File No PLC/1421

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in Z-186

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

September 2017

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SUMMARY

The following details will be published in the NICNAS *Chemical Gazette:*

ASSESSMENT REFERENCE	APPLICANT	CHEMICAL OR TRADE NAME	HAZARDOUS SUBSTANCE	INTRODUCTION VOLUME	USE
PLC/1421	Lubrizol International Inc.	Polymer in Z-186	No	≤ 100 tonnes per annum	Component of 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

- In the interest of occupational health and safety, the following precautions should be observed during spray application of coatings containing the notified polymer:

  - Apply in well ventilated areas
  - Respiratory protection where significant inhalation exposure may occur

  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.

- Spray applications should be carried out in accordance with the Safe Work Australia Code of Practice for Spray Painting and Powder Coating (Safe Work Australia, 2015) or relevant State or Territory Code of Practice.

- 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 component of 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 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
Lubrizol International Inc. (ABN: 52 073 495 603)
28 River Street
SILVERWATER NSW 2128

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, spectral data, polymer constituents, residual monomers/impurities, and import volume.

2. IDENTITY OF POLYMER

Marketing Name
Z-186 (product containing the notified polymer at < 40% concentration)

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

3. PLC CRITERIA JUSTIFICATION

Criterion	*Criterion met*
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	Opaque liquid*
Melting Point/Glass Transition Temp	Not determined
Density	1,000 - 1,100 g/m^3 at 20 °C*
Water Solubility	Not determined. The notified polymer is expected to be dispersible in water
Dissociation Constant	Not determined. The notified polymer contains potential cationic functionalities. However, it is not expected to be ionised in the environmental pH range of 4-9
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

*For the product containing the notified polymer at < 40% concentration

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	20-25	30-35	40-50	60-75	75-100

Use
The notified polymer will not be manufactured in Australia. The notified polymer will be imported either as manufactured at 32-34% concentration or in end use products (interior and exterior wood finishes) at 6-34% concentration. If imported as manufactured, it will be reformulated into interior and exterior wood finishes. The wood finishes will be applied by brush, roller or spray and will be made available to the public.

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 is a high molecular weight (> 70,000 Da) polymer with expected low water solubility. Inhalation of polymers with molecular weights > 70,000 Da has been linked with irreversible lung damage due to lung overloading and impaired clearance of particles from the lung, particularly following repeated exposure. If the notified polymer is inhaled at low levels and/or infrequently, it is assumed that it will be cleared from the lungs.

Workers may be at risk of lung overloading effects during spray application of the wood finish coatings. Provided that proper control measures are employed to reduce inhalation exposure, the risk to workers posed by exposure to the notified polymer is not considered unreasonable.

The risk to Do-It-Yourself (DIY) users during spray application of wood finish coatings is considered low, because of the low frequency and duration of exposure.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted for the notified polymer. The notified polymer contains potentially cationic functionality, however the functional group equivalent weight (FGEW) of the notified polymer is higher than 5,000 Da, therefore the notified polymer is not expected to be of concern to the aquatic environment.

The notified polymer will be imported into Australia either as end use wood finishing products, or as a neat polymer for reformulation into the end use products. Accidental spills of the notified polymer during import, transport, storage or reformulation are expected to be adsorbed onto a suitable material and collected for disposal in accordance with local regulations. Small amounts of the notified polymer may remain as residues in empty import and end use containers, which are expected to be disposed of in accordance with local regulations. Solvent washing from reformulation equipment cleaning is expected to be treated as site industrial waste and collected by a licensed contractor.

The end use products containing the notified polymer are expected to be used by professional contractors, and DIY users. When the coatings containing the notified polymer are applied via spraying, the overspray is expected to be collected and trapped onto filters and cured before disposal of to landfill. Waste from application equipment cleaning from professional use is expected to be collected by a licensed contractor for disposal of in accordance with local regulations. It is expected that ≤ 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 occurs nationwide and over the entire year, this is unlikely to lead to ecotoxicologically relevant concentrations of the notified polymer in the aquatic environment.

Based on its use pattern, most of the notified polymer is expected to share the fate of the wood articles on which it applied to, to be disposed of to landfill at the end of their life cycle. 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 is expected to eventually degrade via biotic and abiotic 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.

BIBLIOGRAPHY

Safe Work Australia (2015) Code of Practice: Spray Painting and Powder Coating, Safe Work Australia, https://www.safeworkaustralia.gov.au/doc/model-code-practice-spray-painting-and-powder-coating.