

File No SAPLC/150

June 2013

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

**PUBLIC REPORT**

**Polymer in AN1521**

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:

Street Address:	Level 7, 260 Elizabeth Street SURRY HILLS NSW 2010, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888
Website:	<a href="http://www.nicnas.gov.au">www.nicnas.gov.au</a>

**Director  
NICNAS**

## **TABLE OF CONTENTS**

SUMMARY .....	3
CONCLUSIONS AND REGULATORY OBLIGATIONS .....	3
ASSESSMENT DETAILS .....	4
1. APPLICANT AND NOTIFICATION DETAILS .....	4
2. IDENTITY OF CHEMICAL .....	5
3. PLC CRITERIA JUSTIFICATION .....	5
4. PHYSICAL AND CHEMICAL PROPERTIES* .....	5
5. INTRODUCTION AND USE INFORMATION .....	5
6. HUMAN HEALTH IMPLICATIONS .....	6
6.1. Exposure Assessment .....	6
6.2. Toxicological Hazard Characterisation .....	6
6.3. Human Health Risk Assessment .....	6
7. ENVIRONMENTAL IMPLICATIONS .....	7
7.1. Exposure Assessment .....	7
7.2. Environmental Hazard Characterisation .....	7
7.3. Environmental Risk Assessment .....	7

## 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/150	Akzo Nobel Pty Limited	Polymer in AN1521	No	< 1 tonne per annum	Component of paint

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### **Human health risk assessment**

Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unreasonable risk to the health of workers.

When used in the proposed manner, the notified polymer is not considered to pose an unreasonable risk to public health.

### **Environmental risk assessment**

The polymer is not considered to pose an unreasonable risk to the environment based on its assessed use pattern.

### **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 (M)SDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS)* as adopted for industrial chemicals in Australia, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation should 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 Akzo Nobel to minimise environmental exposure during (manufacture, formulation, use) of the notified polymer:
  - Approved Bunding
- The following monitoring should be conducted by Akzo Nobel to measure environmental release during (manufacture, formulation, use) of the notified polymer:
  - Mass balance and stock control.

##### Disposal

- The notified polymer should be disposed of to landfill.

#### Storage

- The following precautions should be taken Akzo Nobel regarding storage of the notified polymer:
  - Approved bund area

#### 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 component of paint, 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 notifier has provided an (M)SDS as part of the notification statement. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

## **ASSESSMENT DETAILS**

### **1. APPLICANT AND NOTIFICATION DETAILS**

#### APPLICANT

Akzo Nobel Pty Limited (ABN: 59 000 119 424)  
51 McIntyre Road  
SUNSHINE VIC 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, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents,

Residual Monomers, Use Details, and Import Volume.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)  
None

NOTIFICATION IN OTHER COUNTRIES  
None

## 2. IDENTITY OF CHEMICAL

OTHER NAME(S)  
AN1521 Polymer

MARKETING NAME(S)  
AN1521 Polyester Resin

## 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 meets the PLC criteria.

## 4. PHYSICAL AND CHEMICAL PROPERTIES\*

<b>Appearance at 20°C and 101.3 kPa</b>	Pale yellow liquid
<b>Melting Point/Glass Transition Temp</b>	Not applicable as in solution
<b>Density</b>	1012 kg/m <sup>3</sup> at 20°C (polymer solution)
<b>Water Solubility</b>	There is no water solubility data for the polymer as it is never isolated from the polymer solution. The polymer is anticipated to have very low solubility in water as it has low potential to be ionised, high molecular weight and contains a high level of hydrophobic aromatic and aliphatic groups.
<b>Particle Size</b>	Not applicable as the polymer only exists as a solution.
<b>Reactivity</b>	Stable under the conditions in which it is used.
<b>Degradation Products</b>	Stable under normal environmental conditions.

\* For the product AN1521 containing the notified polymer at < 60% concentration in solvent solution.

## 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>	< 1	< 1	< 1	< 1	< 1

USE AND MODE OF INTRODUCTION AND DISPOSAL

### Mode of Introduction

The notified polymer will be imported by ship as part of AN1521 polymer solution into Australia by

Akzo Nobel Pty Limited. It will be delivered in 200 L steel drums by truck to the Akzo Nobel manufacturing plant at Sunshine, Victoria and will be stored in an approved bund. The AN1521 polymer solution which contains the notified polymer blended with other ingredients into a colourant and finally blended in a fixed tank to produce paint. The notified polymer concentration will be < 5% w/w in the final paint formulation. The final paint will be stored in a designated and approved warehouse and moved by forklift to a production area.

#### **Reformulation/manufacture processes**

The coating products will be reformulated and manufactured at the Akzo Nobel plant at Sunshine, Victoria. The AN1521 polymer solution will be blended with resins, pigments, additives and organic solvents. The mixture will be passed through the bead mill to produce a colourant. It will then be blended in a fixed tank with other polymers, additives and organic solvents to produce a final paint product. The paint will be filled into 200 L steel drums. The manufactured paint will contain < 5% w/w notified polymer.

