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5 January 2006

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

FULL PUBLIC REPORT

Polymer in CYDROTHANE® HP-4033

This Self Assessment has been compiled by the applicant and adopted by NICNAS in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS), administered by the Department of Health and Ageing and the Department of the Environment and Heritage has screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

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**Director
NICNAS**

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Polymer in CYDROTHANE® HP-4033**1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Cytec Australia Holdings Pty Ltd (ABN 45 081 148 629)
Suite 1, Level 1 Norwest Quay
21 Solent Circuit
Norwest Business Park
Baulkham Hills NSW 2153

NOTIFICATION CATEGORY

Self Assessment: Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

- Chemical name
- Other names
- Molecular formula
- Structural formula
- Means of identification
- Number average molecular weight
- Weight-average molecular weight
- Weight percentage of polymer species with MW < 1000 and MW < 500
- Charge Density
- Polymer Constituents
- Residual Monomers and impurities
- Reactive Functional Groups
- Import Volume

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

NOTIFICATION IN OTHER COUNTRIES

US PMN 1992
Canada NSN 2005

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

CYDROTHANE® HP-4033 Polyurethane Dispersion
CYDROTHANE® CG-4300 Polyurethane Dispersion

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) >10000

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

The notified polymer contains only low concern functional groups.

<i>Criterion</i>	<i>Criterion met (yes/no/not applicable)</i>
Molecular Weight Requirements	Yes
Functional Group Equivalent Weight (FGEW) Requirements	Yes
Low Charge Density	Yes
Approved Elements Only	Yes
Stable Under Normal Conditions of Use	Yes
Not Water Absorbing	Yes
Not a Hazard Substance or Dangerous Good	Yes

The notified polymer meets the PLC criteria.

4. INTRODUCTION AND USE INFORMATION

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

The notified polymer will be imported in 200 L polypropylene drums as an aqueous dispersion at a concentration of < 40%.

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

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

USE

Used as an additive in building adhesives for the building trade. It may also be used in a ready-to-use form for the retail market and industry.

The notified polymer is also used in laminating and surface inks.

Sixty percent of the imported notified polymer will be used as an additive in building adhesives for the building trade. 10% will be used in a ready-to-use form for the retail market and industry.

The remaining 30% of the notified polymer will be used for laminating and surface inks, and will be available only to industrial users.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

Transport

The notified polymer will be imported in 200 L polypropylene drums as an aqueous dispersion at a concentration of < 40%. Truck drivers will transport the sealed CYDROTHANE® HP 4033 Polyurethane Dispersion drums by road from the wharf to the formulator's warehouse and then used as needed. Two incoming goods receiving personnel will unload the containers of CYDROTHANE® HP 4033 Polyurethane Dispersion and store them in designated storage areas. The only chance of exposure for these workers will be in the case of damaged and leaking containers.

Adhesive Formulation

The notified polymer will be formulated into adhesive products at the customer's manufacturing site. Formulation of the notified polymer into adhesive products will involve transfer of notified polymer by metered dosing to mixing vessel and mixing the notified polymer and other ingredients in a sealed vessel fitted with a high-speed mixer and local exhaust ventilation system. Each batch is to be quality checked and adjustments made as required. The resultant adhesive is dispensed into cartridges with capacity under 1 L, under exhaust ventilation for supply to customers.

The final concentration of the notified polymer in the final product will be 8 %. Adhesive products containing the notified polymer will be warehoused at the adhesive manufacturer's site and distributed to end-users.

End-use (Adhesive)

End-users of the adhesive products will be the building industry and the public. Sixty percent of the imported notified polymer will be used as an additive in building adhesives for the building trade, where it will be used as an adhesive between tiles. 10% will be used in a ready-to-use form for the retail market and industry.

The products containing the notified polymer are expected to be applied directly from cartridges, although the uncured adhesive may be worked using trowels. Any excess adhesive from trowels will be removed with a cloth or paper towel. The cloth or paper towel will be disposed of with industrial garbage.

The Do-It-Yourself (DIY) user will apply adhesive from the cartridge onto the substrate. Application will be directly from cartridge and any excess adhesive will be removed with a cloth. The cloth will be disposed of with domestic garbage. After two to three hours, the adhesive film will have dried. Complete curing may take up to 24 hours. The notified polymer is present at 8% concentration in the finished product.

