

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

**POLYMER OF LOW CONCERN PUBLIC REPORT**

**Polymer in Additin RC 4810**

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 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**

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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/1456	Lanxess Pty Ltd	Polymer in Additin RC 4810	No	< 200 tonnes per annum	Lubricant additive

## 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 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 lubricant additive, 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 product containing the notified polymer was provided by the applicant. The accuracy of the information on the SDS remains the responsibility of the applicant.

## ASSESSMENT DETAILS

### 1. APPLICANT AND NOTIFICATION DETAILS

#### Applicants

Lanxess Pty Ltd (ABN: 58 071 919 116)  
Unit 1, 31 Hill Road  
HOMEBUSH BAY NSW 2127

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

Data items and details claimed exempt from publication: chemical name, CAS number, molecular and structural formulae, molecular weight, polymer constituents, residual monomers/impurities, use details and import volume.

### 2. IDENTITY OF POLYMER

#### Marketing Name(s)

Polymer in Additin RC 4810

#### Molecular Weight

Number Average Molecular Weight (Mn) is > 1,000 Da

### 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	Brown liquid
Density	950 kg/m <sup>3</sup> at 20°C
Water Solubility	Insoluble
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	< 100	< 150	< 150	< 150	< 200

#### Use

The notified polymer will not be manufactured in Australia. It will be imported into Australia at concentrations up to 70% for reformulation, or as a component of finished products. The notified polymer will be used as a lubricant oil additive in metal working fluids and may also be used as a

component of finished lubricants, greases and rust prevention products. The notified polymer and products containing the notified polymer will not be sold to the general public.

## 6. HUMAN HEALTH RISK 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.

<i>Endpoint</i>	<i>Result</i>	<i>Effects Observed?</i>	<i>Test Guideline</i>
1. Rat, acute oral	LD50 > 2000 mg/kg bw	yes	OECD TG 401
2. Rabbit, skin irritation	Slightly irritating	yes	OECD TG 404
3. Rabbit, eye irritation	Slightly irritating	yes	OECD TG 405
4. Skin sensitisation - adjuvant test.	no evidence of sensitisation.	no	OECD TG 406 (Magnusson and Kligman test)
5. Genotoxicity - bacterial reverse mutation	non mutagenic	no	OECD TG 471

All results were indicative of low hazard. In the acute oral toxicity study 1/10 rats died when dosed with 2000 mg/kg bw of the test substance and 1/10 rats died when dosed with 3920 mg/kg bw, but there were no fatalities amongst the 5 rats dosed at 2800 mg/kg bw or the 4 rats in the control group. Isolated instances of hunched posture, ruffled fur and apathy were seen in treated animals during the acute oral toxicity study. Very slight erythema was observed in all three tested animals but had resolved by the 72 hour observation. Slight conjunctival irritation was seen in 2/3 tested animals at the 1 hour observation but had dissipated by the 24 hour observation.

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

The majority of the release of the notified polymer to the environment from use will be from accidental spills and leaks during machinery start-up and general maintenance, and from disposal of empty drums containing residual metalworking oil. The majority of the notified polymer is expected to be contained within specific metalworking machinery, with no expected release to the environment during use. Accidental spills and leaks during use will be contained and collected using absorbents, and disposed of by licensed waste contractors. At the end use site, the lubricant containing the notified polymer is recirculated within the machinery until it is spent. It is then drained from the machinery and collected for disposal via oil recyclers. Residues in empty import containers, up to 2% of import volume, will be disposed of to landfill along with the container. Spills and leaks, up to 3% of import volume, will be collected with absorbent material and disposed of to landfill by a licensed waste contractor.

### *Predicted environmental concentration (PEC)*

As significant aquatic exposure is not expected at any stage of the notified polymer's life-cycle within Australia, the predicted environmental concentration (PEC) has not been calculated.

### *Environmental Effects*

Polymers without significant ionic functionality are generally of low concern to the environment. The ecotoxicology of the notified polymer was also studied and the results from these ecotoxicological investigations are summarised in the table below.

<i>Endpoint</i>	<i>Result</i>	<i>Assessment Conclusion</i>
Fish	96 h LL50 = 87 mg/L WAF	Not harmful to fish up to limit of water solubility
Daphnia	48 h EL50 > 100 mg/L WAF	Not harmful to aquatic invertebrates up to limit of water solubility
Algae	96 h E <sub>r</sub> L50 > 100 mg/L WAF	Not harmful to algae up to limit of water solubility
Inhibition of Bacterial Respiration	EC 50 = 2500 mg/L	Not inhibitory to microbial respiration

Based on the above ecotoxicological endpoints the notified polymer is not considered to be harmful to fish, aquatic invertebrates and algae up to the limit of its solubility in water.

#### ***Predicted No-Effect Concentration (PNEC)***

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

#### ***Environmental Risk Assessment***

The Risk Quotient ( $Q = \text{PEC}/\text{PNEC}$ ) has not been calculated for the notified polymer, as neither the PEC nor PNEC are available, and no significant aquatic release is expected.

The notified polymer is not expected to be harmful to aquatic organisms up to the limit of its solubility in water, and is not expected to be bioaccumulative based on its high molecular weight and limited aquatic release. In landfill, the notified chemical is expected to adsorb to soil and sediment, and be neither bioavailable nor mobile. The notified polymer in landfill is expected to eventually degrade through biotic and abiotic processes to form water and oxides of carbon and sulfur. On the basis of its assessed use pattern, the notified polymer is not expected to pose an unreasonable risk to the aquatic environment.