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

PUBLIC REPORT

Polymer in Z-160

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.

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**Director
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TABLE OF CONTENTS

SUMMARY	3
CONCLUSIONS AND REGULATORY OBLIGATIONS	3
ASSESSMENT DETAILS	6
1. APPLICANT AND NOTIFICATION DETAILS	6
2. IDENTITY OF CHEMICAL.....	6
3. COMPOSITION.....	6
4. PHYSICAL AND CHEMICAL PROPERTIES	6
5. INTRODUCTION AND USE INFORMATION	7
6. HUMAN HEALTH IMPLICATIONS	8
6.1. Exposure Assessment.....	8
6.1.1. Occupational Exposure.....	8
6.1.2. Public Exposure.....	8
6.2. Human Health Effects Assessment	9
6.3. Human Health Risk Characterisation	9
6.3.1. Occupational Health and Safety	9
6.3.2. Public Health	9
7. ENVIRONMENTAL IMPLICATIONS.....	9
7.1. Environmental Exposure & Fate Assessment	9
7.1.1. Environmental Exposure	9
7.1.2. Environmental Fate	10
7.1.3. Predicted Environmental Concentration (PEC).....	10
7.2. Environmental Effects Assessment.....	10
7.2.1. Predicted No-Effect Concentration	10
7.3. Environmental Risk Assessment	11
<u>APPENDIX A: PHYSICAL AND CHEMICAL PROPERTIES</u>	<u>12</u>
<u>APPENDIX B: TOXICOLOGICAL INVESTIGATIONS</u>	<u>14</u>
B.1. Acute toxicity – oral.....	14
<u>APPENDIX C: ENVIRONMENTAL FATE AND ECOTOXICOLOGICAL INVESTIGATIONS</u>	<u>15</u>
C.1. Ecotoxicological Investigations	15
C.2.1. Algal growth inhibition test.....	15
BIBLIOGRAPHY	16

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/1874	Lubrizol International Inc	Polymer in Z-160	Yes	≤ 300 tonne/s per annum	Component of coatings

*ND = not determined

CONCLUSIONS AND REGULATORY OBLIGATIONS

Hazard classification

Based on the available information, the notified polymer is recommended for hazard classification according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia. The recommended hazard classification is presented in the following table.

<i>Hazard classification</i>	<i>Hazard statement</i>
Flammable liquids (Category 3)	H226 – Flammable liquid and vapour

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 low expected aquatic exposure and the reported use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

Recommendations

REGULATORY CONTROLS

Hazard Classification and Labelling

- The notified polymer should be classified as follows:
 - Flammable liquids (Category 3): H226 – Flammable liquid and vapour

The above should be used for products/mixtures containing the notified polymer, if applicable, based on the concentration of the notified polymer present and the intended use/exposure scenario.

CONTROL MEASURES

Occupational Health and Safety

- 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:
 - Use of spray booths

- 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:
 - Safety goggles (or face shield)
 - Gloves
 - Coveralls
 - Respiratory protection

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 (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.

Storage

- The handling and storage of the notified polymer should be in accordance with the Safe Work Australia Code of Practice for *Managing Risks of Hazardous Chemicals in the Workplace* (SWA, 2012) or relevant State or Territory Code of Practice.

Emergency procedures

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

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 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;or
- (2) Under Section 64(2) of the Act; if
 - the function or use of the polymer has changed from component of 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.

(Material) Safety Data Sheet

The (M)SDS of the product containing the notified polymer provided by the notifier was reviewed by NICNAS. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)

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

NOTIFICATION CATEGORY

Limited: Synthetic polymer with $M_n \geq 1,000$ Da.

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, analytical data, degree of purity, polymer constituents, residual monomers, impurities, additives/adjuvants, use details, and import volume.

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

Variation to the schedule of data requirements is claimed as follows: melting point/freezing point, flammability and dissociation constant.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None.

NOTIFICATION IN OTHER COUNTRIES

None.

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Z-160 (containing the notified polymer at < 70% concentration)

MOLECULAR WEIGHT

> 1,000 Da

ANALYTICAL DATA

Reference IR, GPC, UV-Vis spectra were provided.

