

File No PLC/848

July 2009

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

FULL PUBLIC REPORT

Polymer in Versamid Pur 1010

This Assessment has been compiled 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) is administered by the Department of Health and Ageing, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Department of the Environment, Water, Heritage and the Arts.

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**

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FULL PUBLIC REPORT**Polymer in Versamid Pur 1010****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Cognis Australia Pty Ltd (ABN 87 006 374 456)

4 Salinga Drive

Tullamarine VIC 3043

NOTIFICATION CATEGORY

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, and Use Details

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

Canada (2007)

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Versamid PUR 1010

REACTIVE FUNCTIONAL GROUPS

The notified polymer contains a high concern functional group. However, the FGEW is > 5000 Da.

3. PLC CRITERIA JUSTIFICATION*Criterion*

Molecular Weight Requirements

Functional Group Equivalent Weight (FGEW) Requirements

Low Charge Density

Approved Elements Only

Stable Under Normal Conditions of Use

Not Water Absorbing

Not a Hazard Substance or Dangerous Good

Criterion met

Yes

Yes

Yes

Yes

Yes

Yes

Yes

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa:

Transparent viscous liquid

Melting Point

Begins to decompose above 205°C

Glass Transition Temp	-75°C, 144°C and 173°C
Density	1012 kg/m ³ at 20°C
Water Solubility	0.05 g/L at 20°C. Flask method was used. The TOC of the supernatant of the centrifuged sample was determined.
Dissociation Constant	Dissociation is not expected since no dissociable groups present in the notified polymer
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of storage and use

5. INTRODUCTION AND USE INFORMATION

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>	10	30	50	70	100

Use

A component of polyurethane printing inks at < 20% for the packaging industry.

Mode of Introduction and Disposal

The notified polymer will be imported by sea in 200L drums as a 35% solution in propanol and propylacetate. The drums will be transported by truck from the wharves to the ink manufacturers' premises and reformulated into printing inks before being applied onto plastic packaging film.

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation

No toxicological data were submitted. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

Occupational Health and Safety Risk Assessment

Dermal and ocular exposure may occur during reformulation of the notified polymer to make printing inks, particularly during pouring, mixing and cleaning of equipment. However, exposure to significant amounts of the notified polymer will be limited given the engineering controls (ventilation and extraction system) and personal protective equipment (nitrile gloves, safety boots, overalls, safety goggles) worn by workers. Engineering controls and PPE are considered particularly important to minimise worker exposure to the solvents present in the mixture. Once the ink has been cured, the notified polymer becomes a polymer matrix attached to the substrate, and therefore, exposure to the notified polymer from contact with the dried ink is not expected. The risk to workers is not unacceptable given the low hazard of the polymer and the use of PPE and engineering controls.

Public Health Risk Assessment

The notified polymer is intended only for use in the printing industry and will not be available to the public. The public may come into contact with the cured ink, however in this form the notified polymer is bound within the ink matrix, therefore it is expected that exposure will not occur. Given the low intrinsic hazard of the polymer and the low level of exposure, the risk to public health is considered low.

7. ENVIRONMENTAL IMPLICATIONS

Hazard Characterisation

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

Environmental Risk Assessment

The majority of the notified polymer will be bound within the cured printing matrix adhering to printed substrates and share the fate of the substrates. Part of the notified polymer will be sent to landfill together with printed substrates, the other part of the notified polymer will undergo paper recycling processes. During waste paper recycling, the notified polymer will be detached from the fibre, deposit onto sediment and finally be disposed of to landfill. Limited amount of release of the notified polymer will be either sent to landfill, or thermally decomposed into water and oxides of carbon and nitrogen during recycling of the metal containers.

The notified polymer is not considered readily degradable based on its structure. In landfill, it is not expected to leach based on its hydrophobic structure and will undergo slow biotic and abiotic degradation processes into water and oxides of carbon and nitrogen.

Based on the above, the notified polymer is not expected to pose an unacceptable risk to the aquatic ecosystem from the reported use pattern.

8. CONCLUSIONS AND RECOMMENDATIONS

Human health risk assessment

Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unacceptable risk to the health of workers.

When used in the proposed manner, the notified polymer is not considered to pose an unacceptable risk to public health.

Environmental risk assessment

Based on the reported use pattern, the notified polymer is not considered to pose a risk to the environment.

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 *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.

Disposal

- The notified polymer should be disposed of to landfill.

Storage

- The following precautions should be taken regarding storage of the notified polymer:
 - Store in sealed drums or containers.

Emergency procedures

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

Regulatory Obligations

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 industrial printing inks, 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.

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 provided by the notifier was reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.