1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name: DESMODUR RE
Synonym(s): NSN: XXXX-66-133-0441

553577 - MATERIAL NUMBER (FORMERLY) • BAYER DESMODUR RE • DESMODUR RE (FORMERLY BAYER AUSTRALIA LIMITED) • DESMODUR R-E (FORMERLY)

1.2 Uses and uses advised against

Use(s): INDUSTRIAL APPLICATIONS • RAW MATERIAL

1.3 Details of the supplier of the safety data sheet

Supplier name: BAYER AUSTRALIA LTD (MATERIAL SCIENCE)
Address: 17 - 19 Wangara Drive, Cheltenham, VIC, Australia, 3192
Telephone: +61 3 9581 9888
Fax: +61 3 9583 9003
Email: productsafety@bayerbms.com

1.4 Emergency telephone number(s)

Emergency: 1800 033 111

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

GHS Classification(s):
- Flammable Liquids: Category 2
- Skin Corrosion/Irritation: Category 2
- Skin Sensitisation: Category 1
- Serious Eye Damage / Eye Irritation: Category 2A
- Acute Toxicity: Inhalation: Category 4
- Respiratory Sensitisation: Category 1
- Specific Target Organ Systemic Toxicity (Single Exposure): Category 3

2.2 Label elements

Signal word: DANGER

Pictograms:

Hazard statement(s):
- H225: Highly flammable liquid and vapour.
- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H319: Causes serious eye irritation.
- H332: Harmful if inhaled.
- H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H335: May cause respiratory irritation.
- H336: May cause drowsiness or dizziness.

Prevention statement(s):
- P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P233: Keep container tightly closed.
- P240: Ground/bond container and receiving equipment.
**Product name**  
**DESMODUR RE**

- **P241** Use explosion-proof electrical/ventilating/lighting equipment.
- **P243** Take precautionary measures against static discharge.
- **P261** Avoid breathing dust/fume/gas/mist/vapours/spray.
- **P264** Wash thoroughly after handling.
- **P271** Use only outdoors or in a well-ventilated area.
- **P272** Contaminated work clothing should not be allowed out of the workplace.
- **P280** Wear protective gloves/protective clothing/eye protection/face protection.
- **P285** In case of inadequate ventilation wear respiratory protection.

**Response statement(s)**

- **P303 + P361 + P353** IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- **P304 + P340** IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
- **P305 + P351 + P338** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- **P312** Call a POISON CENTER or doctor/physician if you feel unwell.
- **P321** Specific treatment is advised - see first aid instructions.
- **P333 + P313** If skin irritation or rash occurs: Get medical advice/attention.
- **P337 + P313** If eye irritation persists: Get medical advice/attention.
- **P342 + P311** If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
- **P362** Take off contaminated clothing and wash before re-use.
- **P370 + P378** In case of fire: Use appropriate media for extinction.

**Storage statement(s)**

- **P403 + P233 + P235** Store in a well-ventilated place. Keep cool. Keep container tightly closed.
- **P405** Store locked up.

**Disposal statement(s)**

- **P501** Dispose of contents/container in accordance with relevant regulations.

### 2.3 Other Hazards
No information provided.

### 3. COMPOSITION/ INFORMATION ON INGREDIENTS

#### 3.1 Substances / Mixtures

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS number</th>
<th>EC number</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETHYL ACETATE</td>
<td>141-78-6</td>
<td>205-500-4</td>
<td>70%</td>
</tr>
<tr>
<td>CHLOROBENZENE</td>
<td>108-90-7</td>
<td>203-628-5</td>
<td>&lt;2.5%</td>
</tr>
<tr>
<td>DIPHENYL METHANE DIISOCYANATE (MDI)</td>
<td>101-68-8</td>
<td>202-966-0</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>PHENYL ISOCYANATE</td>
<td>103-71-9</td>
<td>203-137-6</td>
<td>&lt;0.05%</td>
</tr>
<tr>
<td>TRIPHENYL METHANE-4,4',4-TRISOCYANATE</td>
<td>2422-91-5</td>
<td>219-351-8</td>
<td>27%</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

**Eye**  
If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

**Inhalation**  
If inhaled, remove from contaminated area. To protect rescuer, use a Type A (Organic vapour) respirator or an Air-line respirator (in poorly ventilated areas). Apply artificial respiration if not breathing.

