                  |
| Personal protection     |    |                                  |
| Eye and face protection | <ul style="list-style-type: none"> <li>▶ Safety glasses with side shields.</li> <li>▶ Chemical goggles.</li> <li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]</li> </ul>   |                                  |
| Skin protection         | See Hand protection below   |                                  |
| Hands/feet protection   | <ul style="list-style-type: none"> <li>▶ Wear chemical protective gloves, e.g. PVC.</li> <li>▶ Wear safety footwear or safety gumboots, e.g. Rubber</li> </ul> <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> <li>• frequency and duration of contact,</li> <li>• chemical resistance of glove material,</li> <li>• glove thickness and</li> <li>• dexterity</li> </ul> <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> <li>• When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>• When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>• Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.</li> <li>• Contaminated gloves should be replaced.</li> </ul> <p>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.</p> <p>It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.</p> <p>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.</p> <p>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:</p> <ul style="list-style-type: none"> <li>• Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.</li> <li>• Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential</li> </ul> <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <ul style="list-style-type: none"> <li>▶ Neoprene gloves</li> </ul> |                                  |
| Body protection         | See Other protection below  |                                  |
| Other protection        | <ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ P.V.C. apron.</li> <li>▶ Barrier cream.</li> <li>▶ Skin cleansing cream.</li> <li>▶ Eye wash unit.</li> </ul>   |                                  |
| Thermal hazards         | Not Available   |                                  |

## Recommended material(s)

### GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

ERAPOL EMP95A

| Material   | CPI |
|------------|-----|
| BUTYL      | A   |
| PE/EVAL/PE | A   |
| PVA        | A   |
| SARANEX-23 | A   |
| TEFLON     | A   |
| VITON      | A   |

## Respiratory protection

Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

| Required minimum protection factor | Maximum gas/vapour concentration present in air p.p.m. (by volume) | Half-face Respirator | Full-Face Respirator |
|------------------------------------|--|----------------------|----------------------|
| up to 10                           | 1000   | A-AUS / Class - 1    |                      |
| up to 50                           | 1000   | -                    | A-AUS / Class 1      |

|                |   |
|----------------|---|
| NATURAL RUBBER | B |
| NITRILE        | C |

|           |       |
|-----------|-------|
| up to 50  | 5000  |
| up to 100 | 5000  |
| up to 100 | 10000 |
| 100+      |       |

|           |           |
|-----------|-----------|
| Airline * | -         |
| -         | A-2       |
| -         | A-3       |
| -         | Airline** |

\* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

**NOTE:** As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

\* - Continuous Flow

\*\* - Continuous-flow or positive pressure demand.

A(All classes) = Organic vapours, B AUS or B1 = Acid gases, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 deg C)

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

|   |   |  |               |
|---|---|--|---------------|
| <b>Appearance</b>                                   | Family of products which vary in their physical properties as a result of variations in production. Data presented here is for typical family member.           |  |               |
|   | Family of products which vary in their physical properties as a result of variations in production. Data presented here is for typical family member.<br> Amber |  |               |
| <b>Physical state</b>                               | Liquid  | <b>Relative density (Water = 1)</b>            | 1.05          |
| <b>Odour</b>  | Not Available   | <b>Partition coefficient n-octanol / water</b> | Not Available |
| <b>Odour threshold</b>                              | Not Available   | <b>Auto-ignition temperature (°C)</b>          | Not Available |
| <b>pH (as supplied)</b>                             | Not Available   | <b>Decomposition temperature</b>               | Not Available |
| <b>Melting point / freezing point (°C)</b>          | Not Available   | <b>Viscosity (cSt)</b>                         | Not Available |
| <b>Initial boiling point and boiling range (°C)</b> | >300  | <b>Molecular weight (g/mol)</b>                | Not Available |
| <b>Flash point (°C)</b>                             | >200  | <b>Taste</b>                                   | Not Available |
| <b>Evaporation rate</b>                             | Not Available   | <b>Explosive properties</b>                    | Not Available |
| <b>Flammability</b>                                 | Not Applicable  | <b>Oxidising properties</b>                    | Not Available |
| <b>Upper Explosive Limit (%)</b>                    | Not Available   | <b>Surface Tension (dyn/cm or mN/m)</b>        | Not Available |
| <b>Lower Explosive Limit (%)</b>                    | Not Available   | <b>Volatile Component (%vol)</b>               | Not Available |
| <b>Vapour pressure (kPa)</b>                        | Not Available   | <b>Gas group</b>                               | Not Available |
| <b>Solubility in water (g/L)</b>                    | Reacts  | <b>pH as a solution (1%)</b>                   | Not Available |
| <b>Vapour density (Air = 1)</b>                     | Not Available   | <b>VOC g/L</b>                                 | Not Available |

