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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Urotuf PUR 2847-31

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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1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
DIC International (Australia) Pty. Ltd. (ABN 17 003 441 067)
30-32 Kilkenny Crt
Dandenong South VIC 3175

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, and 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
Canada

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Polymer in Urotuf PUR 2847-31

3. PLC CRITERIA JUSTIFICATION

Criterion	*Criterion met (yes/no/not applicable)*
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	Yellowish liquid. (as the polymer solution)
Melting Point/Glass Transition Temp	< 80°C as a solution in ethanol and ethyl acetate.
Density	Approximately 960 kg/m^3 at 20°C (as the polymer solution)
Water Solubility	Expected to be low due to high molecular weight and lack of hydrophilic groups.

Dissociation Constant	The notified polymer is not expected to dissociate.
Reactivity	Not reactive under normal conditions of use.
Degradation Products	Oxides of carbon and nitrogen.

4.1. Comments

In normal use and handling, the polymer is not isolated from formulation adjuvants.

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	3-10	3-10	10-30	10-30	30-100

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will not be manufactured in Australia. It will be imported in 200 L steel drums as a 31% (w/w) solution in ethyl acetate and ethanol.

Reformulation processes

The notified polymer will be imported into Australia in closed head 200 L steel drums, as a 31% (w/w) solution in ethanol and ethyl acetate. It will be transported from the wharf to the notifiers warehouse by road, where it will be stored until such time it is delivered to the ink manufacturer. At the ink manufacturer, the product is formulated into finished inks. During formulation, the notified polymer will be manually weighed and then transferred to mixing tanks for further blending/dispersion via high speed disperser or bead mill. Once blended with other ingredients and converted into the finished ink product, it will be decanted into 20 litre and 200 litre steel drums for sale to customers.

The packaged steel containers will then be shipped to printing/packaging companies who will use the finished product. The ink products containing the notified polymer will be applied by gravure and flexographic printing processes.

Use

The notified polymer will be used as a component in printing inks.

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 of the drums and containers.

During formulation, workers will manually weigh and transfer the polymer dispersion to mixing vessels. Local exhaust ventilation is situated near the mixing vessels. Workers will wear impermeable gloves and clothing, eye protection. Exposure from the notified polymer to these workers can occur by either dermal or ocular routes, however significant exposure will be limited due to the workplace practices, engineering controls and personal protective equipment used.

During the printing process, printers may come into contact with the notified polymer through dermal, inhalation and ocular routes. The occurrence of exposure, however, will be minimised by workers using protective equipment as described above.

After printing and once dried, the ink containing the notified polymer forms an inert matrix and the polymer is hence unavailable for exposure.

PUBLIC EXPOSURE

The notified polymer will not be sold directly to the public. However, the public will come into contact

with packaging that has been printed with the notified polymer. Once the notified polymer is dried it will form an inert polymer matrix. The potential for exposure of the public to the notified polymer is therefore minimal.

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. Once the polymer is applied and dried it will be contained in an inert 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 of the drums or steel packaged containers.

Spills are expected to be minimal during formulation, packaging and printing processes. When spills occur, they will be contained by bunding, collected with absorbent material and sent to a licensed off site waste disposal centre. It is estimated that less than 1% of the notified polymer will remain as residue in “empty” drums. Empty drums from import and ink manufacture will be sent to drum reconditioners or sent to landfill.

The majority of waste polymer solution from ink manufacturing equipment will be reused in subsequent batches of ink. The remainder of waste from ink manufacturing and residues from cleaning printing equipment will be collected with other waste solvent for later solvent recovery or incineration. Total waste from the above sources is expected to be less than 3 % of the import volume.

The remainder of the notified polymer will be bound in the ink matrix and will not be available for direct release to the environment. Disposal of printed packaging materials will be to landfill or by incineration.

The notified polymer has low solubility in water, and is not expected to reach the aquatic environment during reformulation, printing processes, or use of packaging.

ENVIRONMENTAL FATE

Waste polymer solution and inks from spills, cleaning, and empty product drums will dry via evaporation of their solvents to form solid polymer and/or ink. The majority of this waste will be sent to landfill.

The majority of the notified polymer will be contained in printed packaging materials and will share their fate of either being recycled, incinerated or being sent to landfill.

Once dried, the notified polymer is expected to be hydrolytically stable and to not be readily biodegradable. Due to the hydrophobic nature of the dried polymer, it is expected that the notified polymer in landfill will associate with organic phases of soil and sediments, and slowly degrade to simple carbon and nitrogen compounds through biotic and abiotic processes. During incineration of waste polymer and inks, the polymer will be destroyed.

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

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

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 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.

- Personal protective equipment required during formulation of the Urotuf PUR 2847-31 product are:
  - Eye protection (safety glasses or goggles)
  - Impermeable gloves
  - Industrial clothing and footwear
  - Respirator with organic vapour cartridge when occupational exposure standards are exceeded.

- 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.

Environment

- The following control measures should be implemented by the notifier to minimise environmental exposure during formulation of the notified polymer:
  - Bunding

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 notified polymer should be handled by absorbing with sand and put into suitable container for disposal. Contaminated containers can be re-used after cleaning.
- The notified polymer should not be allowed to enter drains or waterways.

Storage

- If products and mixtures containing the notified polymer are classified dangerous goods, dangerous goods storage requirements may apply.

Transport and Packaging

- If products and mixtures containing the notified polymer are classified dangerous goods, dangerous goods transport requirements may apply.

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.