File No. PLC/764

May 2008

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in NeoRez U-410

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 NeoRez U-410

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Reschem Technologies Pty Ltd (ABN 90 315 656 219)
2 Georgina Ave, Elanora Heights NSW 2101

NOTIFICATION CATEGORY
Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)
Data items and details claimed exempt from publication:
Spectral data, Chemical Name, Other Names, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Manufacture/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
None

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
NeoRez U-410 (55% of notified polymer)

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:	Colourless to yellow, hazy liquid. (NeoRez U-410)
Melting Point	> 100°C (Estimated)
Density	9400 kg/m^3 at 20°C (NeoRez U-410)
Water Solubility	The notified polymer is expected to be insoluble in water based on its chemical structure i.e. predominantly hydrophobic monomers.
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use.

The notified polymer contains groups in the backbone/side chains that might hydrolyse under severe conditions, but is expected to be stable under normal environmental conditions (pH 4-9).

5. INTRODUCTION AND USE INFORMATION

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

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

USE

The notified polymer is a film-forming resin component used in flexo- and gravure printing inks and is used on a variety of plastic films.

Mode of Introduction and Disposal

The notified polymer will be imported in drums as a 54% component resin solution (NeoRez U-410). The imported resin solution will be reformulated to produce printing inks (< 40% of notified polymer).
Disposal will predominantly be to landfill or by incineration.

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

Reformulation

Work description: Vacuum hose line connecting/disconnecting; polymer mixing and blending with other ingredients (e.g. solvents, biocides, wetting agents); sampling for quality control; filtration of the reformulated mixture and drum and pail filling of the final product.
Exposure: Workers may experience dermal, ocular and respiratory exposure to the resin solution (containing 54% notified polymer) due to drips splashes and spills, particularly during the mixing stage where workers add to or empty mixing vessels.
Controls: Blending of the polymer generally occurs in a closed and automated system with dedicated transfer lines. Polymer mixing with other ingredients is a semi-automated process and filtration, drum and pail filling are automated with minimal worker intervention. Exhaust ventilation is employed to capture aerosols during mixing/blending and container filling. A regular maintenance regime of the ventilation system is also in place and includes monitoring of airflow at intervals. Workers handling the polymer solution wear gloves, coveralls and goggles.

Cleaning equipment and ink transfer

Work description: Daily manual washing of residual ink from equipment and transfer of ink from the drum to the ink trough, which involves manual connection and disconnection of transfer lines and measuring ink levels.
Exposure: Greatest potential for dermal, ocular exposure to the ink (containing < 40% notified polymer) due to the high exposure duration (up to 8 hrs/day), and frequency of exposure (200 days/yr), as well as the high number of workers involved (around 200).
Controls: Ink transfer from the ink to the trough is an automated process using a pump system. Ventilation is provided to remove airborne particles and workers wear PPE (overalls, eye protection and gloves).

Although exposure to the notified polymer could occur during reformulation, equipment cleaning and ink transfer, the risk to workers is considered to be low due to the intrinsic low hazard of the notified polymer, the engineering controls in place and the use of appropriate personal protective equipment by workers.

Therefore, under the conditions of the occupational settings described, the risk is considered to be acceptable.

Public Health Risk Assessment

The general public may be exposed through handling plastic products (such as labels, packaging, bags) that have been printed with the ink containing the notified polymer; therefore the potential exposure levels are high. However, the ink is dried and bound to the print matrices prior to being made available to the public, and given the predicted low hazard of the notified polymer based on its physical-chemical properties, the risk to the public is expected to be low.

7. ENVIRONMENTAL IMPLICATIONS

Release of Chemical at Site
Although spills are not expected to be frequent, during formulation it is estimated that up to 1% of the notified polymer may be spilt. These spills will be contained within bunding and disposed of by a licensed waste contractor. Small amounts (< 1%) will be present in washes after equipment cleaning. These washes will undergo a process of flocculation, which will remove the notified polymer. This will then be disposed to landfill. Less than 1% of the notified polymer may remain as residue in the drums. This will be landfilled or incinerated.

Fate
The final fate of the notified polymer will be the same as the printed articles, which at the end of their useful lives will be recycled or sent to landfill. During the recycling process the ink and hence the notified polymer will be removed and will become part of the solid/sludge waste that will go to landfill or be incinerated. Incineration will produce water, oxides of carbon and nitrogen.

Hazard Characterisation
No ecotoxicological data were submitted. Non ionic polymers of NAMW > 1000 are of low concern to the aquatic environment.

Environmental Risk Assessment
The notified chemical will be used as a component of flexo- and gravure printing inks. Once these inks have been cured the notified chemical is expected to remain within the product matrices. Hence, the majority of the notified chemical will share the fate of the articles into which it is incorporated. It is anticipated that these will be disposed of to landfill or incinerated at the end of their useful lifetime. In landfill it is expected that the notified chemical will remain immobile within the soil. Incineration of the notified chemical will result in the formation of water vapour and oxides of carbon and nitrogen.

Based on the use pattern, a minimum amount of the notified polymer is expected to be released to water and it is not possible to calculate a reasonable predicted environmental concentration (PEC).

The above considerations indicate minimal risk to the environment when the notified chemical is used in the manner and levels indicated by the notifier.

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.

- 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 of to landfill.

Storage

- The following precautions should be taken by transport, warehouse and manufacturing workers regarding storage of the notified polymer:
  - Ensure it is stored in sealed containers in a cool, dry, ventilated location.
  - Keep away from extreme heat

Emergency procedures

- Spills and/or accidental release of the notified polymer should be handled by absorbing with inert material (e.g. vermiculite) then placed in a suitable container. Dispose according to local, state, and federal regulations.

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 chemical 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 film-forming resin component used in flexo- and gravure printing inks, or is likely to change significantly;
  - the amount of notified polymer being introduced has increased from 100 tonnes per annum, or is likely to increase, significantly;
  - if 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 the product containing the notified polymer provided by the notifier was reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.