



## ERAPOL EMD135/80A PART B

Era Polymers Pty Ltd

Version No: 1.1

Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 1

Issue Date: 01/04/2016

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S.GHS.AUS.EN

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

#### Product Identifier

|                               |                          |
|-------------------------------|--------------------------|
| Product name                  | ERAPOL EMD135/80A PART B |
| 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 curative |
|--------------------------|-----------------------|

#### 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   | +612 9186 1132       | Not Available        |

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

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

|                               |                |
|-------------------------------|----------------|
| Poisons Schedule              | Not Applicable |
| Classification <sup>[1]</sup> | Not Applicable |

#### Label elements

|                    |                       |
|--------------------|-----------------------|
| GHS label elements | Not Applicable        |
| SIGNAL WORD        | <b>NOT APPLICABLE</b> |

#### Hazard statement(s)

Not Applicable

Continued...

## ERAPOL EMD135/80A PART B

**Precautionary statement(s) Prevention**

|             |   |
|-------------|---|
| <b>P101</b> | If medical advice is needed, have product container or label at hand. |
| <b>P102</b> | Keep out of reach of children.  |
| <b>P103</b> | Read label before use.  |

**Precautionary statement(s) Response**

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS****Substances**

See section below for composition of Mixtures

**Mixtures**

| CAS No        | %[weight] | Name                               |
|---------------|-----------|------------------------------------|
| 110-63-4      | <10       | <u>1,4-butylene glycol</u>         |
| Not Available | to 100    | All other substances non hazardous |

**SECTION 4 FIRST AID MEASURES****Description of first aid measures**

|                     |  |
|---------------------|--|
| <b>Eye Contact</b>  | <p>If this product comes in contact with eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with water.</li> <li>▶ If irritation continues, seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul> |
| <b>Skin Contact</b> | <p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>   |
| <b>Inhalation</b>   | <ul style="list-style-type: none"> <li>▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area.</li> <li>▶ Other measures are usually unnecessary.</li> </ul>  |
| <b>Ingestion</b>    | <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.

**SECTION 5 FIREFIGHTING MEASURES****Extinguishing media**

- ▶ Foam.
- ▶ 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 acid smoke.</li> <li>▶ Mists containing combustible materials may be explosive.</li> </ul> <p>Combustion products include; carbon dioxide (CO<sub>2</sub>) other pyrolysis products typical of burning organic material/May emit poisonous fumes.</p>   |

## ERAPOL EMD135/80A PART B

## SECTION 6 ACCIDENTAL RELEASE MEASURES

## Personal precautions, protective equipment and emergency procedures

|                     |   |
|---------------------|---|
| <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>▶ <b>DO NOT allow material to contact humans, exposed food or food utensils.</b></li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ <b>When handling, DO NOT eat, drink or smoke.</b></li> <li>▶ Keep containers securely sealed when not in use.</li> <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. Launder contaminated clothing before re-use.</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 are maintained.</li> </ul> |
| <b>Other information</b> | <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> </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    |
|------------------------------------|---|---------------|-----------|-----------|
| 1,4-butylene glycol                | Butanediol, 1,4-; (1,4-Tetramethylene glycol) | 0.22 mg/m3    | 2.5 mg/m3 | 150 mg/m3 |
| Ingredient                         | Original IDLH                                 | Revised IDLH  |           |           |
| 1,4-butylene glycol                | Not Available                                 | Not Available |           |           |
| All other substances non hazardous | Not Available                                 | Not Available |           |           |

Continued...

## ERAPOL EMD135/80A PART B

## Exposure controls

| <p><b>Appropriate engineering controls</b></p>  | <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>General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. 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" data-bbox="363 524 1489 779"> <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" data-bbox="363 860 1489 1025"> <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> <tr> <td>4: Large hood or large air mass in motion</td> <td>4: Small hood - local control only</td> </tr> </tbody> </table> <p>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.</p> | 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 |
|---|---|----------------------|------------|---|-----------------------------|---|----------------------------|--|---------------------------|--|------------------------------|------------------------|------------------------|---|---------------------------------|---|----------------------------------|----------------------------------|-------------------------------|---|------------------------------------|
| 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  |                      |            |   |                             |   |                            |  |                           |  |                              |                        |                        |   |                                 |   |                                  |                                  |                               |   |                                    |
| <p><b>Personal protection</b></p>   |    |                      |            |   |                             |   |                            |  |                           |  |                              |                        |                        |   |                                 |   |                                  |                                  |                               |   |                                    |
| <p><b>Eye and face protection</b></p>   | <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>  |                      |            |   |                             |   |                            |  |                           |  |                              |                        |                        |   |                                 |   |                                  |                                  |                               |   |                                    |
| <p><b>Skin protection</b></p>   | <p>See Hand protection below</p>  |                      |            |   |                             |   |                            |  |                           |  |                              |                        |                        |   |                                 |   |                                  |                                  |                               |   |                                    |
| <p><b>Hands/feet protection</b></p>   | <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>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>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> <li>▶ Wear chemical protective gloves, e.g. PVC.</li> <li>▶ Wear safety footwear or safety gumboots, e.g. Rubber</li> </ul>  |                      |            |   |                             |   |                            |  |                           |  |                              |                        |                        |   |                                 |   |                                  |                                  |                               |   |                                    |
| <p><b>Body protection</b></p>   | <p>See Other protection below</p>   |                      |            |   |                             |   |                            |  |                           |  |                              |                        |                        |   |                                 |   |                                  |                                  |                               |   |                                    |
| <p><b>Other protection</b></p>  | <ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ P.V.C. apron.</li> <li>▶ Barrier cream.</li> </ul>  |                      |            |   |                             |   |                            |  |                           |  |                              |                        |                        |   |                                 |   |                                  |                                  |                               |   |                                    |

