File No PLC/1041

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

JI-5

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:

Street Address:	Level 7, 260 Elizabeth Street, SURRY HILLS NSW 2010, 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

February 2011

Table of Contents

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/1041	DIC Australia Pty Ltd & Hewlett Packard Australia Pty Ltd	JI-5	No	≤ 2 tonnes per annum	Component of inks (< 5%)

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.

Environmental Recommendations

- No specific control measures are required to minimise release of the notified polymer to the environment.

Disposal

- The notified polymer should be disposed of 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

- 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 component of inks, 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 the products containing the notified polymer was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants
DIC Australia Pty Ltd (ABN 12 000 079 550)
42 Sunmore Close
Heatherton VIC 3202

Hewlett Packard Australia Pty Ltd (ABN 74 004 394 763)
31-41 Joseph Street
Blackburn VIC 3130

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, import volume, and identity of recipients.

2. IDENTITY OF POLYMER

Marketing Name(s)
JI-5
CH118 Series HP Designjet 788 Yellow Ink
CH132 Series HP Scitex FB240 Yellow Ink
CH137 Series HP SC200 Yellow Ink
CH218 Series HP Scitex FB250 Yellow Ink
Solarflex
Solarsleeve
Solarcat

Other Name(s)
Sun Flo Dispersant

Molecular Weight
Number Average Molecular Weight (Mn) is > 1,000 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

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Pale yellow turbid viscous liquid
Melting Point	-20°C
Density	1040 kg/m^3 at 20°C
Water Solubility	0.207 and 0.664 g/L at 20°C (Water solubility was determined at loading rates of 1 and 10 g/L by the shake flask method with TOC analysis (OECD TG 105).
Dissociation Constant	Predicted pKa = 3.34 (±0.20) (Calculated by the notifier using ACD/I-Lab Web service).
Particle Size	Not determined (liquid)
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	≤ 1	1-2	1-2	1-2	≤ 2

Use
The notified polymer will not be manufactured or formulated in Australia. Inks containing < 5% of the notified polymer within a cartridge will be mostly used by consumer and small business printers. Inks can be also used for commercial printers.

6. HUMAN HEALTH RISK ASSESSMENT

The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. This is supported by tests submitted on the following toxicological endpoints.

Endpoint	*Result*	*Effects Observed?*	*Test Guideline*
Genotoxicity - bacterial reverse mutation	non mutagenic	yes	OECD TG 471

All results were indicative 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, the negative results observed in the mutagenicity test 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 ink in sealed cartridges for use in commercial and domestic 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, sludge waste from paper recycling or residues in spent cartridges. In landfill the notified polymer will be slowly degraded to form water and oxides of carbon and nitrogen. The notified polymer is a water dispersible polymer with adsorption coefficients in the range log Koc <1.25 to

>5.63 (with 70% determined to have a log Koc >5.63; OECD TG 121) 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. If released to surface waters, the notified polymer is likely to disperse and degrade. Although the notified polymer was determined to have a partition coefficient in the range log Pow <0.3 to >6.5 (with 91% with a log Pow >3.0; OECD TG 117), it is not expected to cross biological membranes due to its high molecular weight and has a low potential to bioaccumulate. The notified polymer is therefore not expected to pose an unreasonable risk to the environment based on the assessed use pattern.