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

**FULL PUBLIC REPORT**

**Polymer in KS3332**

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**Director  
NICNAS**

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**Polymer in KS3332****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, Other Names, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Details of Use, Manufacture/Import Volume, Formulation Details and Site of Application.

## 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 KS3332

## CAS NUMBER

None allocated

## MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) > 10000

**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	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 KS3332 which contains 10-30% notified polymer. 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

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	1-10	1-10	1-10	1-10	1-10

##### USE

Component of OEM Automotive Coating.

#### 5. PROCESS AND RELEASE INFORMATION

##### 5.1. Operation Description

Although initially the notified polymer 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. When imported, the solution containing the notified polymer will be transported to the formulation site.

##### Notified polymer manufacture

The polymer solution containing 10-30% 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

The polymer solution (containing 10-30% 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 1-5% 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 1-5% 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 coating containing <1 % notified polymer will be sprayed onto car bodies by robots and operators in a dedicated ventilated, down draft spray area. Operators spray the coating onto specific areas of the car that are not coated by the robots. The coated cars travel through an oven where the coating is cured.

#### 6. EXPOSURE INFORMATION

##### 6.1. Summary of Occupational Exposure

Import, transport and distribution

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

Polymer solution manufacture

Dermal and ocular exposure to the notified polymer at a concentration of 10-30% could occur from drips and splashes during quality control collection and sampling, filling processes and general cleaning and maintenance. Exposure to significant amounts of the notified polymer is limited because of the personal protective equipment worn by workers.

Coating Formulation

Incidental dermal or ocular exposure with the notified polymer could occur during initial transfer of the polymer emulsion containing the notified polymer (concentration 10-30%), the removal and testing of a QC sample (concentration 1-5%), the filling of the final coating formulation (concentration 1-5%), and general cleaning and maintenance (concentration 10-30% and 1-5%). Overall exposure is expected to be low due to the low concentration of the notified polymer following formulation and the use of engineering controls and PPE.

Coating Application

The majority of the spray application is automatic (by robots). Where manual spray coating occurs (to certain areas of the car) the worker will wear a fully body suit and air supplied respirator. Exposure to the notified polymer at concentrations up to 5% could occur during transfer of the coating formulation, quality control collection and sampling and cleaning and maintenance. Overall exposure is expected to be low due to the low concentration of the notified polymer and the use of engineering controls and PPE.

Once the coating has been cured the polymer is bound within an inert matrix and therefore will be unavailable for exposure.

**6.2. Summary of Public Exposure**

The notified polymer is used in an automotive coating that is cured prior to reaching the public. Therefore, although the public will come into contact with the exterior of car bodies, the notified polymer will not be available for exposure.

**6.3. Summary of Environmental Exposure****6.3.1. Environmental Release**

Initially the notified polymer will only be manufactured overseas and subsequently be imported into Australia. However, it is anticipated that local manufacture will occur in the future. During manufacture, it is estimated that a maximum of 0.1% of the total production volume may be released to the environment through routine cleaning and maintenance operations. Rinsings are expected to enter the onsite waste water stream. However, the notified polymer is expected to be effectively removed through precipitation and subsequent filtration by the on site treatment system, with the notified polymer being disposed of to secure landfill.

After importation or manufacture, the notified polymer is expected to be transported to a reformulation plant where it will be blended with other ingredients to form the end-use product – an automotive coating. Again, a maximum of 0.1% of the total production volume of notified polymer may be released to the environment through routine cleaning and maintenance operations, and will eventually be disposed of to landfill, in the above described process.

The end-use product containing the notified polymer will then be transported to the end user, where it will be applied to automotive vehicles by automated spraying, and will subsequently be cured via heat treatment (baking). It has been estimated that environmental release of up to 20% of the total production volume may occur from the end-use site arising from overspray and from routine cleaning and maintenance of the application equipment. This is expected to be collected and the solid material disposed of to landfill.

Finally, and apart from accidental release arising from spills during transport or handling, there may be a further environmental release of up to 1% of the total production volume arising from residual notified polymer within transport containers. These containers are expected to be taken to drum

recycling facilities, where the notified polymer will be removed and will either be incinerated or disposed of to landfill.

### 6.3.2. Environmental Fate

The fate of notified polymer that has been applied to vehicles is linked to the vehicles themselves. Once cured, the notified polymer should remain with an inert and stable coating matrix. At the end of the life of the vehicle, it is expected that the notified polymer will either be thermally decomposed during metal reclamation, or be disposed of to landfill with the vehicle. In landfill, the notified polymer is not expected to be mobile, due to its high molecular weight and insolubility in water, and is expected to associate with soil and sediment. While the notified polymer contains some hydrolysable functionality, the lack of water solubility will limit this occurring in the environmental pH range of 4-9 under ambient environmental conditions. Over time, the notified polymer may eventually degrade through biotic and abiotic processes to form simple organic compounds.

## 7. PHYSICAL AND CHEMICAL PROPERTIES

The polymer is never isolated from solution and the data below is for the polymer solution KS3332.

<b>Appearance at 20°C and 101.3 kPa</b>	Milky white liquid
<b>Melting Point/Glass Transition Temp</b>	Not determined
<b>Density</b>	938 kg/m <sup>3</sup> at 20°C
<b>Water Solubility</b>	Not determined. Due to the high molecular weight and presence of hydrophobic groups the notified polymer is expected to be poorly soluble in water.
<b>Reactivity</b>	Stable under normal environmental conditions
<b>Degradation Products</b>	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

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

## 10. RISK ASSESSMENT

### 10.1. Environment

Up to 21.2% of the total production volume of the notified polymer may be released to the environment each year as a result of incidental spills, equipment cleaning, application overspray and residues in containers. The majority of this waste will be sent to landfill for disposal, with 1% or less of the total production volume being expected to be incinerated. In landfill, the notified polymer in solid wastes is expected to be immobile, and eventually should degrade through biotic and abiotic processes, and consequently, should not pose a significant risk to the environment.

Any spills to land are expected to bind to soil and should not be mobile or affect groundwater due to very low water solubility. Spills of notified polymer to waters are not expected to dissolve due to the lack of water solubility, and the notified polymer is expected to disperse or to settle to sediment.

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 reclamation, the notified polymer would be destroyed in furnaces and be 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 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 by professional spray painters 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 incineration or to landfill.

#### Emergency procedures

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

### 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.