

File No PLC/631

June 2006

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

**FULL PUBLIC REPORT**

**Polymer in Watersol S118**

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](mailto: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:	<a href="http://www.nicnas.gov.au">www.nicnas.gov.au</a>

**Director  
NICNAS**

## TABLE OF CONTENTS

FULL PUBLIC REPORT.....	3
1. APPLICANT AND NOTIFICATION DETAILS .....	3
2. IDENTITY OF CHEMICAL .....	3
3. PLC CRITERIA JUSTIFICATION .....	4
4. PHYSICAL AND CHEMICAL PROPERTIES .....	4
5. INTRODUCTION AND USE INFORMATION.....	4
6. HUMAN HEALTH IMPLICATIONS.....	5
6.1. Exposure Assessment .....	5
6.2. Toxicological Hazard Characterisation .....	5
6.3. Human Health Risk Assessment.....	5
7. ENVIRONMENTAL IMPLICATIONS .....	5
7.1. Exposure Assessment .....	6
7.2. Environmental Hazard Characterisation .....	6
7.3. Environmental Risk Assessment .....	6
8. CONCLUSIONS.....	6
8.1. Level of Concern for Occupational Health and Safety.....	6
8.2. Level of Concern for Public Health .....	6
8.3. Level of Concern for the Environment.....	6
9. MATERIAL SAFETY DATA SHEET.....	7
9.1. Material Safety Data Sheet .....	7
10. RECOMMENDATIONS .....	7
10.1. Secondary Notification .....	7

**FULL PUBLIC REPORT****Polymer in Watersol S118****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

BASF Coatings Australia Pty Ltd (ABN 91 092 127 501)

51 McIntyre Road

Sunshine Vic 3020

and

Akzo Nobel Chemicals Pty Ltd (ABN 58 000 017 354)

51 McIntyre Road

Sunshine Vic 3020

## 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/Import Volume

Site of Manufacture/Reformulation

## 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

USA (PMN, 1988)

**2. IDENTITY OF CHEMICAL**

## MARKETING NAME(S)

Polymer in Watersol S118 (polymer solution containing 50-75% notified polymer)

## MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) &gt;1000

## REACTIVE FUNCTIONAL GROUPS

The notified polymer contains only low concern functional groups.

### 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 following physical chemical data was provided for an aqueous solution (up to 75% of the notified polymer)

<b>Appearance at 20°C and 101.3 kPa</b>	Transparent liquid (polymer solution)
<b>Melting Point/Glass Transition Temp</b>	Notified polymer is not isolated.
<b>Density</b>	1040 kg/m <sup>3</sup> at 25°C
<b>Water Solubility</b>	Fully miscible dispersion.
<b>Dissociation Constant</b>	Not provided. The notified polymer contains a small proportion of anionic functionality.
<b>Reactivity</b>	Stable under normal environmental conditions
<b>Degradation Products</b>	None under normal conditions of use.

### 5. INTRODUCTION AND USE INFORMATION

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>	<20	<20	<20	<20	<20

USE AND MODE OF INTRODUCTION AND DISPOSAL

#### **Mode of Introduction**

The notified polymer will initially be imported into Australia as part of a finished coating. The coating will be imported in 200 L steel drums and transported by road to the BASF Coatings Australian site. In the future the notified polymer may be imported in 200 L steel drums as a component of Watersol S118 (up to 75% notified polymer) or manufactured locally.

#### **Reformulation/manufacture processes**

Initially no manufacture or reformulation will take place in Australia and the finished coating will only be relabelled prior to supply to the customer, however there exists the potential for coating formulation and /or polymer manufacture to take place at the Akzo Nobel site in the future.

#### *Manufacture*

At the manufacturing site, the raw materials are charged to the fully enclosed reactor by automated means. After polymerisation is complete, the resulting polymer solution containing up to 75% of the notified polymer is pumped directly into 200 L drums and stored until required for reformulation.

