

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

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in Joncryl® PRO 1524

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**

February 2018

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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/1465	BASF Australia Ltd	Polymer in Joncryl® PRO 1524	No	< 120 tonnes per annum	Component of water based anti-corrosion 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.or
- (2) Under Section 64(2) of the Act; if
 - the function or use of the notified polymer has changed from a component of water based anti-corrosion 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 product 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

BASF Australia Ltd (ABN: 62 008 437 867)
Level 12, 28 Freshwater Place
SOUTHBANK VIC 3006

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)

Joncryl® PRO 1524 (product containing the notified polymer at 42 – 43% concentration)

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	Pinkish liquid*
Melting Point/Glass Transition Temperature	0 °C* (imported as aqueous dispersion)
Density	1,030 kg/m ³
Water Solubility	Dispersible
Dissociation Constant	Not determined. The notified polymer contains potential anionic functionalities which are expected to be ionised in the environmental pH range (4 – 9)
Reactivity	Expected to be stable under normal environmental conditions
Degradation Products	None expected under normal conditions of use
* Properties of Joncryl® PRO 1524 (aqueous dispersion containing the notified polymer at 42 – 43% concentration)	

The notified polymer is never isolated from manufactured solution.

5. INTRODUCTION AND USE INFORMATION

Maximum Introduction Volume of Notified Chemical (100%) Over Next 5 Years

Year	1	2	3	4	5
Tonnes	< 20	< 40	< 120	< 120	< 120

Use

The notified polymer will be used as a component in water based anti-corrosion coatings for application to interior and exterior metals. The primary application method for products containing the notified polymer will be spray at industrial facilities.

Mode of introduction

The notified polymer will not be manufactured or repackaged in Australia. The notified polymer will be introduced in the product Joncryl® PRO 1524 at concentration of 42 – 43% in water or in final paint products at concentration of $\leq 20\%$. Joncryl® PRO 1524 will be imported in 200 kg drums or 1,000 L intermediate bulk containers (IBCs). Final paint products containing the notified polymer will be imported in 1 – 10 L cans and in 210 kg drums.

Reformulation

At reformulation sites, factory operators will be involved in transferring the aqueous dispersion of the notified polymer from imported containers (200 kg drums or 1,000 L IBCs) into a paint mixer under local exhaust ventilation. The transfer operation will involve gravity or low pressure pump transfer of the aqueous dispersion of the notified polymer. High and low speed mixing will be used to blend the paint components.

Quality assurance (QA) personnel will take samples and test the final paint formulations containing the notified chemical. Samples will be taken using cups and poured into sealable 200 mL steel containers for further examinations in a laboratory.

Filling line staff will operate and clean the automated filling equipment. The finished paint products containing the notified polymer (at $\leq 20\%$ concentration) will be filled into 1, 4, 10 L cans or 210 kg drums by gravity feed. Filling lines will be equipped with ventilation extraction systems.

Paint products will be stored in the warehouse and further distributed to customers.

End-use operations

Final paint products containing the notified polymer (at $\leq 20\%$ concentration) can be used for metal surface application, and applied by brush, roller or spray in industrial facilities. Limited sales of paints containing the notified polymer to the public are anticipated by the notifier.

6. HUMAN HEALTH RISK ASSESSMENT

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

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 of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia.

7. ENVIRONMENTAL RISK ASSESSMENT

Anionic polymers are generally of low toxicity to fish and daphnia, however they can 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.

However, this does not apply to the notified polymer, and it is therefore not considered to be an over-chelation hazard to algae.

The notified polymer will be imported into Australia either in end-use paints, or in aqueous dispersions for reformulation into the end-use paints. The reformulation process will involve transferring the dispersions containing the notified polymer into a paint mixer using gravity or low pressure pumps, where it will be blended with other ingredients in a closed system. The finished paints will then be automatically filled into end-use containers. Liquid waste from cleaning of the reformulation equipment will be disposed of through an approved waste management facility. Release of the notified polymer to the environment in the event of accidental spills or leaks during reformulation, storage and transport is expected to be absorbed on suitable materials and disposed of to landfill in accordance with local government regulations.

The paints containing the notified polymer will primarily be used by professionals and, to a limited extent by do-it-yourself (DIY) users. During use, the paints containing the notified polymer are expected to be applied by brush, roller, and spray techniques. It is expected that some of the paints will be in the form of overspray during spraying operations, and will typically entail disposal to landfill after being collected and cured. The liquid waste from cleaning of the application equipment is expected to be collected by a licensed waste contractor, and disposed of safely. During use, the notified polymer may also be released to the environment as accidental spills. These releases are expected to be collected and disposed of to landfill in accordance with local government regulations.

Based on the notifier's assumption that up to 1% of the total annual import volume of notified polymer is used by DIY users, environmental exposure from the following worst-case scenario was calculated. Up to 5% of the amount 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 over the entire year and there is no removal of the notified polymer during wastewater treatment, the predicted environmental concentration (PEC) is estimated to be 0.03 µg/L. The anionic polymers that are most toxic to algae are known to have EC50 values of > 1 mg/L (Boethling & Nabholz, 1997). As this is likely to be the most sensitive species, an assessment factor of 100 was used to estimate the Predicted No-Effect Concentration (PNEC). Therefore, the estimated PNEC is likely to be > 10 µg/L. Thus, release of the notified polymer from the assessed use pattern is not expected to lead to ecotoxicologically significant concentrations in the aquatic environment.

Most of the notified polymer is expected to share the fate of the articles on which it was applied, to be either recycled for metal reclamation or disposed of to landfill at the end of their useful life. A small proportion of the notified polymer may remain as residue in empty import and end-use containers. These residues are expected to be cured and disposed of to landfill along with the containers in accordance with local regulations. During metal reclamation, the notified polymer will thermally decompose to form water vapour and oxides of carbon, silicon and nitrogen. In landfill, the notified polymer will be present as cured solids and will be neither bioavailable nor mobile. The notified polymer is not expected to bioaccumulate due to its high molecular weight. The notified polymer in landfill and water is expected to eventually degrade via biotic and abiotic processes to form water and oxides of carbon, silicon and nitrogen.

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 Revised ed. Ecological Assessment of Polymers Strategies for Product Stewardship and Regulatory Programs, 1st ed. New York, Van Nostrand Reinhold, pp 187-234.