## SECTION 10 STABILITY AND REACTIVITY

|   |  |
|---|--|
| <b>Reactivity</b>                         | See section 7  |
| <b>Chemical stability</b>                 | <ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul> |
| <b>Possibility of hazardous reactions</b> | See section 7  |
| <b>Conditions to avoid</b>                | See section 7  |
| <b>Incompatible materials</b>             | See section 7  |
| <b>Hazardous decomposition products</b>   | See section 5  |

## SECTION 11 TOXICOLOGICAL INFORMATION

### Information on toxicological effects

|                     |  |
|---------------------|--|
| <b>Inhaled</b>      | Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful. The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.  |
| <b>Ingestion</b>    | The material is not thought to produce adverse health effects following ingestion (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum.   |
| <b>Skin Contact</b> | This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. |
| <b>Eye</b>          | This material can cause eye irritation and damage in some persons.   |

## ERAPOL EMP95A

|                |  |
|----------------|--|
| <b>Chronic</b> | <p>Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population.</p> <p>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</p> <p>This material contains a substantial amount of polymer considered to be of low concern. These are classified under having MWs of between 1000 to 10000 with less than 25% of molecules with MWs under 1000 and less than 10% under 500; or having a molecular weight average of over 10000.</p> <p>With most allergens, removal of the offending material results in resolution of symptoms. Asthma caused by toluene diisocyanate (TDI) continues for months or even years after exposure ceases.</p> |
|----------------|--|

| <b>ERAPOL EMP95A</b> | <table border="1"> <tr> <th>TOXICITY</th> <th>IRRITATION</th> </tr> <tr> <td>Not Available</td> <td>Not Available</td> </tr> </table> | TOXICITY | IRRITATION | Not Available | Not Available |
|----------------------|---|----------|------------|---------------|---------------|
| TOXICITY             | IRRITATION  |          |            |               |               |
| Not Available        | Not Available   |          |            |               |               |

| <b>toluene diisocyanate</b>                           | <table border="1"> <tr> <th>TOXICITY</th> <th>IRRITATION</th> </tr> <tr> <td>Inhalation (mouse) LC50: 21.15 ppm/6hr<sup>[1]</sup></td> <td rowspan="3">Not Available</td> </tr> <tr> <td>Inhalation (mouse) LC50: 28.5 ppm/6hr<sup>[1]</sup></td> </tr> <tr> <td>Oral (rat) LD50: &gt;2000 mg/kg<sup>[1]</sup></td> </tr> </table> | TOXICITY | IRRITATION | Inhalation (mouse) LC50: 21.15 ppm/6hr <sup>[1]</sup> | Not Available | Inhalation (mouse) LC50: 28.5 ppm/6hr <sup>[1]</sup> | Oral (rat) LD50: >2000 mg/kg <sup>[1]</sup> |
|---|--|----------|------------|---|---------------|--|---|
| TOXICITY  | IRRITATION   |          |            |   |               |  |   |
| Inhalation (mouse) LC50: 21.15 ppm/6hr <sup>[1]</sup> | Not Available  |          |            |   |               |  |   |
| Inhalation (mouse) LC50: 28.5 ppm/6hr <sup>[1]</sup>  |  |          |            |   |               |  |   |
| Oral (rat) LD50: >2000 mg/kg <sup>[1]</sup>           |  |          |            |   |               |  |   |

