File No PLC/860

August 2009

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Acrotex

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)
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 and Manufacture Volume.

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)
Polymer in Acrotex, will be marketed under the following trade names Acrotex 1976, Acrotex 424496, Acrotex B539A and Acrotex VC1.

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:	Transparent and colourless, synthesised as an aqueous dispersion.
Melting Point/Glass Transition Temp	26°C
Density	1163 kg/m^3
Water Solubility	The notified polymer is manufactured *in situ* in water as a solid material in aqueous dispersion. While fully miscible with water, it is considered to be essentially insoluble because of its high molecular weight.
Dissociation Constant	The notified polymer is likely to have an approximate pKa of 5 based on carboxylic acid functionality, but is not expected to dissociate in the environment because of limited aqueous solubility.
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	1,000-3,000	1,000-3,000	1,000-3,000	1,000-3,000	1,000-3,000

Use
The notified polymer will be used as a component of coatings for paper and cardboard.

The notified polymer will be manufactured within Australia in a 20,000 L sealed reactor. After polymerisation is complete samples will be taken for quality control purposes. The notified polymer will be pumped into intermediate bulk storage tanks (40-80 tonnes), 1000 L intermediate bulk containers of 200 L drums. The notified polymer will then be transferred to the reformulation site where it will be blended with other ingredients to form the final coatings. The reformulation process will be conducted in a closed environment using automated processes and dedicated lines and pumps. The coatings containing the notified polymer will be applied and then cured onto paper and cardboard using automated processes. Paper and cardboard that has been coated with products containing the notified polymer will be used for various types of printed media and a wide range of packaging.

Mode of Introduction and Disposal
The notified polymer will be manufactured within Australia by Nuplex Industries (Aust) Pty Ltd at 7 Industrial Avenue, Wacol, QLD 4076.

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 by workers to the notified polymer may occur during the manufacture, reformulation and end use of the notified polymer. Exposure is expected to be minimised through the use of largely automated processes and the use of personal protective equipment.

Workers involved in the printing industry may also be dermally exposed to the notified polymer on the surface of cardboard and paper products. Exposure is expected to be negligible as the notified polymer will be cured into an inert matrix and will not be bioavailable.

Although exposure to the notified polymer could occur, the risk to workers is considered to be low due to the intrinsic low hazard of the notified polymer.

Public Health Risk Assessment
The notified polymer will not be sold to the public. There is potential for dermal exposure by the public to surface coatings on printed media and packaging that contain the notified polymer. The notified polymer in the surface coatings will be cured into an inert matrix and will not be bioavailable. Therefore, the risk to public

health is 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 is not expected to be released during manufacture, as fugitive vapours are destroyed by thermal decomposition. Aqueous waste streams from production and packaging will be treated on-site, with flocculated waste consigned to landfill. Used paper and cardboard and off-cuts will be similarly disposed of to landfill, where the notified polymer is expected to remain immobile and slowly degrade. If paper and cardboard is recycled, the notified polymer is expected to partition to sludge following separation from the fibre and be consigned to landfill. These practices, together with the very low water solubility of the notified polymer, will ensure minimal aquatic exposure. Therefore, the notified polymer is not considered to pose a risk to the environment.

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 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 paper and cardboard, 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.