

# Rhino Linings®

## PREMIUM PROTECTION

### TUFF STUFF A-SIDE

Chemwatch Material Safety Data Sheet  
Issue Date: 14-Oct-2008  
C9317EC

CHEMWATCH 4944-79  
Version No:4  
CD 2008/3 Page 1 of 7

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

TUFF STUFF A-SIDE

### SYNONYMS

"Tuff Stuff A-Side, Iso Product Code: Part # TS10075 - 75kg, TS10250 - 250kg"

### PRODUCT USE

» Requires that the two parts be mixed by hand or mixer before use, in accordance with manufacturers directions. Mix only as much as is required. Do not return the mixed material to the original containers. Hardener component A of a polyurethane lining formulation. Always used in admixture with component B.

### SUPPLIER

Company: Rhino Linings Australasia Pty Ltd  
Address:  
501- 505 Olsen Avenue  
Molendinar  
QLD, 4214  
AUS  
Telephone: +61 7 5585 7000  
Fax: +61 7 5539 6399

## Section 2 - HAZARDS IDENTIFICATION

### STATEMENT OF HAZARDOUS NATURE

HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

### POISONS SCHEDULE

S6

### RISK

- » Harmful by inhalation.
- » Irritating to eyes respiratory system and skin.
- » May cause SENSITISATION by inhalation.
- » May cause SENSITISATION by skin contact.
- » Harmful: danger of serious damage to health by prolonged exposure through inhalation.

### SAFETY

- » Wear suitable protective clothing.
- » To clean the floor and all objects contaminated by this material use water and detergent.
- » Keep away from food drink and animal feeding stuffs.
- » If swallowed IMMEDIATELY contact Doctor or Poisons Information Centre. (show this container or label).

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
4, 4' - diphenylmethane diisocyanate (MDI) modified MDI	101-68-8	50-60
diisooctyl phthalate	27554-26-3	20-40 5-20

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## Section 4 - FIRST AID MEASURES

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### SWALLOWED

- » - If swallowed do NOT induce vomiting. Seek medical advice.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

### EYE

- » If this product comes in contact with the eyes:
  - 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.

### SKIN

- » If solids or aerosol mists are deposited upon the skin:
  - Flush skin and hair with running water (and soap if available).
  - Remove any adhering solids with industrial skin cleansing cream.
  - DO NOT use solvents.
  - Seek medical attention in the event of irritation.

### INHALED

- » - 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.

### NOTES TO PHYSICIAN

- » 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.

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## Section 5 - FIRE FIGHTING MEASURES

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### EXTINGUISHING MEDIA

- » - Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

### FIRE FIGHTING

- » Clear area of personnel.
- 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 water delivered as a fine spray to control fire and cool adjacent area.

### FIRE/EXPLOSION HAZARD

- » - 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.
- Burns with acrid black smoke and poisonous fumes.

### FIRE INCOMPATIBILITY

- » - Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

### HAZCHEM: None

### Personal Protective Equipment

Gas tight chemical resistant suit.

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## Section 6 - ACCIDENTAL RELEASE MEASURES

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### EMERGENCY PROCEDURES

#### MINOR SPILLS

- » Clean up all spills immediately.
- Shut off all possible sources of ignition and increase ventilation.
- Avoid contact with skin and eyes.

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Section 6 - ACCIDENTAL RELEASE MEASURES

Wear protective clothing, impervious gloves and safety glasses.  
Contain and absorb spill with sand, earth, inert material or vermiculite.  
Trowel up/scrape up.  
Collect residues and place in labelled plastic containers with vented lids.

## MAJOR SPILLS

» - DO NOT touch the spill material.  
Clear area of personnel and move upwind.  
- Wear full body protective clothing with breathing apparatus.  
- Prevent, by any means available, spillage from entering drains or water courses.  
Shut off all possible sources of ignition and increase ventilation.  
No smoking or naked lights within area.  
Stop leak if safe to do so.  
Contain and absorb spill with sand, earth, inert material or vermiculite.  
Collect residues and seal in labelled drums for disposal.  
Wash spill area with detergent and water.  
DO NOT USE WATER OR NEUTRALISING AGENTS INDISCRIMINATELY ON LARGE SPILLS.

