File No PLC/594

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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in RX3657

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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 end-use site.

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

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
The polymer is introduced in a polymer solution named RX3567

CAS NUMBER
None allocated

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) > 1000

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	Yes
Low Charge Density	Yes
Approved Elements Only	Yes
Stable Under Normal Conditions of Use	Yes

Not Water Absorbing	not applicable
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 manufactured at Akzo Nobel Pty Ltd, in Sunshine, Victoria, as part of a polymer emulsion called RX3657.

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	50-75	50-75	50-75	50-75	50-75

USE
Component of OEM automotive coatings

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

Notified polymer manufacture

The polymer solution containing 60-100% 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 bulk tanks. The drums are stored until the polymer solution is required for reprocessing.

Coating Formulation

During formulation, the polymer solution (containing 60-100% 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 bulk tanks 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 vacuum pump into the application tank and mixed with other ingredients. A sample may be removed for quality control purposes. The coating containing 1-5% notified polymer is then automatically applied to car bodies in a process isolated from workers. The coating will be cured on the car bodies by baking.

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 manufacture and formulation, raw materials (including the polymer solution) are automatically added to the mixing vats. Mixing is an enclosed process and fixed lines are used to transport substances. 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. Inhalation exposure is unlikely as the notified polymer has low vapour pressure, is present in aqueous solution, and aerosols are unlikely to be generated.

During preparation and application of the final coating, there is the potential for dermal, oral and ocular

exposure from spills and splashes. Exposure will be limited during application and cleaning using exhaust ventilation and impermeable gloves, eye protection and coats.

After application and once dried, the coating 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 is intended only for use in industry. Members of the public may come into contact with coated articles containing the notified polymer, bound within a matrix and unavailable.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

Release at Manufacturing Site

The polymer solution is manufactured in a closed reactor and then drummed off for further processing into coating product(s). There is limited scope for accidental spillage to occur during the manufacturing process. Up to 1% of the total annual manufactured volume may be released as a result of accidental spills or leaks and a further 1% may be released as residue on filters collected during the manufacturing process. Spills will be contained by bunding and collected using absorbent material and disposed of to landfill. There is potential for some waste to be incinerated.

Release during application

The application process should fully contain the notified polymer. Any excess coating is washed off the cars and recycled into the application tank. The application tanks are to be washed out periodically and the resultant wash water is treated and disposed of to land fill. This will account for approximately 1% of the total annual manufactured volume.

Waste generated as a result of a small amount of coating remaining in the containers after use represents a further 1% of the total annual manufactured volume. This will dry to form a non-leachable solid and will be disposed of as solid landfill. Again, there is potential for some waste notified polymer to be incinerated.

6.3.2. Environmental Fate

The waste generated in formulating automotive coatings, that remaining as residue in the empty import canisters and drums, and that arising from cleaning equipment and spills will ultimately be disposed of to landfill. Leaching of the polymer from landfill is unlikely, given the low solubility of the substance. The polymer is not expected to cross biological membranes, due to the low solubility and high molecular weight, and should not bioaccumulate.

Waste that undergoes incineration will form oxides of carbon and nitrogen.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Brown liquid with solvent odour (60-100% polymer in solution)
Melting Point/Glass Transition Temp	Not applicable as polymer is not isolated from solution.
Density	1080 kg/m^3 at 20°C (polymer solution)
Water Solubility	There is no water solubility data for the polymer as it is never isolated from the polymer solution. The polymer is expected to be of low solubility in water because it is non-ionic, of high molecular weight and contains a high level of hydrophobic aromatic and aliphatic groups.
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

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 ecotoxicological data were submitted.

9.2. Environmental Hazard Assessment

Non-ionic polymers which have molecular weights greater than 1000 are generally of low concern.

10. RISK ASSESSMENT

10.1. Environment

No release to the aquatic environment is anticipated during manufacture, transportation or end use of the notified polymer. It is expected that up to 4% of the total annual manufactured volume will be disposed of in approved landfills as inert solid waste or to incinerators. In landfill, the solid wastes should be contained in the coating matrix and not pose a significant risk to the environment.

The fate of notified polymer applied to automobiles, is linked to the automobile itself. It is expected at the notified polymer will be thermally decomposed in furnaces during metal reclamation processes at the end of the automobiles life cycle.

10.2. Occupational Health and Safety

The OHS risk presented by the notified polymer is expected to be low due to limited exposure as a result of the use of engineering controls and PPE, and the predicted low toxicity of the notified polymer.

10.3. Public Health

The coating formulated with the notified polymer is intended for use in automotive manufacturing plants only, and will not be sold to the public. Following application, the notified polymer will become trapped within a film and will not be bioavailable. Therefore, the risk to public from exposure to the notified polymer is considered to be negligible.

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

- 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 a licensed waste contractor to landfill

Emergency procedures

- Spills/release of the notified polymer should be handled by absorption of the polymer solution followed by collection and disposal using licensed waste contractors.

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.