## ERAPOL EMD135/80A PART B

|                        |   |
|------------------------|---|
|                        | <ul style="list-style-type: none"> <li>▶ Skin cleansing cream.</li> <li>▶ Eye wash unit.</li> </ul> |
| <b>Thermal hazards</b> | 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 EMD135/80A PART B

| Material | CPI |
|----------|-----|
| BUTYL    | A   |
| NITRILE  | A   |

\* 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.

**Respiratory protection**

Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator  |
|------------------------------------|----------------------|----------------------|-------------------------|
| up to 10 x ES                      | A-AUS P2             | -                    | A-PAPR-AUS / Class 1 P2 |
| up to 50 x ES                      | -                    | A-AUS / Class 1 P2   | -                       |
| up to 100 x ES                     | -                    | A-2 P2               | A-PAPR-2 P2 ^           |

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, 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 degC)

**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.<br> <br>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> Cloudy liquid |  |               |
| <b>Physical state</b>                               | Liquid  | <b>Relative density (Water = 1)</b>            | 1.01          |
| <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> | Not Available   | <b>Molecular weight (g/mol)</b>                | Not Available |
| <b>Flash point (°C)</b>                             | Not Available   | <b>Taste</b>                                   | Not Available |
| <b>Evaporation rate</b>                             | Not Available   | <b>Explosive properties</b>                    | Not Available |
| <b>Flammability</b>                                 | Not Available   | <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>                    | Immiscible  | <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**

## ERAPOL EMD135/80A PART B

## Information on toxicological effects

|              |  |
|--------------|--|
| Inhaled      | The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.  |
| Ingestion    | The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.   |
| Skin Contact | The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives .<br>Open cuts, abraded or irritated skin should not be exposed to this material<br>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. |
| Eye          | Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).   |
| Chronic      | Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.<br>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.<br>There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.      |

|                          |   |               |
|--------------------------|---|---------------|
| ERAPOL EMD135/80A PART B | TOXICITY                                      | IRRITATION    |
|                          | Not Available                                 | Not Available |
| 1,4-butylene glycol      | TOXICITY                                      | IRRITATION    |
|                          | dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup> | Nil reported  |
|                          | Oral (rat) LD50: 1350 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

|                     |   |
|---------------------|---|
| 1,4-BUTYLENE GLYCOL | <p>Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. 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. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production. for 1,4-butylene glycol (syn: 1,4-butanediol)</p> <p><b>Acute toxicity:</b> Acute lethal toxicity of 1,4-butylene glycol is low via all administration routes. Major toxicity by oral administration is respiratory failure and catalepsy. This chemical is a slight irritant to the skin, eyes and respiratory tract, but not a skin sensitizer. As 1,4-butylene glycol is rapidly absorbed and metabolized to gamma-hydroxybutyric acid in animals and humans, neurotoxic effect of 1,4-butylene glycol such as depression of central nervous system is considered to be caused by the metabolite, gamma-hydroxybutyric acid. 1,4-Butylene glycol seems to show a competitive inhibition of alcohol dehydrogenase and increases the toxic effect of alcohol.</p> <p><b>Repeat dose toxicity:</b> In an OECD combined repeat dose and reproductive/developmental screening toxicity test (OECD TG 422), rats were administered by gavage at doses of 200, 400 and 800 mg/kg/day for 45 days in males and from 14 days before mating to day 3 of lactation in females. Neurobehavioral toxicity (i.e. hyperactivity and coma after hypoactivity and recumbency) and pathological changes (diffuse transitional epithelial hyperplasia and fibrosis in the lamina propria of the urinary bladder) were observed. The transient hyperactivity only just after administration was observed at the lowest dose of 200 mg/kg/day. This neurotoxicity in dams was also observed in developmental toxicity study of mice at doses of 300 and 600 mg/kg/day by gavage during gestational days 6-15 but not at 100 mg/kg/day. This study was conducted by NTP test guideline under GLP.</p> <p>Therefore NOAEL of 100 mg/kg/day for oral repeated toxicity is sufficiently reliable.</p> <p>In a 2 week inhalation rat study at 1.1 g/m<sup>3</sup> (6 hours/day, 5 days/week), no changes including neurotoxicity were observed. Therefore, 1.1 g/m<sup>3</sup> was considered to be inhalation NOAEL. Repeated intraperitoneal administration induced narcotic effect at more than 500 mg/kg/day, but NOAEL was not established. From repeated dose studies, it is evident that critical effect is neurotoxicity. However, the nature of the data does not allow for the identification of the dose-response and NOAEL for this effect.</p> <p><b>Reproductive toxicity:</b> A reduction in foetal body weight of rats was observed in the above OECD combined repeat dose and reproductive/developmental screening toxicity test (OECD TG 422) but this effect was considered to be secondary to maternal toxicity. NOAEL for reproductive toxicity is the highest dose of 800 mg/kg/day.</p> <p><b>Developmental toxicity:</b> In the developmental toxicity study of mice at 100, 300 and 600 mg/kg/day described above, the only definitive expression of developmental toxicity was a reduction in average foetal body weight at doses of 300 and 600 mg/kg/day (92% and 83% of control weight, respectively). However, this effect against foetal development was considered to be secondary to maternal toxicity. No teratogenicity was observed at any doses. Thus, 600 mg/kg/day is the developmental NOAEL.</p> <p><b>Genotoxicity</b> of this chemical may be negative because of neither bacterial mutation in <i>S. Typhimurium</i> TA100, TA98, TA1535, TA1537, and <i>E.coli</i> WP2 uvrA with and without metabolic activation (OECD TG 471 and 472), nor chromosomal aberration in vitro in CHL/IU cells with or without metabolic activation system OECD TG (473).</p> |
|---------------------|---|