**Skin**  
If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

**Ingestion**  
For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

**First aid facilities**  
Eye wash facilities and safety shower should be available.

#### 4.2 Most important symptoms and effects, both acute and delayed

May cause sensitisation by inhalation and skin contact. Individuals with pre-existing respiratory impairment (eg asthmatics) or known...
Product name: DESMODUR RE

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media
Dry agent, carbon dioxide or foam. Prevent contamination of drains and waterways.

5.2 Special hazards arising from the substance or mixture
Highly flammable. May evolve toxic gases (carbon/ nitrogen oxides, isocyanates, cyanides, hydrocarbons) when heated to decomposition. Vapour may form explosive mixtures with air. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, pilot lights, heaters, naked lights, mobile phones, etc when handling. Earth containers when dispensing fluids.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
- Alcohol Resistant Foam is the preferred firefighting medium. Else use;
  - Y Risk of violent reaction or explosion. Wear full fire kit and breathing apparatus. Contain spill and run-off.
  - E Evacuation of people in and around the immediate vicinity of the incident should be considered.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Ventilate area where possible. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then cover / absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal. Eliminate all sources of ignition.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills. Large storage areas should have appropriate ventilation and fire protection systems.

7.3 Specific end use(s)
No information provided.
8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>TWA</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ppm</td>
<td>mg/m³</td>
</tr>
<tr>
<td>Chlorobenzene</td>
<td>SWA (AUS)</td>
<td>10</td>
<td>46</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>SWA (AUS)</td>
<td>200</td>
<td>720</td>
</tr>
<tr>
<td>Isocyanates, all (as-NCO)</td>
<td>SWA (AUS)</td>
<td>--</td>
<td>0.02</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>TWA</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ppm</td>
<td>mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>--</td>
<td>0.07</td>
</tr>
</tbody>
</table>

Biological limits

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Reference</th>
<th>Determinant</th>
<th>Sampling time</th>
<th>BEI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHLOROBENZENE</td>
<td>ACGIH BEI</td>
<td>Total 4-chlorocatechol in urine (with hydrolysis)</td>
<td>End of shift at end of workweek</td>
<td>100 mg/g creatinine</td>
</tr>
<tr>
<td></td>
<td>ACGIH BEI</td>
<td>Total p-chlorophenol in urine (with hydrolysis)</td>
<td>End of shift at end of workweek</td>
<td>20 mg/g creatinine</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Engineering Controls
Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended. Flammable/explosive vapours may accumulate in poorly ventilated areas. Vapours are heavier than air and may travel some distance to an ignition source and flash back. Maintain vapour levels below the recommended exposure standard.

PPE
- Eye/Face: Wear splash-proof goggles.
- Hand: Wear butyl or PVA or viton (R) gloves.
- Body: Wear coveralls. If spraying, with prolonged use, or if in confined areas, wear impervious coveralls.
- Respiratory: Wear a Type A (Organic vapour) respirator. If sanding dry product, wear a Class P1 (Particulate) respirator. If spraying, with prolonged use, or if in confined areas, wear an Air-line respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>GREEN LIQUID</td>
</tr>
<tr>
<td>Odour</td>
<td>AROMATIC ODOUR</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>pH</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Melting Point</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>77°C (Approximately)</td>
</tr>
<tr>
<td>Flash Point</td>
<td>-4°C (Approximately)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Flammability</td>
<td>HIGHLY FLAMMABLE</td>
</tr>
<tr>
<td>Upper Explosion Limit</td>
<td>11.5 % (ethyl acetate)</td>
</tr>
<tr>
<td>Lower Explosion Limit</td>
<td>2.2 % (ethyl acetate)</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>97 hPa @ 20°C (Approximately)</td>
</tr>
<tr>
<td>Vapour Density</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>REACTS</td>
</tr>
</tbody>
</table>
Product name: DESMODUR RE

