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

FULL PUBLIC REPORT

Polymer in RC-65-8362

This Self Assessment has been compiled 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) is administered by the Department of Health and Ageing, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Department of the Environment and Heritage. The data supporting this assessment will be subject to audit by NICNAS.

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**Director
NICNAS**

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FULL PUBLIC REPORT

Polymer in RC-65-8362

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)

PPG Industries Australia Pty Ltd (ABN 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, Other Names, CAS Number, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details, Manufacture/Import Volume, and Site of Manufacture/Reformulation

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

No variation to the schedule of data requirements is claimed.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

No

NOTIFICATION IN OTHER COUNTRIES

USA

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Polymer in RC-65-8362

3. PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met (yes/no/not applicable)</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. 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>	Up to 3	Up to 3	Up to 3	Up to 3	Up to 3

USE

The polymer will be used in the automotive industry as a component in an automotive refinish coating.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

The notified polymer, RC-65-8362, will be initially imported, within a finished clearcoat polymer solution. If PPG Industries Australia Pty Ltd choses at a later date to manufacture the clearcoat, then the polymer solution will be imported as an ingredient of resin solution in 200 kg closed head screw capped drums which would be stored in a bunded warehouse or yard facility before use in the paint factory.

During manufacture of the clearcoat, the resin solution would be combined with the solvent and other polymer components in a high speed mixer and miller. The completed coating would undergo batch adjustment and testing prior to filtration and filling.

The finished clearcoat polymer imported or manufactured on site would be stored in 1L screw steel containers in a bunded warehouse to await distribution to customers.

At the application site, clearcoat solution containing the notified polymer is blended with the hardener component and applied to vehicles using a spray gun in a spraybooth.

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

There is little potential for occupational exposure to the notified polymer during transport and storage of the imported product. Exposure to the notified polymer is not expected during importation, warehousing or transportation of the product except in cases where the packaging is breached.

Exposure of the notified polymer may occur during manufacture of the clearcoat. Engineering controls, including exhaust ventilation to capture volatiles at the source and air flow measurement are in place to minimize worker exposure. Protective clothing is provided and safety procedures given to all personnel involved in the manufacture and formulation of coatings. For handling the polymer solution and coating the minimum protection would be impervious gloves, coveralls and goggles.

During mixing of the clearcoat and hardener, workers may be exposed to the notified polymer. Engineering controls and personal protective equipment worn by workers should minimise any exposure risk to workers at this concentration.

End users of the product may be exposed to the notified polymer via dermal, ocular or inhalation routes during spraying of the diluted basecoat mixture. The product is supplied to professionals. They apply the spray within a booth with an exhaust/filter system and workers wear supplied air respirator or mask fitted with organic vapour cartridge, face shield, gloves and protective suit.

Workers may be exposed to a dilute solution via dermal and ocular routes while cleaning and rinsing spray equipment using recirculated solvent.

6.2. Summary of Public Exposure

The polymer solution is only sold to professional spray painters; therefore the solution is not expected to come into contact with members of the public. The public may come into contact with the finished dried product on refinished automobiles however in this form the notified polymer will be bound in an inert matrix and as such will not be biologically active.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

Processes are typically undertaken in a closed system and spills are controlled by bunding within the plants. Mixers are fitted with exhaust ventilation to capture volatiles at source and a regular maintenance program is pursued. Wastes produced during mixing are envisaged to be 2%. These wastes would be collected by licensed waste contractors and incinerated.

Used 200 kg import containers are expected to contain a maximum of 1% residual notified polymer (equivalent to 50 kg per annum) and will be sent to drum recyclers where the residual notified polymer will be thermally decomposed in a high temperature incinerator to oxides of carbon and hydrogen.

The notified polymer is used as a scratch resistant coating in automotive applications. The process used by paint end users would result in waste generated from overspray from the application process, cleaning of the application equipment and empty paint containers.

The notified polymer does not represent an emission hazard to the atmosphere as all paint overspray is trapped in the spraybooth or on masking material. The transfer efficiency as a result of spray application is approximately 30%. Of the paint mixed for actual application, 70% will be captured as overspray and collected within the spraybooth throughout its filtering system or on making materials such as kraft and newspaper.

