

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

**POLYMER OF LOW CONCERN PUBLIC REPORT**

**Polymer in FennoBond 520 B**

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.

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/1366	Kemira Australia Pty Ltd	Polymer in FennoBond 520 B	No	< 50 tonnes per annum	Dry strength agent in the manufacture of paper and paperboard

## 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.

- In the interest of occupational health and safety, the following precautions should be observed for use of the notified polymer as introduced in powder form:
- 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 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.

### **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 dry strength agent in the manufacture of paper and paperboard, 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 were 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

Kemira Australia Pty Ltd (ABN: 74 007 413 185)  
15 Conquest Way  
HALLAM VIC 3803

#### 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)

FennoBond 520 B (contains the notified polymer at 1-2% concentration in aqueous solution)

### 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	Colourless to light yellow liquid*
Melting Point/Glass Transition Temp	Not determined. Introduced in aqueous solution
Density	1,100 kg/m <sup>3</sup> at 20 °C*
Water Solubility	Miscible in water (SDS for the product)
Dissociation Constant	Contains ionisable functionalities. Therefore, the notified polymer is expected to be ionised at the environmental pH range of 4 – 9
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

\*For the product FennoBond 520 B containing the notified polymer at 1-2% concentration in aqueous solution

### 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	< 50	< 50	< 50	< 50	< 50

**Use**

The notified polymer will not be manufactured in Australia. The notified polymer will be imported into Australia in aqueous solution in the product FennoBond 520 B at 1-2 % concentration. The notified polymer will be used as a dry strength agent in the manufacture of paper and paperboard.

**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.

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 of 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.

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. The product containing the notified polymer will be used as a dry strength agent in the pulp for paper and paperboard manufacturing. During mixing activities, the amide functionality of the notified polymer will be converted into primary amine functionality. The notified polymer containing the primary amine functionality, with its cationic charge density, is expected to be retained by electrostatic attraction within the high suspended solids fibre matrix in the pulp when the paper is produced. Therefore, the notified polymer will bind into produced paper and will not be expected to remain in the water phase.

Any wastes generated during the paper making process is expected to be contained within the internal sumps that discharge into the recovered water system where the fibre and water will be recovered for re-use in the process. The notified polymer will retain on the fibres, which will be re-used in the paper making process. Any unused notified polymer remaining within the water phase is expected to be discharged to the waste water treatment plant. The notified polymer with cationic charge will be absorbed in the treatment plants in waste water treatment system of paper mills. Consequently, the notified polymer is not expected to be released to aquatic environment.

The notified polymer is expected to be bound within the paper. It is anticipated that approximately half of the paper will be disposed of to landfill and the remainder will be recycled at the end of its useful lifetime. During the recycling process, waste paper will be repulped using a variety of alkaline dispersing and wetting agents, water emulsifiable organic solvents and bleaches. Aqueous wastes containing these agents are expected to be sent to sewage treatment plants (STPs) for processing. Under a worst case scenario it is assumed that 50% of the notified polymer will be washed into sewers. In sewage treatment plants, most of the notified polymer is expected to partition to sludge and sediments due its high molecular weight and ionicity. The proportion of the notified polymer that is adsorbed to STP sludge will be disposed of to landfill or may be used for soil remediation, where it is expected to slowly degrade to form water and oxides of carbon and nitrogen.

The notified polymer is not expected to be readily biodegradable based on its chemical structure and high molecular weight. The notified polymer is not expected to cross biological membranes due to its high molecular weight and thus it is unlikely to bioaccumulate.

Most of the notified polymer will reach landfill as a result of disposal of used paper, or sludge waste from paper recycling processes. In soils and the aquatic environment, the notified polymer is expected to eventually degrade through biotic and abiotic processes to form water and oxides of carbon and nitrogen. 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.