3. COMPOSITION

DEGREE OF PURITY

> 95%

4. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AT 20 °C AND 101.3 kPa: Clear to yellow liquid

Property	Value	Data Source/Justification
Melting Point/Freezing Point	Not determined	Liquid at room temperature
Boiling Point	98 °C at 101 kPa	Measured. Partial boil due to residual solvent, the notified polymer is expected to decompose prior to boiling.
Density	1.03×10^3 kg/m ³ at 20 °C	Measured.
Vapour Pressure	Not determined.	Measured. Value could not be determined based on nature of notified polymer.
Water Solubility	2.32×10^{-2} g/L at 20 °C	Measured
Hydrolysis as a Function of pH	Not determined	Contains hydrolysable functionalities; however, not expected to rapidly hydrolyse under environmental conditions (pH 4-9) due to low water solubility

Partition Coefficient (n-octanol/water)	log Pow > 10.0	Measured
Adsorption/Desorption	log K _{oc} > 5.63	Measured
Dissociation Constant	Not determined	Expected to be ionised under environmental conditions (pH 4-9)
Flash Point	41 °C at 101.6 kPa	Measured.
Autoignition Temperature	372 °C	Measured
Explosive Properties	Predicted negative.	Estimated. Not expected to be explosive based on structure.
Oxidising Properties	Predicted negative.	Estimated. Not expected to be oxidative based on structure.

DISCUSSION OF PROPERTIES

For full details of tests on physical and chemical properties, refer to Appendix A.

Reactivity

The notified polymer is expected to be stable under normal conditions of use. The notified polymer is not compatible with strong oxidizing agents.

Physical hazard classification

Based on the submitted physico-chemical data depicted in the above table, the notified polymer is recommended for hazard classification according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia. The recommended hazard classification is presented in the following table.

Hazard classification	Hazard statement
Flammable liquids (Category 3)	H226 – Flammable liquid and vapour

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. The notified polymer will be imported into Australia as a solution at < 70% concentration or as a component of end-use products at a concentration of < 1%.

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>
<i>Tonnes</i>	< 100	< 300	< 300	< 300	< 300

PORT OF ENTRY

Queensland, Victoria, Western Australia

IDENTITY OF MANUFACTURER/RECIPIENTS

Lubrizol International Inc.

TRANSPORTATION AND PACKAGING

The notified polymer will be imported as a liquid solution (containing the notified polymer at < 70% concentration) in 20 or 180 kg steel drums or as finished products (containing the notified polymer at < 1% concentration) in plastic 20 L pails or 200 L drums and transported to the notifier's warehouse facilities by road and rail prior to distribution to end-users.

USE

The imported product containing the notified polymer (at < 70% concentration) will be used as a pigment dispersing agent in the manufacture of industrial and automotive coatings. The end-use coatings will contain the notified polymer at < 1% concentration.

OPERATION DESCRIPTION

Reformulation

The imported product containing the notified polymer at < 70% concentration will be added to a blending vessel using a mix of manual and automated transfer steps. Once mixing is complete, samples will be taken for quality control testing and the finished coating product containing < 1% of the notified polymer will be transferred to plastic containers by gravity feed.

End use

The finished coatings containing the notified polymer at < 1% concentration will be applied by dipping, brush, roller and spray in industrial facilities. No DIY use is expected.

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 and warehouse	2 -3	10 - 15
Reformulation	8	50
QC testing	1	20

EXPOSURE DETAILS

Transport and storage

Transport and storage workers are not expected to come into contact with the notified polymer within the imported solution (at < 70% concentration) or in finished coating products, except in the unlikely event of an accident.

Reformulation

During formulation processes, including transfer, quality control and cleaning and maintenance tasks, dermal and ocular exposure to the notified polymer (at < 70% concentration) may occur. Exposure is expected to be minimised through the use of personal protective equipment (PPE), including chemical goggles, impervious gloves and appropriate industrial clothing. Due to the nature of the processes and the expected low volatility of the notified polymer, inhalation exposure during reformulation is not anticipated.

End-use

Dermal, ocular and/or inhalation exposure to coatings containing the notified polymer (at < 1% concentration) may occur during transfer, application and cleaning processes. The potential for exposure is expected to be minimised through the use of PPE (goggles, impervious gloves, coveralls) by workers and the use of respiratory protection during spray applications. Once the coating is dried, the notified polymer will be bound within the polymer matrix and will not be available for exposure.

6.1.2. Public Exposure

Coatings containing the notified polymer (at < 1% concentration) are intended for industrial use only. Once the coatings have dried, the notified polymer will be bound within the polymer matrix and will not be available for exposure.

6.2. Human Health Effects Assessment

The results from toxicological investigations conducted on the notified polymer are summarised in the following table. For full details of the studies, refer to Appendix B.

