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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME

FULL PUBLIC REPORT

RUCOTHANE 2010L

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For the purposes of subsection 78(1) of the Act, copies of this full public report may be inspected by the public at the Library, Worksafe Australia, 92-94 Parramatta Road, Camperdown NSW 2050, between the hours of 10.00 a.m. and 12.00 noon and 2.00 p.m. and 4.00 p.m. each week day except on public holidays.

Under subsection 34(2) of the Act the Director of Chemicals Notification and Assessment is to publish this Report in the Chemical Gazette on .

Enquiries contact Chemical Assessment on (02) 565 9464:

Street Address: 92 Parramatta Rd Camperdown, NSW 2050, AUSTRALIA
Postal Address: GPO Box 58, Sydney 2001, AUSTRALIA
Telephone: (61) (02) 565-9466 **FAX (61) (02) 565-9465**

Director
Chemicals Notification and Assessment
December 8, 2015

FULL PUBLIC REPORT

RUCOTHANE 2010L

1. APPLICANTS

ACI Fibreglass of 117 Dandenong-Frankston Rd, VIC 3175

2. IDENTITY OF THE POLYMER

Based on the nature of the chemical and the data provided, Rucothane 2010L is not considered to be hazardous. Therefore, the details relating to the chemical identity have been exempted from publication in the Full Public Report.

Trade name: Rucothane 2010L
Rucothane Latex 2010L

Means of identification: Fourier Transform Infrared Scan;
GPC to determine the molecular weight distribution.

3. PHYSICAL AND CHEMICAL PROPERTIES

The polymer is imported as a water emulsion and is never isolated. The properties below generally refer to the polymer emulsion unless otherwise stated.

Appearance at 20°C and 101.3 kPa:	the polymer emulsion is a milky white liquid with a mild ammoniacal odour.
Melting Point:	> 160°C
Specific Gravity/Density:	1100 kg/m^3
Water Solubility:	expected to be < 1ppm as the polymer is a high molecular weight, post reacted polyester with no ionisable functional groups.
Hydrolysis as a function of pH:	not relevant for non-water soluble polymer.
Flammability Limits:	non-flammable.
Autoignition Temperature:	will not autoignite.
Explosive Properties:	not explosive**.**
Reactivity:	the polymer is expected to be stable under normal conditions of use. All isocyanate groups are fully reacted and therefore not anticipated to undergo further reaction.

Particle size distribution: not applicable as the polymer will be imported as an emulsion.

. Comments on physico-chemical properties

The polymer is stable under normal condition of use. The polymer is a polyester based urethane and is (not) expected to biodegrade under environmental conditions. The notified polymer contains a small amount of sodium hydroxide neutralised carboxylic acid groups and is slightly anionic. The concentration of these groups, expressed as mg KOH per g of polymer is < 1.4.

The polymer emulsion will be slightly anionic at pH 4-9, although once cured as a fibreglass coating will be non-anionic under these same conditions. The notified chemical is a high molecular weight, post reacted polyester polymer with minimal ionisable functional groups and therefore is expected to have negligible water solubility (ie < 1 ppm). The lowest detectable molecular weight species was 1,917.

The polymer contains a number of urethane and ester groups, therefore hydrolysis is possible, but likely to be minimal under environmental conditions due to the low water solubility.

4. PURITY OF THE CHEMICAL

> 99%

5. INDUSTRIAL USE

Rucothane 2010L is intended to be used in the manufacture of a water based emulsion for the purpose of coating fibreglass reinforcements. It is imported into Australia as a water emulsion.

6. OCCUPATIONAL EXPOSURE

It is expected that 10 tonnes of Rucothane 2010L will be imported annually. It will arrive to Australia in 200 L steel drums and be reformulated and applied to fibreglass at the ACI Fibreglass factory in Dandenong, VIC. About eight people are anticipated to be involved in the reformulation and further processing of Rucothane 2010L.

Storeworkers will handle only the unopened drums so will not come into contact with the notified polymer except in the event of an accident. In the factory, two workers (size mixers) will decant the emulsion from the drums into an open system mixing vessel prior to dilution with water and other components to form a binder. This binder, a water emulsion containing 6% solids, will be stored in stainless steel tanks until required to coat fibreglass.

The fibreglass will be coated with a size which includes the polymer before passing into an oven, and exiting as chopped strands of coated fibreglass. The coating process is automatic so that the five strand operators only come into contact with the Rucothane 2010L during packaging. By this stage Rucothane 2010L will be present at ≤ 5% by weight of the fibreglass. General ventilation and personal protective equipment including boots, clothing, solvent resistant gloves and chemical safety goggles are used in the work area.

Once coated onto the fibreglass the polymer becomes cured and is expected to be inert, thus resulting in no further potential exposure to workers or end users of the product.

7. PUBLIC EXPOSURE

Rucothane 2010L will not be manufactured in Australia or made available to the public. Under normal conditions of use, there will be negligible potential for public exposure to Rucothane 2010L in its uncured state. Any residual material from manufacturing operations is treated, and solids are disposed to landfill. Due to its low water solubility, Rucothane 2010L is not expected to exhibit significant environmental mobility. Although the public may come into contact with coated fibreglass, by this stage the notified polymer will be in the form of an inert coating, from which it should not be absorbed.

