File No PLC/437

16 February 2004

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer 110

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 Heritage.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at:

Library
National Occupational Health and Safety Commission
25 Constitution Avenue
CANBERRA ACT 2600
AUSTRALIA

To arrange an appointment contact the Librarian on TEL + 61 2 6279 1161 or + 61 2 6279 1163.

This Full Public Report is 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
Chemicals Notification and Assessment

TABLE OF CONTENTS

FULL PUBLIC REPORT 3
1. APPLICANT AND NOTIFICATION DETAILS 3
2. IDENTITY OF CHEMICAL 3
3. COMPOSITION 3
4. INTRODUCTION AND USE INFORMATION 4
5. PROCESS AND RELEASE INFORMATION 4
6. EXPOSURE INFORMATION 4
7. PHYSICAL AND CHEMICAL PROPERTIES 5
8. HUMAN HEALTH IMPLICATIONS 5
9. ENVIRONMENTAL HAZARDS 5
10. RISK ASSESSMENT 5
11. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS 5
12. MATERIAL SAFETY DATA SHEET 5
13. RECOMMENDATIONS 7

FULL PUBLIC REPORT

Polymer 110

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Bonakemi Australia Pty Ltd (ABN 096 221 448)
C/- Swedish Trade Council
25th Floor
44 Market St
SYDNEY NSW 2000

Ezi Floor Products (ABN 85 085 852 198)
36 Sydenham Rd
NORWOOD SA 5067

NOTIFICATION CATEGORY
Synthetic Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)
Data items and details claimed exempt from publication:
Chemical name
Molecular weight
Molecular formula
Structural formula
Polymer constituents
Formulation 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)
Polymer 110.

MOLECULAR WEIGHT

Number Average Molecular Weight (Mn)	< 10000
% of Low MW Species < 1000	< 10%
% of Low MW Species < 500	< 10%

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

Criterion	*Criterion met (yes/no/not applicable)*
Meets Molecular Weight Requirements	Yes
Meets Functional Group Equivalent Weight (FGEW) Requirements	Yes
Low Charge Density	Yes
Approved Elements Only	Yes
No Substantial Degradability	Yes
Not water Absorbing	Yes
Low Concentrations of Residual Monomers	Yes
Not a Hazardous Substance or Dangerous Good	Yes

4. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	1.2	1.5	1.7	1.9	2.0

USE
Component of floor coatings.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

The notified polymer will not be reformulated or repackaged for use in Australia. It will be imported as a component of a formulation in 4.5 L containers. Containers will be opened, 10% isocyanate hardener added, mixed, and the coating applied by tradespeople with a roller or paint brush.

6. EXPOSURE INFORMATION

6.1. Summary of Environmental Exposure

Since the notified polymer will not be manufactured or reformulated in Australia, it will only be released to the environment during the use of the polymer and life of the coating.

There is a minor risk of release due to spills during transport and use. Spilt material will be adsorbed by either the naturally occurring soil or purpose used absorbent material (such as sand). The soil/absorbent and coating material will be collected and disposed of to landfill.

Approximately 1% of the floor coating would remain as residue in the empty plastic containers, this equates to approximately 20 kg of notified polymer per year. This will be disposed to landfill along with the containers, where any residual coating will cure in the container. Polymer disposed to landfill either from spills or in empty containers will become bound in the soil.

The floor coating, containing the notified polymer, will be applied by roller or brush by tradespeople only. The notifier estimates that approximately 2% of the floor coating product (up to 40 kg/year of the notified polymer) will be lost due to cleaning of the application equipment (roller, brush and bucket) and will be disposed of down the drain to the sewers. Due to its structural properties it is likely that most of the polymer will absorb to the sludge and be removed in the Sewage Treatment Plants.

The polymer floor coating will dry to form an inert coating on the surface of the floors. It will remain on the floors until it is gradually worn down by human traffic, being slowly dispersed on shoes etc. At the end of its useful life it will be removed by professional floor sanders and presumably replaced by a coat of a similar product. The coating containing the notified polymer will be broken up into solid particulate matter in the sanding/removal process and most likely disposed of to landfill.

