

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in NeoCryl XK-237

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 and Energy.

This Public Report is 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:	www.nicnas.gov.au

**Director
NICNAS**

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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/1511	Reschem Technologies Pty Ltd	Polymer in NeoCryl XK-237	No	≤ 120 tonnes per annum	Component of paints

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 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, 2015) 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 of 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

- Where reuse or recycling are not appropriate, dispose of the notified polymer in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

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 component of paints, 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.

Safety Data Sheet

The SDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the SDS 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 Street
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, polymer constituents, residual monomers/impurities, use details and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

NeoCryl XK-237 (containing the notified polymer at < 50% concentration)

Molecular Weight

Number Average Molecular Weight (Mn) is > 10,000 g/mol

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	Off-white liquid*
Glass Transition Temperature	-13 °C (calculated)
Density	1,050 kg/m ³ at 20 °C*
Water Solubility	Expected to have low water solubility, based on its structure
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use
*For NeoCryl XK-237 (containing the notified polymer at < 50% concentration)	

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	20-50	40-70	70-120	70-120	70-120

Use

The notified polymer will be imported at < 50% concentration and reformulated into paints containing the notified polymer at < 30% concentration for both commercial and “Do It Yourself” (DIY) uses. Application of the paints will be *via* brush, roller and spray.

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. However it has a high molecular weight > 10,000 Da and is expected to have low water solubility, therefore lung overloading may occur if respirable particles are inhaled during spray painting. Provided that proper control measures are employed to reduce the inhalation exposure during this process, the risk to workers posed by exposure to the notified polymer is not considered unreasonable. The risk to DIY consumers during spray application of coatings is considered low, because of the low frequency and duration of exposure. 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. Polymers without significant ionic functionality are generally of low concern to the environment.

The notified polymer will be imported into Australia as a component of aqueous dispersions for reformulation into end-use paints. Any waste produced during the reformulation processes is expected to be disposed of through an approved waste management facility. Release of the notified polymer to the environment in the event of accidental spills or leaks during reformulation, storage and transport is expected to be absorbed on suitable materials and disposed of to landfill in accordance with local government regulations.

The paints will be supplied for both commercial and DIY uses. Application of the paints will be *via* brush, roller and spray. It is expected that spraying operations, will lead to some overspray. This will typically be disposed of to landfill after being collected and cured. The liquid waste from cleaning of professional application equipment is expected to be collected by an approved waste contractor, and disposed of safely. During use, the notified polymer may also be released to the environment as accidental spills. These releases are expected to be collected and disposed of to landfill in accordance with local government regulations. As the worst case scenario, it is assumed that up to 5% of the total annual import volume of 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 over the entire year and there is no removal of the notified polymer during wastewater treatment, the predicted environmental concentration (PEC) is estimated to be 3.4 µg/L [$0.05 \times 120,000 \text{ kg/year} \div 365 \text{ days/year} \div (24.386 \text{ million persons} \times 200 \text{ L/person/day})$]. Thus, the release of the notified polymer is not expected to lead to ecotoxicologically significant concentrations in the aquatic environment.

Most of the notified polymer is expected to share the fate of the articles to which it has been applied, to be disposed of to landfill at the end of their useful lives. A small proportion of the notified polymer may remain as residues in empty containers. These residues are expected to be cured and disposed of to landfill along with the containers in accordance with local government regulations. In landfill, the notified polymer will be present as cured solids and will be neither bioavailable nor mobile. The notified polymer is not expected to bioaccumulate due to its high molecular weight. The notified polymer in landfill and water is expected to eventually degrade via biotic and abiotic processes to form water and oxides of carbon and nitrogen.

Therefore, based on its assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

BIBLIOGRAPHY

SWA (2015) Code of Practice: Spray Painting and Powder Coating, Safe Work Australia, <https://www.safeworkaustralia.gov.au/doc/model-code-practice-spray-painting-and-powder-coating>.