File No PLC/772

December 2008

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Alcogum L-350

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)
National Starch & Chemical Pty Ltd (ABN: 37 000 351 806)
7 Stanton Road
SEVEN HILLS NSW 2147

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, and Import Volume.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
USA (2005)
Canada

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Alcogum L-350

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: Milky white dispersion (as imported in Alcogum L-350)
Melting Point/Glass Transition Temp Not applicable as the notified polymer will be imported as part of an

	aqueous emulsion.
Density	1,042 kg/m^3 at 25°C
Water Solubility	Water solubility was not determined. The notified polymer is supplied as an acidic aqueous emulsion (20-40% solids) (see comments below). (Include a brief description of the test, including the method used)
Dissociation Constant	pKa = 3-5 (estimate based on presence of carboxylate functionality).
Particle Size	Not applicable as the notified polymer will be imported as part of an aqueous emulsion.
Reactivity	The notified polymer contains hydrolysable functions, but these are expected to be stable under normal environmental conditions.
Degradation Products	None under normal conditions of use.

Comments
The notified polymer will be an aqueous emulsion. Solubility of the notified polymer in water would depend on pH. At pH > 6 the polymer is expected to be completely soluble in water. At pH < 6 it would be insoluble. The notified polymer contains carboxylate groups which are expected to have a pKa of 3-5. The commercial product containing the notified polymer has a pH of 2.2-3.5.

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	10-20	10-20	10-20	10-20	10-20

Use
The notified polymer will be used as a component of paint (at < 0.5%) for the automotive industry.

The notified polymer will be imported in an aqueous dispersion (20-40%) in Alcogum L-350, which will be blended into automotive paint formulations in Australia. The finished paints containing < 0.5% of the notified polymer will be applied to cars by spray painting in crash repair shops.

The majority of the spray painting will occur in a spray booth. In smaller automotive refinish repair shops paint containing the notified polymer may be applied manually by automotive workers using a spray gun.

Mode of Introduction and Disposal
The notified polymer will not be manufactured in Australia. The notified polymer will be imported by sea in 205 L steel drums as an aqueous dispersion (20-40%) in Alcogum L-350. The imported product will be transported by road from the dockside to the notifier's warehouse and from there to customer paint formulation sites across Australia.

Disposal will be to landfill or by incineration.

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation
No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard.

Occupational Health and Safety Risk Assessment

Reformulation
Accidental dermal and ocular exposure to the notified polymer (20-40%) may potentially occur during reformulation to workers while connecting and disconnecting hoses to imported drums, disposal of drums and during cleaning and maintenance of equipment. However, the blending of the aqueous dispersion containing the notified polymer into paint and subsequent filling into paint cans is not expected to result in exposure as the processes will be automated. Exposure to the notified polymer during reformulation is expected to be limited given the fully automated processes, the engineering controls and personal protective equipment (PPE) worn by workers.

Spray painting in automotive workshops

Spray painters may come into contact with paint containing the notified polymer (< 0.5%) through dermal, inhalation and ocular routes. Exposure is expected to be minimal when workers using protective equipment apply the spray paint in a ventilated spray booth. Workers in automotive workshops who apply the paint containing the notified polymer (< 0.5%) manually using a spray gun will be exposed to aerosols via the inhalation, dermal and ocular routes. However, these workers are expected to wear PPE, including a respirator, safety glasses and gloves to minimise exposure.

After application and once dried, the notified polymer will be trapped within the coating and will not be bioavailable.

Overall, given the assumed low hazard of the notified polymer and expected minimal exposure, the OHS risk presented by the notified polymer is not considered to be unacceptable.

Public Health Risk Assessment
The notified polymer is intended for use by professional spray painters in automotive workshops only, and will not be sold to the public. Following application, the notified polymer will become trapped within the coating and will not be bioavailable. Therefore, the risk to public from exposure to the notified polymer is not considered unacceptable.

7. ENVIRONMENTAL IMPLICATIONS

Hazard Characterisation
No ecotoxicological data were submitted. Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is over-chelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. Although the notified polymer is likely to contain some acid functions on alternating carbons, the low water solubility will limit its bioavailable concentration. The toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

Environmental Risk Assessment
It is expected that approximately 35% of the imported quantity of the notified polymer will be released from spray painting operations and collected on site. These wastes will be cured before disposal to landfill. The cured paint containing the notified polymer will also be disposed of to landfill or metals recycling at the end of the useful life of the painted articles. As the notified polymer is not expected to be released in a bioavailable form when used as intended, it 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.

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

- 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 by 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 component of paints used in automotive industry, or is likely to change significantly;
  – the amount of notified polymer being introduced is likely to increase, significantly;
  – if 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 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.