



GREENLINK SB401 ISOCYANATE

Era Polymers Pty Ltd

Chemwatch Hazard Alert Code: 4

Version No: 3.3
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: 08/04/2014
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Initial Date: 01/08/2014
S.GHS.USA.EN

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

Product Identifier

Product name	GREENLINK SB401 ISOCYANATE
Synonyms	Not Available
Proper shipping name	Isocyanates, toxic, n.o.s. or Isocyanate solutions, toxic, n.o.s., flash point more than 61 degrees C and boiling point less than 300 degrees C (contains toluene diisocyanate)
Other means of identification	Not Available

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

Relevant identified uses	Polyurethane foam polyol
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Details of the manufacturer/importer

Registered company name	Era Polymers Pty Ltd
Address	25-27 Green Street 2019 NSW 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
877 715 9305	+612 9186 1132	Not Available

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

Una vez conectado y si el mensaje no está en su idioma preferido, por favor marque 02

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	1	2
Toxicity	4	4
Body Contact	2	2
Reactivity	1	1
Chronic	2	2

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme



GHS Classification	Acute Toxicity (Inhalation) Category 1, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Respiratory Sensitizer Category 1, Skin Sensitizer Category 1, Carcinogen Category 2, STOT - SE (Resp. Irr.) Category 3, Chronic Aquatic Hazard Category 3
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GREENLINK SB401 ISOCYANATE

Label elements

GHS label elements	
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SIGNAL WORD	DANGER
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Hazard statement(s)

H330	Fatal if inhaled
H315	Causes skin irritation
H319	Causes serious eye irritation
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H317	May cause an allergic skin reaction
H351	Suspected of causing cancer
H335	May cause respiratory irritation
H412	Harmful to aquatic life with long lasting effects

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.

Precautionary statement(s) Response

P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P310	Immediately call a POISON CENTER/doctor/physician/first aider
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor/physician/first aider
P362	Take off contaminated clothing.

Precautionary statement(s) Storage

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

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
26471-62-5	40-50	<u>toluene diisocyanate</u>
Not Available	50-60	Polyurethane prepolymer (TDI/ESTER)

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
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Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay. <p>Following uptake by inhalation, move person to an area free from risk of further exposure. Oxygen or artificial respiration should be administered as needed. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Treatment is essentially symptomatic. A physician should be consulted.</p>
Ingestion	<ul style="list-style-type: none"> ▶ IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. ▶ For advice, contact a Poisons Information Centre or a doctor. ▶ Urgent hospital treatment is likely to be needed. ▶ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. ▶ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist. ▶ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS. <p>Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:</p> <ul style="list-style-type: none"> ▶ INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. <p>NOTE: Wear a protective glove when inducing vomiting by mechanical means.</p>

Indication of any immediate medical attention and special treatment needed

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

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

For sub-chronic and chronic exposures to isocyanates:

- ▶ This material may be a potent pulmonary sensitiser which causes bronchospasm even in patients without prior airway hyperreactivity.
- ▶ Clinical symptoms of exposure involve mucosal irritation of respiratory and gastrointestinal tracts.
- ▶ Conjunctival irritation, skin inflammation (erythema, pain vesiculation) and gastrointestinal disturbances occur soon after exposure.
- ▶ Pulmonary symptoms include cough, burning, substernal pain and dyspnoea.
- ▶ Some cross-sensitivity occurs between different isocyanates.
- ▶ Noncardiogenic pulmonary oedema and bronchospasm are the most serious consequences of exposure. Markedly symptomatic patients should receive oxygen, ventilatory support and an intravenous line.
- ▶ Treatment for asthma includes inhaled sympathomimetics (epinephrine [adrenalin], terbutaline) and steroids.
- ▶ Activated charcoal (1 g/kg) and a cathartic (sorbitol, magnesium citrate) may be useful for ingestion.
- ▶ Mydriatics, systemic analgesics and topical antibiotics (Sulamyd) may be used for corneal abrasions.
- ▶ There is no effective therapy for sensitised workers.

[Ellenhorn and Barceloux; Medical Toxicology]

NOTE: Isocyanates cause airway restriction in naive individuals with the degree of response dependant on the concentration and duration of exposure. They induce smooth muscle contraction which leads to bronchoconstrictive episodes. Acute changes in lung function, such as decreased FEV1, may not represent sensitivity.

