File No PLC/873

December 2009

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in AR-2000 series

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, Water, Heritage and the Arts.

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 334-336 Illawarra Road, Marrickville NSW 2204.

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

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1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Akzo Nobel Pty Ltd (ABN 59 000 119 424)
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, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details and Manufacture/Import Volume.

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)
No

NOTIFICATION IN OTHER COUNTRIES
Canada

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
AR-2000 series

CAS NUMBER
Not assigned

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) > 10,000 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:	White cloudy emulsion (emulsion containing the notified polymer at < 40%)
Melting Point/Glass Transition Temp	Not conducted. Polymer introduced as an emulsion.
Density	1240 kg/m^3
Water Solubility	The notified polymer is expected to be insoluble in water based on its predominantly hydrophobic structure and molecular weight.
Dissociation Constant	The notified polymer is a polyester and is expected to display typical acidity.
Reactivity	Stable under normal environmental conditions. The notified polymer contains hydrolysable functionality but hydrolysis is not expected to occur in the environment pH range (4 – 9).
Degradation Products	None under normal conditions of use

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	10-30	10-30	10-30	10-30	10-30

Use
The notified polymer will be used as a component (< 25%) of OEM automotive coatings.

The imported resin solution containing the notified polymer at < 40% will be reformulated into paint. The resin solution will be pumped from the 200 L drums into a closed mixing vessel and combined with other ingredients. The reformulated paint containing the notified polymer at < 25% concentration will undergo quality control testing before being filtered and pumped into 200 L drums for delivery to customers. At the customer sites the paint will be pumped from the drums into a mixing tank and diluted to the required viscosity for application. The finished paint will then be sprayed onto automotive parts by robots and workers in a dedicated down draft spray area. The painted automotive parts will then travel through an oven where the paint containing the notified polymer will be cured.

Mode of Introduction and Disposal
The notified polymer will not be manufactured within Australia.
The notified polymer will be imported in 200 L steel drums either as finished coatings (< 25% notified polymer) or as a resin solution (< 40% notified polymer) that will be further reformulated.

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation
No toxicological data were submitted. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

Occupational Health and Safety Risk Assessment
Dermal and ocular exposure to the notified polymer may occur due to drips, spills and splashes during processes such as transfer of the solution containing the notified polymer to and from the mixing tanks, taking and testing quality control samples, connecting filling lines and maintenance and cleaning of equipment. However, worker exposure will be minimised by engineering controls and the use of personal protective equipment such as gloves and protective clothing.

Spray painters may come into contact with the notified polymer through dermal, inhalation and ocular routes. However, exposure will be limited as the spray paint will be applied in a spray booth with a down draft by workers wearing protective equipment including vapour masks and full protective clothing. After application the paint containing the notified polymer will be cured into an inert matrix and the notified polymer will not be

bioavailable.

Although exposure to the notified polymer could occur, the risk to workers is considered to be low due to the intrinsic low hazard of the notified polymer.

Public Health Risk Assessment
The notified polymer will not be sold to the public. There is potential for dermal exposure by the public to surface coatings on automobiles that contain the notified polymer. The notified polymer in the surface coatings will be cured into an inert matrix and will not be bioavailable. Therefore, the risk to public health is expected to be negligible.

7. ENVIRONMENTAL IMPLICATIONS

Hazard Characterisation
No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

Environmental Risk Assessment
Reformulation and use of the notified polymer are highly controlled processes. Residues in drums will be thermally decomposed during drum recycling, while wastes from spray painting will be collected and processed before disposal in secure landfill as inert solids. The notified polymer will no longer exist in finished coatings as it will be cured into an inert, cross-linked polymer network when coated automotive parts are baked after spray painting. The notified polymer will share the fate of the automotive parts, which will involve eventual disposal to landfill or thermal degradation during metal recycling. The notified polymer is not anticipated to enter the environment in a bioavailable form at any stage in its lifecycle and is therefore not expected to pose a risk to the environment.

8. CONCLUSIONS AND RECOMMENDATIONS

Human health risk assessment
Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unacceptable risk to the health of workers.

When used in the proposed manner, the notified polymer is not considered to pose an unacceptable risk to public health.

Environmental risk assessment
Based on the reported use pattern, the notified polymer is not expected to pose a risk to the environment.

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.

- Spray application should be carried out in accordance with the Safe Work Australia *National Guidance Material for Spray Painting* [NOHSC (1999b)] or relevant State and Territory Codes of Practice.

- 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.

Regulatory Obligations

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 OEM automotive 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 chemical 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 products containing the notified polymer provided by the notifier were reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.