



Rhino DURASPRAY A-SIDE Material Safety Data Sheet

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Issue Date: Thu 18-Dec-2003

Revised Date: 27-February-2009

COMPANY DETAILS

COMPANY NAME:	RHINO LININGS AUSTRALASIA PTY LTD
COMPANY ADDRESS:	501 – 505 OLSEN AVENUE, MOLENDINAR QLD 4214
TELEPHONE:	+61 7 5585 7000
FACSIMILE:	+61 7 5539 6399

STATEMENT OF HAZARDOUS NATURE

HAZARDOUS substance. NON-DANGEROUS GOODS. According to the criteria of NOHSC, and the ADG Code.

IDENTIFICATION

PRODUCT NAME:	Rhino Duraspray A-Side, Iso
SYNONYMS	4,4'-diphenylmethane diisocyanate(MDI). MDI oligomer, Duraspray
PART NUMBER:	Part # DS10075 – 75kg, DS10250 – 250kg.
U.N.NUMBER:	None
HAZCHEM CODE:	None
CAS RN No(s)	None
PACKING GROUP	None
DANGEROUS GOODS CLASS & SUB RISK:	None None
POISON SCHEDULE:	S6
USE:	Hardener component A of a polyurethane lining formulation. Always used in admixture with component B. 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

PHYSICAL PROPERTIES/DESCRIPTION:

APPEARANCE:	Dark brown liquid; does not mix with water. Musty odour.
BOILING POINT:	Not applicable
MELTING POINT:	Not available
VAPOUR PRESSURE (kPa) :	Negligible
SPECIFIC GRAVITY (@ 25°C)	1.24 approx
FLASHPOINT / 0°:	218
LOWER EXPLOSIVE LIMIT %	Not applicable
UPPER EXPLOSIVE LIMIT %	Not applicable
SOLUBILITY IN WATER %:	Immiscible, reacts with water
VISCOSITY:	

INGREDIENTS

Name	CAS RN %
4,4'-diphenylmethane diisocyanate (MDI), Polymeric MDI	9016-87-9 >70

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HEALTH HAZARD INFORMATION

Swallowed:	Considered an unlikely route of entry in commercial/industrial environments Ingestion may result in nausea, abdominal irritation, pain and vomiting
Eye Contact:	The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis
Skin Contact:	Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities. Sensitisation reactions may appear suddenly after repeated symptom free exposures Bare unprotected skin should not be exposed to this material Toxic effects may result from skin absorption
Inhalation:	The vapour/mist may be highly irritating to the upper respiratory tract and lungs; the response may be severe enough to produce bronchitis and pulmonary oedema. Possible neurological symptoms arising from isocyanate exposure include headache, insomnia, euphoria, ataxia, anxiety neurosis, depression and paranoia. Gastrointestinal disturbances are characterised by nausea and vomiting. Pulmonary sensitisation may produce asthmatic reactions ranging from minor breathing difficulties to severe allergic attacks; this may occur following a single acute exposure or may develop without warning for several hours after exposure. Sensitized people can react to very low doses, and should not be allowed to work in situations allowing exposure to this material. Continued exposure of sensitised persons may lead to possible long term respiratory impairment. Inhalation hazard is increased at higher temperatures. Inhalation of vapour may aggravate a pre-existing respiratory condition such as asthma, bronchitis, emphysema

CHRONIC HEALTH EFFECTS

Isocyanate vapours are irritating to the airways and can cause their inflammation, with wheezing, gasping, severe distress, even loss of consciousness and fluid in the lungs. Nervous system symptoms that may occur include headache, sleep disturbance, euphoria, inco-ordination, anxiety, depression and paranoia. Digestive effects include nausea and vomiting.

Breathing difficulties may occur unpredictably after a period of tolerance and after skin contact. Allergic inflammation of the skin can occur, with rash, itching, blistering, and swelling of the hands and feet. Sensitive people can react to very low levels and should not be exposed to this material.

Respiratory sensitisation may result in allergic/asthma like responses; from coughing and minor breathing difficulties to bronchitis with wheezing, gasping.

Sensitisation may give severe responses to very low levels of exposure, i.e. hypersensitivity. Sensitised persons should not be allowed to work in situations where exposure may occur.

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.FIRST AID

Swallowed:	<p>If poisoning occurs, contact a doctor or Poisons Information Centre.</p> <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. <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 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> <ul style="list-style-type: none"> · 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.
Skin Contact:	<p>If solids or aerosol mists are deposited upon the skin:</p> <ul style="list-style-type: none"> · 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.
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.
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.

ADVICE TO DOCTOR ~ Treat symptomatically

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.

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ADVICE TO DOCTOR cont.