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

## Section 7 - HANDLING AND STORAGE

### PROCEDURE FOR HANDLING

» Handle and open container with care.  
Use good occupational work practice.  
Avoid breathing vapours and contact with skin and eyes.  
Avoid contact with moisture.  
Avoid physical damage to containers.  
Wear protective clothing and gloves when handling containers.  
Use in a well-ventilated area.  
Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required until atmosphere has been checked.  
Always wash hands with soap and water after handling. Work clothes should be laundered separately.  
- Avoid cross contamination between the two liquid parts of product (kit).  
- If two part products are mixed or allowed to mix in proportions other than manufacturer's recommendation, polymerisation with gelation and evolution of heat (exotherm) may occur.  
- This excess heat may generate toxic vapour.

### SUITABLE CONTAINER

» - Metal can or drum  
- Packaging as recommended by manufacturer.  
- Check all containers are clearly labelled and free from leaks.

### STORAGE INCOMPATIBILITY

» Avoid storage with oxidisers.  
- Avoid contamination with water, alkalies and detergent solutions.  
- Material reacts with water and generates gas, pressurises containers with even drum rupture resulting.  
- DO NOT reseal container if contamination is suspected.  
- Open all containers with care.

### STORAGE REQUIREMENTS

» Rotate all stock to prevent ageing. Use on FIFO (First In-First Out) basis.  
- Keep dry.  
- Store in original containers.  
- Keep containers securely sealed.  
- No smoking, naked lights or ignition sources.  
- Store in a cool, dry, well-ventilated area.  
Store at 16-38 deg.C.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

Source	Material	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>
Australia Exposure Standards	4, 4' - diphenylmethane diisocyanate (MDI) (Isocyanates, all (as- NCO))	0.02	0.07

The following materials had no OELs on our records  
• diisooctyl phthalate:

CAS:27554- 26- 3 CAS:1330- 91- 2

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### PERSONAL PROTECTION

#### RESPIRATOR

Type A-P Filter of sufficient capacity

#### EYE

- » - Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens 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. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

#### HANDS/FEET

- » - Neoprene gloves or - Butyl rubber gloves.
- PVC gloves.
- Rubber boots.
- DO NOT use skin cream unless necessary and then use only minimum amount.
- Isocyanate vapour may be absorbed into skin cream and this increases hazard.

#### OTHER

- » - Overalls.
  - Eyewash unit.
- DO NOT return unused product to containers.

#### ENGINEERING CONTROLS

- » Use in a well-ventilated area.
- General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances.
- Refer also to protective measures for the other component used with the product. Read both MSDS before using; store and attach MSDS together.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### APPEARANCE

Yellow or light straw coloured liquid; does not mix with water. Musty odour.

### PHYSICAL PROPERTIES

Liquid.  
Does not mix with water.  
Sinks in water.

Molecular Weight: Not applicable  
Melting Range (°C): Not available  
Solubility in water (g/L): Immiscible  
pH (1% solution): Not applicable  
Volatile Component (%vol): Not available  
Relative Vapour Density (air=1): 8.5 approx.  
Lower Explosive Limit (%): Not applicable  
Autoignition Temp (°C): 240  
State: Liquid

Boiling Range (°C): Not available  
Specific Gravity (water=1): 1.192  
pH (as supplied): Not applicable  
Vapour Pressure (kPa): Negligible  
Evaporation Rate: Not available  
Flash Point (°C): >219  
Upper Explosive Limit (%): Not applicable  
Decomposition Temp (°C): Not available  
Viscosity: 214- 298 cSt @ 25°C

## Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

### CONDITIONS CONTRIBUTING TO INSTABILITY

- » Presence of water and - Presence of incompatible materials.
  - Presence of elevated temperatures.
- Storage in unsealed containers.
- Lengthy storage above 50 C. Stable in closed containers, below 11 deg. C.  
*For incompatible materials - refer to Section 7 - Handling and Storage.*

## Section 11 - TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

- » Harmful by inhalation.
- » Irritating to eyes, respiratory system and skin.
- » Can be absorbed through skin.

