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

**PUBLIC REPORT**

**Polymer in RX4770**

This Self Assessment has been compiled by the applicant and adopted by NICNAS 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), administered by the Department of Health and Ageing and the Department of Sustainability, Environment, Water, Population and Communities have screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This Public Report is also 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:

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**Director  
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## SUMMARY

The following details will be published in the NICNAS *Chemical Gazette*:

ASSESSMENT REFERENCE	APPLICANT(S)	CHEMICAL OR TRADE NAME	HAZARDOUS SUBSTANCE	INTRODUCTION VOLUME	USE
SAPLC/151	Akzo Nobel Pty Limited	Polymer in RX4770	No	≤ 30 tonnes per annum	Component of automotive coatings

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### **Human health risk assessment**

Based on the assumed low hazard and the reported use pattern, the notified polymer is not considered to pose an unreasonable risk to the health of workers and the public.

### **Environmental risk assessment**

Based on the assumed low hazard and the reported use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

### **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.
- 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 *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(2004)] workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

##### Environment

- The following control measures should be implemented by the notifier to minimise environmental exposure during (formulation, use) of the notified polymer:
  - Bunding
  - Standard operating procedures.

##### Disposal

- The notified chemical should be disposed of to landfill.

##### Storage

- The following precautions should be taken by the notifier regarding storage of the notified polymer:
  - Bunding
  - Ensure drums tightly sealed.
  - Standard Operating Procedures used.

#### Emergency procedures

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

#### Regulatory Obligations

##### *Secondary Notification*

This risk assessment is based on the information available at the time of notification. The Director may call for the reassessment of the polymer under secondary notification provisions based on changes in certain circumstances. Under Section 64 of the *Industrial Chemicals (Notification and Assessment) Act (1989)* the notifier, as well as any other importer or manufacturer of the notified polymer, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified polymer is listed on the Australian Inventory of Chemical Substances (AICS).

Therefore, the Director of NICNAS must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under Section 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 Section 64(2) of the Act; if
  - the function or use of the notified polymer has changed from a curing component of an industrial automotive paint primer, or is likely to change significantly;
  - the amount of polymer being introduced has increased, or is likely to increase, significantly;
  - the notified polymer has begun to be manufactured in Australia;
  - additional information has become available to the person as to an adverse effect of the notified polymer on occupational health and safety, public health, or the environment.

The Director will then decide whether a reassessment (i.e. a secondary notification and assessment) is required.

##### *Material Safety Data Sheet*

The MSDS of the notified polymer (and products containing the notified polymer) provided by the notifier was (were) reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.

**ASSESSMENT DETAILS****Polymer in RX4770****1. APPLICANT AND NOTIFICATION DETAILS****APPLICANT**

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

**NOTIFICATION CATEGORY**

Self Assessment: Polymer of Low Concern

**EXEMPT INFORMATION (SECTION 75 OF THE ACT)**

Data items and details claimed exempt from publication:

Chemical Name, Other Names, CAS Number, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details, Import Volume, Concentration of Polymer in Imported Product.

**PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)**

None

**NOTIFICATION IN OTHER COUNTRIES**

Europe and Japan.

**2. IDENTITY OF CHEMICAL****MARKETING NAME(S)**

RX4770 (Product containing the notified polymer up to 80% concentration).

**MOLECULAR WEIGHT (MW)**

Number Average Molecular Weight (NAMW) >1000 Da

**3. PLC CRITERIA JUSTIFICATION**

<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 contains only low concern functional groups.

**4. PHYSICAL AND CHEMICAL PROPERTIES****Appearance at 20°C and 101.3 kPa**

Yellow viscous liquid (notified polymer up to 80% concentration in organic solvent).

**Melting Point/Glass Transition Temp**

N/A (notified polymer is not extracted from solvent).

**Density**

1060 kg/m<sup>3</sup> at 20°C

**Water Solubility**

There is no water solubility data for the polymer as it is never isolated. The polymer is expected to have low solubility in water based on its high molecular weight and the predominantly hydrophobic structure.

<b>Dissociation Constant</b>	Does not contain dissociable functionality that may ionise under environmental conditions (pH 4-9)
<b>Particle Size</b>	Polymer is not separated from solution.
<b>Reactivity</b>	Stable under normal environmental conditions.
<b>Degradation Products</b>	None under normal conditions of use.
<b>Comments</b>	
Notified polymer is never isolated; it is imported at up to 80% concentration in organic solvent and then reformulated into a finished coating at typically 3% levels.	

## 5. INTRODUCTION AND USE INFORMATION

### 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>	10-30	10-30	10-30	10-30	10-30

### USE AND MODE OF INTRODUCTION AND DISPOSAL

#### Mode of Introduction

The notified polymer will be shipped (sea-freight) from Japan as a solution in organic solvent containing up to 80% w/w of the notified polymer in export quality, closed head lined steel 200-litre drums. The port of entry will be Melbourne, Victoria. The drums will be transported from the wharf to the Sunshine North factory by road.

#### Reformulation/manufacture processes

The notified polymer, as the imported solution containing up to 80% w/w polymer in organic solvent, will be used in the formulation of a water-based industrial coating.

