

File No PLC/843

July 2009

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

**FULL PUBLIC REPORT**

**Polymer in CYMEL MI-97-IX Resin**

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, Water, Heritage and the Arts.

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 334-336 Illawarra Road, Marrickville NSW 2204.

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**

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**FULL PUBLIC REPORT****Polymer in CYMEL MI-97-IX Resin****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

Cytec Australia Holdings Pty Limited (ABN 45 081 148 629)  
Suite 1, Level 1, 21 Solent Circuit,  
Baulkham Hills, NSW 2153

## NOTIFICATION CATEGORY

Polymer of Low Concern

## 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 and use details.

## 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)

Polymer in CYMEL MI-97-IX Resin

## MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) > 1000 Da

## REACTIVE FUNCTIONAL GROUPS

The notified polymer contains a high concern functional group, however the FGEW is > 5000 Da.

**3. PLC CRITERIA JUSTIFICATION***Criterion**Criterion met*

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:	The solution that the polymer will be introduced in is a viscous, colourless liquid.
Melting Point/Glass Transition Temp	Not determined, the notified polymer will be introduced in solution.
Density	1010 kg/m <sup>3</sup> at 25°C
Water Solubility	225 mg/L at 20°C The aqueous solubility was determined by shaking the resin solution with xylene and water for 1 hour and weighing the residue from the water rich fraction. The value obtained is likely to be an overestimate, as aqueous solubility would be enhanced by entrained organic solvents. The MSDS describes the resin solution as insoluble in water, and claims that it should not be regarded as hazardous to aquatic organisms due to extreme low solubility in water.
Dissociation Constant	pKa = 2.8 by analogy with published data. The notified polymer is not expected to be protonated at significant levels in the environmental pH range, or to exhibit polycationic properties.
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	< 10	< 10	< 10	< 10	< 10

##### Use

The notified polymer will be used as a component of varnish.

The notified polymer will not be manufactured within Australia. The notified polymer will be reformulated into an acid cured wood coating (varnish). Reformulation will take place in a closed mixing system with local exhaust ventilation. The imported 205 L drums will be connected to the pumping equipment and the required volume of the resin pumped into the 10,000 L blending tank. The reformulated product (< 20% notified polymer) will be filled into 20 L steel pails before being transported by road to furniture manufacturers.

At the furniture manufacturer's site the 20 L pails will be opened and an acid catalyst added. The varnish mixture will then be poured into a hopper connected to spray equipment. The mixing and loading will be conducted in a purpose-built ventilated room and the coating applied in a spray booth using dedicated spray equipment. Furniture coated with the varnish will be placed in a drying room to cure. Spray booths and drying rooms will be equipped with exhaust extraction systems.

##### Mode of Introduction and Disposal

The notified polymer will be imported by sea as a resin solution. It will be transported to the reformulator's premises by road in 205 L drums.

#### 6. HUMAN HEALTH IMPLICATIONS

##### Hazard Characterisation

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

##### Occupational Health and Safety Risk Assessment

Dermal, ocular and inhalation exposure to the notified polymer is possible from drips, spills and splashes during reformulation. The use of a closed mixing system and local exhaust ventilation is expected to reduce exposure. Appropriate Personal Protective Equipment (PPE) including impervious gloves, safety glasses and coveralls to minimise dermal and ocular exposure is also expected to be used by workers.

During spray application of varnish containing the notified polymer the greatest exposure is expected to be from inhalation. The notified polymer is water-soluble (225 mg/L) and if inhaled should be cleared from the

respiratory tract. Varnishes containing the notified polymer are expected to be applied in a spray booth by workers wearing appropriate PPE minimizing the exposure.

After the varnish is dried, exposure to the notified polymer from contact with it is expected to be negligible.

Although exposure to the notified polymer could occur during reformulation processes and application of coatings containing the notified polymer, the risk to workers is not considered unacceptable due to its assumed low hazard.

### **Public Health Risk Assessment**

The notified polymer will not be sold to the public. There is potential for dermal exposure by the public to surface coatings on furniture that contain the notified polymer. The notified polymer will be trapped within the surface coatings and exposure is expected to be negligible and therefore, the risk to public health is also expected to be negligible.

## **7. ENVIRONMENTAL IMPLICATIONS**

### **Hazard Characterisation**

No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

### **Environmental Risk Assessment**

Formulation wastes (1.2% of the imported quantity) will be disposed of to landfill, where the notified polymer is expected to remain immobile and slowly degrade, or destroyed by thermal decomposition. Minor discharges to sewer are expected with spray booth scrubber water, but will be largely removed during sewage treatment by sorption to sludge. Most of the notified polymer trapped in the scrubber water will be recovered as cured varnish and disposed of to landfill, where it will remain immobile and slowly degrade. As aquatic exposure will remain very low when the notified polymer is used as proposed, the notified polymer is not considered to pose a risk to the environment.

## **8. CONCLUSIONS AND RECOMMENDATIONS**

### **Human health risk assessment**

Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unacceptable risk to the health of workers.

When used in the proposed manner, the notified polymer is not considered to pose an unacceptable risk to public health.

### **Environmental risk assessment**

Based on the reported use pattern and its eligibility as a PLC, the notified polymer is not considered to pose a risk to the environment.

### **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.

- Spray application should be carried out in accordance with the ASCC National Guidance Material for Spray Painting [NOHSC (1999)]

- 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

- Spills and/or accidental release of the notified polymer should be handled by containment, collection and subsequent safe disposal.

### Regulatory Obligations

#### *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.
  - the Functional Group Equivalent Weight of methylamine in the notified polymer is less than 5000.

or

- (2) Under Section 64(2) of the Act; if
  - the function or use of the notified polymer has changed from a component of varnish, 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 chemical 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 products containing the notified polymer provided by the notifier were reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.