<i>Endpoint</i>	<i>Result and Assessment Conclusion</i>
Rat, acute oral toxicity	LD50 > 2,000 mg/kg bw; low toxicity

Toxicokinetics, metabolism and distribution

The notified polymer is of high molecular weight ($M_n > 1,000$ Da) with a low percentage of low molecular weight species present (i.e. < 2% with a molecular weight less than 1,000 Da) and is not expected to absorb across biological membranes.

Acute toxicity

The notified polymer is expected to have a low acute oral toxicity based on a study conducted on rats.

The notified polymer does not contain any structural alerts of concern and is therefore expected to be of low hazard to human health.

Health hazard classification

Based on the available information, the notified polymer is not recommended for classification according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia, or the *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 2004).

6.3. Human Health Risk Characterisation

6.3.1. Occupational Health and Safety

The notified polymer was found to be of low acute oral toxicity and based on the high molecular weight ($M_n > 1000$ Da) and absence of structural alerts of concern, is expected to be of low hazard to human health.

Workers may be exposed to the polymer at < 70% concentration during reformulation processes and at < 1% concentration during application of coating products. Exposure is expected to be limited by the expected use of engineering controls and personal protective equipment (PPE).

Therefore, given the expected low hazardous nature of the notified polymer and the occupational settings described, the risk to the health of workers is not considered to be unreasonable.

6.3.2. Public Health

The public may come into contact with the coatings containing the notified polymer. However, in such cases exposure is not expected as the notified polymer will be bound within the polymer matrix and will not be available for exposure.

Given the expected low hazardous nature of the notified polymer and the low exposure the risk to the public 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 as a component of a pigment dispersing agent for reformulation into finished industrial and automotive coatings. No significant release of the notified polymer is expected from transportation and storage, except in the unlikely event of accidental spills or leaks. In the event of spills, the products containing the notified polymer are expected to be collected with adsorbents, and disposed of to landfill in accordance with local government regulations.

Reformulation of the notified polymer is expected to occur within enclosed automated systems, and release to the atmosphere is expected to be negligible. Solvents used for equipment washing containing residues of the

notified polymer are expected to be recycled in subsequent blending, or disposed of via accredited waste disposal contractors. Wastes and spills (estimated by the notifier to be 0.07% of annual import volume, or 200 kg) during reformulation activities are expected to be contained on-site, and disposed of in accordance with local government regulations. Residues in import containers are expected to be disposed of via the trade waste stream of the formulator in accordance with local government regulations.

RELEASE OF CHEMICAL FROM USE

Industrial and automotive coatings containing the notified polymer will be used by professional users in industrial settings only. During use, coatings containing the notified polymer are expected to be applied by brush, roller and spray techniques. Spray applications are expected to occur within spray booths with engineering controls to collect particulate overspray.

Overspray and solid wastes from application of the industrial and automotive coatings containing the notified polymer will be collected, and disposed of to landfill. Residues containing the notified polymer in application equipment are expected to be rinsed into containers, and then allowed to cure before disposal as solid wastes to landfill. During use, the notified polymer may also be released to the environment as accidental spills and container residues. It is estimated by the notifier that a maximum of 6% of the import volume (or up to 18,000 kg) of the notified polymer may be released as wastes from application and container residue. These releases are expected to be collected and disposed of to landfill in accordance with local government regulations.

RELEASE OF CHEMICAL FROM DISPOSAL

The notified polymer in industrial and automotive coatings is expected to share the fate of the substrate to which it has been applied. These are predominantly expected to be disposed to landfill, or thermally decomposed during metal reclamation.

7.1.2. Environmental Fate

No environmental fate data were submitted for the notified polymer. The majority of the notified polymer is expected to be cured within an inert coating matrix, and is expected to share the fate of the articles to which it has been applied. These will involve eventual disposal to landfill, or undergo thermal decomposition during metal reclamation. The notified polymer is also expected to enter landfill as collected wastes and residues. Once cured, the notified polymer is not expected to be bioavailable or biodegradable. The uncured notified polymer is expected to adsorb strongly to soil and sediment and is unlikely to be mobile, due to its low water solubility and high adsorption coefficient ($\log K_{OC} > 5.63$). Based on its high molecular weight, the notified polymer is not expected to cross biological membranes, and is therefore unlikely to be bioaccumulative. In landfill and during thermal decomposition, the notified polymer is expected to eventually degrade via biotic and abiotic processes to form water and oxides of carbon and nitrogen.

7.1.3. Predicted Environmental Concentration (PEC)

The predicted environmental concentration (PEC) has not been calculated, as significant release of the notified polymer to the aquatic environment is not expected, based on its reported use pattern in industrial and automotive coatings.