#### **Use**

The AN1521 polyester polymer solution which contains the notified polymer will be used as a grinding resin in the manufacture of colorants for paint manufacture. The grinding resin assists with the wetting and dispersability of the pigment.

The finished paint will be used in specific painting facilities for automotive manufacturers. The paint will not be available to the public.

## **6. HUMAN HEALTH IMPLICATIONS**

### **6.1. Exposure Assessment**

#### **OCCUPATIONAL EXPOSURE**

- The AN1521 polymer solution will be transported in 200 L closed head steel drums.
- Transport & Warehouse workers will only come into contact with the notified polymer if an accidental leak or damage of the drum occurs. PPE and engineering controls will be used to minimize and control the risk to exposure.
- Operators and Lab QA personnel during paint manufacture will have suitable PPE to minimize and control risk to exposure. PPE and engineering controls are in place for handling this type of polymer solution. Contact would only occur with the skin and risk would be very low.
- The notified polymer will be in the paint at concentration < 5% w/w which is a low risk level.
- The paint will be filled and supplied in 200 L steel drums.
- Operators at the automotive facility will have suitable PPE and Engineering controls to minimize the risk of exposure.
- The paint will be applied by automated spray equipment which also minimizes the risk of exposure.
- After application the paint will be thermally cured and the notified polymer will react with other polymers in the paints to become bound into the paint matrix resin structure.

#### **PUBLIC EXPOSURE**

The paint will not be available to the public. The paints will be applied under controlled automated conditions in a manufacturing facility. The notified polymer will be incorporated in a paint formulation that will be used on automotive vehicles and thermally cured after application.

### **6.2. Toxicological Hazard Characterisation**

There is data available on the final product (containing the notified product at < 5% w/w). There is no data available on the notified polymer itself. Toxicological information of other ingredients in the polymer solution is as per the AN1521 SDS issued.

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

#### **OCCUPATIONAL HEALTH AND SAFETY**

The OHS risk presented by the notified polymer is expected to be low. The engineering controls and PPE used by workers will further support low OHS risk.

#### **PUBLIC HEALTH**

The notified polymer will not be available or sold to the public. Once the coating is applied and thermally cured, the notified polymer will be contained and bound as part of an inert chemical structure and hence will not be bioavailable. Hence, the risk to the public is not considered unreasonable.

## **7. ENVIRONMENTAL IMPLICATIONS**

### **7.1. Exposure Assessment**

#### **ENVIRONMENTAL RELEASE**

Release to the environment during shipping, transport and warehousing will only occur through accidental spill or leak of the steel drums containers. The release of notified polymer from these activities is expected to be limited as engineering controls will be in place to handle spills and leaks from drums.

During the paint manufacture and filling, any spills will be minimal and controlled. If a spill occurs, then it will be contained through existing bunding, collected with absorbent material and sent to a licensed off site waste disposal centre. Empty drums from import stock will be sent to drum reconditioners and treated accordingly. Total waste of notified polymer from the importing and manufacturing processes will be approximately 1.25% of total imported volume.

Under normal use, the paint will be sprayed by automated machines in a contained application system. Any overspray paint will be collected in a flocculated dry form and disposed to landfill in accordance with regulations. The estimated loss from overspray and cleaning of plant equipment will be a maximum of 35% which would equate to a maximum of 158 kg per annum.

The notified polymer in the thermally cured painted film will be bound in the inert paint matrix and not expected to be directly released to the environment. Disposal of the automotive vehicle may be through landfill or recycling, hence the fate of the paint film will be related to that of the automobile.

#### **ENVIRONMENTAL FATE**

The notified polymer is expected to be hydrolytically stable and is expected not to be readily biodegradable. Due to its hydrophobic nature, notified polymer in landfill will associate with sediments and organic phases of soil and sediments. The notified polymer is not expected to be either bioavailable, based on its low water solubility, nor bioaccumulate, based on its high molecular weight. In landfill or by thermal decomposition during metal recycling processes, the notified polymer is expected to degrade to form water, oxides of carbon and nitrogen.

### **7.2. Environmental Hazard Characterisation**

No ecotoxicological data was submitted. The notified polymer has low potential to be ionised. Polymers without significant ionic functionality are of a low concern to the aquatic environment.

### **7.3. Environmental Risk Assessment**

No aquatic exposure is anticipated during the manufacture of the paint or its end use which involves the notified polymer. It is estimated that 1.25% of waste would be generated from the manufacturing process. This would be a maximum of 10 kg per annum of notified polymer included in wastes collected by a licensed waste contractor.

It is estimated that all the waste generated at the end user, which would involve a **maximum** of 158 kg per annum, will be disposed in an approved landfill as inert solid waste. In the landfill the solid wastes will not be mobile and will slowly degrade.

Hence overall environmental risk will be very low when it is manufactured, stored, transported, used, recycled and disposed of in the proposed manner.