

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

**POLYMER OF LOW CONCERN PUBLIC REPORT**

**Polymer in Bayhydrol XP 2418**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government 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 Australian Government Department of Sustainability, Environment, Water, Population and Communities.

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 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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## 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
PLC/1059	Bayer MaterialScience Pty Ltd	Polymer in Bayhydrol XP 2418	No	≤80 tonnes per annum	Component of coatings

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### **Human Health Risk Assessment**

Based on the assumed low hazard and the assessed use pattern, and provided that appropriate controls (engineering and personal protective equipment) are in place to minimise exposure during spray applications, 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**

- Employers should ensure that the following engineering controls and personal protective equipment is used by workers to minimise occupational exposure to the notified polymer:
  - Spray booths (and/or spray application in adequately ventilated areas)
  - Respiratory protection during spray applications

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.
- Spray application should be carried out in accordance with the Safe Work Australia *National Guidance Material for Spray Painting* [NOHSC (1999)].
- 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 to landfill.

### **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 coatings, or is likely to change significantly;
  - the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
  - the notified polymer has begun to be manufactured in Australia;
  - 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 MSDS of a product containing the notified polymer was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.

### **ASSESSMENT DETAILS**

#### **1. APPLICANT AND NOTIFICATION DETAILS**

##### **Applicants**

Bayer MaterialScience Pty Ltd (ABN: 18 086 237 765)  
17-19 Wangara Road  
CHELTENHAM VIC 3192

##### **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 and import volume.

#### **2. IDENTITY OF POLYMER**

##### **Marketing Name(s)**

Bayhydrol XP 2418 (<40% notified polymer)

##### **Molecular Weight**

Number Average Molecular Weight (Mn) is > 10,000 Da.

### 3. PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met</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

<b>Appearance at 20 °C and 101.3 kPa</b>	Milky liquid (aqueous dispersion)*
<b>Density</b>	1,040 kg/m <sup>3</sup> at 20 °C*
<b>Water Solubility</b>	Expected to be water dispersible based on the polymer's use in aqueous products which are fully miscible with water
<b>Dissociation Constant</b>	Contains residual basic functionality with a typical pKa ~ 10 which is expected to be ionised in the environmental pH range (4-9)
<b>Reactivity</b>	Stable under normal environmental conditions
<b>Degradation Products</b>	None under normal conditions of use
*Bayhydrol XP 2418 containing the notified polymer at ≤40%.	

### 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>
Tonnes	10-80	10-80	10-80	10-80	10-80

#### Use

The notified polymer will not be manufactured in Australia. The notified polymer will be imported into Australia at a concentration of ≤40% and will be reformulated into water-borne automotive refinish coatings. In addition the notified polymer may also be imported as a finished coating containing ≤30% notified polymer. The coatings containing the notified polymer are intended to be used in industrial settings only and will be applied using spray application techniques. Application is expected to occur in spray booths (and/or in other adequately ventilated areas).

### 6. HUMAN HEALTH RISK ASSESSMENT

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

The notified polymer has a high molecular weight ( $M_n > 10,000$  Da) and expected low water solubility and will be introduced as an aqueous dispersion. As such, the notified polymer may present a concern for lung damage following respiration of particles. Inhalation exposure of workers to the notified polymer may occur during spray application of paints. However, such exposure is expected to be lowered by the use of personal protective equipment (PPE) and the presence of engineering controls (spray booths and/or spray application in well ventilated areas).

Provided that appropriate controls (engineering and PPE) are in place during spray application, the risk of the notified polymer to occupational and public health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

## **7. ENVIRONMENTAL RISK ASSESSMENT**

No ecotoxicological data were submitted. Polymers with low cationic charge density are generally of low concern to the environment.

Release of the notified polymer from accidental spills during transport, handling and storage is estimated to be a maximum of 0.1% of the import volume. Spills are expected to be contained, collected with inert adsorbent material (such as sand, soil or vermiculite) and disposed of to landfill. During reformulation, disposal of residue in import containers is expected to account for approximately 0.5% of the total amount imported. A further 0.3% is expected to be lost during reformulation of imported product into finished paint and coatings (through spills, equipment maintenance). Reformulation wastes are expected to be disposed of to landfill.

The main release of the notified polymer in coating products during use by automotive repairers will be from overspray (estimated to be up to 35% of the import volume). Overspray is expected to be intercepted by engineering controls such as spray booth filters and water scrubbers. The polymer in the scrubber water is likely to cure as a component of the paint, removed from water periodically and disposed of to landfill in accordance with local regulations. In smaller workshops the overspray is likely to be collected on newspaper sheet and disposed of as domestic waste to landfill. Disposal of residue in the finished paint containers is expected to account for approximately 0.2% of the total amount imported. Approximately 1% of the notified polymer is likely to be released following cleaning of application equipment. It is expected that these wastes will be collected for disposal to landfill in accordance with local, State and Federal regulations. In the case that coating residues are released to sewer in wastewater, the notified polymer is likely to partition to sludge at sewage treatment plants (STP) and is expected to be disposed of to landfill.

Once cured, the coatings containing the notified polymer will form an inert polymer matrix, and the incorporated notified polymer will not be bioavailable. Discarded painted metal and plastic automotive articles are expected to be sent to landfill or recycled at the end of their useful lives. In landfill, the notified polymer contained in solid waste or on coated surfaces is expected to be immobile due to its incorporation into an inert matrix of cured coatings. The notified polymer is not expected to be readily biodegradable, but bioaccumulation is not likely based on its high molecular weight. In landfill the notified polymer will eventually degrade via abiotic or biotic processes into water, methane and oxides of carbon and nitrogen. During metals reclamation the notified polymer is expected to thermally decompose to oxides of carbon and nitrogen and water vapour.

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