File No PLC/869

September 2009

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Kodak Versamark FD8600 Pigment Black Ink 8088600

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:

Street Address:	334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888.
Website:	www.nicnas.gov.au

Director
NICNAS

TABLE OF CONTENTS

FULL PUBLIC REPORT

Polymer in Kodak Versamark FD8600 Pigment Black Ink 8088600

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Kodak Australia Pty Ltd (ABN 49 004 057 621)
181 Victoria Parade
Collingwood VIC 3066

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 formula, Structural formula, Means of identification, Molecular weight, Polymer constituents, Residual monomers and impurities, 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
Japan, China, Canada, USA

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Kodak Versamark FD8600 Pigment Black Ink 8088600 (product contains < 10% notified polymer)

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) >1000 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

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa:	Imported in a black solution
Melting Point/Glass Transition Temp	Not determined
Density	1050 kg/m^3 *
Water Solubility	Not determined. The notified polymer is expected to be quite soluble in water given its polyanionic nature.
Dissociation Constant	Not determined. The pKa is estimated to be 4.9, similar to propanoic acid's pKa.
Reactivity	Although the notified polymer contains hydrolysable functional groups, it is expected to be stable under normal environmental conditions (pH 4 – 9).
Degradation Products	None under normal conditions of use

*For imported product containing notified polymer at < 10%.

5. INTRODUCTION AND USE INFORMATION

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

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

Use
The notified polymer is a component of an inkjet printing ink. The ink will not be reformulated or repacked in Australia. The product will not be supplied to the public and will only be used in industrial applications.

The formulated ink will be used by commercial printers to print high quality transactional documents such as bills, direct mail personalisation, coupons, commercial gaming, inserts etc. At the printing sites, the cubitainer or plastic drum will be either decanted or syphoned directly into a reservoir on the printing presses for pumping directly to the ink jet printer.

Depending on the printing technique use, the ink containing the notified polymer will be transferred directly from the ink reservoir to the paper by ink jet heads.

When the printing job has been completed, the residual ink in the ink reservoir will be transferred back to the original container via an automated pumping system. The ink jet heads that are covered with ink will be wiped clean using cloths and solvents. The printing company through licensed waste disposal contactors will dispose of the cloths and solvents.

Mode of Introduction and Disposal
The notified polymer will be manufactured in the USA, and imported into Australia through Port of Botany (Sydney) or via Sydney airport. The notified polymer will be imported as a component of an inkjet printing ink at up to 10% in either 20 L cubitainers (plastic cubes surrounded by fibreboard box) or 208 L plastic drums.

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 may potentially occur during certain processes involving the notified polymer. However, exposure to significant amounts of the notified polymer is limited because of the fully automated processes, and the engineering controls and personal protective equipment worn by workers.

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

Public Health Risk Assessment
The notified polymer will not be available to the public. Members of the public may come into contact with products containing the notified polymer. Once the ink dries, the polymer would be bound to the print matrices,

and therefore dermal exposure to the notified polymer from contact with the dried ink is not expected. The risk to public health is therefore negligible.

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.

Environmental Risk Assessment
No release is expected from manufacturing or reformulation of the notified product. At the printing site, minimal release due to accidental spills, cleaning waste and residue in empty drums is expected to be disposed to landfill. Once the notified polymer has been cured in the printing process, it is expected to remain within the product matrices. Hence, the majority of the notified polymer will share the fate of the paper product articles into which it is incorporated. It is anticipated that approximately half of these articles will be disposed 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 the municipal waste treatment plants (STPs) for processing. Due to the notified polymer's water solubility, some release of it to the water column is expected. Calculations indicate that the predicted environmental concentration, at worst, will be 9 µg/L, based on 100% of the notified polymer being released to the sewer and the water consumption of the Australian population. Any of the notified polymer associated with the STP sludge will be disposed to landfill. In landfill or in water, the notified polymer is expected to slowly degrade forming water and oxides of carbon and nitrogen. Due to its high molecular weight, the notified polymer will not readily cross biological membranes, and a low potential for bioaccumulation is predicted.

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 considered 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 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 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 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 products 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.