

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in BYK-LP R 23404

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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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/1509	Reschem Technologies Pty Ltd	Polymer in BYK-LP R 23404	No	≤ 30 tonnes per annum	Component of paint

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.
- 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 paint, 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 2149)
Suite 1103, 4 Daydream Street
WARRIEWOOD NSW 2101

Exempt Information (Section 75 of the Act)

Data items and details claimed exempt from publication: chemical name, other names, molecular and structural formulae, molecular weight, spectral data, polymer constituents, residual monomers/impurities and import volume.

2. IDENTITY OF POLYMER

Marketing Name

BYK-LP R 23404 (product containing the notified polymer)

CAS Number

Not assigned

Molecular Weight

Number Average Molecular Weight (Mn) is > 1,000 g/mol

3. PLC CRITERIA JUSTIFICATION

Criterion

Molecular Weight Requirements
Functional Group Equivalent Weight (FGEW) Requirements
Low Charge Density
Approved Elements Only
Stable Under Normal Conditions of Use
Not Water Absorbing
Not a Hazard Substance or Dangerous Good

Criterion met

Yes
Yes
Yes
Yes
Yes
Yes
Yes

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20 °C and 101.3 kPa*	Colourless cloudy liquid
Melting Point/Glass Transition Temperature*	0 °C
Density*	1040 kg/m ³ at 20 °C
Water Solubility	Not determined. Expected to be low based on the high molecular weight.
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

*The above physico-chemical properties refer to the product containing the notified polymer

5. INTRODUCTION AND USE INFORMATION

Maximum Introduction Volume of Notified Chemical (100%) Over Next 5 Years

Year	1	2	3	4	5
Tonnes	≤ 10	≤ 10	≤ 20	≤ 20	≤ 30

Use

The notified polymer will be used as a component of water-based architectural and industrial protective coatings at ≤ 0.3% concentration.

The notified polymer will not be manufactured or reformulated in Australia. It will be imported as a component of finished coatings at ≤ 0.3% concentration. The notifier expects no further reformulation or repackaging will occur in Australia.

The coatings containing the notified polymer at ≤ 0.3% concentration will be used by professionals and DIY users. The coatings will be applied using brush, roller and spray.

Members of the public may come into contact with surfaces coated with coating products containing the notified polymer. However, once the coatings are cured, the notified polymer will be bound into inert matrix and is not expected to be available for exposure.

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.

Although not considered in this risk assessment, NICNAS notes that the notified polymer contains an impurity that is 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. Polymers without significant ionic functionality are generally of low concern to the environment (Boethling & Nabholz, 1997).

The notified polymer will not be manufactured or reformulated in Australia. Release of the notified polymer to the environment during import, repackaging, storage, and transport is expected to be limited to accidental spills or leaks and residue in import packaging. Spills or accidental release of the products containing the notified polymer are expected to be physically contained, absorbed onto inert material, and either reused or disposed of to landfill in accordance with local government regulations.

Application of paints containing the notified polymer will be via brush, roller or spray by both professionals and DIY users. Most of the notified polymer will be irreversibly incorporated within architectural water-based coatings. The main release of the notified polymer during use is expected to be in the form of overspray. Residues from overspray will typically be collected with adsorbents for disposal as solid wastes to landfill in accordance with local government regulations. During use, the notified polymer may also be released to the environment as accidental spills and container residues, these likewise collected with adsorbents for disposal as solid wastes to landfill in accordance with local government regulations. 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. However, some may be incorrectly disposed of.

As a worst case scenario, it is assumed that up to 5% of the coatings containing 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 these releases occur nationwide and equally over the entire year, under the worst case scenario the predicted environmental concentration (PEC) is calculated to be 0.84 µg/L [$0.05 \times 30,000 \text{ kg/year} \div 365 \text{ days/year} \div (24.386 \text{ million persons} \times 200 \text{ L/person/day})$]. Therefore, the release of the notified polymer will not lead to ecotoxicologically significant concentrations in the aquatic environment.

The notified polymer will share the fate of any coated article, which is ultimately expected to be disposed of to landfill. In landfill, the notified polymer will be present as cured solids, which will be neither bioavailable nor mobile, and is expected to eventually degrade to form water and oxides of carbon and nitrogen. The notified polymer is not expected to cross biological membranes due to its high molecular weight. The notifier estimates that < 1% of the notified polymer will remain as residues in empty containers. In the event of recycling of any drum or container, wash from any cleaning procedure may enter an on-site sewage site where it will be treated before disposal to landfill.

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

BIBLIOGRAPHY

Boethling, RS & Nabholz VJ (1997) Chapter 10 Environmental Assessment of Polymers under the U.S. Toxic Substances Control Act. In: Hamilton, JD Sutcliffe R ed. Ecological Assessment of Polymers Strategies for Product Stewardship and Regulatory Programs, 1st ed. New York, Van Nostrand Reinhold, pp 187-234.