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

FULL PUBLIC REPORT

Polymer 2 in Vinnapas LL 5014

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**Director
NICNAS**

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FULL PUBLIC REPORT

Polymer 2 in Vinnapas LL 5014

1. APPLICANT DETAILS

APPLICANT(S)

Wacker Chemicals Australia Pty. Ltd. (ABN: 005712489)
Unit 18/20 Duerdin St
Clayton North
VIC 3168

NOTIFICATION CATEGORY

Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical Identity, Residual Monomers/Impurities, Manufacture or Import Volume, Purity.

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

Canadian NSN 13214, 2004

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Vinnapas LL 5014 (contains 50-80% notified polymer)
Vinnapas LL 5016 (contains 50-80% notified polymer)
Vinnapas LL 7250 (contains 50-80% notified polymer)
Vinnapas LL 7200 (contains 50-80% notified polymer)

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

The notified polymer contains only low concern functional groups.

<i>Criterion</i>	<i>Criterion met (yes/no/not applicable)</i>
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. INTRODUCTION AND USE INFORMATION

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

Imported as a 50-80% component of the products Vinnapas LL 5014, Vinnapas LL 5016, Vinnapas LL 7250 and Vinnapas LL 7200, which are imported as powders.

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>
<i>Tonnes</i>	100-300	100-300	100-300	100-300	100-300

USE

The products containing the notified polymer will be used in cement-based formulations. Formulations containing <3% Vinnapas LL 5014 or Vinnapas LL 5016 will be used in self-levelling floor compounds. Formulations containing <10% Vinnapas LL 7250 or Vinnapas LL 7200 will be used in tile adhesives, trowelling compounds and repair mortars.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

The product containing 50-80% notified polymer is shipped via sea-freight in 25 kg or 975 kg bags, or in bulk, taken to a warehouse for repackaging, and then transported to 3-10 reformulation sites.

At these sites, the product is added to blending vessels, either with a trowel or by emptying whole bags into holding vessels from which the required amount is dosed. Batch sizes are > 500 kg, and contain up to 3% Vinnapas LL 5014 or Vinnapas LL 5016 (up to 0.09% notified polymer) or 10% Vinnapas LL 7250 or Vinnapas LL 7200 (up to 8% notified polymer). Packing of the powdered cement based formulations is done with automatic bagging machines, with the bag fitted manually and tightly around an exit tube, and the 20 kg bags filled pneumatically.

The cement based formulations are sold to mainly industrial customers where they are mixed with other components to produce liquid concrete. Concrete containing Vinnapas LL 5014 or Vinnapas LL 5016 will be used in applications such as self-levelling flooring. Concrete containing Vinnapas LL 7250 or Vinnapas LL 7200 will be used in a number of applications such as ceramic tile adhesives, synthetic texture coats and decorative concrete overlays.

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

Workers may have dermal, ocular or inhalation exposure to dust particles generated when adding the product containing the notified polymer to the blending vessels. In some cases exhaust ventilation is used to limit exposure to airborne dusts. It would be expected that ocular and inhalation exposure would be limited with PPE or engineering controls, due to the potential of mechanical irritation from the dust.

Construction workers may have inhalation and dermal exposure to the dry mortar containing up to 8% notified polymer. This product is further diluted when the liquid product is produced.

6.2. Summary of Public Exposure

The notified polymer is intended for use in industry. Generally, members of the public may come into contact with products containing the notified polymer, however exposure will be negligible as the notified polymer will not be bioavailable.

The notifier has indicated that the products containing the notified polymer are intended for use by industry. However, a small proportion of products containing Vinnapas LL 7250 or Vinnapas LL 7200 may be sold to the public from hardware stores. The amount of notified polymer in these products would be <1%. There is potential for dermal, ocular and inhalation exposure of the public to the notified polymer.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

The notified polymer is a major ingredient (>50% w/w) of several products that are imported in powder form in 975 or 25 kg bags or in bulk. It is expected that less than 1% of the formulated product will remain as residue in the import bags. Therefore, up to 3000 kg of the notified polymer will remain in the bags, which are expected to be disposed of to landfill.

Following local reformulation into powdered cement-based formulations, the end use of the notified polymer is in industrial construction adhesives and mortar, and will be bound up in the hardened matrix of adhesive/mortar. Possible environmental release will be in the form of wind dispersal of the dry adhesive/mortar product during container opening and transfer. Due to the low concentration of the notified polymer within the end-use products, this is unlikely to be a significant route of environmental exposure.

