

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

**POLYMER OF LOW CONCERN PUBLIC REPORT**

**1,4-Benzenedicarboxylic acid, polymer with 1,2-ethanediol, 2-ethyl-2-(hydroxymethyl)-1,3-propanediol, hexanedioic acid and 1,1'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[2-propanol]**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government Department of Health, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Australian Government Department of the Environment.

For the purposes of subsection 78(1) of the Act, this 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  
NICNAS**

July 2014

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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
PLC/1208	Ricoh Australia Pty Ltd.	1,4-Benzenedicarboxylic acid, polymer with 1,2-ethanediol, 2-ethyl-2-(hydroxymethyl)-1,3-propanediol, hexanedioic acid and 1,1'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[2-propanol]	No	≤ 1.3 tonnes per annum	Component of printer toner

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### Human Health Risk Assessment

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

### Health and Safety Recommendations

- 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.

### Disposal

- The notified polymer should be disposed of to landfill.

### Emergency Procedures

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

### 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 printer toner, or is likely to change significantly;
  - the amount of notified 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 was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.

### **ASSESSMENT DETAILS**

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

##### **Applicants**

Ricoh Australia Pty Ltd (ABN: 30 000 593 171)  
8 Rodborough Rd  
FRENCHS FOREST NSW 2086

##### **Exempt Information (Section 75 of the Act)**

Data items and details claimed exempt from publication: structural formulae, molecular weight, polymer constituents, residual monomers/impurities, import volume and use details.

#### **2. IDENTITY OF POLYMER**

##### **Marketing Name(s)**

Diacron FC-2333

**Chemical Name**

1,4-Benzenedicarboxylic acid, polymer with 1,2-ethanediol, 2-ethyl-2-(hydroxymethyl)-1,3-propanediol, hexanedioic acid and 1,1'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[2-propanol]

**CAS Number**

184851-83-0

**Molecular Formula**

(C<sub>21</sub>H<sub>28</sub>O<sub>4</sub>.C<sub>8</sub>H<sub>6</sub>O<sub>4</sub>.C<sub>6</sub>H<sub>14</sub>O<sub>3</sub>.C<sub>6</sub>H<sub>10</sub>O<sub>4</sub>.C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>)<sub>x</sub>

**Molecular Weight**

Number Average Molecular Weight (Mn) is > 1,000 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 meets the PLC criteria.

**4. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance at 20 °C and 101.3 kPa	Pale yellow powder
Melting Point/Glass Transition Temp	> 135 °C
Density	1,250 kg/m <sup>3</sup> at 25 °C
Water Solubility	Not determined. The notified polymer is expected to have low solubility in water due to its predominantly hydrophobic structure and high molecular weight.
Particle Size	< 10 µm 0.097% < 100 µm 0.11% Mean particle size: 964 µm
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

**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>
Tonnes	0.05-0.2	0.1-0.3	0.2-0.5	0.3-0.7	0.7-1.3

**Use**

The notified polymer will be imported as a component of a toner in printer cartridges at ≥ 80% concentration for commercial and public use.

## **6. HUMAN HEALTH RISK ASSESSMENT**

No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. The risk of the notified polymer to occupational and public health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

## **7. ENVIRONMENTAL RISK ASSESSMENT**

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

The notified polymer will be imported into Australia as an ingredient of toner in sealed cartridges, which will be distributed to customers for direct use for paper printing. It is assumed that 50% of the printed paper will end up in landfill and the rest will undergo paper recycling processes. During recycling processes, waste paper is repulped using a variety of chemical agents, which, amongst other things, enhance detachment of inks from the fibres. Very little of the notified polymer is expected to partition to the supernatant water, due to its low solubility in water. Based on its high molecular weight, the notified polymer is not expected to cross biological membranes and is therefore not likely to bioaccumulate. Most of the notified polymer will reach landfill as a result of disposal of used paper or sludge waste from paper recycling. In landfill the notified polymer will be slowly degraded, eventually forming water and oxides of carbon.

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