File No PLC/596

October 2005

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in RP3701

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Director
NICNAS

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1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
BASF Coatings Australia Pty Ltd
51 McIntyre Rd Sunshine Vic 3020
ABN: 092 127 501

and

Akzo Nobel Pty Ltd
51 McIntyre Rd Sunshine Vic 3020
ABN: 000 017 354

NOTIFICATION CATEGORY
Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)
Data items and details claimed exempt from publication:
Chemical Identity, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Details of Use, Manufacture/Import Volume and Site of Manufacture/Reformulation

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
Canada – NSN 7827

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Introduced as a component of RP3701 (70-75% notified polymer)

3. COMPOSITION

PLC CRITERIA JUSTIFICATION
The notified polymer contains only low concern functional groups.

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 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 by Akzo Nobel Pty Ltd, as part of a polymer solution called RC3701. There is the potential that it may be manufactured locally in the future. If manufactured locally this is likely to occur at Akzo Nobel Pty Ltd manufacturing plant in Sunshine VIC.

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	5-20	5-20	5-20	5-20	5-20

USE
Component of automotive spray paint for use by automobile manufacturers.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

Although initially the notified chemical will only be imported into Australia, there is the potential for manufacture to occur in the future. As such an operation description for both polymer manufacture and coating formulation has been included below.

Import
The polymer solution will be imported in 200 L steel drums and transported to the manufacturing plant in Victoria.

Notified polymer manufacture
Alternately, the polymer solution containing 70-75% notified polymer will be manufactured in closed reactors. Following manufacture a sample will be removed for quality control purposes. When approved the polymer will be filtered and filled through fixed transfer lines into drums. The drums are stored until the polymer solution is required for reprocessing.

Coating Formulation
During formulation, the polymer solution (containing 70-75% notified polymer) will be pumped from 200 L drums into the closed mixer. Following mixing with other ingredients, a sample of the coating formulation containing 1-10% notified polymer will be removed for quality control purposes. When approved, the formulated coating is filtered and filled into 200 L drums and stored in a warehouse prior to distribution to car manufacturing facilities by road.

Coating Application
The coating formulation containing 1-10% notified polymer will be pumped via a fixed line into the application tank and mixed with other ingredients. A sample may be removed for quality control purposes. The diluted coating containing 1-10% notified polymer will be sprayed onto car bodies by robots and operators in a dedicated ventilated, down draft spray area. Operators spray the paint onto specific areas of the car that are not painted by the robots. The painted cars travel through an oven where the coating is cured.

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 of notified chemical or coating formulation.

During future local manufacture of the notified polymer and during formulation of the coatings, raw materials (including the polymer solution) are automatically added to the mixing vats. Workers will wear impermeable gloves, eye protection and coats. Exposure from the notified polymer to these

workers can occur by either dermal or ocular routes, however significant exposure will be limited due to the engineering controls, workplace practices and personal protective equipment used.

Throughout end use, spray painters may come into contact with the notified polymer through dermal, inhalation and ocular routes. The risk of exposure, however, will be minimal as application is done in a well ventilated, down draft spray booth with workers using protective equipment.

After application and once dried, the paint containing the notified polymer is cured into an inert matrix and the polymer is hence not available for exposure.

6.2. Summary of Public Exposure

The notified polymer will not be available to the public. Members of the public will come into contact with the notified polymer once it is dried and cured, and not available for exposure.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

The notified polymer will initially be imported into Victoria in 200 L steel drums, however, there is also potential for local manufacture in the future. During manufacture, it is expected that a maximum of 2% (400 kg) of the total volume produced per year will be released to the environment from the disposal of spilt notified polymer to landfill. Formulated product will be stored in 200 L steel drums.

The notified polymer will then undergo reformulation, where it is blended with other ingredients to form an automobile surface coating, and will be stored in 200 L steel drums. It is expected that a further 2% (400 kg) of the total volume imported or produced per year will be released to the environment from the disposal of spilt notified polymer, from equipment cleaning, and from residual in the import containers. This quantity may be disposed of to landfill or be incinerated.

During application, it is expected that approximately 20% (4000 kg) of the total volume imported or produced per year will be released to the environment from overspray, from equipment cleaning, and from residual in the steel drums. This is expected to be disposed of to landfill. Applied notified polymer will be cured, and will become unavailable in the cured surface coating matrix.

6.3.2. Environmental Fate

Notified polymer that is disposed of by incineration is expected to be thermally decomposed into oxides of carbon. Notified polymer that is disposed of to landfill is expected to associate with soil and sediment, and due to its low water solubility not be mobile. Over time, the notified polymer should degrade by abiotic processes to form simple carbon containing compounds. The fate of notified polymer that is applied to automobiles is linked with that of the automobile. It is expected that during metal reclamation, that the notified polymer will be thermally decomposed.

7. PHYSICAL AND CHEMICAL PROPERTIES

The polymer is never isolated from solution.

Appearance at 20ºC and 101.3 kPa	Pale yellow liquid solution (Product RP3701)
Melting Point/Glass Transition Temp	Not known.
Density	Not known.
Water Solubility	Not known. The majority of the polymer is hydrophobic. Low water solubility is expected.
Dissociation Constant	The polymer contains end anionic groups, however, these are expected to be reacted during polymerisation and curing.
Particle Size	Not applicable as polymer is never isolated from solution.
Reactivity	Stable below 40°C
Degradation Products	The polymer is not expected to degrade.

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

Polyanionic polymers with NAMW >1000 are generally of low concern to the aquatic environment.

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 24% of the notified polymer may enter the landfill environment (arising from clean-up wastes, overspray and container residues). If released into the aquatic environment, the notified polymer is expected to partition to particulate matter and accumulate in sediments. Being a polyanionic polymer of high molecular weight, adverse ecotoxicological effects are unlikely. In the longer 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. 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.

The level of atmospheric nuisance dust should be maintained as low as possible. The NOHSC exposure standard for atmospheric dust is 10 mg/m^3.

10.3. Public Health

The notified polymer will not be available to the public. Members of the public may make dermal contact with products containing the notified polymer. However, the risk to public health will be negligible because the notified polymer is bound within a matrix and unlikely to 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 an MSDS for the 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.

Environment

Disposal

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

Emergency procedures

- Spills/release of the notified polymer should be handled by physical containment, collection and subsequent disposal to landfill.

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.