File No PLC/901

January 2010

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer KP-1 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 Lorimar 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, Molecular and Structural Formulae, Molecular Weight, Identity of polymer, Polymer Constituents, Residual Monomers/Impurities, Use Details, 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)
Lanier Print Cartridge RC-C21 (product containing the notified polymer KP-1)

CAS NUMBER
Not assigned

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) > 1,000 Da

REACTIVE FUNCTIONAL GROUPS
None

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 solid
Glass Transition Temperature	>120 °C
Specific gravity	1.0 at 20°C
Water Solubility	Not determined. The notified polymer is considered insoluble, based on its hydrophobic structure and high molecular weight. It may be dispersible in water, given the presence of charged moieties in the molecular structure.
Dissociation Constant	Not determined. The notified polymer contains anionic functionality with typical acidity of $pK_a \approx 4$.
Particle Size	Not reported
Reactivity	Stable under normal environmental conditions. Hydrolysis is unlikely to occur in the environmental pH range (4 – 9) despite the presence of hydrolysable functional groups in the notified polymer.
Degradation Products	Thermal decomposition or combustion may produce carbon monoxide, carbon dioxide and/or sulfur oxides.

5. INTRODUCTION AND USE INFORMATION

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

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

Use
Component of printing ink.

Mode of Introduction and Disposal
The notified polymer will not be manufactured in Australia and will be imported into Australia as a component of printing ink at <5% concentration in sealed inkjet printer cartridges of up to 30 g capacity.

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation
No toxicological data were submitted. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

Occupational Health and Safety Risk Assessment
Dermal and ocular exposure to the notified polymer may occur when refilling/replacing spent cartridges. However, the concentration of the notified polymer in the ink is low, and the design of the cartridges is such that exposure to the notified polymer should be low. Once the ink dries, the chemical would be trapped in the printed paper, and therefore dermal exposure to the notified polymer from contact with the dried ink is not expected.

Overall, the OHS risk presented by the notified polymer is not expected to be unacceptable, based on the minimal exposure to workers and the low intrinsic hazard of the polymer.

Public Health Risk Assessment
The scenarios by which the public may be exposed to the notified chemical would involve home use of printers, and are similar to those for office workers. However, it is expected that the public will be using the printer less often than workers.

The risk to public health presented by the notified polymer is not expected to be unacceptable due to its intrinsic low toxicity, low concentration in ink and low potential for exposure.

7. ENVIRONMENTAL IMPLICATIONS

Hazard Characterisation
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, which does not apply to the notified polymer. The toxicity to algae is likely to be further reduced due to the presence of calcium ions in surface waters, which will bind to the functional groups.

Environmental Risk Assessment
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. Most of the notified polymer will be sent to 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. The notified polymer is unlikely to reach aquatic ecosystems and would not be bioavailable to or bioaccumulate in aquatic organisms. The notified polymer is, therefore, not likely to pose a risk to the environment based on the reported use pattern.

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 considered 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.

Disposal

- The notified polymer should be disposed to landfill.

Emergency procedures

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

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.

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 sealed cartridges;
- 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 was reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.