

File No SAPLC/26

30 November 2005

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

**FULL PUBLIC REPORT**

**Kerocom 3583**

This Self Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (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 Ageing, 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 and Heritage. The data supporting this assessment will be subject to audit by NICNAS.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at:

Library  
Australian Safety and Compensation Council  
25 Constitution Avenue  
CANBERRA ACT 2600  
AUSTRALIA

To arrange an appointment contact the Librarian on TEL + 61 2 6279 1162 or email [ascc.library@dewr.gov.au](mailto:ascc.library@dewr.gov.au)

This Full 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:

Street Address:	334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888.
Website:	<a href="http://www.nicnas.gov.au">www.nicnas.gov.au</a>

**Director  
NICNAS**

## **TABLE OF CONTENTS**

FULL PUBLIC REPORT .....	4
1. APPLICANT AND NOTIFICATION DETAILS .....	4
2. IDENTITY OF CHEMICAL .....	4
3. COMPOSITION.....	4
4. INTRODUCTION AND USE INFORMATION.....	4
5. PROCESS AND RELEASE INFORMATION.....	5
5.1. Operation Description.....	5
6. EXPOSURE INFORMATION .....	5
6.1. Summary of Occupational Exposure .....	5
6.2. Summary of Public Exposure .....	5
6.3. Summary of Environmental Exposure.....	6
6.3.1. Environmental Release .....	6
6.3.2. Environmental Fate.....	6
7. PHYSICAL AND CHEMICAL PROPERTIES.....	6
8. HUMAN HEALTH IMPLICATIONS .....	6
8.1. Toxicology .....	7
8.2. Human Health Hazard Assessment.....	7
9. ENVIRONMENTAL HAZARDS.....	7
9.1. Ecotoxicology .....	7
9.2. Environmental Hazard Assessment .....	7
10. RISK ASSESSMENT.....	7
10.1. Environment .....	7
10.2. Occupational Health and Safety.....	7
10.3. Public Health .....	7
11. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS.....	8
11.1. Environmental Risk Assessment.....	8
11.2. Human Health Risk Assessment.....	8
11.2.1. Occupational health and safety.....	8
11.2.2. Public health.....	8
12. MATERIAL SAFETY DATA SHEET .....	8
12.1. Material Safety Data Sheet .....	8
13. RECOMMENDATIONS.....	8
13.1. Secondary Notification .....	8

**FULL PUBLIC REPORT****Kerocom 3583****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

BASF Australia Ltd (ABN 62 008 437 867) of 500 Princes Highway Noble Park VIC 3174.

## NOTIFICATION CATEGORY

Self Assessment: Polymer of Low Concern.

## EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical Identity and Import Volume.

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

No variation to the schedule of data requirements is claimed.

## PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None.

## NOTIFICATION IN OTHER COUNTRIES

None.

**2. IDENTITY OF CHEMICAL**

## MARKETING NAME(S)

Kerocom 3583

## MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn)  $1000 < M_n < 10000$

**3. COMPOSITION**

<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. INTRODUCTION AND USE INFORMATION**

## MODE OF INTRODUCTION OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

Imported, as part of a fuel additive package.

## 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>	100-200	100-200	100-200	100-200	100-200

**USE**

As a component (approximately 19%) of a fuel additive. This is added to petrol (gasoline) for the purpose of cleaning internal combustion engine intake systems.

## 5. PROCESS AND RELEASE INFORMATION

### 5.1. Operation Description

#### *Import, transport and distribution*

The notified polymer is imported as a component (approximately 19%) of a fuel additive in both 205 litre drums and in bulk isotank containers. The fuel additive is transported by road to the customer storage facilities or refineries. The number of reformulation /blend sites is estimated to be six. It is anticipated that there would be 20 deliveries to these sites per year.

#### *Gasoline formulation*

A number of workers are involved in the blending of the polymer per site. The fuel additive container is connected by the operator to the transfer system via a transfer hose. The additive is then pumped out of the container into the blend tanks until the desire quantity of fuel additive is reached. On completion, the transfer equipment (pumps and hose/pipeline) is flushed through with gasoline. The transfer hose is then disconnected.

