File No PLC/895

January 2010

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer RKP-02 in Lanier Print Cartridge Series

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the 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 Department of the Environment, Water, Heritage and the Arts.

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 334-336 Illawarra Road, Marrickville NSW 2204.

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

APPLICANT(S)
Lanier (Australia) Pty Ltd (ABN: 39 001 568 958)
854 Lorimer Street, PORT MELBOURNE VIC 3207

NOTIFICATION CATEGORY
Polymer of Low Concern

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, Polymer Constituents, Residual Monomers, Import Volume

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)
None

NOTIFICATION IN OTHER COUNTRIES
None

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
RKP-02

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) > 10,000 Da

REACTIVE FUNCTIONAL GROUPS
This criterion is not applicable as the Mn is > 10,000

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

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Milky white liquid (polymer in water emulsion)
Melting Point/Glass Transition Temp	Not determined. The notified polymer is imported in a finished product.

Density	~1.0 kg/m^3 at 25°C (polymer in water emulsion)
Water Solubility	Not tested. Expected to be low based on the predominately hydrophobic chemical structure of the polymer.
Reactivity	The notified polymer contains functional groups that may be slowly hydrolysed in the environment.
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	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Use
The notified polymer will be imported as a component of printing ink. The ink will be imported and supplied in purpose built, sealed cartridges that are inserted inside the printing equipment. The sealed cartridges will be handled by service technicians, office workers or members of the public when replacing the spent cartridges in the printer.

Mode of Introduction and Disposal
The notified polymer will not be manufactured or reformulated in Australia. It will be imported into Australia as a component in ink at up to 10% concentration in sealed inkjet printer cartridges of up to 30 g capacity.

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation
The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. This is supported by the results of the acute oral toxicity study conducted on the notified polymer.

Endpoint	*Result*	*Effects Observed?*	*Test Guideline*
Rat, acute oral	LD50 > 2,000 mg/kg bw	no	OECD TG 423

Occupational Health and Safety Risk Assessment
Dermal exposure of office workers and maintenance engineers to the notified polymer could potentially occur when replacing spent cartridges and clearing paper jams from the printer. However, during normal use, pre-packaged ink cartridges will be sealed and worker exposure to the ink is minimised by following replacement procedures recommended by the supplier. Once the ink dries, the notified polymer will be trapped in an ink matrix on the printed paper, and therefore dermal exposure to the notified polymer from contact with the dried ink is not expected.

Overall, the notified polymer is not expected to pose an unacceptable risk to the health of workers, based on the minimal exposure and the assumed low hazard of the polymer.

Public Health Risk Assessment
The public may be exposed to the notified polymer during home use of printers in a similar manner to office workers. However, the frequency and duration of public exposure is expected to be lower than that of office workers.

The risk to public health presented by the notified polymer is not considered to be unacceptable due to its assumed low toxicity and the low potential for exposure.

7. ENVIRONMENTAL IMPLICATIONS

Hazard Characterisation
No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

Environmental Risk Assessment

The majority of the notified polymer will be bound within the cured matrix of dried inks adhering to paper. Once the polymer is within a cured matrix it is likely to share the fate of the substrate, which might involve recycling or landfill. During recycling processes, waste paper is repulped using a variety of alkaline, dispersing and wetting agents, water emulsifiable organic solvents and bleaches. These agents enhance fibre separation, toner and ink detachment from the fibres, pulp brightness and the whiteness of paper. These aqueous wastes are expected to go to sewer. Very little of the notified polymer is expected to partition to the supernatant water which is released to the sewer. Sludge generated during the washing process is dried and incinerated or sent to landfill for disposal. The notified polymer is expected to neither become dispersed in the environment when it is used as proposed, nor cross biological membranes, because of its high molecular weight and integration into cured matrices. The absence of any significant aquatic exposure pathway and the presumed low ecotoxicological hazard together indicate a minimal risk to the environment from the notified polymer when it is used in printer inks.

8. CONCLUSIONS AND RECOMMENDATIONS

Human health risk assessment
Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unacceptable risk to the health of workers.

When used in the proposed manner, the notified polymer is not expected to pose an unacceptable risk to public health.

Environmental risk assessment
Based on the reported use pattern, the notified polymer is not expected to pose a risk to the environment.

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.

- 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.

Environment

- Do not allow material or contaminated packaging to enter drains, sewers, or water courses.

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 removal.

Regulatory Obligations

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;
- the notified polymer is introduced in powder form.

or

(2) Under Section 64(2) of the Act; if
- the function or use of the notified polymer has changed from a component of printing ink in a cartridge, 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 a product containing the notified polymer provided by the notifier were reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.