[Karol & Jin, Frontiers in Molecular Toxicology, pp 56-61, 1992]

Personnel who work with isocyanates, isocyanate prepolymers or polyisocyanates should have a pre-placement medical examination and periodic examinations thereafter, including a pulmonary function test. Anyone with a medical history of chronic respiratory disease, asthmatic or bronchial attacks, indications of allergic responses, recurrent eczema or sensitisation conditions of the skin should not handle or work with isocyanates. Anyone who develops chronic respiratory distress when working with isocyanates should be removed from exposure and examined by a physician. Further exposure must be avoided if a sensitivity to isocyanates or polyisocyanates has developed.

SECTION 5 FIREFIGHTING MEASURES**Extinguishing media**

	<ul style="list-style-type: none"> ▶ Flooding quantities of water only. ▶ Foam. ▶ Dry chemical powder. ▶ BCF (where regulations permit). ▶ Carbon dioxide.
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Special hazards arising from the substrate or mixture

Fire Incompatibility	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage from entering drains or water course. ▶ Use fire fighting procedures suitable for surrounding area. ▶ Do not approach containers suspected to be hot.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Combustible. ▶ Moderate fire hazard when exposed to heat or flame. ▶ When heated to high temperatures decomposes rapidly generating vapour which pressures and may then rupture containers with release of flammable and highly toxic isocyanate vapour.

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- ▶ Burns with acrid black smoke and poisonous fumes.
- ▶ Combustion yields traces of highly toxic hydrogen cyanide HCN, plus toxic nitrogen oxides NOx and carbon monoxide.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills	<ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment. ▶ Contain and absorb spill with sand, earth, inert material or vermiculite.
Major Spills	<ul style="list-style-type: none"> ▶ Liquid Isocyanates and high isocyanate vapour concentrations will penetrate seals on self contained breathing apparatus - SCBA should be used inside encapsulating suit where this exposure may occur. <p>For isocyanate spills of less than 40 litres (2 m²):</p> <ul style="list-style-type: none"> ▶ Evacuate area from everybody not dealing with the emergency, keep them upwind and prevent further access, remove ignition sources and, if inside building, ventilate area as well as possible. ▶ Notify supervision and others as necessary. ▶ Put on personal protective equipment (suitable respiratory protection, face and eye protection, protective suit, gloves and impermeable boots). ▶ Control source of leakage (where applicable).

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ DO NOT allow clothing wet with material to stay in contact with skin ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps. ▶ DO NOT enter confined spaces until atmosphere has been checked.
Other information	<p>for commercial quantities of isocyanates:</p> <ul style="list-style-type: none"> ▶ Isocyanates should be stored in adequately banded areas. Nothing else should be kept within the same bunding. Pre-polymers need not be segregated. Drums of isocyanates should be stored under cover, out of direct sunlight, protected from rain, protected from physical damage and well away from moisture, acids and alkalis. ▶ Where isocyanates are stored at elevated temperatures to prevent solidifying, adequate controls should be installed to prevent the high temperatures and precautions against fire should be taken.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Lined metal can, lined metal pail/ can. ▶ Plastic pail. ▶ Polyliner drum. ▶ Packing as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	<ul style="list-style-type: none"> ▶ Reactions of isocyanates with amines, aldehydes, alcohols, alkali metals, ketones, mercaptans, strong oxidisers, hydrides, phenols, and peroxides can cause vigorous release of heat. ▶ Acids and bases initiate polymerisation reactions with isocyanates. ▶ Avoid reaction with compounds containing active hydrogen (such as water, ammonia, amines, alcohols, acids, etc.) - the reaction may be violent, the rate being dependent upon the active hydrogen compound and the presence of catalysts. ▶ Some isocyanates react with water to form amines and liberate carbon dioxide. ▶ Base-catalysed reactions of isocyanates with alcohols should be carried out in inert solvents.

PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Levels (PELs) - Table Z1	toluene diisocyanate	Toluene-2,4-diisocyanate	Not Available	Not Available	0.14 mg/m ³ / 0.02 ppm	(TDI)
US ACGIH Threshold Limit Values (TLV)	toluene diisocyanate	‡ Toluene-2, 4- or 2, 6-diisocyanate (or as a mixture)	0.005 ppm	0.02 ppm	Not Available	TLV® Basis: (Resp sens)
US NIOSH Recommended Exposure Limits (RELs)	toluene diisocyanate	TDI; 2,4-TDI; 2,4-Toluene diisocyanate	Not Available	Not Available	Not Available	Ca See Appendix A

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
toluene diisocyanate	Toluene diisocyanate (mixed isomers)	0.045 ppm	0.43 ppm	0.43 ppm
toluene diisocyanate	Toluene-2,4-diisocyanate; (TDI)	Not Available	Not Available	Not Available

