

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

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in Prosperse™ 100

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government Department of Health, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Australian Government Department of the Environment.

For the purposes of subsection 78(1) of the Act, this Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This 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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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
PLC/1215	Dow Chemical (Australia) Limited Rohm and Haas Australia Pty Ltd	Polymer in Prosperse™ 100	No	≤ 60 tonnes per annum	Component of timber coatings

CONCLUSIONS AND REGULATORY OBLIGATIONS

Human Health 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 health of workers and the public.

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.

Health and Safety Recommendations

- 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 (M)SDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation should be in operation.

Disposal

- The notified polymer should be disposed to landfill.

Emergency Procedures

- 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;
 - the notified polymer is intended to be used in products for spray applications.or
- (2) Under Section 64(2) of the Act; if
 - the function or use of the notified polymer has changed from a component of timber coatings, 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 (M)SDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants

Dow Chemical (Australia) Limited (ABN: 72 000 264 979)
Level 17, 8 Exhibition Street
MELBOURNE VIC 3000

Rohm and Haas Australia Pty Ltd (ABN: 29 004 513 188)
Level 17, 8 Exhibition Street
MELBOURNE VIC 3000

Exempt Information (Section 75 of the Act)

Data items and details claimed exempt from publication: chemical name, other name, CAS number, molecular and structural formulae, molecular weight, polymer constituents, residual monomers/impurities and import volume.

2. IDENTITY OF POLYMER

Marketing Name

Prosperse™ 100 (product containing < 35% notified polymer)

Molecular Weight

Number Average Molecular Weight (Mn) is > 10,000 Da

3. PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met</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. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20 °C and 101.3 kPa	Milky white liquid*
Melting Point/Glass Transition Temp	Not determined, the polymer is not isolated from solution.
Density	1,000 – 1,200 kg/m ³ *
Water Solubility	Expected to be low due to dominant hydrophobic groups
Dissociation Constant	The notified polymer contains anionic functionalities with a typical pKa ~ 4. However, it is not expected to be a concern in the environment given its expected low water solubility.
Particle Size	Not determined, the polymer is not isolated from solution.
Reactivity	Stable under normal environmental conditions
Degradation Products	None known under normal conditions of use

* Properties of Prosperse™ 100, a product containing < 35% notified polymer.

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>
Tonnes	10 – 30	10 – 30	10 – 30	30 – 40	30 – 60

The notified polymer will not be manufactured in Australia. It will be imported as a component of Prosperse™ 100, a product containing < 35% of the notified polymer. Prosperse™ 100 will be imported in 235 kg plastic drums through sea ports in Melbourne, transported by road to the warehouses and distributed to reformulation sites throughout Australia.

Use

At the reformulation sites, Prosperse™ 100 containing < 35% notified polymer will be formulated into clear or tinted coatings for interior timber flooring. The finished coating products will contain approximately 30% of the notified polymer.

During reformulation, Prosperse™ 100 will be manually weighed and poured into a high-speed disperser mixing tank with the aid of drum lifting machine. Once blended with other ingredients, the finished coating products will be decanted into 1, 4, 15 or 20 L steel and/or plastic containers for sale to both DIY consumers and professional painters.

The finished coating products containing the notified polymer will be applied to the timber by brush or roller.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. However the notified polymer has low water solubility and a relatively high molecular weight. Inhalation exposure to water insoluble polymers with high molecular weight has been linked with irreversible lung damage due to lung overloading and impaired clearance of the polymers from the lung, particularly following repeated exposure (US EPA, 2013).

Although not considered in this risk assessment, NICNAS notes that the notified polymer contains residual monomers that are classified as hazardous according to the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia. These are not present in the notified polymer as introduced above the cut off concentrations for classification.

Occupational Health and Safety Risk Assessment

Worker exposure to the notified polymer during the importation, transport and storage is not expected, except in the event of an accident where packaging may be breached. Reformulation workers may experience dermal and ocular exposure to the notified polymer up to 35%. Professional painters using the finished coatings may come into contact with the notified polymer at approximately 30% concentration. However, given the assumed low hazard, the risk posed by exposure to the notified polymer is not considered unreasonable.

Although the notified polymer may have potential to cause lung overloading, since the notified polymer will not be isolated from the solution, inhalation exposure is not expected during the reformulation and application unless aerosols are formed. Once the coatings are dried, the notified polymer will be bound within the solid polymer matrix and will not be available for further exposure.

Public Health and Safety Risk Assessment

The public may be exposed to the notified polymer at a concentration of approximately 30% during use of the finished coating products. However, given the assumed low hazard, the risk posed by exposure to the notified polymer is not considered unreasonable.

Although the notified polymer may have potential to cause lung overloading, since the notified polymer will not be isolated from the solution and will not be used in spray applications, inhalation exposure is not expected under the proposed use conditions. Once the coatings are dried, the notified polymer will be bound within the solid polymer matrix and will not be available for further exposure.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. Polymers without significant ionic functionality are generally of low concern to the environment. The notified polymer is not expected to be readily biodegradable based on the structural information. It is also not expected to bioaccumulate in aquatic organisms given its high molecular weight.

The majority of the imported polymer (> 90%) is expected to be trapped into the coating film after application. The notified polymer will share the fate of the associated substrate and is expected to go to landfill. In landfill, the polymer is expected to be immobile since it is bound in the insoluble dry paint film. Up to 4% of the notified polymer may be released to sewer systems with wash water from formulation and application equipment. Up to 3% of the notified polymer may be in domestic wash water and be applied to household gardens when hosing equipment. Due to the high molecular weight, the notified polymer released to sewer is expected to be removed in sewage treatment plants by adsorption to sludge. The sludge is expected to be finally sent to landfill. In landfill, the notified polymer is expected to be immobile due to its high molecular weight and low water solubility. Eventually, it is expected to undergo biotic and abiotic degradation processes to form oxides of carbon and nitrogen.

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