

File No SAPLC/58

16 March 2007

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

FULL PUBLIC REPORT

Permapol P3.1E

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 Ageing and the Department of the Environment and Heritage has screened this assessment report. 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**Permapol P3.1E****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

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

McNaughton Rd

CLAYTON VIC 3168

NOTIFICATION CATEGORY

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, Import Volume

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

Canada (NSN 14362, 2006)

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Permapol P3.1E

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) >1000

REACTIVE FUNCTIONAL GROUPS

The notified polymer contains only low concern functional groups.

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. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Pale yellow liquid
Melting Point/Glass Transition Temp	Present as a liquid
Density	1168 kg/m ³ at 20°C
Water Solubility	The polymer is immiscible in water according to the MSDS. However, the notified polymer contains a functional group which is expected to provide appreciable solubility in water.
Dissociation Constant	The dissociation constant has not been calculated as the polymer contains many repeating moieties, however there appears to be no functional groups that are likely to undergo dissociation.
Particle Size	Present as a liquid
Reactivity	Stable under normal environmental 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>	< 5	< 5	< 5	< 5	< 5

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer is used as a sealant for applications in the aerospace industry. The polymer is used in a range of sealant applications at concentrations between 30 and 90%.

The notified polymer will be imported into Melbourne and will be transported by road or air in sealed drums or plastic containers (see attached equipment). A plastic disk seals the container at both ends. The containers are then placed in plastic satchels that are heat sealed and boxed prior to storage and transportation.

Reformulation/manufacture processes

The notified polymer is imported in a product at a concentration of 30-90%. It will be transported by road to PPG Aerospace.

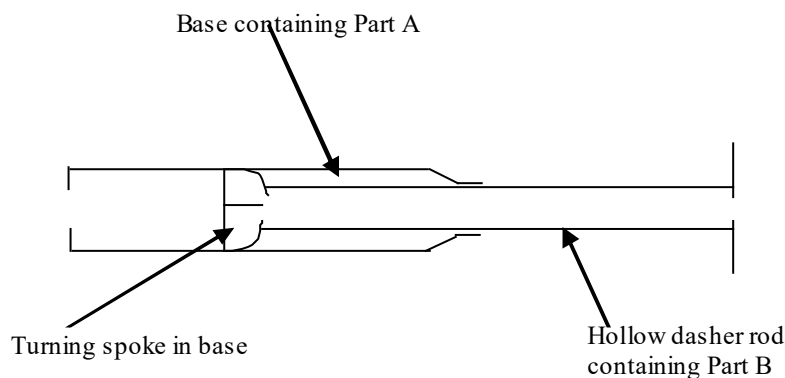
The notified polymer is imported in approximately 200 L drums from which the lids are removed and a drum pump is attached. Either the drum pump is used to fill the hoppers or for 20 L containers a drum lift is used and the material is poured into the hopper. It is then repackaged by being extruded from the hopper into the plastic sealant tubes. The part B of the sealant (containing the notified substance) is extruded into the second tube. The tubes are manually joined and placed within a Mylar foil bag that is heat sealed, air is extracted from it and nitrogen is added to it before packaging it into cardboard boxes. Some samples are used for quality control testing for shelf life. These tests are performed in a laboratory environment under exhaust ventilation. Hoppers are manually cleaned between each batch.

The sealant tubes are transported by road or air.

Use

The sealants are applied to aircraft in an industrial environment. The application is performed at

numerous sites housing both small and large operators. Part A is contained within the base of the applicator and Part B is contained within the dasher rod. A spoke exists in the base of the applicator to allow mixing. A ramrod is pushed through the dasher rod to inject the Part B into the Part A. The spoke is then used to mix it either manually or by removing the dasher rod and connecting the spoke to an automatic mixer. The dasher rod is then removed and a nozzle is applied to the base component. A pressure gun is applied at the other end and used to pump the sealant out. Some application occurs in a confined space, such as a fuel tank. In this situation the worker wears full oxygen protection during entry of the confined space.