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toluene diisocyanate	Toluene-2,6-diisocyanate	Not Available	Not Available	Not Available
Ingredient	Original IDLH	Revised IDLH		
toluene diisocyanate	Not Available	Not Available		
Polyurethane prepolymer (TDI/ESTER)	Not Available	Not Available		

Exposure controls

Appropriate engineering controls	<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.</p>
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ 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.
Skin protection	See Hand protection below
Hands/feet protection	<p>NOTE:</p> <ul style="list-style-type: none"> ▶ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. ▶ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed. <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>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Overalls. ▶ Eyewash unit. ▶ Barrier cream. ▶ Skin cleansing cream.
Thermal hazards	Not Available

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

'Forsberg Clothing Performance Index'.

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

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Material	CPI
BUTYL	A
PE/EVAL/PE	A
PVA	A
SARANEX-23	A
TEFLON	A
VITON	A
NATURAL RUBBER	B
NITRILE	C

* 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

Not Available

Not Available

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Clear colour
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Physical state	Liquid	Relative density (Water = 1)	1.24
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Reacts	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce severely toxic effects; these may be fatal. The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Toluene diisocyanate may produce lung irritation and airway narrowing. Severe irritation is produced by inhalation of low vapour concentrations.
Ingestion	Accidental ingestion of the material may be seriously damaging to the health of the individual; animal experiments indicate that ingestion of less than 40 gram may be fatal.
Skin Contact	The material may cause severe inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	There is evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Severe inflammation may be expected with pain. Irritation of the eyes may produce a heavy secretion of tears (lacrimation).
Chronic	There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

GREENLINK SB401 ISOCYANATE	TOXICITY	IRRITATION
	Not Available	Not Available
toluene diisocyanate	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Not Available
	Inhalation (mouse) LC50: 14.1 ppm6 h ^[1]	
	Inhalation (rat) LC50: 14 ppm/4h ^[2]	
	Oral (bird) LD50: >100 mg/kg ^[2]	

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's msds. Unless otherwise specified data

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extracted from RTECS - Register of Toxic Effect of chemical Substances

GREENLINK SB401 ISOCYANATE & TOLUENE DIISOCYANATE	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important.
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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 required to make classification available
 ✗ – Data available but does not fill the criteria for classification
 ⊖ – Data Not Available to make classification

CMR STATUS

CARCINOGEN	toluene diisocyanate	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors US Environmental Defense Scorecard Recognized Carcinogens US NIOSH Recommended Exposure Limits (RELs) - Carcinogens	2B P65-MC P65 Ca See Appendix A
RESPIRATORY	toluene diisocyanate	US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) - Respiratory	X ✓
SKIN	toluene diisocyanate	US ACGIH Threshold Limit Values (TLV) Notice of Intended Changes - Skin	Yes

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high watermark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
toluene diisocyanate	LOW (Half-life = 1 days)	LOW (Half-life = 0.13 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
toluene diisocyanate	LOW (BCF = 5)

Mobility in soil

Ingredient	Mobility
toluene diisocyanate	LOW (KOC = 9114)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> ▶ Containers may still present a chemical hazard/ danger when empty. ▶ Return to supplier for reuse/ recycling if possible. Otherwise: <ul style="list-style-type: none"> ▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ▶ Where possible retain label warnings and MSDS and observe all notices pertaining to the product. Legislation addressing waste disposal requirements may differ by country, state and/ or territory.
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SECTION 14 TRANSPORT INFORMATION

Labels Required

	
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Marine Pollutant	NO
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Land transport (DOT)

UN number	2206				
Packing group	II				
UN proper shipping name	Isocyanates, toxic, n.o.s. or Isocyanate solutions, toxic, n.o.s., flash point more than 61 degrees C and boiling point less than 300 degrees C (contains toluene diisocyanate)				
Environmental hazard	No relevant data				
Transport hazard class(es)	<table border="1"> <tr> <td>Class</td> <td>6.1</td> </tr> <tr> <td>Subrisk</td> <td>Not Applicable</td> </tr> </table>	Class	6.1	Subrisk	Not Applicable
Class	6.1				
Subrisk	Not Applicable				
Special precautions for user	<table border="1"> <tr> <td>Special provisions</td> <td>IB2, T11, TP2, TP13, TP27</td> </tr> </table>	Special provisions	IB2, T11, TP2, TP13, TP27		
Special provisions	IB2, T11, TP2, TP13, TP27				

Air transport (ICAO-IATA / DGR)

