File No SAPLC/129

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

**POLYMER OF LOW CONCERN PUBLIC REPORT**

**Polymer in Clerol PLB 847**

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:


| | |
|---|---|
| Street Address: | Level 7, 260 Elizabeth Street, SURRY HILLS NSW 2010, AUSTRALIA. |
| Postal Address: | GPO Box 58, SYDNEY NSW 2001, AUSTRALIA. |
| TEL: | + 61 2 8577 8800 |
| FAX: | + 61 2 8577 8888 |
| Website: | www.nicnas.gov.au |

**Director**
**NICNAS**


December 2011

**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 |
|---|---|---|---|---|---|
| SAPLC/129 | BASF Australia Ltd | Polymer in Clerol PLB 847 | No | ≤ 10 tonnes per annum | Component of plasterboard jointing products |

## CONCLUSIONS AND REGULATORY OBLIGATIONS

**Level of Concern for Occupational Health and Safety**
Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unreasonable risk to the health of workers.

**Level of Concern for Public Health**
When used in the proposed manner, the notified polymer is not considered to pose an unreasonable risk to public health.

**Level of Concern for the Environment**
The polymer is not considered to pose an unreasonable risk to the environment based on the assessed use pattern.

**RECOMMENDATIONS**

CONTROL MEASURES
Occupational Health and Safety

- 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 NOHSC *Approved Criteria for Classifying Hazardous Substances*, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

Environment

Disposal

- The notified polymer should be disposed of to landfill.

Storage

- IBCs containing the notified polymer should not be stored outside. It is recommended to store at room temperature. Store the notified polymer away from strong oxidising agents. Store away from extreme heat.

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 component of plasterboard jointing 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 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

APPLICANT
BASF Australia Ltd (ABN 62 008 437 867)
Level 12
28 Freshwater Place
SOUTHBANK VIC 3006

NOTIFICATION CATEGORY
Self Assessment: Polymer of Low Concern

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 and Import Volume

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
China

## 2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Clerol® PLB 847 (product containing the notified polymer)

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (NAMW) > 1,000 Da

REACTIVE FUNCTIONAL GROUPS
The notified polymer contains only low concern functional groups.

## 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** | Amber liquid with ester-like odour (product containing notified polymer) |
| **Melting Point/Glass Transition Temp** | Not determined (the polymer is never isolated from solution) |
| **Density** | Approx. 1000 kg/m$^3$ at 20°C (product MSDS) |
| **Water Solubility** | Not determined. The notified polymer is considered to be dispersible in water based on the structural information (MSDS). |
| **Particle Size** | Not determined (imported in solution) |
| **Reactivity** | Stable under normal storage and use conditions. Hydrolysis of the notified polymer is not expected in the environmental pH range of 4-9 despite the presence of hydrolysable functional groups. |
| **Degradation Products** | None under normal conditions of use described. Carbon oxides will be formed if burned under extreme conditions. |

## 5. INTRODUCTION AND USE INFORMATION

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

| *Year* | *1* | *2* | *3* | *4* | *5* |
|---|---|---|---|---|---|
| *Tonnes* | 1 - 10 | 1 - 10 | 1 - 10 | 1 - 10 | 1 - 10 |

USE AND MODE OF INTRODUCTION AND DISPOSAL

**Mode of Introduction**

The polymer will be imported into Australia as ≥ 70% solution in 1000 L intermediate bulk containers (IBCs). The IBCs are imported into Melbourne VIC ports and transported to warehouses in Tullamarine and Laverton. It will be distributed by road to one customer. Disposal of product is by landfill.

**Reformulation/manufacture processes**

The notified polymer will not be manufactured or reformulated in Australia. The imported solution of the notified polymer will be used in the production of plasterboard jointing products.

During production, the notified polymer is added to the mixing vessel via a dedicated dosing line connected to the IBC. The product enters the vessel where it is mixed with other ingredients (e.g. water, calcite, mineral fillers (mica, talc), biocides and cellulosic thickeners). The final concentration of the notified polymer in the formulated plasterboard jointing products is up to 0.2%. The final products are then checked by quality control before being packed off into 20 L plastic pails via a semi-automated packaging line.

The customer facility has a number of engineering controls and personal protective equipment to control worker exposure. Workers handling the product will be instructed to wear appropriate safety equipment which may include coveralls, safety goggles, boots, face

shield, apron and impervious gloves. All mixing vessels have local exhaust ventilation with dust collectors.

**Use**
Deaerator for manufacture of plasterboard jointing products.

The end product will be sold nationally and will mainly be used by professional trade applicators (> 95%) on construction sites not accessible to the public. The formulated jointing products will be used by trade plasterers and domestic DIY renovators during renovation of existing homes, new homes or commercial construction. The trade person uses these products on a daily basis, alternating between fixing plasterboard and applying jointing which fills the gaps between the sheets of plasterboard. The joints are lightly sanded before both plasterboard and jointing product are painted over.