The notified polymer is not expected to cross biological membranes due to its molecular weight and low water solubility, and is therefore not expected to bioaccumulate.

6.2. Summary of Occupational Exposure

During transport and storage, workers are unlikely to be exposed to the notified polymer except when packaging is accidentally breached.

The hazard of other ingredients in the imported coating and in the added hardener necessitates the use of protective gloves and safety goggles which will limit exposure to the notified polymer. After application and once dried, the paint containing the notified polymer is cured into an inert matrix and is unavailable for exposure.

6.3. Summary of Public Exposure

The notified polymer is intended only for use by tradespeople and will not be available to the public. The public may contact the dried coatings but will be cured into an inert matrix and will be unavailable for exposure.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	The imported coating is a white dispersion of polymer particles.
Glass Transition Temp	< 20°C
Density	1000 - 1200 kg/m^3 (dispersion).
Water Solubility	Not applicable. Because the polymer contains largely hydrophobic constituents, it will not be water soluble.
Dissociation Constant	It contains a small amount of carboxylic acid functionality expected to have typical acidity.
Reactivity	Stable under normal environmental conditions
Degradation Products	None.

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

No toxicological data were submitted.

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

No toxicological data were submitted.

9.2. Environmental Hazard Assessment

The products containing the notified polymer are likely to be used throughout Australia.

The major environmental exposure to the polymer will come from discharge of domestic wash waters to waste water treatment systems. Taking into account that 40 kg is estimated to be released to sewer, the following Predicted Environmental Concentration (PEC) can be estimated, assuming no removal or adsorption in the STP:

Amount released to sewer	40 kg
Number of days used	243 days
Australian population	19 million
Water used per person	150 L
PEC in STP	0.05 μg/L
Dilution factor	10
PEC in ocean	0.005 μg/L

Solid wastes will be sent to landfill for disposal. The notified polymer is expected to have a high affinity for soil and sediment and be immobile in the environment due to its low water solubility. In landfill, the notified polymer in solid wastes is expected to be immobile, and eventually will degrade through biotic and abiotic processes, and consequently, should not pose a significant hazard to the environment.

10. RISK ASSESSMENT

10.1. Environment

Since no ecotoxicity data were available, a PNEC cannot be determined. However, the estimated PEC is very low. Non-ionic polymers are generally of low concern. Polymers with significant amounts of carboxylic functionalities are of concern due to their toxicity to green algae. However, the notified polymer contains only small amounts of these functionalities.

10.2. Occupational health and safety

The OHS risk presented by the notified polymer is expected to be low. The notified polymer may be present in formulations containing hazardous ingredients. If these formulations are classified as hazardous to health in accordance with the NOHSC Approved Criteria for Classifying Hazardous Substances, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

10.3. Public health

As there will be no exposure of the public to the notified polymer or products containing the notified polymer the risk to the public from exposure is considered low.

The notified polymer will not be available to the public. Members of the public may make dermal contact with products containing the notified polymer. However, the risk to public health will be negligible because the notified polymer is bound within a matrix and unlikely to be bioavailable.

11. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

11.1. Environmental risk assessment

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

11.2. Human health risk assessment

11.2.1. Occupational health and safety

There is No Concern to occupational health and safety under the conditions of the occupational settings described.

11.2.2 Public health

There is Negligible Concern to public health when used as described.

12. MATERIAL SAFETY DATA SHEET

Material Safety Data Sheet

The notifier has provided MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

13. 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 NOHSC *Approved Criteria for Classifying Hazardous Substances*, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

Environment

- The following control measures should be implemented by user to minimise environmental exposure during use of the notified polymer:
  - Do not allow the coating, containing the polymer, or containers to contaminate storm drains or waterways or sewer.

Disposal

- Wastes generated during industrial application should be disposed of through a licensed waste contractor.

Emergency procedures

- Spills/release of the notified polymer should be cleaned up immediately;
- Contain the spill and prevent runoff into drains and waterways;
- Use absorbent material (e.g. soil, sand or other inert material);
- Collect and seal in properly labelled containers or drums for disposal.

13.1. Secondary notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

(1) Under subsection 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 subsection 64(2) of the Act:

- if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.

No additional secondary notification conditions are stipulated.