

File No PLC/381

21 November 2003

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

FULL PUBLIC REPORT

ZK56-3843

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.

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**Director
Chemicals Notification and Assessment**

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FULL PUBLIC REPORT**ZK56-3843****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Akzo Nobel Pty Ltd (ABN 59 000 119 424)

51 McIntyre Road

Sunshine VIC 3020

and

BASF Akzo Nobel Automotive OEM Coatings Pty Ltd (ABN 092 127 501)

51 McIntyre Road

Sunshine VIC 3020

NOTIFICATION CATEGORY

Synthetic 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 formula

Structural formula

Molecular weight

Polymer constituents

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)

None known

NOTIFICATION IN OTHER COUNTRIES

None known

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

ZK56-3843

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met (yes/no/not applicable)</i>
Meets Molecular Weight Requirements	Yes
Meets Functional Group Equivalent Weight (FGEW) Requirements	Yes
Low Charge Density	Yes

Approved Elements Only	Yes
No Substantial Degradability	Yes
Water Absorbing	Yes
Low Concentrations of Residual Monomers	Yes
Hazard Substance or Dangerous Good	Yes

The notified polymer meets the PLC criteria.

4. INTRODUCTION AND USE INFORMATION

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

The notified polymer will be imported as a component of a clear coat at <10% concentration in xylene (Part A of the 2K clear coat containing the notified polymer). There is a possibility that the notified polymer may also be manufactured in Australia in future.

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	<30	<30	<30	<30	<30

USE

The notified polymer is an ingredient of coating for use in original equipment manufacture (OEM).

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

Initially, the notified polymer will be imported as a component of clear coat at <10% concentration in xylene. There is a possibility that the notified polymer and the coating may be manufactured in Australia in future. The manufactured acrylic resin solution will contain <100% polymer. The imported coating and the manufactured polymer solution and coating will be stored and transported by road in 200 kg steel drums.

The polymer manufacture involves weighing and transferring of raw materials and various additives into a reaction vessel to form a polymer solution. Transfer operations are described as automated and enclosed. After synthesis, the solution containing the notified polymer will be drummed off and stored in bulk until it is required for reformulation into coatings.

During coating manufacture, the polymer and various additives are transferred by pumps into a high-speed mixer to form a homogeneous coating mixture. Samples are taken from the mixer for quality control testing, and the viscosity of the coating is adjusted prior to packing. When the desired viscosity is achieved, the coating mixture is fed through a filter and into containers. The closed drums are put on pallets and then taken by forklift to the transport vehicles for distribution to car manufacturers.

The finished coating is activated and thinned prior to application. The paint mix is loaded into a spray equipment and applied to components of car bodies in a spray booth using spray guns. Once spraying is completed, the spray equipment is cleaned.

6. EXPOSURE INFORMATION

6.1. Summary of Environmental Exposure

Polymer manufacture

During polymer manufacture, there is potential for minor releases of the notified polymer through accidental spills at the filtration and filling stage. Spills will be contained within bunded areas and collected for disposal.

Paint manufacture

During paint manufacture, there is potential for small releases through spills during the blending, batch adjustment and testing, and filtration and filling stages. Again, spills will be contained within bunded

areas and collected for disposal.

Paint application

During paint application, there is potential for minor releases of the notified polymer through spills during the mixing and stirring, and loading of the spray gun, while significant releases are expected during spray application of the paint. Transfer efficiency during spray application is approximately 30%, with the remaining 70% being wasted through overspray. Overspray is captured and collected within spray booths through filtering systems or on masking materials such as kraft and newspaper. Equipment cleaning and container residues may generate about 200 kg of additional waste.

Disposal of waste collected from equipment cleaning and overspray in spray booths is expected to be carried out by licensed waste contractors, who treat the waste, recover solvents, and send solid wastes to trade waste landfill. Container residues are expected to dry out and harden and be disposed of with empty paint container in solid landfill. After application to vehicles and once dried, the paint containing the notified polymer is cured into an inert matrix and is hence unavailable to exposure.

6.2. Summary of Occupational Exposure

Dermal, ocular and inhalation exposure can occur during certain formulation processes and paint application. However, the largely enclosed and automated polymer and paint manufacturing facility, automated spray application; the engineering controls in place; and personal protective equipment worn by workers would ensure the occupation health risk posed by the notified polymer is low when used as specified in the notification.