Cleaning of the application equipment will generate waste which will be collected and disposed of in the same manner as waste-water from the spraybooth involving licensed waste disposal contractors. The waste is then treated and sent to trade waste landfill.

Waste generated as a result of a small amount of coating remaining in the containers after use represent about 2% of the container contents. This will dry to form a non-leachable solid and will be disposed of as solid landfill.

6.3.2. Environmental Fate

The waste generated in formulating automotive resin coatings, that remaining in the empty import canisters and drums, overspray, cleaning equipment and spills will ultimately be disposed of to landfill. The polymer is potentially hydrolysable, however this is unlike under standard environmental conditions. The notified polymer is likely to slowly degrade by biotic and abiotic process. Leaching of the polymer from landfill is unlikely, given the low solubility of the substance. The polymer is not expected to cross biological membranes, due to the low solubility and high molecular weight, and should not bioaccumulate.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Liquid
Melting Point/Glass Transition Temp	Not applicable as solution
Water Solubility	Not soluble, (no data available)
Particle Size	Not applicable as polymer solution
Dissociation Constant	The notified polymer does not contain ionisable groups
Reactivity	Low reactivity
Degradation Products	Small amounts of monomers and oxides of carbon produced on combustion.

7.1. Comments

Water solubility testing has not been conducted. The polymer is never isolated from solution. The imported polymer in solution is practically insoluble in water due to the lack of polar functionality except for terminal polymer groups

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

No toxicological data were submitted.

:

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

No toxicological data were submitted.

9.2. Environmental Hazard Assessment

Nonionic polymers which have molecular weights greater than 1000 are of low concern

10. RISK ASSESSMENT

10.1. Environment

Up to 3.5 tonnes per annum of waste notified polymer may be generated during coatings manufacturing and use each year as a result of incidental spills, equipment cleaning, overspray and residues in containers. The majority of this waste will be sent to landfill for disposal. In landfill, the notified polymer in solid wastes is expected to be immobile, and eventually will degrade through biotic and abiotic processes, and consequently, should not pose a significant risk to the environment.

Spills of notified polymer to land are expected to bind to soil and should not be mobile or affect groundwater due to very low water solubility. Spills of notified polymer to waters are not expected to dissolve due to the lack of water solubility, and the product is expected to disperse or to settle to sediment.

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 and hydrogen.

10.2. Occupational Health and Safety

The OHS risk presented by the notified polymer is expected to be low, based on low hazard associated with the notified polymer. Local ventilation is used during application and the product will be handled by professional spray painters.

10.3. 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 trapped within a coating and will not be bioavailable. Therefore, the risk to public health from exposure to the notified polymer is considered low.

11. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

11.1. Environmental Risk Assessment

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

11.2. Human Health Risk Assessment

11.2.1. Occupational health and safety

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

11.2.2. Public health

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

12. MATERIAL SAFETY DATA SHEET

12.1. 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.

13. RECOMMENDATIONS

CONTROL MEASURES

Occupational Health and Safety

- Spraying should occur in a spray booth conforming to the Australian standard, AS/NZ 4114.1-2.
- Polymer and paint are filled into containers under exhaust ventilation to capture any vapour generated at source

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

- Personal protective equipment required during formulation are
 - Eye protection (safety glasses or goggles) conforming to Australian Standard AS/NZ 1337
 - Impermeable gloves
 - Anti-static footwear
 - Anti-static flame retardant overalls

Mixing and spraying of the paint must take place in a spraybooth as described above and the spray painter must wear, as well as the clothing specified above, an air fed breathing mask conforming to AS/NZ1715 and AS/ 1716, which is supplied by air, the quality of which conforms to that required by Australian Standards AS/NZ1715 and AS/NZ1716.

- 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.

Environment

- The following control measures should be implemented by the notifiers customers to minimise environmental exposure during formulation of the polyurethane coating solutions:
 - Bunding
 - Exhaust ventilation with filter

Disposal

- The notified polymer should be disposed of to landfill or incinerated.
- Empty containers should be sent to local recycling or waste disposal facilities.

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 re-used after cleaning.
- Do not flush the product containing the notified polymer into surface water or sewer systems.

13.1. Secondary Notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under subsection 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 subsection 64(2) of the Act:
 - if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.