#### CHRONIC HEALTH EFFECTS

- » May cause SENSITISATION by inhalation.
- » May cause SENSITISATION by skin contact.
- » Harmful: danger of serious damage to health by

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prolonged exposure through inhalation.

## TOXICITY AND IRRITATION

» Not available. Refer to individual constituents.

### 4,4'-DIPHENYLMETHANE DIISOCYANATE (MDI):

» unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

#### TOXICITY

Oral (rat) LDLo: 9200 mg/kg  
Inhalation (rat) LC50: 178 mg/m<sup>3</sup>/4h Dermal Sensitiser \*  
Oral (mouse) LD50: 2200 mg/kg Respiratory Sensitiser  
(g.pig) \*  
Dermal (rabbit) LD50: >6200 mg/kg \* [\* = Bayer CCINFO  
2133615]  
Oral (Rat) LD50: 9200 mg/kg

» for diisocyanates:

In general, there appears to be little or no difference between aromatic and aliphatic diisocyanates as toxicants. In addition, there are insufficient data available to make any major distinctions between polymeric (<1000 MW) and monomeric diisocyanates. 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. Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Allergic reactions which develop in the respiratory passages as bronchial asthma or rhinoconjunctivitis, are mostly the result of reactions of the allergen with specific antibodies of the IgE class and belong in their reaction rates to the manifestation of the immediate type. In addition to the allergen-specific potential for causing respiratory sensitisation, the amount of the allergen, the exposure period and the genetically determined disposition of the exposed person are likely to be decisive. Particular attention is drawn to so-called atopic diathesis which is characterised by an increased susceptibility to allergic rhinitis, allergic bronchial asthma and atopic eczema (neurodermatitis) which is associated with increased IgE synthesis. Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure. Isocyanate vapours/mists are irritating to the upper respiratory tract and lungs; the response may be severe enough to produce bronchitis with wheezing, gasping and severe distress, even sudden loss of consciousness, and pulmonary oedema. Possible neurological symptoms arising from isocyanate exposure include headache, insomnia, euphoria, ataxia, anxiety neurosis, depression and paranoia. The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The substance is classified by IARC as Group 3:  
NOT classifiable as to its carcinogenicity to humans.  
Evidence of carcinogenicity may be inadequate or limited in animal testing.  
Inhalation (human) TClO: 0.13 ppm/30 mins Eye (rabbit): 0.10 mg moderate

#### IRRITATION

Skin (rabbit): 500 mg /24 hours

### DIISOCTYL PHTHALATE:

» unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

#### TOXICITY

Oral (rat) LD50: 22000 mg/kg  
Dermal (rabbit) LD50: 12600 mg/kg  
Oral (Mouse) LD50: 2769 mg/kg

» The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis.

#### IRRITATION

Skin (rabbit): 500 mg - Mild

## CARCINOGEN

4, 4' -  
diphenylmethane  
diisocyanate (MDI)

International Agency for Research on  
Cancer (IARC) Carcinogens

Group

3

## Section 12 - ECOLOGICAL INFORMATION

DO NOT discharge into sewer or waterways.

## Section 13 - DISPOSAL CONSIDERATIONS

- » - DO NOT recycle spilled material.
- Consult State Land Waste Management Authority for disposal.
- Neutralise spill material carefully and decontaminate empty containers and spill residues with 10% ammonia solution plus detergent or a proprietary decontaminant prior to disposal.
- DO NOT seal or stopper drums being decontaminated as CO<sub>2</sub> gas is generated and may pressurise containers.

