File No: SAPLC/156

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in HA-89-7232

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 have screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

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 Full 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 inquiries please contact the NICNAS Administration Coordinator at:

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Director
NICNAS

January 2014

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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/156	PPG Industries Australia Pty Ltd	Polymer in HA-89-7232	No	≤ 8 tonnes per annum	Component of industrial coatings

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.

- A copy of the (M)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, 2012) 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

- The notified polymer should be disposed to landfill.

Storage

- The following precautions should be taken by workers regarding storage of the notified polymer:
  - Store in a segregated and approved area.

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, or is likely to change significantly;
- the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
- the method of manufacture of the notified polymer in Australia has changed, or is likely to change, in a way that may result in an increased risk of an adverse effect of the notified polymer on occupational health and safety, public health, or the environment;
- 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 (M)SDS of a product containing the notified polymer was provided by the applicant. The accuracy of the information on the (M)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)
McNaughton Road
Clayton VIC 3168

Exempt Information (Section 75 of the Act)
Data items and details claimed exempt from publication: chemical name, CAS number, molecular and structural formulae, molecular weight, polymer constituents, residual monomers/impurities, use details and manufacture volume.

2. IDENTITY OF POLYMER

Marketing Name(s)
Acrylated Alkyd P14509

Other Name(s)
HA-89-7232 (contains the notified polymer at 50-70% concentration in solvent solution

Molecular Weight
Number Average Molecular Weight (Mn) is > 1,000 Da

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*
Density	980 kg/m^3
Water Solubility	Not determined. The notified polymer is expected to have limited solubility in water due to high molecular weight and predominantly hydrophobic structure
Dissociation Constant	Not determined. A pKa value of about 5 may be expected in the case of 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	None under normal conditions of use

* For the product containing the notified polymer at 50-70% concentration in solvent solution

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	4-8	4-8	4-8	4-8	4-8

Use
The notified polymer will be manufactured in Australia as a 50-70% w/w polymer in organic solvent and sold to end users in 4 and 20 L metal cans. Immediately prior to application, the notified polymer in solution will be reformulated by mixing with tinter. The coatings will contain the notified polymer at < 25% concentration and will be applied using a spray gun to general light industrial articles such as sheet steel, agricultural equipment, vehicle engines, furniture and cabinets.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

Although not considered in this risk assessment, NICNAS notes that the notified polymer contains residual monomers that are classified as hazardous according to the Globally Harmonised System for the Classification and Labelling of Chemicals (GHS), as adopted for industrial chemicals in Australia. These are not present in the notified polymer as introduced above the cut off concentrations for classification.

Workers may come into contact with the notified polymer through accidental leaks and spillages, and throughout end use, during transport, manufacture, reformulation/mixing and spraying. Potential routes of exposure are ocular, dermal and by inhalation. Engineering controls such as automated filtering and filling processes, local exhaust extraction, and the use of ventilated spray booths, as well as the use of personal protective equipment (PPE) are expected to limit exposure.

Occupational Health and Safety Risk Assessment
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.

Public Health and Safety Risk Assessment
The notified polymer is intended for use only by trained operators in light industrial coating facilities and will not be sold to the public. 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 unreasonable risk to the public from exposure to the notified polymer.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. 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, which is not applicable to the notified polymer. Therefore, the notified polymer is not considered to be an over-chelation hazard to algae.

The notified polymer will be manufactured in solvent solution in Australia and will be formulated into final coating products prior to being applied to substrates. The release of the notified polymer to the environment may occur from the cleaning of equipment, accidental spills or leaks during manufacturing/reformulation, transport and warehousing processes. Waste notified polymer produced from these activities is expected to be contained by bunding, collected with inert absorbent material and sent to a licensed off site waste disposal centre.

Under normal use procedures, losses of the notified polymer through overspray, mixing of components and cleaning equipment as well as losses from residues in containers have been estimated to be a maximum of 70% which equates to a maximum of 5.6 tonnes per annum. Notified polymer contained in these wastes is expected to be cured and disposed of to landfill. Direct release of the notified polymer to the aquatic environment is not expected as the notified polymer will be used in industrial settings by trained professionals.

Residues of the notified polymer remaining in empty containers will ultimately be disposed of to landfill. Coated light industrial items may be disposed of to landfill or to metal reclamation facilities.

Most of the notified polymer used as binders in coating products is expected to be cured on the substrate's surface. The cured notified polymer is expected to share the fate of the coated substrate and be subjected to metal reclamation or disposed of to landfill. The notified polymer disposed of to landfill is not expected to be mobile and bioavailable. The notified polymer will eventually degrade by biotic and abiotic process in landfill, or by thermal decomposition during metal reclamation processes, to form water and oxides of carbon.

No studies on the environmental fate of the notified polymer have been provided. The notified polymer contains potentially hydrolysable functionalities. However, significant hydrolysis is not expected under standard environmental conditions based on its expected low water solubility. The notified polymer is not expected to be readily biodegradable but due to its high molecular weight, it is not expected to bioaccumulate.

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