File No: SAPLC/137

July 2012

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

# FULL PUBLIC REPORT

## Polymer in LATEX 3000

This Self Assessment has been compiled by the applicant and adopted by NICNAS in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS), administered by the Department of Health and Ageing and the Department of Sustainability, Environment, Water, Population and Communities have screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at:
For the purposes of subsection 78(1) of the Act, this Full 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 | CHEMICAL OR TRADE NAME | HAZARDOUS SUBSTANCE | MAXIMUM INTRODUCTION VOLUME | USE |
|---|---|---|---|---|---|
| SAPLC/137 | Halliburton Australia Pty Ltd | Polymer in LATEX 3000 | No | 100-125 tonnes per annum | Additive in oilfield cements |

## 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 its 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.
- 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.

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

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.

or

(2) Under Section 64(2) of the Act; if
- the function or use of the notified polymer has changed from an additive for oilfield cements;
- 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 notifier has provided MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

## ASSESSMENT DETAILS

# Polymer in LATEX 3000

## 1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT
Halliburton Australia Pty Ltd (ABN: 73 009 000 775)
53-55 Bannister Road,
CANNING VALE WA 6155

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
USA (TSCA)

## 2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
LATEX 3000 (< 50% notified polymer in water)

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (NAMW) > 10,000 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 | N/A |
| 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** | Milky white liquid |
| **Melting Point/Glass Transition Temp** | Not available due to its highly cross-linked nature. |
| **Density** | 1030 kg/m$^3$ at 20°C |
| **Water Solubility** | Not determined. Expected to be water dispersible based on the presence of hydrophilic functionality and its use in a water based product. |
| **Dissociation Constant** | Not determined. The notified polymer contains functionality that is expected to be ionised in the environmental pH range (4 – 9). |
| **Particle Size** | Suspended in water |
| **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

| *Year* | *1* | *2* | *3* | *4* | *5* |
|---|---|---|---|---|---|
| *Tonnes* | 100 -125 | 100 -125 | 100 -125 | 100 -125 | 100 -125 |

USE AND MODE OF INTRODUCTION AND DISPOSAL

**Mode of Introduction**
The notified polymer will be imported as liquid contained in plastic drums. It will be imported into Perth, Adelaide, Melbourne and Brisbane and stored at the notifier's warehouse before being transported by truck to field locations for use in cement blends.

**Reformulation/manufacture processes**
The notified polymer will not be manufactured or reformulated in Australia.

**Use**
The notified polymer will be used as a gas migration, acid resistance, suspension aid, and fluid loss additive for oilfield cements.

## 6. HUMAN HEALTH IMPLICATIONS

### 6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Dermal and ocular exposure may potentially occur during cement blending processes involving the notified polymer. However, exposure to significant amounts of the notified polymer is limited because of the fully automated processes, engineering controls, and personal protective equipment worn by workers.

The notified polymer is added to dry cement blends and shipped to field locations in bulk trucks. At the field locations, the dry cement is conveyed in an enclosed system to a blender to make a cement slurry with water. The slurry is injected down hole to cement the well.

PUBLIC EXPOSURE

The notified polymer is intended only for use in industry and as such public exposure to the notified polymer is not expected. The notified polymer used for cementing the well will be bound up in the cement matrix, and hence will not be mobile in the environment and exposure is unlikely to occur.

### 6.2. Toxicological Hazard Characterisation

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

### 6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

The OHS risk presented by the notified polymer is expected to be low, based on the minimal exposure to workers and the low intrinsic hazard of the polymer.

PUBLIC HEALTH

As there will be no exposure of the public to the notified polymer or products containing the notified polymer, the risk to the public from exposure to the notified polymer is considered to be negligible and the risk to the public health is not considered to be unreasonable given the predicted low hazard of the notified polymer.

## 7. ENVIRONMENTAL IMPLICATIONS

### 7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

The notified polymer will not be manufactured in Australia. Therefore, release to the environment could only occur through accidental spills or leaks of the storage containers during shipping, transport and warehousing. The notified polymer used for cementing wells will be bound up in a solid cement matrix, and hence will not be released into the environment. Empty storage containers containing notified polymer residues will be consigned to landfills.

ENVIRONMENTAL FATE

The majority of the imported notified polymer will be trapped within an inert solid matrix of set cement and is not expected to be mobile, degradable nor bioavailable in this form. The unbound notified polymer is expected to be water dispersible and hydrolytically stable and not expected to biodegrade rapidly. Based on its very high molecular weight, the unbound notified polymer is expected to have a reduced mobility in soils and sediments. The notified polymer's high molecular weight will preclude absorption across biological membranes and thus it is unlikely to bioaccumulate. The notified polymer is expected to slowly degrade into oxides of carbon, nitrogen, sulphur and water.

**7.2. Environmental Hazard Characterisation**

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.

**7.3. Environmental Risk Assessment**

The notified polymer will be used as cement additive. Once the cement has been set, the notified polymer is expected to remain within the cement matrix. Hence, the vast majority of the notified polymer will not be released to the environment. Any waste is anticipated to be disposed of in a landfill. The notified polymer is expected to ultimately degrade into oxides of carbon, nitrogen and sulphur and water. The above considerations indicate minimal risk to the environment when the notified polymer is used in the manner and levels indicated by the notifier. The notified polymer is not considered to present an unreasonable risk to the environment when it is stored, transported, used, recycled and disposed of in the proposed manner.