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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Acti-Bond

Manufacturer or supplier's details

Company : Nordale Australasia P/L
Address : 70 Link Drive
Campbellfield, VIC, 3061

Telephone : 03 9357 7100

E-mail address : sales@nordale.com.au

Emergency telephone number : 03 9357 7100

Recommended use of the chemical and restrictions on use

Recommended use : Component of a Polyurethane System.

Restrictions on use : For industrial use only.

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Flammable liquids : Category 2

Acute toxicity (Inhalation) : Category 4

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 2A

Respiratory sensitisation : Category 1

Skin sensitisation : Category 1

Carcinogenicity : Category 2

Specific target organ toxicity - single exposure : Category 3 (Respiratory system, Central nervous system)

GHS label elements

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Hazard pictograms

:



Signal word

: Danger

Hazard statements

: 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.
H351 Suspected of causing cancer.

Precautionary statements

: **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin 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/ eye protection/ face protection.
P281 Use personal protective equipment as required.
P285 In case of inadequate ventilation wear respiratory protection.
Response:
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.

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P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:

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

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

No information available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
ethyl acetate	141-78-6	$\geq 60 - \leq 100$
Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	$\geq 10 - < 30$
4,4'-methylenediphenyl diisocyanate	101-68-8	< 10
Diphenylmethane-2,4'- diisocyanate	5873-54-1	< 10

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
- If inhaled : Move to fresh air.
Consult a physician after significant exposure.
If breathing is irregular or stopped, administer artificial respiration.
If unconscious place in recovery position and seek medical advice.
- In case of skin contact : Wash off with soap and plenty of water.
Take off contaminated clothing and shoes immediately.
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Cool skin rapidly with cold water after contact with molten polymer.
If symptoms persist, call a physician.
Wash contaminated clothing before reuse.
An MDI study has demonstrated that a polyglycol-based skin cleanser (such as D-TamTM, PEG-400) or corn oil may be more effective than soap and water.
- In case of eye contact : Immediately flush eye(s) with plenty of water.

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Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Clean mouth with water and drink afterwards plenty of water.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
Do not induce vomiting without medical advice.
If a person vomits when lying on his back, place him in the recovery position.
Obtain medical attention.

Most important symptoms and effects, both acute and delayed : None known.

Notes to physician : Keep under medical supervision for at least 48 hours.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Foam
Dry powder
Carbon dioxide (CO₂)

Unsuitable extinguishing media : No data is available on the product itself.

Specific hazards during firefighting : The pressure in sealed containers can increase under the influence of heat.

Hazardous combustion products : No data is available on the product itself.

Specific extinguishing methods : Do not allow run-off from fire fighting to enter drains or water courses.
Standard procedure for chemical fires.
Use a water spray to cool fully closed containers.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Due to reaction with water producing CO₂-gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed.

Use water spray to cool unopened containers.
For safety reasons in case of fire, cans should be stored separately in closed containments.

Special protective equipment for firefighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

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In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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|---|---|
| Personal precautions, protective equipment and emergency procedures | : Use personal protective equipment.
Ensure adequate ventilation.
Remove all sources of ignition.
Evacuate personnel to safe areas.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. |
| Environmental precautions | : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so. |
| Methods and materials for containment and cleaning up | : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). |
-

SECTION 7. HANDLING AND STORAGE

- | | |
|---|--|
| Advice on protection against fire and explosion | : Avoid formation of aerosol. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. |
| Advice on safe handling | : Avoid exceeding the given occupational exposure limits (see section 8).
Avoid contact with skin and eyes.
For personal protection see section 8.
Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work rooms.
Container may be opened only under exhaust ventilation hood. |
| Hygiene measures | : Handle in accordance with good industrial hygiene and safety practice.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday. |
| Conditions for safe storage | : No smoking.
Store in cool place.
Keep in a well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Electrical installations / working materials must comply with the technological safety standards. |

