

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

POLYMER OF LOW CONCERN PUBLIC REPORT

Resin A in Pro AR Ink

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.

This Public Report is 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**

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Table of Contents

SUMMARY	2
CONCLUSIONS AND REGULATORY OBLIGATIONS.....	2
ASSESSMENT DETAILS.....	4
1. APPLICANT AND NOTIFICATION DETAILS.....	4
2. IDENTITY OF POLYMER	4
3. PLC CRITERIA JUSTIFICATION	4
4. PHYSICAL AND CHEMICAL PROPERTIES.....	4
5. INTRODUCTION AND USE INFORMATION.....	5
6. HUMAN HEALTH RISK ASSESSMENT.....	5
7. ENVIRONMENTAL RISK ASSESSMENT	5

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/1351	RICOH Australia Pty Ltd	Resin A in Pro AR Ink	No	0.5 tonnes per annum	Component of commercial printing ink

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.
- Service personnel should wear disposable gloves and ensure adequate ventilation is present when removing spent printer cartridges containing the notified polymer and during routine maintenance and repairs.
- 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 of 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

- Where reuse or recycling are not appropriate, dispose of the notified polymer in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

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 commercial printing ink 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 a product containing 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)
2 Richardson Place
NORTH RYDE NSW 2113

Exempt Information (Section 75 of the Act)

Data items and details claimed exempt from publication: chemical name, other names, CAS number, molecular and structural formulae, molecular weight, spectral data, purity, polymer constituents, residual monomers/impurities and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

Pro AR Ink (product line containing the notified polymer)

Molecular Weight (MW)

Number Average Molecular Weight (Mn) > 10,000 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	White powder
Melting Point/Glass Transition Temp	Not determined
Density	Not determined
Water Solubility	Not determined. Expected to be low based on the predominantly hydrophobic structure of the notified polymer.
Dissociation Constant	Not determined. The notified polymer contains potential anionic functionalities which are expected to be ionised in the environmental pH range (4–9).
Particle Size	Not determined. Imported in solution.
Reactivity	Stable under normal environmental conditions
Degradation Products	Not known

5. INTRODUCTION AND USE INFORMATION

Maximum Introduction Volume of Notified Chemical (100%) Over Next 5 Years

Year	1	2	3	4	5
Tonnes	0.5	0.5	0.5	0.5	0.5

Use

The notified polymer will be imported as a component of ink for commercial printing (wide format colour printing) at <1% concentration in cartridges. The notified polymer will not be manufactured or reformulated in Australia. The printing system uses an aqueous latex ink which is cold cured (60 °C). The ink containing the notified polymer can be used on various substrates including: plastic, vinyl, clear film, and backlit materials.

6. HUMAN HEALTH RISK ASSESSMENT

The notified polymer tested negative against *Salmonella typhimurium* (TA98, TA100) in an *in vitro* Bacterial Reverse Mutation Assay. Both workers and the public may come into contact with the printed substrates containing the notified polymer. However, once the ink is applied and dried, the notified polymer is expected to remain bound to the substrate print matrix and will not be bioavailable.

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

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is over-chelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. This is unlikely to apply to the notified polymer.

The notified polymer will be imported as a component of printer ink in ready-to-use cartridges to be used in photocopier machines or printers. Printing cartridges are designed to prevent release of its contents during transport, installation and removal. Accidental spills are expected to be contained and disposed of to landfill.

The ink will be used on printing articles and the notified polymer, bound within the dried ink matrix, will share the fate of the article. It is anticipated that approximately half of these articles will be disposed of to landfill and the remainder will be recycled at the end of their useful lifetime. During the recycling process, waste paper will be repulped using a variety of alkaline dispersing and wetting agents, water emulsifiable organic solvents and bleaches. Aqueous wastes containing these agents are expected to be sent to sewage treatment plants (STPs) for processing. Under a worst case scenario it will be assumed that 50% of the notified polymer will be washed into sewers. In sewage treatment plants, most of the notified polymer is expected to partition to sludge and sediments due its high molecular weight.

The proportion of the notified polymer that is adsorbed to STP sludge will be disposed of to landfill or may be used for soil remediation, where it is expected to slowly degrade to form water and oxides of carbon.

Due to its high molecular weight, the notified polymer will not readily cross biological membranes and, therefore, bioaccumulation is not expected.

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