

File No PLC/658

September 2006

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

FULL PUBLIC REPORT

LATEMUL PD-450/PD-430/PD-420

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 Heritage.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at:

Library
Australian Safety and Compensation Council
25 Constitution Avenue
CANBERRA ACT 2600
AUSTRALIA

To arrange an appointment contact the Librarian on TEL + 61 2 6279 1162 or email ascc.library@dewr.gov.au

This Full Public Report is 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**

TABLE OF CONTENTS

FULL PUBLIC REPORT	3
1. APPLICANT AND NOTIFICATION DETAILS	3
2. IDENTITY OF CHEMICAL	3
3. PLC CRITERIA JUSTIFICATION	4
4. PHYSICAL AND CHEMICAL PROPERTIES	4
5. INTRODUCTION AND USE INFORMATION	4
6. HUMAN HEALTH IMPLICATIONS	5
6.1. Exposure Assessment	5
6.2. Toxicological Hazard Characterisation	5
6.3. Human Health Risk Assessment	5
7. ENVIRONMENTAL IMPLICATIONS	6
7.1. Exposure Assessment	6
7.2. Environmental Hazard Characterisation	6
7.3. Environmental Risk Assessment	6
8. CONCLUSIONS	7
8.1. Level of Concern for Occupational Health and Safety	7
8.2. Level of Concern for Public Health	7
8.3. Level of Concern for the Environment	7
9. MATERIAL SAFETY DATA SHEET	7
9.1. Material Safety Data Sheet	7
10. RECOMMENDATIONS	7
10.1. Secondary Notification	7

FULL PUBLIC REPORT**LATEMUL PD-450/PD-430/PD-420****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Kao (Australia) Marketing Pty. Ltd
1-5 Commercial Rd
Kingsgrove NSW

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/Impurities, Use Details, 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

U.S.A. (2005), Canada (2005), China (2006)

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

LATEMUL PD-450, LATEMUL PD-430, LATEMUL PD-420

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

<i>Criterion</i>	<i>Criterion met (yes/no/not applicable)</i>
Molecular Weight Requirements	Yes
Functional Group Equivalent Weight (FGEW) Requirements	N/R
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	White or whitish solid, with slight, characteristic odour
Melting Point/Glass Transition Temp	50-55°C
Density	1061 kg/m ³ at 50°C
Water Solubility	330 g/L at 20°C. Differing amounts were added to 100 g water. These were soluble up to this level but were insoluble (gelation) at 43% w/w.
Reactivity	The polymer is stable over the pH range: 3 to 9.
Degradation Products	None. The notified polymer is not expected to hydrolyse, depolymerise, or undergo thermal or photo-degradation 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>
<i>Tonnes</i>	1-5	1-5	1-5	1-5	1-5

USE AND MODE OF INTRODUCTION AND DISPOSAL**Mode of Introduction**

The polymer will be imported as a component (< 2%) of a polymer emulsion product to be used in paint. It will be imported by ship in sealed 200 litre drums and transported by rail or road to customer sites.

Reformulation/manufacture processes

The notified polymer is not manufactured in Australia. It will be diluted upon formulation into automotive paint, and will not be isolated from the emulsion in water during its use.

Use

The notified polymer is used as an emulsifier for automotive paint use. Typically the content of the notified polymer in automotive paints is < 1%, which are applied as spray in enclosed, controlled automotive manufacturing facilities.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

The notified polymer will be imported as a component of a polymer emulsion formulation (< 2%) and will be used as a component of paint product (< 1%) by the Australian automotive OEM industry, where reformulation and use processes are automated. Occupational exposure is expected to be minimal due to the very low concentration of the notified substance in the emulsion and paints.

Formulation of automotive paints tends to be automated with little direct worker exposure, though maintenance and cleanup personnel may be exposed to the polymer emulsion. Dermal and ocular exposure to the notified polymer may occur as a result of small drips and splashes, when opening containers, mixing and refilling the use of the polymer emulsion. Inhalation exposure is not expected as the process is automated.

During use of automotive paints that contain the notified polymer, dermal, respiratory and ocular exposure may occur when spraying paint onto new cars. However, exposure to significant amounts of the notified polymer is limited because of the fully automated processes, and the engineering controls and personal protective equipment worn by workers. Trained persons, who will know how to use the chemical safely, will handle the paint using automated equipment for the bulk of the dilution and spray process. After application and once dried, the paint containing the notified polymer is cured into an inert matrix and the polymer is hence unavailable to exposure.