|                                   |   |                          |   |
|-----------------------------------|---|--------------------------|---|
| Acute Toxicity                    | ☐ | Carcinogenicity          | ☐ |
| Skin Irritation/Corrosion         | ☐ | Reproductivity           | ☐ |
| Serious Eye Damage/Irritation     | ☐ | STOT - Single Exposure   | ☐ |
| Respiratory or Skin sensitisation | ☐ | STOT - Repeated Exposure | ☐ |
| Mutagenicity                      | ☐ | Aspiration Hazard        | ☐ |

**Legend:** ✗ - Data available but does not fill the criteria for classification  
✔ - Data required to make classification available

Continued...

## ERAPOL EMD135/80A PART B

 - Data Not Available to make classification

## SECTION 12 ECOLOGICAL INFORMATION

## Toxicity

| Ingredient          | Endpoint | Test Duration (hr) | Species                       | Value    | Source |
|---------------------|----------|--------------------|-------------------------------|----------|--------|
| 1,4-butylene glycol | EC10     | 96                 | Algae or other aquatic plants | =76mg/L  | 1      |
| 1,4-butylene glycol | LC50     | 96                 | Fish                          | >100mg/L | 2      |
| 1,4-butylene glycol | EC50     | 48                 | Crustacea                     | >500mg/L | 2      |
| 1,4-butylene glycol | NOEC     | 504                | Crustacea                     | >85mg/L  | 2      |
| 1,4-butylene glycol | EC50     | 72                 | Algae or other aquatic plants | >500mg/L | 2      |

## Legend:

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - 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 |
|---------------------|-------------------------|------------------|
| 1,4-butylene glycol | LOW                     | LOW              |

## Bioaccumulative potential

| Ingredient          | Bioaccumulation      |
|---------------------|----------------------|
| 1,4-butylene glycol | LOW (LogKOW = -0.83) |

## Mobility in soil

| Ingredient          | Mobility       |
|---------------------|----------------|
| 1,4-butylene glycol | HIGH (KOC = 1) |

## SECTION 13 DISPOSAL CONSIDERATIONS

## Waste treatment methods

|                                     |   |
|-------------------------------------|---|
| <b>Product / Packaging disposal</b> | <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 allow wash water from cleaning or process equipment to enter drains.</b></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

Continued...

## ERAPOL EMD135/80A PART B

**1,4-BUTYLENE GLYCOL(110-63-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

## Australia Inventory of Chemical Substances (AICS)

| National Inventory            | Status   |
|-------------------------------|--|
| Australia - AICS              | Y  |
| Canada - DSL                  | Y  |
| Canada - NDSL                 | N (1,4-butylene glycol)  |
| China - IECSC                 | Y  |
| Europe - EINEC / ELINCS / NLP | Y  |
| Japan - ENCS                  | Y  |
| Korea - KECI                  | Y  |
| New Zealand - NZIoC           | Y  |
| Philippines - PICCS           | Y  |
| USA - TSCA                    | Y  |
| <b>Legend:</b>                | Y = All ingredients are on the inventory<br>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                           |
|---------------------|----------------------------------|
| 1,4-butylene glycol | 110-63-4, 38274-25-8, 74829-49-5 |

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.

A list of reference resources used to assist the committee may be found at:  
[www.chemwatch.net](http://www.chemwatch.net)

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