#### *Reformulation*

At the Akzo Nobel chemical site, the imported liquid product Watersol S118 (up to 75% notified polymer) or manufactured polymer solution (up to 75% notified polymer) is pumped from its packaging container (200 L steel drum containers) by manual attachment of a line to the drum into closed mixing tanks where it is reformulated with other pigments, water and additives to produce a

coating. The coating contains 20-40% of the notified polymer. The reformulated coating is transferred to customers' sites in 200 L steel drums. The drums are moved by forklift from the storage facility to the production area as required.

#### **Use**

A fixed line is attached to the drum and pumps the coating into the application tank. The coating is applied by either curtain coating or spray coating in a semi-manual process. Where possible robotics in specifically designed spray booths under local exhaust ventilation (LEV) are to be used, however some manual application may be required. The product containing the notified polymer is reformulated for use as a curtain or spray coating. The curtain or spray coating is applied to automotive components that are not accessible to the public.

## **6. HUMAN HEALTH IMPLICATIONS**

### **6.1. Exposure Assessment**

#### OCCUPATIONAL EXPOSURE

##### *Transport and Storage and Re-labelling*

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

##### *Manufacture/Reformulation*

Dermal and ocular exposure may potentially occur during certain processes involving the notified polymer (up to 75%). However, exposure to significant amounts of the notified polymer is limited because of the mainly automated processes, and the engineering controls and personal protective equipment such as coveralls, safety glasses and gloves worn by workers.

##### *End-Use*

Spray painters may come into contact with the notified polymer (20-40%) through dermal, inhalation and ocular routes. The risk of exposure to workers during spray painting, however, will be minimal as the spray paint is applied mainly by automated means. Where manual touch-ups are required they are performed in ventilated spray booths by workers using 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 is intended only for use in industry and as such public exposure to the notified chemical is not expected.

### **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

Although exposure to the notified polymer could occur during manufacture, reformulation and end-use, the risk to workers is considered to be low due to the intrinsic low hazard of the notified polymer.

#### PUBLIC HEALTH

The notified polymer is intended for use by professional spray painters in automotive manufacturing plants only, and will not be sold to the public. Following application, the notified polymer will become trapped within a film and will not be bioavailable. Therefore, the risk to public from exposure to the notified polymer is considered low.

## **7. ENVIRONMENTAL IMPLICATIONS**

## 7.1. Exposure Assessment

### ENVIRONMENTAL RELEASE

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

<i>Source of release</i>	<i>% Volume</i>	<i>Released to / Fate</i>
Residual notified polymer in containers	≤2%	Landfill or Incinerator
Spills and Washings from Manufacturing and Application Equipment Cleaning/Maintenance operations	≤3%	Landfill
Overspray from application process	≤20%	Landfill
Notified polymer associated with end-use products	≥75%	Metal Recycling Furnaces

### ENVIRONMENTAL FATE

Notified polymer that is disposed of to landfill is expected to associate with soil and organic material and should be immobile within the landfill environment. Over time, the notified polymer is expected to degrade by biotic and abiotic means to form simple organic compounds.

Notified polymer that is disposed of by incineration is expected to be thermally decomposed to form oxides of carbon and water.

Notified polymer that has been applied to end-use products is expected to be sent to metal recycling facilities at the end of the end-use products life. Here the notified polymer is expected to be thermally decomposed to form oxides of carbon and water.

## 7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is overchelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone (Nabholz *et al.* 1993). However, this is unlikely to apply to the notified polymer, given that the polymer has only a small proportion of anionic functionality.

## 7.3. Environmental Risk Assessment

The notified polymer will be initially only imported into Australia, however local manufacture is anticipated in the future. Up to 4% of the total annual production is expected to be released to the environment from manufacture and most of this is expected to be disposed of to landfill or by incineration. Release from reformulation is expected to be less than 1%, and is again expected to be to landfill. Up to 20% overspray from application is expected, however, this is expected to cure prior to be disposed of to landfill. Release to the aquatic environment is not anticipated, and therefore, the overall environmental risk 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 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.

#### Disposal

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

#### Emergency procedures

- Spills/accidental release of the notified polymer should be handled by absorbing with a liquid-binding material (such as sand, diatomite, acid binders, universal binders, sawdust).

### 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.