

File No: PLC/348

9 September 2003

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

FULL PUBLIC REPORT

Chempol 809-2626

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
National Occupational Health and Safety Commission
25 Constitution Avenue
CANBERRA ACT 2600
AUSTRALIA

To arrange an appointment contact the Librarian on TEL + 61 2 6279 1161 or + 61 2 6279 1163.

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
Chemicals Notification and Assessment**

TABLE OF CONTENTS

FULL PUBLIC REPORT	3
1. APPLICANT AND NOTIFICATION DETAILS	3
2. IDENTITY OF CHEMICAL	3
3. COMPOSITION	3
4. INTRODUCTION AND USE INFORMATION	4
5. PROCESS AND RELEASE INFORMATION	4
5.1. Distribution, Transport and Storage	4
5.2. Operation Description	4
5.3. Occupational exposure	4
5.4. Release	5
5.5. Disposal	5
5.6. Public exposure	5
6. PHYSICAL AND CHEMICAL PROPERTIES	5
7. TOXICOLOGICAL INVESTIGATIONS	7
8. ENVIRONMENT	7
9. RISK ASSESSMENT	8
9.1. Environment	8
9.2. Human health	8
10. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS	9
10.1. Hazard classification	9
10.2. Environmental risk assessment	9
10.3. Human health risk assessment	9
11. MATERIAL SAFETY DATA SHEET	9
11.1. Material Safety Data Sheet	9
12. RECOMMENDATIONS	9
12.1. Secondary notification	10
13. BIBLIOGRAPHY	10

FULL PUBLIC REPORT**Chempol 809-2626****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

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

NOTIFICATION CATEGORY

The notified polymer meets the PLC criteria.

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Molecular formula, chemical name and synonyms, CAS number, polymer constituents, weight percentages and residual monomers.

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)

Chempol 809-2626

METHODS OF DETECTION AND DETERMINATION

ANALYTICAL METHOD The notified polymer can be identified by IR

3. COMPOSITION

DEGREE OF PURITY

High

HAZARDOUS IMPURITIES/RESIDUAL MONOMERS

None

NON HAZARDOUS IMPURITIES/RESIDUAL MONOMERS (>1% by weight)

None

ADDITIVES/ADJUVANTS

None

POLYMER CONSTITUENTS

The notified polymer is composed of monomers listed on AICS

RESIDUAL MONOMERS

All residual monomers are below the relevant cut-offs for classification of the notified polymer as a hazardous substance.

4. INTRODUCTION AND USE INFORMATION

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

Imported

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>	6	6	6	6	6

USE

The notified polymer is intended for use in formulations for coatings for motor graders.

5. PROCESS AND RELEASE INFORMATION

5.1. Distribution, Transport and Storage

IDENTITY OF MANUFACTURER

Not manufactured in Australia.

TRANSPORTATION AND PACKAGING

The notified polymer will be imported in 200 L drums, and the reformulated paint product will be packaged into 200 litres drums.

5.2. Operation Description

The notified polymer will be imported as a 75% resin in solvent (20.5% xylene, 4.5% ethylbenzene). It will be reformulated into the surface coating at the Valspar plant in Glendenning, NSW. The final concentration of the notified polymer in the paint is 11%. The final product is used as a surface coating for motor graders.

Paint Manufacture

The imported resin is blended with pigments and other additives in a mixer. Drum handling equipment is used for lifting and pouring the resin into the mixer. During the paint manufacture, an exhaust system operates in the entire mixer room with air intakes at the loading manhole for each mixer. 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. 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 quality control approval, the product is filled into 200 L drums as a finished product.

End Use

The paint is applied to the motor graders in a downdraft spray booth.

5.3. Occupational exposure

Number and Category of Workers

<i>Category of Worker</i>	<i>Number</i>	<i>Exposure Duration</i>	<i>Exposure Frequency</i>
Operators	3-4		
Quality Control Tester	1		

Exposure Details

Paint Manufacture

Dermal exposure to the polymer solution may occur during loading of the mixer, and to the paint

product during the filling of the drums.

End Use

During application of the paint, exposure to the notified polymer is limited by exhaust ventilation controls in the spray booth, and protective equipment, including air supplied masks, worn by the workers protect against solvent fumes.

5.4. Release

RELEASE OF CHEMICAL AT SITE

During coatings production it is estimated that up to 120 kg per annum of waste containing the notified polymer will be generated from cleaning up minor spills, during the cleaning of formulation equipment and the disposal of import drums.

RELEASE OF CHEMICAL FROM USE

It is anticipated the up to 70% of the annual import volume or 4200 kg per annum will be lost to the environment as a consequence of use by spraying.

5.5. Disposal

Wastes containing the notified polymer resulting from formulation and generated through professional application will be disposed to landfill.

5.6. Public exposure

No public exposure to either the polymer solution or the uncured paint is expected to occur.

6. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Viscous liquid
Melting Point/Freezing Point	136.1°C
Remarks	For resin solution as manufactured.
Density	1057 kg/m ³ at ...°C
Remarks	For resin solution as manufactured.
Water Solubility	Approximately 1 mg/L
Remarks	The notified polymer (1 g) was added to a flask and dried at 110°C for 2 h. To the cooled flask was added deionised water (99 mL) and the resulting suspension was allowed to stand for 24 h. The supernatant was decanted and the residue remaining in the flask was dried at 110°C for 1 h and then weighed. The solubility was calculated from the mass of the polymer lost.
Particle Size	Not Applicable
Flammability	1.0 – 7.7
Remarks	For solvents
Degradation Products	
Remarks	
Loss of monomers, other reactants, additives impurities	
Remarks	

ADDITIONAL TESTS

Hydrolysis as a Function of pH	Not determined
Remarks	The notified polymer contains ester linkages that could be expected to undergo hydrolysis under extreme pH conditions. However, in the environmental pH range of 4 to 9, significant hydrolysis is unlikely to occur.
Partition Coefficient (n-octanol/water)	Not determined
Remarks	The notified polymers low expected water solubility and likely hydrophobic nature are indicative of partitioning into the octanol phase.
Adsorption/Desorption	Not determined
Remarks	The notified polymer is expected to have a high affinity for soil and sediment and be immobile in the environment due to its low expected water solubility.
Dissociation Constant	Not determined
Remarks	The notified polymer may contain some residual carboxylic acid functional groups which are expected to have typical acidity.

7. TOXICOLOGICAL INVESTIGATIONS

No toxicological data were submitted.

8. ENVIRONMENT

No ecotoxicological data were submitted.

9. RISK ASSESSMENT

9.1. Environment

9.1.1. Environment – exposure assessment

Exposure

During coatings production it is estimated that up to 120 kg per annum of waste containing the notified polymer will be generated from cleaning up minor spills, during the cleaning of formulation equipment and the disposal of import drums.

It is anticipated the up to 70% of the annual import volume or 4200 kg per annum will be lost to the environment as a consequence of use. These wastes will result from overspray, the cleaning of application equipment and the disposal of product containers. Wastes containing the notified polymer resulting from formulation and generated through professional application will be contained by appropriate engineering controls and disposed of in landfill, as will empty import and product containers.

Fate

The notified polymer is insoluble in water and as such is likely to be immobile in both aquatic and terrestrial compartments. In landfill as a consequence of its low water solubility, it is expected to associate with soil and slowly degraded through biotic and abiotic processes to water and oxides of carbon. When introduced into the sewer the notified polymer is expected to rapidly associate with sediment and degrade slowly via the processes described above.

As the coating degrades over time, any fragments, chips and flakes will be of little concern as they are expected to be inert. The equipment coated with the polymer are likely to be either recycled for steel reclamation or be placed into landfill at the end of their useful life. When recycled the polymer would be destroyed in furnaces and converted to water vapour and oxides of carbon.

9.1.2. Environment – hazard assessment

No ecotoxicity data were submitted.

9.1.3. Environment – risk characterisation

The majority of the notified polymer will be combined with other coating components to form a very high molecular weight and stable coating. Therefore, once incorporated into the coating formulation, the notified polymer is expected to be immobile in the environment.

The notified polymer is not water soluble and therefore will not be mobile in either the terrestrial or aquatic compartments. As a consequence, the notified polymer is expected to eventually associate with the soil matrix and sediments and degrade. The notified polymer is not expected to cross biological membranes due to its high molecular weight and low water solubility and is therefore not expected to bioaccumulate (Connell 1990).

Based on the notified polymers use pattern, the likely risk to the environment is expected to be low.

9.2. Human health

9.2.1. Occupational health and safety – exposure assessment

Dermal and ocular exposure can occur during certain formulation processes. Inhalation exposure during spray application of the paint may also occur. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls and personal protective equipment worn by workers.

9.2.2. Public health – exposure assessment

The notified polymer is intended only for use in industry. No exposure is expected from

painted surfaces.

9.2.3. Human health - effects assessment

The notified polymer meets the PLC criteria and therefore low hazard is expected due to the lack of reactive groups and the inability of the polymer to penetrate biological membranes. The imported polymer solution is a Scheduled Poison (S5) and a dangerous good (Class 3 – Flammable) due to the presence of the solvent xylene.

9.2.4. Occupational health and safety – risk characterisation

The OHS risk presented by the notified polymer is expected to be low due to the expected low toxicity of the polymer and the low potential for exposure.

9.2.5. Public health – risk characterisation

As there will be no exposure of the public to the notified polymer or products containing the notified polymer, the risk to the public from exposure to the notified polymer is considered low.

10. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

10.1. Hazard classification

Based on the available data the notified polymer is not classified as hazardous under the NOHSC *Approved Criteria for Classifying Hazardous Substances*.

10.2. Environmental risk assessment

The polymer is not considered to pose a risk to the environment based on its reported use pattern.

10.3. Human health risk assessment

10.3.1. Occupational health and safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

10.3.2. Public health

There is Negligible Concern to public health when used....

11. MATERIAL SAFETY DATA SHEET

11.1. Material Safety Data Sheet

The notifier has provided MSDS in accordance with the schedule item B 12 of the *ICNA Act*. The accuracy of the information on the MSDS remains the responsibility of the applicant.

12. 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

- The following control measures should be implemented by end users to minimise environmental exposure during use of the notified polymer:

Disposal

- Once dry, solid waste containing the notified polymer should be disposed of in landfill or by incineration.

Emergency procedures

- Spills/release of the notified polymer should be contained as described in the MSDS (ie. Collect spilled material with an inert absorbent) and the resulting waste disposed of to an authorised landfill.

12.1. 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 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 any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.

No additional secondary notification conditions are stipulated.

13. BIBLIOGRAPHY

Connell DW (1989) General characteristics of organic compounds which exhibit bioaccumulation. In: Connell DW ed. *Bioaccumulation of xenobiotic compounds*. Boca Raton, USA, CRC Press, pp 47-57.

NOHSC (1999b) *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(1999)]. National Occupational Health and Safety Commission, Canberra, AusInfo.