**Legend:** 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.\* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

|                             |  |
|-----------------------------|--|
| <b>TOLUENE DIISOCYANATE</b> | <p>The following information refers to contact allergens as a group and may not be specific to this product.</p> <p>Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.</p> <p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.</p> <p>Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms. Some people may be genetically more prone than others, and exposure to other irritants may aggravate symptoms. Allergy causing activity is due to interactions with proteins.</p> <p>Attention should be paid to atopic diathesis, characterised by increased susceptibility to nasal inflammation, asthma and eczema.</p> <p>Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure.</p> <p>Isocyanate vapours are irritating to the airways and can cause their inflammation, with wheezing, gasping, severe distress, even loss of consciousness and fluid in the lungs. Nervous system symptoms that may occur include headache, sleep disturbance, euphoria, inco-ordination, anxiety, depression and paranoia. The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.</p> <p>Aromatic and aliphatic diisocyanates may cause airway toxicity and skin sensitization. Monomers and prepolymers exhibit similar respiratory effect. Of the several members of diisocyanates tested on experimental animals by inhalation and oral exposure, some caused cancer while others produced a harmless outcome. This group of compounds has therefore been classified as cancer-causing.</p> |
|-----------------------------|--|

|  |   |                                 |   |
|--|---|---------------------------------|---|
| <b>Acute Toxicity</b>                    | ✔ | <b>Carcinogenicity</b>          | ⊘ |
| <b>Skin Irritation/Corrosion</b>         | ⊘ | <b>Reproductivity</b>           | ⊘ |
| <b>Serious Eye Damage/Irritation</b>     | ⊘ | <b>STOT - Single Exposure</b>   | ⊘ |
| <b>Respiratory or Skin sensitisation</b> | ✔ | <b>STOT - Repeated Exposure</b> | ⊘ |
| <b>Mutagenicity</b>                      | ⊘ | <b>Aspiration Hazard</b>        | ⊘ |

**Legend:** ✘ – Data available but does not fill the criteria for classification  
 ✔ – Data available to make classification  
 ⊘ – Data Not Available to make classification

## SECTION 12 ECOLOGICAL INFORMATION

## Toxicity

| <b>ERAPOL EMP95A</b>        | <table border="1"> <tr> <th>ENDPOINT</th> <th>TEST DURATION (HR)</th> <th>SPECIES</th> <th>VALUE</th> <th>SOURCE</th> </tr> <tr> <td>Not Applicable</td> <td>Not Applicable</td> <td>Not Applicable</td> <td>Not Applicable</td> <td>Not Applicable</td> </tr> </table>  | ENDPOINT       | TEST DURATION (HR) | SPECIES        | VALUE | SOURCE | Not Applicable | Not Applicable | Not Applicable | Not Applicable | Not Applicable |      |    |           |           |   |
|-----------------------------|--|----------------|--------------------|----------------|-------|--------|----------------|----------------|----------------|----------------|----------------|------|----|-----------|-----------|---|
| ENDPOINT                    | TEST DURATION (HR)   | SPECIES        | VALUE              | SOURCE         |       |        |                |                |                |                |                |      |    |           |           |   |
| Not Applicable              | Not Applicable   | Not Applicable | Not Applicable     | Not Applicable |       |        |                |                |                |                |                |      |    |           |           |   |
| <b>toluene diisocyanate</b> | <table border="1"> <tr> <th>ENDPOINT</th> <th>TEST DURATION (HR)</th> <th>SPECIES</th> <th>VALUE</th> <th>SOURCE</th> </tr> <tr> <td>LC50</td> <td>96</td> <td>Fish</td> <td>&gt;=100mg/L</td> <td>1</td> </tr> <tr> <td>EC50</td> <td>48</td> <td>Crustacea</td> <td>=12.5mg/L</td> <td>1</td> </tr> </table> | ENDPOINT       | TEST DURATION (HR) | SPECIES        | VALUE | SOURCE | LC50           | 96             | Fish           | >=100mg/L      | 1              | EC50 | 48 | Crustacea | =12.5mg/L | 1 |
| ENDPOINT                    | TEST DURATION (HR)   | SPECIES        | VALUE              | SOURCE         |       |        |                |                |                |                |                |      |    |           |           |   |
| LC50                        | 96   | Fish           | >=100mg/L          | 1              |       |        |                |                |                |                |                |      |    |           |           |   |
| EC50                        | 48   | Crustacea      | =12.5mg/L          | 1              |       |        |                |                |                |                |                |      |    |           |           |   |

Continued...

