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

FULL PUBLIC REPORT

Component of Vinnapas® LL 5016

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**Director
NICNAS**

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FULL PUBLIC REPORT**Component of Vinnapas® LL 5016****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Wacker Chemicals Australia Pty Ltd (ABN 42 005 712 489)
Unit 18, 20 Duerdin Street
CLAYTON NORTH VIC 3168

NOTIFICATION CATEGORY

Polymer of Low Concern.

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Structural formula

Means of identification

Number average molecular weight

Weight average molecular weight

Weight percentage of polymer species MW < 1000 and MW < 500

Charge density

Polymer constituents

Residual monomers and impurities

Particle size distribution

Reactive functional groups including FGEW

Intended Use

Manufacture or Import Volume

Site of Reformulation

Purity

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

The physicochemical property data for the product Vinnapas® LL 5016 which is the only trade product that contains the notified polymer and is imported into Australia are submitted.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None.

NOTIFICATION IN OTHER COUNTRIES

USA (2004), Canada (2004)

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Component of Vinnapas® LL 5016 (contains the notified polymer at <10%)

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn)

Between 1000 and 10000

% of Low MW Species < 1000

< 20%

% of Low MW Species < 500

< 10%

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

<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

The notified polymer itself is manufactured in Germany and is sent to Australia in the form of a powder.

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>	1-3	1-3	1-3	1-3	1-3

USE

The notified polymer is used as a component of Vinnapas® LL5016 (<10% ingredient), a cementitious flooring compound.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

The notified polymer itself is manufactured overseas and then reformulated in Australia.

Formulations are obtained in a closed system by transferring the requisite amounts of Vinnapas® LL5016 via a suction addition station into a mixing vessel and mixing with other powders at room temperature to result in a dry mortar. Vinnapas® LL5016 is pumped into the mixer automatically. The dry mortar contains typically 3% of the Vinnapas® LL5016 (which is <0.3% of the notified polymer). The dry mortar is packaged in 20 kg valved paper polyethylene composite sacks and then delivered to the customer where it is mixed with water on the building site using a mechanical mixer typically in a 20 L pail to give a liquid formulation of cementitious and gypsum based systems. The mortar is applied by pouring or pumping. It is spread with a gauging tool from standing/walking position or with spiked roller.

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

Dermal and ocular exposure can occur during certain formulation processes. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls (local exhaust ventilation) and personal protective equipment worn by workers in addition to the low concentration of notified polymer in the imported product.

It is estimated that one to ten industrial customers will use the notified polymer in Vinnapas® LL5016. The customers typically have 1-2 employees in the operation who have little or no exposure to the notified polymer.

6.2. Summary of Public Exposure

The notified polymer is not sold to public. There is potential for extensive public exposure to mortar that incorporated into the flooring compounds and screeds. However, the notified polymer is cured into an inert matrix and is hence unavailable to exposure.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

The notified polymer is an ingredient (< 10% w/w) of Vinnapas® LL5016 that is imported in powder form, likely to be packaged in bulk bags, typical to this type of product. The products are stored at two warehouses, prior to being distributed to 3-10 reformulating sites. It is expected that less than 1% of the formulated product remains as residue in the import bags. Therefore, up to 30 kg of the notified polymer remains in the bags, which are expected to be disposed of to authorised landfill.

The formulated products, containing the notified polymer, are then further formulated with other ingredients to produce mortar products that are typically packaged in valved paper polyethylene composite sacks of approximately 20 kg capacity of the end use formulated product, and which consists of <0.3% w/w of the notified polymer containing products.

The end use of the notified polymer is in industrial and domestic mortars, and is bound up in the hardened mortar matrix. Possible environmental release is in the form of wind dispersal of the dry 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 is minimal risk of environmental exposure from storage and reformulation facilities if storage, handling and spill procedures are followed.

6.3.2. Environmental Fate

The ultimate fate of the notified polymer is 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, nitrogen 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

The notified polymer is imported as a component (<10%) of Vinnapas® LL5016. There are no physicochemical properties known for the notified polymer and the properties below are those of Vinnapas® LL5016.

Appearance at 20°C and 101.3 kPa	Solid white powder.
Melting Point/Glass Transition Temp	Not applicable.
Density	400-600 kg/m ³ at 25°C (bulk density)
Water Solubility	Moderately miscible at 20°C.
Dissociation Constant	The notified polymer has significant levels of dissociable species and corresponding acidity.
Particle Size	Vinnapas® LL5016: Mean particle size: 93.7 µm
	Inspirable range 59.93% (<6% of the notified polymer in Vinnapas® LL5016)
	Respirable range: 8.89% (0.9% of the notified polymer in Vinnapas® LL5016)
Reactivity	No obvious reactivity potential.
Degradation Products	None under normal conditions of use.

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

The following toxicological end-point was submitted for analogous polymer Vinnapas® EP 17.

<i>Endpoint</i>	<i>Result</i>	<i>Classified?</i>	<i>Effects Observed?</i>
Rabbit, eye irritation	Slight irritant	no	yes

The test was performed in accordance with OECD guidelines for testing of chemicals. The test report included a statement of GLP compliance.

The result was indicative of low hazard.

Toxicological information was available for a closely related polymer, which has been tested according to OECD test-guidelines and GLP sponsored by Wacker-Chemie GmbH showed the following results:

Test	Result
Acute oral toxicity (rat)	LD50 > 2000 mg/kg

8.1.1. Discussion of observed effects

Rabbit, eye irritation: Neither iridal effects nor corneal opacity nor corneal epithelial damage nor ocular corrosion was observed. Irritation of the conjunctivae which consisted of redness and/or discharge was observed within 1 hour in three animals. The irritation completed resolved within 24 hours in two animals and within 48 hours in the third animal.

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

Ecotoxicological information was available for a polymer, claimed to be closely related but there are differences in the chemical structure (eg it is anionic). The polymer, which has been tested according to OECD test-guidelines and GLP sponsored by Wacker-Chemie GmbH shows the following results:

Test	Result
Acute toxicity (fish)	96 h LC 50 > 1000 mg/L
Bacterial respiration inhibition	30 min EC 10 > 1000 mg /L

The notified polymer is soluble in water. The potential for bioaccumulation is expected to be low due to the high molecular weight. Anionic polymers such as the notified are known to be moderately toxic to algae. The mode of toxic action is overchelation of nutrient elements needed by algae for growth. The highest toxicity is when there are anionic groups on alternating carbons of the polymer backbone as in the present case. However, the toxicity to algae is likely to be reduced due to the presence of calcium ions, which binds to the functional groups.

10. RISK ASSESSMENT

10.1. Environment

The notified polymer is used in industrial and domestic mortars, and is bound up in the hardened matrix of mortar. Release to the aquatic environment is expected to be low. Therefore, it is not possible to calculate 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 is very low, and the likely low hazard of the notified polymer to the aquatic environment suggests that the risk to the environment is low.

10.2. Occupational Health and Safety

The OHS risk presented by the notified polymer is expected to be low due to the low hazard and low exposure to workers. 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.

10.3. Public Health

The low hazard of the notified polymer coupled with low public exposure suggests a low risk to public health.

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 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.
- 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 authorised landfill.

Emergency procedures

- Spills/accidental release of the notified polymer should be handled by physical containment, followed by collection and safe disposal to authorised 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.
 - the notified polymer is introduced in a form other than as a minor component of Vinnapas® LL5016

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.