

File No.: LTD/2100

December 2019

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

**PUBLIC REPORT**

**Polymer in OS341991**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the 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 Department of the Environment and Energy.

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**Director  
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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 CHEMICAL	INTRODUCTION VOLUME	USE
LTD/2100	Lubrizol International Incorporated  PPG Industries Australia Pty Ltd	Polymer in OS341991	ND*	< 100 tonnes per annum  < 10 tonnes per annum	Component of industrial coatings

\*ND = not determined

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### **Hazard Classification**

As no toxicity data were provided, the notified polymer cannot be classified according to the *Globally Harmonised System of Classification and Labelling of Chemicals* (GHS), as adopted for industrial chemicals in Australia.

### **Human Health Risk Assessment**

Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unreasonable risk to the health of workers.

When used in the proposed manner, the notified polymer is not considered to pose an unreasonable risk to public health.

### **Environmental Risk Assessment**

On the basis of the reported use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

### **Recommendations**

#### **CONTROL MEASURES**

##### **Occupational Health and Safety**

- A person conducting a business or undertaking at a workplace should implement the following engineering controls to minimise occupational exposure to the notified polymer:
  - Enclosed/automated processes
  - Local exhaust ventilation
  - Spray booth during spray application
- A person conducting a business or undertaking at a workplace should implement the following safe work practices to minimise occupational exposure during handling of the notified polymer:
  - Avoid contact with skin and eyes
  - Avoid inhalation of aerosols
- A person conducting a business or undertaking at a workplace should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer:
  - Protective clothing
  - Impervious gloves
  - Eye protection
  - Respiratory protection during spray application

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

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

#### Emergency procedures

- Spills or accidental release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.

#### 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.

### Regulatory Obligations

#### *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 chemical 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 chemical, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified chemical/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 polymer has a number-average molecular weight of less than 1000 g/mol;or
- (2) Under Section 64(2) of the Act; if
  - the function or use of the polymer has changed from component of industrial coatings, or is likely to change significantly;
  - the amount of polymer being introduced has increased, or is likely to increase, significantly;
  - the polymer has begun to be manufactured in Australia;
  - additional information has become available to the person as to an adverse effect of the 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 and products containing the notified polymer provided by the notifier were reviewed by NICNAS. 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

PPG Industries Australia Pty Ltd (055 500 939)  
14-20 McNaughton Road  
CLAYTON VIC 3168

#### NOTIFICATION CATEGORY

Limited: Synthetic polymer with  $M_n \geq 1,000$  g/mol

#### EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details exempt from publication include: chemical name, other names, CAS number, molecular and structural formulae, molecular weight, analytical data, degree of purity, polymer constituents, residual monomers, impurities, additives/adjuvants, use details, import volume, and identity of manufacturer and recipients.

#### VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

Schedule data requirements are varied for all physical and chemical properties, except for flash point and flammability.

#### PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANTS

None

#### NOTIFICATION IN OTHER COUNTRIES

Taiwan (2015)

### **2. IDENTITY OF CHEMICAL**

#### MARKETING NAMES

OS341991 (product containing the notified polymer at  $\leq 60\%$  concentration)

#### MOLECULAR WEIGHT

Number average molecular weight ( $M_n$ ) is  $> 1,000$  g/mol.

#### ANALYTICAL DATA

Reference NMR, IR, GPC, UV spectra were provided.

### **3. COMPOSITION**

#### DEGREE OF PURITY

$> 95\%$

### **4. PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE AT 20 °C AND 101.3 kPa: Amber liquid

<i>Property</i>	<i>Value</i>	<i>Data Source/Justification</i>
Melting Point/Freezing Point	Not determined	Introduced in organic solvent
Boiling Point	Not determined	Introduced in organic solvent
Density	1,219-1,363 kg/m <sup>3</sup> at 25 °C	Calculated
Vapour Pressure	Not determined	Expected to be low based on high molecular weight
Water Solubility	Slightly soluble	SDS

<b>Property</b>	<b>Value</b>	<b>Data Source/Justification</b>
Hydrolysis as a Function of pH	Not determined	Contains hydrolysable functionalities, but significant hydrolysis is not expected in environmental pH range (4-9)
Partition Coefficient (n-octanol/water)	Not determined	Not isolated from organic solvent solution
Adsorption/Desorption	Not determined	Expected to have low mobility in soil based on estimated low water solubility
Dissociation Constant	Not determined	Contains dissociable functionalities, but significant dissociation is not expected in environmental pH range (4-9) based on estimated low water solubility
Flash Point	Did not flash but burns at 181 °C	Measured
Flammability	Burns at 181 °C	Measured
Autoignition Temperature	Not determined	Introduced in organic solvent
Explosive Properties	Not explosive	Estimated
Oxidising Properties	Not oxidising	Estimated

## DISCUSSION OF PROPERTIES

For details of the flash point test refer to Appendix A.

*Reactivity*

Based on the limited data provided, the notified polymer is expected to be stable under normal conditions of use.