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|      |     |                               |           |   |
|------|-----|-------------------------------|-----------|---|
| EC50 | 96  | Algae or other aquatic plants | =3230mg/L | 1 |
| EC0  | 48  | Crustacea                     | =1.6mg/L  | 1 |
| NOEC | 504 | Crustacea                     | >=0.5mg/L | 1 |

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

**DO NOT** discharge into sewer or waterways.

## Persistence and degradability

| Ingredient                          | Persistence: Water/Soil  | Persistence: Air            |
|-------------------------------------|--------------------------|-----------------------------|
| Polyurethane prepolymer (TDI/ETHER) | LOW                      | LOW                         |
| toluene diisocyanate                | LOW (Half-life = 1 days) | LOW (Half-life = 0.13 days) |

## Bioaccumulative potential

| Ingredient                          | Bioaccumulation        |
|-------------------------------------|------------------------|
| Polyurethane prepolymer (TDI/ETHER) | LOW (LogKOW = -0.2174) |
| toluene diisocyanate                | LOW (BCF = 5)          |

## Mobility in soil

| Ingredient                          | Mobility         |
|-------------------------------------|------------------|
| Polyurethane prepolymer (TDI/ETHER) | HIGH (KOC = 1)   |
| toluene diisocyanate                | LOW (KOC = 9114) |

## SECTION 13 DISPOSAL CONSIDERATIONS

## Waste treatment methods

|                                     |   |
|-------------------------------------|---|
| <b>Product / Packaging disposal</b> | <ul style="list-style-type: none"> <li>▶ Containers may still present a chemical hazard/ danger when empty.</li> <li>▶ Return to supplier for reuse/ recycling if possible.</li> </ul> <p>Otherwise:</p> <ul style="list-style-type: none"> <li>▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.</li> <li>▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product.</li> </ul> <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> <li>▶ Reduction</li> <li>▶ Reuse</li> <li>▶ Recycling</li> <li>▶ Disposal (if all else fails)</li> </ul> <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.</p> <ul style="list-style-type: none"> <li>▶ <b>DO NOT</b> allow wash water from cleaning or process equipment to enter drains.</li> <li>▶ It may be necessary to collect all wash water for treatment before disposal.</li> <li>▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>▶ Where in doubt contact the responsible authority.</li> <li>▶ Recycle wherever possible or consult manufacturer for recycling options.</li> <li>▶ Consult State Land Waste Authority for disposal.</li> <li>▶ Bury or incinerate residue at an approved site.</li> <li>▶ Recycle containers if possible, or dispose of in an authorised landfill.</li> </ul> |
|-------------------------------------|---|

## SECTION 14 TRANSPORT INFORMATION

## Labels Required

|                         |                |
|-------------------------|----------------|
| <b>Marine Pollutant</b> | NO             |
| <b>HAZCHEM</b>          | Not Applicable |

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable



## SECTION 15 REGULATORY INFORMATION

### Safety, health and environmental regulations / legislation specific for the substance or mixture

#### TOLUENE DIISOCYANATE(26471-62-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Hazardous Substances Information System - Consolidated Lists

Australia Inventory of Chemical Substances (AICS)

Australia Work Health and Safety Regulations 2016 - Hazardous chemicals (other than lead) requiring health monitoring

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

| National Inventory            | Status                   |
|-------------------------------|--------------------------|
| Australia - AICS              | Y                        |
| Canada - DSL                  | Y                        |
| Canada - NDSL                 | N (toluene diisocyanate) |
| China - IECSC                 | Y                        |
| Europe - EINEC / ELINCS / NLP | Y                        |
| Japan - ENCS                  | N (toluene diisocyanate) |
| Korea - KECI                  | Y                        |
| New Zealand - NZIoC           | Y                        |
| Philippines - PICCS           | Y                        |
| USA - TSCA                    | Y                        |

**Legend:**

Y = All ingredients are on the inventory

N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

## SECTION 16 OTHER INFORMATION

### Other information

#### Ingredients with multiple cas numbers

| Name                 | CAS No                                   |
|----------------------|--|
| toluene diisocyanate | 26471-62-5, 584-84-9, 91-08-7, 1321-38-6 |

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average

PC – STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit,

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index