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March 2011

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

**FULL PUBLIC REPORT**

**Polymer in Acrylic Polyol Solution RC-29-5164**

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 Sustainability, Environment, Water, Population and Communities has screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This Full Public Report is also available for viewing and downloading from the NICNAS website or available on request, free of charge, by contacting NICNAS. For requests and enquiries please contact the NICNAS Administration Coordinator at:

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**Director  
NICNAS**

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**FULL PUBLIC REPORT****Polymer in Acrylic Polyol Solution RC-29-5164****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT

PPG Industries Australia Pty Ltd (ABN 82 055 500 939)  
McNaughton Rd, Clayton Victoria 3168

## 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 and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details, Import Volume

## PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

## NOTIFICATION IN OTHER COUNTRIES

None

**2. IDENTITY OF CHEMICAL**

## MARKETING NAME(S)

Acrylic Polyol Solution RC-29-5164

## MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (NAMW) > 1,000 Da

The notified polymer contains only low concern functional groups.

**3. PLC CRITERIA JUSTIFICATION**

<i>Criterion</i>	<i>Criterion met</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. PHYSICAL AND CHEMICAL PROPERTIES**

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

Liquid  
Imported in a solution  
999 kg/m<sup>3</sup> at 25°C

<b>Water Solubility</b>	Not determined. The notified polymer is expected to be insoluble due to high molecular weight and low carboxylic functionality.
<b>Dissociation Constant</b>	Not determined. Due to the expected insolubility of the notified polymer, it is not likely to ionise over the environmental pH range (4-9).
<b>Reactivity</b>	Stable under normal environmental conditions
<b>Degradation Products</b>	Small amounts of monomers and oxides of carbon produced on combustion.

**Comments**

The residual carboxylic functional groups are not expected to be dissociated in the aquatic environment due to the molecular weight of the polymer and the small number of functional groups. Furthermore the polymer is unlikely to be released to the aquatic environment during the normal course of its use as it is converted into an inert coating of very high molecular weight during the curing process.

**5. INTRODUCTION AND USE INFORMATION****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	< 6	< 6

**USE AND MODE OF INTRODUCTION AND DISPOSAL****Mode of Introduction**

The notified polymer will be imported as a 50 – 70% solution in organic solvent in 180 L steel drums. It will be imported via Melbourne Docks and stored at the notifier's warehouse before being reformulated. It will then be transported by truck in 5 L containers to customer sites for mixing and application.

**Reformulation/manufacture processes**

Reformulation will occur at the notifier's plant at Clayton.

The notified polymer will be poured from 180 L drums into 500 L capacity mixing tanks. Other batch ingredients will be added and mixing will occur at room temperature. The final 'clearcoat' product containing < 50% notified polymer will be piped to 5 L steel cans.

At the customer's factory, the paint (which is the clearcoat component) will be mixed prior to application with a hardener and a solvent component and applied by spray painting. The final applied coating contains < 40% notified polymer.

**Use**

The notified polymer acts as a binder and will be used in a clearcoat coating for industrial curtains. The coating will be applied by a spray gun and will be used by industrial curtain manufacturing companies only.

## **6. HUMAN HEALTH IMPLICATIONS**

### **6.1. Exposure Assessment**

#### **OCCUPATIONAL EXPOSURE**

Transport and warehousing workers may come into dermal and ocular contact with the notified polymer through accidental leaks and spillages of the drums and containers.

During reformulation, workers will manually weigh and transfer the polymer solution (< 70%) to the mixing tanks. Workers will wear impermeable gloves, eye protection and overalls. Exposure from the notified polymer to these workers can occur by either dermal or ocular routes, however significant exposure will be limited due to the workplace practices, localised exhaust extraction systems and personal protective equipment used.

Through end use, spray painters will come into contact with the notified polymer through dermal, inhalation and ocular routes. The risk of exposure, however, will be minimal as the spray paint is applied in a ventilated spray booth by workers using personal protective equipment.

After application and once dried, the paint containing the notified polymer is cured into an inert matrix and the polymer is hence unavailable to exposure.

#### **PUBLIC EXPOSURE**

The notified polymer will not be sold to the public. The public may come into contact with the finished and dried product on industrial curtains (i.e., sides of transport vehicles). However in this form the notified polymer will be bound in an inert matrix and as such will not be bioavailable for exposure.

