

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

POLYMER OF LOW CONCERN FULL PUBLIC REPORT

Component of Polymer Aq RxD Range#1

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government Department of Health and Ageing, 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 Sustainability, Environment, Water, Population and Communities.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This Full 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**

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1. APPLICANT AND NOTIFICATION DETAILS

Applicants

Karpelo Holdings Pty Ltd (ABN 79 003 741 035)
Suite 2B, 14 Glenn Street, Eastwood NSW 2122

Exempt Information (Section 75 of the Act)

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

2. IDENTITY OF POLYMER

Marketing Name(s)

Polymer Aq RxD Range#1 (containing less than 10% of the notified polymer)

Molecular Weight

Number Average Molecular Weight (Mn) is > 10,000 Da

Reactive Functional Groups

The notified polymer contains only low concern functional groups.

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	Clear slightly straw coloured non-mobile viscous liquid (product)
Melting Point/Glass Transition Temp	The notified polymers are highly cross-linked and are expected to decompose (> 250°C) before melting.
Density	Estimated to be 1200 kg/m ³ (temperature unknown)
Water Solubility	≤ 1010 mg/L (2 weeks at 40°C). Expected to be water dispersible under environmental conditions based on its use in water based inks and the presence of polar sub-units in the notified polymer
Dissociation Constant	Not determined. The notified polymer is a salt and is expected to fully dissociate in water.
Particle Size	Not determined (imported as part of product)
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	1-3	1-3	1-3	1-3	1-3

Use

The notified polymer will not be manufactured in Australia. Ink formulations containing less than 10% of the notified polymer are imported in small, plastic cartridges.

The notified polymer is a component of printer ink in inkjet printer cartridges.

Approximately 90% of the formulated product will be used by the general public while the rest is used by commercial/industrial printers.

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. 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 applies to the notified polymer to a limited extent and it is therefore considered to potentially be an over-chelation hazard to algae.

The notified polymer will be imported into Australia as an ingredient of an ink in sealed cartridges, which will be distributed to customers for direct use. Approximately 50% of the paper on which the ink will be printed will be recycled. 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 oxides of carbon, water and inorganic salts. The notified polymer is a water dispersible poly-anion and may not be fully recovered by on site waste water treatment at paper recycling facilities. Small quantities of the polymer may therefore be released to surface waters as a result of the de-inking process. However, the notified polymer is not expected to be released at ecotoxicologically relevant concentrations and has a low potential to bioaccumulate. The notified polymer is therefore not likely to pose an unreasonable risk to the environment based on the assessed use pattern.

8. RECOMMENDATIONS

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 low import volume 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 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 *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(2004)], 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 to landfill.

Emergency Procedures

- Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.
- 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 ink in inkjet printer cartridges, 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 chemical 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 product containing the notified polymer was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.