7.2. Environmental Effects Assessment

The results from an ecotoxicological investigation conducted on the notified polymer are summarised in the table below. Details of this study can be found in Appendix C.

<i>Endpoint</i>	<i>Result</i>	<i>Assessment Conclusion</i>
Algal Toxicity	72 h EL50 > 100 mg/L (WAF*)	Not harmful to algae up to water solubility limit

*Water accommodated fraction

Based on the above ecotoxicological endpoint, the notified polymer is not expected to be harmful to aquatic life up to the limit of its water solubility. Therefore, the notified polymer is not formally classified under the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) (United Nations, 2009) for acute and chronic toxicities.

7.2.1. Predicted No-Effect Concentration

A predicted no-effect concentration (PNEC) for the aquatic compartment has not been calculated, since the notified polymer is not considered to be harmful to aquatic organisms up to the limit of its solubility in water. There is also no significant release of the notified polymer to the aquatic environment expected.

7.3. Environmental Risk Assessment

The Risk Quotient ($Q = \text{PEC}/\text{PNEC}$) of the notified polymer has not been calculated as neither a PEC nor PNEC are available. It is not expected to be present at ecotoxicologically significant concentrations in the aquatic environment, due to the low potential for release based on its assessed use pattern in industrial and automotive coatings. Once cured within an inert coating matrix, the notified polymer is not expected to be bioavailable or bioaccumulative. On the basis of the maximum annual importation volume, low expected aquatic exposure and assessed use pattern in industrial and automotive coatings, the notified polymer is not expected to pose an unreasonable risk to the environment.

APPENDIX A: PHYSICAL AND CHEMICAL PROPERTIES**Boiling Point** 98 °C at 101 kPa

Method	OECD TG 103 Boiling Point. EC Council Regulation No 440/2008 A.2 Boiling Temperature.
Remarks	Differential Scanning Calorimetry. Partial boiling observed from 98 °C, study authors expect this was due to residual solvent with the notified polymer expected to decompose prior to boiling.
Test Facility	Envigo (2016a)

Density 1.03×10^3 kg/m³ at 20 °C

Method	OECD TG 109 Density of Liquids and Solids. EC Council Regulation No 440/2008 A.3 Relative Density.
Remarks	Glass pycnometer.
Test Facility	Envigo (2016a)

Vapour Pressure Not determined

Method	OECD TG 104 Vapour Pressure. EC Council Regulation No 440/2008 A.4 Vapour Pressure.
Remarks	Vapour pressure balance. During testing the notified polymer changed colour indicating that solvents were removed. Vapour pressure could not be determined based on nature of the notified polymer.
Test Facility	Envigo (2016b)

Water Solubility 2.32×10^{-2} g/L at 20 °C

Method	OECD TG 105 Water Solubility. EC Council Regulation No 440/2008 A.6 Water Solubility.
Remarks	Flask Method
Test Facility	Envigo (2016a)

Partition Coefficient (n-octanol/water) log Pow > 10.0

Method	OECD TG 117 Partition Coefficient (n-octanol/water). EC Council Regulation No 440/2008 A.8 Partition Coefficient.
Remarks	HPLC Method
Test Facility	Envigo (2016c)

Adsorption/Desorption log K_{oc} > 5.63

Method	OECD TG 121 Estimation of the Adsorption Coefficient (K _{oc}) on Soil and on Sewage Sludge using High Performance Liquid Chromatography (HPLC).
Remarks	HPLC screening method.
Test Facility	Envigo (2015a)

Flash Point 41 °C at 101.6 kPa

Method	EC Council Regulation No 440/2008 A.9 Flash Point.
Remarks	Closed cup.
Test Facility	Envigo (2016d)

Autoignition Temperature 372 °C

Method	EC Council Regulation No 440/2008 A.15 Auto-Ignition Temperature (Liquids and Gases).
Remarks	Carbolite flask heater.
Test Facility	Envigo (2016d)

Explosive Properties

Predicted negative

Method	EC Council Regulation No 440/2008 A.14 Explosive Properties.
Remarks	No structural alerts present.
Test Facility	Envigo (2016d)

Oxidizing Properties

Predicted negative

Method	EC Council Regulation No 440/2008 A.21 Oxidizing Properties (Liquids).
Remarks	No structural alerts present.
Test Facility	Envigo (2016d)