**Physical Hazard Classification**

Based on the limited submitted physico-chemical data, the notified polymer cannot be classified according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia.

**5. INTRODUCTION AND USE INFORMATION**

## MODE OF INTRODUCTION OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

The notified polymer will not be manufactured in Australia. It will be imported into Australia at  $\leq 60\%$  concentration in organic solvent for reformulation, or as a component of finished coatings at  $< 10\%$  concentration.

## MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

## Lubrizol International Inc.

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	$< 100$	$< 100$	$< 100$	$< 100$	$< 100$

## PPG Industries Australia Pty Ltd

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	$< 10$	$< 10$	$< 10$	$< 10$	$< 10$

## PORT OF ENTRY

Melbourne and Sydney

## TRANSPORTATION AND PACKAGING

The notified polymer will be imported at  $\leq 60\%$  concentration in organic solvent in 200 L metal drums, or in finished coatings at  $< 10\%$  concentration in 500 mL or 2 L plastic bottles, and transported by road for distribution to coating manufacturers or industrial coating applicators, respectively.

The formulated finished coatings containing the notified polymer at  $< 10\%$  concentration will be packed in 1 L or 5 L cans, 20 L pails, or in 200 L drums, and will be transported by road or rail for distribution to industrial coating applicators. Solvent-borne coatings will be packed in steel-lined containers and water-borne coatings will be packed in plastic containers.

**USE**

The notified polymer will be used as a component of industrial coatings at < 10% concentration for metal substrates.

**OPERATION DESCRIPTION***Reformulation*

The notified polymer at  $\leq 60\%$  concentration will be transferred from the imported drums, using a spear pump, into a closed mixing vessel and mixed with other components. After blending, samples of the finished products will be taken for quality control testing. The finished coatings containing the notified polymer at < 10% concentration will be filled into 1 L or 5 L cans, 20 L pails, or 200 L drums by pump and distributed to end-users.

*End-use*

The finished industrial coatings containing the notified polymer at < 10% concentration will only be used by trained industrial users in industrial settings. Application will be conducted in spray booths or in an adequately ventilated area by spray, brush, roller or dip coating. Coatings will also be applied by automatic fixed or robotic applications.

**6. HUMAN HEALTH IMPLICATIONS****6.1. Exposure Assessment****6.1.1. Occupational Exposure****CATEGORY OF WORKERS**

<i>Category of Worker</i>	<i>Exposure Duration (hours/day)</i>	<i>Exposure Frequency (days/year)</i>
Transport	8	10
Distribution	4	20
Warehouse	2	100
Process operator	3	60
Quality control	3	60
End-use	5	30

**EXPOSURE DETAILS***Transport and storage*

Transport, distribution and warehouse workers are not expected to be exposed to the notified polymer except in the unlikely event of an accident.

*Reformulation*

During reformulation at the coating manufacturing facilities, dermal and ocular exposure to the notified polymer at  $\leq 60\%$  concentration may occur during transfer to the mixing vessel, blending, quality control analysis and cleaning and maintenance of equipment. Given the expected low vapour pressure of the notified polymer, inhalation exposure to the notified polymer is not expected unless aerosols are formed. According to the notifier, workers exposure will be minimised through the use of enclosed and automated systems, local exhaust ventilation and personal protective equipment (PPE: protective clothing, goggles and impervious gloves).

*End-use*

Exposure to coatings containing the notified polymer at < 10% concentration may occur during transfer, application and cleaning of application equipment. The potential for exposure will be minimised through the stated use by the notifier of PPE (protective clothing, goggles and impervious gloves) by workers, including the use of respiratory protection during spray application. Inhalation exposure will be further mitigated through the use of exhaust ventilation and spray booths, where possible.

Workers may come into contact with substrates coated with the notified polymer after application. However, once the coatings are cured and dried, the notified polymer will be bound within a solid matrix and will not be available for exposure.

### 6.1.2. Public Exposure

Finished coatings containing the notified polymer at < 10% concentration will be for industrial use only and will not be made available to the public. The public may come into contact with surfaces that have been coated with products containing the notified polymer. However, once the coatings are cured and dried, the notified polymer will be bound into an inert solid matrix and will not be available for exposure.

### 6.2. Human Health Effects Assessment

No toxicological data were submitted for the notified polymer.

The notified polymer is not expected to be readily absorbed across biological membranes, based on its high molecular weight (> 1,000 g/mol), low water solubility and low levels (< 2%) of low molecular weight species (< 500 g/mol).

The notified polymer contains a structural alert for irritation.

#### Health Hazard Classification

As no toxicity data were provided, the notified polymer cannot be classified according to the *Globally Harmonised System of Classification and Labelling of Chemicals* (GHS), as adopted for industrial chemicals in Australia.

### 6.3. Human Health Risk Characterisation

#### 6.3.1. Occupational Health and Safety

No toxicity data was provided for the notified polymer. Based on chemical structure, the notified polymer may have irritant properties. Systemic absorption of the notified polymer is expected to be limited.

