

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

### POLYMER OF LOW CONCERN PUBLIC REPORT

#### Polymer in NeoCryl XK-110

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 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:

Street Address:	Level 7, 260 Elizabeth Street, SURRY HILLS NSW 2010, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX:	+ 61 2 8577 8888
Website:	<a href="http://www.nicnas.gov.au">www.nicnas.gov.au</a>

**Director  
NICNAS**

September 2012

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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/1090	ResChem Technologies Pty td	Polymer in NeoCryl XK-110	No	50 tonnes per annum	Component of 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**

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 *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.

### **Environmental Recommendations**

No specific control measures are required to minimise release of the notified polymer to the environment.

### **Disposal**

The notified polymer should be disposed to landfill.

### **Emergency Procedures**

Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.

### **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 coatings;
  - 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 MSDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.

## **ASSESSMENT DETAILS**

### **1. APPLICANT AND NOTIFICATION DETAILS**

#### **Applicants**

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, CAS number, Molecular and structural formulae, Molecular weight, Reactive functional groups, polymer constituents, residual monomers and concentration in imported product.

### **2. IDENTITY OF POLYMER**

#### **Marketing Name(s)**

NeoCryl XK-110 (contains <50% notified polymer)

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

### 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	Milky white liquid*
Melting Point/Glass Transition Temp	Imported as an aqueous solution
Density	1030 kg/m <sup>3</sup> at 20°C
Water Solubility	Not determined. Expected to be water dispersible based on the presence of hydrophilic functionality and its use in aqueous products.
Dissociation Constant	Not determined. The notified polymer is a salt and may be ionised under environmental conditions.
Reactivity	Stable under normal environmental conditions. The notified polymer contains hydrolysable functionalities. However, no significant hydrolysis is expected to occur in the environmental pH range of 4 – 9.
Degradation Products	None under normal conditions of use
* For NeoCryl XK-110 contains <50% notified polymer as an aqueous solution	

### 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>
Tonnes	50	50	50	50	50

#### Use

The notified polymer will be imported into Australia at a concentration of < 50% and will be used as component of two-part coatings for timber and concrete at a concentration of < 30%.

### 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.

### 7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. Anionic polymers are generally of low toxicity to fish and daphnia, however they 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.

Following its use, most of the notified polymer will be bound within the inert coating polymer matrix on timber or concrete surfaces. It will share the fate of the article to which it has been applied and is expected to be eventually disposed of to landfill. Residues in empty containers and discarded application equipment are estimated to account for less than 0.5% of the total usage amount. These are expected to be handled as solid waste once the polymer is cured and be disposed of to landfill. Some of the notified polymer may be released to sewer from the cleaning of reformulation and application equipment. For a worst case scenario, based on 'do it yourself' use, it is assumed that 5% of the total annual import volume is released to sewer nationwide on 365 days per year from the cleaning of application equipment and that none of the notified polymer is removed by sewage treatment plant process. A predicted environmental concentration in rivers ( $PEC_{river}$ ) is 1.51  $\mu\text{g/L}$  if the daily chemical release ( $2500 \text{ kg}/365 = 6.85 \text{ kg}$ ) is diluted by the daily effluent production ( $200 \text{ L/person/day} \times 22.613 \text{ million people} = 4523 \text{ ML}$ ).

As release levels are low, and will be diffused across Australian waters, the notified polymer is not expected to reach ecotoxicologically significant concentrations. The notified polymer is not expected to be readily biodegradable, however bioaccumulation is not expected due to its high molecular weight. In landfill and the aquatic compartment, the notified polymer is expected to associate with the soil matrix and sediments and eventually degrade biotically and abiotically to form water and oxides of carbon, nitrogen and sulphur. 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.