File No PLC/818

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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Rhodasol F106

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Department of Health and Ageing, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Department of the Environment, Water, Heritage and the Arts.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at our NICNAS office by appointment only at 334-336 Illawarra Road, Marrickville NSW 2204.

This Full Public Report is also 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

TABLE OF CONTENTS

FULL PUBLIC REPORT

Polymer in Rhodasol F106

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Nuplex Industries (Aust) Pty Ltd (ABN 25 000 045 572)
49 – 61 Stephen Road
BOTANY NSW 2019

NOTIFICATION CATEGORY
Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)
Data items and details claimed exempt from publication:
Chemical Name, Other Names, CAS Number, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details, Manufacture Volume.

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Rhodasol F106

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) > 10,000 Da.

REACTIVE FUNCTIONAL GROUPS
The notified polymer may contain some reactive functional groups. However, these are expected to be at low concentrations and therefore the notified polymer is assumed to meet the functional group equivalent weight (FGEW) requirements.

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

Properties provided for the notified polymer in the product Rhodasol F106.

Appearance at 20°C and 101.3 kPa:	Translucent green-yellow liquid
Melting Point	Not determined
Boiling Point	100ºC
Density	1,040 kg/m^3
Water Solubility	Fully miscible with water, but considered to have very low water solubility based on its structure. It will be manufactured and used in an aqueous dispersion.

Dissociation Constant	Contains acidic functional groups which are predicted to dissociate under normal environmental conditions.
Reactivity	Contains functional groups that may slowly hydrolyse 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	< 100	< 100	< 100	< 100	< 100

Use
The notified polymer will be used (up to 30%) as a component of surface coatings.

Mode of Introduction
The notified polymer will be manufactured for use in Australia at Nuplex Industries, Botany NSW as an aqueous dispersion (at < 40%).

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation
No toxicological data were submitted. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

Occupational Health and Safety Risk Assessment
Dermal and ocular exposure to the notified polymer may occur during manufacture and reformulation in processes such as charging of reaction vessels, connection and disconnection of hoses to production or packaging equipment, sampling for quality control and cleaning of equipment. However, exposure during reformulation is expected to be limited because of the fully automated processes, and the engineering controls and personal protective equipment (PPE) such as face masks or safety glasses, gloves, overalls and boots worn by workers.

Inhalation exposure is not expected during manufacture and reformulation given the use of automated, closed systems under vacuum. The health effects of inhalation exposure to the notified polymer are unknown. However, the notifier states that inhalation exposure during reformulation will be minimised by enclosed, automated systems, and personal protective equipment (PPE) such as a full face respirator.

Tradesmen will be exposed to the notified polymer (≤ 30%) through dermal, inhalation and ocular routes during application of surface coating products. The product containing the notified polymer is classified as irritating to the eye, respiratory system and skin (R36/37/38) according to the *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(2004)] due to the presence of other hazardous components. Therefore, personal protective equipment (PPE) such as face mask, impervious gloves, overalls and boots are expected to be worn to prevent exposure to the product during handling and use to minimise the risk presented by the hazardous components. The greatest potential for exposure to the notified polymer is expected to be inhalation of aerosols generated during spray application.

After application and once dried, the coating containing the notified polymer is cured into an inert matrix and the polymer is hence unavailable to exposure.

Although exposure to the notified polymer could occur during certain processes during manufacture, reformulation and spray application by professional tradesmen, the risk to workers is not considered to be unacceptable due to the assumed low hazard of the notified polymer.

Public Health Risk Assessment
The notifier estimates up to 30% of products containing the notified polymer (≤ 30%) will be sold to do-it-yourself (DIY) users. Brush and roller application are thought to be more common and spray application less common among DIY users. However, the use of respiratory protection during application is also thought to be less frequent. Given the hazards posed by other components of the surface coating product containing the notified polymer as described above for professional tradesmen, the use of a respirator, gloves, safety glasses

and overalls should be used by DIY users to minimise exposure.

Although DIY users will be exposed to the notified polymer during use of surface coating products, the risk to public health is not considered to be unacceptable due to the assumed low hazard of the notified polymer.

7. ENVIRONMENTAL IMPLICATIONS

Hazard Characterisation
No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

Environmental Risk Assessment
The notified polymer is not expected to become released into the environment when it is used as proposed, nor cross biological membranes, because of its very low water solubility and high molecular weight, and entrapment in cured coatings. A small proportion (2%) is expected to be disposed of by incineration, as trade waste from equipment cleaning during manufacture and reformulation. Larger amounts will be disposed of to landfill, in the form of cured coatings from collection of overspray (estimated as 30%) and aqueous dispersions from container residues. Up to 5% of the notified polymer may be subjected to sewage treatment, following washing of containers, brushes and rollers, and would be expected to partition to sludge, which would subsequently be landfilled or used as soil amendment. Cured coatings may be sent to landfill or incinerated when coated articles are disposed of at the end of their useful lives. The notified polymer would be immobile in landfill or sludge-amended soils and slowly degrade, and would be destroyed by incineration. Therefore, it will not pose a risk to the environment when it is used as proposed.

8. CONCLUSIONS AND RECOMMENDATIONS

Human health risk assessment
Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unacceptable risk to the health of workers.

When used in the proposed manner, the notified polymer is not considered to pose an unacceptable risk to public health.

Environmental risk assessment
Based on the reported use pattern, the notified polymer is not considered to pose a risk to the environment.

Recommendations

CONTROL MEASURES
Occupational Health and Safety

- Employers should implement the following precautionary measures during reformulation processes where aerosols may be generated to minimise inhalation exposure of workers:
  - Local exhaust ventilation should be used.

- Employers should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer during applications where aerosols may be generated:
  - Respiratory protection should be available to workers.

  Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

- Spray application should be carried out in accordance with the *National Guidance Material for Spray Painting* [NOHSC (1999b)].

- A copy of the MSDS should be easily accessible to employees.

- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(2004)],

workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

Disposal

- The notified polymer should be disposed of by landfill.

Storage

- Store in a cool dry place away from sources of heat.
- Store away from oxidising agents, strong acids and strong bases.

Emergency procedures

- Spills and/or accidental release of the notified polymer should be handled by containment, collection and subsequent safe disposal.

Regulatory Obligations

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 surface coating products, or is likely to change significantly;
  - the amount of notified polymer being introduced has increased; or is likely to increase, significantly;
  - the method of manufacture of the notified polymer in Australia has changed, or is likely to change, in a way that may result in an increased risk of an adverse effect of the notified polymer on occupational health and safety, public health, or the environment;
  - additional information has become available to the person as to an adverse effect of the chemical 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 MSDS of products containing the notified polymer provided by the notifier were reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.