File No PLC/1461

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in Resydrol AN 6618w/70BG

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

December 2017

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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/1461	Allnex Resins Australia Pty Ltd	Polymer in Resydrol AN 6618w/70BG	No	≤ 120 tonnes per annum	Component of industrial metal surface 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 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;
- coating products containing the notified polymer are intended to be available to the public.

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 metal surface 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 notified polymer and 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
Allnex Resins Australia Pty Ltd (ABN: 25 000 045 572)
49 – 61 Stephen Road,
BOTANY NSW 2019

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 spectral data.

2. IDENTITY OF POLYMER

Marketing Names
Resydrol AN 6618w/70BG
(Product containing the notified polymer at < 75% concentration in solvent)

Resydrol AN 6618w/42WA
(Product containing the notified polymer at < 75% concentration in solvent)

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

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	Yellow liquid*
Melting Point/Glass Transition Temperature	Not determined. The notified polymer will not be isolated from the manufactured dispersions.
Density	1090 kg/m^3 at 20 °C (resin mixture in delivery form).
Water Solubility	The notified polymer is soluble as reported in the SDS.
Dissociation Constant	Not determined. The notified polymer has dissociable functionalities (potentially cationic moieties) and is expected to be ionised under normal environmental conditions (pH 4 – 9).
Reactivity	Expected to be stable under normal environmental conditions.
Degradation Products	None expected under normal conditions of use.

* Properties of Resydrol AN 6618w/70BG or Resydrol AN 6618w/42WA containing the notified polymer at concentration < 75% in solvent.

The notified polymer is a polyester with functional hydroxyl groups, which may react with other materials, such as melamine-formaldehyde resins and isocyanates, to form cross-linked large polymers.

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	120	120	120	120	120

Use
The notified polymer will not be manufactured in Australia. It will be imported in Resydrol AN 6618w/70BG or Resydrol AN 6618w/42WA at a concentration of < 75% in solvent and reformulated into industrial coating products at concentration of < 35%.

The notified polymer will be used as a component of industrial metal coatings including primers or topcoats. The notified polymer may also be used as an ingredient in 2-component coating products. The originally manufactured product (Resydrol AN 6618w/70BG or Resydrol AN 6618w/42WA) containing the notified polymer can be applied directly to metal surfaces or be reformulated into other coating products. The application method for the products containing the notified polymer will be roll coating (coil coating) at industrial facilities outside Australia. No spray applications of the coatings are expected.

Products containing the notified polymer will not be made available to the public.

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.

It is noted, that the notified polymer contains ethanol, 2-(dimethylamino)- (CAS No. 108-01-0) as a counter ion. This chemical is also known as 2-dimethylaminoethanol and *N,N*-dimethylethanolamine. Ethanol, 2-(dimethylamino)- is listed on the Safe Work Australia Hazardous Chemicals Information System (HCIS) with the following hazard information:

Flammable liquid (Category 3)	(H226: Flammable liquid and vapour)
Acute toxicity (Category 4)	(H302: Harmful if swallowed)
Acute toxicity (Category 4)	(H312: Harmful in contact with skin)
Acute toxicity (Category 4)	(H332: Harmful if inhaled)
Skin sensitisation (Category 1)	(H314: Causes severe skin burns and eye damage)
Skin corrosion (Category 1)	(H317: May cause an allergic skin reaction)

Ethanol, 2-(dimethylamino)- may be released during drying processes; however the drying processes are not expected to occur in Australia.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. The notified polymer is potentially cationic under environmental conditions, and under a worst-case scenario is potentially moderately toxic to fish (US EPA, 2017 and Boethling & Nabholz, 1997). However, most of the notified polymer will be irreversibly incorporated within metal coatings. Release of the notified polymer to the aquatic environment is not expected during manufacture or use of coatings as residues from cleaning of

manufacturing and application equipment are expected to be collected and disposed of predominantly to landfill. Some of the coated metals may also be recycled. The notified polymer is expected to eventually degrade to form water and oxides of carbon and nitrogen via biotic and abiotic processes in landfill or within the thermal process involved in metal recycling. Therefore, based on the predicted moderate hazard of the notified polymer and its reported use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

BIBLIOGRAPHY

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

US EPA (2017) Technical Overview of Ecological Risk Assessment - Analysis Phase: Ecological Effects Characterization. United States Environmental Protection Agency, https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/technical-overview-ecological-risk-assessment-0 (Accessed on 07 December 2017)