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April 2007

**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME
(NICNAS)**

FULL PUBLIC REPORT

Polymer in Daicure DG-4K

This Self Assessment has been compiled by the applicant and adopted by NICNAS 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), administered by the Department of Health and Ageing and the Department of the Environment and Heritage has screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

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**Director
NICNAS**

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FULL PUBLIC REPORT**Polymer in Daicure DG-4K****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT

DIC Australia Pty. Ltd.(ABN 12 000 079 550)
 323 Chisholm Rd
 Auburn NSW 2144

NOTIFICATION CATEGORY

Self Assessment: 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/Impurities, Use Details, Details of Manufacture/Import Volume.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

NOTIFICATION IN OTHER COUNTRIES

Unknown

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Polymer in Daicure DG-4K

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (NAMW) >1000

The notified polymer contains only low concern functional groups.

3. PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met</i>
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	Clear, colourless to amber liquid.
Melting Point/Glass Transition Temp	Not applicable. The notified polymer is not isolated from the ink solution in which it is imported.
Density	1000 to 1200 kg/m ³ at 25°C
Water Solubility	Expected to be low due to predominance of hydrophobic groups.
Reactivity	The notified polymer contains a low level of oil modifiers that will cross-link further via oxidation when exposed to the atmosphere during application.
Degradation Products	None under normal conditions of use

5. INTRODUCTION AND USE INFORMATION

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

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	<1	< 1	< 1	1-3	1-3

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will not be manufactured in Australia. It will be imported by sea as a component (15-30% (w/w) of a range of UV curable printing inks. The finished printing inks will be imported in 1 kg slip lid metal cans. Upon arrival at ports in Sydney and/or Melbourne the notified polymer will be transported by road to the notifier's warehouse where it will be stored under cover until such time that it is transported to up to five companies throughout Australia.

Reformulation/manufacture processes

No reformulation of the imported printing inks will take place in Australia.

Use

The notified polymer is a component of a range of UV curable printing inks. The printing inks will be used to print plastic articles.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Transport and warehousing workers may come into dermal and ocular contact with the notified polymer through accidental leaks and spillages from ink containers.

During use, printing workers will manually transfer inks to ducts on the printing unit. Potential exposure will mainly be via dermal contact. However, exposure will be minimised by workers wearing impermeable gloves, eye protection and coveralls. Additionally, local exhaust ventilation adjacent to the printing unit will minimise exposure via inhalation.

Following printing, the printed article is exposed to UV light which causes the notified polymer to fully cross-link into the polymer matrix. Hence, the notified polymer is no longer available for exposure.

PUBLIC EXPOSURE

Neither the notified polymer, nor inks containing it, will be sold to the public. The public will come into contact with cured inks containing the notified polymer. However, after application and once

cured, the notified polymer is cross-linked into an inert polymer matrix is hence unavailable for exposure.

6.2. Toxicological Hazard Characterisation

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

6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

The OHS risk presented by the notified polymer is expected to be low, based on low hazard and low exposure as well as the engineering controls and personal protective equipment used by workers.

PUBLIC HEALTH

The notified polymer will not be sold to the public. However, the public will come into contact with cured inks containing the notified polymer. Once the polymer is cross-linked it will become part of an inert polymer matrix, and hence will not be bioavailable. Risk to the public is considered low.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

Release to the environment during shipping, transport and warehousing will only occur through accidental spills or leaks.

It is estimated that up to 1% of the notified polymer will remain in ink residues in “empty” ink containers. Up to a further 5% will be lost during printing unit cleaning and contained in cleaning rags. In both cases, the ink residue will cross-link to form an inert polymer matrix. It is expected that both the empty ink containers and cleaning residues will be disposed of to licensed waste landfill sites.

The remainder of the notified polymer will be contained on printed articles that will be disposed of by either recycling, incineration or to licensed waste landfill sites.

ENVIRONMENTAL FATE

The notified polymer will cross-link during application and disposal of waste to become part of the ink polymer matrix. The ink polymer is expected to be hydrolytically stable and to not be readily biodegradable. Due to its hydrophobic nature, it is expected that the ink polymer in landfill will associate with organic phases of soil and sediments, and slowly degrade to simple carbon compounds. During incineration, the polymer will be destroyed, releasing water and oxides of carbon.

7.2. Environmental Hazard Characterisation

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

7.3. Environmental Risk Assessment

No aquatic exposure is anticipated during application and end use of the notified polymer. It is envisaged up to 6% waste would be generated from the application and disposal processes. These wastes would be cured and solidified before being collected by licensed waste contractors and be disposed of to landfill. It is expected that practically all of the waste generated from end users will be disposed of in approved landfills as inert solid waste. In landfill, the solid wastes will not be mobile and will degrade slowly by biotic and abiotic processes and not pose a significant risk to the environment.

8. CONCLUSIONS

8.1. Level of Concern for Occupational Health and Safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

8.2. Level of Concern for Public Health

There is Negligible Concern to public health when used in the proposed manner.

8.3. Level of Concern for the Environment

The polymer is not considered to pose a risk to the environment based on its reported use pattern.

9. MATERIAL SAFETY DATA SHEET

9.1. Material Safety Data Sheet

The notifier has provided a MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

10. 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 NOHSC *Approved Criteria for Classifying Hazardous Substances*, 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 of to landfill or incinerated.
- Empty containers should be sent to local recycling or waste disposal facilities.

Emergency procedures

- Spills/release of the imported product containing the notified polymer not be allowed into drains or waterways. Spills should be handled by absorbing with sand or other inert absorbent material and put into suitable container for disposal.

10.1. Secondary Notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under subsection 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 subsection 64(2) of the Act:
- if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.