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**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME
(NICNAS)**

FULL PUBLIC REPORT

Polymer in DESMODUR DN and DESMODUR DA-L

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**Director
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FULL PUBLIC REPORT**Polymer in DESMODUR DN and DESMODUR DA-L****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANTS

Bayer Hodgsons Pty Ltd
Unit 1, 31 Hill Road
Homebush Bay NSW 2127

Mitsubishi Australia Ltd
Level 36/120 Collins Street
Melbourne 3000

NOTIFICATION CATEGORY

Limited: Polymer with NAMW ≥ 1000 (greater than 1 tonne per year).

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Identity of the polymer

Composition

Import volume

Identity of sites

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

Variation to the schedule of data requirements is claimed as follows:

Some of the physicochemical properties

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

CEC 545

NOTIFICATION IN OTHER COUNTRIES

TSCA (USA), MITI (Japan), ECL (South Korea) and Canada.

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Polymer in DESMODUR DN and DESMODUR DA-L

NUMBER AVERAGE

MOLECULAR WEIGHT

>1000

METHODS OF DETECTION AND DETERMINATION

ANALYTICAL METHOD IR spectroscopy

3. COMPOSITION

DEGREE OF PURITY

Up to 100%

DEGRADATION PRODUCTS

No hazardous decomposition products when stored and handled in the correct manner.

LOSS OF MONOMERS, OTHER REACTANTS, ADDITIVES, IMPURITIES

Exothermic reaction with amines and alcohols; reacts slowly with water forming carbon dioxide.

4. INTRODUCTION AND USE INFORMATION

MODE OF INTRODUCTION OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

The notified polymer will be imported as product DESMODUR DN and DESMODUR DA-L

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

Bayer Australia Ltd:

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	1-10	1-10	1-10	1-10	1-10

Mitsubishi Australia Ltd:

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	0.6	2	2	2	2

USE

DESMODUR DN and DESMODUR DA-L will replace the current commercial product DESMODUR DA already in use in Australia. The products will be used as cross linkers for a two component adhesive to be sold to industry. Customers will use between 2-5% cross linker in their formulations

DESMODUR DN and DESMODUR DA-L will be used in the automotive industry as a cross linker for an adhesive applied to secure the door trims, and in the furniture lamination industry as a cross linker in the polyurethane adhesive.

5. PROCESS AND RELEASE INFORMATION

5.1. Distribution, Transport and Storage

PORT OF ENTRY

Not known

IDENTITY OF RECIPIENTS

Victoria

TRANSPORTATION AND PACKAGING

The notified polymer will be imported in products contained in 60 kg drums.

The imported material will be sent to the end user in either the original 60 kg drums or be repacked into 1 kg screw top metal bottles or sachets ready for the end users.

5.2. Operation Description

The imported products containing <10% notified polymer are repacked into 1 L screw cap or smaller poison grade tins, and distributed to adhesive manufacturers.

The container containing notified polymer is added to 20 L pail of adhesive. The mixture is then applied by brush onto substrate (car manufacturing) or sprayed onto MDF board (Medium Density Fibreboard) (furniture laminating). The finished goods are stacked.

Ventilation through air extraction is used.

5.3. Occupational exposure

Number and Category of Workers

<i>Category of Worker</i>	<i>Number</i>	<i>Exposure Duration Exposure Frequency</i>
<i>End user- car manufacturer</i>		
Transport and storage	1	Exposure not likely (sealed drums)
Applicator	1-3	2 minutes for adding Shift work for application
<ul style="list-style-type: none"> adding cross linker to resin apply adhesive by brush onto substrate 		
Stack finished goods (manual)	1-3	Exposure is not likely (notified polymer will be cross linked)
<i>End user- Furniture Laminators</i>		
Transport and storage	1	Exposure not likely (sealed drums)
Applicator	1	Automatic process- exposure is not likely
<ul style="list-style-type: none"> adding cross linker to resin spraying adhesive onto MDF Board and passing through oven 		
Stack finished goods (manual)	1-3	Exposure is not likely (notified polymer will be cross linked)

Exposure Details

Categories of workers likely to be exposed to the notified polymer are those involved in transport and delivery, preparing the mixture (cross linker plus resin), applying the mixture by brush or spraying, and cleaning up spills and equipment.