The finished gasoline is then pumped into road tankers for transportation to distributors, retail outlets and industrial users. Other than the connection and disconnection of hoses the process is fully automated.

Workers will be provided with appropriate protective clothing including gloves, safety glasses, overalls and safety shoes. Where natural ventilation is insufficient, local exhaust ventilation will be implemented.

#### *End Use*

At service stations and industrial users the gasoline will be transferred to underground tanks. When required the gasoline will then be pumped into automobile fuel tanks.

## 6. EXPOSURE INFORMATION

### 6.1. Summary of Occupational Exposure

#### *Import, transport and distribution*

During transport and storage, workers are unlikely to be exposed to the notified polymer except when packaging is accidentally breached.

#### *Gasoline formulation*

Dermal and ocular exposure can occur during certain formulation process e.g. connection/disconnection of transfer hoses and during automobile fuel fills. However, exposure to significant amounts of the notified polymer is limited due to the concentration of the notified polymer in the imported product (approximately 19%), engineering controls and personal protective equipment worn by workers.

#### *End Use*

Exposure of transport drivers and service station personnel to drips and spills may occur during the connection and disconnection of transfer hoses and during automobile fuel fills. Exposure is expected to be negligible due to the closed systems used and the low concentration of notified polymer in the gasoline (38.5–173 mg/L depending on fuel type e.g. regular unleaded, premium unleaded, etc).

### 6.2. Summary of Public Exposure

The notified polymer will be available to the public only after it has been mixed with gasoline at the refinery. Incidental exposure could occur during filling of the automobile fuel tank. Given the low concentration (38.5-173 mg/L) and the minimal direct contact with fuel under normal circumstances, public exposure is expected to be minimal.

### 6.3. Summary of Environmental Exposure

#### 6.3.1. Environmental Release

Fugitive emissions of polymer during transport and blending are considered to be negligible. The new product is contained in 205 litre drums or bulk isotanks. It is mixed together with other multi-purpose additives, with gasoline, typically in batches of 10,000-100,000 litres. There is minimal leakage of the product during this blending process as it is essentially a closed automated system.

During repacking at the import site, a maximum loss of 0.5% per annum is anticipated, i.e. for an import volume of 200 tonnes of the notified polymer, this will amount to 1000 kg. The expected amount to be lost annually due to spills at the blending site will be approximately 100kg. The maximum residual amount remaining in an empty 205 litre drum is approximately 1%. A 205 litre drum, therefore would be expected to contain up to 394 mL of the notified polymer. Assuming that the notified polymer is to be imported into Australia in volume of up to 200 tonnes per annum, it is anticipated that 1.5 tonne per annum of the notified polymer may be present either for incineration or drum washings during the reconditioning of the containers or disposal as container residues. This estimate is based on the assumption that 75% of the new additive will be supplied in drums and the remaining 25% in bulk containers to the Australian market. This equates to approximately 150 tonnes in drums and approximately 50 tonnes in bulk. It is anticipated that the empty drums with product residues will be taken off site and recycled through licensed drum re-processors.

If incidental spillage occurs during normal operating procedures, it will be contained and soaked up with inert absorbent material (sand, soil or vermiculite) and placed in a sealable container for appropriate disposal. Such losses would be estimated to be < 1kg of product per transfer. Waste material is disposed of in accordance with local, state or national EPA regulations.

#### 6.3.2. Environmental Fate

The end use of the new polymer is as a component of gasoline. Gasoline stocks would be stored in closed, underground tanks at retail outlets and would not be open to the environment. When required, the gasoline would be pumped directly into fuel tanks where it would remain in an essentially closed system until used. During transfer of gasoline from storage tanks to fuel tanks at retail outlet, there is the potential for some small spillage to occur. Such losses to the environment would be minimal. Components of gasoline lost in such spillages would be expected to vaporise into the atmosphere or to be flushed away as spill residues. However, no vaporisation of the notified polymer to the atmosphere from spills is expected to occur and any small spill residues flushed away would contain negligible amounts of the notified polymer.

