File No: PLC/721

18 October 2007

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in CARBOSET CR-728

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 and Water Resources.

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 CARBOSET CR-728

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Lubrizol International, Inc.
28 River Street
SILVERWATER NSW 2128

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, and Site of Manufacture/Reformulation, Purity

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)
Variation to the schedule of data requirements is claimed as follows:
Water solubility, Melting Point and Density.

NOTIFICATION IN OTHER COUNTRIES
None.
Early Introduction Permit issued.

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Polymer in CARBOSET CR-728

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) >10,000 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 White opaque liquid

The following properties were not determined because the notified polymer is formed as an aqueous emulsion and is never separated from the aqueous phase:
Melting Point/Glass Transition Temperature, Density, Water Solubility, Dissociation Constant, Particle Size, Reactivity, Degradation Products.

5. INTRODUCTION AND USE INFORMATION

Maximum Introduction Volume of Notified Chemical (100%) Over Next 5 Years

Year	1	2	3	4	5
Tonnes	10-100	10-100	10-100	100-200	100-200

Use
The notified polymer will be used in varnishes and paints (< 30% notified polymer) for domestic applications (wood coatings).

Mode of Introduction
Manufacturing of the notified polymer will not occur in Australia. The polymer will imported as an emulsion in water (41 – 43 % polymer), transferred to 55-gallon drums or less likely totes, which are sealed and shipped to Australia for use. Once in Australia the drums will be transferred to a truck and transported by road to customers or a warehouse where it will be stored until it is delivered to the customer.

Processing and reformulation will be undertaken by customers in Australia. Typical operations will involve pumping the notified polymer emulsion directly from the drum into a blend tank. In the blend tank, the notified polymer will be mixed with other additives such as, co-solvents, surfactants, plasticizers, defoamers and thickeners. These blending operations will typically occur in an automatic or semi-automatic closed system. The finished product (varnishes and paints) containing the notified polymer at up to 30 % will be applied to wood furniture and other wood substrates in the home such as, doors, window frames, trimmings and sidings by brush, roller or spray.

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation
No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore considered to have insignificant health impact. However, it is of high molecular weight (>10,000 Da) and water insoluble. Polymers of high molecular weight that are not soluble in water have the potential to pose a risk of irreversible lung damage due to lung overloading.

Occupational Health and Safety Risk Assessment

Dermal, ocular and inhalation exposure may occur during certain processes, such as, transfer of the notified polymer from the drum to the blend tank, blending and transfer of the final product containing the notified polymer to containers. Personal protective equipment, including overalls, gloves and protective footwear should be worn during these processes to minimise exposure. Blending will take place in a closed automatic or semi-automatic system in a well-ventilated area. Therefore, inhalation exposure is expected to be minimal. If mists or vapours are generated, a full-face respirator should also be worn to reduce inhalation exposure.

Dermal, inhalation and ocular exposure to the final product containing < 30% of the notified polymer may occur during spray, roller and brush application. Inhalation exposure to aerosols is significant during spray application. Therefore, workers should have adequate respiratory protection to prevent risk of lung overloading. Dermal exposure is not expected to be of concern due to the high molecular weight of the notified polymer and low amount of low molecular weight species.

After application and once dried, the notifier stated that the final product containing the notified polymer is cured into an inert matrix and the polymer is hence unavailable to exposure.

The OHS risk presented by the notified polymer is expected to be low, provided that workers use engineering controls, good work practices and particularly respiratory protection during spray application.

Public Health Risk Assessment

Dermal, inhalation and ocular exposure to the final product containing < 30% of the notified polymer may

occur during spray, roller and brush application by DIY users. The risk for end users is similar to workers applying the coating, although this will be less frequently.

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

The risk of exposure to painted articles is considered to be low due to the predicted unavailability of the notified polymer once the paint is dried. Applicators should use respiratory protection such as a full face respirator during spray application.

7. ENVIRONMENTAL IMPLICATIONS

Environmental Release

Environmental exposure of the notified polymer is summarised in the following table

Source of exposure	% Annual Volume	Released to
Residual notified polymer within import containers	<1%	Landfill
Accidental Spills	<1%	Landfill
Reformulation equipment cleaning	<1%	Landfill
Residual notified polymer within consumer containers	<2%	Landfill
Release from industrial application (predominantly overspray)	<10%	Landfill
End-of-life disposal	>85%	Landfill

Notified polymer that is disposed of to landfill is expected to be immobile due to its expected low solubility in water and should remain associated with soil and sediment. The majority of notified polymer disposed of to landfill is expected to be entrapped within a cured coating matrix. Over time the notified polymer is expected to degrade via biotic and abiotic means to form various organic and nitrogen containing compounds. The notified polymer is not expected to be biologically available due to its high molecular weight, and therefore should not bioaccumulate.

Environmental Risk Assessment

No ecotoxicological data were submitted. Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is overchelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. This is unlikely to apply to the notified polymer. However, the toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

Based on the proposed use pattern, the release of the notified polymer to the environment is expected to be very low. The use pattern of the notified polymer as an industrial coating will result in limited if any exposure to the aquatic environment. While no ecotoxicity data are available, due to limited release to water it is unlikely that the polymer would exist at levels which could pose a risk to aquatic organisms.
Based on the reported exposure levels and use pattern, the polymer is not considered to pose a risk to the environment when it is stored, transported and used in the proposed manner.

8. CONCLUSIONS AND RECOMMENDATIONS

Human health risk assessment

Under the conditions of the occupational settings described, the risk to workers or the public is considered to be acceptable. However, it is recommended that during spray operations respiratory protection is used to protect against the risk of lung overloading from exposure to high molecular weight polymer aerosols.

Environmental risk assessment

The notified polymer is not considered to pose a risk to the environment based on its reported use pattern.

Recommendations

CONTROL MEASURES
Occupational Health and Safety

- If aerosols are formed during the use of the notified polymer, engineering controls and respiratory protection should be used to prevent inhalation exposure.

- 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.

- Spray painting applications should be in accordance with the ASCC *National Guidance Material for Spray Painting* [NOHSC (1999b)].

Environment

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 chemical 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 chemical, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified chemical 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;
  - the notified polymer is imported in powder form.

or

(2) Under Section 64(2) of the Act; if
  - the function or use of the chemical has changed from varnishes and paints (< 30% notified polymer) for domestic applications or is likely to change significantly;
  - the amount of chemical being introduced has increased from 200 tonnes, or is likely to increase, significantly;
  - if the chemical 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.

No additional secondary notification conditions are stipulated.

Material Safety Data Sheet
The MSDS of the notified chemical (and product containing the notified chemical) provided by the notifier was reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.