Handling the notified chemical is expected to occur under adequate ventilation. Respiratory protection is worn when spraying and if ventilation in working areas is not adequate.

No information is provided on re-packaging, but it is expected to be automated.

5.4. Release

RELEASE OF CHEMICAL AT SITE

The imported material will be sent to the end user in either the original 60 kg drums or be repacked into 1 kg screw top metal bottles or sachets ready for the end users. It is unclear how much will be repacked but during this process there should be no release to the environment. There is potential for release in the event of an accident but the repackaging is conducted in bunded facilities and clean up of any spills according to the MSDS will limit environmental release.

Once excess residues in empty containers are removed, any remaining residues are to be rendered harmless (hydrolysed) before these containers are sent to recyclers or disposed of as industrial waste. The polymer will hydrolyse to form insoluble polyurea and carbon dioxide. It is noted that hydrolysis with water could also form amines that are of concern due to their aquatic toxicity. It is assumed that approximately 0.5-1% of the import chemical containing <10% of the notified polymer could be disposed of from drum residues.

RELEASE OF CHEMICAL FROM USE

At the end-users, the notified polymer will be mixed with other products to form the adhesives that will be applied to substrates (automotive trims and furniture laminates). The notifier expects that the entire mixed adhesive will be used with little wastage due to costs. Unused adhesive will cross-link into an inert polymer mass. Equipment is expected to be cleaned with cloths damped in clean solvent and the used cloths are expected to be disposed of as industrial waste or burnt. It is assumed that approximately <1% of the import polymer could be disposed during use.

5.5. Disposal

The majority of the polymer is bound to the substrate, cross-linked and will be disposed of with the substrates (automotive parts/cars etc and MDF board) to either landfill or incinerated. Small amounts of the polymer that are disposed off during use as an adhesive will also be cross-linked and disposed by either landfill or incinerated. It is assumed that > 98% of the imported material will be disposed of after cross-linking, with the remainder disposed of at an industrial waste site from drum residues.

5.6. Public exposure

The end adhesives are only sold to industry. Exposure to the notified polymer may only occur through contact with car parts or furniture after lamination.

During transport and storage, exposure to the public is not expected unless there is an accidental spillage or packaging breach.

6. PHYSICAL AND CHEMICAL PROPERTIES

The notified polymer is never isolated and the physical and chemical properties below refer to the products DESMODUR DN and DESMODUR DA-L. Test reports were not provided.

Appearance at 20°C and 101.3 kPa	Yellowish liquid
Setting Point	-37°C
Density	1150 kg/m ³ at 20°C
Vapour Pressure	42 hPa at 25°C
Water Solubility	Reacts with water to form insoluble polyurea/amines and carbon dioxide
Hydrolysis	Ready reacts with water at all pH ranges to form insoluble polyurea/amines and carbon dioxide
Partition Coefficient (n-octanol/water)	Not applicable, reacts with water
Adsorption/Desorption – screening test	Not applicable, reacts with water
Dissociation Constant	Not applicable, reacts with water
Particle Size	Not applicable
Flash Point	215-218°C
Flammability Limits	Not provided
Autoignition Temperature	445-435°C
Explosive Properties	Not applicable
Reactivity	
Remarks	Exothermic reaction with amines and alcohols; reacts with water to form insoluble polyurea/amines and carbon dioxide.

ADDITIONAL TESTS

Viscosity	3400-1250 mPa.s at 23°C
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7. TOXICOLOGICAL INVESTIGATIONS

The notifier submitted an acute oral study and skin sensitisation study on DESMODUR VP LS 2032 (a similar product to DESMODUR DN/DAL).