6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

During repackaging workers may be exposed via dermal exposure during the manual loading, filling and packaging. Repackaging and all quality control testing is performed under natural or exhaust ventilation wearing appropriate PPE that includes gloves, coveralls and safety glasses that will minimise the dermal application. The polymer has a low vapour pressure so the inhalation exposure will be minimal. It is possible that during the manual process a splatter could result in ocular exposure, however this is minimised by the use of safety glasses. These materials are generally paste-type materials, therefore incidental exposure from splatter can be avoided.

During application the worker may come in contact with the product during the manual application process. This exposure is predominantly dermal however there is a possibility of ocular exposure. The level of exposure is low as the process occurs within the contained application equipment and the worker is not exposed directly to the sealant. It is further minimised by use of appropriate PPE (gloves, coveralls and safety glasses) and the use of safe handling procedures as provided by PPG in their application guide. The application may take place in confined spaces where ventilation is minimal. For application occurring in confined spaces the worker wears a full oxygen mask to allow continual supply of clean oxygen.

PUBLIC EXPOSURE

The notified polymer is not for public exposure. It is for use in industry and the public will only come in contact with the substance as the result of a spill during transportation. The public may also come in contact with the polymer following application in its final use as a sealant on aircraft. However in this form the polymer will not be available for exposure as it will be fully crosslinked within the sealant.

6.2. Toxicological Hazard Characterisation

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. This is supported by toxicological endpoints observed in testing conducted on the notified polymer or analogue chemical.

<i>Endpoint</i>	<i>Result</i>	<i>Classified?</i>	<i>Effects Observed?</i>	<i>Test Guideline</i>
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1. Rat, acute oral	LD50 >5000 mg/kg bw	no	no	OECD TG 401 OECD TG 423
2. Rabbit, skin irritation	non-irritating	no	no	OECD TG 404
3. Rabbit, eye irritation	non-irritating	no	no	OECD TG 405
4. Skin sensitisation - adjuvant test	no evidence of sensitisation.	no	no	OECD TG 406 (Buehler and Maximisation tests)
5. Genotoxicity - bacterial reverse mutation	non mutagenic	no	no	OECD TG 471 – 472

All results were indicative of low hazard.

6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

The notified polymer has a low order of acute toxicity and meets the definition of a polymer of low concern. It is expected that workers will have only limited exposure as the polymer is not volatile and is present as a paste, therefore splashes and spills are unlikely. The overall risk through occupational exposure is low.

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 sealant in aerospace applications. The polymer should be contained within the sealant following curing. Therefore the risk to public health is low.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

During repackaging 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. There is no release to the environment or waterways throughout this process.

During use there will be minimal release of the notified polymer. The notified polymer is contained within a single-use tube and is likely to have the consistency of a paste, therefore spills are unlikely to occur. However as a worst case scenario we will assume that 1% of the notified polymer will be released during spills. This will be contained and disposed of by a licensed waste contractor. Approximately 1% may remain in the tubing, this will be disposed of to licensed waste contractors. An additional 1% of the notified polymer may be lost during cleaning. This may be released in waterways. However, the release will be diffuse throughout Australia and is not likely to impact the environment.

ENVIRONMENTAL FATE

The notified polymer is contained within a sealant and will become an integral part of aerospace applications. The polymer will be disposed of to landfill at the end of its lifetime along with the other components of the aeroplane. In landfill, the notified polymer is expected to eventually degrade via abiotic and biotic means to form simple carbon, nitrogen and sulfur based compounds.

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 polymer is expected to become waste during repacking and application. This quantity is collected and disposed of by licensed waste contractors, therefore there is no release to sewerage or to the subsequent aquatic environment. Based on the low toxicity and low exposure the 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 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.

- Service personnel should wear cotton or disposable gloves and ensure adequate ventilation is present when removing spent printer cartridges containing the notified polymer and during routine maintenance and repairs.
- 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 and/or accidental 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.