File No SAPLC/128

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME
(NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in DP3000 Enviro Primer Surfacer

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government 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 Australian Government Department of Sustainability, Environment, Water, Population and Communities.

For the purposes of subsection 78(1) of the Act, this Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This Public Report is also 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

January 2012

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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/128	PPG Industries Australia Pty Ltd	Polymer in DP3000 Enviro Primer Surfacer	No	< 3 tonnes per annum	Component of coating for automobiles

CONCLUSIONS AND REGULATORY OBLIGATIONS

Level of Concern for Occupational Health and Safety
Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unreasonable risk to the health of workers.

Level of Concern for Public Health
When used in the proposed manner, the notified polymer is not considered to pose an unreasonable risk to public health.

Level of Concern for the Environment
The notified polymer is not considered to pose an unreasonable risk to the environment based on its assessed use pattern.

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.

- Spray application should be carried out in accordance with the Safe Work Australia *National Guidance Material for Spray Painting* [NOHSC (1999)].

- 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 customer to minimise environmental exposure during manufacture, formulation and use of the notified polymer:
  - Bunding
  - Exhaust ventilation with filter

Disposal

- The notified polymer should be disposed of to landfill.

Storage

- The following precautions should be taken by the notifiers regarding storage of the notified polymer:
  - Bunding

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 component of coating for automobiles, 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 MSDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. NOTIFICATION DETAILS

APPLICANT
PPG Industries Australia Pty Ltd (ABN 82 055 500 939)
McNaughton Road , Clayton Victoria 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, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details, Import Volume

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
European Union (EINECS/ELINCS) Registration: Polymer Exemption: Exempt

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Alkyd SB (LABP 12879), HA-91-6303 (containing the notified polymer at < 80%)
DP3000 Enviro Primer Surfacer (containing the notified polymer at < 17%)

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (NAMW) > 1,000 Da

REACTIVE FUNCTIONAL GROUPS
The notified polymer contains only low concern functional groups.

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

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Liquid (solution)
Melting Point/Glass Transition Temp	Not determined (imported in a solution)
Density	1,121 kg/m^3 at 25°C
Water Solubility	Not determined. The notified polymer is expected to have limited solubility in water due to high molecular weight and significant amounts of hydrophobic monomer units present in the polymer.
Dissociation Constant	Not determined. A pKa value of about 4 is expected due to the presence of the residual acids in the notified polymer.
Reactivity	Stable under normal environmental conditions. Hydrolysis is not expected to occur in the environmental pH range of 4-9 despite the presence of hydrolysable functional groups in the notified polymer.
Degradation Products	Small amounts of monomers and oxides of carbon produced on combustion

Comments The residual carboxylic functional groups are not expected to be dissociated in the aquatic environment due to the high molecular weight of the polymer and the small number of functional groups. Furthermore the polymer is unlikely to be released to the aquatic environment during the normal course of its use as it is converted into an inert coating of very high molecular weight during the curing process.

5. INTRODUCTION AND USE INFORMATION

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

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

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction (see cover letter)

The notified polymer will be imported via Melbourne Docks as part of 'PET primer' automotive repair coating in 3 litre containers. The concentration of the notified polymer in the imported coating is < 17%. The coating containing the notified polymer will be initially stored at the notifier's warehouse before being transported by truck to the application site.

Reformulation/manufacture processes

Immediately prior to the application, the primer coating containing the notified polymer will be manually measured and mixed with a hardener component and with solvent and applied to vehicles using a spray gun in a spray booth.

The final concentration of the notified polymer in the applied repair coatings will be < 15%.

Use

The notified polymer acts as a binder and will be used in a repair coating for automobiles. The coatings will be applied using a spray gun and will be used by smash repair companies only.

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 containers containing the primer coating.

During reformulation/mixing, workers will manually weigh and transfer the primer coating containing the polymer solution to mixing pots. Workers will wear impermeable gloves, eye protection and overalls. Exposure from the notified polymer to these workers can occur by either dermal or ocular routes, however significant exposure will be limited due to safe workplace practices, operating localised exhaust extraction systems and use of personal protective equipment.

Through end use, spray painters will come into contact with the notified polymer through dermal, inhalation and ocular routes. The risk of exposure, however, will be minimal as the spray paint is applied in a ventilated spray booth by workers using personal protective equipment.

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

PUBLIC EXPOSURE

The notified polymer will not be sold to the public. The public may come into contact with the finished and dried product on repainted automobile bodies. However in this form the notified polymer will be bound in an inert matrix and as such will not be bioavailable 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 assumed low hazard of the notified polymer as well as the engineering controls and personal protective equipment used by workers to minimise exposure.

PUBLIC HEALTH

The notified polymer will not be sold to the public. The automobile repair coating containing the notified polymer with only being used by trained spray painters in commercial automotive smash repair sites. Once the polymer is applied and cured it will be contained in an inert matrix, and hence will not be bioavailable for exposure. There is no risk to the public from exposure to the notified polymer.

7. ENVIRONMENTAL IMPLICATIONS

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 containers containing the primer coating.

Under normal use procedures, losses of the notified polymer through overspray, mixing of components and cleaning of equipment as well as losses from residues in containers have been estimated to be a maximum of 70% which equates to a maximum 2.1 tonnes per annum. Waste from application will be hardened and collected for disposal to landfill. No significant release of the notified polymer to sewer is expected from the application process.

ENVIRONMENTAL FATE

No studies on the environmental fate of the notified polymer have been provided. The notified polymer is not expected to be readily biodegradable or bioaccumulative due to its high molecular weight.

Most of the notified polymer is expected to end up in landfill. A portion of the annual import volume is expected to be sent to landfill as collected spillage and overspray waste, and in the form of residues in containers. The rest of the notified polymer in coated articles is expected to share the fate of these articles and, at the end of their useful lives, be disposed of to landfill. In landfill, leaching of the notified polymer is not expected to be significant due to the expected limited solubility and/or incorporation into inert paint matrix. In landfill, the notified polymer will degrade slowly through biotic and abiotic processes to form water and oxides of carbon.

7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. Generally, polyanionic polymers will not be toxic to fish or daphnids, with a LC 50 > 100 mg/L. However, 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 alternating carbons of the polymer backbone. This does not apply to the notified polymer. Additionally, the toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

7.3. Environmental Risk Assessment

No aquatic exposure is anticipated during reformulation and use of the notified polymer. It is expected that the notified polymer will be disposed of in approved landfills as inert solid waste or as coated articles at the end of their useful lives.

Therefore, based on its assumed low hazard and reported use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.