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May 2003

**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION  
AND ASSESSMENT SCHEME**

**FULL PUBLIC REPORT**

**ZSR-40Be1**

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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:	<a href="http://www.nicnas.gov.au">www.nicnas.gov.au</a>

**Director  
Chemicals Notification and Assessment**

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**FULL PUBLIC REPORT****ZSR-40Be1****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)  
 Ricoh Australia Pty Ltd  
 8 Rodborough Rd  
 FRENCHS FOREST NSW 2086

Lanier Australia Pty Ltd  
 854 Lorimar St  
 PORT MELBOURNE VIC 3207

EXEMPT INFORMATION (SECTION 75 OF THE ACT)  
 Data items and details claimed exempt from publication:

- Chemical identity
- Import Volumes

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)  
 Commercial Evaluation Chemical permit (CEC/572) issued 4/10/02.

NOTIFICATION IN OTHER COUNTRIES  
 None

**2. IDENTITY OF CHEMICAL**

OTHER NAME(S) *(delete if confidential)*

MARKETING NAME(S)  
 ZSR-40Be1

**3. COMPOSITION**

PLC CRITERIA JUSTIFICATION  
*Insert more rows for FGs if required*

Molecular Weight	The notified polymer satisfies the molecular weight criteria.
Reactive Functional Groups	The notified polymer has no groups of high or moderate concern.
Charge Density	The notified polymer has low charge density.
Elemental Criteria	The notified polymer contains only approved elements.
Degradability	The notified polymer is not biodegradable.

Water Absorbing	The notified polymer is not a water-absorbing polymer.
Residual Monomers	All residual monomers are below the relevant cut-off.
Hazard Category	The notified polymer is not classified as a hazardous substance.

The notified polymer meets the PLC criteria.

#### 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>	1-3	3-10	3-10	3-10	3-10

##### USE

The notified polymer is a component of photocopier toner imported in ready-to-use cartridges containing 550 g of toner. The notified polymer comprises 57.9% of the toner. The notified polymer acts as a binding agent in the toner.

#### 6. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance at 20°C and 101.3 kPa</b>	Pale yellow powder
<b>Melting Point/Glass Transition Temp</b>	55°C (softening point)
<b>Density</b>	1200 kg/m <sup>3</sup> at 20°C
<b>Water Solubility</b>	<p>&lt; than 4 x 10<sup>-4</sup> g/L at 20°C (using a non-standard test)</p> <p>The water solubility was determined by mixing approximately 100 mg and 1,000 mg of test substance (frequently by hand for 1 hour at 40°C) with 500 mL of ion-exchange water. The samples were then shaken for 24 hours at 25°C, filtered and the filtrate dried for 5 hours at 60°C under reduced pressure and the solubility was determined by subtracting the amount of filtrate from the original amount added.</p>
<b>Particle Size</b>	1.0-9.6 mm
<b>Degradation Products</b>	No degradation expected
<b>Loss of monomers, other reactants, additives impurities</b>	Not expected

The notified polymer contains ester linkages that could be expected to undergo hydrolysis under extreme pH conditions. Due to its low water solubility, it should associate with the octanol phase and with the organic component of soils and sediments. It contains carboxylate groups, which can undergo dissociation. Any free carboxylic acids should have typical acidity.

## **7. HUMAN HEALTH IMPLICATIONS**

### **7.1 Toxicology**

#### **9.2.1. Toxicological Investigations**

No toxicological data were submitted.

#### **9.2.2. Human Health Hazard Assessment**

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

### **7.2 Occupational Health**

#### **7.2.1 Occupational Exposure**

- Waterside workers, drivers and warehouse workers would only be exposed to the notified polymer in the event of an accident.
- Printer technicians and office staff replacing cartridges may come into small quantities of the notified polymer as a component of free toner of which small quantities may accumulate in the printer over time.

#### **7.2.2 Exposure Assessment**

The notified polymer will be imported in pre-packed toner cartridges. Dermal and inhalation exposure of office workers to the notified chemical will potentially occur when replacing spent cartridges and clearing paper jams from the photocopier.

Dermal and inhalation exposure to the notified polymer may occur when refilling/replacing spent cartridges. The toner is contained within cartridges which are not normally opened and which release toner only in very small doses.

