File No PLC/699

May 2007

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Viapal VUP 4693 E/68

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 Water Resources.

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:

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:	www.nicnas.gov.au

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, and 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)
Viapal VUP 4693 E/68 (40-60% notified polymer in styrene)

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

REACTIVE FUNCTIONAL GROUPS
The notified polymer contains only low concern functional groups.

3. PLC CRITERIA JUSTIFICATION

Criterion	*Criterion met (yes/no/not applicable)*
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

Information provided below is for the product Viapal VUP 4693 E/68 containing the notified polymer at a concentration of 40 - 60% in styrene solvent. The notified polymer is not isolated.

Appearance at 20°C and 101.3 kPa	Clear yellow liquid
Melting Point/Glass Transition Temp	100 – 200 °C (cited in MSDS for the product Viapal VUP 4693 E/68)
Density	1120 kg/m^3 at 20°C (cited in MSDS for the product Viapal VUP 4693 E/68)
Water Solubility	Not determined, expected to be moderately soluble based on the chemical constituents. The product Viapal VUP 4693 E/68 had a solubility of 27 g/L. This was determined by adding 50 mL of the product to 500 mL of demineralised water. The mixture was allowed to stir for 1 hour and then was transferred to a separating funnel. The aqueous phase was separated; water was removed using a rotary evaporator to get weight of the dissolved product.
Reactivity	Stable under normal conditions of use. Contact with strong oxidising agents should be avoided.
Degradation Products	None under normal conditions of use. While the notified polymer contains hydrolysable functions, this will not occur abiotically under environmental temperatures and 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	≤ 5	≤ 5	≤ 5	≤ 10	≤ 10

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will be imported in 200 L stainless steel drums at a concentration of 40 – 60%. The imported product will be transported by road to Cytec for storage before being supplied to putty formulators.

Reformulation processes

Reformulation

The notified polymer will be transferred by metered dosing to a 1000 kg stainless steel mixing vessel. Other ingredients will be added and then mixed together in a sealed vessel fitted with a high speed mixer and a local ventilation system. Each batch is quality checked and adjusted as necessary. The final product (putty) contains the notified polymer at concentrations of 20 – 32%. The putty will be dispensed into the 20L cans in which it is to be supplied to customers. These containers are then stored at the reformulation site prior to distribution to customers.

End use

At the end user site, putty containing the notified polymer may be applied directly from the can on to automobiles with a putty knife or similar tool. Alternatively, the putty may be applied using a spray gun in a spray booth, after the product is gravity fed into the gun. In both cases, the substrate will be

cured by air-drying.

Use
The notified polymer will be used as a binder in the manufacture of putty for the after-market automotive industry.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Category of Worker	*Number*	*Exposure Duration (hours/day)*	*Exposure Frequency (days/year)*
Transport and storage	2	2-3	4
Binder formulation	3	8	4
QC testing	1	8	4
Filling into cans	3	8	4
Maintenance workers	2	8	4
End use	1000	8	30

Worker exposure to the notified polymer is unlikely to occur during transport and storage, except in the unlikely event of an accidental spillage or leakage from containers.

Reformulation
Dermal and ocular exposure to drips, spills and splashes of the notified polymer (at concentrations between 40 - 60%) may occur during charging of the mixer and blending, and during transfer of the final product into cans. Exposure should be minimised as a result of the sealed nature of the mixing vessel, the local ventilation system utilised, and the personal protective equipment worn by workers, including coveralls, goggles and gloves. In addition, inhalation exposure of workers to the notified polymer may occur if aerosols are released during blending. Such exposure should be minimised by the local exhaust ventilation system in place.

Dermal and ocular exposure to the notified polymer (20 - 32% concentration) may also occur during QC testing, such as when obtaining and testing samples and when making batch adjustments. Exposure should be minimised by the wearing of personal protective equipment.

Maintenance workers may come into dermal contact with the notified polymer during equipment maintenance. This should be minimised by the personal protective equipment worn by workers, such as coveralls, goggles and gloves.

End use
Dermal and ocular exposure to the notified polymer (20 - 32%) may occur when opening the cans containing the putty, and when applying to substrates manually. Such exposure should be reduced by the wearing of personal protective equipment, including safety glasses, gloves, coveralls, and safety boots.

Dermal, ocular and inhalation exposure of workers to the notified polymer (20 - 32%) may occur when applying putty using spray operations. Exposure is expected to be minimised by performing such operations in a spray booth. In addition, operators will wear safety glasses, gloves, coveralls, and safety boots. After application and once dried, the paint containing the notified polymer is cured into an inert matrix and the polymer is hence unavailable for exposure.

PUBLIC EXPOSURE
The imported product containing the notified polymer will not be sold to the general public, and will only be used for industrial purposes. The public may come into contact with the notified polymer only after it has been applied to automobiles where it is cured within an inert matrix and is not bioavailable. Therefore, the potential exposure of the public to the notified polymer is negligible.

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.

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 the minimal exposure to workers and the low intrinsic hazard of the polymer.

PUBLIC HEALTH

The notified polymer is intended for use by professional spray painters in auto repair workshops only, and will not be sold to the public. Following application, the notified polymer will become bound within a film and will not be bioavailable. Therefore, the risk to public from exposure to the notified polymer is considered low.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

RELEASE OF CHEMICAL AT SITE:

Release at formulator's site to the environment may occur in the unlikely event of an accident during transport or an accidental leak. It is estimated that a maximum of 1% of the notified polymer (~ 100 kg per year of notified polymer) would be lost during spillage. Spills are contained and soaked up with inert absorbent material (sand, diatomite, acid binders, universal binders or sawdust), placed in a sealable container and disposed of to landfill.

The empty drums will be collected by a licensed waste contractor for disposal to landfill. Residues in drums are expected to be approximately 50 kg per annum based on annual import volumes. There will be no release of the notified polymer to sewer during formulation.

Under normal use, losses of the notified polymer through over spray, mixing of chemicals and cleaning of plant equipment as well as losses from residues in containers have been estimated to be a maximum of 50%, which equates to a maximum of 5 tons per annum. Wastes from application will be hardened and disposed of to landfill.

ENVIRONMENTAL FATE

The notified polymer will be bound in the paint matrix and not be available for direct release to the environment. Disposal of the automobile may be through landfill or recycling, and the fate of the paint will be related to that of the automobile. In landfill the polymer will not be mobile but will slowly degrade by biotic and abiotic means to oxides of carbon 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

No aquatic exposure is anticipated during manufacture and end use of the notified polymer. It is envisaged that up to 2% waste would be generated from the manufacturing process. These wastes would be collected by licensed waste contractors. It is expected that practically all of the waste generated from end users (30% as overspray) will be disposed of in approved landfills as inert solid waste. In landfill, the solid wastes will not be mobile and will degrade slowly and not pose a significant risk to the environment.

8. CONCLUSIONS

8.1. Level of Concern for Occupational Health and Safety

There is Negligible Concern to occupational health and safety under the conditions of the occupational settings described.

8.2. Level of Concern for Public Health

There is Negligible 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

- 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 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 putty manufacturers and applicators to minimise environmental exposure during use of the notified polymer:
  - Avoid release of the notified polymer to sewer.
  - Manufacturing and paint application areas should be bunded.

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

- Spills and/or accidental release of the notified polymer should be handled by covering with inert absorbent material; sweeping up and placing in a waste disposal container. Spills should also be flushed with water.

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.