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

**FULL PUBLIC REPORT**

**Polymer in Bester 817**

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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**

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**FULL PUBLIC REPORT****Polymer in Bester 817****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

Rohm and Haas Australia Pty. Ltd. (ABN 29 004 513 188)

4<sup>th</sup> Floor 969 Burke Road

CAMBERWELL VIC 3124

## NOTIFICATION CATEGORY

Self Assessment: Polymer of Low Concern

## EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical Name

Other Names

Molecular Formula

Structural Formula

CAS Number

Polymer Constituents

Details of Use

Volume

Molecular weight

## 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 known

**2. IDENTITY OF CHEMICAL**

## OTHER NAME(S)

None

## MARKETING NAME(S)

Polymer in Bester 817

## MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) &gt;1000

**3. COMPOSITION**

## PLC CRITERIA JUSTIFICATION

The notified polymer contains only low concern functional groups.

<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

The notified polymer will not be manufactured in Australia. The notified polymer will be imported as the product Bester 817 (>99% w/w notified polymer) in 200kg steel drums.

##### 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>	10-20	10-20	10-20	10-20	10-20

##### USE

The notified polymer will be used as an intermediate in the manufacture of polyurethane resins. The polyurethane resins will be used in forming components of industrial machinery.

#### 5. PROCESS AND RELEASE INFORMATION

##### 5.1. Operation Description

The notified polymer will be imported as a component (>99% w/w) of the product Bester 817. Imported material will arrive in 200kg steel drums.

It will be transported from the wharf to the notifiers warehouse by road, where it will be stored until such time it is delivered to the customer. At the customer, the product will be reacted with other monomers and intermediates to form a polyurethane resin.

During formulation, the notified polymer will be transferred to a stainless steel reaction vessel by placing a spear in the drum and suctioning the contents out.

Once reacted with other ingredients the finished polyurethane resin will be decanted into 200 litre steel drums for sale to customers.

The packaged containers will then be shipped to less than three industrial customers for further processing.

#### 6. EXPOSURE INFORMATION

##### 6.1. Summary of Occupational Exposure

Transport and warehousing workers may come into dermal and ocular contact with the notified polymer through accidental leaks and spillages from the drums and containers.

During formulation, workers will transfer the polymer to an enclosed reaction vessel. These workers may come into dermal and ocular contact with the notified polymer through accidental leaks and spillages from the drums and transfer lines. Local exhaust ventilation is situated adjacent to the reaction

vessel. Workers will wear impermeable gloves, eye protection and protective clothing. Exposure from the notified polymer to these workers can occur by either dermal or ocular routes, however significant exposure will be limited due to the workplace practices, engineering controls and personal protective equipment used.

No exposure to the notified polymer will occur after reformulation because 100% of the polymer will be reacted and fully incorporated into the final polyurethane resins.

## 6.2. Summary of Public Exposure

The notified polymer will not be sold directly to the public. No public exposure to the notified polymer is expected because the notified polymer will be reacted with, and fully incorporated into the final polyurethane resins. Exposure to the public would only occur in the unlikely event of a transport accident.

## 6.3. Summary of Environmental Exposure

### 6.3.1. Environmental Release

Release to the environment during shipping, transport and warehousing will only occur through accidental spills or leaks from the imported steel drums.

During reformulation, spills are expected to be minimal. When spills occur, they will be contained by bunding, collected with absorbent material and sent to a licensed waste landfill site. It is expected that <0.5% of the import volume will be lost to spills in this manner.

“Empty” drums from import will be sent to drum reconditioners. It is expected that <1% of the import volume will remain in “empty” drums.

Total waste from the above sources is thus expected to be less than 1.5% of the import volume and would be the maximum amount of polymer that would be disposed of to landfill.

Except in the event of a transport accident, it is expected that none of the notified polymer will be released to the aquatic environment.

### 6.3.2. Environmental Fate

The notified polymer contains ester groups that may be expected to undergo hydrolysis under extremes of pH. However, hydrolysis is unlikely in the environmental pH range of 4-9.

Due to the hydrophobic nature of the polymer, it is expected that the notified polymer in landfill will associate with sediments, and organic phases of soil and sediments, and not leach to the aquatic environment. In the soil, the notified polymer is expected to slowly degrade to simple carbon compounds through biotic and abiotic processes. The notified polymer has a number average molecular weight greater than 1000 and is not expected to cross biological membranes thus minimising potential for bioaccumulation.

## 7. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance at 20°C and 101.3 kPa</b>	Colourless to pale yellow liquid.
<b>Melting Point/Glass Transition Temp</b>	<0°C
<b>Density</b>	Approximately 1.18 kg/m <sup>3</sup> at 20°C
<b>Water Solubility</b>	<0.05 g/L at 20°C
<b>Reactivity</b>	Stable under normal conditions of use.
<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**

No toxicological information has been provided for the polymer in Bester 817. Its chemical structure suggests that the polymer has relatively low toxicity, and is not defined as a hazardous substance according to 'NOHSC *Approved criteria for classifying Hazardous Substances* (NOHSC: 1008 2004). 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**

Non-ionic polymers with a number average molecular weight (NAMW) greater than 1000 are generally considered to be of low concern.

## **10. RISK ASSESSMENT**

### **10.1. Environment**

No aquatic exposure is anticipated during reformulation of the notified polymer. It is envisaged that 1.5% waste would be generated from the reformulation process. It is expected that practically all of the waste generated from reformulation will be disposed of in approved landfill. In landfill, the polymer is unlikely to be mobile in the soil environment and would be expected to slowly degrade through abiotic and biotic processes. Polyurethane resins manufactured from the notified polymer will be used in industrial machinery and will share the fate of the machinery containing them. That is, dosed of to landfill or by incineration.

The environmental risk posed by the notified polymer in landfill is expected be low.

### **10.2. Occupational Health and Safety**

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

### **10.3. Public Health**

Neither the notified polymer, nor polyurethane resins and articles manufactured from it, will be available to the public. The risk to public health will 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**

The notified polymer will not be sold to the public. There is Negligible Concern to public health when used as a polymer intermediate.

**12. MATERIAL SAFETY DATA SHEET****12.1. Material Safety Data Sheet**

The notifier has provided MSDS in accordance with the schedule item B 12 of the *ICNA Act*. 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.
- Personal protective equipment required during reformulation of the Bester 817 product are:
  - Eye protection (safety glasses or goggles)
  - Impermeable gloves
  - Industrial clothing and footwear
- 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 following control measures should be implemented by the notifier to minimise environmental exposure during formulation of the notified polymer:
  - Bunding

**Disposal**

- The notified polymer should be disposed of to landfill or incinerated.
- Empty containers should be sent to local recycling or waste disposal facilities.

**Emergency procedures**

- Spills/release of the notified polymer should be handled by absorbing with sand and put into suitable container for disposal. Contaminated containers can be re-used after cleaning.
- The notified polymer should not be allowed to enter drains or waterways.

**Storage**

- If products and mixtures containing the notified polymer are classified dangerous goods, dangerous goods storage requirements may apply.

**Transport and Packaging**

- If products and mixtures containing the notified polymer are classified dangerous goods, dangerous goods transport and packaging requirements may apply.

**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.