<i>Endpoint and Result</i>	<i>Assessment Conclusion</i>
Rat, acute oral	LD ₅₀ >2000 mg/kg bw low toxicity
Guinea pig, skin sensitisation - adjuvant test.	Evidence of skin sensitisation.

7.1. Acute toxicity – oral

TEST SUBSTANCE DESMODUR VP LS 2032

METHOD OECD TG 401 Acute Oral Toxicity.
EC Directive 84/449 EEC B.1 Acute Toxicity (Oral).

Species/Strain Rat/Wistar
Vehicle Polyethylene 400
Remarks – Method Intragastric application

RESULTS

<i>Group</i>	<i>Number and Sex of Animals</i>	<i>Dose mg/kg bw</i>	<i>Mortality</i>
	Five rats per sex	2000	None

LD50 >2000 mg/kg bw
Signs of Toxicity No signs of intoxication was observed after single administration of 2000 mg/kg bw. Body weights were not affected
Effects in Organs No noticeable gross pathological findings
Remarks – Results

CONCLUSION The test substance is of low toxicity via the oral route.

TEST FACILITY Bayer AG (1994)

7.6. Skin sensitisation

TEST SUBSTANCE DESMODUR VP LS 2032

METHOD OECD TG 406 Skin Sensitisation – Maximisation test of Magnusson and Kligman

EC Guideline 92/69. Skin Sensitization – method B.6.
Species/Strain Guinea pig/Hsd Win:DH

54 females and 1 male were used.

PRELIMINARY STUDY Intracutaneous: 0%, 1%, 2.5%, 5% (one animal evaluated after 24 and 48 hrs)

Topical: 6%, 12%, 25%, 50% and 100% (4 females evaluated after 48 and 72 hrs under occlusive dressing)

Challenge- topical: 6%, 12%, 25% and 50% (5 females evaluated after 48 and 72 hrs under occlusive dressing)

MAIN STUDY

Number of Animals Test Group: 1 (20 animals) Control Group: 2 (10 animals/group)

INDUCTION PHASE Induction Concentration:

intradermal injection 5%

topical application 50%

CHALLENGE PHASE

1st challenge

Performed 3 weeks after the intradermal induction

topical application: 12 and 6%

Remarks - Method

Test chemical was formulated in polyethylene glycol

RESULTS

<i>Animal</i>	<i>Challenge Concentration</i>	<i>Number of Animals Showing Skin Reactions after 1st challenge</i>	
		<i>48 hr</i>	<i>72 hr</i>
<i>Test Group</i>	12%	20/20	13/20
	6%	7/20	2/20
<i>Control Group</i>	12%	6/10	0/10
	6%	0/10	0/10

Remarks - Results

No mortalities occurred. After the second induction, some animals showed encrustations in places on the treatment areas.

After challenge, 100% and 35% tested animals showed skin redness to 12% and 6% of the test chemical, respectively.

CONCLUSION

There was evidence of reactions indicative of skin sensitisation to the test substance under the conditions of the test.

TEST FACILITY

Bayer AG (1995)

8. ENVIRONMENT

8.1. Environmental fate

All the following studies were conducted using the product DESMODUR DN.

8.1.1. Ready biodegradability

TEST SUBSTANCE

DESMODUR DN

METHOD

Modified protocol of EEC Method C.4-D 'Manometric Respirometry Test'. The difference to method C.4-D is that an adapted inoculum was used

Inoculum

Activated sludge incubated with the test substance DESMODUR DN for 4 week prior to the test.

Exposure Period

28 days

Auxiliary Solvent

Nil

Analytical Monitoring

Chemical Oxygen Demand of solids and concentration of nitrite and nitrate.

Remarks - Method

The test is acceptable.