UN number	2206														
Packing group	II														
UN proper shipping name	Isocyanate solution, toxic, n.o.s. *; Isocyanates, toxic, n.o.s. * (contains toluene diisocyanate)														
Environmental hazard	No relevant data														
Transport hazard class(es)	<table border="1"> <tr> <td>ICAO/IATA Class</td> <td>6.1</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>6L</td> </tr> </table>	ICAO/IATA Class	6.1	ICAO / IATA Subrisk	Not Applicable	ERG Code	6L								
ICAO/IATA Class	6.1														
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ERG Code	6L														
Special precautions for user	<table border="1"> <tr> <td>Special provisions</td> <td>A3</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>662</td> </tr> <tr> <td>Cargo Only Maximum Qty / Pack</td> <td>60 L</td> </tr> <tr> <td>Passenger and Cargo Packing Instructions</td> <td>654</td> </tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td> <td>5 L</td> </tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td> <td>Y641</td> </tr> <tr> <td>Passenger and Cargo Limited Maximum Qty / Pack</td> <td>1 L</td> </tr> </table>	Special provisions	A3	Cargo Only Packing Instructions	662	Cargo Only Maximum Qty / Pack	60 L	Passenger and Cargo Packing Instructions	654	Passenger and Cargo Maximum Qty / Pack	5 L	Passenger and Cargo Limited Quantity Packing Instructions	Y641	Passenger and Cargo Limited Maximum Qty / Pack	1 L
Special provisions	A3														
Cargo Only Packing Instructions	662														
Cargo Only Maximum Qty / Pack	60 L														
Passenger and Cargo Packing Instructions	654														
Passenger and Cargo Maximum Qty / Pack	5 L														
Passenger and Cargo Limited Quantity Packing Instructions	Y641														
Passenger and Cargo Limited Maximum Qty / Pack	1 L														

Sea transport (IMDG-Code / GGVSee)

UN number	2206						
Packing group	II						
UN proper shipping name	ISOCYANATES, TOXIC, N.O.S. or ISOCYANATE SOLUTION, TOXIC, N.O.S. (contains toluene diisocyanate)						
Environmental hazard	Not Applicable						
Transport hazard class(es)	<table border="1"> <tr> <td>IMDG Class</td> <td>6.1</td> </tr> <tr> <td>IMDG Subrisk</td> <td>Not Applicable</td> </tr> </table>	IMDG Class	6.1	IMDG Subrisk	Not Applicable		
IMDG Class	6.1						
IMDG Subrisk	Not Applicable						
Special precautions for user	<table border="1"> <tr> <td>EMS Number</td> <td>F-A , S-A</td> </tr> <tr> <td>Special provisions</td> <td>274</td> </tr> <tr> <td>Limited Quantities</td> <td>100 mL</td> </tr> </table>	EMS Number	F-A , S-A	Special provisions	274	Limited Quantities	100 mL
EMS Number	F-A , S-A						
Special provisions	274						
Limited Quantities	100 mL						

Transport in bulk according to Annex II of MARPOL 73 / 78 and the IBC code

Source	Ingredient	Pollution Category
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	toluene diisocyanate	Y

SECTION 15 REGULATORY INFORMATION

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

toluene diisocyanate(26471-62-5) is found on the following regulatory lists	'US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants','US - Hawaii Air Contaminant Limits','US National Toxicology Program (NTP) 13th Report Part B. Reasonably Anticipated to be a Human Carcinogen','US - California Permissible Exposure Limits for Chemical Contaminants','US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens','US - Idaho - Limits for Air Contaminants','US ACGIH Threshold Limit Values (TLV) - Carcinogens','US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants','US - Oregon Permissible Exposure Limits (Z-2)','International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs','US - Michigan Exposure Limits
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	for Air Contaminants', 'US - California - Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity', 'US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values', 'US - Alaska Limits for Air Contaminants', 'US NIOSH Recommended Exposure Limits (RELs)', 'US - Washington Permissible exposure limits of air contaminants', 'US ACGIH Threshold Limit Values (TLV) - Notice of Intended Changes', 'US - California Proposition 65 - Carcinogens', 'US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants', 'US ACGIH Threshold Limit Values (TLV)', 'US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)', 'US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants', 'US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory', 'US OSHA Permissible Exposure Levels (PELs) - Table Z1', 'US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens'
Polyurethane prepolymer (TDI/ESTER) is found on the following regulatory lists	'Not Applicable'

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Other information

Ingredients with multiple cas numbers

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

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

The (M)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.

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TEL (+61 3) 9572 4700.