Formulation of laminating and surface inks

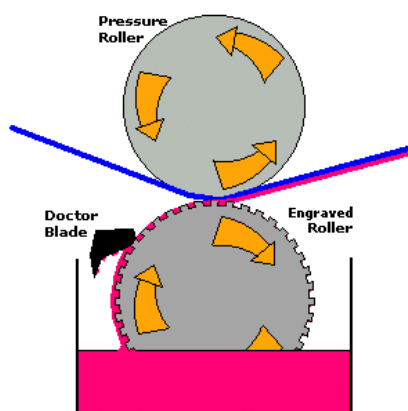
The manufacture of the laminating inks will involve transfer of notified polymer by metered dosing to a mixing vessel and mixing the notified polymer and other ingredients (such as, pigments, additives, solvents) in a sealed vessel fitted with a high-speed mixer and local ventilation system. The finished product is fed by gravity or pumped from the mill into 20 L plastic containers. The closed containers are manually put on pallets and then taken by forklift to the warehouse for storage and distribution.

End-use (laminating and surface inks)

The imported product will be used in laminating and surface inks. The laminating ink will contain <15% of the notified polymer. The laminated material will be used for packaging. At the laminating site, laminating ink is decanted manually from the 20 L plastic pail into an adhesive tray below the laminating machine rollers. The blended adhesive is applied by the gravure coating process (see below) where two polymer films are laminated together with the adhesive between the films. Following completion of a run, unused adhesive in the laminating machine tray or reservoir is transferred back to adhesive pail for reuse at a later time. The adhesive residues on the machinery are washed off manually using rags and water.

The gravure coating process relies on an engraved roller running in a coating bath, which fills the engraved dots or lines of the roller with the coating material. The excess coating on the roller is wiped off by the Doctor Blade and the coating is then deposited onto the substrate as it passes between the Engraved roller and a Pressure Roller.

Thirty percent of the notified polymer will be used for laminating and surface inks, and will be available only to industrial users.



6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

<i>Category of Worker</i>	<i>Number</i>	<i>Exposure Duration</i>	<i>Exposure Frequency</i>
<i>Transport and Storage</i>			
Transporting from dock to customer's site for warehousing (loading/unloading trucks)	< 4	2-3 hours/day	10-15 days/year
<i>Adhesive formulation</i>			
Workers involved in weighing, mixing and bead milling operations	< 6	30 min to 6 hours/day	30 days/year
Workers involved in filling cartridges of adhesive	< 8	3 hours/day	30 days/year
Quality control/chemists and technical service	< 4	1 hour/day	30 days/year
Cleaning operations	< 4	30 min/day	30 days/year
<i>Ink formulation</i>			
Ink manufacture/blending	< 4	30 min/day	100 days/year
Ink manufacture/filling	< 8	30 min/day	100 days/year
<i>End-use in laminating and surface inks</i>			
Laminating machine operators	10-15	6-8 hours/day	50 days/year
<i>End use</i>			
Applied as adhesive in the building industry and DIY market	~1000	8 hours/day	220 days/year

Transport and Storage: Waterfront, transport and warehouse workers are not expected to be exposed to the notified polymer except in the case of an accident involving spillage of the CYDROTHANE® HP 4033 Polyurethane Dispersion containing the notified polymer at < 40% as an emulsion in water. Spills are cleaned up by absorbing with inert absorbent material and recovered into containers for disposal to landfill. No controls are required. Gloves, coveralls and goggles are available if required.

Adhesive formulation: – Workers may be exposed to the notified polymer via dermal and ocular exposure due to drips, spills and splashes during charging of mixer and blending. Workers will wear coveralls, goggles and impervious gloves. Aerosols may be released during blending, but inhalation exposure is expected to be low because of use of enclosed mixing and exhaust ventilation system.

QC testing: Dermal and ocular exposure is possible from drips, spills and splashes during batch adjustment and when taking and testing samples. Workers will wear coveralls, goggles and impervious gloves to minimise exposure.

Filling into containers: Dermal exposure may be possible due to drips and spills when connecting filling lines. The adhesive is filled into cartridges under local exhaust ventilation and workers will wear overalls, goggles and impervious gloves. Therefore only incidental exposure is expected.

