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**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME
(NICNAS)**

FULL PUBLIC REPORT

Polymer in BENESTER X100-134

This Self 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**

PLC Self Assessment**Polymer in BENESTER X100-134 ND****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT

Ciba (Australia) Pty Limited (ABN 97 005 061 469)
235 Settlement Road
Thomastown VIC 3074

NOTIFICATION CATEGORY

Self Assessment: 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, Import Volume.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

NOTIFICATION IN OTHER COUNTRIES

Europe

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

BENESTER X100-134 ND (60% notified polymer)

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (NAMW) >1000

REACTIVE FUNCTIONAL GROUPS

The notified polymer contains only low concern functional groups.

3. PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met</i>
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	Polymer solution is a viscous liquid
Melting Point/Glass Transition Temp	Not applicable
Density	1038 kg/m ³ at 20°C
Water Solubility	Insoluble in water
Reactivity	Stable under normal environmental conditions, but contains functionality that may hydrolyse under extreme pH conditions.
Degradation Products	None under normal conditions of use

Comments

The notified polymer is expected to have low water solubility due to the predominantly hydrophobic character of its monomers. The notified polymer contains acidic functionality that theoretically could dissociate in water. However, this is unlikely to be of significance to the environmental behaviour of the notified polymer given its expected very low water solubility.

5. INTRODUCTION AND USE INFORMATION

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

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	10 – 50	10 – 50	10 – 50	10 – 50	10 – 50

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will be imported by sea as a 60% component of a resin solution product, BENESTER X 100-134 ND in 200 L steel drums or 950 kg (Intermediate Bulk Containers) IBCs. The containers will be transported by road to a contracted warehouse before delivery to customer.

Reformulation processes

The imported containers will not be opened on importation or during transport to storage warehouse or customer. The sales product will be supplied to one customer in New South Wales where it will be reformulated into a surface varnish coating product and packaged into 200 L drums. The final concentration of the notified polymer in the surface varnish coating product will be between 18 and 20%. The surface varnish coating product will be used for the exterior coating of metal cans.

Use

The notified polymer will be imported for reformulation into a varnish solution for the packaging industry, in particular as a clear varnish to coat metal cans.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Transport and warehousing workers may come into dermal and ocular contact with the notified polymer ($\leq 60\%$) through accidental leaks and spillages of the drums and IBCs.

During formulation, workers will manually weigh and transfer the polymer solution to the mixing vats. Workers are expected to wear impermeable gloves, eye protection and coats. Exposure of these workers to the notified polymer can occur by either dermal or ocular routes, however significant exposure is expected to be limited due to the workplace practices and personal protective equipment (PPE) used.

Roller varnish coating of cans is expected to be carried out in an automated process with effective fume extraction systems. Dermal exposure may occur from minor spillage and from cleaning and maintenance of equipment but is expected to be limited by PPE.

After application and once dried, the varnish containing the notified polymer on the exterior of metal cans will be fully cured and not anticipated to be available for exposure.

PUBLIC EXPOSURE

The public is not likely to be exposed to the notified polymer during transport, manufacture, coating or disposal. The public will make dermal contact with the varnish containing the notified polymer on the exterior of the metal cans. However, the varnish film will be fully cured and is not anticipated to be biologically available.

6.2. Toxicological Hazard Characterisation

The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard.

6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

Dermal and ocular exposure may occur during certain formulation processes, and during coating application. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls (exhaust ventilation) and personal protective equipment (PPE) expected to be worn by workers.

After application and once dried, the coating containing the notified polymer will be cured into an inert matrix and unavailable to exposure.

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

PUBLIC HEALTH

The notified polymer will not be available to the public. Members of the public may come into contact with products containing the notified polymer, however, as the polymer is cured and not bioavailable, exposure is expected to be negligible.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

During varnish coatings production up to 60 kg per annum of the notified polymer will be released as a result of minor spills, the cleaning of formulation equipment and the rinsing of import drums. Up to a further 600 kg of the notified polymer will be disposed of during coatings application. After evaporation or extraction of the solvent, wastes containing the notified polymer will be sent to landfill. At the end of their useful lives, the cans to which the coating has been applied will also be sent to landfill or may be recycled.

ENVIRONMENTAL FATE

The notified polymer is expected to be insoluble in water and, therefore, is unlikely to be mobile in either aquatic or terrestrial compartments. As a consequence, in landfill it is expected to associate with soil and sediment and slowly degrade through biotic and abiotic processes to water and oxides of carbon. During metal recycling operations, the notified polymer is expected to be thermally decomposed to produce water vapour and various oxides of carbon.

7.2. Environmental Hazard Characterisation

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 does not apply to the notified polymer. The toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

7.3. Environmental Risk Assessment

The majority of the notified polymer will be applied as a coating to the external surface of cans and, once applied and heat cured, poses little risk to the environment. As the coating disintegrates in landfill, the notified polymer is expected to associate with soil and sediment where it will slowly degrade through biotic and abiotic processes to water and oxides of carbon.

Based on the low environmental exposure resulting from its limited potential for release to sewer and high coating transfer efficiency, the risk to the environment is expected to be low.

8. CONCLUSIONS

8.1. Level of Concern for Occupational Health and Safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

8.2. Level of Concern for Public Health

There is Negligible Concern to public health when used in the proposed manner.

8.3. Level of Concern for the Environment

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

9. MATERIAL SAFETY DATA SHEET

9.1. 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.

10. 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.

Disposal

- The notified polymer should be disposed of in landfill.

Emergency procedures

- Spills/release of the notified polymer should be contained by collecting with an inert absorbent and the resulting waste disposed of to an authorised landfill.

11. 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 varnish for use in the packaging industry, or is likely to change significantly;
 - the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
 - 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.

Material Safety Data Sheet

The MSDS of the 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.