

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

### POLYMER OF LOW CONCERN PUBLIC REPORT

#### Polymer in STAB 100P

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 Ageing, 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 Sustainability, Environment, Water, Population and Communities.

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**

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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/1085	BASF Australia Ltd	Polymer in STAB 100P	No	≤ 10 tonnes per annum	An additive for 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 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.

### **Environmental Recommendations**

- No specific control measures are required to minimise release of the notified polymer to the 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.

### **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.
  - the notified polymer is introduced in respirable form.

or

- (2) Under Section 64(2) of the Act; if
  - the function or use of the notified polymer has changed from an additive for 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 MSDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.

### **ASSESSMENT DETAILS**

#### **1. APPLICANT AND NOTIFICATION DETAILS**

##### **Applicants**

BASF Australia Pty Ltd (ABN: 62 008 437 867)  
Level 12, 28 Freshwater Place, Southbank VIC 3006

##### **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, use details, and import volume.

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

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

Polymer in STAB 100P

##### **Other Name(s)**

Polystab 100 P

##### **Molecular Weight**

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.

### 4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20 °C and 101.3 kPa	White to slightly coloured powder with product characteristic odour (product)
Melting Point/Glass Transition Temp	Not determined
Density	Approx. 400-700 kg/m <sup>3</sup> at 20 °C (product)
Water Solubility	> 20 g/L at 20 °C (study report not provided). 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	> 200 µm: min. 80% < 100 µm: max. 10%
Reactivity	Stable under normal environmental conditions. The notified polymer contains hydrolysable functionalities. However, no significant hydrolysis is expected to occur in the environmental pH range of 4 – 9.
Degradation Products	The degradation products are not known but are likely to be oxides of carbon and nitrogen.

### 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	1-10	1-10	1-10	1-10	1-10

#### Use

The notified polymer will be imported into Australia at approximately > 90%, and reformulated into products at approximately 2% for use as an additive for cement.

### 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.

### 7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted for the notified polymer. 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 may apply to the notified polymer. The toxicity to algae is likely to be reduced due to the presence of calcium ions, which will bind to the functional groups. Anionic polymers are generally of low hazard to fish and aquatic invertebrates. This is supported by environmental endpoints for a polymer having similar structure to the notified polymer:

<i>Endpoint</i>	<i>Result</i>	<i>Assessment Conclusion</i>
Fish Toxicity	96 h EC50 > 1000 mg/L	Not harmful
Daphnia Toxicity	21 day NOEC = 25 mg/L	Not harmful
Earthworm	14 day LC50 = 21 mg/kg	Moderately toxic*

\*(Classification according to Mensink (1995)).

The notified polymer will be imported into Australia as part of a powdered mixture for reformulation into products for use in concrete mixes. No significant release is expected from transportation and the blending/reformulation process. Any spills occurring during blending operations are expected to be collected for disposal to an approved facility, which is most likely landfill. Residues in empty imported containers are estimated to be approximately 1% of the import volume, and may be either collected from the container reconditioning process for disposal to landfill, or be directly sent to landfill with the containers. The vast majority of the notified polymer will be bound in the concrete matrix and will not be released to the environment in any significant quantity. Concrete from demolition operations is expected to be eventually disposed of to landfill.

The notified polymer may have potential for biodegradability. However, this is not considered a concern since no significant release to the aquatic environment is expected from the reformulation and use processes. Bioaccumulation is not likely based on the notified polymer's high molecular weight and the use pattern of being trapped in concrete solids after application. In 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, oxides of carbon, nitrogen and sulphur, and inorganic salts.

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

### **BIBLIOGRAPHY**

Mensink BJWG, Montforts M, Wijkhuizen-Maslankiewicz L, Tibosch H & Linders JBHJ (1995) Manual for summarising and evaluating the environmental aspects of pesticides. Bilthoven, The Netherlands, National Institute of Public Health and Environmental Protection, Report No. 679101022, Appendix 5, <<http://www.rivm.nl/bibliotheek/rapporten/679101022.html>>.