

File No SAPLC/56

21 March 2007

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

FULL PUBLIC REPORT

Permapol 97-125

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**Director
NICNAS**

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FULL PUBLIC REPORT**Permapol 97-125****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT

PPG Industries Australia Pty Ltd (ABN: 82 055 500 939)
McNaughton Rd
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

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None known

NOTIFICATION IN OTHER COUNTRIES

None known

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Permapol 97-125

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 notified polymer is not separated from solution during its lifetime in Australia, therefore the physical and chemical properties have been based on the polymer solution.

Appearance at 20°C and 101.3 kPa	Amber liquid
Melting Point/Glass Transition Temp	Not available
Density	1100 kg/m ³
Water Solubility	The polymer is not separated from the coating during its lifetime in Australia. The MSDS for Permapol 97-125 claims that the polymer solution is immiscible in water. Based on the structure, the polymer would be expected to be insoluble as it is a polyester with limited hydrophilic functional groups.
Dissociation Constant	The notified polymer may contain terminal groups, which would exhibit typical acidity. A dissociation constant has not been calculated for the notified polymer as it contains a number of repeating moieties and dissociation constants are not usually calculated for polymers.
Particle Size	The notified polymer is not separated from the polymer solution.
Reactivity	Stable under normal environmental conditions, however, hydrolysis may occur under extreme pH 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

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	<3	<3	<3	<3	<3

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer is imported into Australia. It is present in imported and/or reformulated products at concentrations of 10-90%. It will be transported by road or air in a range of sealed storage containers. The storage containers range from 200L steel drums to 500mL plastic containers. Those transported are of the order of 20 L, 5 L and 1 L cans. The product may also be delivered as a Sempens (small pens used for automatically applying paint with a typical volume of less than 50 mL).

Reformulation processes

The notified polymer is imported in 200L drums from which the lids are removed and the contents of the drums are manually mixed. The mixer is cleaned using a solvent coated rag. A drum pump is then attached. An automated process is used to formulate the new products. The final products are automatically pumped into packaging containers (from 500mL plastic containers to 20L metal pails) and mixed. Mixing is done in the packaging used for transport. A quality control sample (approximately 50mL) is taken from the batch and sprayed onto a tile in a designated spray booth. The sample is left to dry for a colour test.

Use

The coatings are applied in designated spraying hangers with restricted access. The coatings are predominantly applied by spraying, however, on some regions of the plane they are applied either by roller or touch up pen. The concentration of the notified polymer in the coatings is 10-90%. In large

facilities the paint is applied using electrostatic guns where the substrate is electrically charged to minimize over spray. However, smaller facilities where spraying occurs will use standard manual spraying equipment. These coatings are generally used for refinish or touch up applications, though in some cases they may be used for a whole aeroplane coat.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

During reformulation, workers may be exposed to the notified polymer dermally during mixing, quality control or cleaning. Use of appropriate PPE including gloves, safety glasses and coveralls, will minimise the dermal exposure, as well as any ocular exposure that occurs as the result of spills. Inhalational exposure may occur during quality control tests when the product is sprayed. This is minimised by performing the spraying in a well-ventilated area. Spraying is performed towards a water filtration system that traps any dust or overspray on the surface, thereby minimising exposure. The water is recycled through a system, thereby providing ventilation.

During application, workers may come in contact with the notified polymer by dermal, ocular or inhalation routes as the result of spills or cleaning or during spraying. This is minimised by performing the spraying in a bunded industrial environment with restricted access, and by use of PPE including gloves, safety glasses and coveralls. During spraying, workers wear full air fed masks and total PPE protection due to the presence of chromates and other hazardous ingredients within the paint. Therefore controls are in place to minimise the exposure. All spraying is performed in a well-ventilated, designated hangar by experienced personnel. Prior to application, the area is cleared to minimise the number of people exposed.