- 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 edema 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]

PRECAUTIONS FOR USE

Exposure Standards:	<p>EXPOSURE STANDARDS No data for Rhino Duraspray A-Side, Iso.</p> <p>EXPOSURE STANDARDS FOR MIXTURE "Worst Case" computer-aided prediction of vapour components/concentrations: Composite Exposure Standard for Mixture (TWA) (mg/m³): 0.051 mg/m³ If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed. Component Breathing Zone ppm Breathing Zone mg/m³ Mixture Conc: (%) 4,4'-diphenylmethane diisocyanate 0.01 0.051 100</p> <p>INGREDIENT DATA 4,4'-DIPHENYLMETHANE DIISOCYANATE (MDI): TLV TWA: 0.02 ppm [ACGIH] TLV TWA: 0.005 ppm [ACGIH] PEL Ceiling: 0.02 ppm, 0.2 mg/m³ [OSHA Z1] [OSHA Z1] isocyanates, all as NCO (Mol.Wt: 42.00) ES TWA: 0.02 mg/m³; STEL: 0.07 mg/m³ sensitiser MEL TWA: 0.02 mg/m³; STEL: 0.07 mg/m³ sensitiser Some jurisdictions require that health surveillance be conducted on occupationally exposed workers. This should emphasise: · demography, occupational and medical history and health advice · completion of a standardised respiratory questionnaire · physical examination of the respiratory system and skin · standardised respiratory function tests such as FEV1, FVC and FEV1/FVC diphenyl methane diisocyanate as methylene bisphenyl isocyanate MDI TLV TWA: 0.005 ppm; 0.051 mg/m³ as -NCO [ACGIH] MAK value: 0.05 mg/m³ Designated S in List of MAK values: Danger of sensitization MAK Category I Peak Limitation: For local irritants Allows excursions of twice the MAK value for 5 minutes at a time, 8 times per shift.</p>
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PRECAUTIONS FOR USE cont.

Exposure Standards cont	<p>MAK IIIB: Substances suspected of having carcinogenic potential</p> <p>MAK Group IIc: Substances with MAK Values but no pregnancy risk group classification. These are substances which have been investigated but for which no information regarding possible damage to the foetus/embryo was found. Mention calls attention to the absence of adequate data.</p> <p>MAK values, and categories and groups are those recommended within the Federal Republic of Germany</p> <p>REL TWA: 0.005 ppm, REL C 0.02 ppm/10 min [NIOSH 1985]</p> <p>Odour Threshold Value: 0.39 ppm</p> <p>IDLH Level: 75 mg/m³</p> <p>Mean MDI exposures of less than 0.003 ppm appear to have no acute or chronic effect on pulmonary function.</p> <p>MDI produces identical toxicological responses to those produced by TDI and the recommended TLV-TWA is identical for the two isocyanates. Exposure at or below the recommended value is thought to protect the worker against pulmonary function decrements as well as to minimise the potential for respiratory tract sensitisation. Individuals who may be hypersusceptible or otherwise unusually responsive to exposure to certain industrial chemicals may not adequately protected from adverse health effects caused by MDI at the recommended TLV-TWA. Ceiling values recommended by NIOSH and OSHA are synonymous with normal excursions allowable for exposures to the TLV-TWA (in excess of 3 x TLV-TWA for no more than a total of 30 minutes during a work day but in any case not exceeding 5 x TLV-TWA).</p>								
Engineering Controls	<p>Use in a well-ventilated area</p> <p>General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas.</p> <p>Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.</p> <p>Type of Contaminant: Air Speed:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 70%;">solvent, vapours, degreasing etc., evaporating from tank (in still air).</td> <td style="text-align: right; vertical-align: bottom;">0.25-0.5 m/s (50-100 f/min)</td> </tr> <tr> <td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td> <td style="text-align: right; vertical-align: bottom;">0.5-1 m/s (100-200 f/min.)</td> </tr> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td> <td style="text-align: right; vertical-align: bottom;">1-2.5 m/s (200-500 f/min.)</td> </tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td> <td style="text-align: right; vertical-align: bottom;">2.5-10 m/s (500-2000 f/min.)</td> </tr> </table>	solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min)	aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)	direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)	grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)
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PRECAUTIONS FOR USE cont.

Engineering Controls cont:	<p>Within each range the appropriate value depends on:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Lower end of the range</p> <p>1: Room air currents minimal or favourable to capture</p> <p>2: Contaminants of low toxicity or of nuisance value only</p> <p>3: Intermittent, low production.</p> <p>4: Large hood or large air mass in motion</p> </td> <td style="width: 50%; vertical-align: top;"> <p>Upper end of the range</p> <p>1: Disturbing room air currents</p> <p>2: Contaminants of high toxicity</p> <p>3: High production, heavy use</p> <p>4: Small hood-local control only</p> </td> </tr> </table> <p>Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.</p> <p>Refer also to protective measures for the other component used with the product. Read both MSDS before using; store and attach MSDS together.</p>	<p>Lower end of the range</p> <p>1: Room air currents minimal or favourable to capture</p> <p>2: Contaminants of low toxicity or of nuisance value only</p> <p>3: Intermittent, low production.</p> <p>4: Large hood or large air mass in motion</p>	<p>Upper end of the range</p> <p>1: Disturbing room air currents</p> <p>2: Contaminants of high toxicity</p> <p>3: High production, heavy use</p> <p>4: Small hood-local control only</p>										
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Personal Protection	<p>EYE Chemical goggles. Full face shield. DO NOT wear contact lenses. Contact lenses pose a special hazard; soft contact lenses may absorb irritants and all lenses concentrate them.</p> <p>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.</p> <p>OTHER Overalls. Eyewash unit. DO NOT return unused product to containers.</p> <p>RESPIRATOR Respiratory protection is required when ANY "Worst Case" vapour-phase concentration is exceeded (see Computer Prediction in "Exposure Standards").</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left;">Protection Factor (Min)</th> <th style="text-align: left;">Half-Face Respirator</th> <th style="text-align: left;">Full-Face Respirator</th> </tr> </thead> <tbody> <tr> <td>10 x ES</td> <td>A-AUS A-PAPR-AUS</td> <td>- -</td> </tr> <tr> <td>50 x ES</td> <td>- -</td> <td>A-AUS A-PAPR-AUS</td> </tr> <tr> <td>100 x ES</td> <td>- -</td> <td>A-2 A-PAPR-2</td> </tr> </tbody> </table> <p>^ - Full-face The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult your Occupational Health and Safety Advisor.</p>	Protection Factor (Min)	Half-Face Respirator	Full-Face Respirator	10 x ES	A-AUS A-PAPR-AUS	- -	50 x ES	- -	A-AUS A-PAPR-AUS	100 x ES	- -	A-2 A-PAPR-2
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SAFE HANDLING INFORMATION