Maintenance workers: There is possible of skin contact during equipment maintenance. Workers will wear coveralls, goggles and gloves.

Formulation of laminating and surface inks

The notified polymer is an aqueous dispersion and as such dermal and ocular exposure is expected to be the main route of exposure. Incidental skin contact may occur during weighing and transfer of the polymer dispersant containing < 40% of the notified polymer into the high speed mixer, and when filling the ink containers. The laminated ink will contain < 15% of the notified polymer. Workers will wear chemical resistant gloves, coveralls and safety glasses when handling the notified polymer. The blending and filling operations are also conducted under local exhaust ventilation.

End use (adhesive):

The products containing the notified polymer at concentration of 8% are expected to be applied directly from cartridges, although the uncured adhesive may be worked using trowels. Any excess adhesive from trowels will be removed with a cloth or paper towels. The cloth and paper towel will be disposed of with industrial garbage.

Dermal and accidental occupational exposure to the notified polymer may result during the use of adhesive in industrial applications. Health and safety precautions for the use of adhesive include the use of general ventilation and wearing overalls and eye goggles when required.

End-use (Laminating and surface inks)

The laminating operators may be exposed to the product containing the notified polymer at < 15% concentration. The maximum potential exposure for laminating machine operators is estimated to be 6-8 hours per day, 50 days per year. The main routes for occupational exposure to the polymer will be through skin and eye contact. Laminating machinery operators will wear safety glasses, chemical resistant gloves, overalls and safety boots during transfer of the laminating ink to laminating machines, and cleaning of the machines. Laminating machinery is fitted with exhaust ventilation ducts above the adhesive tray.

Workers handling the laminated material will not be exposed to the notified polymer because at this stage the notified polymer is unavailable for absorption.

6.2. Summary of Public Exposure

Public exposure through importation, transportation and reformulation is expected to be negligible.

The adhesives containing the notified polymer will be available for trade sale. Although the target market is primarily the building trade, retail sales to the public may also occur. The product will be applied directly from the cartridges, and may be worked using trowels. Any excess adhesive from trowels will be removed with a cloth. The cloth will be disposed off with domestic garbage. Public exposure to the uncured and cured product is most likely to be through dermal contact. Once cured it is expected that the polymer will not be bioavailable.

When the notified polymer is used in laminating and surface inks, it will enter the public domain in packaging for various general items. Consequently, public contact to the packaging is likely to be high, but exposure with the notified polymer in the dried adhesive layer sandwiched between two layers of polymer film is likely to be limited.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

Local operations will include transport and storage, formulation, filling and packaging and application by end-users in the building industry. During storage and adhesive manufacture the notified polymer will be released in the following ways:

During adhesive formulation

Spills	- up to 1%, < 50 kg annually to landfill
Import container residue	- up to 1%, < 50 kg annually to waste contractor
During adhesive formulation	- up to 1%, < 50 kg annually to waste contractor.

During laminating and surface ink formulation

Spills	- up to 1%, < 50
kg annually to landfill	
Import container residue	- up to 1%, < 50 kg annually to
waste contractor	
During laminating and surface ink formulation	- up to 1%, < 50 kg annually to waste contractor

During adhesive formulation, it is anticipated that there will be minimal release of the notified polymer during manual transfer from the storage containers to the mixers and during filling of adhesive into cartridges or during blending since it is undertaken in enclosed systems under exhaust ventilation and in a bunded area. Spills will be contained by the bunding, collected with inert absorbent material (eg sand) and placed in a sealable container ready for disposal. The process equipment, blending tanks and mixers will be cleaned with water and the aqueous rinsing will be collected, reused, if possible, otherwise it will be disposed of off-site. The wastes will go off site to a liquid waste treatment facility where the waste will be acidified and the polymer will be precipitated and will be bound to the sludge. It is anticipated that the sludge will be part of solid wastes from the plant that will be consigned to landfill. It is possible that very small amounts of the notified polymer will end up in the sewer. Import containers will be rinsed, with the rinsate being used in the adhesive formulation and the rinsed containers will be disposed of to landfill.

