

File No PLC/382

21 November 2003

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

FULL PUBLIC REPORT

ZK56-3804

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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Street Address:	334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888.
Website:	www.nicnas.gov.au

**Director
Chemicals Notification and Assessment**

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FULL PUBLIC REPORT**ZK56-3804****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

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
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

NOTIFICATION IN OTHER COUNTRIES

USA

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

ZK56-3804

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

Charge Density	The notified polymer has low charge density.
Elemental Criteria	The notified polymer contains only approved elements.
Degradability	The notified polymer has no substantial degradability.
Water Absorbing	The notified polymer is not a water-absorbing polymer.
Residual Monomers	All residual monomers are below the relevant cut-off.
Hazard Category	The notified polymer is not classified as a hazardous substance.

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 60% concentration in xylene (Part A of the 2K clear coat containing the notified polymer) in 180 kg steel drums. 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 automotive original equipment manufacture (OEM).

5. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Colourless viscous liquid
Glass Transition Temp	-10°C
Density	940 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.
Particle Size	Polymer is produced as a solution in solvent.
Dissociation Constant	The notified polymer contains a low amount of carboxylic acid functionalities expected to have typical acidity.
Flash Point	23 °C (solvent)
Flammability Limits	Flammable (due to solvent present)
Autoignition Temperature	>200 °C
Degradation Products	None
Loss of monomers, other reactants, additives impurities	None

6. HUMAN HEALTH IMPLICATIONS

6.1 Toxicology

Toxicological Investigations

No toxicological data were submitted.

Human Health Hazard Assessment

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

6.2 Occupational Health

Occupational Exposure

- During polymer and paint manufacture, dermal and ocular exposure to the polymer is possible when filtering and drumming off polymer solution and paint products. Exposure to spills from blending, quality testing, filtration and drum filing can also occur.
- Approximately 100 spray painters will use the paint for OEM application Australia wide. These spray painters will activate and thin the paint prior to application to component of car bodies; apply paint using spray gun; and clean spray equipment. Potential dermal, ocular and inhalation exposure to the polymer solution is expected during the above activities. It is estimated that a spray painter will be exposed to the notified polymer for approximately 4 hours/day; 220 days/year.

Exposure Assessment

Dermal, ocular and inhalation exposure can occur during certain formulation processes and paint application. Workers handling the polymer solution and paint are required to wear impervious gloves, coveralls and goggles. The PPE recommended for spray painters include anti-static flame retardant overalls, anti-static footwear, impervious gloves, eye protection and an air-fed breathing mask. All spray painting procedures are carried out in a well ventilated down draft spray booth with filtering system to capture overspray.

The largely enclosed and automated polymer and paint manufacturing facility, and 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 Public Health

Public Exposure

- Members of the public may come in contact with automobiles coated with the notified polymer.
- Public exposure can also occur during a transport accident.

Exposure Assessment

The notified polymer is intended only for use in OEM applications and will not be available to the public. The public is unlikely to be exposed to the notified polymer unless in a transport accident. Dermal contact with automobiles coated with paint would present negligible exposure to the public, since at this stage the notified polymer is bound within the cured paint from which the notified polymer is unlikely to be bioavailable.

7. ENVIRONMENTAL IMPLICATIONS

7.1 Ecotoxicology

Ecotoxicological Investigations

Environmental Hazard Assessment

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

7.2 Environmental Release

Environmental Exposure

- Polymer manufacture

During polymer manufacture, there is potential for release of the notified polymer through accidental spills at the filtration and filling stage.

- **Paint manufacture**

During paint manufacture, there is potential for release through spills during blending, batch adjustment and testing, and filtration and filling stages. Again, it is expected that spills will be contained within bunded areas and collected for disposal.

- **Paint application**

During paint application, there is potential for release of the notified polymer through spills during mixing and stirring, loading of the spray gun, and from overspray during spray application of the paint. Transfer efficiency during spray application is approximately 30%, with the 70% overspray expected to be captured and collected within spray booths through filtering systems or on masking materials such as kraftpaper and newspaper. Equipment cleaning and container residues (2%) may generate small amounts of additional waste.

Based on the import volume and the above release estimates, less than 20,000 kg of polymer waste could be generated each year. Disposal of waste collected from equipment cleaning and overspray in spray booths is expected to be carried out by licensed waste contractors. Waste contractors will treat the waste, recover solvents, and send solid wastes to trade waste landfill. Container residues are allowed to dry out and harden prior to disposal in solid landfill.

Exposure Assessment

The notified polymer is intended for use only in OEM applications. 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 large, it is expected that 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 is expected to be 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. After application to components of car bodies and once dried, the paint containing the notified polymer is cured into an inert matrix and is hence unavailable to exposure.

8. RISK ASSESSMENT

8.1 Environment

The environmental risk posed by using the notified polymer is expected to be low. Wastes generated during paint manufacture and application are expected to be treated by a licensed waste contractors. Solid waste resulting from the solvent recovery process is disposed of in landfill in solid form and not leach into the aquatic compartment.

8.2 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.

8.3 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.

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

9.1 Environmental risk assessment

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

9.2 Human health risk assessment

9.2.1 Occupational health and safety

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

9.2.2 Public health

There is Negligible Concern to public health as a component of an automotive coating for use in OEM applications.

10. MATERIAL SAFETY DATA SHEET

10.1 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.

11. 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.

11.1 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.

No additional secondary notification conditions are stipulated.