File No PLC/993

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN FULL PUBLIC REPORT

Polymer in Alcosperse 747

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 Full Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This Full 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

July 2011

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1. APPLICANT AND NOTIFICATION DETAILS

Applicants
Akzo Nobel Pty Limited (ABN 59 000 119 424)
8 Kellaway Place
WETHERILL PARK, NSW 2164

Exempt Information (Section 75 of the Act)
Data items and details claimed exempt from publication: chemical name, molecular and structural formulae, molecular weight, polymer constituents and residual monomers.

2. IDENTITY OF POLYMER

Marketing Name(s)
Alcosperse 747 (30-50% notified polymer in aqueous solution)

CAS Number
Not assigned

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

Criterion	*Criterion met*
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	Colourless to yellow liquid
Freezing point	< 4°C*
Density	~1000 kg/m^3 at 20°C*
Water Solubility	Estimated to be > 400 g/L based on its concentration in aqueous solution. The notified polymer is expected to be water dispersible due to the presence of polar functionality.
Dissociation Constant	Not determined. The notified polymer is a salt and is expected to be ionised in the environmental pH range (4-9).
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

* For the product Alcosperse 747 which contains 30-50% notified polymer in aqueous solution.

5. INTRODUCTION AND USE INFORMATION

Maximum Introduction Volume of Notified Chemical (100%) Over Next 5 Years

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	50-100	50-100	50-100	50-100	50-100

Use
The notified polymer will not be manufactured in Australia. The notified polymer will be imported into Australia at a concentration of 30-50%, in 205 L drums or 1800 L IBCs. The notified polymer will be reformulated into detergent cleaning products and liquid laundry detergents. The finished products containing the notified polymer at a concentration up to 2% will typically be packaged in 300 mL to 2 L plastic bottles with screw caps.

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.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. Anionic polymers are generally of low toxicity to fish and daphnia, however they 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. Furthermore, the toxicity to algae is likely to be further reduced due to the presence of calcium ions in the aquatic compartment which will bind to the acid functional groups.

The majority of the notified polymer is expected to be released to sewer during use as cleaning products and, to a lesser extent, from treated aqueous waste released during formulation. Empty import and product containers containing notified polymer residue are expected to be disposed of to landfill. A predicted environmental concentration in rivers (PEC_{river}) for a worst case scenario can be calculated on the assumptions that 100% of the total annual import volume is released to sewer nationwide, and that none of the notified polymer is removed by sewage treatment plant (STP) processes. The PEC_{river} is 64.7 µg/L if the daily chemical release (100,000 kg/365 = 274 kg) is diluted by the daily effluent production (200 L/person/day × 21.16 million people = 4,232 ML).

The maximum concentration of the notified polymer in rivers following discharge of treated effluent is below the EC50 for algae of the most toxic anionic polymers (EC50 ~ 8 mg/L). The notified polymer will not bioaccumulate due to its high molecular weight (NAMW > 1000) and it is not expected to occur in surface waters at ecotoxicologically significant concentrations. Over time it is expected to disperse and degrade in the environment, ultimately forming water and oxides of carbon. The notified polymer is therefore not likely to pose an unreasonable risk to the aquatic environment when used and disposed according to the typical use pattern for detergents.

8. RECOMMENDATIONS

Human Health Risk Assessment
When used in the proposed manner, 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 reported 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.

- 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 *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 of 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 detergent cleaning products and liquid laundry detergents, 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 was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.