RESULTS

<i>Test substance</i>		<i>Sodium benzoate</i>	
<i>Day</i>	<i>% degradation</i>	<i>Day</i>	<i>% degradation</i>
28	2%	10	88%
		28	97%

Remarks - Results

There was little degradation of the test substance. Degradation of positive control was satisfactory. There was no evidence in the toxicity control of toxic effects from the test substance. There was no uptake of oxygen by nitrification.

CONCLUSION

DESMODUR DN has limited degradation (2%) in the test and is not ready degradable.

TEST FACILITY

Bayer Ag, WD-UWS (2001a)

8.2. Ecotoxicological investigations

8.2.1. Acute toxicity to fish

TEST SUBSTANCE	DESMODUR DN
METHOD	EC Directive 92/69/EEC C.1 Acute Toxicity for Fish - Static test.
Species	Zebra fish (<i>Brachydanio rerio</i>)
Exposure Period	96 hours
Auxiliary Solvent	Nil
Water Hardness	Not given
Analytical Monitoring	Nominal
Remarks – Method	The required amount of test substance was weighed out, then mixed for 24 hours (ultra turrax, followed by magnetic stirring) before filtering (pore size 7-12 µm).

RESULTS

Concentration mg/L		Number of Fish	Mortality				
Nominal	Actual		2 h	24 h	48 h	72 h	96 h
10	-	10	0	0	0	0	0
31.6	-	10		9	9	9	9

LC50	Given as 17.8 mg/L at 96 hours (geometric mean of test levels).
NOEC	10 mg/L at 96 hours.
Remarks – Results	The LC ₅₀ of the test substance is not valid given there was only two test concentrations and only one of these showed an effect. The LC50 is between 10 and 31.6 mg/L nominal. It should be noted that the water accommodated fraction and fine particles (<12 µm) were used and the isocyanate functionalities would have been hydrolysed to the corresponding amines/polyuria as a result.

CONCLUSION	The report shows that the LC50 lies between 10 and 31.6 mg/L nominal.
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TEST FACILITY	Bayer Ag, WD-UWS (2001b)
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8.2.2. Acute toxicity to aquatic invertebrates

TEST SUBSTANCE	DESMODUR DN
METHOD	EC Directive 92/69/EEC C.2 Acute Toxicity for Daphnia – static conditions.
Species	<i>Daphnia magna</i>
Exposure Period	48 hours
Auxiliary Solvent	
Water Hardness	Not given. Prepared as standard medium
Analytical Monitoring	
Remarks - Method	The test solutions were prepared by mixing for 24 hours before filtration as previously.

RESULTS

Concentration mg/L		Number of <i>D. magna</i>	Number Immobilised	
Nominal			24 h	48 h
1		20		
3.2		20		
10		20	1	1

	32 100	20 20	1 5	4 15
LC50	58 mg/L at 48 hours			
NOEC (or LOEC) Remarks - Results	<p>EC50 determined by probits. Again, it should be noted that this is the water accommodated fraction and fine particles (<12 µm) and the isocyanate functionalities would have been hydrolysed to the corresponding amines/polyurea.</p> <p>As there were two test concentrations with effects spanning the 50% effect levels, the results are considered reliable, noting this is the water accommodated fraction and/or fine particles.</p>			
CONCLUSION	The chemical is moderately toxic to aquatic invertebrates based on its water accommodated fraction.			
TEST FACILITY	Bayer Ag, WD-UWS (2001c), Institute of Environmental Analysis and Evaluation, Leverkusen, Germany			

8.2.3. Algal growth inhibition test

TEST SUBSTANCE	DESMODUR DN		
METHOD	EC Directive 92/69/EEC C.3 Algal Inhibition Test.		
Species	<i>Scenedesmus subspicatus</i>		
Exposure Period	72 hours		
Concentration Range	100 mg/L. The test compound was added to water, stirred then filtered before the test commenced.		
Nominal	Not measured		
Concentration Range	Actual		
Auxiliary Solvent	Nutrient medium		
Water Hardness	Nil		
Analytical Monitoring	Limit test only.		
Remarks - Method			
RESULTS			
	<i>Biomass</i>	<i>Growth</i>	<i>NOEC</i>
	<i>E_pC50</i>	<i>E_rC50</i>	<i>mg/L at 72 h</i>
	<i>mg/L at 72 h</i>	<i>mg/L at 72 h</i>	
	> 100	>100	100

