

File No SAPLC/130

April 2012

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

**PUBLIC REPORT**

**Polymer in HP-38-3319**

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 have 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 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:

Street Address:	Level 7, 260 Elizabeth Street SURRY HILLS NSW 2010, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888
Website:	<a href="http://www.nicnas.gov.au">www.nicnas.gov.au</a>

**Director  
NICNAS**

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## **SUMMARY**

The following details will be published in the NICNAS *Chemical Gazette*:

ASSESSMENT REFERENCE	APPLICANT	CHEMICAL OR TRADE NAME	HAZARDOUS SUBSTANCE	INTRODUCTION VOLUME	USE
SAPLC/130	PPG Industries Australia Pty Ltd	Polymer in HP-38-3319	No	≤ 2100 tonnes per annum	Component of paints for industrial exterior roofing and walling coil coatings

## **CONCLUSIONS AND REGULATORY OBLIGATIONS**

### **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 unreasonable risk to the health of workers.

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

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

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

Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

## **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.
- 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 *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(2004)] workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

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

#### **Disposal**

- The notified polymer should be disposed of to landfill.

#### **Storage**

- The following precautions should be taken by the notifiers regarding 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.

### 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 notified polymer has changed from a component of paints for industrial exterior roofing and walling coil coatings;
  - the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
  - the method of manufacture of the notified polymer in Australia has changed, or is likely to change, in a way that may result in an increased risk of an adverse effect of the notified polymer on occupational health and safety, public health, or the environment;
  - additional information has become available to the person as to an adverse effect of the notified 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 MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

## ASSESSMENT DETAILS

### Polymer in HP-38-3319

#### 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 Formula, Structural Formula, Molecular Weight, Polymer Constituents, Residual Monomers, Use Details and Manufacture Volume

#### 2. IDENTITY OF CHEMICAL

MARKETING NAME(S)  
SP6 Polyester HP-38-3319

MOLECULAR WEIGHT (MW)  
Number Average Molecular Weight (NAMW) >1000

### Reactive Functional Groups

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

The following information has been provided on a product containing the notified polymer at 50-70%.

<b>Appearance at 20°C and 101.3 kPa</b>	Liquid (solution)
<b>Melting Point/Glass Transition Temp</b>	Not applicable as a solution
<b>Density</b>	1050 kg/m <sup>3</sup>
<b>Water Solubility</b>	Not determined. The notified polymer is expected to have limited solubility in water due to high molecular weight and significant amounts of hydrophobic monomer units present in the polymer.
<b>Dissociation Constant</b>	Not determined. A pKa value of about 5 is expected due to the presence of the residual acids in the notified polymer.
<b>Reactivity</b>	Stable under normal environmental conditions. Hydrolysis is not expected to occur in the environmental pH range of 4-9 despite the presence of hydrolysable functional groups in the notified polymer.
<b>Degradation Products</b>	Small amount of monomers and oxides of carbon produced on combustion.

### 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>	500-1000	1000-2100	1000-2100	1000-2100	1000-2100

USE AND MODE OF INTRODUCTION AND DISPOSAL

#### Mode of Introduction

The notified polymer and the paint containing the polymer will be made at the Clayton, Victoria PPG site. The notified polymer will be manufactured as a 50-70% w/w polymer solution in organic solvent, contained in 200 L steel drums. The paint, contained in 200 L steel drums, is to be warehoused at the Clayton site from where it will be distributed by truck to customers for application.

**Reformulation/manufacture processes**

The notified polymer will be poured from 200 L drums into 5000 L capacity steel vessels. Other batch ingredients will be added, and mixing will occur at room temperature. The final product (containing <30% notified polymer) will then be piped to 200L steel drums.

**Use**

The notified polymer will be used as a component of industrial exterior roofing and walling coil coatings at <30%, forming part of the binder in the coatings.

The coating will be used by industrial coil coating 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.

Exposure during polymer manufacture may occur during in-process and final sampling and testing, as well as filtering and filling the thinned notified polymer into containers. Engineering controls expected to be implemented to minimise exposure consist of automated processes for filtering and filling plus the use of local exhaust extraction. 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 engineering controls, workplace practices and personal protective equipment used.

During formulation, workers will manually weigh and transfer the polymer solution to the mixing vessels. 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 and personal protective equipment used.

Throughout end use, workers will come into contact with the notified polymer through dermal, inhalation and ocular routes. The risk of exposure, however, will be minimised as application will take place automatically by rollers in a large application unit within a ventilated room under supervision by workers using personal protective equipment.

After application, the paint containing the notified polymer will be 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 building exterior roofing and walling, 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 is assumed 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 expected to be used by workers to minimise exposure.

**PUBLIC HEALTH**

The notified polymer is intended for use only by trained operators in industrial roller coating facilities and will not be sold to the public. Once the polymer is applied and cured it will be contained in an inert

matrix, and hence will not be bioavailable for exposure. There is no unreasonable risk to the public from exposure to the notified polymer.

## **7. ENVIRONMENTAL IMPLICATIONS**

### **7.1. Exposure Assessment**

#### **ENVIRONMENTAL RELEASE**

Release to the environment during transport and warehousing is expected to occur only through accidental spills or leaks of containers. When spills occur, they are expected to be contained by bunding, collected with absorbent material and sent to a licensed off site waste disposal centre.

There is potential for the release of the notified polymer during manufacturing, reformulation, application, equipment cleaning, from container residues and in the event of an accidental spill. It is estimated that up to 3% wastes of the total volume of the notified polymer will be released from cleaning of equipment (<1%) and residues in container (2%). These wastes are expected to be collected, treated and disposed of to landfill. As the notified polymer will be used in industrial settings, it is expected that no waste notified polymer will enter the sewerage system or natural waterways.

Once cured, the notified polymer is expected to be bound in an inert paint matrix and not available for direct release to the environment. The coated metal substrate containing the notified polymer is expected to be thermally decomposed during metal recycling or disposed of to landfill at the end of its useful life.

#### **ENVIRONMENTAL FATE**

No studies on the environmental fate of the notified polymer have been provided. The waste remaining in the empty drums and that generated in cleaning equipment and spills will ultimately be disposed of to landfill. The notified 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 coated metal substrate recycling, the notified polymer is expected to be destroyed by thermal decomposition to form water vapour and oxides of carbon.

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

No ecotoxicological data were submitted. 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 not expected to apply to the notified polymer and it is therefore not considered to be an over-chelation hazard to algae.

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

No aquatic exposure is anticipated during end use of the notified polymer. It is expected that up to 3% wastes of the total volume of the notified polymer will be generated from manufacturing process. These wastes are expected to be collected, treated and disposed of to landfill as inert solid wastes which eventually degrade by 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 are not expected to be mobile and will degrade slowly.

Most of the notified polymer used in exterior roofing and walling coil finishes will eventually be incorporated in metal recycling programs or sent to landfill for disposal following its lifecycle. The notified polymer will eventually degrade in landfill or by thermal decomposition during metal reclamation processes, to form water and oxides of carbon. Therefore, based on its assumed low hazard and assessed use pattern, the notified polymer is not considered to pose an unacceptable risk to the environment.