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
ethyl acetate	141-78-6	STEL	400 ppm 1,440 mg/m ³	AU OEL
		TWA	200 ppm 720 mg/m ³	AU OEL
		TWA	400 ppm	ACGIH
Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	TWA	0.02 mg/m ³ (As -NCO)	AU OEL
	Further information: Sensitiser			
		STEL	0.07 mg/m ³ (As -NCO)	AU OEL
	Further information: Sensitiser			
		TWA	0.02 mg/m ³ (NCO)	AU OEL
	Further information: Sensitiser			
		STEL	0.07 mg/m ³ (NCO)	AU OEL
	Further information: Sensitiser			
4,4'-methylenediphenyl diisocyanate	101-68-8	TWA	0.02 mg/m ³ (NCO)	AU OEL
	Further information: Category 2 (Carc. 2) Suspected human carcinogen, Sensitiser			
		STEL	0.07 mg/m ³ (NCO)	AU OEL
	Further information: Category 2 (Carc. 2) Suspected human carcinogen, Sensitiser			
		TWA	0.005 ppm	ACGIH
Diphenylmethane-2,4'- diisocyanate	5873-54-1	TWA	0.02 mg/m ³ (As -NCO)	AU OEL
	Further information: Sensitiser			
		STEL	0.07 mg/m ³ (As -NCO)	AU OEL
	Further information: Sensitiser			
		TWA	0.02 mg/m ³ (NCO)	AU OEL
	Further information: Sensitiser			
		STEL	0.07 mg/m ³ (NCO)	AU OEL
	Further information: Sensitiser			

Personal protective equipment

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.
Refer to Australian/New Zealand Standard AS/NZS 1715 and AS/NZS 1716 for guidance on selection and use of

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respiratory devices.

Hand protection
Remarks

: Protective gloves should be worn when handling freshly made polyurethane products to avoid contact with trace residual materials which may be hazardous in contact with skin.

Use chemical resistant gloves classified under Standard EN374: protective gloves against chemicals and microorganisms. Examples of glove materials that might provide suitable protection include: Butyl rubber, Chlorinated polyethylene, Polyethylene, Ethyl vinyl alcohol copolymers laminated ("EVAL"), Polychloroprene (Neoprene*), Nitrile/butadiene rubber ("nitrile" or "NBR"), Polyvinyl chloride ("PVC" or "vinyl"), Fluoroelastomer (Viton*).

When prolonged or frequently repeated contact may occur, a glove with protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN374) is recommended.

When only brief contact is expected, a glove with protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN374) is recommended.
Contaminated gloves should be decontaminated and disposed of.

Notice: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all requisite workplace factors such as, but not limited to : other chemicals that may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), as well as instructions/specifications provided by the glove supplier.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Refer to Australian/New Zealand Standard AS/NZS 2161.1: 2000 for guidance on selection and use of protective gloves.

Eye protection

: Eye wash bottle with pure water
Tightly fitting safety goggles

Refer to Australian/New Zealand Standard AS/NZS 1337:1992 for guidance on selection and use of protective eyewear.

Skin and body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Recommended:

Overall (preferably heavy cotton) or Tyvek-Pro Tech 'C' , Tyvek Pro 'F' disposable coverall.

Protective measures

: Ensure that eye flushing systems and safety showers are located close to the working place.

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Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: No data available
Odour	: No data available
Odour Threshold	: No data available
pH	: No data available
Melting point/range	: No data available
Boiling point/boiling range	: No data available
Flash point	: -3 °CMethod: closed cup
Evaporation rate	: No data available
Flammability (solid, gas)	: No data is available on the product itself.
Flammability (liquids)	: No data is available on the product itself.
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: No data available
Relative vapour density	: No data available
Relative density	: 1.23
Density	: 0.97 g/cm3
Bulk density	: No data available
Solubility(ies)	
Water solubility	: No data available
Solubility in other solvents	: No data is available on the product itself.
Partition coefficient: n-octanol/water	: No data is available on the product itself.
Auto-ignition temperature	: not determined
Decomposition temperature	: No data available
Self-Accelerating decomposition temperature (SADT)	: No data is available on the product itself.

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Viscosity
Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Molecular weight : No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Stable under recommended storage conditions.
Chemical stability : No decomposition if stored and applied as directed.
Possibility of hazardous reactions : None known.

Stable under recommended storage conditions.
No decomposition if used as directed.

Vapours may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.

SECTION 11. TOXICOLOGICAL INFORMATION

Exposure routes : No data is available on the product itself.

Acute toxicity

Components:

ethyl acetate:

Acute oral : LD50 (Rat): 5,620 mg/kg
toxicityComponents

Isocyanic acid, polymethylenepolyphenylene ester:

Acute oral : LD50 (Rat, male): > 10,000 mg/kg
toxicityComponents Method: OECD Test Guideline 401

4,4'-methylenediphenyl diisocyanate:

Acute oral : LD50 (Rat, male): > 10,000 mg/kg
toxicityComponents Method: OECD Test Guideline 401

Acute inhalation toxicity -
Product

: Acute toxicity estimate: 4.95 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:

ethyl acetate:

Acute dermal toxicity : LD50 (Rabbit): > 18,000 mg/kg

Isocyanic acid, polymethylenepolyphenylene ester:

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Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg
Method: OECD Test Guideline 402

4,4'-methylenediphenyl diisocyanate:

Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg
Method: OECD Test Guideline 402

Diphenylmethane-2,4'- diisocyanate:

Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg
Method: OECD Test Guideline 402

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation

Product:

Remarks: May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation

Product:

Remarks: Vapours may cause irritation to the eyes, respiratory system and the skin.

