File No PLC/1011

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN FULL PUBLIC REPORT

Polymer in SD2-K Ink

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 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

November 2011

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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/1011	Ricoh Australia Pty Ltd	Polymer in SD2-K Ink	No	≤10 tonnes per annum	Printing Industry

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 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 to landfill.

Storage

- The following precautions should be taken by workers regarding storage of the notified polymer:
  - Store in a segregated and approved area.

- Store in original container protected from direct sunlight in a dry, cool and well ventilated area, away from incompatible materials (oxidising substances, strong acids, strong bases).

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 finished ink products, 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.

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: CAS Number, Chemical Name, Other Name, Molecular Formula, Structural Formula, Molecular Weight, Spectral Data, Polymer Constituents and Residual Monomers.

2. IDENTITY OF POLYMER

Marketing Name(s)
SD2-K Ink
Other Names
R-P-YM-CB-11CN
R-P-YM-CB-11N

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

Criterion	*Criterion met*
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

Criterion	*Criterion met*
Low MW Polyester Manufactured from Allowable Reactants	Not applicable

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	White to light yellow solid
Melting Point	Not determined (the notified polymer will not be isolated from the imported ink formulation)
Density	Not determined
Water Solubility	Not determined. The notified polymer is 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 dissociate in water.
Particle Size	Not determined (the notified polymer will not be isolated from the imported ink formulation)
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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	10	10	10	10	10

Use
The notified polymer will not be manufactured in Australia.
The notified polymer will be imported into Australia at a concentration of up to 3% in finished water-based ink formulations for commercial use only.

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 does not apply to the notified polymer and it is therefore not considered to be an over-chelation hazard to algae.

The notified polymer will be imported into Australia as a component of finished water based ink at up to 3% concentration for use in commercial printing. 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 to form water and oxides of carbon and sulphur. 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. Due to the high molecular weight of the notified polymer, it is not expected to cross biological membranes and it is therefore likely to have 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.