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August 2010

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

GENIOSIL STP-E15

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 the Environment, Water, Heritage and the Arts has 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 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

GENIOSIL STP-E15

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT

Wacker Chemie AG (ABN 11 607 113 062)
1/35 Dunlop Road
MULGRAVE VICTORIA 3170

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

NOTIFICATION IN OTHER COUNTRIES
USA, Canada

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
GENIOSIL STP-E15
STP-E-gamma-TMO
SLM 414100
GENIOSIL STP-E35

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (NAMW) >10000

REACTIVE FUNCTIONAL GROUPS
Trimethoxysilylpropyl 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	colourless viscous liquid
Melting Point	-40 °C
Density	1006.4 kg/m^3 at 25°C
Water Solubility	The notified polymer reacts on contact with water to form insoluble cross-linked

	polymers
Reactivity	The notified polymer reacts with ambient humidity through readily hydrolysable functional groups.
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	50	50	50	50	50

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will be imported into Australia at >90% concentration by sea in IBC containers, steel drums, and PE bottles and transported from the wharf by truck and rail to customer sites for reformulation.

Reformulation/manufacture processes

The notified polymer is manufactured in Europe. Customers receiving the notified polymer will mix it with other components (fillers, plasticizers, additives etc) in compounding equipment. The final product will be filled in pails (15 – 20 kg) and cartridges (290 – 310 mL), depending on the use.

Use

The notified polymer will be used as a reactive binder in sealant and adhesive formulations at concentrations from 15 to 30%. Typical applications would include: overpaintable sealants for connection and expansion joints in the construction industry, elastic adhesives in structural and automotive engineering for moderate mechanical loads, chemically curing universal adhesives or mold-making and potting compounds.

The biggest volumes will be used mainly in parquet flooring adhesive (supplied in 20 kg pails) and assembly adhesives (supplied in 310 mL cartridges) for construction and industrial use.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

The notified polymer will be used in the production of sealant and adhesive formulations in standard compounding equipment. During formulation, the liquid polymer will be either pumped from the delivery container into the mixing vessel or allowed to run into the mixing vessel (by gravity). Exposure to the notified polymer of these workers can occur by either dermal or ocular routes, however significant exposure will be limited due to the workplace practices and personal protective equipment used.

Adhesives and Sealants (based on the notified polymer) will be typically provided to the user as paste in cartridges and pails. The sealant will be applied from cartridges into the joint in regular beads, tooled typically with a spatula and smoothed with soapy water before skin formation.
When used as adhesive, it will be applied in beads or dots onto the surface and the two surfaces will be pressed together. For larger surfaces, like in flooring applications, the adhesive containing the notified polymer will be applied from a bucket/pail with an appropriate trowel onto the substrate (floor).
Exposure to the notified polymer during these operations can occur by skin contact. To limit exposure during application, protective gloves (one-way or reusable) should be worn.
Tools for working will be cleaned directly after use mainly mechanically (by scraping off remainders) or with solvent cleaners. During cleaning operations, personal protective equipment should be selected based on the properties of the cleaning agent used.

PUBLIC EXPOSURE
Direct public exposure to the notified polymer is not to be expected. The public may come into contact with products containing the notified polymer. However, the notified polymer will be bound inextricably in the matrix of the final article, elastic joint or adhesive film. Therefore, there is no public exposure expected to the notified polymer.

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
Although exposure to the notified polymer could occur during manual handling, addition to mixing vessels during reformulation and during application, the risk to workers is considered to be low due to the intrinsic low hazard of the notified polymer. However, between 1-2% of methanol could be released, depending on the product formulation containing the notified polymer (maximum 120 g methanol). Therefore, when using large quantities, adequate ventilation of the application area is recommended.

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 anticipated to be bound inextricably within a matrix in articles with which the public may make dermal contact and therefore not expected to be bioavailable. Once cured, the polymer will not emit methanol. Therefore, no methanol exposure is expected from use of adhesive, containing the notified polymer, in flooring.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE
The notified polymer will be imported into Australia and further blended with other components in mixing equipment (extruders) involving mainly closed and automated systems. The import containers will be cleaned with solvents and recycled. The reformulation equipment will also be cleaned with solvents. The cleaning solvents will be recycled or safely disposed. No significant releases are expected from the transportation or reformulation processes.

During application, the blended product containing the notified polymer will be applied as a paste which cures in contact with air moisture to form a crosslinked high molecular weight elastomer and small amounts of methanol. Any limited spills from the application process will be collected for disposal to landfill. Empty containers will be either treated in the same way as the import containers or sent to landfill. Negligible amounts of the notified polymer will be released to the environment during these processes.

ENVIRONMENTAL FATE
The notified polymer will react with moister in the atmosphere when used as a sealant or adhesive to form cross-linked polymers that will not be bioaccumulative or bioavailable.

Most of the notified polymer will be bound in articles after application and will share the fate of the associated articles, which will be most likely sent to landfill at the end of their useful lives. No significant release to sewer is expected, however, if this occurs, the notified polymer is not expected to dissolve but rather disperse, hydrolyse to form silanols, methanol, and cross-linked, high molecular weight polymers, which will settle to sediment and finally be disposed of to landfill. In landfill, the notified polymer will not be mobile and is expected to slowly degrade, forming water and oxides of carbon, nitrogen and silicone.

7.2. Environmental Hazard Characterisation

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

7.3. Environmental Risk Assessment

The polymer is expected to hydrolyse rapidly in use to form methanol, silanols and crosslinked higher molecular weight polymers. The notified polymer is not expected to be toxic to aquatic organisms. Based on the assumed low hazard and the reported use pattern, the notified polymer is not expected to pose a risk to the aquatic environment.

8. CONCLUSIONS

8.1. Level of Concern for Occupational Health and Safety

There is low concern to occupational health and safety under the conditions of the occupational settings described.

8.2. Level of Concern for Public Health

There is negligible concern to public health when used in the proposed manner.

8.3. Level of Concern for the Environment

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

9. RECOMMENDATIONS

CONTROL MEASURES

Occupational Health and Safety

- No specific engineering controls 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.

- Employers should implement the following safe work practices to minimise occupational exposure during handling of the notified polymer [as introduced, in the product Geniosil STP-E15]:
  - When using large quantities, the application area should be well ventilated.

- A copy of the MSDS should be easily accessible to employees.

- If products and mixtures containing the notified chemical 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.

- Ventilation and/or respiratory protection should be employed by users to ensure the airborne concentration of methanol released as a result of hydrolysis does not exceed the time weighted average of 262 mg/m^3 as outlined in the Safe Work Australia *Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment* [NOHSC:3008(1995)] 3rd Edition.

Environment

- Prevent material from entering surface waters, drains or sewers and soil.

- Contain any fluid that runs out using suitable material (e.g. earth).

- Retain contaminated water/extinguishing water.

- Dispose of in prescribed marked containers.

Disposal

- The notified polymer should be disposed of to landfill.

Storage

- Ensure adequate ventilation. Keep away from incompatible substances (i.e. water or protic substances, will form methanol (in small amounts).

- Protect against moisture. Store in original container only. Keep container tightly closed and store in a cool, well ventilated place.

Emergency procedures

- Spills/release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.

9.1. Secondary Notification

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.

(2) Under Section 64(2) of the Act; if
- the function or use of the notified polymer has changed from a component of industrial sealants and adhesives, 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 chemical on occupational health and safety, public health, or the environment.

9. MATERIAL SAFETY DATA SHEET

9.1. Material Safety Data Sheet

The notifier has provided an MSDS of the notified polymer as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.