Respiratory or skin sensitisation

Product:

Remarks: Causes sensitisation.

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Assessment: May cause an allergic skin reaction., May cause allergy or asthma symptoms or breathing difficulties if inhaled.

4,4'-methylenediphenyl diisocyanate:

Assessment: May cause sensitisation by inhalation and skin contact.

Diphenylmethane-2,4'- diisocyanate:

Assessment: Mild eye irritation

Chronic toxicity

Germ cell mutagenicity

Components:

ethyl acetate:

Genotoxicity in vitro : Result: positive

Isocyanic acid, polymethylenepolyphenylene ester:

Genotoxicity in vitro : Concentration: 200 ug/plate
Metabolic activation: with and without metabolic activation
Method: Directive 67/548/EEC, Annex, B.13/14

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Result: negative

4,4'-methylenediphenyl diisocyanate:

Genotoxicity in vitro : Concentration: 200 ug/plate
Metabolic activation: with and without metabolic activation
Method: Directive 67/548/EEC, Annex, B.13/14
Result: negative

Diphenylmethane-2,4'- diisocyanate:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Genotoxicity in vivo : Application Route: Inhalation
Result: Not classified due to inconclusive data.

Application Route: Inhalation
Exposure time: 3 Weeks
Dose: 113 mg/m³
Method: OECD Test Guideline 474
Result: negative

4,4'-methylenediphenyl diisocyanate:

Genotoxicity in vivo : Application Route: Inhalation
Exposure time: 3 Weeks
Dose: 118 mg/m³
Method: OECD Test Guideline 474
Result: negative

Diphenylmethane-2,4'- diisocyanate:

Genotoxicity in vivo : Application Route: Inhalation
Exposure time: 3 Weeks
Dose: 118 mg/m³
Method: OECD Test Guideline 474
Result: negative

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Germ cell mutagenicity- : Tests on bacterial or mammalian cell cultures did not show
Assessment mutagenic effects.

Germ cell mutagenicity- : No data available
Assessment

Carcinogenicity

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Species: Rat, (male and female)
Application Route: Inhalation
Exposure time: 24 month(s)
Dose: 1 mg/m³

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Frequency of Treatment: 5 daily
Method: OECD Test Guideline 453
Result: positive

4,4'-methylenediphenyl diisocyanate:
Species: Rat, (male and female)
Application Route: Inhalation
Exposure time: 24 month(s)
Dose: 1 mg/m³
Frequency of Treatment: 5 daily
Method: OECD Test Guideline 453
Result: positive
Target Organs: Lungs

Diphenylmethane-2,4'- diisocyanate:
Species: Rat, (male and female)
Application Route: Inhalation
Exposure time: 24 month(s)
Dose: 1 mg/m³
Frequency of Treatment: 5 daily
Method: OECD Test Guideline 453
Result: positive
Target Organs: Lungs

Components:

Diphenylmethane-2,4'- diisocyanate:
Carcinogenicity - : Limited evidence of carcinogenicity in animal studies
Assessment

Reproductive toxicity**Components:**

Isocyanic acid, polymethylenepolyphenylene ester:
Effects on fertility : Species: Rat, male and female
Application Route: Inhalation
Method: OECD Test Guideline 414
Remarks: No significant adverse effects were reported

Diphenylmethane-2,4'- diisocyanate:
Species: Rat, female
Application Route: Inhalation
Method: OECD Test Guideline 414
Result: Animal testing did not show any effects on fertility.

Species: Rat, male and female
Application Route: Inhalation
Method: OECD Test Guideline 414
Result: Animal testing did not show any effects on fertility.

