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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

PUBLIC REPORT

Polymer in Axilat UP600B

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 has screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

This Public Report is 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

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/126	Momentive Specialty Chemicals Pty Ltd	Polymer in Axilat UP600B	No	≤ 500 tonnes per annum	Component of cement sand for mortar/grout/ceramic tile adhesives

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

- Employers should implement the following safe work practices to minimise occupational exposure to the notified polymer as introduced in powder form and as present in end use products:
  - Ensure adequate ventilation is in place to minimise dust levels
  - Avoid the formation of airborne dusts
  - The level of atmospheric dust should be maintained as low as possible. The ACGIH exposure standard for atmospheric dust is 3 mg/m^3.

- Employers should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer during processes where dust may be generated:
  - Use of a dust mask (adequate for respirable particle sizes) as needed.

  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.

Disposal

- The notified polymer should be disposed of to landfill

Emergency procedures

- Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.
- 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 a component of cement sand for mortar/grout/ceramic tile 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 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.

Polymer in Axilat UP600B

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT
Momentive Specialty Chemicals (ABN: 32 004 271 827)
Gate 3, 765 Ballarat Road
Deer Park, Victoria 3023

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, Introduction Volume, Use Details.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
USA

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Axilat UP600B (product containing < 90% notified polymer)

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (NAMW) >10,000 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

Appearance at 20°C and 101.3 kPa	White solid
Melting Point/Glass Transition Temp	14°C
Density	500 kg/m^3 at 20°C
Water Solubility	Insoluble (Based on structural considerations and information in MSDS).
Particle Size	130 μm 7% <10 μm 35% <100 μm
Reactivity	Stable under normal environmental conditions. The notified polymer contains functionality that may slowly hydrolyse in the environmental pH range (4-9).
Degradation Products	None under normal conditions of use. Stable without degradation up to 200°C

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	<80	<150	<250	<400	<500

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will be imported at concentrations < 90% contained in 25kg lined paper bags and 1000kg bulk bags. It will be imported into Port Melbourne and stored at Toll Logistics, Laverton North before being transported by truck to industrial customer(s) Australia wide.

Reformulation/manufacture processes

The notified polymer will be subject to mechanical blending by the industrial customer with cement and sand into final mortar products (containing the notified polymer at < 15% concentration).
The notified polymer, along with the cement sand mix, will be further processed by the end user by the

addition of water.

Use
The notified polymer will be used as an additive in cement sand for mortar/grout/ceramic tile adhesives. Final products will be used industrially and by the public to improve mortar performance. This will involve addition of water, followed by application to the substrate using an applicator tool.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE
Transport and warehousing workers may come into dermal and ocular contact with the notified polymer through accidental leaks and spillages of the containers. During reformulation, workers may manually add the notified polymer to cement and sand using a mixing/blending vessel.
Throughout the reformulation and final application, the blending operator or end-user may come into contact with the notified polymer through dermal, inhalation and ocular routes. The potential for exposure, however, will be lowered as the powder will be added and used in a ventilated area by workers using personal protective equipment.

PUBLIC EXPOSURE
Members of the public may use products containing the notified polymer. There is potential public exposure (via dermal, ocular or inhalation routes) to the cement/sand/polymer powder mix comprised partially of the notified polymer (< 15% concentration). In use/application the cement/sand/polymer mix will be further mixed with water (approximately 20%) and applied manually as mortar, grout, render and ceramic tile adhesive. The liquid mix/blend, which includes the notified polymer, will be cured into an inert matrix and is hence unavailable to exposure.

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.

However, the notified polymer is a high molecular weight (> 10,000 Da), insoluble polymer that is likely to have some particles of respirable size (< 10 μm). Respirable, high molecular weight, insoluble polymer particles are considered to be of some concern, due to studies in which irreversible lung damage was linked with inhalation of respirable particles of such polymers. This is expected to be a physical effect, ie. deposition of particles to the deep lung from where they cannot be removed by normal clearance mechanisms. This may lead to lung overloading at higher exposure levels. Normal lung clearance mechanisms are expected to tolerate low exposures to the notified polymer.

6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY
Dermal and ocular exposure of workers to the notified polymer may occur during the reformulation and end use of products containing the notified polymer. Given that the notified polymer meets the PLC criteria, it is expected to be generally a low health hazard to workers following dermal or ocular exposure.

Inhalation exposure to the notified polymer (< 90%) may also occur, mainly during reformulation processes. However, such exposure is expected to be minimised by performing operations in a well-ventilated area and the wearing of respiratory protection.

The OHS risk presented by the notified polymer is not expected to be unreasonable, assuming that measures are taken to minimise dust levels as much as possible and appropriate respiratory protection is worn by workers during manual transfer of the notified polymer.

PUBLIC HEALTH
The cement/sand/notified polymer powder mixture will be sold to the public (end user). Dermal, ocular and inhalation exposure of the public to the notified polymer (< 15% concentration) may occur during end use. There may be some potential for inhalation of the powder mixture containing the notified

polymer. However, members of the public are expected to avoid inhalation of any dusts generated during handling of the product. Following the addition of water to the mixture, the potential for inhalation exposure is expected to be mitigated. In addition, a low frequency of exposure of workers to the notified polymer is expected and the concentration of the notified polymer in such products is relatively low. Once the polymer is applied and cured it will be contained in an inert cement matrix, and hence will not be bioavailable.

In summary, the risk to the public from exposure to the notified polymer is not expected to be unreasonable, based on the low concentration of respirable particles of the notified polymer, the assumed low hazard of the notified polymer, the relatively low concentrations present in end use products and the expected low frequency of exposure.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

Release of the notified polymer into the environment during shipping, transport and warehousing may occur through accidental spills or leaks of storage vessels. During formulation, workers will manually add the notified polymer to cement and sand using mixing/blending vessels. Losses of the notified polymer through mixing of chemicals, cleaning of the plant equipment and residues in empty containers are estimated to ≤ 0.1% of the total imported volume of the polymer. Water washings from the cleaning of equipment may be reused in subsequent batches of mortar, or disposed of to soil or the sewer. Dried unused cement and old cement materials from demolition operations are expected to be disposed of to landfill. Wastes from application are expected to be hardened and disposed of to landfill.

ENVIRONMENTAL FATE

In set cement materials, the notified polymer will be trapped within a solid matrix and is expected to be immobile and not bioavailable. The unbound polymer is expected to be hydrolytically stable and to be not readily biodegradable. Due to its hydrophobic nature, it is expected that the notified polymer in landfill will associate with sediments and organic phases of soil and sediments. Bioaccumulation of the notified polymer is not likely based on its high molecular weight and limited potential for exposure to the aquatic environment, when used as proposed. Ultimately, the notified polymer is expected to degrade slowly to form water and oxides of carbon.

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

Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.