##### Reformulation

Workers may be at risk of irritation effects when handling the notified polymer at  $\leq 60\%$  concentration during reformulation. The use of enclosed and automated processes and PPE (protective clothing, goggles and gloves) by workers, should minimise this risk.

##### End-use

Workers may be at risk of irritation effects when handling finished coatings containing the notified polymer at < 10% concentration. The use of PPE (protective clothing, goggles and gloves) by workers, including the use of respiratory protection during spray application, should minimise this risk. Inhalation exposure should be further mitigated through the use of exhaust ventilation and spray booths, where possible. After application and once dried, the notified polymer will be bound into an inert solid matrix and will not be available for exposure.

Therefore, under the occupational settings described, the risk to the health of workers from use of the notified polymer is not considered to be unreasonable.

#### 6.3.2. Public Health

End use coatings containing the notified polymer at < 10% concentration will be used in industrial settings only and will not be made available to the public. The public may come into contact with articles containing the notified polymer. However, once the coatings are cured and dried, the notified polymer will be bound into an inert solid matrix and will not be available for exposure. Therefore, when used in the proposed manner, the risk to public health is not considered to be unreasonable.

## 7. ENVIRONMENTAL IMPLICATIONS

### 7.1. Environmental Exposure & Fate Assessment

#### 7.1.1. Environmental Exposure

##### RELEASE OF CHEMICAL AT SITE

The notified polymer will be imported into Australia either in finished coatings, or in formulations for reformulation into finished coatings. The reformulation process involves blending operation in an enclosed environment, followed by automatic filling of the finished products into end-use containers. As estimated by the notifier, up to 2% of the import volume of the notified polymer may be lost due to spills and cleaning of equipment during reformulation, which will be disposed of by approved waste management facilities. Release of the products



containing the notified polymer in the event of accidental spills or leaks during storage and transport will be absorbed on suitable materials before disposal, in accordance with local government regulations.

#### RELEASE OF CHEMICAL FROM USE

The notified polymer will be used as a component of industrial coatings for metal substrates. Application will be conducted in spray booths or in an adequately ventilated area by spray, brush, roller or dip coating. Coatings will also be applied by automatic fixed or robotic applications.

The main release of the notified polymer is likely from overspray during use, estimated by the notifier to account for up to 10% of the total import volume. The overspray will be collected and cured before disposal, in accordance with local government regulations. Liquid waste from cleaning of application equipment, estimated by the notifier to account for up to 1% of the total import volume, will be disposed of by approved waste management facilities. After the coatings have been applied onto the metal substrate, they will be cured by air-drying at ambient temperature or oven-baked.

#### RELEASE OF CHEMICAL FROM DISPOSAL

The notified polymer is expected to share the fate of the articles to which it has been applied, either subjected to metal reclamation processes or being disposed of to landfill at the end of their useful lives. Residual notified polymer in empty containers, estimated by the notifier to account for up to 2% of the total import volume, will be disposed of by approved waste management facilities.

#### 7.1.2. Environmental Fate

No environmental fate data were submitted. The majority of the notified polymer will share the fate of the articles to which it has been applied, either subjected to metal reclamation processes or being disposed of to landfill at the end of their useful lives. A minor amount of the notified polymer may also be disposed of to landfill as collected spills and empty container residues. During metal reclamation processes, the notified polymer will thermally decompose to form water vapour and oxides of carbon and phosphorous. In landfill, the notified polymer will be present as cured solids and will be neither bioavailable nor mobile. It is expected to eventually degrade via biotic and abiotic processes to form water and oxides of carbon and phosphorous.

#### 7.1.3. Predicted Environmental Concentration (PEC)

The predicted environmental concentration (PEC) has not been calculated as release of the notified polymer to the aquatic environment will be limited based on its reported use pattern.

#### 7.2. Environmental Effects Assessment

No ecotoxicological data were submitted for the notified polymer.

##### 7.2.1. Predicted No-Effect Concentration (PNEC)

A predicted no-effect concentration (PNEC) for the aquatic compartment has not been calculated as ecotoxicological data for the notified polymer are not available.

#### 7.3. Environmental Risk Assessment

A Risk Quotient (PEC/PNEC) has not been calculated as ecotoxicological data for the notified polymer are not available, but release of the notified polymer to the aquatic environment will be limited, based on its reported use pattern. Therefore, based on its reported use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

**APPENDIX A: PHYSICAL AND CHEMICAL PROPERTIES****Flash Point**

Did not flash, but burned at 181 °C

Method	ASTM Standard D93-12, 2012
Remarks	Pensky-Martens Closed Cup method.
Test Facility	Lubrizol (2015)

**BIBLIOGRAPHY**

Lubrizol (2015) Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester for [Notified polymer] (Study No: T131620, March, 2015). Wickliffe, Ohio, USA, The Lubrizol Corporation (Unpublished study submitted by the notifier).

SWA (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>.

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