File No PLC/866

September 2009

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Daotan TW 5461

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)
Cytec Australia Holdings Pty Limited (ABN 45 081 148 629)
Suite 1, Level 1, 21 Solent Circuit,
Baulkham Hills, NSW 2153

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 and Use Details.

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)
No variation to the schedule of data requirements is claimed.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
None

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Daotan TW 5461

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) > 100,000 Da

REACTIVE FUNCTIONAL GROUPS
The notified polymer contains only low concern functional groups.

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:	Whitish liquid (< 50% dispersion in water)
Melting Point/Glass Transition Temp	Imported as a dispersion in water
Density	~1070 kg/m^3 at 20°C (< 50% dispersion in water)
Water Solubility	< 0.05 g/L at 20°C. Peak transmission of visible light (620 nm) occurred at this concentration.
Reactivity	Stable 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	< 50	50-80	50-80	50-80	50-80

Use
The notified polymer will be used as a component of coatings for concrete, metal and wood.

The coatings will contain the notified polymer at concentrations up to 26% and the majority will be used for outdoor concrete slabs.

The notified polymer will be reformulated in a closed mixing system with automated transfer lines and local exhaust ventilation. The reformulated product (≤ 26% notified polymer) will be filled into 4 or 20 L steel pails, prior to being transported to coating companies for use.

The coatings will be applied using typical spray or roller techniques.

Mode of Introduction and Disposal
The notified polymer will not be manufactured within Australia. The notified polymer will be imported into Australia as a < 50% dispersion in water in 200 kg drums.

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, ocular and inhalation exposure to the notified polymer is possible from drips, spills and splashes during reformulation. The use of a closed mixing system and local exhaust ventilation is expected to reduce exposure. Appropriate Personal Protective Equipment (PPE) including impervious gloves, safety glasses and coveralls to minimise dermal and ocular exposure is also expected to be used by workers.

During spray application of coatings containing the notified polymer the greatest exposure is expected to be from inhalation. The notified polymer is dispersible in water and if inhaled should be cleared from the respiratory tract. Workers are expected to wear appropriate PPE and a respirator where ventilation is inadequate, to minimise exposure.

After application and once dried, the notified polymer will be incorporated into a polymer matrix and hence not bioavailable.

Although exposure to the notified polymer could occur during reformulation processes and application of coatings containing the notified polymer, the risk to workers is not considered unacceptable due to its assumed low hazard.

Public Health Risk Assessment
The notified polymer will not be sold to the public. There is potential for dermal exposure by the public to coatings that contain the notified polymer. The notified polymer will be trapped within the surface coatings and exposure is expected to be negligible and therefore, the risk to public health is also expected to be negligible.

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 may be released in small amounts (< 3%) during formulation as spills, container residues and waste material. These releases will be collected for disposal to landfill or by thermal decomposition, with waste material reduced to an insoluble polymeric mass before landfill disposal. Similarly, small amounts (< 2%) will be released as container residues and equipment washings during use, for disposal to landfill. As the main use will entail outdoor application to large concrete slabs, there will be minimal requirements for disposal of overspray. Overspray in these outdoor settings would be expected to associate with soil and vegetation as an inert solid that will slowly degrade *in situ*. Discarded material containing the notified polymer within the cured coating will be disposed of to landfill. Metal articles may be recycled for metals reclamation which will entail thermal decomposition of the coating. In landfill, the notified polymer is expected to degrade slowly *in situ*. Therefore, the notified polymer is not expected to 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

- 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.

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

- 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 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 coatings for concrete, metal and wood, 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 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.