

File No PLC/761

26 February 2008

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

**FULL PUBLIC REPORT**

**Polymer in Tegostab B 8443**

This Assessment has been compiled 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) is administered by the 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 Department of the Environment, Water, Heritage and the Arts.

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 334-336 Illawarra Road, Marrickville NSW 2204.

This Full 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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**FULL PUBLIC REPORT****Polymer in Tegostab B 8443****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

International Sales & Marketing Pty Ltd  
 (ABN 36 467 259 314)  
 256 Highett Road  
 HIGHETT VIC 3190

BASF Australia Pty Ltd  
 (ABN 62 008 437 8670)  
 Koroit Road  
 ALTONA VIC 3018

## NOTIFICATION CATEGORY

Polymer of Low Concern

## EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical Name, CAS Number, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details, Import Volume

## VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

No variation to the schedule of data requirements is claimed.

## NOTIFICATION IN OTHER COUNTRIES

USA, Canada, China, New Zealand

**2. IDENTITY OF CHEMICAL**

## MARKETING NAME(S)

Polymer in Tegostab B 8443

## OTHER NAME(S)

Polyether-modified polysiloxane

## MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) >1000 Da

**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

The following properties refer to the formulation Tegostab B 8443 containing the notified polymer at 81%.

Appearance at 20°C and 101.3 kPa:	Brownish liquid
Density	1024 – 1044 kg/m <sup>3</sup>
Dynamic Viscosity	400 – 640 mPa.s at 25°C
Water Solubility	The notified polymer is a non-ionic surface active material which is able to self-emulsify in aqueous system.
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

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Tonnes	10 – 30	10 – 30	10 – 30	10 – 30	10 – 30

##### USE

The notified polymer will be used as a non-hydrolysable polyether polydimethylsiloxane copolymer in the manufacture of polyurethane and polyisocyanurate rigid foam panels used for insulation.

##### Mode of Introduction and Disposal

The notified polymer will be imported (at 81%) or in pre-blended formulations (at <3%) via Melbourne in 210 kg steel drums or 1000 kg plastic containers. The notified polymer will not be manufactured in Australia.

#### 6. HUMAN HEALTH IMPLICATIONS

##### Hazard Characterisation

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

##### Occupational Health and Safety Risk Assessment

The notified polymer will be transported to the notifier's premises where it will be blended with other ingredients to produce a polyol formulation. The formulation will then be transported to customer sites by road tanker where it will be further blended with other components, such as Polymeric Methyl Diisocyanate, Hydrocarbon blowing agent and catalysts to a mixing head and formed into a foam. The foam will be dispensed onto a conveyor which will travel through a heated area to cure the foam into products ready for use in insulation applications.

Exposure to the notified polymer is unlikely during transportation and storage. Exposure may result where an accidental spill or leak from the container occurs. However, transport and storage workers will be expected to wear overalls and steel-capped boots to minimise any potential exposure.

Reformulation will take place in two stages. In the first stage, the notified polymer as imported (at 81%) will be weighed into a container and then added to a closed stainless steel blending vessel along with the other ingredients to produce a polyol formulation. Dermal and ocular exposure can occur during weighing out prior to reformulation, however exposure to significant amounts of the notified polymer is limited because personal protective equipment, including a full-face respirator, overalls, gloves and protective footwear, will be worn while weighing is performed. Inhalation exposure is not expected to be significant given the low vapour pressure and high viscosity of the imported product containing the notified polymer and the natural ventilation of the site where blending takes place. Dermal and ocular exposure during blending is expected to be low due to the process taking place in a closed vessel using automated procedures.

After reformulation into the polyol formulation, the formulation containing the notified polymer (<3%) will be pumped via hoses to a road tanker. Exposure during blending and transfer to a road tanker from drips, spills and splashes of the formulation containing the notified polymer (<3%) may occur in the case of an accident. Exposure is expected to be minimised by the use of appropriate PPE, such as overalls, impervious gloves and goggles.

