

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

POLYMER OF LOW CONCERN PUBLIC REPORT

Acrylic Polymer in HC-59-5979

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 and Energy, 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/201	PPG Industries Australia Pty Ltd	Acrylic Polymer in HC-59-5979	No	≤ 100 tonnes per annum	Component of industrial coatings and paints

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.

- If aerosols are formed during the use of the notified polymer, engineering controls and respiratory protection should be used to prevent inhalation exposure.
- A copy of the 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, 2015) 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.

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 a component of industrial coatings and paints, 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.

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: 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, molecular and structural formulae, molecular weight, polymer constituents, residual monomers/impurities use details, and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

Acrylic Polymer in HC-59-5979

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	Colourless to light-coloured liquid solution*
Melting Point/Glass Transition Temp	Not determined. Notified polymer is not isolated from solution.
Density	1030 kg/m ³ at 20 °C*
Water Solubility	Not available, the notified polymer is not isolated from solution.
Dissociation Constant	The notified polymer contains a small amount of dissociable groups
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use
* Acrylic Polymer in HC-59-5979	

5. INTRODUCTION AND USE INFORMATION

Maximum Introduction Volume of Notified Chemical (100%) Over Next 5 Years

The notified polymer will not be manufactured in Australia. The notified polymer will be imported into Australia at a concentration of > 70% in solvent mixture, in closed head 200 L steel drums. It will be imported via Melbourne harbour, and stored at the notifier's warehouse and plant prior to being blended with other resins, catalysts and solvents to produce automotive refinish paints. The paint will be packed in 5 L metal cans which are transported by truck to commercial customers for mixing with hardener and solvent based thinner prior to use.

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Tonnes	30-100	30-100	30-100	30-100	30-100

Use

The automotive refinish paint containing the notified polymer will be mixed with other ingredients prior to spray painting on automobiles in smash repair shops using spray booths with exhaust equipment. The imported coating and finished automotive paint products containing the notified polymer will not be made available to the general public.

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 closed head 200 L steel drums of HC-59-5979 (containing the notified polymer).

During formulation, workers will automatically weigh and transfer the polymer solution to a closed blending tank (with exhaust ventilation extraction equipment). Workers will wear impermeable gloves, eye protection and coats. Exposure from the notified polymer to these workers can occur by either dermal, inhalation or ocular routes, however significant exposure will be limited due to the workplace practices, exhaust ventilation equipment and personal protective equipment used.

Throughout end use, spray painters may come into contact with the notified polymer through dermal, inhalation and ocular routes. The risk of exposure, however, is expected to be minimal as the spray paint is applied in an exhaust ventilated spray booth by workers using protective equipment.

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

PUBLIC EXPOSURE

The notified polymer will not be sold to the public. There is potential for extensive public exposure to the surface of automobiles comprised partly of the notified polymer. However, the notified polymer will be cured into an inert matrix and is hence unavailable 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 risk to workers 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 will not be sold to the public. Once the notified polymer is applied and cured it will be contained in an inert matrix, and hence will not be bioavailable. Based on the assumed low hazard and the low exposure, the notified polymer is not considered to pose an unreasonable risk to the health of the public.

7. ENVIRONMENTAL RISK ASSESSMENT

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 closed head 200 L steel drums of HC-59-5979 or 5 L steel packaged containers of automotive refinish paint.

There is the potential for release during manufacture and application. Any spills that occur during reformulation and packaging will be collected with absorbent material and sent to a licensed off-site waste disposal centre. Up to 2% per annum of notified polymer as waste is expected to be generated due to spills and cleaning equipment during paint manufacture. Empty drums from import of HC-59-5979 will be sent to licensed drum reconditioners. A licensed waste disposal contractor will collect the solvent borne waste from the manufacturing process for disposal by incineration.

Professional spray painters will use the paint to refinish motor vehicles. It will be applied in combination spray/oven booths that comply with Australian Standards. Spray booths are fitted with environmental control measures. Water curtains or a dry filter medium will collect excess spray. The coating is either air-dried or oven-baked at 60 °C to form a stable inert film.

There is potential for release of the notified polymer during mixing, spray-gun loading, spraying, and equipment cleaning, from container residues and in the event of an accidental spill. Up to 20% of the notified polymer could be released through overspray within spray booths. This will be captured by standard engineering controls, treated and the solid waste disposed to landfill. An estimated 2% of the notified 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 25% of the import volume at market maturity. It is expected that no waste notified polymer would enter the sewerage system 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 notified polymer is expected to be hydrolytically stable and to not be readily biodegradable.

The notified polymer is expected to be thermally decomposed during the recycling of the metal substrates. In landfill, the notified polymer will be present as cured solids that will be neither bioavailable nor mobile. Based on its high molecular weight, the notified polymer is not expected to cross biological membranes, and is therefore unlikely to bioaccumulate. The notified polymer is expected to eventually degrade to form oxides of carbon and water vapour by thermal decomposition or by abiotic and biotic processes.

7.2. Environmental Hazard Characterisation

No ecotoxicological data 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 the nutrient 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, and it is therefore, not considered to be an over-chelation hazard to algae.

7.3. Environmental Risk Assessment

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.

No aquatic exposure is anticipated during manufacture and end use of the notified polymer. 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.