File No PLC/1307

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in BYK-430

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.

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

January 2015

Table of Contents

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/1307	ResChem Technologies Pty. Ltd.	Polymer in BYK-430	No	≤ 3.5 tonnes per annum	Component of industrial and automotive 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.

- If aerosols are formed during the use of the notified polymer, engineering controls and respiratory protection should be used to prevent inhalation exposure.

- A copy of the (M)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 industrial and automotive coatings, or is likely to change significantly;
- the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
- 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 (M)SDS of the notified polymer was provided by the applicant. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants
ResChem Technologies Pty. Ltd.
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, other names, molecular and structural formulae, molecular weight, spectral data, polymer constituents, residual monomers/impurities and manufacture/import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)
BYK-430 (product containing the notified polymer)

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

3. PLC CRITERIA JUSTIFICATION

Criterion	*Criterion met*
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	Liquid (light yellow in colour)
Melting Point/Glass Transition Temp	> 50 °C
Density	0.98 kg/m^3 at 20 °C
Water Solubility	Immiscible/poorly water soluble (provided by the notifier)
Reactivity	Not reactive under normal 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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	0.5–1	1–2	2–2.5	2.5–3	3–3.5

Use
The notified polymer will not be manufactured in Australia and will be imported into Australia in sealed steel 25 kg or 200 kg drums in reformulated pigment concentrates, paints or coatings. The notified polymer may be reformulated in Australia.

The notified polymer will be used in: solvent-based and solvent-free marine and protective coatings; industrial coatings; wood coatings; and automotive coatings. Less than 5% of the notified polymer will be used in solvent-based architectural coatings. The notified polymer is only intended for industrial/professional use.

Paint/coating reformulation
Where reformulation of the notified polymer occurs in Australian, dermal and ocular exposure to the notified polymer (<30 %) in BYK-430 may occur when manually weighing, connecting and disconnecting pumps, charging the blending vessels and when taking samples from the blending vessel by laboratory technicians. Similarly, exposure may also occur during routine cleaning and maintenance of equipment, and cleaning up of spills or leaks. Inhalation exposure to vapours and aerosols is not likely during blending due to the low vapour pressure of the notified polymer.

Where potential exposure may occur, the use of personal protective equipment such as coveralls, safety glasses, and gloves used by workers will minimise exposure. Local exhaust ventilation will be employed in areas where weighing and charging of the blending vessels occur to limit inhalation exposure to the notified polymer.

End use
Products containing the notified polymer will be applied by experienced workers using spray equipment in ventilated spray booths. Air respirators will be worn by workers, where necessary. About 10% of the notified polymer will be applied by brush or roller. After application, the paint containing the notified polymer is cured into an inert matrix and the polymer is thus unavailable to 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 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. These are not present in the notified polymer as introduced above the cut off concentrations for classification.

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 not be manufactured in Australia; therefore, there will be no release of the notified polymer to the environment from this activities. Environmental release during importation, transport and distribution may occur as a result of accidental spills. In the event of a spill, the notified chemical is expected to be contained and collected with an inert absorbent material and disposed of in accordance with local regulations.

The notified polymer may be reformulated in Australia. During reformulation and repacking of paints and coatings, the notified polymer may be released to the environment as spills and container residues. These releases are expected to be collected, cured and sent to landfill.

During industrial use, products containing the notified polymer will be applied by spray, brush or roller. It is estimated by the notifier that the majority of the coatings end-use will be applied by spray application whereas less than 10% of the coatings will be applied by brush and roller.

It is expected that approximately 20–30% of the coating product will be in the form of overspray during spraying operations. The wastes from overspray are anticipated to be intercepted by spray booth filters, and disposed of to landfill or according to state, territory and local regulations. It is estimated that up to 1% of the total import volume of the notified polymer may be incorrectly disposed of to the sewer by means of releasing washings from cleaning of application equipment. Assuming the releases occurs nationwide and equally over the entire year, this is unlikely to lead to ecotoxicologically relevant concentrations of the notified polymer in the aquatic environment. During reformulation, it is estimated that < 1% of the notified polymer is likely to be spilt and be disposed of to landfill. The empty containers containing the residues of the product containing the notified polymer (< 1% of the total import volume) are expected to be disposed of to landfill.

Discarded end-use articles containing the notified polymer in the cured coating film will be disposed of to landfill, or recycled for metal reclamation which will entail thermal decomposition of the coating to form oxides of carbon, nitrogen and water vapour. In landfill, the notified polymer will be present as a cured solid film and will be neither bioavailable nor mobile. If the notified polymer is released to the aquatic environment, the notified polymer is not expected to bioaccumulate due to its high molecular weight. It is expected to eventually degrade in the environment to form oxides of carbon and nitrogen, and water vapour. 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.

BIBLIOGRAPHY

Safe Work Australia (2015) Code of Practice: Spray Painting and Powder Coating, Safe Work Australia, http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/spray-painting-and-powder-coating.