### **7.3 Public Health**

#### **7.3.1 Public Exposure**

- The photocopier toner is potentially available to the public however photocopy use is generally only associated with an occupational environment.
- Members of the public will most likely only be exposed to the notified polymer as print on printed paper.

#### **7.3.2 Exposure Assessment**

The notified polymer will be imported in pre-packed cartridges. Dermal and inhalation exposure of the public to the notified chemical will potentially occur when replacing spent cartridges and clearing paper jams from the photocopier however widespread domestic use of photocopiers is unlikely.

Once fixed to the paper the notified polymer is no longer bioavailable and there is therefore no likelihood of exposure to the notified polymer in this form.

## **8. ENVIRONMENTAL IMPLICATIONS**

### **8.1 Ecotoxicology**

#### **8.1.1 Ecotoxicological Investigations**

No toxicological data were submitted.

#### **8.1.2 Environmental Hazard Assessment**

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

### **8.2 Environmental Contamination**

#### **8.2.1 Environment - Exposure Assessment**

### Release

- Due to packaging specifications, environmental release of the notified polymer from cartridges during importation, transportation, storage, handling and use is unlikely. In the event of an accidental leakage, clean-up procedures are expected to efficiently remove the majority of the released notified polymer.
- It is estimated that up to 1,000 kg of the notified polymer will remain in empty cartridges, and, up to 6.8 tonnes bound to printed paper, most of which will be disposed of to land fill. Up to 2,200 kg is expected to enter the paper recycling process.

### Fate

- Due to its low water solubility, the notified polymer is likely to be immobilised through adsorption to organic components of soils and landfilled waste material and unlikely to move into landfill leachate or groundwater. The long residence time in landfill would allow abiotic and slow biotic processes to degrade the notified polymer.
- Incineration of waste paper will destroy the notified polymer and will generate water vapour and oxides of carbon.
- During the paper recycling process, the paper will be repulped in water, cleansed of contaminants, deinked with alkali, washed, cooked, bleached, screened and then used in the normal process as in other pulp materials. The alkali mixture resulting from the deinking stage is most likely recycled or neutralised and disposed of to a wastewater treatment plants (WWTP) by a licensed waste contractor. It is expected that all of the developer removed from the paper/pulp during deinking will mostly move to sludge due to its low solubility.
- The notified polymer is not expected to cross biological membranes, due to the expected low solubility, high molecular weight and strong adsorption to soil, and as such should not bioaccumulate (Connell 1989).

### **8.2.2 Environment – Hazard Assessment**

The notified polymer is expected to have a low acute aquatic toxicity due to its low water solubility and high molecular weight.

## **9. RISK ASSESSMENT**

### **9.1. Environment**

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

### **9.2 Occupational health and safety**

The OHS risk presented by the notified polymer is expected to be low due to its low toxicity and low potential for exposure.

The level of atmospheric nuisance dust should be maintained as low as possible. The NOHSC exposure standard for atmospheric dust is 10 mg/m<sup>3</sup> TWA.

### **9.3 Public health**

The notified polymer may be available to the public however domestic photocopy use is believed to be uncommon. Members of the public may make dermal contact with paper containing the notified polymer as print, however the risk to public health will be negligible because the notified polymer is bound to paper fibres and unlikely to be bioavailable.

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

### **10.2. Environmental risk assessment**

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

### **10.3. Human health risk assessment**

#### **10.3.1. Occupational health and safety**

There is low concern to occupational health and safety under the conditions of the occupational settings described.

#### **10.3.2. Public health**

There is negligible concern to public health when used in the intended manner.

## **11. MATERIAL SAFETY DATA SHEET**

### **11.1. Material Safety Data Sheet**

The notifier has provided MSDS in accordance with the schedule item B 12 of the *ICNA Act*. The accuracy of the information on the MSDS remains the responsibility of the applicant.

## **12. 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.
- Service personnel and office staff should wear cotton or disposable gloves and ensure adequate ventilation is present when removing spent cartridges containing the notified polymer and during routine maintenance and repairs.

- 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.

Environment

Disposal

- The notified polymer should be disposed of to landfill.

Emergency procedures

- Spills/release of the notified polymer should be handled by collecting and removing to a disposal container using a suitable vacuum cleaner.

### 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 (1999b) *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(1999)]. National Occupational Health and Safety Commission, Canberra, AusInfo.