After application and once dried, the paint containing the notified polymer is cured into an inert matrix and is hence unavailable to exposure.

During transport and storage, workers are unlikely to be exposed to the notified polymer except during transport accident where drums are punctured and the contents are accidentally spilled.

6.3. Summary of Public Exposure

The notified polymer will not be sold to the public. Members of the public may come in contact with automobiles coated with the notified polymer in cured and crosslinked form. Public exposure can also occur during a transport accident.

7. PHYSICAL AND CHEMICAL PROPERTIES

The notified polymer will be produced in solution and is never isolated. The following physico-chemical properties are for the notified polymer in solution, unless otherwise specified.

Appearance at 20°C and 101.3 kPa	Colourless viscous liquid
Boiling Point	140.5°C (coating product)
Density	997 kg/m ³ at 20°C
Water Solubility	Not determined. The polymer is expected to have a low water solubility because it is non-ionic, has a high molecular weight and contains a high level of hydrophobic aromatic and aliphatic functional groups.
Reactivity	Stable under normal environmental conditions
Degradation Products	None known

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

No toxicological data were submitted.

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

No toxicological data were submitted.

9.2. Environmental Hazard Assessment

The notified polymer is intended for use only as an automotive refinish and will not be available to do-it-yourself (DIY) users. As such, the polymer is unlikely to be released into the aquatic environment during the normal course of use. The polymer is not water soluble, and if released to water, would partition to sludge. The high molecular weight indicates a low potential to bioaccumulate.

Although the disposal quantity of the notified polymer is relatively large, the waste will be disposed of in landfill in a dispersed manner and in solid form following treatment by a licensed waste contractor, thereby minimising the hazard associated with this means of disposal. Waste solvent containing the notified polymer from cleaning of the application/manufacture equipments are recycled or incinerated.

In landfill, solid wastes containing the polymer will be immobile and not leach into the aquatic compartment, but should slowly degrade and become associated with the soil matrix.

10. RISK ASSESSMENT

10.1. Environment

The environmental risk posed by using the notified polymer is expected to be low. The majority of the notified polymer will be incorporated into a stable coating on automobiles and hence unavailable for exposure. Wastes generated during paint manufacture and application are expected to be treated by a licensed waste contractors and disposed of in solid form, also posing little risk of exposure.

10.2. Occupational health and safety

The OHS risk presented by the notified polymer is expected to be low. The notified polymer may be present in formulations containing hazardous ingredients. If these formulations 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.

10.3. 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 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.

11. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

11.1 Environmental risk assessment

The polymer is not considered to pose a risk to the environment based on its reported use pattern.

11.2 Human health risk assessment

11.2.1. Occupational health and safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

11.2.2. Public health

There is Negligible Concern to public health when used as a component of coating in OEM applications.

12. MATERIAL SAFETY DATA SHEET

12.1 Material Safety Data Sheets

The notifier has provided MSDS in accordance with the schedule item B12 of the *ICNA* Act. The accuracy of the information on the MSDS remains the responsibility of the applicant.

13. RECOMMENDATIONS

CONTROL MEASURES

Occupational Health and Safety

- Employers should implement the following engineering controls to minimise occupational exposure to the notified polymer:
 - - Exhaust ventilation during mixing and spray application
 - - Enclosed and automated spray paint application
- Employers should implement the following safe work practices to minimise occupational exposure during handling of the notified polymer:
 - - During transfer operations and cleaning of equipment, avoid spills and splashing
 - - Spray application should be conducted in a down draft spray booth.
- Employers should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer during polymer manufacture, paint manufacture and spray application:
 - - Chemical resistant gloves
 - - Protective clothing which protects the body, arms and legs
 - - Goggles or face shield
 - - Half mask combination filter or air fed respirator, during spray application

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

- Wastes generated during industrial application should be disposed of through a licensed waste contractor.

Emergency procedures

- Spills/release of the notified polymer should be contained with absorbent material such as sand, earth or vermiculite and sealed in properly labelled containers for disposal. Spills should be prevented from entering stormwater drains and waterways.

13.1 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.