

File No SAPLC/106

November 2009

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

**FULL PUBLIC REPORT**

**Polymer in HP-11-4615**

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 Environment, Water, Heritage and the Arts 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 334-336 Illawarra Road, Marrickville NSW 2204.

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 HP-11-4615****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT

PPG Industries Australia Pty Ltd (ABN 82 055 500 939)

McNaughton Road Clayton VIC 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, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Specified Use, Import Volume

**2. IDENTITY OF CHEMICAL**

## MARKETING NAME(S)

HP-11-4615 polyester resin solution

## MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (NAMW) &gt; 1000

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**

Liquid (based on product)

**Melting Point/Glass Transition Temp**

Not applicable as a solution.

**Density**1050 kg/m<sup>3</sup> at 25°C**Water Solubility**

It is expected to be insoluble due to high molecular weight and low carboxy functionality.

**Dissociation Constant**

Residual carboxylic acid groups are

<b>Reactivity</b>	expected to have a typical pKa ~5. Stable under normal environmental conditions. The notified polymer is unlikely to hydrolyse under standard environmental conditions.
<b>Degradation Products</b>	None under normal conditions of use

## 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>	0.03-0.1	0.03-0.1	0.03-0.1	0.03-0.1	0.03-0.1

### USE AND MODE OF INTRODUCTION AND DISPOSAL

#### Mode of Introduction

The notified polymer will be imported at 5.2% as part of 'Deltron Premium UHS Clearcoat' automotive repair coatings in 5 litre containers. The coatings containing the notified polymer will be initially stored at the notifier's warehouse before being transported by truck to the application site.

#### Reformulation/manufacture processes

Immediately prior to the application, the component containing the notified polymer will be manually measured and mixed with a hardener component and solvent and applied to vehicles using a spray gun in a spray booth.

#### Use

The notified polymer will be used as a component of automotive repair coatings. The coatings will be used by smash repair 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 containers.

During reformulation and use, spray painters may 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 made up and applied in a ventilated spray booth by workers using protective equipment.

After application, the paint containing the notified polymer is cured into an inert matrix and the polymer is hence unavailable for 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 refinished automobiles, however in this form the notified polymer will be bound in an inert matrix and as such, is not expected to be bioavailable.

### 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 low hazard and low exposure as well as the engineering controls and personal protective equipment used by workers.

#### PUBLIC HEALTH

The notified polymer is intended for use by professional spray painters in auto repair workshops only and will not be sold to the public. Following application, the notified polymer will be cured and trapped within a coating and will not be bioavailable. Therefore, the risk to public health from exposure to the notified polymer is not considered unacceptable.

## 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 containers. When spills occur, they will be contained by bunding, collected with absorbent material and sent to a licensed off site waste disposal centre.

There is potential for release of the notified polymer during mixing, spray-gun loading, spraying, equipment cleaning, from contractor residues and in the event of an accidental spill. Up to 70% of the notified polymer could be released through overspray within spray booths which amounts to a maximum of 0.07 tonnes per annum. This will be captured by standard engineering controls, treated and the solid waste disposed to landfill. An estimated 2.5% of the polymer will remain as residues in containers, which will cure and harden before disposal to landfill. Less than 1% of waste polymer will be generated from cleaning the application. Therefore the total waste polymer could amount to up to 74% of the import volume at market maturity. It is expected that no waste notified polymer would enter the sewerage or natural waterways.

The remainder of the notified polymer will be bound in the paint matrix and not be available for direct release to the environment. Disposal of the automobile may be through landfill or recycling, and the fate of the paint will be related to that of the automobile.

#### ENVIRONMENTAL FATE

The waste remaining in the empty cannisters and that generated in overspray and cleaning equipment and spills will ultimately be disposed of to landfill. The polymer is potentially hydrolysable; however this is unlikely under standard environmental conditions. It is expected that the notified polymer will be immobile in landfill and slowly degrade to water and oxides of carbon. During automobile recycling, the polymer will be destroyed.

### 7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. As the notified polymer is acidic, it could be come anionic under environmental conditions (pH 4 to 9). Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is over-chelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. This is unlikely to apply to the notified polymer. However, the toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

### 7.3. Environmental Risk Assessment

No aquatic exposure is anticipated during end use of the notified polymer. It is expected that practically all of the waste generated from end users (70% as overspray) will be disposed of in approved landfills as inert solid waste and eventually degrade through biotic and abiotic process. It is not expected to be readily biodegradable but due to its high molecular weight, it is not expected to bioaccumulate. Thermal decomposition of the notified polymer will result in the formation of water vapour and oxides of carbon. In landfill, the solid wastes will not be mobile and will degrade slowly and not pose a significant risk to the environment.

Most of the notified polymer used in automotive finishes will eventually be incorporated in metal recycling programs or sent to landfill for disposal following its lifecycle. During reclamation, the notified polymer would be destroyed in furnaces and converted to water vapour and oxides of carbon.

## 8. CONCLUSIONS

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

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

### 8.2. Level of Concern for Public Health

There is Negligible Concern to public health when used in the proposed manner.

### 8.3. Level of Concern for the Environment

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

## 9. MATERIAL SAFETY DATA SHEET

### 9.1. 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.

## 10. 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 chemical should be carried out in accordance with the ASCC *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.

#### 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 by the notifiers regarding storage of the notified polymer:
  - bunding

#### Emergency procedures

- Spills/release of the notified polymer should be handled by absorbing with sand and put into suitable containers for disposal. Contaminated containers can be reused after cleaning.
- Do not flush the product containing the notified polymer into surface water or sewer system.

## 11. 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 chemical 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 chemical, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified chemical 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 chemical has changed from a component of automotive repair coatings, or is likely to change significantly;
  - the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
  - the chemical has begun to be manufactured in Australia;
  - additional information has become available to the person as to an adverse effect of the chemical 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.