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)
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...
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
- 3YE
  - Alcohol Resistant Foam is the preferred firefighting medium. Else use;
  - Normal Foam (protein based foam that is not alcohol resistant).
  - Risk of violent reaction or explosion. Wear full fire kit and breathing apparatus. Contain spill and run-off.
  - 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

<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>

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

**Appearance**  GREEN LIQUID

**Odour**  AROMATIC ODOUR

**Odour Threshold**  NOT AVAILABLE

**pH**  NOT AVAILABLE

**Melting Point**  NOT AVAILABLE

**Boiling Point**  77°C (Approximately)

**Flash Point**  -4°C (Approximately)

**Evaporation Rate**  NOT AVAILABLE

**Flammability**  HIGHLY FLAMMABLE

**Upper Explosion Limit**  11.5 % (ethyl acetate)

**Lower Explosion Limit**  2.2 % (ethyl acetate)

**Vapour Pressure**  97 hPa @ 20°C (Approximately)

**Vapour Density**  NOT AVAILABLE

**Solubility (water)**  REACTS
Product name: **DESMODUR RE**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partition Coefficient</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>460°C (Approximately)</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Viscosity</td>
<td>3 mPa·s @ 20°C (Approximately)</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Oxidising Properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.0 (Approximately)</td>
</tr>
</tbody>
</table>

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), alkalis (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.

- No information provided.
- No information provided.
- No information provided.
- 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)

**DIPHENYL METHANE DIISOCYANATE (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

Land Transport (ADG) Sea Transport (IMDG/IMO) Air Transport (IATA/ICAO)

14.1 UN number 1993 1993 1993

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

14.3 Transport hazard classes

DG Class: 3 3 3
Subsidiary risk(s): None Allocated

14.4 Packing group

Packing group II II II

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.

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.
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.