File No PLC/591

January 2006

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Tegostab B8469

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Director
NICNAS

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1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
International Sales and Marketing (ABN 36 467 259 314) of 262 Highett Rd, Highett, VIC, 3190.

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.

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)
No variation to the schedule of data requirements is claimed.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
USA and Canada: 1997

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Tegostab B8469

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) > 1000

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

Functional Group	Category	Equivalent Weight (FGEW)
Alkoxy Silane	High Concern	>5000

Criterion	*Criterion met (yes/no/not applicable)*
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

4. INTRODUCTION AND USE INFORMATION

MODE OF INTRODUCTION OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS
The notified polymer will be imported into Melbourne as a liquid in 200 kg plastic drums.

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS
10 tonne in year one increasing to potentially 30 tonnes by year five.

USE
Stabiliser used in the production of polyurethane insulation panels.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

Polyol plant

The notified polymer is charged into a blending vessel directly from the drum via a removable lance/diaphragm pump system. The notified polymer is mixed with polyol and then drummed off into 200 kg and 1000 kg drums for transport to the plant manufacturing the panels. The notified polymer is present at 2% in the formulated polyol mixture. All plant operators are reported to wear gloves (nitrile), eye protection, overalls (long sleeve) and safety boots.

Panel Manufacturing Plant

The polyol mixture containing 2% notified polymer is pumped by automated means from the drums to the foaming machine. The polyol mixture reacts with isocyanate at a nozzle head, which injects the foam into a cavity between cover sheets (often aluminium) to form the panel.

End Use

The finished panel is used for insulation mainly in industrial applications.

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

Polyol plant

Dermal and ocular exposure can occur during certain formulation processes such as transfer operations. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls and personal protective equipment worn by workers. Following polyol mixture formulation, exposure to the notified polymer will be further limited by its low concentration (2%).

Panel Manufacturing Plant

Dermal and ocular exposure to drips and spills could occur during the connection and disconnection of transfer lines, however, exposure is expected to be low due to the low concentration of the notified polymer. The use of PPE by workers would further reduce any exposure. Due to the automated nature of the injection system, exposure is expected to be negligible.

End Use

The notified polymer will be enclosed within the panel and as such workers handling the insulation panels are not expected to be exposed to the notified polymer.

6.2. Summary of Public Exposure

The notified polymer is supplied only for use in industry and the insulation panels containing the notified polymer are mainly supplied for industrial applications. Even in the case where the insulation panel is supplied to the public, contact with the notified polymer is not expected as the notified polymer will be enclosed within the panel.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

The notified polymer will not be manufactured in Australia. No release of the notified polymer is expected during transport and storage, except in the event of an accidental spill.

During the production of insulation panels the estimated annual losses of notified polymer are:

Spills	less than 1%	300 kg
Production wastes		

(inc equipment cleaning)	up to 0.5%	150 kg
Import container residuals	less than 2%	600 kg
Total Annual Loss		1050 kg

The majority of the notified polymer will be incorporated into the rigid insulation panels and its fate will be linked with that of the panels.

6.3.2. Environmental Fate

Any spilt material, clean-up material and, possibly, the import container with any residual material will go to landfill. It is likely that any equipment cleaning effluent, containing the notified polymer, will go to an on-site holding/treatment tank and will then be released to sewer under a Trade Waste Agreement.

Drums will generally be collected by a licensed waste contractor for recycling at approved drum reconditioners with any rinsate going to sewer under a Trade Waste Agreement or any residuals in the drum being disposed of by incineration.

In landfill the notified polymer is likely to adsorb to the soil due to its potential surfactant properties.

