

File No PLC/595

4 November 2005

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

FULL PUBLIC REPORT

Polymer in RC3711

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.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at:

Library
Australian Safety and Compensation Council
25 Constitution Avenue
CANBERRA ACT 2600
AUSTRALIA

To arrange an appointment contact the Librarian on TEL + 61 2 6279 1162 or email ascc.library@dewr.gov.au

This Full Public Report is available for viewing and downloading from the NICNAS website or available on request, free of charge, by contacting NICNAS. For requests and enquiries please contact the NICNAS Administration Coordinator at:

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
NICNAS**

TABLE OF CONTENTS

FULL PUBLIC REPORT	3
1. APPLICANT AND NOTIFICATION DETAILS	3
2. IDENTITY OF CHEMICAL	3
3. COMPOSITION.....	3
4. INTRODUCTION AND USE INFORMATION.....	4
5. PROCESS AND RELEASE INFORMATION.....	4
5.1. Operation Description.....	4
6. EXPOSURE INFORMATION	4
6.1. Summary of Occupational Exposure	4
6.2. Summary of Public Exposure	5
6.3. Summary of Environmental Exposure.....	5
6.3.1. Environmental Release	5
6.3.2. Environmental Fate.....	5
7. PHYSICAL AND CHEMICAL PROPERTIES.....	5
8. HUMAN HEALTH IMPLICATIONS	5
8.1. Toxicology	5
8.2. Human Health Hazard Assessment.....	5
9. ENVIRONMENTAL HAZARDS.....	6
9.1. Ecotoxicology	6
9.2. Environmental Hazard Assessment	6
10. RISK ASSESSMENT.....	6
10.1. Environment	6
10.2. Occupational Health and Safety.....	6
10.3. Public Health	6
11. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS	6
11.1. Environmental Risk Assessment.....	6
11.2. Human Health Risk Assessment.....	6
11.2.1. Occupational health and safety.....	6
11.2.2. Public health.....	6
12. MATERIAL SAFETY DATA SHEET	6
12.1. Material Safety Data Sheet	6
13. RECOMMENDATIONS.....	7
13.1. Secondary Notification	7

FULL PUBLIC REPORT**Polymer in RC3711****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

BASF Coatings Australia Pty Ltd (ABN 092 127 501) of 51 McIntyre Rd Sunshine Vic 3020
and

Akzo Nobel Pty Ltd (ABN 000 017 354) of 51 McIntyre Rd Sunshine Vic 3020.

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 Formulation details

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

The notified polymer has a pre-manufacture notice under the Toxic Substances Control Act in the United States.

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

The polymer is introduced in a polymer solution named RC3711

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (NAMW) >1000

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

The notified polymer contains only low concern functional groups.

<i>Criterion</i>	<i>Criterion met</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 by Akzo Nobel Pty Ltd, as part of a polymer solution called RC3711. 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 Victoria. However, it is possible that toll manufacture may occur in Victoria.

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>	20-40	20-40	20-40	20-40	20-40

USE

Component of OEM automotive paints.

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.

Storage and Transport (for imported product)

The product containing the notified polymer at a concentration of up to 60% will be imported into Victoria in 200 L drums. They will be transported by road to the reformulation site

Notified polymer manufacture (if manufactured in Australia)

The polymer solution containing up to 60% 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 reformulation.

Coating Formulation

The polymer solution (containing up to 60% 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 up to 20% notified polymer would 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 up to 20% 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 up to 15% 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

Dermal and ocular exposure can occur during certain 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.

During transport and storage, workers are unlikely to be exposed to the notified polymer except when packaging is accidentally breached.

After application and once dried, the paint containing the notified polymer is cured into an inert matrix and 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 may come into contact with coatings containing the notified polymer after it is cured into an inert matrix, and is therefore not available.

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% (800 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% (800 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% (8000 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 and the data below is for the polymer solution.

Appearance at 20°C and 101.3 kPa	Colourless or pale yellow liquid with a solvent odour
Melting Point/Glass Transition Temp	Not determined
Specific Density	1 at 20°C (product specific density from MSDS)
Water Solubility	Not determined. The majority of the polymer is hydrophobic. Low water solubility is expected.
Dissociation Constant	Not determined. While some dissociation is expected to occur, this is expected to be limited by the low water solubility.
Particle Size	Not applicable
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 toxicological data were submitted.

9.2. Environmental Hazard Assessment

Polymers of low concern, 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 polymer of low concern and 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.

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 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

- Employers should implement the following isolation and engineering controls to minimise occupational exposure to the imported notified polymer and the paint:
 - 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.
- 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.
- 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.
- 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.

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.