Remarks - Results	The test shows that at 100 mg/L there was no effect on cell numbers or growth rate of the test algae. It should be noted that this is the water accommodated fraction and fine particles (<12 µm) and the isocyanate functionalities would have been hydrolysed to the corresponding amines/polyurea.
CONCLUSION	DESMODUR DN has no effect on the green algae <i>Scenedesmus subspicatus</i> , and is rated as being non-toxic to algae.
TEST FACILITY	Bayer Ag, WD-UWS (2001d)

9. RISK ASSESSMENT

9.1. Environment

9.1.1. Environment – exposure assessment

There is expected to be little if any environmental exposure to DESMODUR DN. During repacking there is limited potential for exposure to the environment with this operation conducted in bunded facilities. Once excess residues in empty containers are removed, any remaining residues are to be rendered harmless (assumed to imply hydrolysed) before these containers are sent to recyclers or disposed of as industrial waste.

Some release of the polymer is possible during application after mixing with the other product to make the adhesive. However, the loss during application is minimised due to the manual nature of application and extra care exercised by operating personnel due to the expense of the material. Any material released during application will harden to a cross-linked polymer and be disposed of to landfill. There will be some cleaning of application equipment (brushes, rollers etc) with cloths damped in cleaning solvent that will ultimately be disposed of at landfill. It is assumed that 0.5-1% of imported chemical will be disposed of, equivalent to <100 kg of notified polymer.

The majority of the polymer is bound to the substrate, cross-linked and will be disposed of with the substrates (automotive parts/cars etc and MDF board) to either landfill or incinerated.

Any spillage of material during the preparation or application of the polymer would be absorbed into sand or other suitable material, and disposed of by landfill.

9.1.2. Environment – effects assessment

The imported product is categorised as acute toxicity III to both fish and daphnia following mixing with water and is non-toxic to algae. Using the most sensitive result for fish, LC50 between 10-31.6 mg/L, the PNEC is between 0.1-0.32 mg/L with geometric mean of 0.18 mg/L. The PNEC is based on an assessment factor of 100.

The notifier's MSDS states that DESMODUR DN has the following EU Risk phrases:

R52	Harmful to aquatic organisms
R53	May cause long-term adverse effects in the aquatic environment

9.1.3. Environment – risk characterisation

During the use of DESMODUR DN/DA-L, there should be limited environmental exposure. Any spills, drum residues and other small amounts of polymer from cleaning equipment, assumed to be <1% (<100 kg annum), will be neutralised (hydrolysed) before disposal by landfill or incinerated. In the landfill, the hydrolysed polymer, likely to be an insoluble polyurea, is expected to be immobile and will slowly degrade. The risk to the environment will be low.

When the polymer is mixed into the final adhesive, the polymer will be used on the substrates (automotive door trims and in furniture) as an adhesive where it will cross-link. Once cross-linked, the toxicity will be negligible and environmental exposure will be minimal. Also, when the substrates are finished they useful lives, they will be disposed of by landfill or incineration. The risk to the environment will be low.

9.2. Human health

9.2.1. Occupational health and safety – exposure assessment

It is considered that workers may only be exposed to DESMODUR DN/DA-L containing notified polymer and the mixture used for application.

The worst case scenario for occupational exposure is during adhesive preparation and end use, in particular spray and manual application. Dermal and inhalation exposure may occur when workers open the cans containing DESMODUR DN/DA-L (up to 10% notified polymer), mix the contents to form the final adhesive (2-5% of DESMODUR DN/DA-L, up to 0.5 % notified polymer) and apply by brush on automotive car parts or spraying onto MDF board.