After arriving at the Akzo Nobel site, the palletised drums have raw material/safety labels affixed and will be stored in an approved bunded storage area. The palletised, coded drums will be taken by fork-lift to the factory for finished coating formulation. During coating formulation, the notified polymer will be blended with other polymers, additives, organic solvents and water to produce a water-based emulsion containing typically 3% of the notified polymer. The finished emulsion containing the notified polymer will be stored in bulk in stainless steel tanks in a bunded tank farm.

#### Use

The only use of the notified polymer will be as a curing component of an industrial automotive paint primer.

The finished emulsion containing the notified polymer will be transported by road from the manufacturing site to a car manufacturer in bulk tankers. At the customer site the finished emulsion will be stored in bulk tanks until it is required at which time it will be pumped into the application tank and blended with pigment pastes and water to make the primer; final concentration of notified polymer is typically 1.2%. Car bodies will be coated with the primer by a dipping process. Once coating has occurred the car bodies will be rinsed with water to remove excess primer. The primer will be cured on the car by baking.

## 6. HUMAN HEALTH IMPLICATIONS

## **6.1. Exposure Assessment**

### **OCCUPATIONAL EXPOSURE**

The notified polymer will be handled as a solution in organic solvent at up to 80% concentration during transport and reformulation and up to 3% concentration as a water emulsion during paint application.

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

Potential occupational exposure to the notified polymer during reformulation is prevented by virtue of safeguards in place for handling such materials. These safeguards include isolation of the reformulation process, engineering controls such as local exhaust ventilation, safe working practices according to standard operating procedures and personal protective equipment (gloves, overalls, goggles).

Potential occupational exposure to the notified polymer during paint application is prevented by virtue of the dipping process and safeguards in place for other hazardous ingredients in the notified polymer paint dispersion. These safeguards include isolation of the process, engineering controls such as local exhaust ventilation, safe working practices according to standard operating procedures and personal protective equipment (gloves, overalls, goggles and respirators).

### **PUBLIC EXPOSURE**

The notified polymer is intended only for use in industry and as such public exposure to the notified polymer is not expected. Also, once applied (as a component in paint) to car bodies, the notified polymer will be cured into an inert matrix and hence will not be available for exposure.

## **6.2. Toxicological Hazard Characterisation**

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

## **6.3. Human Health Risk Assessment**

### **OCCUPATIONAL HEALTH AND SAFETY**

The OHS risk presented by the notified polymer is expected to be low, based on the assumed low hazard of the notified polymer as well as the engineering controls and personal protective equipment used by workers to minimise exposure.

### **PUBLIC HEALTH**

The notified polymer will not be sold to the public. The paint containing the notified polymer will be used by industrial applicators. Once the polymer is applied and cured it will be contained in an inert matrix, and hence will not be bioavailable for exposure. The risk to the public from exposure to the notified polymer is considered to be low.

## **7. ENVIRONMENTAL IMPLICATIONS**

## **7.1. Exposure Assessment**

### **ENVIRONMENTAL RELEASE**

The notified polymer is not expected to be released directly to the environment during transport or at the reformulation site. Reformulation to the finished product will occur in a closed vessel and there is limited scope for accidental spillage to occur during this process. Minimal quantities of the notified polymer may be released as residue on filters, vessel cleaning residues and quality control sample residue during the reformulation process. These residues will be disposed of to landfill or thermally decomposed. Empty drums containing residues (estimated to be 100 kg notified polymer per annum) are expected to be sent to licensed drum reconditioners where the residual notified polymer may be collected for disposal to landfill or be thermally decomposed.

The application process should fully contain the notified polymer. Any excess primer is expected to be washed off the car bodies and recycled into the dipping tank. Any waste water containing residues of the notified polymer from the dipping tank is expected to be treated at on site waste water treatment plants (WWTP). A small fraction of the annual imported volume of the notified polymer is likely to be released to the public sewer as residues not captured by the WWTP. In sewage treatment plants (STP), the notified polymer is expected to be removed by up to 90% through adsorption to sludge during STP processes. Sludge containing the notified polymer is likely to be collected for disposal to landfill or may be used for soil remediation.

Discarded end use articles containing the notified polymer within the cured paint film will be disposed to landfill, or recycled for metals reclamation which will entail thermal decomposition of the notified polymer to form water and oxides of carbon and nitrogen.

### **ENVIRONMENTAL FATE**

The waste generated as described above will be ultimately disposed of to landfill or thermally decomposed. In landfill, the notified polymer will be present as a cured solid film and will be neither bioavailable nor mobile. The uncured polymer is not expected to cross biological membranes, due to the high molecular weight, and is not expected to bioaccumulate. The notified polymer will slowly degrade in landfill by biotic and abiotic processes to form water and oxides of carbon and nitrogen.

Therefore based on the low assumed hazard to aquatic organisms and low potential for aquatic exposure, the notified polymer is not expected to pose an unreasonable risk to the environment when it is used as proposed.

## **7.2. Environmental Hazard Characterisation**

No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

## **7.3. Environmental Risk Assessment**

Based on the low hazard and assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.