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

Website http://www.bayer.com.au/scripts/pages/en/index.php

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

Ingredient	CAS number	EC number	Content
ETHYL ACETATE	141-78-6	205-500-4	70%
CHLOROBENZENE	108-90-7	203-628-5	<2.5%
DIPHENYLMETHANE DIISOCYANATE (MDI)	101-68-8	202-966-0	<0.1%
PHENYL ISOCYANATE	103-71-9	203-137-6	<0.05%
TRIPHENYLMETHANE-4,4',4-TRIISOCYANATE	2422-91-5	219-351-8	27%

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

sensitivities to isocyanates should avoid exposure.

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

•3YE

•	Alcohol Resistant Foam is the preferred firefighting medium. Else use;
3	Normal Foam (protein based foam that is not alcohol resistant).
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.

Product name **DESMODUR RE**

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Substance	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Chlorobenzene	SWA (AUS)	10	46	--	--
Ethyl acetate	SWA (AUS)	200	720	400	1440
Isocyanates, all (as-NCO)	SWA (AUS)	--	0.02	--	0.07

Biological limits

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

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**

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), 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)
DIPHENYLMETHANE DIISOCYANATE (MDI) (101-68-8)
LC50 (Inhalation): 178 mg/m³ (rat)

Product name **DESMODUR RE**

LD50 (Ingestion): 2200 mg/kg (mouse)
LDLo (Ingestion): 10700 mg/kg (mouse)
TCLo (Inhalation): 130 ppb/30 minutes (human)
PHENYL ISOCYANATE (103-71-9)
LC50 (Inhalation): 22 mg/m³/4H (rat)
LD50 (Ingestion): 196 mg/kg (mouse)
LD50 (Skin): 7130 mg/kg (rabbit)
TCLo (Inhalation): 500 ppm/6 hour/3 weeks-intermittent (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	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.

WHS regulatory information

Ingredient name	CAS number	Regulation	Details
DIPHENYLMETHANE DIISOCYANATE (MDI)	101-68-8	Schedule 14 - Health Monitoring	Isocyanates
PHENYL ISOCYANATE	103-71-9	Schedule 14 - Health Monitoring	Isocyanates
TRIPHENYLMETHANE-4,4',4-TRIISOCYANATE	2422-91-5	Schedule 14 - Health Monitoring	Isocyanates

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.

Product name **DESMODUR RE**

Prepared By Risk Management Technologies
5 Ventnor Ave, West Perth
Western Australia 6005
Phone: +61 8 9322 1711
Fax: +61 8 9322 1794
Email: info@rmt.com.au
Web: www.rmt.com.au

Last Reviewed: 13 May 2016
Date Printed: 20 Oct 2016
Based on SDS dated: 29 Jan 2014

End of Report