File No PLC/814

April 2009

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Hetron FR 1540 Resin

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:

Street Address:	334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888.
Website:	www.nicnas.gov.au

Director
NICNAS

TABLE OF CONTENTS

FULL PUBLIC REPORT

Polymer in Hetron FR 1540 Resin

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Ashland Pacific Pty Ltd (ABN: 47 000 075 641) of 5-7 Maria Street, Laverton, North Victoria 3026

and

Nuplex Industries Australia Pty Ltd (ABN: 25 000 045 572) of 49-61 Stephens 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/Import 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 Hetron FR 1540 Resin

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) >1000 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:	Liquid with pungent odour (Hetron FR 1540 Resin)
Melting Point/Glass Transition Temp	Not determined. Polymer not isolated from solution.
Density	1450 kg/m^3 at 20 °C (Hetron FR 1540 Resin)
Water Solubility	< 1 g/L in a visual test. A low water solubility is expected based on the mainly hydrophobic structure of the notified polymer.
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use. The notified polymer contains hydrolysable functions. However, hydrolysis is unlikely to occur in the environmental pH range of 4 – 9.

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	<60	<60	<60	<60	<60

Use
The polymer in Hetron FR 1540 will be used as the active retardant species in the formulation of fire retardant coatings.

Hetron FR 1540 and the formulated coating product is transferred to and from the mixing vessels using mechanical pumps and dedicated hoses. Trained operators performing the transfer are provided with a full suite of personal protective equipment (PPE) including overalls, gloves, boots and safety glasses. Mixing vessels containing the notified polymer along with other raw materials are equipped with vapour extraction which exhaust through carbon filters to the atmosphere.

Quality control staff are required to sample the formulated product containing the notified polymer to ensure it meets specification. Sampling is conducted using purpose-built valves which allow a controlled volume of product to be collected safely. Trained operators taking samples wear PPE.

Formulated coatings products composed of the notified polymer will be supplied to manufacturers of industrial building materials. At the production site the formulated product is pumped to holding tanks and subsequently blended with other ingredients to produce the sheet coating; a polymer/glass fibre matrix. The coating is applied as a film to the substrate using a fully automated doctor blade operation. PPE for trained workers involved in the transfer, blending and application of the coating containing the notified product is stated to be mandatory.

Mode of Introduction and Disposal
The notified polymer will be imported by Nuplex Industries (Aust) Pty Ltd as a polymer dispersion (concentration < 80%) in steel drums and reformulated. The final coating products will contain the notified polymer at up to 60% concentration.

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.

However, the polymer contains a residual monomer that is classified as possibly carcinogenic to humans (Group 2B) by the International Agency for Research on Cancer (IARC). This residual monomer is present in Hetron FR 1540 Resin and the formulating coatings at a concentration of < 2 %.

Occupational Health and Safety Risk Assessment
Dermal and ocular exposure may potentially occur during certain processes involving the notified polymer.

However, exposure to significant amounts of the notified polymer is limited because of the mostly automated processes, the engineering controls and personal protective equipment worn by workers.

Overall, the OHS risk presented by the notified polymer is considered to be acceptable, based on the minimal exposure to workers.

Public Health Risk Assessment
The notified polymer is intended only for use in industry and as such public exposure to the notified polymer is not expected. As there will be no exposure, the risk to the public posed by the notified polymer is considered 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
Release of the notified polymer to the aquatic environment is not expected based on the reported use pattern. Some residues in the imported packaging may be incinerated during the drum recycling processes into small molecules of water, hydrogen bromide and oxides of carbon. Most of the notified polymer will end up with landfill. In landfill, the notified polymer is expected to partition into sediment, and no leaching is predicted due to its insolubility in water. With time, the notified polymer is expected to undergo slow biotic and abiotic degradation processes forming small molecules of water, hydrogen bromide and oxides of carbon.
Overall, the notified polymer is not expected to pose an unacceptable risk to the environment based on its reported use pattern and inert, non-hazardous properties.

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

REGULATORY CONTROLS
Material Safety Data Sheet

- The MSDS provided by the notifier should be amended to include information on the concern for carcinogenicity (i.e.. possibly carcinogenic to humans (Group 2B)) for the residual monomer.
- The MSDS for any formulated products should include information on the concern for carcinogenicity (i.e.. possibly carcinogenic to humans (Group 2B)) for the residual monomer.

CONTROL MEASURES

- Based on the presence of a residual monomer that is possibly carcinogenic, employers should implement the following engineering controls to minimise occupational exposure to the notified polymer as introduced and in the formulated coating product:
  - Prevention of leaks and spills
  - Automated processes

- Based on the presence of a residual monomer that is possibly carcinogenic, employers should implement the following safe work practices to minimise occupational exposure during handling of the notified polymer as introduced and in the formulated coating product:
  - Avoid skin contact
  - Workers must have adequate education and training before handling the notified chemical
  - Avoid spills and splashing during use.
  - After exposure, any contaminated PPE should be thoroughly cleaned before re-use.

- Based on the presence of a residual monomer that is possibly carcinogenic, employers should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer as introduced and in the formulated coating product:
  - Impervious gloves and coveralls

  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 or be incinerated during the container recycling processes.

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 fire retardant industrial 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 resin 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.