

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

### POLYMER OF LOW CONCERN PUBLIC REPORT

#### **9-Decenoic acid, methyl ester, polymer with 1-dodecene, hydrogenated**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act) and Regulations. This notification has been carried out under the signed cooperative arrangement(s) with Canada. 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**

March 2019

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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/1538	Lanxess Solutions Australia Pty Ltd	9-Decenoic acid, methyl ester, polymer with 1-dodecene, hydrogenated	No	≤ 50 tonnes per annum	Component of synthetic lubricants

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### Human Health and 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 health of workers and the public or 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 (M)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 synthetic lubricants, 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 (M)SDS remains the responsibility of the applicant.

## ASSESSMENT DETAILS

### 1. APPLICANT AND NOTIFICATION DETAILS

#### Applicants

Lanxess Solutions Australia Pty Ltd (ABN: 79 600 792 569)  
5 Comserv Close  
WEST GOSFORD NSW 2250

#### Exempt Information (Section 75 of the Act)

Data items and details exempt from publication include: molecular formula, specific information for structural formula, polymer constituents, residual monomers/impurities, use details and import volume.

#### Notification in Other Countries

Canada (assessed under the Schedule 9 RRR criteria, 2017)

### 2. IDENTITY OF POLYMER

#### Marketing Name(s)

Elevance Aria WTP-40

#### Chemical Name

9-Decenoic acid, methyl ester, polymer with 1-dodecene, hydrogenated

#### CAS Number

2092359-09-4

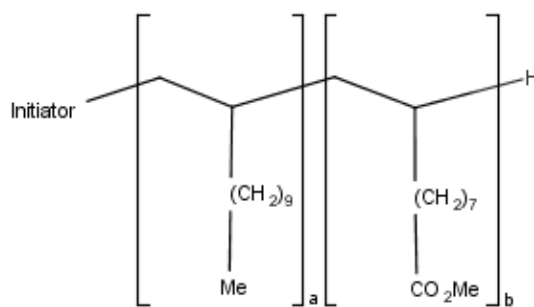
#### Other Name(s)

WTP 40

Aria/Elevance WTP-40 H-744

#### Structural Formula

The notifier provided the following:



#### Molecular Weight

Number Average Molecular Weight (Mn)	1,936 g/mol
Weight Average Molecular Weight (Mw)	4,159 g/mol
Polydispersity Index (Mw/Mn)	2.15
% of Low MW Species < 1,000 g/mol	13.03
% of Low MW Species < 500 g/mol	2.39

### 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, colourless to light yellow liquid
Melting Point/Glass Transition Temperature	-36.7 °C/-67.1 °C
Density	880 kg/m <sup>3</sup> at 20 °C
Water Solubility	< 3.6 × 10 <sup>-6</sup> g/L at 20 °C
Dissociation Constant	Not determined. No ionisable groups in the environmentally relevant pH range 4 – 9.
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

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Tonnes	≤ 50	≤ 50	≤ 50	≤ 50	≤ 50

#### Use

The notified polymer will not be manufactured within Australia. The notified polymer will be imported neat and as a component of end use synthetic lubricants at < 95% concentration.

The notified polymer will be used as a component of synthetic lubricants including greases at < 95% concentration. Finished specialty lubricant products will be used to lubricate transportation and industrial machinery in accordance with original equipment manufacturer (OEM) specifications. Do-it-yourself (DIY) use of finished lubricants by public consumers is also expected.

### 6. HAZARD ASSESSMENT

The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. This is supported by tests submitted on the following toxicological endpoints. These tests were not assessed by Canadian agencies.

<i>Endpoint</i>	<i>Result</i>	<i>Effects Observed</i>	<i>Test Guideline</i>
Acute oral toxicity – rat	LD50 > 5,000 mg/kg bw; low toxicity	no	OECD TG 423
Skin sensitisation – local lymph node assay	no evidence of sensitisation	enlarged lymph nodes*	OECD TG 429 (LLNA)
Mutagenicity – bacterial reverse mutation	non mutagenic	no	OECD TG 471

\* Lymph node enlargement was only observed at 100% test concentration. Stimulation indexes (SIs) for all test concentrations (at 25%, 50% and 100%) were < 3.

All results were indicative of low hazard.

Given the low hazard, as shown above, the risk of the notified polymer to occupational and public health is not considered to be unreasonable.

## **7. ENVIRONMENTAL RISK ASSESSMENT**

No ecotoxicological data were submitted. Polymers without significant ionic functionality are generally of low concern to the environment (Boethling & Nabholz, 1997).

The notified polymer will be imported into Australia in neat form or as a component of synthetic lubricants. The neat form of notified polymer may be blended into synthetic lubricants including greases. The finished lubricant products will be used in transportation and industrial machinery.

The notified polymer will be imported in sealed containers. Exposure during import and transport is thus not expected, except for accidental spills of the notified polymer. These will be physically contained, absorbed onto suitable materials and collected for disposal to landfill in accordance with local government regulations. Automated and enclosed processes will be used during blending of the notified polymer into finished synthetic lubricants. Accidental spills during blending processes will be physically contained, absorbed onto suitable materials and collected for disposal to landfill in accordance with local government regulations. Residues in empty containers may be collected for recycling or disposal to landfill.

The finished lubricant products containing the notified polymer will be available to commercial and public consumers. At original equipment manufacturer and commercial operation facilities, used lubricant products will be collected by approved waste management contractors for recycling, re-refining or disposal of in accordance with local government regulations. As a result, no release to the aquatic environment is expected from these activities. Finished industrial machinery lubricants confined to machinery parts are expected to be disposed of to landfill at the end of their useful lives and no significant release to the environment is expected.

In a recent Australian survey it was found that only 4% of households disposed of motor oil, and that approximately 70% was disposed of correctly (Aither, 2013). Some of the motor oil will be consumed during use but this is highly variable (between 0 and 99% consumption), depending on the type of oil and its end use. Although there is some uncertainty (such as the assumption that all households consume similar amounts of motor oils), based on this data, it may be estimated that approximately 1% ( $0.04 \times 0.3$ ) of finished lubricant products sold could be incorrectly disposed of by public end users. Accordingly, an estimated 1% of the notified polymer in finished lubricant products (500 kg annually) is likely to be released to the environment. In addition, the notified polymer may also be released to the environment in small quantities when end users manually refill transportation or machinery parts and small spillages or drips occur.

Based on the assumed low ecotoxicity and limited environmental release, the notified polymer is unlikely to reach ecotoxicologically relevant concentrations in the aquatic environment.

Based on its high molecular weight and water insolubility the notified polymer is not expected to bioaccumulate. The notified polymer in the environment is expected to eventually degrade into water and oxides of carbon via biotic and abiotic pathways.

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

**BIBLIOGRAPHY**

Aither (2013) Third Independent Review of the Product Stewardship (Oil) Act 2000. Canberra, Australia.

Boethling, RS & Nabholz VJ (1997) Chapter 10 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.