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## Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG

## Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE: S6

### REGULATIONS

Tuff Stuff A-Side (CAS: None):  
No regulations applicable

4,4'-diphenylmethane diisocyanate (MDI) (CAS: 101-68-8) is found on the following regulatory lists;

- Australia - New South Wales Hazardous Substances Requiring Health Surveillance
- Australia - Queensland Hazardous Materials and Prescribed Quantities for Major Hazard Facilities
- Australia - Tasmania Hazardous Substances Requiring Health Surveillance
- Australia - Victoria Occupational Health and Safety Regulations - Schedule 9: Materials at Major Hazard Facilities (And Their Threshold Quantity) Table

2 Australia - Western Australia Hazardous Substances Requiring Health Surveillance

- Australia Exposure Standards
- Australia Hazardous Substances
- Australia Hazardous Substances Requiring Health Surveillance
- Australia High Volume Industrial Chemical List (HVICL)
- Australia Inventory of Chemical Substances (AICS)
- Australia National Pollutant Inventory
- Australia Occupational Health and Safety (Commonwealth Employment) (National Standards) Regulations 1994 - Hazardous Substances Requiring Health Surveillance

- Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix E (Part 2)
- Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix F (Part 3)
- Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 6
- GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships
- IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
- International Agency for Research on Cancer (IARC) Carcinogens
- International Air Transport Association (IATA) Dangerous Goods Regulations
- OECD Representative List of High Production Volume (HPV) Chemicals

4,4'-diphenylmethane diisocyanate (MDI) (CAS: 26447-40-5) is found on the following regulatory lists;

- Australia - New South Wales Hazardous Substances Requiring Health Surveillance
- Australia - Tasmania Hazardous Substances Requiring Health Surveillance
- Australia - Victoria Occupational Health and Safety Regulations - Schedule 9: Materials at Major Hazard Facilities (And Their Threshold Quantity) Table

2 Australia - Western Australia Hazardous Substances Requiring Health Surveillance

- Australia Exposure Standards
- Australia Hazardous Substances
- Australia Hazardous Substances Requiring Health Surveillance
- Australia Inventory of Chemical Substances (AICS)
- Australia Occupational Health and Safety (Commonwealth Employment) (National Standards) Regulations 1994 - Hazardous Substances Requiring Health Surveillance

- Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix E (Part 2)
- Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix F (Part 3)
- Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 6
- OECD Representative List of High Production Volume (HPV) Chemicals

diisooctyl phthalate (CAS: 27554-26-3) is found on the following regulatory lists;

Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)

Australia - Australian Capital Territory Environment Protection Regulation Ecosystem maintenance - Organic chemicals - Non-pesticide anthropogenic organics

- Australia Inventory of Chemical Substances (AICS)
- GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships
- IMO IBC Code Chapter 17: Summary of minimum requirements
- IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances
- International Council of Chemical Associations (ICCA) - High Production Volume List
- OECD Representative List of High Production Volume (HPV) Chemicals
- OSPAR List of Substances of Possible Concern

diisooctyl phthalate (CAS: 1330-91-2) is found on the following regulatory lists;

Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)

Australia - Australian Capital Territory Environment Protection Regulation Ecosystem maintenance - Organic chemicals - Non-pesticide anthropogenic organics

## Section 16 - OTHER INFORMATION

### Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
4, 4' - diphenylmethane diisocyanate (MDI)	26447- 40- 5	R43

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Section 16 - OTHER INFORMATION

## INGREDIENTS WITH MULTIPLE CAS NUMBERS

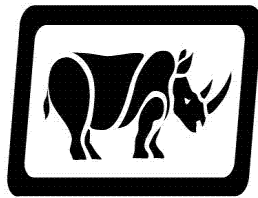
Ingredient Name	CAS
4, 4' - diphenylmethane diisocyanate (MDI)	101- 68- 8, 26447- 40- 5
diisooctyl phthalate	27554- 26- 3, 1330- 91- 2

» 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/references](http://www.chemwatch.net/references).

» 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.

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# Rhino Linings®

## PREMIUM PROTECTION

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## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

TUFF STUFF B-SIDE

### SYNONYMS

"Tuff Stuff - Part B, Resin Polyurethane spray coating, curative side Product Code: Part # TS10062 - 62kg, TS10204 - 204kg"

### PRODUCT USE

Component B of a polyurethane lining formulation. Always use in admixture with component A.

