

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

### POLYMER OF LOW CONCERN PUBLIC REPORT

#### Polymer in Bayhydrol XP 2651 / Bayhydrol A 2651

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:

|                 |   |
|-----------------|---|
| Street Address: | Level 7, 260 Elizabeth Street, SURRY HILLS NSW 2010, 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**

March 2012

### Table of Contents

|   |   |
|---|---|
| SUMMARY .....                               | 2 |
| CONCLUSIONS AND REGULATORY OBLIGATIONS..... | 2 |
| ASSESSMENT DETAILS.....                     | 3 |
| 1. APPLICANT AND NOTIFICATION DETAILS.....  | 3 |
| 2. IDENTITY OF POLYMER .....                | 4 |
| 3. PLC CRITERIA JUSTIFICATION .....         | 4 |
| 4. PHYSICAL AND CHEMICAL PROPERTIES.....    | 4 |
| 5. INTRODUCTION AND USE INFORMATION .....   | 4 |
| 6. HUMAN HEALTH RISK ASSESSMENT.....        | 5 |
| 7. ENVIRONMENTAL RISK ASSESSMENT .....      | 5 |

## 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/1046             | Bayer MaterialScience Pty Ltd | Polymer in Bayhydrol XP 2651 / Bayhydrol A 2651 | No                  | ≤100 tonnes per annum | Used as a component in wood coatings |

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### **Human Health 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 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**

- 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.

- If aerosols are formed during the use of the notified polymer, engineering controls and respiratory protection should be used to prevent inhalation exposure.
- 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.

### **Environmental Recommendations**

- No specific control measures are required to minimise release of the notified polymer to the environment.

### **Disposal**

- The notified polymer should be disposed of to landfill.

**Storage**

- The following precautions should be taken by workers regarding storage of the notified polymer:
  - Store in a segregated and approved area.
  - Store in original container protected from direct sunlight in a dry, cool and well ventilated area, away from incompatible materials (oxidising substances, strong acids, strong bases).

**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 in wood 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 the notified polymer 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, CAS number, molecular and structural formulae, molecular weight, polymer constituents, residual monomers/impurities and import volume.

**2. IDENTITY OF POLYMER****Marketing Name(s)**

Polymer in Bayhydrol XP 2651 / Bayhydrol A 2651

**Molecular Weight**

Number Average Molecular Weight (Mn) is > 1,000 Da

**Reactive Functional Groups**

The notified polymer contains only low concern functional groups.

**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**

|                                     |  |
|-------------------------------------|--|
| Appearance at 20 °C and 101.3 kPa   | Milky liquid (Dispersion in water)   |
| Melting Point/Glass Transition Temp | Not applicable   |
| Density                             | 1,050 kg/m <sup>3</sup> at 20°C  |
| Water Solubility                    | Not determined. The notified polymer is expected to be water dispersible based on the presence of polar functionality and the use pattern in water containing solvent systems. |
| Dissociation Constant               | Not determined. The notified polymer contains acid functionality which are expected to show typical acidity (pK <sub>a</sub> ~ 4 – 6).   |
| Particle Size                       | Not applicable   |
| 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**

| <i>Year</i> | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> |
|-------------|----------|----------|----------|----------|----------|
| Tonnes      | 50-100   | 50-100   | 50-100   | 50-100   | 50-100   |

**Use**

The notified polymer will be imported into Australia as an aqueous dispersion at a concentration of 41%. Products containing the notified polymer will be reformulated in Australia and used as a component in a two part coating system for wooden articles such as furniture in concentrations up to 20%.

**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 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. Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is over-chelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. This is unlikely to apply to the notified polymer and it is therefore not considered to be an over-chelation hazard to algae.

The notified polymer will be imported into Australia as a component of resin solution. It will be reformulated into a wood coating system containing <20% of the notified polymer. Release of the notified polymer from accidental spills is estimated to be 0.1% of the import volume. Reformulation wastes from cleaning of equipment and container residues containing the notified polymer (1.2%) are expected to be sent to a licensed waste facility for disposal in accordance with local regulations. The main release as overspray (approximately 35%) during use will typically entail landfill disposal, following interception by spray booth filters. In the case that coating residues are washed to sewer from cleaning of reformulation, mixing and application equipment, 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 coated wooden articles are expected to be sent to landfill 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 and will eventually degrade via abiotic or biotic processes into water, methane and oxides of carbon. The notified polymer is not expected to be readily biodegradable, but bioaccumulation is not likely based on its high molecular weight. Therefore, the notified polymer is not considered to pose an unreasonable risk to the aquatic environment based on its assessed use pattern.