8. ENVIRONMENTAL EXPOSURE

. Release

Any residual material is collected for treatment in the effluent treatment plant. The solids from the effluent treatment plant are disposed of as a prescribed waste at a quantity of approximately 2400 kg per annum. The solids consist of approximately 60% of the water based emulsion containing approximately 6% Rucothane 2010L. It is estimated that approximately 86 kg per annum of Rucothane 2010L will be disposed to landfill. The polymer is unlikely to pass through the treatment process and enter the sewers, due to its expected negligible water solubility (< 1 ppm) and the effluent is treated to extract all of the emulsions into solids form.

. Fate

The polymer is a component of coatings applied industrially to fibreglass substrates and should have limited environmental exposure.

Waste polymer disposed to landfill is likely to remain at the site of deposition and is unlikely to leach due to its physico-chemical properties. Ready biodegradation of the notified chemical is not expected, but as it is a polyurethane some biodeterioation is likely to occur over time. The polymer is unlikely to bioaccumulate due to its high molecular weight (NAMW > 1000).

9. ASSESSMENT OF ENVIRONMENTAL EFFECTS

No ecotoxicological data were supplied, which is acceptable for polymers of low concern. Due to its high NAMW the polymer is not expected to cross biological membranes

10. ASSESSMENT OF ENVIRONMENTAL HAZARD

The polymer is unlikely to present a hazard to the environment when it is incorporated into emulsions and applied to fibreglass substrates.

The main environmental exposure arises from the landfill disposal of waste polymer from the formulation and application site. However, since it is stable and immobile in soil, environmental hazard is expected to be low.

11. ASSESSMENT OF OCCUPATIONAL AND PUBLIC HEALTH AND SAFETY EFFECTS

Rucothane 2010L has been notified as a synthetic polymer of low concern under section 23 for the purposes of section 24A of the *Industrial Chemicals (Notification and Assessment) Act, 1989.* The polymer meets the criteria for a synthetic polymer of low concern specified in regulation 4A of the *Act* and can, therefore, be considered of low hazard to human health.

The notified polymer has a high number-average molecular weight (>1000) and very low numbers of low molecular weight species (within the definition of a Polymer of Low Concern). This feature is expected to prevent the movement of the polymer across biological membranes and therefore limit adverse health effects. There are only very low levels of residual monomers which are therefore unlikely to present a hazard.

Exposure to the notified polymer during reformulation and application is expected to be low due to the use of automatic mixing equipment and ventilation controls. Exposure to people working with the fibreglass products is also expected to be low, as the polymer has become inert and workers take precautions to prevent exposure to the known hazards of fibreglass.

In conclusion, the risk of adverse health effects as a result of the reformulation and use of Rucothane 2010L is expected to be very low to both workers and the public.

12. RECOMMENDATIONS

To minimise occupational to Rucothane 2010L the following guidelines and precautions should be observed:

. If engineering controls and work practices are insufficient to reduce exposure to Rucothane 2010L to a safe level, the following personal protective equipment which conform to and are used in accordance with Australian Standards (AS) for respiratory protection (AS 1715, AS 1716) (1,2), eye

protection (AS 1336, AS 1337) (3,4), impervious gloves (AS 2161) (5), and overalls should be used.

. good work practices should be implemented to avoid liquid spills and any spills should be cleaned up promptly.

. good personal hygiene practices should be observed.

. a copy of the Material Safety Data Sheet (MSDS) for Rucothane 2010L and products containing it should be easily accessible to all employees.

13. MATERIAL SAFETY DATA SHEET

The attached MSDS for Rucothane 2010L in was provided in Worksafe Australia format (6).

This MSDS was provided by ACI Fibreglass as part of their notification statement. It is reproduced here as a matter of public record. The accuracy of this information remains the responsibility of ACI Fibreglass.

14. REQUIREMENTS FOR SECONDARY NOTIFICATION

Under the *Industrial Chemicals (Notification and Assessment) Act 1989*, secondary notification of Rucothane 2010L shall be required if any of the circumstances stipulated under subsection 64(2) of the Act arise. No other specific conditions are prescribed.

15. REFERENCES

1. Standards Australia, 1991. Australian Standard 1715-1991, *Selection, use and maintenance of Respiratory Protective Devices*, Standards Association of Australia Publ., Sydney.

2. Standards Australia, 1991, Australian Standard 1716-1991, *Respiratory Protective Devices*, Standards Association of Australia Publ., Sydney.

3. Standards Australia, 1982. Australian Standard 1336-1982, *Eye Protection in the Industrial Environmental*, Standards Association of Australia Publ, Sydney,.

4. Standards Australia, 1984. Australian Standard 1337-1984, *Eye Protectors for Industrial Applications*, Standards Association of Australia Publ, Sydney.

5. Standards Australia, 1978. Australian Standard 2161-1978, *Industrial Safety Gloves and Mittens (excluding Electrical and Medical Gloves),* Standards Association of Australia Publ, Sydney.

6. National Occupational Health and Safety Commission 1994, *National Code of Practice for the Preparation of Material Safety Data Sheets* [NOHSC:2011(1994)], Australian Government Publishing Service, Canberra.