### SUPPLIER

Company: Rhino Linings Australasia Pty Ltd  
Address:  
501- 505 Olsen Avenue  
Molendinar  
QLD, 4214  
AUS  
Telephone: +61 7 5585 7000  
Fax: +61 7 5539 6399

## Section 2 - HAZARDS IDENTIFICATION

### STATEMENT OF HAZARDOUS NATURE

NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

### POISONS SCHEDULE

None

### RISK

- » Harmful to aquatic organisms may cause long- term adverse effects in the aquatic environment.
- » Cumulative effects may result following exposure\*.
- » May produce discomfort of the eyes\*.

- » Possible respiratory sensitiser\*.
  - » Possible skin sensitiser\*.
  - » May be harmful to the foetus/ embryo\*.
- \*(limited evidence).

### SAFETY

- » Do not breathe gas/fumes/vapour/spray.
- » Avoid exposure - obtain special instructions before use.
- » In case of contact with eyes rinse with plenty of water and contact Doctor or Poisons Information Centre.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
polyethylene/ polypropylene glycol glyceryl ether	9082-00-2	>60
diethylene glycol	111-46-6	0-14
diethyltoluenediamine	68479-98-1	<3

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## Section 4 - FIRST AID MEASURES

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### SWALLOWED

- » - If swallowed do NOT induce vomiting. Seek medical advice.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

### EYE

- » If this product comes in contact with the eyes:
  - 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.

### SKIN

- » If skin contact occurs:
  - 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.

### INHALED

- » - 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.

### NOTES TO PHYSICIAN

- » Treat symptomatically.

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## Section 5 - FIRE FIGHTING MEASURES

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### EXTINGUISHING MEDIA

- » - Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

### FIRE FIGHTING

- » - Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.

### FIRE/EXPLOSION HAZARD

- » - Combustible.
  - Slight fire hazard when exposed to heat or flame.
  - Heating may cause expansion or decomposition leading to violent rupture of containers.
  - On combustion, may emit toxic fumes of carbon monoxide (CO).
- Other combustion products include:  
carbon dioxide (CO<sub>2</sub>).  
other pyrolysis products typical of burning organic material and amines.

### FIRE INCOMPATIBILITY

- » Avoid contamination with strong oxidising agents as ignition may result.

HAZCHEM: None

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## Section 6 - ACCIDENTAL RELEASE MEASURES

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### EMERGENCY PROCEDURES

#### MINOR SPILLS

- » Slippery when spilt.
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.

#### MAJOR SPILLS

- » Slippery when spilt.
- Minor hazard.
- Clear area of personnel and move upwind.

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- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.

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

## Section 7 - HANDLING AND STORAGE

### PROCEDURE FOR HANDLING

- » - 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.

### SUITABLE CONTAINER

- » - Polyethylene or polypropylene container.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

### STORAGE INCOMPATIBILITY

- » Avoid storage with oxidisers.

### STORAGE REQUIREMENTS

- » Store out of direct sunlight.
- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m <sup>3</sup>
Australia Exposure Standards	diethylene glycol (2, 2' - Oxybis[ethanol])	23	100

The following materials had no OELs on our records

- polyethylene/ polypropylene glycol glyceryl ether:
- diethyltoluenediamine:

CAS:9082- 00- 2  
CAS:68479- 98- 1

### PERSONAL PROTECTION

#### RESPIRATOR

Type AK-P Filter of sufficient capacity

#### EYE

- » - Safety glasses with side shields; or as required,
- 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 lens 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. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

#### HANDS/FEET

- » Wear chemical protective gloves, eg. PVC.
- Wear safety footwear.

#### OTHER

- » - Overalls.
- Eyewash unit.

#### ENGINEERING CONTROLS

- » General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Refer also to protective measures for the other component used with the product. Read both MSDS before using; store and attach MSDS together.

continued...

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## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### APPEARANCE

Pale yellow liquid with a slight odour; does not mix with water.

### PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Sinks in water.

Molecular Weight: Not applicable  
Melting Range (°C): Not available  
Solubility in water (g/L): Immiscible  
pH (1% solution): Not applicable  
Volatile Component (%vol): Not available  
Relative Vapour Density (air=1): >1  
Lower Explosive Limit (%): Not available  
Autoignition Temp (°C): Not available  
State: Liquid

Boiling Range (°C): >200  
Specific Gravity (water=1): 1.04  
pH (as supplied): Not applicable  
Vapour Pressure (kPa): Not available  
Evaporation Rate: <1 Ether=1  
Flash Point (°C): >150 PMCC  
Upper Explosive Limit (%): Not available  
Decomposition Temp (°C): Not available  
Viscosity: Not Available

## Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

### CONDITIONS CONTRIBUTING TO INSTABILITY

» - Presence of incompatible materials.

- Presence of heat source.

Product is considered stable under normal handling conditions.

Stable under normal storage conditions.

Hazardous polymerisation will not occur.

*For incompatible materials - refer to Section 7 - Handling and Storage.*

## Section 11 - TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

» May produce discomfort of the eyes\*.

» \* (limited evidence).

#### CHRONIC HEALTH EFFECTS

» Possible respiratory sensitiser\*.

» Possible skin sensitiser\*.

» May be harmful to the foetus/ embryo\*.

» Cumulative effects may result following exposure\*.

» \* (limited evidence).

### TOXICITY AND IRRITATION

» Not available. Refer to individual constituents.

#### POLYETHYLENE/ POLYPROPYLENE GLYCOL GLYCERYL ETHER:

» No significant acute toxicological data identified in literature search.

#### DIETHYLENE GLYCOL:

» unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

#### TOXICITY

Oral (human) LDLo: 1000 mg/kg

Oral (rat) LD50: 12565 mg/kg

Dermal (rabbit) LD50: 11890 mg/kg

» The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis.

#### IRRITATION

Skin (human): 112 mg/3d- I Mild

Skin (rabbit): 500 mg Mild

Eye (rabbit) 50 mg Mild

#### DIETHYLTOLUENEDIAMINE:

» unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

#### TOXICITY

Oral (rat) LD50: 470- 540 mg/kg

Dermal (rabbit) LD50: >700 mg/kg

Inhalation (rats) LD50: >2.45 mg/l [Manufacturer]

» The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

p-Phenylenediamines are oxidised  
oxidized.

by the liver microsomal enzymes (S9). Pure p-phenylenediamine is non-mutagenic in but becomes mutagenic after it is

#### IRRITATION

Skin (rabbit): slight

Eye (rabbit): moderate- SEVERE

continued...

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## Section 12 - ECOLOGICAL INFORMATION

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

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## Section 13 - DISPOSAL CONSIDERATIONS

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- » - Consult manufacturer for recycling options and recycle where possible .
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

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## Section 14 - TRANSPORTATION INFORMATION

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HAZCHEM: None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG

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## Section 15 - REGULATORY INFORMATION

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**POISONS SCHEDULE: None**

### REGULATIONS

Tuff Stuff B-Side (CAS: None):  
No regulations applicable

polyethylene/ polypropylene glycol glyceryl ether (CAS: 9082-00-2) is found on the following regulatory lists;

- Australia Inventory of Chemical Substances (AICS)
- GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships
- IMO Provisional Categorization of Liquid Substances - List 1: Pure or technically pure products
- IMO Provisional Categorization of Liquid Substances - List 4: Pollutant only mixtures containing one or more components, forming more than 1% by weight of the mixture, which have not yet been assessed by IMO

diethylene glycol (CAS: 111-46-6) is found on the following regulatory lists;

- Australia Exposure Standards
- Australia Hazardous Substances
- Australia High Volume Industrial Chemical List (HVICL)
- Australia Inventory of Chemical Substances (AICS)
- GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships
- IMO IBC Code Chapter 18: List of products to which the Code does not apply
- IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances
- International Council of Chemical Associations (ICCA) - High Production Volume List
- OECD Representative List of High Production Volume (HPV) Chemicals

diethyltoluenediamine (CAS: 68479-98-1) is found on the following regulatory lists;

- Australia Hazardous Substances
- Australia Inventory of Chemical Substances (AICS)
- Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix E (Part 2)
- OECD Representative List of High Production Volume (HPV) Chemicals

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## Section 16 - OTHER INFORMATION

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» 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/references](http://www.chemwatch.net/references).

» 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.

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