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April 2003

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

**FULL PUBLIC REPORT**

**Polymer in Acronal DS 6250**

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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](http://www.nicnas.gov.au)

**Director  
Chemicals Notification and Assessment**

**FULL PUBLIC REPORT****Polymer in Acronal DS 6250****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

BASF Australia Ltd of 500 Princes Highway Nobel Park, VIC 3174.

## EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical name, other name, CAS No., molecular formula, structural formula, means of identification, number average molecular weight, weight average molecular weight, weight percentage of polymer species with MW < 1000 and MW < 500, charge density, polymer constituents, residual monomers and impurities, reactive functional groups- including FGEW, import volume, site of reformulation, and purity

## 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)

No

## NOTIFICATION IN OTHER COUNTRIES

No

**2. IDENTITY OF CHEMICAL**

MARKETING NAME: Polymer in Acronal DS 6250

**3. COMPOSITION**

PLC CRITERIA JUSTIFICATION

**4. 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>	up to 100				

## USE

Acrylic binder for the formulation of water-based gloss trim paints. The notified polymer will be imported as Acronal DS 6250 at 46% and transported to the customer's facility for manufacturing gloss trim paints. Finished paints contain 23% notified polymer.

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

White liquid with paintly aromatic odour (product)

**Melting Point**

Approximately 0°C for the product (polymer in water)

**Density**

Approximately 1.04g/cm<sup>3</sup> for the product (polymer in water)

**Water Solubility**

The notified polymer is insoluble in water; the product can be diluted with water

**Particle Size**

Not applicable – the polymer is dispersed in water and is never isolated

**ADDITIONAL TESTS**

**Hydrolysis as a Function of pH**

Not determined – the notified polymer contains ester groups that may undergo hydrolysis at extremes of temperature and pH, but this is not expected to occur under environmental conditions (pH 4-9).

**Partition Coefficient (n-octanol/water)**

A partition coefficient was not determined for this notification due to the notified polymer's low water solubility. The polymer is expected to strongly partition to the organic phase.

**Adsorption/Desorption**

The polymer is known to absorb strongly; and combined with the high molecular weight and low water solubility the polymer is expected to associate strongly to soils and sediments.

**Dissociation Constant**

Not determined - the notified polymer contains is expected to display typical acidity.

**6. TOXICOLOGICAL INVESTIGATIONS**

No toxicological data were submitted

**7. ENVIRONMENTAL INVESTIGATIONS**

No toxicological data were submitted.

**8. RISK ASSESSMENT**

**8.1 Environment**

**8.1.1 Environment – exposure assessment**

Washings from paint manufacture will end up being disposed via an onsite trade waste treatment plant. Only clear water is discharged from the onsite treatment plant. Solids are flocculated and sent to a prescribed waste company for disposal. Less than 24 kg per week (~1100 kg per annum), estimated based on paint production occurring for 47 weeks per year, will be disposed of in this manner. As a worst case, if all the notified polymer was to be discharged at the onsite treatment plant the maximum concentration of discharge would be less than 200 mg/L. However, the majority of the notified polymer will be removed through flocculation.

Spills will be contained and soaked up with absorbent material before being transported off-site for disposal either by incineration or approved landfill. Residual polymer in import containers

(less than 550 kg per annum) will be disposed of to landfill with the import containers.

Washings from the cleaning of application equipment (brushes and rollers) containing up to 1400 kg per annum of the notified polymer are expected to be released to the sewer where it is anticipated that it will be removed through the sewage treatment process. Waste remaining in the empty paint cans will be disposed of in domestic garbage ultimately finding its way into landfill.

The majority of the notified polymer will end up being applied as an architectural coating. The polymer coating will dry to form an inert layer on the surface to which it is applied. At the end of its useful life it will either be removed by sanding (and presumably replaced by another coat of a similar product) or disposed of to landfill bound to the surface to which it has been applied. If removed by sanding, the coating containing the notified polymer will be broken up into solid particulate matter and most likely disposed to landfill or deposited on soil.

