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

**FULL PUBLIC REPORT**

**Z-75**

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**Director  
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**FULL PUBLIC REPORT****Z-75****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

Lubrizol International Inc (ARBN 002 747 944) of 28 River Street, Silverwater, NSW 2128.

## NOTIFICATION CATEGORY

Polymer of Low Concern

## 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, Means of Identification, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Import Volume, and Purity

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

None

## PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

No

## NOTIFICATION IN OTHER COUNTRIES

No

**2. IDENTITY OF CHEMICAL**

## OTHER NAME(S)

OS213018

## MARKETING NAME(S)

Z-75

MW: &gt; 10,000

**3. PLC CRITERIA JUSTIFICATION**

<i>Criterion</i>	<i>Criterion met (yes/no/not applicable)</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

<b>Appearance at 20°C and 101.3 kPa</b>	Light amber granular solid. Will be imported in oil solution.
<b>Melting Point/Glass Transition Temp</b>	360°C
<b>Autoignition Temperature</b>	> 400°C
<b>Relative Density</b>	1.09 at 20°C
<b>Water Solubility</b>	1.17 × 10 <sup>-3</sup> g/L at 20 ± 0.5°C by OECD TG105 flask method. Water extractability < 0.201 mg/L at 37°C at pH 2; < 9.96 at ambient temperatures at pH 7; and < 3.83 mg/L at 37°C pH 9 by OECD TG 120.
<b>Dissociation Constant</b>	Does not contain dissociable groups
<b>Particle Size</b>	Not applicable as imported in solution
<b>Reactivity</b>	Stable under normal environmental conditions, but may hydrolyse under extreme pHs.
<b>Degradation Products</b>	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>
<i>Tonnes</i>	1-3	1-3	3-10	10-30	10-30

##### USE AND MODE OF INTRODUCTION AND DISPOSAL

###### Mode of Introduction

The notified polymer Z-75 will be imported in 55 gallon drums as a 50% solution in mineral oil, for blending with other additives to form the final transmission fluid, hydraulic or gear lubricant. Alternatively, finished lubricant containing up to 20% of the notified polymer will be imported.

###### Reformulation processes

At the reformulation sites the solution containing 50% notified polymer will be pumped by pipeline to the blending tank, where it will be blended with mineral oil and other additives such as dispersants, detergents, antiwear agents, antifoam agents, corrosion inhibitors and friction modifiers. Once blended the finished product containing the notified polymer (5-20%) is pumped into drums or into small plastic bottles or drums depending on end-use customers' choice. These operations are expected to be carried out automatically, or semi-automatically in a closed system and in a well-ventilated work area.

###### Use

The notified polymer is used as a viscosity modifier in automatic transmission fluids and hydraulic pump or gear lubricants.

It is combined with other additives to form the final transmission fluid or lubricant. The blended products containing the notified polymer (5-20%) are used in auto manufacturing plants to fill new car parts or in mechanical workshops if these oils/fluids require changing. Transfer may be manual or semi-automatic using pumping equipment.

## 6. HUMAN HEALTH IMPLICATIONS

### 6.1. Exposure Assessment

#### OCCUPATIONAL EXPOSURE

##### Transport and Storage

Transport and storage workers would only be exposed to the notified polymer at up to 50% in the event of a spill. The sealed containers used for transport minimise the likelihood of release or loss of the notified polymer in the case of an accident.

##### Reformulation

Dermal and ocular exposure to the notified polymer may potentially occur during opening and closing of containers/drums, connecting pipe lines for the blending operation and during mixing. However, exposure to significant amounts of the notified polymer is limited because of the automated or semi-automated processes, and the personal protective equipment (protective aprons, gloves, boots, face shield) worn by workers.

##### End-use sites

Dermal and ocular exposure to the blended products containing the notified polymer (up to 20%) may occur during the changing of automotive lubricants in automobile or machinery shops. Protective equipment may not be worn in these workplaces. Dermal and ocular exposure may also occur in auto manufacturing plants during maintenance operations. Exposure to the notified polymer by workers at the end-use site is expected to be infrequent and minimal.

#### PUBLIC EXPOSURE

The public may be exposed to the blended products containing the notified polymer (up to 20%) through operations such as changing gear oil, transmission fluid or hydraulic fluid. However this is unlikely, as the blended products are not anticipated to be sold to the general public. The route of exposure would be largely dermal, however some ocular exposure may also occur. The frequency of exposure would be intermittent and not widespread, as the majority of these operations would be carried out by professional mechanics rather than the public.

### 6.2. Toxicological Hazard Characterisation

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. This is supported by the following toxicological data on the notified polymer:

<i>Endpoint</i>	<i>Result</i>	<i>Classified?</i>	<i>Effects Observed?</i>	<i>Test Guideline</i>
<u>Bacterial reverse mutation</u> S typhimurium (TA1535, TA98 and TA100) E coli (WP2uvrA)	non mutagenic	no	yes	OECD TG 471

Precipitation was noted at > 500 µg/plate but did not affect scoring. No other toxicological information provided.

