File No PLC/524

January 2006

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in RP-3654

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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1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
BASF Akzo Nobel Automotive OEM Coatings Pty Ltd
51 McIntyre Rd
Sunshine, Victoria, 3020

and

Akzo Nobel Pty Ltd
51 McIntyre Rd
Sunshine, Victoria, 3020

NOTIFICATION CATEGORY
Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)
Data items and details claimed exempt from publication:
Chemical Name, Molecular and Structural Formulae, Polymer Constituents, Residual Monomers/Impurities, Use Details, Manufacture/Import Volume, Concentration of polymer in imported solution.

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
None known

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Polymer in RP-3654

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (NAMW)	3272
Weight Average Molecular Weight (WAMW)	9662
Polydispersity Index (WAMW/NAMW)	2.95
% of Low MW Species < 1000	6.3%
% of Low MW Species < 500	0.8%

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn)	>1000

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

Functional Group	Category	Equivalent Weight (FGEW)
None	Moderate/High Concern	N/A

Criterion	*Criterion met (yes/no/not applicable)*
Molecular Weight Requirements	Yes
Functional Group Equivalent Weight (FGEW) Requirements	N/A
Low Charge Density	Yes
Approved Elements Only	Yes
Stable Under Normal Conditions of Use	Yes
Not Water Absorbing	Yes
Not a Hazardous 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 chemical is manufactured in solvent solution, and is not isolated. The polymer will be imported in steel drums in solution initially, but may be manufactured in Australia in future.

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	30-100	30-100	30-100	30-100	30-100

USE
Component of automotive coatings.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

When imported, the notified polymer will be transported to the notifier's site, and incorporated in coating formulations. The formulations will be transported to the application sites, where they will be applied to the surfaces in spray booths, or by robotic spraying.
When local manufacture commences, the notified polymer will be manufactured in solution in a closed reactor at the notifier's site. It will then be incorporated in coating formulations prepared at the same site. End-use will be the same as described above.

IDENTITY OF MANUFACTURER/RECIPIENTS
Akzo Nobel P/L
51 McIntyre Road
Sunshine, Victoria 3020.

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

Dermal and ocular exposure to the notified polymer can occur during local manufacture (when occurring) and during formulation processes. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls and personal protective equipment worn by workers.
Workers may be exposed via inhalation to sprayed aerosols generated during end-use of the resin. Dermal exposure to spray may also occur. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls and personal protective equipment worn by workers in the automotive manufacturing plants.
After application and once dried, the coating 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 when packaging is accidentally breached.

6.2. Summary of Public Exposure

The notified polymer will not be available to the public. Members of the public may come into contact with cured coatings containing the notified polymer, however in this form it will not be available. After application and once dried, the coating containing the notified polymer is cured into an inert matrix under other coating layers and is hence unavailable to exposure.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

Environmental release during importation, local manufacture and storage at the notifier's facility is not expected, and might potentially only occur due to a transportation or storage/handling accident or container rupture. Environmental impact from accidents will be minimised by established MSDS spill response procedures and spills resulting for container rupture are likely to be limited due to individual container sizes and bunding.

Wastewater streams at the paint manufacturing facility would be collected in interception pits prior to effluent discharge to sewer. Environmental release is likely to be limited to potential spills and leaks, which would be managed through established MSDS spill response procedures and sent to landfill.

Application of the notified polymer formulation will occur in enclosed automated conditions by trained staff with limited potential for environmental release. MSDS spill response procedures are established to manage spills/leaks of notified polymer. Spilled material containing the notified polymer, estimated by the notifier at 10 kg/y, will be sent to landfill for disposal. Filter bag residues arising from application area, estimated at ~10 kg/y, will be collected and set to landfill. Occasionally, reject product will arise and this will be either incinerated or cured and sent to landfill.

Tank washing waters from application tanks will not normally be produced. Overspray waste, representing approximately 20% of the notified polymer (<20 tonnes per annum), will be solvent recovered and residues will be sent to landfill by licensed waste contractor. During use, the polymer is cured and hardened to into an inert coating with very limited potential for leaching.

Emptied imported drums may potentially contain <2% of the notified chemical (<2 tonnes per annum) will be reconditioned with the residual incinerated, destroying the notified polymer and forming water and oxides of carbon. Degradation in a landfill environment is expected to be very slow as the polymer is expected to be stable.

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 the notified polymer will associate with sediments and organic phases of soils and not be mobile. It is unlikely to bioaccumulate in aquatic organisms due to its large molecular weight. 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 20ºC and 101.3 kPa	Pale yellow liquid (solution)
Melting Point/Glass Transition Temp	N/A as supplied in solution
Density	1007 kg/m^3 (solution)
Water Solubility	Expected to be low due to its non-ionic form, high molecular weight and presence of hydrophobic and aliphatic groups.
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

8. HUMAN HEALTH IMPLICATIONS

8.2. Human Health Hazard Assessment

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

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

No ecotoxicological data were submitted.

9.2. Environmental Hazard Assessment

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

10. RISK ASSESSMENT

10.1. Environment

During manufacture and use, the notified polymer is unlikely to be released into the environment except during unanticipated spill incidents, which will be collected for disposal by incinerator or landfill. Approximately 20% of the notified polymer may enter the landfill environment after use (eg. clean up wastes, overspray, container residues), and a smaller proportion may be disposed of by incineration. If released into the aquatic environment, the notified polymer is expected to partition to particulate matter and accumulate in sediments. Being a non-ionic polymer of high molecular weight, adverse ecotoxicological effects are unlikely. In the long term, most of the notified polymer used in automotive coatings will eventually be incorporated in metal recycling programs or sent to landfill for disposal following its lifecycle. During metal reclamation, the notified polymer would be destroyed in furnaces and converted to water vapour and oxides of carbon.

10.2. Occupational Health and Safety

The OHS risk presented by the notified polymer is expected to be low, with controls at formulation, end-use and future local manufacture sites expected to reduce worker exposure to low levels. 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 in the proposed manner.

12. MATERIAL SAFETY DATA SHEET

12.1. Material Safety Data Sheet

The notifier has provided MSDS for a product containing the notified polymer 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

- 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 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

- The notified polymer should be disposed of by incineration or landfill.

Emergency procedures

- Spills/release of the notified polymer should be handled by collecting spillage, where practicable, using absorbent material and place into labelled containers for disposal.

- Do not allow to enter drains, groundwater, watercourses or soil.

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.