

File No PLC/660

October 2006

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

**FULL PUBLIC REPORT**

**Polymer in Rilsan**

This 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.

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**Director  
NICNAS**

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**FULL PUBLIC REPORT****Polymer in Rilsan****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

ARKEMA Pty Ltd (ABN: 44 000 330 772) of Ground Floor, 600 Victoria Street, Richmond, VIC 3121.

## 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, Use Details 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)

No

## NOTIFICATION IN OTHER COUNTRIES

Korea

**2. IDENTITY OF CHEMICAL**

## MARKETING NAME(S)

Rilsan (component of this product)

## MOLECULAR WEIGHT

> 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>	Colourless, solid pellets. May be in powder form 10-150 µm s introduced in the product.
<b>Melting Point/Glass Transition Temp</b>	155 - 185°C
<b>Density</b>	1100 kg/m <sup>3</sup> at 20°C
<b>Water Solubility</b>	< 5 mg/L at 20°C
<b>Dissociation Constant</b>	No acid/base groups are present, therefore not applicable
<b>Particle Size</b>	120-130 µm
<b>Reactivity</b>	Stable under normal environmental conditions
<b>Degradation Products</b>	Carbon monoxide, carbon dioxide, nitrogen oxides and organic vapours.

#### 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	10-30	30-100	30-100	30-100	30-100

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

###### Mode of Introduction

The notified polymer is imported as a component of powdered (120-130 µm) product (up to 50% concentration) in 25 kg sealed polybags. It is transported by road to the application site.

###### Reformulation/manufacture processes

No reformulation of the imported product is undertaken in Australia.

###### Use

The notified polymer is used in a powder coating for interior and exterior of pipes carrying potable water.

During the coating process, the sealed polybags of powder product containing the notified polymer are emptied into a storage bin. A vacuum hose then transports the powdered product for coating.

The metal article to be coated is heated in an oven of temperature 350°C for about 8 minutes (depending on the mass of the item). After heating, it is dipped into a fluid bed, which contains the product in powder form. The powder comes into contact with the hot metal substrate, melts and adheres to the substrate, thus forming the coating.

The items to be coated are either semiautomatically dipped into the fluidised bed of powder or manually applied with surplus powder being removed by the off take fan and captured by a filter and recycled.

Following the powder coating the metal articles are baked so that the powder particles melts and coalesces to become a coherent coating.

Larger items are coated by powder spray, with residue moved by suction.

Those small quantities of material that remain on the floor are removed by vacuum cleaner and recycled along with the powder recovered from the air off take filter.

## 6. HUMAN HEALTH IMPLICATIONS

### 6.1. Exposure Assessment

#### OCCUPATIONAL EXPOSURE

##### Transport and Storage

Workers are unlikely to be exposed to the notified polymer during transport and storage of Rilsan except when it is accidentally breached.

##### End Use

Occupational exposure to the notified polymer at up to 50% during powder coating is most likely through dermal, ocular or inhalation (particles or fume) routes while opening and closing of bags, transferring, during heating/baking, manual application with surplus powder, powder spraying for larger objects, inspection, cleaning, and during regular maintenance. The use of engineering controls and PPE (such as gloves, aprons, safety boots and safety goggles and respirators conforming to Australian Standards) will minimise such exposure.

After application, once dried, the notified polymer is cured into an inert matrix and the polymer is hence unavailable for exposure.

The notifier has stated that all staff will be trained in appropriate polymer handling and have access to the Material Safety Data Sheet.

#### PUBLIC EXPOSURE

The notified polymer is for industrial use only. However, the public will potentially contact with [the notified polymer since the pipe](#) surfaces for the potable water are coated with the notified polymer. Members of the public will have minimal exposure as the notified polymer will not be available for exposure once it is dried and cured within the coating matrix. The notifier states that the use of the polymer will be in accordance with FSANZ requirements, including compliance with relevant Australian Standards.

### 6.2. Toxicological Hazard Characterisation

No toxicological data were submitted. The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

The molecular weight of the notified polymer is > 10, 000 and the fraction < 1000 MW is low, therefore it is not likely to cross biological membranes to create systemic toxicity.

The notifier states that the notified polymer has been used in the EU and there is no record or occurrence of work related health effects attributable to the handling and manufacture of the polymer.

### 6.3. Human Health Risk Assessment

#### OCCUPATIONAL HEALTH AND SAFETY

The OHS risk presented by the notified polymer is expected to be low, based on expected low toxicity and low exposure, as well as the engineering controls and personal protective equipment used by workers

The level of atmospheric nuisance dust should be maintained as low as possible. The NOHSC exposure standard for atmospheric dust is 10 mg/m<sup>3</sup>.

#### PUBLIC HEALTH

The hazard of the notified polymer is considered low, based on the PLC characteristics of the notified polymer. The exposure of the public is assessed as very low because the notified polymer is bound within a matrix and unlikely to be bioavailable. Therefore the risk to the public will be very low.

## 7. ENVIRONMENTAL IMPLICATIONS

### 7.1. Exposure Assessment

#### ENVIRONMENTAL RELEASE

Source of release	% Annual Volume	Released to
Residual notified polymer within Bags	< 0.5%	Landfill
Spilt notified polymer	< 0.5%	Landfill
Disposal of products to which notified polymer has been applied at the end of their life-cycle	≥ 99%	Metal Reclamation Facilities or Landfill

The particular method of powder coating is an efficient process with releases expected to be captured and recycled. Release of notified polymer to the aquatic environment is not expected under the proposed use pattern.

#### ENVIRONMENTAL FATE

Notified polymer that is disposed to landfill is expected to be immobile, due to its low solubility in water. Eventually, the notified polymer may degrade by abiotic and biotic processes to form various oxides of carbon and nitrogen, and water.

Notified polymer that is disposed of to metal reclamation facilities is expected to be thermally decomposed to form various oxides of carbon and nitrogen, and water.

### 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 notified polymer is imported as part of formulated powder coating product. Once applied to the substrate by dipping or powder spray, the formulated product is cured by heat treatment, resulting in an inert coating. Residual and spilt material containing the notified polymer will be disposed of to landfill. As release to the aquatic environment is not expected under the proposed use pattern, the notified polymer is not expected to pose an unacceptable risk to the aquatic 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

- Engineering controls should be used to minimise levels of dust and any decomposition products at the powder coating site.
- No specific 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 and the safe operation of powder coating procedures.

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

#### Disposal

- The notified polymer should be disposed of by thermal decomposition in an incinerator or to landfill.

### 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.