

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

POLYMER OF LOW CONCERN FULL PUBLIC REPORT

Polymer in Repel-O-Tex Crystal

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government 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 Australian Government Department of Sustainability, Environment, Water, Population and Communities.

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 Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

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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1. APPLICANT AND NOTIFICATION DETAILS

Applicants

Rhodia Chemicals Pty Ltd (ABN: 80 004 449 870)
44 Real Avenue
Norman Park QLD 4170

Brenntag Pty Ltd (ABN: 24 050 029 000)
Building 25, Omnico Business Park
270 Ferntree Gully Road
Notting Hill VIC 3168

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.

2. IDENTITY OF POLYMER

Marketing Name(s)

Polymer in Repel-O-TEX Crystal

Number Average Molecular Weight (Mn) is > 1,000 Da

Reactive Functional Groups

The notified polymer contains only low concern functional groups.

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	Pale yellow viscous liquid*
Melting Point	< 4 °C*
Density	1097 kg/m ³ at 22 °C*
Water Solubility	Estimated to be >700 g/L based on its concentration in aqueous solution. The notified polymer is expected to be water dispersible due to the presence of polar functionality.
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use
*For imported product containing 70% notified polymer in aqueous solution	

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	50-100	50-100	50-100	50-100	50-100

Use

The notified polymer will not be manufactured in Australia. It will be imported at a concentration of 70% and subsequently reformulated. The notified polymer will be used as a component of liquid laundry detergents, fabric softeners and other fabric care products (liquids and gels) at concentrations up to 2%.

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. The risk of the notified polymer to occupational and public health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

7. ENVIRONMENTAL RISK ASSESSMENT

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

The majority of the notified polymer is expected to be released to sewer during use in detergents and fabric care products and, to a lesser extent, from treated aqueous waste released during formulation. In sewage treatment plants (STPs) the majority of notified polymer is expected to sorb to sludge, which will be sent to landfill or used for soil remediation. Empty import and product containers containing notified polymer residue are expected to be disposed of to landfill. Notified polymer residues in landfill or soil are expected to degrade biotically and abiotically to form water and oxides of carbon.

A predicted environmental concentration in rivers (PEC_{river}) can be calculated on the assumptions that 100% of the total annual import volume is released to sewer nationwide, and that 90% of the notified polymer is removed by adsorption to sludge during STP processes. The PEC_{river} is 6.47 $\mu\text{g/L}$ if the daily chemical release ($100,000 \text{ kg}/365 = 274 \text{ kg}$) is diluted by the daily effluent production ($200 \text{ L/person/day} \times 21.16 \text{ million people} = 4,232 \text{ ML}$) and multiplied by a mitigation factor of 10% to account for polymer removed by adsorption to sludge.

The maximum concentration of notified polymer in rivers following discharge of treated effluent is below the LC50 for aquatic organisms of the most toxic non-ionic surfactants ($LC50 > 1 \text{ mg/L}$). The notified polymer will not bioaccumulate due to its high molecular weight ($NAMW > 1000$) and is likely to be removed from the water column by sorption to solids over time. The notified polymer is not expected to occur in surface waters at ecotoxicologically significant concentrations. Hence, the notified polymer is not likely to pose an unreasonable risk to the aquatic environment when used and disposed according to the typical pattern for detergents and fabric care products.

8. RECOMMENDATIONS

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 reported 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 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 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.or
- (2) Under Section 64(2) of the Act; if
 - the function or use of the notified polymer has changed from a component of fabric care products, 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 a product containing the notified polymer was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.