File No PLC/899

February 2010

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Hydrox Bio100 and Hydrox Bio220

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

FULL PUBLIC REPORT

Polymer in Hydrox Bio100 and Hydrox Bio220

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
C. E & A. Co Pty Ltd (ABN: 24 008 092 135)
5 Schenker Drive, ROYAL PARK SA 5014

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, Use Details, 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)
No

NOTIFICATION IN OTHER COUNTRIES
TSCA 2002

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Hydrox Bio100 (containing 10% of the notified polymer)
Hydrox Bio220 (containing 26% of the notified polymer)

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) > 1,000 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:	Yellow-brown viscous liquid
Melting Point/Glass Transition Temp	>400 °C
Density	945 kg/m^3 at 20 °C

Vapour Pressure	4.6 x 10^{-6} kPa at 20 °C
Water Solubility	< 1 mg/L at 20 °C. The test was conducted using the flask method. Undissolved substance was observed visually in the notified polymer/water mixture of 0.996 mg/L. Also, the notified polymer is expected to be insoluble in water based on the structural formula information.
Dissociation Constant	No dissociable functionalities are present in the notified polymer.
Flash Point	207 °C
Autoignition Temperature	410 °C at 100.8-103.29 kPa
Reactivity	Stable under normal environmental conditions. Hydrolysis is not expected to occur at the environmental pH range of 4-9 despite the presence of hydrolysable functional groups in the notified polymer.
Degradation Products	None under normal conditions of use

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	100-500	100-500	100-500	100-500	100-500

Use
The notified polymer will be used as an additive in lubricants in marine vessels.

Mode of Introduction and Disposal
The notified polymer will be imported into Australia in sealed drums as a component of two products, Hydrox Bio100 (10% NP) and Hydrox Bio220 (26% NP). End use will involve workers transferring and removing the lubricant product to and from the appropriate part of the marine vessel.

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.

Occupational Health and Safety Risk Assessment
Dermal and ocular exposure to the notified polymer (up to 26% conc.) may potentially occur during certain processes involving the notified polymer. However, exposure to significant amounts of the notified polymer is limited because of the processes being carried out in semi-closed systems, and the engineering controls and personal protective equipment (PPE) worn by workers, including gloves, safety glasses and protective clothing.

Although exposure to the notified polymer could occur during filling or removal of oil, the risk to workers is not considered to be unacceptable due to the assumed low hazard of the notified polymer and the measures in place to lower exposure.

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 of the public to the notified polymer or products containing the notified polymer the risk to the public from exposure to the notified polymer is not considered to be unacceptable.

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

The notified polymer will be imported as ready for use products in Australia, and no further reformulation will occur in Australia. Therefore, no significant release of the notified polymer is expected from the manufacture, reformulation and transportation processes.

Most of the used lubricant products containing the notified polymer will be removed from ships at dry docking after use, and sent to an authorized waste oil recycler for proper treatment. The majority of the waste oil will be reused as burner oil, e.g. in cement and lime kilns, furnaces and industrial burners, where the notified polymer will be thermally decomposed into water and oxides of carbon. A small amount of the notified polymer is expected to be leaked into water with the product during use in ships. The notified polymer is not readily biodegradable based on the provided studies (11.4% or 13.5% degradation after 28 days based on the provided studies). Due to its high molecular weight, it is not expected to have potential for bioaccumulation. If leaked to water, the notified polymer is expected to associate with suspended solids and sediment due to its low water solubility. If spilt on land, the notified polymer is expected to associate with soil and become immobilised in the soil layer. In both cases, the notified polymer is expected to undergo slow biotic and abiotic degradation and form water, oxides of carbon.

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.

- 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.

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 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 an oil additive in marine vessels, 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 products containing the notified polymer provided by the notifier were reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.