The notified polymer in cured (or uncured) form is not expected to cross biological membranes, due to the expected low solubility (water repellent properties) and high molecular weight, and as such should not bioaccumulate (Connell 1989).

### **8.1.2 Environment – hazard assessment**

While no data is available ecotoxicity would not be expected due to the polymers low solubility and limited exposure.

### **8.1.3 Environment – risk characterisation**

Waste polymer from reformulation into coatings or residues in containers (either polymer transport drums or paint tins) will be disposed of to landfill as an inert solid. Any incineration of the polymer would destroy the material with the production of water vapour, and oxides of carbon.

The majority of waste polymer generated during paint manufacture (through spills and washing) will be disposed of in landfill. Waste from the washing of application equipment (brushes and rollers) will be washed down the drain where it will be removed as part of the sewage treatment process and buried in landfill.

The limited exposure of the polymer to the aquatic compartment indicate that the polymer is unlikely to have an adverse effect on aquatic organisms.

## **8.2 Human health**

### **8.2.1 Occupational health and safety – exposure assessment**

Dermal and ocular exposure can occur during formulation of the finished paint.

Acronal DS 6250 (46% notified polymer) will be mixed with other ingredients to make the final paint containing 23% notified polymer. Workers may become exposed when connecting/disconnecting transfer lines to a mixing vessel and during sampling and cleaning of transfer lines. Packing is expected to be automated and therefore, limited worker exposure.

During formulation of the paint, workers will wear coveralls, safety goggles, boots, face shield, apron and impervious gloves. All mixing vessels will have LE systems.

Trade painters and domestic do-it-yourself (DIY) painters will be potentially exposed to the notified polymer in the finished paint. The workers may become exposed when applying the paint and when cleaning utensils such as rollers and brushes.

After application and once dried, the paint containing the notified polymer is cured into an inert

matrix and is hence unavailable to exposure.

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

### **8.2.2 Public health – exposure assessment**

There is potential for widespread exposure to the public during end use by DIY users. Users may become exposed when opening the containers, mixing the paint (23% notified polymer) and cleaning up of brushes and rollers.

### **8.2.3 Human health – hazard assessment**

No toxicological data were submitted. However, the notified polymer is considered PLC and thus of low hazard.

### **8.2.4 Occupational health and safety – risk characterisation**

The OHS risk presented by the notified polymer is expected to be low due to the low hazard of the polymer. 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 (NOHSC, 1999), workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

### **8.2.5 Public health – risk characterisation**

The risk to public is considered low, given that the notified polymer is of low hazard.

## **9. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS**

### **9.2. Environmental risk assessment**

The polymer is not considered to pose a risk to the environment based on its reported use pattern.

### **9.3. Human health risk assessment**

#### **9.3.1. Occupational health and safety**

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

#### **9.3.2. Public health**

There is negligible concern to public health when used according to prescribed conditions.

## **10. 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 Acronal DS 6250 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.

#### Environment

- The following control measures should be implemented by end users to minimise environmental exposure during use of the notified chemical:
  - Do not allow material or contaminated packaging to enter drains, sewers or water courses.

#### Disposal

- Wastes generated during industrial application should be disposed of through a licensed waste contractor. Wastes generated during domestic use should be disposed of according to the following instructions: “Do not pour leftover paint down the drain. Unwanted paint should be brushed out on newspaper, allowed to dry and then disposed of via domestic waste collections. Empty paint containers should be left open in a well-ventilated area to dry out. When dry, recycle steel containers via steel can recycling programs. Disposal of empty paint containers via domestic recycling programs may differ between local authorities. Check with your local council first.”

### 12.1. 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.

No additional secondary notification conditions are stipulated.

## 13. BIBLIOGRAPHY

- Connell DW (1989) General characteristics of organic compounds which exhibit bioaccumulation. In: Connell DW ed. Bioaccumulation of xenobiotic compounds. Boca Raton, USA, CRC Press, pp 47-57.
- NOHSC (1999) Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(1999)]. National Occupational Health and Safety Commission, Canberra, AusInfo.