Components:

Isocyanic acid, polymethylenepolyphenylene ester:
Effects on foetal development : Species: Rat, male and female
Application Route: Inhalation
General Toxicity Maternal: 4 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects

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4,4'-methylenediphenyl diisocyanate:

Species: Rat, female
Application Route: Inhalation
General Toxicity Maternal: No observed adverse effect level: 4 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects

Diphenylmethane-2,4'- diisocyanate:

Species: Rat, male and female
Application Route: Inhalation
General Toxicity Maternal: No observed adverse effect level: 4 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Reproductive toxicity - : No toxicity to reproduction
Assessment No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

STOT - single exposure**Components:**

Isocyanic acid, polymethylenepolyphenylene ester:

Exposure routes: Inhalation
Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

4,4'-methylenediphenyl diisocyanate:

Exposure routes: Inhalation
Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

Diphenylmethane-2,4'- diisocyanate:

Exposure routes: Inhalation
Target Organs: Respiratory system
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT - repeated exposure**Components:**

Diphenylmethane-2,4'- diisocyanate:

Exposure routes: Inhalation
Target Organs: Respiratory Tract
Assessment: May cause damage to organs through prolonged or repeated exposure.

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Repeated dose toxicity**Components:**

Isocyanic acid, polymethylenepolyphenylene ester:

Species: Rat, male and female

NOEC: 0.2 mg/m³

Test atmosphere: dust/mist

Exposure time: 2 yr

Number of exposures: 5 d

Method: OECD Test Guideline 453

4,4'-methylenediphenyl diisocyanate:

Species: Rat, male and female

NOEC: 0.2 mg/m³

Exposure time: 2 yr

Number of exposures: 5 d

Method: OECD Test Guideline 453

Diphenylmethane-2,4'- diisocyanate:

Species: Rat, male and female

NOEC: 0.2 mg/m³

Exposure time: 2 yr

Number of exposures: 5 d

Method: OECD Test Guideline 453

Components:

Diphenylmethane-2,4'- diisocyanate:

Repeated dose toxicity - : Mild eye irritation

Assessment

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

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Neurological effects

No data available

Further information**Product:**

Remarks: Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:**

ethyl acetate:

Toxicity to fish

: LC0: < 270 mg/l
Exposure time: 48 h
Method: No information available.

LC50: 270 mg/l
Exposure time: 48 h
Method: No information available.

LC100: > 270 mg/l
Exposure time: 48 h
Method: No information available.

LC50: 230 mg/l
Exposure time: 96 h

Isocyanic acid, polymethylenepolyphenylene ester:

Toxicity to fish

: LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

LC0: > 1,000 mg/l
Exposure time: 96 h

4,4'-methylenediphenyl diisocyanate:

Toxicity to fish

: LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203

Diphenylmethane-2,4'- diisocyanate:

Toxicity to fish

: LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Components:

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ethyl acetate:

Toxicity to daphnia and other aquatic invertebrates : EC0 (Daphnia magna (Water flea)): 1,822 mg/l
Exposure time: 24 h
Method: OECD Test Guideline 202

EC50 (Daphnia magna (Water flea)): 2,306 mg/l
Exposure time: 24 h
Method: OECD Test Guideline 202

EC100 (Daphnia magna (Water flea)): > 2,306 mg/l
Exposure time: 24 h
Method: OECD Test Guideline 202

EC50: 560 mg/l
Exposure time: 48 h

Isocyanic acid, polymethylenepolyphenylene ester:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

4,4'-methylenediphenyl diisocyanate:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Diphenylmethane-2,4'- diisocyanate:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 1,640 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : No data available

Toxicity to fish (Chronic toxicity) : No data available

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Toxicity to daphnia and other : NOEC (Daphnia magna (Water flea)): >= 10 mg/l

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aquatic invertebrates
(Chronic toxicity) Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

4,4'-methylenediphenyl diisocyanate:

Toxicity to daphnia and other aquatic invertebrates
(Chronic toxicity) : NOEC (Daphnia magna (Water flea)): >= 10 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

Diphenylmethane-2,4'- diisocyanate:

Toxicity to daphnia and other aquatic invertebrates
(Chronic toxicity) : NOEC (Daphnia magna (Water flea)): >= 10 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity) : No data available

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Toxicity to bacteria : EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209

Diphenylmethane-2,4'- diisocyanate:

Toxicity to bacteria : EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Toxicity to soil dwelling organisms : EC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg
Exposure time: 336 h
Method: OECD Test Guideline 207

4,4'-methylenediphenyl diisocyanate:

Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): >= 1,000 mg/kg
Exposure time: 336 h
Method: OECD Test Guideline 207

Diphenylmethane-2,4'- diisocyanate:

Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): >= 1,000 mg/kg
Exposure time: 336 h
Method: OECD Test Guideline 207

Plant toxicity : No data available

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Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment
Acute aquatic toxicity : No data available

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Further information:
No data available

Persistence and degradability

Components:

ethyl acetate:

Biodegradability : Result: Readily biodegradable
Biodegradation: > 60 %
Exposure time: 28 d

Isocyanic acid, polymethylenepolyphenylene ester:

Biodegradability : Inoculum: Domestic sewage
Concentration: 30 mg/l
Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: Inherent Biodegradability: Modified MITI Test (II)

4,4'-methylenediphenyl diisocyanate:

Biodegradability : Inoculum: Domestic sewage
Concentration: 30 mg/l
Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: Inherent Biodegradability: Modified MITI Test (II)

Diphenylmethane-2,4'- diisocyanate:

Biodegradability : Inoculum: Domestic sewage
Concentration: 30 mg/l
Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: Inherent Biodegradability: Modified MITI Test (II)

Components:

ethyl acetate:

Biochemical Oxygen : .293 g/g

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Demand (BOD)	Incubation time: 5 d
	Method: No information available.

