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

FULL PUBLIC REPORT

Polymer in AK1038P

This 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 Water Resources.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at our NICNAS office by appointment only at 334-336 Illawarra Road, Marrickville NSW 2204.

This Full 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**

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FULL PUBLIC REPORT**Polymer in AK1038P****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

The Valspar (Australia) Corporation Pty Limited (82 000 039 396)
203 Power Street
Glendenning, NSW 2761

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, Manufacture 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)

None

NOTIFICATION IN OTHER COUNTRIES

None

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Polymer in AK1038P

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) >1000

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

The notified polymer is manufactured as a polymer solution.

Appearance at 20°C and 101.3 kPa	Clear Solid (expected)
Glass Transition Temp	~40°C (theoretical calculation)
Density	1300 kg/m ³ at 25°C (calculated based on density and concentration of solvents in polymer solution)
Water Solubility	<0.01% wt. Water solubility was measured as 0.43% for the manufactured notified polymer, however after allowing for unreacted residual monomer, the corrected water solubility was estimated to be <0.01%.
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

Year	1	2	3	4	5
Tonnes	1-10	1-10	1-10	1-10	1-10

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The product AK1038P containing the notified polymer (< 60%) is manufactured in Australia.

Reformulation/manufacture processes

Manufacture of Resin (Resin Plant)

The notified polymer (resin) will be manufactured in Australia at Valspar's Glendenning Plant. Raw materials in 25kg bags, 500kg or 1000kg bulk bags and 200L drums will be fed in to a reactor for batch processing formulation. Blending operation will take place in a closed system. Sampling from the reactor will be done for QC testing. The finished resin will be stored in 200kg drums on pallets. The final concentration of the notified polymer in finished resin will be < 60%.

Formulation of Paint (Paint Plant)

The resin will be mixed on the same site with pigments and other additives. The notified polymer is transferred to the mixer using drum-handling equipment. After loading and mixing, the resin/pigment mixture is passed via enclosed lines to an enclosed Horizontal Bead Mill where pigments are ground to the required dispersion. A sample is taken at this point for QC control. The mixture from this mill then flows to a makeup tank where further resins, solvents and additives are added to produce the finished paint formulation. After QC approval, the paint is then filled into 200 L drums as a finished product. The concentration of the notified polymer in the paint will be < 30%.

Use

The notified polymer is used as a component of paint coatings for metal that is later fabricated into metal closures. The coating is applied using automated roller process.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Manufacture of resin (Resin Plant)

At the resin manufacturing plant, worker exposure to the notified polymer during transport and storage is only possible in the event of an accidental breakage of drums. Workers may be exposed to the notified polymer during filling of drums, particularly if spills or leaks occur. The most likely route of exposures is dermal, and ocular.

Formulation of paint (Paint Plant)

Dermal and ocular exposure to the notified polymer can occur during formulation processes while transferring the resin and mixing with other ingredients. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls (closed vessel under vacuum and the use of drum handling equipment) and personal protective equipment (coveralls, safety eyewear, gloves) worn by workers.

During transport and storage, workers are unlikely to be exposed to the notified polymer except when in the case of an accidental spill.

End-use application of coatings

Worker exposure during paint application (maximum 30%) is unlikely due to the automated nature of the external roller coating process.

PUBLIC EXPOSURE

Products containing the notified chemical are not available to the public. The public may come into contact with metal substrates that have been coated in paint containing the notified polymer. However at this stage the polymer is expected to be encapsulated in the coating and not bioavailable.

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 and the paint will not be available to the public. Public exposure to the notified polymer is only likely to occur if there is a spill during transport. The risk to public health is considered to be negligible due to the predicted low hazard of the notified polymer and because the notified polymer is bound within a matrix and unlikely to be bioavailable after coating.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

Release during manufacturing

During local manufacture, release of notified polymer is not expected to be significant due to its very low water solubility and the standard engineering controls in place. During manufacture, water is produced in the reaction vessel, which is subsequently collected in the condenser prior to removal for offsite disposal. Given its very low water solubility, the notified chemical is expected to remain in the reaction vessel until it is transferred by gravity into 200 L drums. Vapours and residual within the reaction vessel is expected to be disposed of by an integrated incinerator or “after burner”.

Release during formulation

During formulation the notified polymer is mixed with other ingredients to form the end-use product, prior to being transferred to 200 L drums. Release is expected to be minimal, with drum residual, and rinsate from cleaning of mixing vessels expected to be disposed of to landfill or by incineration.

Release during use

During use, the notified polymer is removed from the drum and applied to the metal substrate using automated rollers. As such, environmental release is expected to be minimal. Drum residual and rinsate from cleaning of application equipment is expected to be disposed of to landfill or by incineration.

Release at end of useful life

Applied notified polymer is expected to remain associated with the metal substrate. Its ultimate fate will either be disposal to landfill, or thermal decomposition during metal reclamation.

ENVIRONMENTAL FATE

Landfill

In landfill, the notified polymer is expected to be immobile, associating with soil and organic waste. Over time, the notified polymer should eventually degrade via biotic and abiotic means to form various simple organic compounds.

Incineration

The notified polymer is expected to be thermally degraded to form various oxides of carbon, and water.

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 is a component of a coating applied to metal. Release to the aquatic environment is not expected at any point in manufacture, formulation, use or ultimate disposal. Therefore, the risk to the environment under the proposed use pattern is expected to be acceptable.

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.

- 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 *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(2004)], workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

Disposal

- The notified polymer should be disposed of by incineration or to landfill.

Emergency procedures

- Spills and/or accidental release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.

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.