

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in NeoCryl XK-212

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:

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**Director
NICNAS**

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Table of Contents

SUMMARY	2
CONCLUSIONS AND REGULATORY OBLIGATIONS.....	2
ASSESSMENT DETAILS.....	4
1. APPLICANT AND NOTIFICATION DETAILS.....	4
2. IDENTITY OF POLYMER	4
3. PLC CRITERIA JUSTIFICATION	4
4. PHYSICAL AND CHEMICAL PROPERTIES.....	4
5. INTRODUCTION AND USE INFORMATION.....	5
6. HUMAN HEALTH RISK ASSESSMENT.....	5
7. ENVIRONMENTAL RISK ASSESSMENT	5
BIBLIOGRAPHY	6

SUMMARY

The following details will be published in the NICNAS *Chemical Gazette*:

ASSESSMENT REFERENCE	APPLICANTS	CHEMICAL OR TRADE NAME	HAZARDOUS SUBSTANCE	INTRODUCTION VOLUME	USE
PLC/1539	Rust-Oleum Australia P/L Reschem Technologies Pty Ltd	Polymer in NeoCryl XK-212	No	< 300 tonnes per annum	Component of industrial 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

- Water insoluble high molecular weight polymers used in the respirable size range (< 10 µm) have the potential to cause lung overloading. Respiratory protection and engineering controls such as local exhaust ventilation should be used to prevent inhalation exposure if aerosol formation is expected.
- 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

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

- 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;
 - the notified polymer is introduced in a powder form;or
- (2) Under Section 64(2) of the Act; if
 - the function or use of the notified polymer has changed from a component of industrial 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.

Safety Data Sheet

The SDS of the products 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)
Unit 9/1, Jubilee Ave
WARRIEWOOD NSW 2102

Rust-Oleum Australia Pty Ltd (ABN: 86 112 409 926)
Unit 12, 4 Southridge Street
EASTERN CREEK NSW 2766

Exempt Information (Section 75 of the Act)

Data items and details exempt from publication include: chemical name, CAS number, molecular and structural formulae, molecular weight, polymer constituents, residual monomers/impurities and use details.

2. IDENTITY OF POLYMER

Marketing Name(s)

NeoCryl XK-212 (Product containing the notified polymer)

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
Melting Point/Glass Transition Temperature	Not available
Density	1,050 kg/m ³ at 20 °C
Water Solubility	Partially soluble in hot and cold water
Dissociation Constant	Not available, expected to become anionic under environmental conditions
Reactivity	Stable under normal environmental conditions
Degradation Products	Not expected 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	< 50	< 100	< 100	< 200	< 300

Use

The notified polymer will not be manufactured in Australia. It will be imported into Australia by sea in drums, totes and intermediate bulk containers to ports at Sydney, Melbourne, Brisbane, Adelaide or Perth, and transported by road to customer sites. The notified polymer will be imported as a liquid emulsion at a concentration of < 25% and will not be reformulated prior to end-use applications. Products containing the notified polymer (at < 25% concentration) will be applied by roller or brush to wood, plastic, metal or concrete surfaces, and will be available for commercial and industrial use only.

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.

The notified polymer contains structural alerts for corrosion and irritation. The potential for these effects is likely to be limited by the high molecular weight ($M_n > 10,000$ g/mol) of the polymer.

The notified polymer is partially water soluble with high molecular weight and therefore if inhaled at low levels is likely to be readily cleared from the upper respiratory tract through mucociliary action. Small proportions of the notified polymer may reach the lower respiratory tract, but it should still be readily cleared from the lungs unless high levels are inhaled. When high levels of the notified polymer are inhaled, it is likely to be cleared from the lungs, but this may be slow and temporary respiratory impairment is possible. The expected use of PPE and adequate ventilation (or respiratory equipment where there is insufficient ventilation) by workers when handling products containing the notified polymer should reduce inhalation exposure levels and hence lower the risk of temporary lung overloading.

Although not considered in this risk assessment, NICNAS notes that the notified polymer contains residual monomers that are classified as hazardous according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. The notified polymer contains functional groups with the potential to become anionic under environmental conditions (pH 4-9). 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. However, this does not apply to the notified polymer and it is therefore not considered to be an over-chelation hazard to algae.

Most of the notified polymer will be irreversibly incorporated within the coating matrix. Release of the notified polymer to the aquatic environment is not expected during use as residues in import containers are expected to be collected and recycled, or disposed of to landfill. Any accidental release is to be collected using non-combustible absorbent material and disposed of by a licensed waste disposal contractor. When disposed of to landfill, the notified polymer is expected to eventually degrade to form water and oxides of carbon and nitrogen. Some of the notified polymer will be thermally decomposed during the metal recycling process; this will result in the production of water vapour and oxides of carbon and nitrogen.

The notified polymer is reported to be only partially soluble in water. The notified polymer is not expected to cross biological membranes due to its high molecular weight and is therefore not expected to bioaccumulate.

Therefore, based on its assumed low hazard and low expected environmental exposure the notified polymer is not considered to pose an unreasonable risk to the environment.

BIBLIOGRAPHY

Safe Work Australia (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>.