

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

**POLYMER OF LOW CONCERN FULL PUBLIC REPORT**

**Polymer in NeoCryl XK-85**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government 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 Australian Government Department of Sustainability, Environment, Water, Population and Communities.

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 Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

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**

December 2010

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## 1. APPLICANT AND NOTIFICATION DETAILS

### Applicant

Reschem Technologies Pty Ltd (ABN: 90315656219)  
6/56 Kalang Road  
Elanora Heights NSW 2101

### 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, residual monomers/impurities, manufacture/import volume

## 2. IDENTITY OF POLYMER

### Marketing Name(s)

Polymer in NeoCryl XK-85

### Molecular Weight

Number Average Molecular Weight (Mn) = > 1,000 Da

### Reactive Functional Groups

The notified polymer contains only low concern functional groups.

## 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:	White liquid
Melting Point/Glass Transition Temp	Not determined. Notified polymer not expected to be isolated in Australia
Density	1040 kg/m <sup>3</sup> at 20°C (40% notified polymer in water)
Water Solubility	Not determined. It is expected to have limited water solubility due to its predominantly hydrophobic chemical structure, high molecular weight and tendency to form emulsions in aqueous solutions.
Dissociation Constant	Not determined. pK <sub>a</sub> ~ 4. The notified polymer contains functionality that is expected to ionise in the environmental pH range (4 - 9).

Reactivity	Stable under normal environmental conditions. The notified polymer contains hydrolysable functional groups, however, due to its limited solubility, hydrolysis is expected to be slow under ambient 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>
<i>Tonnes</i>	30-100	30-100	30-100	30-100	30-100

#### Use

The notified polymer will not be manufactured in Australia. It will be imported into Australia at a concentration of 40% and subsequently reformulated.

The notified polymer will be used as a component of an industrial coating system for metal substrates at a concentration of 25-35%.

Metal substrates will be coated in industrial settings mainly by spray painting undertaken in spray booths and also by brush and roller.

## 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 unacceptable given the assumed low hazard.

## 7. ENVIRONMENTAL RISK ASSESSMENT

### Hazard Characterisation

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, which does not apply to the notified polymer. In addition, the toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

### Environmental Risk Assessment

Release of up to 53% of the notified polymer to the environment may occur during reformulation ( $\leq 2\%$ ), cleaning of equipment ( $\leq 1\%$ ) and application of coatings ( $\leq 50\%$  from overspray depending on the shape of metal article sprayed). Overspray is likely to be captured by engineering controls, and reformulation/application equipment will be cleaned with solvent. The notified polymer in collected residues will be either recycled or disposed of to landfill.

Once cured, the coatings containing the notified polymer will form an inert polymer matrix, and the irreversibly incorporated notified polymer will not be bioavailable. Coated articles will be either sent to landfill or thermally decomposed during the recycling of the metal substrates at the end of their useful lives. In landfill, the notified polymer contained in solid waste or on coated surfaces is expected to be immobile due to its irreversible incorporation into an inert matrix of cured coatings. The notified polymer is not expected to bioaccumulate due to its high molecular weight, although no significant release of the polymer to the aquatic environment is expected when used as proposed.

The notified polymer is not expected to pose an unacceptable risk to the environment based on its assumed low toxicity to aquatic organisms and the low potential for aquatic exposure resulting from its use as metal coatings.

## **8. RECOMMENDATIONS**

### **Human Health Risk Assessment**

When used in the proposed manner, the notified polymer is not considered to pose an unacceptable risk to the health of workers and the public.

### **Environmental Risk Assessment**

Based on the reported use pattern, the notified polymer is not expected to pose a 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 MSDS should be easily accessible to employees.
- Spray application should be carried out in accordance with the Safe Work Australia *National Guidance Material for Spray Painting* [NOHSC (1999)].
- 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 to landfill.

### **Environment**

- The following control measures should be implemented by manufacturers to minimise environmental exposure during formulation of the notified polymer:
  - Process equipment should be within bunded areas.

### **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 an industrial coating system, 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 a product containing the notified polymer was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.