Ink Formulation

The ink formulation operations will take place at the ink manufacturing site. The notified polymer will be present in the laminating ink at a concentration of < 15%. It is anticipated that there will be minimal release of the notified polymer during manual transfer from the storage containers to the mixers and during filling of ink into containers. Blending occurs in an enclosed system under exhaust ventilation and in a bunded area. The equipment, blending tanks and mixers will be cleaned with water and the aqueous rinsings will be collected, reused, if possible, otherwise it will be disposed of off-site. The wastes will go off site to a liquid waste treatment facility where the waste will be acidified and the polymer will be precipitated and will be bound to the sludge. It is anticipated that the sludge will be part of solid wastes from the plant that will be consigned to landfill. It is possible that very small amounts of the notified polymer will end up in the sewer.

Release to environment during blending (ink formulation) is expected to be 1% of import volume (< 50 kg/year of notified polymer). Up to 1% residue will remain in the empty 200 L drums used in formulation industry, which is < 50 kg per annum. Residues remaining in the drums will be reused or disposed of by incineration. Empty drums will be collected by a licensed waste contractor and sent off-site for disposal.

RELEASE OF CHEMICAL FROM USE

Adhesives

Up to 5 % (< 250 kg) per annum of notified polymer waste will be produced as residual inert material adhering to building material substrates, and this would be wiped up with rags or paper towels. Once exposed to the atmosphere the material will become incorporated into a semi solid (rubbery) mass. The rags and paper would be disposed of to existing waste streams established for building products. This waste is likely to ultimately be disposed of to landfill.

The adhesive containing the notified polymer will also be used in the DIY market. Adhesive will be

applied directly from cartridge and any excess adhesive will be removed with a cloth. The cloth will be disposed off to domestic garbage. It is estimated that 0.5% of the notified polymer will be disposed of in this way (approximately 25kg per annum).

Approximately up to 10 mL (2 % of a 500 g cartridge) of the notified polymer will be left as residue in used cartridges. A total of 70 kg/year waste polymer per annum may be released by this route. Residues will react with atmospheric moisture to form an inert material. Cartridges and cured polymer will be disposed of to landfill along with household and commercial waste streams.

Laminating and surface inks

During the laminating process the notified polymer in aqueous dispersion may remain as residue on machinery. These residues will be wiped off with rags dampened with water and disposed of with industrial waste. The waste will then be disposed of to landfill by licensed waste contractors. Approximately 50 kg of polymer aqueous dispersion will go to landfill by this route.

At the end of each laminating run, any unused polymer in aqueous dispersion remaining in adhesive tray will be transferred back to pails for reuse. At the end of each day the empty pails containing residual polymer in aqueous dispersion (approx 100 mL/pail) will be disposed of to landfill. The majority of the residue will have dried to a solid mass by the time the empty pails reach landfill. Based on the maximum import rate of 5000 kg per annum, < 50 kg of the notified polymer per annum will go to landfill from this route.

6.3.2. Environmental Fate

Assessment of Ready Biodegradability: CO ₂ Evolution (Modified Sturm Test) OECD 301B	30.7%	Not readily biodegradable
Test Substance – CT-727-02		

The notified polymer was not readily biodegradable within a 28-day test period when exposed to microorganisms maintained in an aerobic, aqueous mineralised environment. The mean cumulative biodegradation of the test substance was 30.7 % after the 28-days and did not meet the test criteria for ready biodegradability.

The notified polymer is not expected to cross biological membranes due to its high molecular weight, and as such should not bioaccumulate.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa
Melting Point/Glass Transition Temp

Density

Water Solubility

Dissociation Constant

Particle Size

Reactivity

Degradation Products

White emulsion (Cydrothane HP-4033)

The notified polymer will be imported in a liquid dispersion. Boiling point is similar to water.

1020 kg/m³ (Cydrothane HP-4033)

Insoluble. Dispersible in water.

Not determined. The notified polymer contains COOH groups which are expected to have pKa value of 3-4.

Not determined. The polymer will be imported in a liquid dispersion.

Stable under normal conditions. The notified polymer is not expected to polymerise.

Thermal decomposition or combustion may produce carbon monoxide, carbon dioxide and/or nitrogen oxides.

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

No toxicological data were submitted.