In the second stage of reformulation at the customer's site, the formulation containing the notified polymer at <3% will be pumped into a blending vessel and added to a mixing head with other ingredients, such as Polymeric Methyl Diisocyanate, hydrocarbon blowing agent and catalysts to form a reactive foam. Once the reactive foam has been produced in the blending vessel, it will be dispensed onto a conveyor belt which will travel through a heated area to cure into a rigid foam which will then be cut into panels. Dermal and ocular exposure to the foam containing the notified polymer (<3%) during connecting and disconnecting hoses from the road tanker to the blending vessel and during the blending processes is expected to be low due to the use of automated procedures and closed systems. Exposure may occur from drips, spills and splashes when the foam is dispensed from the blending vessel onto the conveyor belt. However, throughout these processes, workers will wear appropriate PPE, such as a hard hat, safety glasses, aprons, gloves and safety shoes in order to minimise potential exposure. Inhalation exposure is expected to be low given local exhaust ventilation will be used at the customer's site and the imported product containing the notified polymer has a low vapour pressure and a high viscosity.

Once the foam formulation has been cured and cut into its intended shape, exposure to the notified polymer is not anticipated, as it will be bound within the polymeric foam matrix.

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

#### **Public Health Risk Assessment**

The public may come into contact with cured foam products containing the notified polymer. However, exposure to the notified polymer is not anticipated, as the notified polymer will be bound within the polymeric foam matrix. Thus, the risk to public health will be negligible.

## **7. ENVIRONMENTAL IMPLICATIONS**

#### **Environmental Hazard Characterisation**

No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

#### **Environmental Release**

It is estimated that a very small quantity of waste polymer will be generated per annum from the formulation and mixing operations of the formulator and the client. Little to no scaling is anticipated to take place within the blending vessel and the washout of the vessel is not anticipated to occur frequently.

Approximately 0.1% of the notified polymer (as a percentage of total output) is expected to become waste at the clients premises due to trimming of sandwich panel at the beginning and end of the continuous process. This will equate to approximately 15 kg of Tegostab B 8443 (12 kg of the notified polymer) being released to the environment in the form of solid waste consigned for landfill disposal.

Some residue will also remain in the 'empty' 205 L drums. It is estimated that <0.5% of the import volume of the polymer will remain as residue in drums. This is a conservative estimate, as washings from drums will be introduced into the formulation process. Drums will be sent to a drum recycler for reuse.

In case of spillage, the polymer will be contained on-site by bunding or absorbed using inert material.

#### **Environmental Fate**

Most of the notified polymer is expected to be covalently bound within polyurethane foam products, with the final environmental fate being incineration or landfill. Leaching of the polymer from landfill sites is not expected when it is bound within the inert foam matrix. Degradation of the foam in landfill sites is expected to be slow. Any incineration of the notified polymer is expected to produce water and oxides of carbon and silicone.

**Environmental Risk Assessment**

It is anticipated that the amount of the notified polymer released to the environment will be low. Washings from pump lines will be disposed of to a licensed liquid waste disposal facility, from where it will either be taken to an approved landfill or incinerated. Waste foam will be disposed of in an approved landfill. Foam from articles will be disposed of to landfill or incinerated. The notified polymer when bound in polyurethane/polyisocyanurate foam is not expected to be mobile within landfill sites.

The environmental hazard posed by the polymer is considered to be negligible when manufactured into foam products, as the polymer will be incorporated into the foam matrix.

**8. CONCLUSIONS AND RECOMMENDATIONS****Human health risk assessment**

Under the conditions of the occupational settings described, the notified polymer is not expected to pose an unacceptable risk to workers.

When used in the proposed manner, the notified polymer is not considered to pose an unacceptable risk to the public.

**Environmental risk assessment**

The chemical is not considered to pose a risk to the environment based on its reported 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 *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.

## Disposal

- The notified polymer when bound in polyurethane/polyisocyanurate foam products should be disposed of to landfill.

## Emergency procedures

- Do not allow to enter drains or waterways. Do not discharge to subsoil/soil.

**Regulatory Obligations***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 chemical 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 chemical has changed from a copolymer for the manufacture of polyurethane and polyisocyanurate rigid foams used for insulation, or is likely to change significantly;
  - the amount of polymer being introduced has increased from 30 tonnes, or is likely to increase, significantly;
  - [if the polymer has begun to be manufactured in Australia](#);
  - additional information has become available to the person as to an adverse effect of the 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 notified polymer provided by the notifier was reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.