As the notified polymer is intended for use in aqueous paint formulations, cleanup of spray equipment and facilities such as spray booth filters and paint traps will be done with water. Slight exposure may occur during cleaning of the equipment and in the event of spillage resulting from an accidental breakage of 200 liter storage drums.

Normal workplace precautions are considered adequate to protect workers who may be exposed to products containing the notified substance, due to the very low concentration (< 1%), of the notified substance in such products. Normal protective procedures required when using automotive paints, including the wearing of gloves, boots and respiratory and eye protection will be adequate to further minimise exposure to the notified substance contained in the paints.

PUBLIC EXPOSURE

The notified polymer will not be directly available to the public, as it is used only in an automotive original equipment manufacture (OEM) paint that is cured into a solid impermeable finish prior to reaching the public.

6.2. Toxicological Hazard Characterisation

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. This is supported by toxicological endpoints observed in testing conducted on the notified polymer.

<i>Endpoint</i>	<i>Result</i>	<i>Classified?</i>	<i>Effects Observed?</i>	<i>Test Guideline</i>
Genotoxicity - bacterial reverse mutation (pre-incubation method)	non mutagenic	no	no	OECD TG 471

The result is indicative of low hazard.

6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

The occupational exposure is low, with the major exposure due to cleanup and accidental spills or releases. The polymer is introduced and used in a polymer emulsion at < 2%.

PUBLIC HEALTH

There will be no exposure of the public to the notified polymer. The polymer can be considered to be of low hazard because it meets the PLC criteria, and is used in an automotive paint that is cured prior

to reaching the public and is not bioavailable. The risk to the public from exposure to the notified polymer is therefore considered to be negligible.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

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

During paint formulation and packaging, spills are expected to be minimal. When spills occur, they will be contained by bunding, collected with absorbent material and collected by a licensed waste disposal contractor for disposal as landfill. Residual waste from the paint-mixing vessel is anticipated to be 0.5% of imported polymer volume. This waste is collected when the mixing vessel is cleaned, aqueous residues are dealt with in on-site sewer systems, while solid residues containing the notified polymer, are sent to landfill. Drum residual waste is expected to be 1% of imported volume. Empty drums, which contained imported polymer emulsion, will be returned to the manufacturer.

Under normal use procedures, losses of the notified polymer through overspray, cleaning of plant equipment as well as losses from residues in containers have been estimated to be a maximum of 54 % of polymer. Empty containers that contained the paint will be flushed with water. Residual waste of the notified polymer in paint drums is expected to be 2% of imported volume. Wastes from application (paint overspray that does not land on the vehicle) will be trapped in the spray booth water, hardened and disposed of to landfill, (50% of imported volume). Wastes from cleaning of automatic spray equipment (2% of imported volume) are collected on rags and disposed of to landfill (a trace amount of the imported polymer).

The remainder of the polymer forms a paint film on the vehicle and undergoes a chemical reaction with other polymer components in the paint during the paint baking process, to form the final paint film. It is not available for direct release to the environment. Disposal of the automobile may be through landfill or recycling. For automobiles that are recycled, the notified polymer will be incinerated in the recycling process.

ENVIRONMENTAL FATE

The notified polymer contains no readily hydrolysable groups and is expected to be stable under normal environmental conditions. Due to its high water solubility, the notified polymer is expected to partition to the aqueous phase. However, due to paint collection processes the majority of the waste during the paint formulation and use will be disposed of to landfill and eventually degrade through biotic and abiotic processes. It is not expected to be readily biodegradable and bioaccumulate due to its high molecular weight. Incineration of the polymer will result in the formation of water vapour and oxides of carbon.

7.2. Environmental Hazard Characterisation

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

7.3. Environmental Risk Assessment

The polymer will be imported as a component of a polymer emulsion formulation and formulated into an aqueous paint product. During the manufacture of paint, it is expected that wastes generated will be approximately 1.5% of the total import amount which will be disposed of to landfill and eventually undergo in-situ degradation. The majority of the waste will be from overspray (50%) during its end use and be disposed of to landfill. The polymer incorporated in the automobile after its useful lifespan will be incinerated generating water vapour and oxides of carbon. Based on the proposed use pattern, the polymer is not expected to pose an unacceptable risk to the environment.

8. CONCLUSIONS

8.1. Level of Concern for Occupational Health and Safety

There is Low 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 for the product containing the notified polymer 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.

Spray application of paint containing the notified polymer should be in accordance with the NOHSC National Guidance Material for Spray Painting.⁵

- 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

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 sweeping or vacuuming spills to drums or containers.

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.