

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in 3M Floor Coatings

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**

June 2014

Table of Contents

SUMMARY	2
CONCLUSIONS AND REGULATORY OBLIGATIONS.....	2
ASSESSMENT DETAILS.....	4
1. APPLICANT AND NOTIFICATION DETAILS.....	4
2. IDENTITY OF POLYMER	4
3. PLC CRITERIA JUSTIFICATION	4
4. PHYSICAL AND CHEMICAL PROPERTIES.....	4
5. INTRODUCTION AND USE INFORMATION	5
6. HUMAN HEALTH RISK ASSESSMENT.....	5
7. ENVIRONMENTAL RISK ASSESSMENT	5

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/1176	3M Australia Pty Ltd	Polymer in 3M Floor Coatings	No	≤ 230 tonnes per annum	Component of floor 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.or
- (2) Under Section 64(2) of the Act; if
 - the function or use of the notified polymer has changed from a component of floor 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 a 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

3M Australia Pty Ltd (ABN: 90 000 100 096)
Building A, 1 Rivett Road
NORTH RYDE NSW 2113

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 import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

3M Scotchguard™ Resilient Floor Protector (product containing 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	White fluid*
Melting Point/Glass Transition Temp	~0 °C*
Density	1,060 kg/m ³ *
Water Solubility	Not determined. Expected to be water dispersible based on the presence of hydrophilic functionalities and its use in aqueous products.
Dissociation Constant	Not determined. The notified polymer is a salt that is expected to be ionised under environmental conditions (pH 4-9).
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use
*Product containing the 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	150	170	190	210	230

Use

The notified polymer will be imported as a component of floor coating products. The imported products containing the notified polymer will not be manufactured, reformulated or repackaged in Australia.

The coatings containing the notified polymer will be applied to linoleum, vinyl tile (VCT) and vinyl sheet flooring substrates. The products will be directly applied to the floor as a liquid and mopped or rolled out with a mop apparatus.

The coatings containing the notified polymer will only be available to trained professionals through industrial chemical suppliers and will not include DIY users. Once cured, the notified polymer will be part of an inert matrix.

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. Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is over-chelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. This is unlikely to apply to the notified polymer and it is therefore not considered to be an over-chelation hazard to algae. The notified polymer may also contain cationic functionality, however the cationic charge density is low and the notified polymer is therefore not expected to be of concern to the aquatic environment.

During professional use, product containing the notified polymer will be applied by mop or roller techniques. Residues, containing the notified polymer, on mops and rollers are expected to be rinsed into containers and then allowed to cure before disposal, as solid wastes, to landfill.

For a worst case release scenario it is assumed that up to 5% of the notified polymer could be incorrectly disposed of to sewer, drains or ground from waste and washing of application equipment. Assuming these releases occur nationwide and equally over the entire year, the predicted environmental concentration (PEC) is estimated to be 6.97 µg/L [$\text{PEC}_{\text{river}} = 31.5 \text{ kg notified polymer/day} \div (200 \text{ L/person/day} \times 22.613 \text{ million people}) \times 1 \text{ (dilution factor)}$]. This PEC is well below the EC50 for algae of the most toxic anionic polymers ($\text{EC}_{50} > 1 \text{ mg/L}$). Therefore, the notified polymer is not expected to be released to surface waters at ecotoxicologically significant concentrations.

The notified polymer associated with the discarded floor materials is expected to be disposed of to landfill. In landfill, the notified polymer incorporated into an inert matrix of cured coating is not expected to be mobile or bioavailable. Due to its high molecular weight, the notified polymer is not expected to cross biological membranes and is therefore unlikely to be bioaccumulative. It is expected to degrade in landfill by abiotic and biotic processes, to form water and oxides of carbon and nitrogen. Therefore, based on its assumed low hazard and assessed use pattern the notified polymer is not considered to pose an unreasonable risk to the environment.