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

FULL PUBLIC REPORT

Polymer in WATERSOL NP-5000

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**Director
NICNAS**

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FULL PUBLIC REPORT**Polymer in WATERSOL NP-5000****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Akzo Nobel Pty Limited (ABN 59 000 119 424) of 51 McIntyre Road Sunshine, VIC 3020

NOTIFICATION CATEGORY

Self Assessment: Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Chemical Name, Other Names, CAS Number, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details, 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)

None

NOTIFICATION IN OTHER COUNTRIES

USA

2. IDENTITY OF CHEMICAL

OTHER NAME

Polyester polymer 5000

MARKETING NAME

WATERSOL NP-5000 (34% notified polymer in water and dipropyleneglycol butoxy ether)

3. PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met (yes/no/not applicable)</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. INTRODUCTION AND USE INFORMATION

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

The notified polymer will be imported as a 34% aqueous dispersion, and then formulated in Australia into finished automotive spray paints.

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>
<i>Tonnes</i>	< 100	< 100	< 100	< 100	< 100

USE

The notified polymer will be used as a component of automotive coatings at a concentration of < 30%.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

The notified polymer will be imported into Australia as a 34% aqueous solution, contained in closed head 200 L steel drums. It will be transported from the wharf to the applicants warehouse by truck, where it will be formulated into finished automotive paints. During formulation, the notified polymer will be manually weighed and then transferred to an automatic mixing tank. Once combined with other ingredients into the finished paint product, it will be automatically filled into steel containers of 200 L or 18 L capacity. The concentration of the notified polymer in the finished product is < 3%.

The packaged steel containers are then shipped to spray-painting and smash repair companies who will use the finished product. The paint product containing the notified polymer will be applied by standard spray painting methods to motor vehicles in a spray booth meeting applicable to Australian Standards.

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

Transport and warehousing workers may come into dermal and ocular contact with the notified polymer through accidental leaks and spillages of the drums and containers.

During formulation, workers will open and close the drums and will manually weigh and transfer the polymer solution to the mixing vats. Workers will wear coverall, impermeable gloves, safety goggles and coats. Worker exposure to the notified polymer can occur by dermal or ocular routes, however significant exposure will be limited due to the workplace practices and personal protective equipment used. Worker exposure to the notified polymer is also possible during sampling, cleaning and routine maintenance.

During end use, spray painters will come into contact with the notified polymer via dermal, inhalation and ocular routes. However, the risk of worker exposure to the notified polymer will be minimal as application will be undertaken in well-ventilated spray booths and personal protective equipment worn by the workers.

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

6.2. Summary of Public Exposure

The notified polymer will not be available to the public. Members of the public will have minimal exposure as the notified polymer will not be available for exposure once it is dried and cured.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

Release to the environment during shipping, transport and warehousing will only occur through accidental spills or leaks of the drums or steel packaged containers.

During formulation and packaging, spills are expected to be minimal and expected to account for less than 1% of the import volume. When spills occur, they will be contained by bunding, collected with absorbent material and sent to a licensed off site waste disposal centre. Empty drums from import will be sent to drum reconditioners. Total waste from all sources is expected to be approximately 2% of the import volume.

Under normal use procedures, losses of the notified polymer through overspray and cleaning of plant equipment as well as losses from residues in containers have been estimated to be a maximum of 50%, which equates to a maximum of 50 tonnes per annum. Wastes from application will be hardened and disposed of to landfill.

The remainder of the notified polymer will be bound in the paint matrix and not be available for direct release to the environment. Disposal of the automobile may be through landfill or recycling, and the fate of the paint will be related to that of the automobile.

6.3.2. Environmental Fate

While the notified polymer contains functional groups which are susceptible to hydrolysis it is expected that it will be hydrolytically stable due to its low water solubility. The notified polymer is not expected to be readily biodegradable. Due to its hydrophobic nature, it is expected that in landfill the notified polymer will associate with sediments and organic phases of soils and not be mobile. Over time the polymer will slowly degrade to simple carbon compounds. During automobile recycling the polymer will be destroyed.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Milky white, liquid
Melting Point/Glass Transition Temp	24°C
Relative Density	1.034
Water Solubility	< 0.1 µg/L at 20°C
Dissociation Constant	pKa = ca. 4
Particle Size	52.6 nm (imported as liquid)
Reactivity	Stable at normal temperatures and storage conditions
Degradation Products	Thermal decomposition may produce various hydrocarbons.

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 available.

9.2. Environmental Hazard Assessment

Nonionic polymers which have molecular weights greater than 1000 are of low concern.

10. RISK ASSESSMENT

10.1. Environment

Up to 3 tonnes per annum of waste notified polymer may be generated during coatings manufacturing and use each year as a result of incidental spills, equipment cleaning (brushes, rollers, spray equipment), and residues in containers. The majority of this waste will be sent to landfill for disposal. In landfill, the notified polymer in solid wastes is expected to be immobile, and eventually will degrade through biotic and abiotic processes, and consequently, should not pose a significant risk to the environment.

Spills of notified polymer to land are expected to bind to soil and should not be mobile or affect

groundwater due to very low water solubility. Spills of notified polymer to waters are not expected to dissolve due to the lack of water solubility, and the product is expected to disperse or to settle to sediment.

Most of the notified polymer used in automotive finishes will eventually be incorporated in metal recycling programs or sent to landfill for disposal following its lifecycle. During reclamation, the notified polymer would be destroyed in furnaces and converted to water vapour and oxides of nitrogen and carbon.

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 will not be sold to the public, only being used by professional spray painters. Once the polymer is applied and cured it will be contained in an inert matrix, and hence will not be bioavailable.

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 in the proposed manner.

12. MATERIAL SAFETY DATA SHEET

12.1. Material Safety Data Sheet

The notifier has provided MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

13. RECOMMENDATIONS

Control Measures

Occupational Health and Safety

- Employer should implement the following workplace controls to minimise occupational exposure during handling of the product containing the notified polymer:

Engineering controls

- Closed tanks and lines for formulation and filling of paint containing the notified polymer;
- Use of engineering controls in spray painting to minimise exposure of workers

Safe work practices

Employers should implement the following safe work practices to minimise occupational exposure during handling of the imported notified polymer and the paint;

- Avoid splashing, spills and generation of aerosols during formulation and filling processes;
- Spray application of paint containing the notified polymer should be in accordance with the NOHSC National Guidance Material for Spray Painting;
- Workers using spray products containing the notified polymer should be instructed in their proper handling and use, including information about the additional risks posed by spray application.

PPE

Employers should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the imported notified polymer and paint;

- Protective gloves
 - Safety glasses or goggles
 - Industrial clothing
 - Respiratory protection during spray painting, or if aerosols are formed
 - Full body protection during spray painting
- 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.
 - Australian contact details should be included on the product Label.
 - 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.

Environment

- The following control measures should be implemented by the notifier to minimise environmental exposure during formulation of the notified polymer:
 - Bunding
- The following control measures should be implemented by end user (automobile makers) to minimise environmental exposure during formulation of the notified polymer:
 - Exhaust ventilation with filter

Disposal

- The notified polymer should be disposed of to landfill or incinerated.
- Empty containers should be sent to local recycling or waste disposal facilities.

Emergency procedures

- Spills or accidental release of the notified polymer should be handled by absorbing with inert material (e.g., dry sand or soil), and place it in a chemical waste container. Contaminated containers can be re-used after cleaning.

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.