Release of the new polymer from its end-use in gasoline is not anticipated. As used as a part of a fuel, it is assumed by the notifier that all the notified polymer will be burnt, together with the gasoline, during the internal combustion process and would not be released to the environment.

## 7. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance at 20°C and 101.3 kPa</b>	Colourless to yellowish liquid, with a product specific odour
<b>Melting Point/Glass Transition Temp</b>	Not applicable as a liquid Freezing point <30°C
<b>Density</b>	0.972 kg/m <sup>3</sup> at 15°C
<b>Water Solubility</b>	<0.001 g/L at 20°C
<b>Reactivity</b>	Stable under normal environmental conditions
<b>Degradation Products</b>	None under normal conditions of use

## 8. HUMAN HEALTH IMPLICATIONS

**8.1. Toxicology**

No toxicological data were submitted.

**8.2. Human Health Hazard Assessment**

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

**9. ENVIRONMENTAL HAZARDS****9.1. Ecotoxicology**

No toxicological data were submitted.

**9.2. Environmental Hazard Assessment**

Nonionic polymers with a number average molecular weight in excess of 1000 are generally of low concern for ecotoxicity because they often have negligible water solubility.

**10. RISK ASSESSMENT****10.1. Environment**

The notified polymer in the fuel additive is not expected to result in a significant release to the environment as the material is expected to be completely destroyed during combustion, giving rise to oxides of carbon. In the event of a spill/minor release during transport, the MSDS provides procedures to reduce the release into the environment. Small quantities of the notified polymer disposed of at landfill, either from drum residues of spill clean-ups, will be expected to be strongly bound to the soils and sediments and be unlikely to enter the water compartment due to its low solubility and anticipated high partition coefficient. In landfill the notified polymer is not expected to hydrolyse but will slowly biodegrade.

There is no direct data to support the claim of complete combustion of the notified polymer to oxides of carbon when the fuel is burnt within the combustion chambers of petrol engines. However, as both the notified polymer and the constituents of the petrol which it will be a minute part are made up of hydrocarbons and oxygen, the notified polymer is not expected to survive the temperatures at which the fuel is exploded within the internal combustion engine.

Information from closely related polymers on the effects of the notified polymer when blended in fuel indicate that the use of such fuel additive products could reduce the emissions of CO<sub>2</sub>, NO<sub>x</sub>, hydrocarbons from between 4-15%.

Given the above, environmental exposure and the overall environmental risk is expected to be low.

**10.2. Occupational Health and Safety**

The OHS risk presented by the notified polymer is expected to be low due to limited exposure and the expected low toxicity.

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

**10.3. Public Health**

Members of the public may make incidental contact with fuel containing the notified polymer. However, the risk to public health will be negligible due to the expected low toxicity and the low concentration of notified polymer within the fuel. As it is expected that the notified polymer will be destroyed within the combustion engine, public exposure to the notified polymer from exhaust emissions is expected to be negligible.

## 11. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

### 11.1. Environmental Risk Assessment

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

### 11.2. Human Health Risk Assessment

#### 11.2.1. Occupational health and safety

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

#### 11.2.2. Public health

There is Negligible Concern to public health when used in the proposed manner.

## 12. MATERIAL SAFETY DATA SHEET

### 12.1. 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.

## 13. 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.

#### Disposal

- The notified polymer should be disposed of to landfill or incinerated.

#### Storage

- The following precautions should be taken by end users regarding storage of the notified chemical:
  - Store in a cool, dry, well ventilated area out of direct sunlight.

#### Emergency procedures

Spills of the notified polymer should be handled by placing an inert absorbant material (such as sand, soil or vermiculite) over the notified polymer. Material is then to be collected and placed into a sealable labelled container for appropriated disposal.

### 13.1. 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.