Partition Coefficient: NOT AVAILABLE
Autoignition Temperature: 460°C (Approximately)
Decomposition Temperature: NOT AVAILABLE
Viscosity: 3 mPa·s @ 20°C (Approximately)
Explosive Properties: NOT AVAILABLE
Oxidising Properties: NOT AVAILABLE
Specific Gravity: 1.0 (Approximately)

9.2 Other information
No information provided.

10. STABILITY AND REACTIVITY

10.1 Reactivity
Carefully review all information in sections 10.2 to 10.6.

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization will not occur.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials
Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), alkalies (e.g. sodium hydroxide), alcohols, amines, heat and ignition sources. Reacts with water or moisture, generating carbon dioxide, which may cause container rupture.

10.6 Hazardous decomposition products
May evolve toxic gases (carbon/nitrogen oxides, isocyanates, cyanides, hydrocarbons) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Health Hazard
Summary
No information provided.

ETHYL ACETATE (141-78-6)
LC50 (Inhalation): 1600 ppm/8hrs (rat)
LCLo (Inhalation): 77 mg/m³/1hr (guinea pig)
LD50 (Ingestion): 4100 mg/kg (mouse)
LD50 (Intraperitoneal): 709 mg/kg (mouse)
LD50 (Subcutaneous): 3000 mg/kg (guinea pig)
TClO (Inhalation): 400 ppm (human)

CHLOROBENZENE (108-90-7)
LC50 (Inhalation): 2965 ppm (rat)
LCLo (Inhalation): 15000 mg/m³ (mouse)
LD50 (Ingestion): 1100 mg/kg (rat)
LD50 (Intraperitoneal): 515 mg/kg (mouse)
LDLo (Intraperitoneal): 4100 mg/kg (guinea pig)

DIPHENYLMETHANE DlISOCYANATE (MDI) (101-68-8)
LC50 (Inhalation): 178 mg/m³ (rat)
12. ECOLOGICAL INFORMATION

12.1 Toxicity
No information provided.

12.2 Persistence and degradability
No information provided.

12.3 Bioaccumulative potential
No information provided.

12.4 Mobility in soil
No information provided.

12.5 Results of PBT and vPvB assessment
No information provided.

12.6 Other adverse effects
Isocyanates will react with water producing carbon dioxide and forming a solid mass (polyurea) which is insoluble. Product will not accumulate or biomagnify in the environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Waste disposal
For small amounts, absorb with sand, vermiculite or similar and dispose of to an approved landfill site. For large quantities, contact the manufacturer/supplier for additional information. Prevent contamination of drains and waterways as aquatic life may be threatened and environmental damage may result.

Legislation
Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

<table>
<thead>
<tr>
<th>Land Transport (ADG)</th>
<th>Sea Transport (IMDG/IMO)</th>
<th>Air Transport (IATA/ICAO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>1993</td>
<td>1993</td>
</tr>
</tbody>
</table>

14.1 UN number
14.2 UN proper shipping name
FLAMMABLE LIQUID, N.O.S. (contains Ethyl Acetate, Monochlorobenzene)
Product name: DESMODUR RE

14.3 Transport hazard classes

<table>
<thead>
<tr>
<th>DG Class</th>
<th>Risk(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>None Allocated</td>
</tr>
</tbody>
</table>

14.4 Packing group

<table>
<thead>
<tr>
<th>Packing Group</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>II</td>
</tr>
</tbody>
</table>

14.5 Environmental hazards

None Allocated

14.6 Special precautions for user

Hazchem Code: 3YE
EMS: F-E, S-E

15. REGULATORY INFORMATION

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

Poison schedule: Classified as a Schedule 6 Poison using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).
Classifications:
- F - Flammable
- Xi - Irritant
- Xn - Harmful

Risk phrases:
- R11: Highly flammable.
- R20: Harmful by inhalation.
- R36/37/38: Irritating to eyes, respiratory system and skin.
- R42/43: May cause sensitisation by inhalation and skin contact.
- R67: Vapours may cause drowsiness and dizziness.