APPENDIX B: TOXICOLOGICAL INVESTIGATIONS**B.1. Acute toxicity – oral**

TEST SUBSTANCE	Notified polymer
METHOD	OECD TG 420 Acute Oral Toxicity – Fixed Dose Procedure. EC Council Regulation No 440/2008 B.1 bis Acute toxicity (oral) fixed dose method.
Species/Strain	Rat/RccHan™:WIST
Vehicle	Dimethyl sulphoxide
Remarks - Method	No significant deviations from the protocol.
RESULTS	

APPENDIX C: ENVIRONMENTAL FATE AND ECOTOXICOLOGICAL INVESTIGATIONS

C.1. Ecotoxicological Investigations

C.2.1. Algal growth inhibition test

TEST SUBSTANCE	Notified polymer
METHOD	OECD TG 201 Freshwater Alga and Cyanobacteria, Growth Inhibition Test.
Species	<i>Pseudokirchneriella subcapitata</i> (green alga)
Exposure Period	72 hours
Concentration Range	Nominal: 1-100 mg/L Actual: Not determined
Auxiliary Solvent	None
Water Hardness	Not reported
Analytical Monitoring	None reported
Remarks - Method	The test substance was prepared as a Water Accommodated Fraction (WAF) due to its low water solubility. A stock solution with the relevant nominal loading rate was prepared by stirring the test substance in water for 1 day, and any undissolved material was removed by siphoning. The test was conducted in accordance with the test guideline above, with no significant deviation in protocol reported.

RESULTS

<i>Biomass</i>		<i>Growth</i>	
<i>E_bL50</i> <i>mg/L at 72 h</i>	<i>NOEL</i> <i>mg/L</i>	<i>E_rL50</i> <i>mg/L at 72 h</i>	<i>NOEL</i> <i>mg/L</i>
> 100	100	> 100	32

Remarks - Results	All validity criteria for the test were satisfied. The actual concentrations of the test substance were not measured. The 72 h EL50 was determined to be > 100 mg/L (WAF), based on nominal loading concentrations.
CONCLUSION	The notified polymer is not considered to be harmful to algae up to the limit of its water solubility.
TEST FACILITY	Envigo (2015c)

BIBLIOGRAPHY

- Envigo (2015a) [notified polymer]: Determination of Adsorption Coefficient (HPLC Estimation) (Study No. 41502664, December, 2015). Derbyshire, U.K., Envigo Research Limited (Unpublished report submitted by the notifier).
- Envigo (2015b) [notified polymer]: Acute Oral Toxicity in the Rat – Fixed Dose Method (Study No. 41501766, November, 2015). Derbyshire, U.K., Envigo Research Limited (Unpublished report submitted by the notifier).
- Envigo (2015c) [notified polymer]: Algal Growth Inhibition Test (Study No. 41501767, December, 2015). Derbyshire, UK, Envigo Research Limited (Unpublished report submitted by the notifier).
- Envigo (2016a) [notified polymer]: Determination of Physico-Chemical Properties (Study No. 41502505, April, 2016). Derbyshire, U.K., Envigo Research Limited (Unpublished report submitted by the notifier).
- Envigo (2016b) [notified polymer]: Determination of Vapour Pressure (Study No. 41502506, May, 2016). Derbyshire, U.K., Envigo Research Limited (Unpublished report submitted by the notifier).
- Envigo (2016c) [notified polymer]: Determination of General Physico-Chemical Properties (Study No. 41501765, April, 2016). Derbyshire, U.K., Envigo Research Limited (Unpublished report submitted by the notifier).
- Envigo (2016d) [notified polymer]: Determination of Hazardous Physico-Chemical Properties (Study No. 41502507, May, 2016). Derbyshire, U.K., Envigo Research Limited (Unpublished report submitted by the notifier).
- NOHSC (2004) Approved Criteria for Classifying Hazardous Substances, 3rd edition [NOHSC:1008(2004)]. National Occupational Health and Safety Commission, Canberra, AusInfo.
- NTC (National Transport Commission) 2007 Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG code), 7th Edition, Commonwealth of Australia
- SWA (2015) Code of Practice: Spray Painting and Powder Coating, Safe Work Australia, <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/spray-painting-and-powder-coating>.
- SWA (2012) Code of Practice: Managing Risks of Hazardous Chemicals in the Workplace, Safe Work Australia, <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/managing-risks-of-hazardous-chemicals-in-the-workplace>.
- United Nations (2009) Globally Harmonised System of Classification and Labelling of Chemicals (GHS), 3rd revised edition. United Nations Economic Commission for Europe (UN/ECE), <http://www.unece.org/trans/danger/publi/ghs/ghs_rev03/03files_e.html>.