

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

**POLYMER OF LOW CONCERN FULL PUBLIC REPORT**

**Polymer in Polyplex 8383**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government 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 Australian Government Department of Sustainability, Environment, Water, Population and Communities.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This Full 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**

September 2011

**Table of Contents**

<b>1. APPLICANT AND NOTIFICATION DETAILS.....</b>	<b>2</b>
<b>2. IDENTITY OF POLYMER.....</b>	<b>2</b>
<b>3. PLC CRITERIA JUSTIFICATION .....</b>	<b>2</b>
<b>4. PHYSICAL AND CHEMICAL PROPERTIES .....</b>	<b>2</b>
<b>5. INTRODUCTION AND USE INFORMATION .....</b>	<b>3</b>
<b>6. HUMAN HEALTH RISK ASSESSMENT .....</b>	<b>3</b>
<b>7. ENVIRONMENTAL RISK ASSESSMENT.....</b>	<b>3</b>
<b>8. RECOMMENDATIONS .....</b>	<b>4</b>

## 1. APPLICANT AND NOTIFICATION DETAILS

### Applicants

Nuplex Industries (Aust) Pty Ltd (ABN 25 000 045 572)  
49-61 Stephen Road  
BOTANY NSW 2019

### 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, molecular weight, polymer constituents, residual monomers/impurities, use details and import volume

## 2. IDENTITY OF POLYMER

### Marketing Name(s)

Polyplex 8383

### Molecular Weight

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

### Reactive Functional Groups

The notified polymer contains only low concern functional groups.

## 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	A clear, highly viscous liquid
Melting Point/Glass Transition Temp	Not determined (highly amorphous polymer)
Density	1160 kg/m <sup>3</sup> at 25°C
Water Solubility	Not determined. Based on the hydrophobic structure, the notified polymer is expected to be insoluble in water.
Particle Size	Imported in dispersion
Dissociation Constant	Not determined. The notified polymer may contain terminal carboxylic acid functions. These functions may be ionised in the environmental pH range, but the dissociation constant would be difficult to measure based on the expected low water solubility of the polymer.
Reactivity	Stable under normal environmental conditions. The notified polymer contains hydrolysable functional groups. However, due to its limited water solubility, the rate of hydrolysis is

expected to be slow under ambient 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	100-300	100-300	100-300	100-300	100-300

#### Use

The notified polymer will be imported into Australia, and on occasions may also be manufactured within Australia, at a concentration of < 80%. The notified polymer will be blended with other additives to form a finished resin (concentration < 40%) which will be used to fabricate thin-walled fire retardant ventilation ducts. The notified polymer may also be formulated (concentration 30-60%) for use in water-proof membrane systems and in road resurfacing applications.

## 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.

## 7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. Polymers without significant ionic functionality are generally of low concern to the environment. Most of the notified polymer will be irreversibly incorporated within cured resin or water-proof membrane systems. Release of the notified polymer to the aquatic environment is not expected during manufacture or reformulation as the equipment is cleaned with solvent and the waste collected as sludge in settling tanks prior to disposal in landfill. A maximum of 2% of the notified polymer will be released to landfill as a result of the disposal of containers with residual polymer and wastes from cleaning of equipment used in manufacture and reformulation.

During use in the fabrication of thin-walled fire retardant ventilation ducts, the notified polymer will be cured at room temperature or in a heated chamber, within a factory environment. Any solid wastes generated are expected to be disposed of to landfill.

During use in water-proofing applications, the notified polymer will be applied by brush or roller to timber substrates (decks/stairs). Once applied, the notified polymer is expected to cure to form a hard inert membrane in which the notified polymer is entrapped and immobile. Up to 0.5% of the introduced volume of notified polymer is expected to be released to the environment from the washing of equipment and containers with residual notified polymer.

During use in road-surfacing applications, the notified polymer will be blended with other raw materials that will be applied to roads to form anti-skid patches using trowels, and smoothed using floats. During application, any polymer waste is expected to be captured, and along with used packaging, be disposed of to landfill. The washing of equipment, and of containers with residual notified polymer, is expected to release up to 1% of the notified polymer into the environment.

There is very little potential for aquatic exposure to uncured notified polymer during use as the notified polymer cures at ambient temperatures and will be irreversibly cross-linked. Further, due to the high molecular weight and insolubility in water, uncured notified polymer is not expected to be bioavailable. Cross-linked cured and hardened resins, excess solid resin waste and discarded articles will be disposed of to landfill, where the notified polymer will undergo slow degradation processes via biotic and abiotic pathways, eventually forming water and oxides of carbon.

The notified polymer is not likely to be released into the aquatic environment in a bioavailable form and is therefore not expected to pose a risk to the environment when used in the proposed manner.

## **8. RECOMMENDATIONS**

### **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 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 *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(2004)], 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.

### **Emergency Procedures**

- Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.
- 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 ingredient for polymer composite in fabrication of ducts, membrane systems and road surfacing, or is likely to change significantly;
  - the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
  - the method of manufacture of the notified polymer in Australia has changed, or is likely to change, in a way that may result in an increased risk of an adverse effect of the notified polymer on occupational health and safety, public health, or the environment;
  - 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 MSDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the MSDS remains the responsibility of the applicant.