File No PLC/602

July 2006

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in AK0704P

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 Heritage.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at:

Library
Australian Safety and Compensation Council
25 Constitution Avenue
CANBERRA ACT 2600
AUSTRALIA

To arrange an appointment contact the Librarian on TEL + 61 2 6279 1162 or email ascc.library@dewr.gov.au

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 enquiries please contact the NICNAS Administration Coordinator at:

Street Address:	334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888.
Website:	www.nicnas.gov.au

Director
NICNAS

TABLE OF CONTENTS

FULL PUBLIC REPORT

Polymer in AK0704P

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
The Valspar (Australia) Corporation Pty Limited (ABN 82 000 039 396) of 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 and Synonyms, CAS Number, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Manufacture/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
No

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
AK0704P

3. PLC CRITERIA JUSTIFICATION

Criterion	*Criterion met (yes/no/not applicable)*
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	Resin solution is a clear, hazy, viscous liquid with solvent odour.
Melting Point/Glass Transition Temp	Not applicable (manufactured as a resin solution).
Density	1.10 kg/m^3 at 20°C.
Water Solubility	0.73% (w/w), based on a very simple report

	and "wet chemistry" methodology. The notified polymer is a polyester and therefore is expected to be insoluble in water.
Reactivity	Stable under normal environmental conditions.

5. INTRODUCTION AND USE INFORMATION

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

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

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

Initially, paint AK0704P containing the notified polymer will be imported at a concentration of 37.6%. At a later stage AK0704P (containing 58.5% of the notified polymer) will be 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 25 kg bags, 500 kg or 1000 kg bulker bags and 200 L 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 into 200 kg drums on pallets. Concentration of the notified polymer in finished resin is 58.5%.

Formulation of paint (Paint Plant)

The resin will be mixed on the same site with pigments and other additives in a 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 22%.

End-use application of coatings

The paint containing 22% notified polymer is applied onto surface of aluminium monoblac cans (eg for hairspray) using automated roller process. After coating the notified polymer is bound within a matrix.

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 bags. Workers may be exposed to the notified polymer during filling of drums or transfer to a storage tank, particularly if spills or leaks occur. The most likely route of exposures is dermal, inhalation 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 personal protective equipment (coveralls, chemical goggles, PVC gloves) worn by workers.

During transport and storage, workers are unlikely to be exposed to the notified polymer except when it is accidentally breached.

End-use application of coatings

Worker exposure during paint application (maximum 22%) is unlikely due to the automated nature of the coil coating process.

PUBLIC EXPOSURE

The notified polymer is intended only for use in industry. Public exposure to the notified polymer is only likely to occur if there is a spill during transport to and from the plant, or during transport to the customer site.

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 will be negligible because the notified polymer is bound within a matrix and unlikely to be bioavailable after coating and its expected low toxicity.

7. ENVIRONMENTAL IMPLICATIONS

ENVIRONMENTAL RELEASE

Environmental release of the notified polymer is summarised in the following table.

Source of release	% Annual Volume	Released to
Residual notified polymer within containers	<0.1%	Landfill or Incinerator
Accidental spills	<0.1%	Incinerator
Reformulation equipment cleaning	<1% (estimated	Incinerator
Apply the notified polymer on aluminium monoblac cans	>95%	Landfill or Incinerator

ENVIRONMENTAL FATE

The notified polymer that is disposed of by incineration is expected to be thermally decomposed to form simple oxides of carbon and hydrogen.

The notified polymer that is disposed to landfill is expected to be immobile and stable, due to its expected insolubility in water and chemical structure.

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

Losses of the notified polymer due to manufacture, when this occurs in Australia, and its formulation and application are expected to be small. Release to water is expected to be negligible, and releases on land are likely to be restricted to landfills across Australia mainly on the coated article at the end of it useful life. Polymer disposed of to landfill is expected to become associated with the soil matrix and slowly decompose. The applied coating will physically degrade over time. Any fragments, chips and flakes of the coating will be of little concern as they are expected to be chemically inert. If the coated article is disposed of via recycling the notified polymer will be destroyed. Empty import containers/drums will be recycled.

The notified polymer is not expected to cross biological membranes, due to its molecular weight and low water solubility, and as such should not bioaccumulate.

While no toxicity data are available, based on exposure and use pattern, the notified polymer is unlikely to pose an unacceptable 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 an 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 incineration or to landfill.

Emergency procedures

- Spills/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.