Storage and Transport:	<p>SUITABLE CONTAINER</p> <ul style="list-style-type: none"> · Metal can or drum · Packaging as recommended by manufacturer. · Check all containers are clearly labelled and free from leaks. <p>STORAGE INCOMPATIBILITY</p> <p>Avoid storage with oxidisers</p> <ul style="list-style-type: none"> · 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. <p>STORAGE REQUIREMENTS</p> <p>Rotate all stock to prevent ageing. Use on FIFO (First In-First Out) basis</p> <p>Keep dry</p> <ul style="list-style-type: none"> · Store between 15 and 30 deg. C. · Store in original containers. · Keep containers securely sealed. · No smoking, naked lights or ignition sources. · Store in a cool, dry, well-ventilated area. · Store away from incompatible materials and foodstuff containers. · Protect containers against physical damage and check regularly for leaks. · Observe manufacturer's storing and handling recommendations. <p>TRANSPORTATION</p> <p>No restrictions.</p>
Spillages and Disposal:	<p>MINOR SPILLS</p> <p>Clean up all spills immediately.</p> <p>Shut off all possible sources of ignition and increase ventilation.</p> <p>Avoid contact with skin and eyes.</p> <p>Wear protective clothing, impervious gloves and safety glasses.</p> <p>Contain and absorb spill with sand, earth, inert material or vermiculite.</p> <p>Trowel up/scrape up.</p> <p>Collect residues and place in labelled plastic containers with vented lids</p> <p>MAJOR SPILLS</p> <p>DO NOT touch the spill material</p> <p>Pollutant - contain spillage</p> <p>Clear area of personnel and move upwind</p> <ul style="list-style-type: none"> · Wear full body protective clothing with breathing apparatus. · Prevent, by any means available, spillage from entering drains or water courses. <p>Shut off all possible sources of ignition and increase ventilation.</p> <p>No smoking or naked lights within area.</p> <p>Stop leak if safe to do so.</p> <p>Contain and absorb spill with sand, earth, inert material or vermiculite.</p> <p>Collect residues and seal in labelled drums for disposal</p> <p>Wash spill area with detergent and water.</p> <p>DO NOT USE WATER OR NEUTRALISING AGENTS INDISCRIMINATELY ON LARGE SPILLS.</p>

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Spillages and Disposal cont.	<p>DISPOSAL</p> <ul style="list-style-type: none"> · 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 CO2 gas is generated and may pressurise containers. · Puncture containers to prevent re-use. · Bury or incinerate residues at an approved site.
Fire Fighters Report	<p>EXTINGUISHING MEDIA</p> <p>SMALL FIRES Dry chemical powder. Carbon dioxide. Protein foam.</p> <p>LARGE FIRES Water spray or fog. Flooding quantities of water only.</p> <ul style="list-style-type: none"> · Small quantities of water in contact with hot liquid may react violently with generation of a large volume of rapidly expanding hot sticky semi-solid foam. · Presents additional hazard when fire fighting in a confined space. · Cooling with flooding quantities of water reduces this risk. <p>FIRE FIGHTING Clear area of personnel.</p> <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 water delivered as a fine spray to control fire and cool adjacent area. · Avoid spraying water onto liquid pools. · DO NOT approach containers suspected to be hot. · Cool fire exposed containers with water spray from a protected location. · If safe to do so, remove containers from path of fire. <p>FIRE/EXPLOSION HAZARD</p> <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. · 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. <p>FIRE INCOMPATIBILITY Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result</p> <p>HAZCHEM None</p>

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CONTACT POINT

Company Contact	+61 7 5585 7000
Australian Poisons Information Centre 24 hr Service	13 11 26
Police, Ambulance, Fire Brigade	000
New Zealand Poisons Information Centre 24 hr Service	03 4747 000
New Zealand Emergency Services	111

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End of Report