File No: SAPLC/189

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in HC-38-8805

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 the Department of the Environment, has screened this assessment report. 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/189	PPG Industries Australia Pty Limited	Polymer in HC-38-8805	No	≤ 10 tonnes per annum	Component of automotive 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 (M)SDS should be easily accessible to employees.

- Spray applications should be carried out in accordance with the Safe Work Australia Code of Practice for *Spray Painting and Powder Coating* (Safe Work Australia, 2012) or relevant State or Territory Code of Practice.

- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System for the 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.

Environmental recommendations

- The following control measures should be implemented by workers to minimise environmental exposure during (manufacture, formulation, use) of the notified polymer:
  - Polymer solution stored within bunded areas

Disposal

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

Storage

- The following precautions should be taken by workers regarding storage of the notified polymer:
  - Store in bunded areas.

Emergency Procedures

- Spills and/or accidental release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.
- Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.

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 automotive coatings, or is likely to change significantly;
  - the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
  - the notified polymer has begun to be manufactured in Australia;
  - 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 (M)SDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants
PPG Industries Australia Pty Limited (ABN: 82 055 500 939)
14 – 20 McNaughton Road
CLAYTON VIC 3168

Exempt Information (Section 75 of the Act)
Data items and details claimed exempt from publication: chemical name, CAS number, molecular and structural formulae, molecular weight, polymer constituents, residual monomers, use details and import volume.

2. IDENTITY OF POLYMER

Marketing Name
Acrylic Polymer in HC-38-8805

Molecular Weight
Number Average Molecular Weight (Mn) is > 1,000 Da.

3. PLC CRITERIA JUSTIFICATION

Criterion	*Criterion met*
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
Low MW Polyester Manufactured from Allowable Reactants	Not applicable

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20 °C and 101.3 kPa	Clear liquid
Melting Point/Glass Transition Temp	Not determined
Density	1,020 kg/m^3 at 25 °C
Water Solubility	Insoluble
Dissociation Constant	Not determined. The notified polymer contains dissociable functionalities with an expected pKa of 4 – 17. However, the notified polymer is not expected to be significantly ionised in the environment due to its limited water solubility.
Reactivity	Stable under normal conditions.
Degradation Products	None under normal conditions of use.

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	10	10	10	10	10

Use
The notified polymer will be imported into Australia at 51.5% concentration for reformulation into end use paint products for automotive vehicles. The notified polymer will be reformulated with resins, pigments and additives and repackaged into 1 L and 3 L steel cans (at a concentration of ≤ 5%) using enclosed and automated processes. End-use products are mixed with a hardening agent and applied to automotive vehicles or car panels by industrial or professional users. Application by domestic users (do-it-yourself) is not envisaged.

6. HUMAN HEALTH RISK ASSESSMENT

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

Occupational Health and Safety Risk Assessment
Transport and storage workers may come into contact with the notified chemical only in the event of an accidental rupture of containers. Skin and eye exposure of workers to the notified chemical may occur during decanting and mixing of the notified polymer in the manufacturing stage and during application and equipment cleaning of the finished product. In addition, inhalation exposure to the notified chemical may occur during spray application.

The risk of the notified polymer to occupational health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

Public Health and Safety Risk Assessment
The notified polymer will not be available to the public. Members of the public may make dermal contact with products containing the notified polymer. However, the risk to public health will be negligible because the notified polymer is of low hazard, and is chemically stable once cross-linked.

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 not be manufactured; however, will be reformulated in Australia as a component of automotive coatings. Reformulation of the notified polymer occurs in a closed system and release to atmosphere is expected to be negligible. During formulation activities approximately 1% of the total import volume of the notified polymer is expected to remain as residue in the empty containers. A further 1% of the total import volume may be lost as result of spills. Material lost due to spills and leaks is expected to be collected and placed in label containers. These will be collected by waste disposal contractors for disposed of in accordance with local regulations.

During use, the amount of notified polymer (in the coating) lost directly to the environment is not expected to be significant. The product containing the notified polymer will be applied to substrate by automated spray guns in spray booths. The major environmental release of the notified polymer is expected to come from overspray during application of the coatings. Particulate overspray is expected to be contained by ventilation systems and collected on drop sheets to be disposed of to landfill. The residues in importation containers will be disposed of to landfill. IBC's will be recycled and the residues are expected to be disposed of to landfill. Overspray collection (via vacuum exhaust) at users' plants will yield approximately 1% of the import volume of the notified polymer per annum. This is expected to be disposed of to landfill.

Environmental Fate
The notified polymer in automotive coatings is expected to share the fate of the substrate to which it has been applied, and are predominantly expected to be disposed to landfill, or thermally decomposed during substrate reclamation.

The notified polymer contains groups in the side chains that might hydrolyse under severe conditions, but is expected to be stable under normal environmental conditions. Due to its low water solubility, the notified polymer in solid wastes is expected to remain bound within the soils and sediments of landfills and eventually degrade through biotic and abiotic processes. If spilt on land, the notified polymer is expected to bind to soil and become immobilised in the soil layer. If spilt to water, it is not expected to dissolve but rather disperse or settle to sediment. The notified polymer is not expected to be readily biodegradable. Due to its high molecular weight, the notified polymer is not expected to bioaccumulate. During metal reclamation the notified polymer will result in the formation of water vapour and oxides of carbon. In landfill, the notified polymer is expected to eventually degrade into water 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 alternative carbons of the polymer backbone, which is not applicable to the notified polymer. Therefore, the notified polymer is not considered to be an over-chelation hazard to algae.

7.3. Environmental Risk Assessment

The notified polymer will be used in automotive coatings that will eventually be incorporated in metal recycling or sent to landfill for disposal following at the end of its lifecycle. During metal reclamation, the notified polymer would be destroyed in furnaces and converted to water vapour and oxides carbon. No significant aquatic exposure is anticipated during end-use of the notified polymer. The notified polymer will be bound within the cured automotive coating matrix, is not expected to be either

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