There are only twelve sites within Australia where the products are likely to be stored and handled in any significant quantity or concentration and therefore there is minimal risk of environment exposure from these sources if spillage procedures are followed.

6.3.2. Environmental Fate

The ultimate fate of the notified polymer will be linked to the disposal of construction materials from building demolition which is usually direct to landfill where the notified polymer is expected to associate with the soil matrix and sediments and slowly degrade through abiotic and biotic processes to water vapour, oxides of carbon and sulphur and sodium salts. The notified polymer is not expected to cross biological membranes due to its high molecular weight and water solubility and is therefore not expected to bioaccumulate.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Clear solution in water (formulation).
Melting Point/Glass Transition Temp	Not determined.
Density	1030 kg/m ³ at 25°C
Water Solubility	Low. The notified polymer lacks hydrophilic functionality.
Particle Size (for the products)	<55% < 100µm <12% < 10µm
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

The following toxicological results were submitted for an analogous polymer that was not identified:

<i>Endpoint</i>	<i>Result</i>	<i>Classified?</i>	<i>Effects Observed?</i>
Rat, acute oral LD50 >2000 mg/kg bw	low toxicity	no	no
Rabbit, eye irritation	non-irritating	no	no

All results were indicative of low hazard. The above results are based on an unspecified but claimed to be chemically closely related copolymer, which has been tested according to OECD test-guidelines and GLP.

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. The absence of any observed effects in the toxicity testing confirms the low hazard.

The particle size distribution of the Vinnapas LL products containing the notified polymer indicates that up to 55% of the particles are inspirable (<100 µm), and up to 12% are respirable (<10 µm).

9. ENVIRONMENTAL HAZARDS

The following toxicological studies were submitted for an analogous polymer:

<i>Endpoint</i>	<i>Result and Conclusion</i>
Fish Toxicity	EC50 >1000 mg/L
Inhibition of Bacterial Respiration	EC10 >1000 mg/L at 30 min

The above results are based on an unspecified but claimed to be chemically closely related copolymer, which has been tested according to OECD test-guidelines and GLP. These are in line with literature results for nonionic polymers.

OR

9.2. Environmental Hazard Assessment

Nonionic polymers with MW > 1000 are generally of low concern.

10. RISK ASSESSMENT

10.1. Environment

The notified polymer is used in industrial construction adhesives and mortars, and will be bound up in the hardened matrix of adhesive/mortar. Release to the environment is expected to be minimal. Therefore, it is not possible to predict the Predicted Environmental Concentration (PEC) or Predicted No Effect Concentration, and thus, a PEC/PNEC calculation cannot be undertaken. However, based on exposure arguments the PEC will be very low, and the likely non-hazardous nature of the notified polymer to the aquatic environment, the risk of use of this notified polymer is expected to be acceptable.

10.2. Occupational Health and Safety

Although there is potential for workers to be exposed to dust containing the notified polymer, it is expected to be at low concentration, and present a low hazard, and therefore the OHS risk presented by the notified polymer is expected to be low. The notified polymer may be present in formulations containing hazardous ingredients. If these formulations 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.

The product containing the notified polymer contains particles of inspirable and respirable size. The level of atmospheric nuisance dust should be maintained as low as possible. The NOHSC exposure standard for atmospheric dust is 10 mg/m³.

10.3. Public Health

The notified polymer will not generally 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 present at low concentrations and bound within a matrix and unlikely to be bioavailable.

As some products containing the notified polymer will be supplied to the general public, there is the potential for dermal, ocular and inhalation exposure to the notified polymer at <1% in concrete-based formulations. The particle size of the product is low and there is some risk of mechanical irritation of the respiratory tract via inhalation exposure. However, the risk to public health is considered to be low, based on the low concentration of the notified polymer, the likelihood of infrequent use, and the low toxicity of the notified polymer.

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 No Significant 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 an MSDS for the product containing the notified polymer 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

- Employers should implement safe work practices to minimise occupational exposure to atmospheric dust containing the notified polymer. The NOHSC exposure standard for atmospheric dust is 10 mg/m³.
- 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 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

- Prevent uncontrolled release to the environment.

Disposal

- Product: Excess product containing the notified polymer should be collected and allowed to harden prior to disposal to landfill.
- Packaging: Packaging which cannot be reused or recycled should be disposed of to landfill or in accordance with local regulations.

Storage

- While in the moderately soluble form of the import products, the product should be stored away from sources of moisture.

Public health

- Where products containing the notified polymer are available to the public, labels should contain safety directions to minimise dust formation and inhalation exposure.

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.