File No PLC/796

August 2008

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Viacryl VSC 9481

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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1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Cytec Australia Holdings Pty Ltd (ABN 45 081 148 629)
Suite 1, Level 1 Norwest Quay
21 Solent Circuit
Norwest Business Park
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, Other Names, CAS Number, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details, Manufacture/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)
Viacryl VSC 9481 (<50% of notified polymer)

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) >1000 Da

REACTIVE FUNCTIONAL GROUPS

The notified polymer contains only low concern functional groups.

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:	Yellow coloured liquid
Melting Point/Glass Transition Temp	Not determined. The notified polymer is imported as a liquid.
Density	1010 kg/m^3 at 20°C
Water Solubility	40 mg/L.
Dissociation Constant	The notified polymer contains anionic functionality and is expected to have a pKa in the range of 3-5.
Reactivity	Stable under normal environmental conditions but reacts with peroxides.
Degradation Products	None under normal conditions of use. The notified polymer contains hydrolysable functionality, but this is not expected to occur within the environmental pH range of 4-9.

5. INTRODUCTION AND USE INFORMATION

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	<100	<100	<100	<100	<100

USE
The notified polymer will be used as a component in road-marking paint.

Mode of Introduction and Disposal
The notified polymer will not be manufactured in Australia, but will be imported by ships into Sydney in 1000 L IBC as a liquid (Viacryl VSC 9481), which contains < 50% concentration of the notified polymer.

The notified polymer will be taken to local reformulators by road and the finished products will be transported to end-use customers (road marking industry).

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.

Although not considered in this risk assessment, NICNAS notes that the imported product contains residual monomers (acrylate and methacrylates) that are classified as hazardous according to the *Approved Criteria for Classifying Hazardous Substances* [NOHSC: 1008 (2004)]. These are present in the notified polymer as introduced above the cut off concentrations for classification.

Occupational Health and Safety Risk Assessment
Dermal and ocular exposure to the resin containing up to 50% of the notified polymer may potentially occur during paint mixing, QC testing and equipment maintenance. Workers filling 100 kg tanks with the finished paint product containing < 30% of the notified polymer may experience accidental eye and skin exposure from drips or spills. End-users (professional road painters) are not likely to be exposed to the notified chemical as application is carried out from within the machine.

Exposure to significant amounts of the notified polymer is likely to be limited because of the engineering controls such as enclosed mixing systems and exhaust ventilation. Workers are expected to wear personal protective equipment (coveralls, eye protection and chemical-resistant gloves).

Although exposure to the notified polymer could occur, under the proposed occupational conditions the risk to workers is considered to be acceptable due to the low hazard of the notified polymer and the low level of exposure.

Public Health Risk Assessment
The notified polymer is intended only for use in industry and will not be sold to the public in the imported form or as finished products. The notified polymer will be cured and bound to the paint film after application and

will not be available for exposure.

As there will be no exposure of the public to the notified polymer (or products containing the notified polymer) the risk to the public is considered to be negligible.

7. ENVIRONMENTAL IMPLICATIONS

Hazard Characterisation
No ecotoxicological data were submitted. Anionic polymers are known to be moderately toxic to algae. The mode of toxic action is overchelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. This is unlikely to apply to the notified polymer. Further, the toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

Environmental Risk Assessment
While the notified polymer has anionic functionality, which may be harmful to aquatic organisms, direct release to the aquatic environment is not expected at any stage of the proposed use pattern in Australia. Therefore, the risk to the aquatic environment is considered to be acceptable.

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, 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.

- 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.

Storage

- The following precautions should be taken regarding storage of the notified polymer:
  - Store in closed containers in well-ventilated areas.

Emergency procedures

- Spills and/or accidental release of the notified polymer should be handled by soaking with absorbent material and disposing to landfill.

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.

or

(2) Under Section 64(2) of the Act; if
- the function or use of the notified polymer has changed from a component in road-marking paint, or is likely to change significantly;
- the amount of notified polymer being introduced has increased from 100 tonnes, or is likely to increase, significantly;
- if 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 the product containing the notified polymer provided by the notifier was reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.