Preparing the final adhesive takes a short duration of time (2 minutes) and is not a frequent

activity.

During brush application, exposure is assessed as low since workers are likely to avoid spills because of the viscous nature of the product and the low amount of notified polymer in the final adhesive.

During spray application onto furniture, workers are expected to apply the product in spray booths and drying will be automated. Spray application may result in exposure to spray mist and inhalation exposure if ventilation is not adequate.

After spray application, the MDF board is passed through an oven in an automated process. Worker exposure at this stage is not likely.

Repackaging of DESMODUR DN/DA-L product is expected to be automated and under local exhaust ventilation.

9.2.2. Public health – exposure assessment

Public exposure to DESMODUR DN/DA-L is not expected since it will not be available to the public. The public are expected to have contact with laminated furniture or automotive parts after use of the adhesive. However, at this stage the notified polymer will be cross linked and not available for exposure.

9.2.3. Human health – effects assessment

Toxicology studies were only submitted on a similar product to DESMODUR DN. The toxicology assessment is considered relevant for the notified polymer.

The notified polymer is expected to have low acute toxicity and a dermal sensitiser in products containing notified polymer. In accordance with the National Occupational health and Safety's *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 1999b), the notified polymer is determined to be hazardous with R43 assigned (May cause sensitisation by skin contact).

There is some evidence of concentration-dependent irritating effects on eyes, nose, throat and respiratory tract from over-exposure to similar products when spraying without the necessary precautions.

The notified polymer has a high MW. Although, there is a significant amount of low molecular weight species under 1000, most of these fall between 500 and 1000. A small percentage is comprised of oligomers and other species below 500. It is expected that dermal absorption is low.

The product DESMODUR DN/DA-L is classified as a hazardous substance. It contains isocyanates which are on Schedule 3 of the National Model Regulations for the Control of Hazardous Substances (NOHSC, 1994a). Overexposure to isocyanates may cause irritating effects on eyes, nose, throat and respiratory tract. The NOHSC exposure standard for isocyanates is 0.02 mg/m³ TWA and 0.07 mg/m³ STEL (NOHSC, 1995). The MSDS for the product indicated that it is slightly irritant to the skin, not eye irritant and not a respiratory sensitiser. Skin sensitisation according to Buchler did not show a sensitising effect but according to the Magnusson/Kligman test, the product has a sensitising effect.

9.2.4. Occupational health and safety – risk characterisation

The main hazard to the notified polymer is skin sensitisation. Dermal absorption is expected to be low given the high MW and low content of Mw species below 500.

The product will not be manufactured locally. Worker exposure is considered during repackaging, end use, transport and storage.

The worst case is when workers apply the product by spraying or brush and mixing the product to form the final adhesive. It is expected that preparation of the adhesive will be conducted under local exhaust ventilation, however workers may become exposed when transferring DESMODUR DN/DA-L for mixing. Manual and spray application may result in splashes and

spills. Therefore, there is a risk of skin sensitising effects when handling DESMODUR DN/DA-L.

The product may also contain low levels of free isocyanates, which are sensitisers and may irritate the eyes, nose, throat and respiratory tract. Therefore, workers will require protective clothing, gloves and safety glasses and a respirator if ventilation is not adequate and personal respirator if ventilation is not adequate.

The risk during automated application is low since worker exposure is limited at that stage.

Once the notified polymer is cured, it is not available for exposure and the risk of adverse effects from contact with automotive parts or laminated furniture is low.

9.2.5. Public health – risk characterisation

Public exposure to the notified polymer is only expected to occur after its application on automotive parts and furniture. At that stage, the notified polymer will have cured and would not be bioavailable for exposure. Therefore, the risk to the public is assessed as low.

10. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

10.1. Hazard classification

Based on the available data the notified chemical is classified as hazardous under the NOHSC *Approved Criteria for Classifying Hazardous Substances*. The classification and labelling details are:

R43	May cause skin sensitisation by skin contact
S24	Avoid contact with skin

Environmental classification for this chemical is Chronic III based on ecotoxicity results and limited biodegradation. This classification carries the warning statement "Harmful to aquatic life with long lasting effects".

