File No PLC/851

October 2009

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in PDS1010

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

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1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Chemetall (Australasia) Pty Ltd (ABN 25 074 869 015)
17 Turbo Drive Bayswater North VIC 3153

NOTIFICATION CATEGORY
Polymer of Low Concern

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 Import Volume.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
Not Known

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
PDS1010 (contains the notified polymer at concentration of < 30%)

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

REACTIVE FUNCTIONAL GROUPS
The notified polymer contains a high concern functional group, however as the molecular weight is > 10,000 Da the FGEW requirements are considered to be met.

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:	Pale yellow solid
Melting Point/Glass Transition Temp	131°C
Density	1050 kg/m^3

Water Solubility	5.4 mg/L. Tested at a loading rate of 200 mg/L. The dissolved part is presumed to be the low molecular fraction of the notified polymer. The notified polymer consists of relatively hydrophilic constituents.
Dissociation Constant	Not determined. The pKa is predicted to be around 4 given the functional groups.
Particle Size	Diameter = 0.15-0.58 μm. Measured using laser diffraction particle size analyser.
Reactivity	Stable under normal environmental conditions. The notified polymer contains some hydrolysable functionalities. However, hydrolysis is expected to be low at the environmental pH range of 4-9.
Degradation Products	None under normal conditions of use. On thermal decomposition (pyrolysis) releases oxides of carbon and nitrogen.

5. INTRODUCTION AND USE INFORMATION

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Use
The notified polymer will be initially introduced as a component of finished industrial coatings (at < 20%).

The notified polymer will not be manufactured in Australia.

At a later date the notified polymer will be imported as a mixture (at < 30%), and will be reformulated in an enclosed system into water-based coatings for industrial use as a surface coating for solid metal and galvanised surfaces. The final concentration of the notified polymer in the coating products will be < 20% and notified polymer will be used at concentrations less than 1% in the dip tanks.

At the end use site the imported coating or reformulated coating will be transferred from either bulk storage or drums via sealed lines to the dip tanks (< 1% notified polymer) and mixed with other components. Application of the coatings containing the notified polymer will be by electrolytic deposition followed drying/curing in an enclosed chamber.

Mode of Introduction and Disposal
The finished coatings containing the notified polymer (at < 20%) will be introduced in 200 L steel containers. The solutions containing notified polymer (at < 30%) will be introduced in 200 L or 18 L steel containers.

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 may potentially occur during reformulation and application of coatings containing the notified polymer. However, exposure to significant amounts of the notified polymer is limited because of the fully automated processes, and the engineering controls and personal protective equipment worn by workers.

Although exposure to the notified polymer could occur during disconnecting and connecting pipes and during cleaning and maintenance of equipment, the risk to workers is not considered to be unacceptable due to the intrinsic low hazard of the notified polymer.

Public Health Risk Assessment
The notified polymer is intended only for use in industry and as such public exposure to the notified chemical is not expected.

As there will be no exposure of the public to the notified polymer (or products containing the notified polymer) the risk to the public from exposure to the notified polymer is considered to be negligible. Where exposure

occurs, the low hazard of the polymer translates to low risk.

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 majority of the notified polymer will be applied to metal substrates and share the fate. This will most likely be thermal decomposition into water and oxides of carbon and nitrogen during the metal recycling of the coated articles. The minority of the notified polymer will be end up in landfill as wastes from spills, cleaning and leaks during reformulation and end use, and residues in containers.

The notified polymer is not expected to be readily biodegradable. Potential for bioaccumulation is not expected given the high molecular weight. The notified polymer that ends up in landfill will undergo slow degradation processes via biotic and abiotic pathways, forming water, oxides of carbon and nitrogen.

Based on the above, the notified polymer is not expected to pose an unacceptable risk to the environment from the proposed use pattern.

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

- 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 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 to landfill.

Emergency procedures

- Spills and/or accidental release of the notified polymer should be handled by physical 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 a component of industrial 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 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 the product containing the notified polymer provided by the notifier was reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.