The notified polymer contains a small amount of alkoxysilane groups which may be hydrolysable but this is unlikely to happen in the environmental pH range of 4-9. The notified polymer is not likely to be readily biodegradable but will slowly degrade over time by abiotic and biotic processes to water, silica and oxides of carbon.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20ºC and 101.3 kPa	Yellowish liquid with distinctive odour
Melting Point	Not determined. Notified polymer is a liquid at 20 ºC
Density	1054 kg/m^3 at 25ºC
Water Solubility	The notified polymer is stated to be insoluble and forms an emulsion in water due to its surfactant properties. Whilst the polymer is silicone based which has low water solubility, it contains a considerable amount of chains with hydrophilic functionality that are likely to increase solubility.
Viscosity (dynamic)	2.45 mPa.s at 25ºC
Flash Point	97 ºC. Due to the expected low vapour pressure of the notified polymer, this value is attributed to be due to a solvent impurity. As the flash point of this impurity is less than its boiling point, the notified polymer as introduced would be considered to be potentially combustible (although not the notified polymer itself).
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

No toxicological data were submitted.

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. Due to impurities present, Tegostab 8469 is classified as a C1 combustible liquid.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

No toxicological data were submitted.

9.2. Environmental Hazard Assessment

No ecotoxicity data were provided for the notified polymer. Nonionic polymers with a number average molecular weight in excess of 1000 are generally of low concern for ecotoxicity because they often have negligible water solubility.

10. RISK ASSESSMENT

10.1. Environment

Limited environmental release of the notified polymer is anticipated except in the case of accidental spills. The majority of the notified polymer will be contained in the inert matrix of the rigid insulation panel. The panels will be used in building construction, so that after many years when the building is demolished the insulation panels will be disposed of along with the other demolition material generally to landfill or possibly by incineration. In landfill, the notified polymer is unlikely to leach from the insulation.

Any material lost as a result of spills or remaining as residues in containers is expected to be recovered and disposed of by incineration, landfill or sewer under a Trade Waste Agreement.

Polymer disposed of to landfill is expected to become associated with the soil matrix and slowly decompose. The incineration of the polymer during drum recycling will produce water vapour and oxides of carbon and silicon.

Due to its proposed use pattern it is unlikely that the notified polymer will be released to water and therefore will not pose a risk to aquatic organisms. The notified polymer is not expected to cross biological membranes, due to its high molecular weight and water solubility and as such should not bioaccumulate.

While no toxicity data are available, based on exposure and use pattern, the notified polymer is unlikely to pose an unacceptable risk to the environment.

10.2. Occupational Health and Safety

The OHS risk presented by the notified polymer is expected to be low due to limited exposure as a result of the use of engineering controls and PPE, and the predicted low toxicity of the notified polymer.

Due to the presence of impurities, Tegostab B8469 is a C1 combustible liquid, and should be handled and stored accordingly.

10.3. Public Health

The notified polymer will not be available to the public. Members of the public may make dermal contact with products containing the notified polymer. However, the risk to public health will be negligible because the notified polymer is enclosed within a panel.

11. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

11.1. Environmental Risk Assessment

The polymer is not considered to pose a risk to the environment based on its reported use pattern.

11.2. Human Health Risk Assessment

11.2.1. Occupational health and safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

11.2.2. Public health

There is Negligible Concern to public health when used in the proposed manner.

12. MATERIAL SAFETY DATA SHEET

12.1. 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.

13. 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.

- Due to the presence of impurities the notified polymer as introduced should be handled consistent with provisions of State and Territory legislation regarding the Handling of Combustible Liquids.

- 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

- The following control measures should be implemented by formulator to minimise environmental exposure during formulation of the notified polymer:
  - All process areas should be bunded with only process drains within the area.

Disposal

- The notified polymer should be disposed of to landfill.

Storage

- Due to the presence of impurities the notified polymer as introduced should be stored consistent with provisions of State and Territory legislation regarding the Storage of Combustible Liquids.

Emergency procedures

- Spills or release of the notified polymer should be handled by containment and use of inert absorbent. The absorbent should be then placed in a sealable labelled container and disposed of to landfill.

13.1. Secondary Notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

(1) Under subsection 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 subsection 64(2) of the Act:

- if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.