Safety phrases:
- S16: Keep away from sources of ignition - No smoking.
- S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S33: Take precautionary measures against static discharges.

WHS regulatory information

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>CAS number</th>
<th>Regulation</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIPHENYL METHANE DIISOCYANATE (MDI)</td>
<td>101-68-8</td>
<td>Schedule 14 - Health Monitoring</td>
<td>Isocyanates</td>
</tr>
<tr>
<td>PHENYL ISOCYANATE</td>
<td>103-71-9</td>
<td>Schedule 14 - Health Monitoring</td>
<td>Isocyanates</td>
</tr>
<tr>
<td>TRIPHENYL METHANE-4,4',4'-TRIISOCYANATE</td>
<td>2422-91-5</td>
<td>Schedule 14 - Health Monitoring</td>
<td>Isocyanates</td>
</tr>
</tbody>
</table>

Inventory listing(s): AUSTRALIA: AICS (Australian Inventory of Chemical Substances)

All components are listed on AICS, or are exempt.

15.2 Chemical safety assessment

No information provided.

16. OTHER INFORMATION

Additional information:

Spillage decontaminants for isocyanates: For TDI or HMDI, use a mixture of sawdust (20%), silica sand (or china clay or Fuller's Earth) (40%) and a breakdown solution (40%). The breakdown solution is made up of water (90%), non-ionic surfactant (2%) and concentrated ammonia (8% v/v). For spillage of any other isocyanate a solid absorbent of silica sand or sawdust may be used.

EPOXY - PHENOXY RESINS AND POLYURETHANES: Where spray painting with two or more component epoxy resins or polyurethane paints is undertaken, an employee shall wear a full face air-line respirator, full length chemically resistant coveralls and gloves. Further, if an individual is to enter an enclosed booth where a vapour or gas curing process is occurring, an air-line respirator is required. Once cured, these resins are considered non toxic.
Product name: DESMODUR RE

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Abbreviations
- ACGIH: American Conference of Governmental Industrial Hygienists
- CAS #: Chemical Abstract Service number - used to uniquely identify chemical compounds
- CNS: Central Nervous System
- EC No.: EC No - European Community Number
- EMS: Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
- GHS: Globally Harmonized System
- GTEPG: Group Text Emergency Procedure Guide
- IARC: International Agency for Research on Cancer
- LC50: Lethal Concentration, 50% / Median Lethal Concentration
- LD50: Lethal Dose, 50% / Median Lethal Dose
- mg/m³: Milligrams per Cubic Metre
- OEL: Occupational Exposure Limit
- pH: relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
- ppm: Parts Per Million
- STEL: Short-Term Exposure Limit
- STOT-RE: Specific target organ toxicity (repeated exposure)
- STOT-SE: Specific target organ toxicity (single exposure)
- SUSMP: Standard for the Uniform Scheduling of Medicines and Poisons
- SWA: Safe Work Australia
- TLV: Threshold Limit Value
- TWA: Time Weighted Average

Report Status
This ChemAlert report has been independently compiled by RMT’s scientific department utilising the original Safety Data Sheet ("SDS") for the product provided to RMT by the manufacturer. The information is based on the latest chemical and toxicological research and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. It is an independent collation by RMT of information obtained from the original SDS for this product. Its content has not been authorised or verified by the manufacturer / distributor of the chemical to which it relates.

This ChemAlert report does not constitute the manufacturer's original SDS and is not intended to be a replacement for same. It is provided to subscribers of ChemAlert as a reference tool only, is not all-inclusive and does not represent any guarantee as to the properties of the product. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this ChemAlert report, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this ChemAlert report.
This report was compiled based on the SDS dated 29 Jan 2014