

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

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in Beckosol® 3758-M-85

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 and Energy.

This Public Report is 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/1470	Rust-Oleum Australia Pty Ltd	Polymer in Beckosol® 3758-M-85	No	≤ 5 tonnes per annum	Component of wood 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 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 of 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

- Where reuse or recycling are not appropriate, dispose of the notified polymer in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

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 application;

or

- (2) Under Section 64(2) of the Act; if
 - the function or use of the notified polymer has changed from component of wood 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.

Safety Data Sheet

The SDS of the products containing the notified polymer was provided by the applicant. The accuracy of the information on the SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants

Rust-Oleum Australia Pty Ltd (ABN: 86 112 409 926)
Unit 12, 4 Southridge Street
EASTERN CREEK NSW 2766

Exempt Information (Section 75 of the Act)

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

2. IDENTITY OF POLYMER

Marketing Name(s)

Beckosol® 3758-M-85 (product containing ~ 85% concentration of the notified polymer)

Other Name(s)

Vara Out Oil BS Semi-GL GAL (imported coating product containing < 20% concentration of the notified polymer)

Molecular Weight

Number Average Molecular Weight (Mn) is > 1,000 g/mol.

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	Clear amber liquid*
Melting Point/Glass Transition Temperature	Not determined
Density	928 – 940 kg/m ³ at 25 °C*
Water Solubility	Expected to be low based on the predominantly hydrophobic structure of the notified polymer
Dissociation Constant	Contains functionality that is expected to be ionised in the environmental pH range (4-9)
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use
* Properties of Beckosol® 3758-M-85 (product containing ~ 85% concentration of the notified polymer in organic solvent, not imported)	

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	3 – 4	3 – 5	3 – 5	3 – 5	3 – 5

Use

The notified polymer will be used as a component of wood coatings.

No manufacturing or reformulation of the notified polymer will be carried out in Australia. It will be imported at < 20% concentration in finished coating products in sealed metal containers. These products will not be repackaged in Australia and will be mainly for the consumer do-it-yourself (DIY) market.

Application of the finished coating products containing the notified polymer will be mostly undertaken by DIY end-users. The method of application will be by brush or roller. Main routes of exposure include dermal and ocular. Public use of the coating products is expected to be infrequent with limited quantities. Use of appropriate personal protective equipment (PPE) and application in areas with adequate ventilation, as suggested by the notifier, will minimise the potential for exposure.

Once the coatings are cured, the notified polymer will be bound into inert matrix and will not be available for exposure.

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 generally of low toxicity to fish and daphnia, however they are known to be moderately toxic to algae. The mode of toxic action is over-chelation of the nutrient needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone leading to chelation of essential nutrients. The notified polymer contains functionality that dilutes the chelating effect, which results in significantly reduced toxicity to algae (Boethling & Nahbolz, 1997).

The notified polymer will be imported as a component of finished coating products. Release of the notified polymer to the environment during import, transport and storage is expected to be limited to accidental spills or leaks. These releases are expected to be collected with absorbent materials and disposed of to landfill in accordance with local government regulations.

During use, coatings containing the notified polymer are expected to be applied to wood surfaces by brush or roller by Do-It-Yourself (DIY) users. Most of the notified polymer will be irreversibly incorporated within the coating of the exterior of various substrates upon curing. Up to 5% of the notified polymer used by DIY users may be incorrectly disposed of to the sewer, drains or ground from waste and washing of application equipment. Assuming the releases occur nationwide and equally over the entire year, the predicted environmental concentration (PEC) for rivers is estimated as 0.14 µg/L [$0.05 \times 5\,000\text{ kg} \div (200\text{ L per person per day} \times 24.4\text{ million persons} \times 365\text{ days})$].

The anionic polymers that are most toxic to algae are known to have EC₅₀ values of > 1 mg/L (Boethling & Nahbolz, 1997). As this is likely to be the most sensitive species an assessment factor of 100 is used to estimate the predicted no effect concentration (PNEC). Therefore the PNEC is likely to

be $> 10 \mu\text{g/L}$ and hence the release of the notified polymer from incorrect disposal to sewer is unlikely to lead to eco-toxicologically relevant concentrations in the aquatic environment.

The notified polymer in paints and coatings cured on the substrate will share the fate of the coated article, which ultimately is expected to be disposed of to landfill. A small proportion of the notified polymer may remain as residues in end-use containers or on a drop sheet from over-application or brush transfer. These residues are expected to be disposed of to landfill along with the containers in accordance with local regulations. In landfill, the notified polymer will be present as cured matrix, which will be neither bioavailable nor mobile. The notified polymer is not expected to bioaccumulate due to its high molecular weight. In landfill the notified polymer is expected to slowly degrade to water and oxides of carbon.

Therefore, based on its assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

BIBLIOGRAPHY

Boethling, RS & Nabholz VJ (1997) Environmental Assessment of polymers under the U.S. Toxic Substances Control Act. In: Hamilton, JD Sutcliffe R ed. Ecological Assessment of Polymers Strategies for Product Stewardship and Regulatory Programs, 1st ed. New York, Van Nostrand Reinhold, pp 187-234.