The Material Safety Data Sheet (MSDS) for CYDROTHANE®HP-4033 Polyurethane Dispersion contains references to: rat acute oral toxicity, rabbit acute dermal toxicity and rat acute inhalation toxicity. Reference is also made to skin and eye irritation and sensitisation by dermal and inhalation exposure. However, the values for these studies are estimates. No actual test data are available on these endpoints for the notified polymer.

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. Hazardous monomers are present only at low levels, well below the cut-off concentration for classification as a hazardous substance under the NOHSC Approved Criteria for Classifying Hazardous Substances (NOHSC, 2002).

In chemical conditions where there is free N,N-diethylethanamine, classification as R36/37/38 may be appropriate.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

The following ecotoxicological studies were submitted:

<i>Endpoint</i>				<i>Result</i>	<i>Effects Observed?</i>
Fish Toxicity (Test Substance – CYDROTHANE® HP-4033 Polyurethane Dispersion)				EC50 >100 mg wm*/L	No
Daphnia Toxicity (Test substance – CYDROTHANE® HP-4033 Polyurethane Dispersion)				EC50 81.1 mg wm/L (based on nominal concentrations)	Yes**

*wm – whole material

**The test substance was the product as sold.

9.1.1 Discussion of Observed Effects

Daphnia Toxicity: The product as sold was tested for toxicity to Daphnia. Mortality of water fleas exposed for 48 hours to CT-727-02 ranged from 0 to 95%. Testing concentration 6.4 mg wm/L yielded 5% mortality while both the 16 and 39 mg wm/L concentrations yielded mortalities of 70% and 95%, respectively. Mortality was 0% in the dilution water control. The NOEC was calculated to be 39 mg wm/L for the 48-hour definitive exposure.

9.2. Environmental Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. The notified polymer is not readily biodegradable and is not expected to cross biological membranes due to its high molecular weight, and as such should not bioaccumulate.

10. RISK ASSESSMENT

10.1. Environment

Polymer in CYDROTHANE®HP-4033 Polyurethane Dispersion will be formulated into adhesive products for the building industry and DIY market. The formulated adhesive products will contain the notified polymer at less than 8%. The adhesive will be packaged into cartridges with capacity under 1 L. The notified polymer is also a component in laminating and surface inks

Any waste material will be captured and disposed of to landfill, as will adhesive residues in empty cartridges.

The process equipment during adhesive and laminating and surface ink manufacture will be cleaned with water and the aqueous rinsing will be collected, reused, if possible, otherwise it will be disposed of off-site. The wastes will go off site to a liquid waste treatment facility where the waste will be acidified and the polymer will be precipitated and will be bound to the sludge. It is anticipated that the sludge will be part of solid wastes from the plant that will be consigned to landfill. It is possible that very small amounts of the notified polymer will end up in the sewer.

Once applied to the substrate, the notified polymer crosslinks with other components to form a high molecular weight film and becomes immobilised. The notified polymer, as part of this adhesive will, therefore, share the fate of the substrate it is applied to. The majority of the notified polymer in cured and crosslinked form will be incorporated as part of membrane forming binder on the substrate. When buildings are demolished, it is likely that the building materials and associated forming binder will be placed into landfill or incinerated with building wastes.

It is estimated that approximately 300 kg per annum of waste polymer will be generated from accidental spills, equipment cleaning and as residues in empty containers during formulation of adhesive and laminating and surface inks. Another 450 kg per annum of waste polymer is estimated to be generated during use of the adhesive and laminating/surface inks. However, the majority of the notified polymer will share the fate of the products in which it is incorporated and eventually be disposed of in landfill

The notified polymer has a NAMW of greater than 1000 and it is unlikely to cross biological membranes and cause toxicity or bioaccumulate.

Based on the exposure levels and use pattern, the notified polymer is unlikely to pose an unacceptable risk to the environment.

10.2. Occupational Health and Safety

Exposure is unlikely to the notified polymer during transportation and storage. Exposure may result in the case of an accidental spill or leak in the container. No controls are required. Gloves, coveralls and goggles are available if required.

During adhesive formulation workers may be exposed to polymer at < 40% concentration via dermal and ocular exposure due to drips, spills and splashes during charging of the mixer and blending. Workers will wear coveralls, goggles and impervious gloves. Aerosols may be released during blending, but inhalation exposure is low due to an exhaust ventilation system.

