

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in GCP-85L

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 and Energy.

This 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:

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**Director
NICNAS**

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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/1398	GCP Australia Pty Ltd	Polymer in GCP-85L	No	≤ 2000 tonnes per annum	Cement additive

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 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 of 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.

Environmental Recommendations

Disposal

- Where reuse or recycling are not appropriate, dispose of the notified polymer 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 cement additive, 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.

Safety Data Sheet

The SDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants

GCP Australia Pty Ltd (ABN: 41 080 680 117)
40 Scanlon Drive
EPPING VIC 3076

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 manufacture/import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

GCP-85L (product containing the notified polymer)

Molecular Weight (MW)

Number Average Molecular Weight (Mn) is > 1,000 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.

* The Department of the Environment and Energy noted that the notified polymer may have the potential to biodegrade. Given that the polymer is not expected to be released into the aquatic environment, the notified polymer has been accepted as a PLC.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20 °C and 101.3 kPa	Light brown solution
Melting Point/Glass Transition Temp	-10 °C*
Density	1,116 kg/m ³ at 20 °C
Water Solubility	Not determined. Expected to have high solubility based on the hydrophilic chemical structure.
Dissociation Constant	Not determined. The notified polymer contains functionality that is expected to be ionised in the environmental pH of 4-9.
Particle Size	Not relevant, polymer is in solution
Reactivity	Stable under normal environmental conditions*
Degradation Products	None are known
*product containing the notified polymer	

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	1000-2000	1000-2000	1000-2000	1000-2000	1000-2000

Use

The notified polymer will not be manufactured in Australia. It will be imported in solution at 60% concentration and reformulated into liquid cement admixtures containing the notified polymer at 20% concentration.

The notified polymer will be used as a superplasticizer in cement and concrete for use in construction projects.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and can therefore be considered 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.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is over-chelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. This is unlikely to apply to the notified polymer and it is therefore not considered to be an over-chelation hazard to algae.

Release of the notified chemical may occur during reformulation processes, from spills, and from residues in waste containers and empty containers. The notified polymer will be reformulated using typical liquid blending processes in a bunded area. The formulated product will be pumped into a holding tank and will be transferred later to a bulk tanker for transport to concrete batching plants. Any accidental spills during transfer to blending and holding tanks, and bulk tanker will be collected with the appropriate absorbent material and disposed of to landfill. Any residues in the containers will be flushed out with water and recycled into the blending tank. Therefore, cleaning of the equipment during reformulation and end use processes will involve the recycling of washwater containing ~0.5% of the notified polymer back into subsequent batches.

Any unused cement will be allowed to dry and any old treated cement and concrete will be disposed of to landfill. Therefore, the notified polymer is not expected to enter the sewer or receiving waters. Although the notified polymer has PEG components that have the potential to biodegrade, the notified polymer is expected to resist degradation while entrapped within the cement matrix. Therefore, no environmental exposure of the notified chemical is expected whilst it is in the cement matrix. In landfill, the notified polymer is expected to be eventually degraded via biotic or abiotic pathways to form water, oxides of carbon and salts. The notified polymer is not expected to cross biological membranes due to its high molecular weight, and is therefore not expected to bioaccumulate. 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.