

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

**POLYMER OF LOW CONCERN PUBLIC REPORT**

**Polymer in Z-137**

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:

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**Director  
NICNAS**

**April 2014**

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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/1189	Lubrizol International Inc.	Polymer in Z-137	No	≤ 200 tonnes per annum	Emulsifier in metalworking fluids

## 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.

- 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 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 in oil-based fluids should be disposed of in accordance with local regulations for recycling, re-use or recovery. However, the notified polymer in water-based fluids should be treated, collected and disposed of to landfill.

### **Storage**

- The following precautions should be taken by workers regarding storage of the notified polymer:
  - Store in a segregated and approved area.
  - Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (oxidising substances, strong acids, strong bases).

### **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 emulsifier in metalworking fluids, 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 containing 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**

Lubrizol International Inc. (ABN 52 073 495 603)  
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, CAS number, structural formulae, molecular weight, polymer constituents, residual monomers/impurities and manufacture/import volume.

### 2. IDENTITY OF POLYMER

**Marketing Name(s)**

Z-137

**Molecular Formula**

$C_{16}H_{34}O_2 \cdot x(C_2H_4O)_n(C_2H_4O)_n(C_2H_4O)_n C_3H_8O_3$

### 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	Off-white waxy pellets
Melting Point/Glass Transition Temp	60 °C
Density	0.96 kg/m <sup>3</sup> at 60 °C
Water Solubility	The notified polymer is expected to be dispersible based on its structure and use as an emulsifier in oil/water systems
Dissociation Constant	Not determined
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	0–40	10–60	20–80	30–100	50–200

#### Use

The notified polymer will be used as an emulsifier in metalworking fluids. It will be imported into Australia at a concentration between 2 and 5% by weight, shipped in drums, totes or pails to the customer company's facilities. The imported product will be diluted with water to formulate the end-use metalworking fluid (5–10% concentration or imported product) and when used will result in an approximate final concentration of the notified polymer of 1,000–5,000 ppm.

## 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.

### Occupational Health and Safety Risk Assessment

The ready-to-use formulated products are delivered to a larger number of final end users. The pre-mixture containing the notified polymer (2–5% concentration) is diluted before use by the end users. During the use of metal working fluids emissions into the environment can occur. The metal working fluid flows on metallic surfaces to facilitate processes like drilling, cutting, forming and milling.

After use, the majority of metal working fluids and lubricants are collected, while a smaller fraction of <10% may remain on the metal surfaces. At the end of the life-time of the metal working fluids the emulsions are collected and acidified to obtain an oil-layer and a water layer. The oil-layer is disposed of as dangerous waste and incinerated. The water-layer may be treated further, for example by applying an oil interceptor, and captured by catch pans. The thin layer of metal working fluid remaining on the surfaces can be removed by dipping the respective metal parts into cleaning baths or treating surfaces with high-pressure cleaners.

Metal workers have the highest potential for exposure to products containing the notified polymer (<5% concentration) when conducting manual processes (e.g. machining, mixing and servicing). Exposure to the notified polymer will be at low concentrations and is most likely to occur via the dermal route, although ocular and inhalation exposure to the notified polymer may also occur if mists or aerosols are generated. Inhalation exposure may occur with industrial spraying of the blended formulations or through formation of mists during processing.

Although the notifier is assumed to be of low hazard, it will be used in workplaces where engineering controls, safe work practices and PPE are used to minimise occupational exposure to other chemicals (such as oils). This will also minimise occupational exposure to the notified polymer. The expected PPE in such workplaces would include impervious gloves, goggles and protective coveralls. If mists or aerosols are expected to be generated, local exhaust ventilation in the areas surrounding the machinery and enclosed/automated processes (where possible) would minimise inhalation exposure of workers to the notified polymer. Respiratory protection is worn by workers if local exhaust ventilation cannot be employed and/or the general ventilation is inadequate.

### Public Health and Safety Risk Assessment

The notified polymer will be used solely in industrial settings. Public exposure is not expected.

## 7. ENVIRONMENTAL RISK ASSESSMENT

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

The notified polymer will be imported into Australia as finished metalworking fluids containing approximately 2–5% of the notified polymer by weight. The notified polymer will be used as an emulsifier for metalworking applications. It is indicated by the notifier that the release of the notified polymer during use will be captured by catch pans. The used fluid is expected to be split into its oil and water phases. It is estimated by the notifier that the majority of the notified polymer in its oil-phase will be thermally decomposed during use, recycling or refinement, while any notified polymer remaining in the water-phase is expected to be treated, collected and disposed of to landfill. On this basis, the notified polymer is not expected to be released to the aquatic system.

The notified polymer is not expected to be readily biodegradable, nor biodegrade during use conditions of metalworking fluids. The notified polymer is not expected to be bioaccumulative due to its high molecular weight. The notified polymer is expected to be degraded into water and oxides of carbon by thermal decomposition in industrial facilities or by natural processes in landfill. 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.