## 6. HUMAN HEALTH IMPLICATIONS

### 6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE
During transport and storage, workers are unlikely to be exposed to the notified polymer except when packaging is accidentally breached.

Dermal and ocular exposure is possible during mixing of the notified polymer with the other components of the plasterboard jointing products. However exposure to significant amounts of polymer is limited because engineering controls are in place and personal protective equipment, including coveralls, protective eyewear, impervious gloves and protective footwear, is worn during mixing of the products.

Dermal and ocular exposure during application of the products and possible inhalation exposure during sanding are expected to be limited due to the low concentration of the notified polymer in the end use products (maximum 0.2%) and expected use of personal protective equipment.

After application, the notified polymer will be bound in the cured products and it is not expected to be bioavailable.

PUBLIC EXPOSURE
The imported product containing the notified polymer is intended only for use in industry and as such public exposure to the notified polymer during formulation of the imported product is not expected.

Public exposure to the notified polymer is possible during the use of the plasterboard jointing products during home renovations. The exposure profile would be similar to that of workers but less frequent.

6.2. Toxicological Hazard Characterisation
The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. This is consistent with the stated results of in-house tests (reported in the MSDS) for the notified polymer that indicate:

Acute oral LD50: > 2000 mg/kg bw – low toxicity
Skin irritation: Non irritating
Eye irritation: Non irritating

### 6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

The OHS risk presented by the notified polymer is not considered unreasonable, based on the assumed low hazard of the notified polymer as well as the engineering controls and personal protective equipment used by workers to minimise exposure.

PUBLIC HEALTH

Considering the limited exposure, low concentration of the notified polymer in the end use products (< 0.2%) and the expected low toxicity of the notified polymer, the risk to the public from the use of the notified polymer during home renovations is not considered unreasonable.

## 7. ENVIRONMENTAL IMPLICATIONS

### 7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

The notified polymer will not be manufactured in Australia. During the manufacture of plasterboard jointing products, the notified polymer will be batch blended with water, calcite, mineral fillers (mica, talc), biocides and cellulosic thickeners. The maximum concentration of the notified polymer in the final product is expected to be < 0.2 %.

The losses per annum from the reformulation and application processes are estimated to be up to 130 kg per year including:

- Making and breaking transfer connections of IBCs: < 10 kg per year
- Cleaning of vessels: < 10 kg per year
- Cleaning of empty IBCs: < 10 kg per year
- Cleaning of application equipment: < 50 kg per year
- Residues in jointing containers: < 50 kg per year

Discharges from the cleaning of the mixing vessels will be treated on-site in a wastewater treatment plant. All solids are flocculated out and are expected to be sent to landfill. Empty IBCs are sent to a registered waste recycling company for cleaning and refurbishment with the residues expected to be collected for disposal to landfill.

Application equipment cleaning of trowels is expected to be washed directly to sewer (< 50 kg per year). Current practice for disposal of jointing product residues in empty containers is to allow to air dry and then dispose to landfill.

After application curing, the notified polymer will be bound within the plasterboard jointing product matrix.

ENVIRONMENTAL FATE

No study for biodegradability is available. The notified polymer contains monomer units that may biodegrade in the aquatic environment. However, the notified polymer is expected to be stable under the conditions of which it is used. The notified polymer is not expected to be bioaccumulative as based on its high molecular weight it is not likely to cross biological membranes.

The majority of the notified polymer will be bound within the plasterboard jointing product matrix and will not be released to the environment in any significant quantity. At the end of the plasterboard useful life, the notified polymer is expected to be landfilled together with the associated plasterboard. A minor amount of the notified polymer (< 50 kg annually) is expected to be released to sewage treatment plants with cleaning waste water, where it is

likely to be effectively removed from influent by STP processes. In both landfill and water, the notified polymer is expected to eventually degrade by biotic and abiotic processes to oxides of carbon and water.

### 7.2. Environmental Hazard Characterisation

The notified polymer meets the PLC criteria under this proposed use pattern and can therefore be considered to be of low hazard.

### 7.3. Environmental Risk Assessment

The majority of the notified polymer will be incorporated at a low concentration level into plasterboard jointing products and, once applied and dried, poses little risk to the environment since a cured and inert matrix will be formed. It is expected to share the same fate of the plasterboard at the end of its useful life which is most likely to be sent to landfill. Minor amounts are expected to be washed to sewer where it is expected to be removed from the water column by sorption to sludge. In landfill and water, the notified polymer is expected to be slowly degraded by biotic and abiotic processes to form oxides of carbon and water.

Ecotoxicological effects on aquatic species are not expected to be a concern since no significant release of the notified polymer to the aquatic compartment is expected from the reported use pattern.

The notified polymer is not considered to pose an unreasonable risk to the aquatic environment based on its assessed application pattern.