File No PLC/1203

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

2-Propenoic acid, 2-methyl-, octadecyl ester, polymer with butyl-2-propenoate and 1-ethenyl-2-pyrrolidinone

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:

Street Address:	Level 7, 260 Elizabeth Street, SURRY HILLS NSW 2010, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX:	+ 61 2 8577 8888
Website:	www.nicnas.gov.au

Director
NICNAS

July 2014

Table of Contents

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/1203	Lubrizol International Inc.	2-Propenoic acid, 2-methyl-, octadecyl ester, polymer with butyl-2-propenoate and 1-ethenyl-2-pyrrolidinone	No	≤ 20 tonnes per annum	Stabiliser in polymers

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.

- If aerosols are formed during the use of the notified polymer, engineering controls and respiratory protection should be used to prevent inhalation exposure.

- A copy of the (M)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, 2012) 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 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 of 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 being used as a stabiliser in polymer synthesis, 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 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

Applicant
Lubrizol International Inc. (ABN: 52 073 495 603)
28 River Street, P.O. Box 6445
SILVERWATER NSW 2128

Exempt Information (Section 75 of the Act)
No details are claimed exempt from publication.

2. IDENTITY OF POLYMER

Marketing Name
Z-146

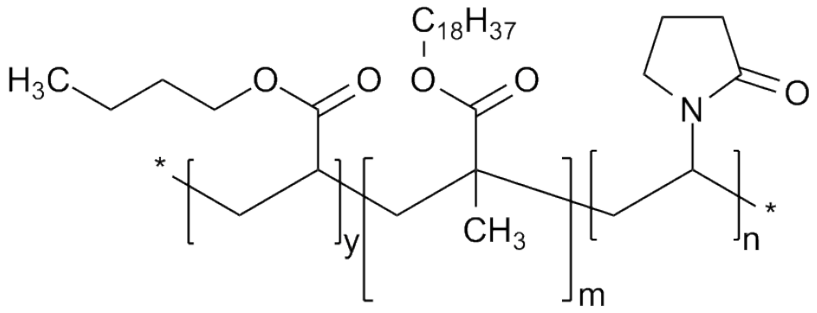
CAS Number
76259-47-7

Chemical Name
2-Propenoic acid, 2-methyl-, octadecyl ester, polymer with butyl-2-propenoate and 1-ethenyl-2-pyrrolidinone

Other Names
Halo
OS321450
EX-1194

Molecular Formula
$(C_{22}H_{42}O_2.C_7H_{12}O_2.C_6H_9NO)_x$

Structural Formula



Molecular Weight (MW)

Number Average Molecular Weight (Mn)	14,555 Da
Weight Average Molecular Weight (Mw)	39,739 Da
Polydispersity Index (Mw/Mn)	2.73
% of Low MW Species < 1,000 Da	0.794%
% of Low MW Species < 500 Da	0.000%

Polymer Constituents

Chemical Name	*CAS No.*	*Weight % starting*	*Weight % residual*
2-pyrrolidinone 1-ethenyl-	88-12-0	20	1.25
2-Propenoic acid, butyl ester	141-32-2	50	< 0.0005
2-Propenoic acid, 2-methyl-, octadecyl ester	32360-05-7	30	0.89

Hazardous Impurities/Residual Monomers
None

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	Colourless liquid
Melting Point/Glass Transition Temp	Not determined
Density	900 kg/m^3 at 15.6 °C
Water Solubility	Not determined. Based on its high molecular weight and predominantly hydrophobic structure, the notified polymer is expected to have low water solubility.
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	5	5	10	10	15

Introduction
The notified polymer will not be manufactured in Australia. The notified polymer will be imported as a component in the Carbopol® products range at a concentration of 3–5% in sealed 205 L steel drums. The drums will be delivered to the customer's blending facility by road for reformulation.

Use
The notified polymer will be an ingredient of cosmetic products in leave on and rinse off applications (including sprays) and an ingredient in house hold and cleaning products such as laundry detergents, surface sprays, dishwashing products and automotive interior and exterior care products. The final concentration of the notified polymer in end use products will range from 0.015% to 0.35%.

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. Polymers without significant ionic functionality are generally of low concern to the environment.

The notified polymer will be used as a steric stabiliser in polymer production. The polymerisation is expected to take place in a closed vessel. Therefore, significant release of the notified polymer to the environment is not expected. The manufacturing process to produce the final end use product is expected to be fully or semi-automated. The polymer product containing the notified polymer is expected to be incorporated into the final end use products. The final end use products include skin and hair products, personal care products and cleaning products such as dishwashing and laundry detergents. The majority of the notified polymer in the final end use products will be released to sewer as a result of its use.

Release is assumed to occur daily, and to be diffuse in nature. A predicted environmental concentration in rivers (PEC_{river}) can be calculated on the assumptions that 100% of the total annual import volume is released to sewer nationwide but that 90% of the notified polymer is removed by sewage treatment plant (STP) processes. The PEC_{river} is 1.21 µg/L if the daily chemical release (20000 kg/365 × 10% = 5.5 kg) is diluted by the daily effluent production (200 L/person/day × 22.613 million people = 4,523 ML). The remainder of the notified polymer partitions to biosolids with an estimated concentration of 109.1 mg/kg (dry wt), and is expected to be disposed of to landfill or applied to agricultural soils for soil remediation. Notified polymer released to surface waters is not expected to reach ecotoxicologically significant concentrations.

When applied to agricultural soils in biosolids or disposed of to landfill, the notified polymer is expected to associate with soil and organic matter and be largely immobile. The notified polymer is not expected to cross biological membranes due to its high molecular weight and is therefore not expected to bioaccumulate. The notified polymer is expected to eventually degrade 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.