File No PLC/1195

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in NeoRez R-1005 and NeoRez R-1007

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government Department of Health, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Australian Government Department of the Environment.

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

June 2014

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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
PLC/1195	Reschem Technologies Pty Ltd	Polymer in NeoRez R-1005 and NeoRez R-1007	No	≤ 750 tonnes per annum	Component of surface coatings

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

- In the interest of occupational health and safety, the following precautions should be observed for spray application of coatings containing the notified polymer:
  - Coatings to be applied in well ventilated areas.
  - Respiratory protection to be used where significant inhalation exposure may occur.

  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.

- Spray applications should be carried out in accordance with the Safe Work Australia Code of Practice for *Spray Painting and Powder Coating* (Safe Work Australia, 2012) or relevant State or Territory Code of Practice.

- 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
- The notified polymer should be disposed to landfill.

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 surface coatings, 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 (M)SDS of products 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

Applicant
Reschem Technologies Pty Ltd (ABN: 90 315 656 219)
Suite 1103/4 Daydream St
WARRIEWOOD NSW 2102

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 manufacture/import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)
NeoRez R-1005 (product containing the notified polymer)
NeoRez R-1007 (product containing the notified polymer)

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

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	White, translucent liquid (dispersion)
Melting Point/Glass Transition Temp	Not determined. The notified polymer is manufactured in solution and is not isolated.
Density	1.04 kg/m^3 at 20 °C
Water Solubility	The notified polymer is expected to have limited water solubility based on the hydrophobic chemical structure and high molecular weight.
Dissociation Constant	Not determined. The notified polymer is a salt and is expected to be ionised under environmental conditions (pH 4–9).
Particle Size	Not determined
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	<250	<250	<500	<500	<750

Use
The notified polymer will be imported as a component of formulated products for use in coating. The coatings are expected to be applied by spray in both DIY and in industrial applications. Use in industrial applications is estimated to account for 80% of the imported volume of the notified polymer.

Reformulation
Reformulation of the imported liquid containing the notified polymer (at up to 40% concentration) into the coating component will take place in a closed mixing vessel. The notified polymer will be blended with other ingredients (such as base coat, thickeners, anti-foaming agents and bactericides) in an automated and metered process. Sampling for laboratory analysis will be conducted during formulation. The formulation containing the notified polymer will then be filtered and filled into containers between 1 and 20 L.

This reformulation process will take place in a bunded area with a closed blending tank supplied with local exhaust ventilation. During the various processes, most notably during connection of filling lines, decanting of the polymers, emptying of the mixing vessel, equipment maintenance (such as cleaning performed by vacuuming and wet washing), quality control sample taking, dermal and ocular exposure to the notified polymer from drips, spills and splashes may occur.

Coatings
Surface applications may be performed using spray, brush or roller. In industrial settings, the notifier states that spray applications will be undertaken in spray booths. Upon application, the coating will dry on the surface; therefore, the notified polymer is cured within the coating as an inert film and will not be bioavailable for exposure or uptake.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. The risk of the notified polymer to occupational and public health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

However, the notified polymer has some characteristics of high molecular weight water insoluble polymers, which may cause lung overloading in respirable form. Data on the polymer's water solubility are not available; based on its structure, it is likely to have limited solubility. Workers carrying out spray application of coatings containing the notified polymer may experience frequent and/or prolonged inhalation exposure. The risk of lung overloading would be reduced by good ventilation and use of respiratory protection. The risk to DIY consumers during spray application of coatings is considered low, because of the low frequency and duration of exposure.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is over-chelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. This is unlikely to apply to the notified polymer and it is therefore not considered to be an over-chelation hazard to algae. The notified polymer may also contain potentially cationic functionality, however the cationic charge

density is low and the notified polymer is therefore not expected to be of concern to the aquatic environment.

During reformulation and use of polish, paint and coatings, the notified polymer may be released to the environment as spills and container residues. These releases are expected to be collected and either sent to landfill or a licensed waste contractors.

The notified polymer will be used by both industrial (80%) and Do-it-Yourself (DIY) users (20%). During use, coatings containing the notified polymer will be applied by spray, brush or roller techniques. It is expected that approximately 20–60% of the coating product will be in the form of overspray during industrial spraying operations and will typically entail landfill disposal, after being collected. Residues containing the notified polymer on brushes and rollers are expected to be rinsed into containers and then allowed to cure before disposal, as solid wastes, to landfill. Up to 5% of the notified polymer used by DIY users may be incorrectly disposed of to the sewer, drains or ground from waste and washing of application equipment. Assuming the releases occur nationwide and over the entire year, this is unlikely to lead to ecotoxicologically relevant concentrations of the notified polymer in the aquatic environment.

The fate of the coating cured on the substrate will be shared with the fate of the coated article, which ultimately is expected to be sent to landfill. In landfill, the notified polymer will be present as cured solids which will be neither bioavailable nor mobile. Furthermore, the notified polymer is not expected to bioaccumulate due to its high molecular weight. It is expected to eventually degrade in the environment to form oxides of carbon and nitrogen, and water vapour. 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.