### 6.3. Human Health Risk Assessment

#### OCCUPATIONAL HEALTH AND SAFETY

The notified polymer is expected to be of low hazard. It has a high molecular weight and is thus not likely to be bioavailable. Worker exposure to the notified polymer is limited because of the engineering controls and personal protective equipment worn by workers at formulation sites, although a lower level of controls may be present during end use of transmission fluids and lubricants containing up to 20% of the notified polymer. Occupational risk from the use of the notified polymer is considered to be low because of low hazard and low exposure.

The OHS risk presented by the notified polymer is expected to be low. The notified polymer may be present in formulations containing hazardous ingredients. If these formulations are classified as hazardous to health in accordance with the NOHSC Approved Criteria for Classifying Hazardous Substances, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

#### PUBLIC HEALTH

Members of the public may make dermal and ocular contact with products containing the notified polymer at up to 20%. However, the risk to public health will be negligible because the notified polymer is of high molecular weight and is unlikely to be bioavailable.

## 7. ENVIRONMENTAL IMPLICATIONS

### 7.1. Exposure Assessment

#### ENVIRONMENTAL RELEASE

The notified polymer will not be manufactured in Australia but is likely to be blended to form end use products, such as automatic transmission fluid; and gear and hydraulic pump lubricants. The blending is performed in an automated or semi-automated enclosed system, with residual material in blending tanks and from cleaning of the equipment being recycled to the next batch to the extent practicable. Any spills are likewise expected to be re-used to the extent practicable. Minimal environmental release is expected from this route. The empty 55 gallon drums are expected to contain approximately 1% residue, resulting in up to 300 kg requiring disposal at a licensed drum recycling facility.

The polymer will share the same fate as the lubricants in which it is blended. The lubricants are likely to be sold to automobile manufacturers for factory fill operations and other industrial type applications, as well as in small containers for garages and do-it-yourself (DIY) use. It is expected that 0.3% residue will remain in the "empty packaging". Small packaging is likely to be sent to landfill, whilst larger operations are likely to send empty containers to licensed drum recyclers or use dedicated packaging to minimise waste. It is expected that at most 100 kg of the notified polymer will be disposed of to landfill from this route.

Although some transmissions require the fluid to be replaced during servicing, the trend for automatic transmissions is for sealed units which are filled for the life of the transmission. These are expected to be serviced only by professional mechanics and often do not require replacement of the ATF for the life of the transmission. Similarly the majority of gear and hydraulic pump oil is expected to be used in sealed units which are expected to last the life of these units. The lubricants are expected to be collected either at the end of the useful life of the transmissions or other equipment; or if required during servicing, and properly disposed of. Since this will involve professionals, very little if any is likely to be changed and disposed of improperly by DIY use. Used lubricants may be recycled, re-refined, burnt as low grade burner fuel or disposed of by incineration.

Transmissions or other equipment at the end of their useful lives are likely to be disposed of to landfill or undergo metal recycling.

It is expected that only a small amount of the lubricants would be released to the environment either from incorrect disposal from DIY enthusiasts and leaks from transmissions, gear boxes etc. This likely to occur throughout Australia in a disperse manner.

**ENVIRONMENTAL FATE**

The majority of the polymer is expected to be recycled, re-refined or used as low grade burner fuel from oil recycling programs. It is likely that polymer will be degraded into simpler compounds during re-refining with any residue partitioning to the heavy fractions such as lubricating oils or asphalt. If combusted the notified polymer is likely to form oxides of carbon and sulphur; and water vapour. Similarly during metal recycling of automotive components the polymer will be completely combusted.

The notified polymer is only slightly soluble in water. It is therefore expected to bind to soil in landfill and will eventually degrade by biotic and abiotic processes.

The MSDS for the product containing 50% of the notified polymer reports that at least 25% of the components in the product show moderate biodegradation based on OECD 302 type test data.

**7.2. Environmental Hazard Characterisation**

No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

**7.3. Environmental Risk Assessment**

The vast majority of the notified polymer will not be released to the environment. Minimal amounts of the notified polymer may enter the aquatic environment from incidental leaks and incorrect disposal of lubricants. However the polymer has limited solubility and is not expected to be hazardous to the aquatic environment. The notified chemical is intimately mixed in an oil matrix and is unlikely to pose any additional risk to that of oily residues. Due to the disperse manner in which the polymer is likely to be distributed it does not pose an unacceptable risk to the environment.

**8. CONCLUSIONS****8.1. Level of Concern for Occupational Health and Safety**

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

**8.2. Level of Concern for Public Health**

There is No Significant Concern to public health when used in the proposed manner.

**8.3. Level of Concern for the Environment**

The polymer is not considered to pose a risk to the environment based on its reported use pattern.

**9. MATERIAL SAFETY DATA SHEET****9.1. Material Safety Data Sheet**

The notifier has provided MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

**10. RECOMMENDATIONS****CONTROL MEASURES****Occupational Health and Safety**

- 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 MSDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances*, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

#### Environment

- The notified polymer should be disposed of by authorised recycling, re-refining or incineration.

#### Emergency procedures

Spills and/or accidental release of the notified polymer should be handled by physical containment, whilst preventing entry into sewers and waterways. Collect liquid for recycling to the extent practicable. Residues may be adsorbed on inert material (sand, vermiculite etc) and collected for disposal

#### 10.1. Secondary Notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under subsection 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 subsection 64(2) of the Act:
  - if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.