

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

**POLYMER OF LOW CONCERN PUBLIC REPORT**

**CFL105D**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (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**

February 2014

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## 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/1175	Ecolab Pty Ltd	CFL105D	No	≤ 150 tonnes per annum	Component of cement

## 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**

- The notified polymer should be disposed of to landfill.

### **Storage**

- The following precautions should be taken by workers regarding storage of the notified polymer:
  - Store in a segregated and approved area.

### **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 cement, 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 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 Ave  
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, structural formula, molecular weight, polymer constituents, residual monomers/impurities, use details and import volume.

#### **2. IDENTITY OF POLYMER**

##### **Marketing Name(s)**

CFL105D, FL67, CFL-6, FL-67L, CFL105E

##### **Molecular Weight**

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

### 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	Tan coloured powder
Melting Point/Glass Transition Temp	No data
Density	1,250 kg/m <sup>3</sup> at 15.6 °C
Water Solubility	> 270 g/L at 20°C (study report not available). The notified polymer is considered to be highly soluble in water based on its predominantly hydrophilic structure
Dissociation Constant	Not determined. The notified polymer is a salt and is expected to be ionised under environmental conditions
Particle Size	0.02% < 20 µm 2.09% < 30 µm 5.31% < 40 µm 5.47% < 100 µm
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

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Tonnes	1-20	20-40	40-100	40-100	100-150

#### Use

The notified polymer will be imported into Australia as a solid powder or at 10-30% concentration in aqueous solution. The notified polymer will be used as a component of cement used in oil and gas drilling applications.

### 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 for the notified polymer 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 could apply to the notified polymer. However, the toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

This is supported by environmental endpoints observed in testing conducted on a close analogue of the notified polymer and are listed below.

<i>Endpoint</i>	<i>Result</i>	<i>Assessment Conclusion</i>
Algal Toxicity (Marine algae)	ErC50 (72 h) = 172 mg/L	Not expected to be harmful to algae (SOP E209; Chemex, 2002a)
Invertebrate Toxicity (Copepod)	LC50 (48 h) = 400 mg/L	Not expected to be harmful to aquatic invertebrates (SOP E207; Chemex, 2002b)
Invertebrate Toxicity (Amphipod; mud shrimp)	LC50 (10 day) = 5657 mg/kg dry sediment	Expected to be very slightly toxic to sediment-dwelling invertebrates (SOP E211; Chemex, 2003a)

A biodegradability study report for an analogue substance to the notified polymer reported 45% biodegradation for the product after 28 days. Therefore, it is reasonable to expect that the notified polymer is likely to degrade substantially in the environment. According to the provided study on the bioaccumulation potential of the notified polymer, the notified polymer has little tendency to accumulate in the environment (Chemex, 2003b). However, no significant release of the notified polymer to the aquatic environment is expected from either manufacture and reformulation or use of the notified polymer. The notified polymer will be used in Australia as a cement additive only. The notified polymer in hardened cement is expected to resist degradation, and environmental exposure is not expected whilst the notified polymer is entrapped within the cement matrix. The residue of the notified polymer in empty containers is expected to be rinsed with water. The rinsed-water is expected to be recycled for use in the next batch. Any unused wet cement will be allowed to dry before disposal to landfill. Concrete from demolition operations is expected to be eventually disposed of to landfill.

Results of aquatic ecotoxicity testing also indicate that the hazard to aquatic species is low. In soil or landfill, leaching of the notified polymer is not expected given it is trapped in the concrete matrix. With time, it will be degraded via abiotic or biotic pathways into water and oxides of carbon, nitrogen and inorganic salts. Therefore, based on its assumed low hazard and reported use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

### Bibliography

- Chemex (2002a) The Growth Inhibition of the Marine Alga *Skeletonema costatum* by [Analogue substance]. (Study No. ENV5875/080112, May 2002) Cambridge, England (unpublished report submitted by the notifier)
- Chemex (2002b) The Toxicity to *Acartia tonsa* of [Analogue substance]. (Study No. ENV5876/080112, March 2002) Cambridge, England (unpublished report submitted by the notifier)
- Chemex (2003a) The Growth Toxicity to *Corophium sp.* of [Analogue substance]. (Study No. ENV6518/060304, October 2003) Cambridge, England (unpublished report submitted by the notifier)
- Chemex (2003b) The Bioaccumulation Potential of [Notified polymer]. (Study No. ENV5656/080113, June 2003) Cambridge, England (unpublished report submitted by the notifier)