File No PLC/852

August 2009

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

# FULL PUBLIC REPORT

## Polymer in NeoRez U-391

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:


| | |
|---|---|
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**Director**
**NICNAS**

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# FULL PUBLIC REPORT

## Polymer in NeoRez U-391

### 1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Reschem Technologies Pty Ltd (ABN 90 315 656 219)
6/56 Kalang Road
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: Chemical Name, CAS Number, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents and Residual Monomers/Impurities.

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)
Polymer in NeoRez U-391

OTHER NAME(S)
Non reactive semi aliphatic polyurethane (generic name on MSDS)

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) > 1000 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: | Colourless, clear viscous liquid |
| Melting Point/Glass Transition Temp | 77-78°C |
| Density | 1040 kg/m$^3$ |
| Water Solubility | Insoluble. The predicted value of < 1 mg/L at 20°C is consistent with the mainly hydrophobic structure of the notified polymer. |
| 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 | 100-120 | 100-120 | 100-120 | 100-120 | 100-120 |

**Use**
The notified polymer is a non film-forming (plasticising) resin component used in gravure printing ink and can be used on a variety of plastic films.

At the ink manufacture site workers will connect a vacuum hose line to the drums from which the notified polymer will be pumped to the blender. The notified polymer will be mixed with pigment(s), solvent, antifoam, biocides, thickeners, wetting agent to produce a mill base. The mill base will be pumped into a large mixing vessel where it will be mixed with the other ingredients. Blending of the polymer to finished inks will generally occur in a closed automated system with dedicated transfer lines. Occasionally, ink manufacture may occur in batch mixers where addition of the polymer is semi-automated. The blended product will be sampled for laboratory analysis.

Ink application will be an automated process. A pump will be used to transfer the ink from the drum to the ink trough. Any residual ink will usually be washed manually from the equipment using the recycled solvent. This will be done on a daily basis. The washings will be collected by solvent recyclers.

**Mode of Introduction and Disposal**
The notified polymer will be imported at approximately 70% of a resin solution (NeoRez U-391) to be formulated into inks at between 10-40%. The notified polymer may also be introduced at a later stage as a component in finished printing inks (< 40%). Finished ink products will not be reformulated or remanufactured in Australia but sold directly to customers for application. The notified polymer will be imported in steel drums or IBC.

## 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**
Dermal and ocular exposure may potentially occur during certain processes involving the notified polymer. However, exposure to significant amounts of the notified polymer is limited because of the fully automated processes, and the engineering controls and personal protective equipment worn by workers.

Overall, the OHS risk presented by the notified polymer is expected to be low, based on the minimal exposure to workers and the low intrinsic hazard of the polymer.

**Public Health Risk Assessment**
The notified polymer will not be available to the public. Members of the public may come into contact with products containing the notified polymer. Once the ink dries, the polymer bound to the print matrices, and therefore dermal exposure to the notified polymer from contact with the dried ink is not expected.

Overall, the risk to public health will be negligible because the notified polymer is of low hazard, and is bound to the print matrices prior to being made available to the public.

## 7. ENVIRONMENTAL IMPLICATIONS

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

**Environmental Risk Assessment**
Release is not expected to be significant from the reformulation of the notified polymer and the printing application of the ink containing the notified polymer. The majority of the notified polymer will be bound to plastic substrates via printing and share the fate of the printed articles, which may include disposal to landfill or undergoing recycling process. During recycling of the printed plastic articles, the notified polymer will be removed and become part of the solid/sludge waste that will go to landfill. Any release occurred will be sent to landfill. In landfill, the notified polymer will be subject to slow degradation processes via biotic or abiotic pathways, forming water and oxides of carbon and nitrogen.

The notified polymer is not expected to pose an unacceptable risk to the aquatic compartment, based on the proposed use pattern.

## 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.

  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.

Disposal

- The notified polymer should be disposed of to landfill.

Emergency procedures

- Spills and/or accidental release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.

**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 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 in 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 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 products containing the notified polymer provided by the notifier were reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.