File No PLC/1401

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer 2 in DISPERBYK-2010

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/1401	ResChem Technologies Pty. Ltd.	Polymer 2 in DISPERBYK-2010	No	≤ 24 tonnes per annum	Component of paints and 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.

- 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.

Storage

- The following precautions should be taken by workers regarding storage of the notified polymer:
  - Store in a segregated and approved area.
  - Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (oxidising substances, strong acids, strong bases).

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 a component of paints and 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 were 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, other names, molecular and structural formulae, molecular weight, polymer constituents, residual monomers/impurities, and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)
Polymer 2 in DISPERBYK-2010

CAS Number
Unassigned

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	Beige liquid suspension*
Melting Point/Glass Transition Temp	No data available
Density	1,070 kg/m^3 at 20 °C
Water Solubility	Expected to be water dispersible based on the presence of hydrophilic moieties in the chemical structure.
Dissociation Constant	The notified polymer has anionic functionalities and is expected to be ionised in the environmental pH range (4–9).
Particle Size	Not applicable
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

* Refers to the polymer in solution. The notified polymer will not be isolated from the solvent in which it is prepared.

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	1–4	5–9	10–14	15–19	20–24

Use
The notified polymer will be used as a wetting and dispersing additive for aqueous coating systems and pigment concentrates. The notified polymer will not be manufactured in Australia. It will be imported into Australia as a component of DISPERBYK-2010 in sealed steel 25 kg or 200 kg drums or in reformulated pigment concentrates, paints or coatings. Application of the notified polymer to surfaces will be by brush, roller and spray. The applications are considered trade-based (i.e. professional painters and not the general 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.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. Anionic polymers 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 is unlikely to apply to the notified polymer.

The notified polymer will be imported into Australia as a component of reformulated pigment concentrates, paints and coatings. 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 waste containers. These releases are expected to be collected with absorbent materials and disposed of to landfill in accordance with local government regulations.

During use, coatings containing the notified polymer are expected to be applied by brush, roller and spray techniques. Most of the notified polymer will be irreversibly incorporated within the coating of the exterior of various substrates upon curing. The notifier estimated that approximately 20–30% of the coating formulation will form overspray which will be collected on kraft paper or newspaper and disposed of to landfill. 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. Used brushes and rollers are expected to be disposed of to landfill.

Under the worst-case scenario, it is assumed by the notifier that 1% of the notified polymer may enter the sewers as a result of equipment rinsing used to apply the coating formulations. It is estimated that the resultant predicted environmental concentrations in sewage effluent on a nationwide basis over 260 working days per year is 0.20 µg/L, which is well below the EC_{50} for algae of the most toxic anionic polymers (EC_{50} >1 mg/L).

The notified polymer will share the fate of the coated article, which is ultimately expected to be disposed of to landfill or recycled during metal reclamation. In landfill, the notified polymer will be present as cured solids which will be neither bioavailable nor mobile. Furthermore, based on its high molecular weight, the notified polymer is not expected to cross biological membranes, and is not expected to bioaccumulate. In landfill and during metal reclamation, the notified chemical is expected to degrade via biotic and abiotic processes to form oxides of carbon and nitrogen, and water vapour.

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

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.