10.2. Environmental risk assessment

The chemical is not considered to pose a risk to the environment based on its reported use pattern.

10.3. Human health risk assessment

10.3.1. Occupational health and safety

There is Medium Concern to occupational health and safety during manual application under the conditions of the occupational settings described.

10.3.2. Public health

There is Low Concern to public health when used according to prescribed instructions.

11. MATERIAL SAFETY DATA SHEET

11.1. Material Safety Data Sheet

The MSDS of the [products containing the notified polymer](#) (DESMODUR DN and DESMODUR DA-L) provided by the notifier were in accordance with the NOHSC *National Code of Practice for the Preparation of Material Safety Data Sheets* (NOHSC, 1994b). They are published here as a matter of public record. The accuracy of the information on the MSDS remains the responsibility of the applicant.

11.2. Label

The label for the [products containing the notified polymer](#) (DESMODUR DN and DESMODUR DA-L) provided by the notifier [were](#) in accordance with the NOHSC *National Code of Practice for the Labelling of Workplace Substances* (NOHSC, 1994c). The accuracy of the information on the label remains the responsibility of the applicant.

12. RECOMMENDATIONS

REGULATORY CONTROLS

Hazard Classification and Labelling

- The NOHSC Chemicals Standards Sub-committee should consider the following hazard classification for the notified polymer:
 - *R43 May cause sensitisation by skin contact*
- Use the following risk phrases for products/mixtures containing the notified polymer:
 - $\geq 1\%$: R43
- Environmental classification for this chemical is Chronic III based on ecotoxicity results and limited biodegradation. This classification carries the warning statement "Harmful to aquatic life with long lasting effects".

Exposure Standard

- Employers should ensure that the NOHSC exposure standard for isocyanates [in DESMODUR DA/DA-L] is not be exceeded.

Health Surveillance

- As the notified polymer is a skin sensitiser, employers should carry out health surveillance for any worker who has been identified in the workplace risk assessment as having a significant risk of skin sensitisation.

CONTROL MEASURES

Occupational Health and Safety

- Employers should implement the following engineering controls to minimise occupational exposure to the notified polymer [in the products DESMODUR DN and DESMODUR DA-L]:
 - *Local exhaust ventilation*
- Employers should implement the following safe work practices to minimise occupational exposure during handling of the notified polymer [in the product DESMODUR DN and DESMODUR DA-L]:
 - *Avoid splashes and spills*
 - *Avoid contact with skin*
 - *Spraying should be performed in spray booths*
- Employers should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer [in the products DESMODUR DN and DESMODUR DA-L]:
 - *Protective clothing, gloves (butyl rubber or fluorinated rubber), safety glasses and respirator (if ventilation is not adequate)*

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

- A copy of the MSDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the NOHSC *Approved Criteria for Classifying Hazardous*

Substances, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

Environment

- The following control measures should be implemented to minimise environmental exposure during use of the notified polymer:
 - All spills should be removed mechanically or adsorbed with wet adsorbent material (sawdust, sand or chemical binder based on calcium silicate hydrate). After approximately 1 hour, transfer to a waste container, do not seal, dispose of after several days according to local regulations at landfill.
 - When mixed to form the final adhesive, any spilt adhesive or residues should be either cleaned using rags or allowed to harden, then the rags and solid residues disposed of at landfill by licensed waste contractor.

Disposal

- The notified polymer should be neutralised before disposed of by landfill by licensed waste contractor.
- Solid residues containing the notified polymer should be disposed of to landfill by licensed waste contractor.

Secondary notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under Subsection 64(1) of the Act; if
 - *The notified polymer itself is imported or manufactured locally*
 - *The NAMW of the notified polymer is less than 1000.*
- or
- (2) Under Subsection 64(2) of the Act:
 - if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.

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