File No PLC/1246

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in Advacare Fluid Repellent

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government Department of Health, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Australian Government Department of the Environment.

For the purposes of subsection 78(1) of the Act, this Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This 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

January 2015

Table of Contents

SUMMARY

The following details will be published in the NICNAS *Chemical Gazette:*

ASSESSMENT REFERENCE	APPLICANT(S)	CHEMICAL OR TRADE NAME	HAZARDOUS SUBSTANCE	INTRODUCTION VOLUME	USE
PLC/1246	Ecolab Pty Ltd	Polymer in Advacare Fluid Repellent	No	≤ 10 tonnes per annum	Component of laundry care products

CONCLUSIONS AND REGULATORY OBLIGATIONS

Human Health Risk Assessment
Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the health of workers and the public.

Environmental Risk Assessment
Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

Health and Safety Recommendations

- 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 (M)SDS should be easily accessible to employees.

- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS),* as adopted for industrial chemicals in Australia, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation should be in operation.

Disposal

- Where reuse or recycling are not appropriate, dispose of the notified chemical in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

Emergency Procedures

- Spills and/or accidental release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.

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 a component of laundry care products, 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 notified polymer 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 (M)SDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants
Ecolab Pty Ltd (ABN: 59 000 449 990)
2 Drake Avenue
Macquarie Park NSW 2113

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 and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)
Advacare Fluid Repellent (product containing the notified polymer)

Molecular Weight
Number Average Molecular Weight (Mn) is > 10,000 Da

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 liquid with a mild odour (product)
Melting Point/Glass Transition Temp	0 °C
Density	1000 kg/m^3 (product)
Water Solubility	Expected to be water dispersible based on the presence of hydrophilic functional groups in the chemical structure and use in aqueous systems.
Particle Size	Not applicable. The notified polymer is not isolated from solution.
Reactivity	Stable under normal environmental conditions
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	0-10	0-10	0-10	0-10	0-10

Use
The notified polymer will not be manufactured or reformulated in Australia. It will be imported as a component in a formulated laundry care product (Advacare Fluid Repellent) at < 20%. The product is used to protect surgical barrier fabrics such as theatre gowns and operating shrouds, and to protect uniforms in industries such as institutional and food processing.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. The risk of the notified polymer to occupational and public health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

Although not considered in this risk assessment, NICNAS notes that the notified polymer contains residual monomers that are classified as hazardous according to the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS),* as adopted for industrial chemicals in Australia. These are not present in the notified polymer as introduced above the cut off concentrations for classification.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. The notified polymer is expected to have cationic /potentially cationic functionality, however the high FGEW (>> 5000 daltons) indicates the notified polymer is not of concern to aquatic organisms.

The binding efficiency of the notified polymer to fabric is expected to be 40-60% and the remainder is expected to be in rinse water which will be released to sewer. In a sewage treatment plant (STP), because of its high molecular weight, the majority of the notified polymer is expected to be removed efficiently from waste water by partitioning and sludge adsorption and later disposal to landfill. The predicted environmental concentration (PEC) has been calculated assuming a worst case 100% release of the notified polymer into sewer. A removal rate of 90% is used for cationic polymers of high molecular weight (> 1000). PEC in sewage effluent on a nationwide basis is estimated as 0.61 µg/L [PEC river = 27.4 kg notified polymer/day ÷ (200 L/person/day × 22.613 million people) × 1 (dilution factor)]. The PEC is well below the EC_{50} for algae of the most toxic polymers (EC_{50} >1 mg/L). Some of the notified polymer may remain in the water column and be released to surface water with the effluent. In either landfill or surface water, the notified polymer is expected to be finally decomposed via abiotic or biotic pathways, forming water and oxides of carbon and nitrogen.

Empty packaging and any inert material containing the notified polymer from spills will be disposed of to landfill. Because of its high molecular weight and water dispersibility, the notified polymer is not expected to be bioaccumulative. Discarded fabrics treated with the notified polymer are expected to be either incinerated or disposed to landfill.

Therefore, based on its assumed low hazard and reported use pattern, the notified polymer is not considered to pose an unacceptable risk to the environment.