

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

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in HP-93-8766

The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government Department of Health. 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 (the Act) and Regulations. The assessment report has been screened by NICNAS and the Australian Government Department of the Environment and Energy. The data supporting this assessment will be subject to audit by NICNAS.

This Public Report is 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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SUMMARY:

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

ASSESSMENT REFERENCE	APPLICANT(S)	CHEMICAL OR TRADE NAME	HAZARDOUS SUBSTANCE	INTRODUCTION VOLUME	USE
SAPLC/203	PPG Industries Australia Pty Ltd	Polymer in HP-93-8766	No	≤ 2100 tonnes per annum	Component of industrial coatings

CONCLUSIONS AND REGULATORY OBLIGATIONS

Human Health Risk Assessment

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

Environmental Risk Assessment

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.

Health and Safety Recommendations

- 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 SDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation should be in operation.

Disposal

- Where reuse or recycling are not appropriate, dispose of the notified polymer in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

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 component of industrial coatings, or is likely to change 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.

Safety Data Sheet

The SDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants

PPG Industries Australia Pty Ltd (ABN: 055 500 939)
McNaughton Road,
CLAYTON VIC 3168

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 and manufacture volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

Polyester HP-93-8766 (product containing the notified polymer)

Molecular Weight

Number Average Molecular Weight (Mn) is > 1,000 g/mol

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
Melting Point/Glass Transition Temp	Not applicable as not isolated from solution.
Density	1050 kg/m ³ at 25°C for formulation.
Water Solubility	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.
Dissociation Constant	Not determined. A pKa value of 5 is expected due to the presence of the residual acids in the notified polymer.
Reactivity	The notified polymer contains hydrolysable functional groups, however, hydrolysis is not expected to occur in the environmental pH range of 4-9.
Degradation Products	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

The notified polymer will not be imported into Australia. The notified polymer will be manufactured at the Clayton, Victoria PPG site as a polymer solution containing the polymer at 50-70% in organic solvent.

The solution containing 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. During formulation of the paint, workers will manually weigh and transfer the polymer solution to the mixing vessels. The final product (containing < 30% notified polymer) will then be piped to 200 L steel drums and warehoused at the Clayton site until distributed to customers.

The notified polymer within the finished products will be used as a component of coil coatings at < 30%, forming part of the binder in the coatings. The coil coatings will be used for industrial exterior roofing and walling and will be applied by industrial coil coating companies only. The application will be done by rollers attached to an automated application unit located in a ventilated room.

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 within an inert matrix, and hence will not be bioavailable for exposure.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. The risk of the notified polymer to occupational and public health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

7. ENVIRONMENTAL RISK ASSESSMENT

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

The notified polymer will be manufactured as part of a formulation at the PPG site in Clayton, Victoria. The formulation will be processed into finished industrial coatings for industrial coil coating companies.

There is potential for the release of the notified polymer during manufacturing, transport, reformulation, application, equipment cleaning and in the event of an accidental spill. It is estimated that up to 3% 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 in accordance with local government regulations. As the notified polymer will be used in industrial settings, it is expected that no waste containing the 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 in accordance with local government regulations at the end of its useful life. Therefore, release of the notified

polymer from the assessed use pattern is not expected to lead to ecotoxicologically significant concentrations in the aquatic environment.

ENVIRONMENTAL FATE

No studies on the environmental fate of the notified polymer have been provided. Most of the notified polymer is expected to share the fate of the articles on which it was applied, to be either recycled for metal reclamation or disposed of to landfill at the end of their useful life. A small proportion of the notified polymer may remain as residue in empty containers and be generated from equipment cleaning. These wastes are expected to be cured and disposed of to landfill along with the containers or adsorbents in accordance with local government regulations. During metal reclamation, the notified polymer will thermally decompose to form water vapour and oxides of carbon. In landfill, the notified polymer will be present as cured solids and will be neither bioavailable nor mobile. The notified polymer is not expected to bioaccumulate due to its high molecular weight. The notified polymer in landfill is expected to eventually degrade via biotic and abiotic processes to form water and oxides of carbon.

7.2. Environmental Hazard Characterisation

No ecotoxicological data for the notified polymer were submitted. Anionic polymers are generally of low toxicity to fish and daphnia, however they 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, leading to chelation of essential nutrients. This is not expected to apply to the notified polymer and it is therefore not considered to be an over-chelation hazard to algae.

7.1. Environmental Risk Assessment

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