### **6.2. Toxicological Hazard Characterisation**

No toxicological data were submitted. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

### **6.3. Human Health Risk Assessment**

#### **OCCUPATIONAL HEALTH AND SAFETY**

The OHS risk presented by the notified polymer is expected to be low, based on the assumed low hazard of the notified polymer as well as the engineering controls and personal protective equipment used by workers to minimise exposure.

#### **PUBLIC HEALTH**

The notified polymer is intended for industrial use only. It will not be sold to the general public. The public will come into contact with industrial curtains coated with the notified polymer; however, the notified polymer will then be in a cured inert polymer matrix and thus will not be bioavailable. Hence, the risk to public health from the notified polymer is considered to be acceptable.

## **7. ENVIRONMENTAL IMPLICATIONS**

### **7.1. Exposure Assessment**

#### ENVIRONMENTAL RELEASE

Release to the environment during shipping, transport and warehousing will only occur through accidental spills or leaks of the drums or steel packaged containers.

During reformulation and packaging, spills are expected to be negligible. When spills occur, they will be contained by bunding, collected with absorbent material and sent to an off site waste disposal centre. Empty drums will be collected by drum recyclers and polymer residues will be disposed of according to State and Territory regulations. Total waste from all sources is expected to be approximately 2% of the total import volume.

Under normal use procedures, losses of the notified polymer through overspray, mixing of components and cleaning of equipment as well as losses from residues in containers have been estimated to be a maximum of 70% which equates to a maximum of 4.2 tonnes per annum. Waste from application will be hardened and disposed to landfill.

#### ENVIRONMENTAL FATE

Notified polymer in coated articles is expected to share the fate of these articles and, at the end of their useful lives, be disposed of to landfill. The notified polymer is expected to slowly degrade *in situ* following disposal to landfill, based on its very low water solubility and stable structure.

### **7.2. Environmental Hazard Characterisation**

No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

### **7.3. Environmental Risk Assessment**

No aquatic exposure is anticipated during reformulation and end use of the notified polymer. It is expected that the notified polymer will be disposed of in approved landfills as inert solid waste or coated articles at the end of their useful lives. In landfill, the notified polymer will not be mobile or bioavailable and will degrade slowly through biotic and abiotic processes to form water and oxides of carbon. Therefore, based on its assumed low hazard and reported use pattern, the notified polymer is not expected to pose an unacceptable risk to the environment.

## **8. CONCLUSIONS**

### **8.1. Level of Concern for Occupational Health and Safety**

Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unacceptable risk to the health of workers.

### **8.2. Level of Concern for Public Health**

When used in the proposed manner, the notified polymer is not considered to pose an unacceptable risk to public health.

### **8.3. Level of Concern for the Environment**

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

## **9. RECOMMENDATIONS**

#### CONTROL MEASURES

##### 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.

- Use of spray paints containing the notified polymer should be carried out in accordance with the Safework Australia National Guidance Material for Spray Painting or relevant State and Territory Codes of Practice.
- 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 the workers to minimise environmental exposure during formulation and use of the notified polymer:
  - Bunding
  - Exhaust ventilation with filter

#### Disposal

- The notified polymer should be disposed of to landfill.
- Empty containers should be sent to local recycling or waste disposal facilities.

#### Storage

- The following precautions should be taken during storage of the notified polymer:
  - Bunding

#### Emergency procedures

- Spills and/or accidental release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.

## 10. REGULATORY OBLIGATIONS

### Secondary Notification

This risk assessment is based on the information available at the time of notification. The Director may call for the reassessment of the polymer under secondary notification provisions based on changes in certain circumstances. Under Section 64 of the *Industrial Chemicals (Notification and Assessment) Act (1989)* the notifier, as well as any other importer or manufacturer of the notified polymer, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified polymer is listed on the Australian Inventory of Chemical Substances (AICS).

Therefore, the Director of NICNAS must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under Section 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 Section 64(2) of the Act; if
  - the function or use of the polymer has changed from component of coating for industrial curtains, or is likely to change significantly;
  - the amount of notified polymer being introduced has increased, or is likely to increase, significantly;

- the polymer has begun to be manufactured in Australia;
- additional information has become available to the person as to an adverse effect of polymer on occupational health and safety, public health, or the environment.

The Director will then decide whether a reassessment (i.e. a secondary notification and assessment) is required.

*Material Safety Data Sheet*

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