Components:

ethyl acetate:
Chemical Oxygen Demand : 1816 mgO₂/g
(COD)
BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon : No data available
(DOC)

Physico-chemical : No data available
removability

Components:

Isocyanic acid, polymethylenepolyphenylene ester:
Stability in water : Degradation half life(DT50): 0.8 d (25 °C)
Method: No information available.
Remarks: Fresh water

4,4'-methylenediphenyl diisocyanate:
Stability in water : Degradation half life(DT50): 20 hrs (25 °C)
Method: No information available.
Remarks: Fresh water

Photodegradation : No data available

Impact on Sewage : No data available
Treatment

Bioaccumulative potential**Components:**

ethyl acetate:
Bioaccumulation : Bioconcentration factor (BCF): 3.2

Isocyanic acid, polymethylenepolyphenylene ester:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200
Remarks: Bioaccumulation is unlikely.

4,4'-methylenediphenyl diisocyanate:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200
Remarks: Bioaccumulation is unlikely.

Diphenylmethane-2,4'- diisocyanate:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200
Remarks: Bioaccumulation is unlikely.

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Components:

ethyl acetate:
Partition coefficient: n-octanol/water : log Pow: 0.73
Method: No information available.

4,4'-methylenediphenyl diisocyanate:
Partition coefficient: n-octanol/water : log Pow: 4.51 (20 °C)
pH: 7
Method: OECD Test Guideline 117

Diphenylmethane-2,4'- diisocyanate:
Partition coefficient: n-octanol/water : log Pow: 4.51 (20 °C)
pH: 7
Method: OECD Test Guideline 117

Mobility in soil

Mobility : No data available

Components:

ethyl acetate:
Distribution among environmental compartments : Koc: 59
Stability in soil : No data available

Other adverse effects

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

Hazardous to the ozone layer

Ozone-Depletion Potential : Not applicable

Additional ecological information - Product : There is no data available for this product.
Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Do not dispose of waste into sewer.

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Do not contaminate ponds, waterways or ditches with chemical or used container.
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

International Regulation

IATA

UN/ID No. : UN 1173
Proper shipping name : Ethyl acetate , MIXTURE
Class : 3
Packing group : II
Labels : Flammable Liquids
Packing instruction (cargo aircraft) : 364
Packing instruction (passenger aircraft) : 353

IMDG

UN number : UN 1173
Proper shipping name : ETHYL ACETATE , MIXTURE

Class : 3
Packing group : II
Labels : 3
EmS Code : F-E, S-D
Marine pollutant : no

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

Not applicable for product as supplied.

National Regulations

ADG

UN number : UN 1173
Proper shipping name : ETHYL ACETATE , MIXTURE
Class : 3
Packing group : II
Labels : 3
Hazchem Code : 3YE

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SECTION 15. REGULATORY INFORMATION**Safety, health and environmental regulations/legislation specific for the substance or mixture**

R-phrases(s)	: R11 R40 R20 R48/20 R36/37/38	Highly flammable. Limited evidence of a carcinogenic effect. Harmful by inhalation. Harmful: danger of serious damage to health by prolonged exposure through inhalation. Irritating to eyes, respiratory system and skin.
S-phrases(s)	: S23 S36/37 S45	Do not breathe spray, vapour. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Standard for the Uniform Scheduling of Medicines and Poisons : No poison schedule number allocated

Australia Work Health and Safety Regulations - Schedule 10 Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.	: There is no applicable prohibition or notification/licensing requirements, including for carcinogens under Commonwealth, State or Territory legislation.
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Other international regulations**The components of this product are reported in the following inventories:**

CH INV	: The formulation contains substances listed on the Swiss Inventory
TSCA	: On the inventory, or in compliance with the inventory
DSL	: All components of this product are on the Canadian DSL
AICS	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory

Inventories

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AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

SECTION 16. OTHER INFORMATION

Date format : dd.mm.yyyy

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.