<i>Category of Worker</i>	<i>Number</i>	<i>Exposure Duration hours/day</i>	<i>Exposure Frequency days/year</i>
(a) Transport and warehousing personnel not expected to be exposed. Only potential for exposure occurs from accidents e.g. dropping of containers	5	-	200
(b) Reformulating and cleaning of equipment	3	8	250
(c) QC testing	1	8	250
(d) Application	500	6	10

PUBLIC EXPOSURE

The notified polymer is not intended for public use, therefore the public are not expected to be exposed to the coating. It is for use in industry and the public will only come in contact with the notified polymer as the result of a spill during transportation. The public may also come in contact with the paint in its final use as a coating on the exterior of planes. In this form the notified polymer will be contained within the paint and will not be available 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 OHS risk presented by the notified polymer is expected to be low, based on the minimal exposure to workers and the low intrinsic hazard of the polymer.

PUBLIC HEALTH

The notified polymer is intended to be used in an industrial environment, therefore the public may

only come in contact with the polymer following curing as part of a hard and durable coating in aerospace applications. The polymer should be contained within the coating following drying. Therefore, the risk to public health is low.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

During reformulation it is expected that approximately 1% of the notified polymer will be spilt. These spills will be contained within bunding and disposed of by a licensed waste contractor. Small amounts (<1%) will be present after equipment cleaning. These washes will be stored in containers and disposed of by licensed waste contractors. Approximately 1% of the notified polymer may remain as residue in the drums. These will undergo drum recycling or be removed by licensed waste contractors. The overspray from the quality control testing (<0.1%) will be trapped in the water in the spray booth. This water is removed every month during cleaning and transferred to a drum, which is sealed and disposed of by a licensed waste contractor. There is no release to the environment or waterways throughout this process.

During use approximately 1% of the notified polymer will be released as the result of spills. This will be contained on site and disposed of by a licensed waste contractor. Approximately 1% may remain in the pails used to supply the final coating to the customer site. This will be disposed of to licensed waste contractors. An additional 1% may result during cleaning. This may be released in waterways. However, the release will be diffuse throughout Australia and is not likely to impact the environment. During application, approximately 20% may be lost as the result of overspray. This value is likely to be lower for the majority of customers (as the use of electrostatic guns and a charged substrate reduces the amount of overspray). However, small operators may release this quantity of overspray, so this worst-case estimate has been used for the assessment. The overspray will be captured on kraft paper and disposed of to licensed waste contractors following application.

ENVIRONMENTAL FATE

The notified polymer is contained within a coating and will become an integral part of aerospace applications. The polymer will be disposed of to landfill at the end of the substrate's lifetime along with the other components of the aeroplane.

The notified polymer that is disposed of to landfill is expected to associate with soil and sediments, and be immobile. Over time the notified polymer is expected to degrade via abiotic and biotic means to form simple carbon based compounds. Any notified polymer that is disposed of by incineration is expected to be thermally degraded to form various oxides of carbon and water vapour.

7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

7.3. Environmental Risk Assessment

The notified polymer meets the PLC criteria and therefore is considered to be of low concern to the aquatic environment. Approximately 6% of the notified polymer is expected to become waste during repacking and application, and up to 20% may be released as overspray. This quantity is collected and disposed of by licensed waste contractors, therefore there is no release to sewer or to the subsequent aquatic environment. Based on the low toxicity and low exposure the notified polymer is not expected to pose a risk to the environment.

8. CONCLUSIONS

8.1. Level of Concern for Occupational Health and Safety

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

8.2. Level of Concern for Public Health

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

8.3. Level of Concern for the Environment

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

9. MATERIAL SAFETY DATA SHEET

9.1. Material Safety Data Sheet

The notifier has provided a MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

10. 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.

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

- 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

Disposal

- The notified polymer should be disposed of by licensed waste contractor to incineration or land fill.

Emergency procedures

- Spills/release of the notified polymer should be prevented from entering watercourses.

10.1. 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.