

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

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer (940-1021) in WKRFW1713723

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 the Department of the Environment, has screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

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:

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**Director
NICNAS**

March 2015

Part 2 – PLC Self Assessment Exempt Information

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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
SAPLC/171	DIC Australia Pty Ltd	Polymer (940-1021) in WKRFW1713723	No	≤ 9 tonnes per annum	Component of ink for flexible packaging

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 (M)SDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation should be in operation.

Disposal

- Where reuse or recycling are not appropriate, dispose of the notified polymer in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

Storage

- No specific precautions should be taken regarding storage of the notified polymer:

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 a component of ink for flexible packaging 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 SDS of a product containing the notified polymer was provided by the applicant. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants

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

Exempt Information (Section 75 of the Act)

Data items and details claimed exempt from publication: chemical name, other names, molecular and structural formulae, molecular weight, polymer constituents, residual monomers/impurities and use details.

2. IDENTITY OF POLYMER

Marketing Name(s)

WKRFW1713723 (contains the notified polymer at < 25% concentration)

Molecular Weight

Number Average Molecular Weight (Mn) is 10,000 Da

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/slightly hazy liquid
Melting Point/Glass Transition Temp	33.4 °C
Density	1,018.52 kg/m ³
Water Solubility	1,000 g/L at 20 °C
Dissociation Constant	Not determined. The notified polymer may have terminal functional groups that are expected to be ionised in the environmental pH range (pH 4 –9).
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

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Tonnes	7	7.5	8	8.5	9

Use

The notified polymer will be introduced to Australia in solution at < 25% concentration. There will be no reformulation of the notified polymer in Australia. The notified polymer is a component of a water-based white flexographic printing ink for flexible general and food packaging. The ink will be supplied to flexible packaging printers where it will be applied via flexographic printing equipment and inline curing units. Once the inks are cured and dried, the notified polymer will be bound into the ink matrix.

6. HUMAN HEALTH RISK ASSESSMENT

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

The notified polymer may have indirect food contact as a component of ink used in flexible food packaging. Once the inks are cured and dried, the notified polymer will be bound into the ink matrix and is not expected to migrate into the food.

Although not considered in this risk assessment, the notified polymer contains residual monomers that are classified as hazardous according to the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia. These are not present in the notified polymer as introduced above the cut off concentrations for classification.

Overall, given the assumed low hazard of the notified polymer and provided the inks are cured within the manufacturer's specification, the notified polymer is not considered to pose an unreasonable risk to workers or the public.

7. ENVIRONMENTAL IMPLICATIONS**7.1. Exposure Assessment****ENVIRONMENTAL RELEASE**

The notified polymer will not be manufactured, reformulated or repacked in Australia. Therefore, there will be no environmental release of the polymer during these stages of the notified polymer's lifecycle.

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

Once the ink has been printed and dried, the polymer will be locked into the ink matrix and it is likely to share the fate of the substrate to which it has been applied. The majority of the substrate to which the notified polymer has been applied is expected to be disposed of to landfill or recycled.

Residues remaining in the import containers (1-2%) will be disposed through the standard recycling practices for metal containers of the printing industry.

ENVIRONMENTAL FATE

No significant release of the notified polymer to the water compartment is expected based on the reported use pattern. During accidental spills or leaks, the notified polymer is not expected to bioaccumulate in aquatic organisms due to its high water solubility and the presence of potential cationic functional groups. It is not expected to be readily biodegradable due to its high molecular weight.

Once the notified polymer, as a component of the ink, has been cured it is expected to be hydrolytically stable and not to be readily biodegradable. The dried ink containing the notified polymer will be part of the flexible plastic waste stream.

7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. The notified polymer contains terminal functionality which has the potential to become cationic under environmental conditions (pH 4-9). However, the cationic charge density is > 5000 Da. Therefore, the notified polymer is not expected to be toxic to aquatic organisms based on the reported use pattern.

7.3. Environmental Risk Assessment

The notified polymer is a component of a water-based white flexographic printing ink for flexible packages. Once the inks have been dried the notified polymer is expected to remain within the ink matrices. Therefore, the majority of the notified polymer will share the fate of the articles into which it is incorporated. It is anticipated that these will be disposed of to landfill or recycled at the end of their useful lifetime. In landfill it is expected that the notified polymer will remain immobile within the soil. In STPs the notified polymer is expected to adsorb to sludge. In soil and sludge the notified polymer is expected to slowly degrade by biotic and abiotic processes to water and oxides of carbon and nitrogen. Due to the notified polymer's high molecular weight, it is not expected to bioaccumulate.

Therefore, based on its assumed low hazard and assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.