During QC testing dermal and ocular exposure is possible from drips, spills and splashes during batch adjustment and when taking and testing samples. Workers wear coveralls, goggles and impervious gloves to minimise exposure.

During filling of cartridges dermal exposure may be possible due to drips and spills when connecting filling lines. The adhesive is filled into cartridges under local exhaust ventilation and workers wear overalls, goggles and impervious gloves. Therefore exposure is minimal.

There is a possibility of skin contact during equipment maintenance. Workers wear coveralls,

goggles and gloves.

End use (adhesive)

During end-use, the exposure will be widespread. Dermal contact may occur in a variety of ways, including the use of the fingers to apply or smooth and shape the adhesive. The products containing the notified polymer should be used in accordance with directions and applied only from the cartridge or by trowel. Dermal contact with the notified polymer is not expected to result in significant occupational risk, as dermal absorption of the notified polymer across the skin or other biological membranes is unlikely due to the high molecular weight.

End use (laminating and surface inks)

During laminating process, dermal exposure to the notified polymer may occur during the transfer of the laminating ink from pails to laminating machines and when cleaning the laminating equipment. The predominant routes of exposure during these activities are via skin and eye contact. Laminating machine operators wear safety glasses, chemical resistant gloves, overalls and safety boots when handling laminating ink. Local exhaust ventilation further minimises exposure. Engineering controls and protective clothing combined are adequate to minimise the health to laminating machine operators.

The notified polymer becomes unavailable for absorption once it is incorporated in the laminated material. Therefore, the health risk for workers handling laminated products is considered to be negligible.

Overall, the substance has high molecular weight, so little absorption and therefore, the OHS risk presented by the notified polymer is expected to be low. The control measures in place will ensure sufficient protection against the notified polymer.

10.3. Public Health

It is expected that public exposure to the notified polymer in its liquid state will be limited, except in the rare event of an accidental spill.

When the notified polymer is used in laminating ink for packaging material it will be encapsulated within an inert, very high molecular weight film, rendering it biologically unavailable. Public contact with the notified polymer in finished products (e.g. packaging items) is further limited as the adhesive containing the notified polymer is sandwiched between two layers of the polymer film, restricting any dermal contact.

There is potential for public exposure to the notified polymer in Do-It-Yourself adhesive products since the adhesive containing the notified polymer will be used in adhesives systems designed for use on wood, ceramic and glass surfaces. The public will only come into contact with the adhesive containing < 8% of the notified polymer. Since the working concentration is low, the public exposure to the notified polymer will be low. Therefore, provided the public follows the recommended directions for use of the adhesives, the risk to public health will not be significant. Once the adhesive is dried into the polymer matrix, the potential for public exposure thereafter is negligible. On this basis, it is expected that the risk of the notified polymer to public health will be low.

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. Any exposure to the notified polymer is likely to be by dermal route. Due to the high molecular weight of the notified polymer, it is not expected to absorb across the skin and cause systemic effects. Therefore, the risk to human health is expected to be minimal.

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

11.1. Environmental Risk Assessment

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

11.2. Human Health Risk Assessment

11.2.1. Occupational health and safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

11.2.2. Public health

There is No Significant Concern to public health when used in the proposed manner.

12. MATERIAL SAFETY DATA SHEET

12.1. Material Safety Data Sheet

The notifier has provided MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

13. RECOMMENDATIONS

Occupational Health and Safety

- No specific engineering controls, work practices or personal protective equipment are required for the safe use of the notified polymer itself, however, these should be selected on the basis of all ingredients in the formulation.

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 by adhesive manufacturers and warehouse sites to minimise environmental exposure during adhesive formulation and storage of the notified polymer:
 - All process equipment and storage areas should be bunded.

Disposal

- The notified polymer should be disposed of to landfill for solids and to licensed waste contractors for liquids.

Emergency procedures

- Spills/release of the notified polymer should be contained by soaking up with inert absorbent material and dispose of as special waste in compliance with local and State regulations as recommended in the MSDS.
- Use detergent in cleaning up.
- Prevent product from entering drains.

13.1. 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 is introduced in a chemical form that does not meet the PLC criteria.
- 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.