

File No PLC/811

March 2009

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

FULL PUBLIC REPORT

Polymer in CT-821FT

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 CT-821FT****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

PPG Industries Australia Pty Ltd
McNaughton Road
Clayton VIC 3168

NOTIFICATION CATEGORY

Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical Name, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, and Use Details

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

Variation to the schedule of data requirements is claimed as follows:

Dissociation constant, particle size distribution, melting point, and flammability limits

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

Nil

NOTIFICATION IN OTHER COUNTRIES

Nil

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

XA-45-9561 60% CT-821FT (product containing the notified polymer)

CAS NUMBER

Not assigned

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*

Molecular Weight Requirements
Functional Group Equivalent Weight (FGEW) Requirements
Low Charge Density
Approved Elements Only
Stable Under Normal Conditions of Use
Not Water Absorbing
Not a Hazard Substance or Dangerous Good

Criterion met

Yes
Yes
Yes
Yes
Yes
Yes
Yes

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa:	Clear viscous liquid
Melting Point/Glass Transition Temp	No data available. Imported in solution.
Density	1066 kg/m ³ at 25°C
Water Solubility	0.721 g/L at 20°C. The solubility of the notified polymer in water was determined gravimetrically. It is likely that the dissolved solids in the supernate are mainly the low molecular weight part of the polymer, given the existence of significant amount of the low molecular weight portion and the polydistribution of the molecular weight of the polymer, and therefore, the water solubility may be over estimated.
Dissociation Constant	Not tested. The notified polymer contains dissociable functionalities expected to have pK _a values of approximately 5 and will be ionised throughout the environmental pH of 4 – 9.
Particle Size	Not applicable as the notified polymer is in solution.
Reactivity	Stable under normal environmental conditions. The notified polymer will polymerise further in end-use at elevated temperature. It will thermally degrade at temperatures above 200°C although the specific temperature is unknown.
Degradation Products	None under normal conditions of use. The paint film containing the notified polymer will deteriorate very slowly under the action of UV from sunlight over the average life of a car (20 years). The notified polymer contains hydrolysable functions. However, hydrolysis is unlikely to occur in the environmental pH range of 4 – 9.

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	10-20	10-25	10-25	10-25	10-25

Use

The notified polymer will be used as an ingredient in automotive OEM paint.

Mode of Introduction and Disposal

The product (CT-821FT) containing the notified polymer will be imported into Australia initially through Melbourne port, packed in 200 L open head steel drums. The notified polymer will be combined with other ingredients and formulated into finished automotive spray paints. The paint containing the notified polymer will be applied by robots and operators to car bodies and then baked to form part of the paint finish of the car.

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 and ocular exposure may potentially occur during certain processes involving the notified polymer. However, exposure to significant amounts of the notified polymer is limited because of the generally automated processes, and the engineering controls and personal protective equipment worn by workers.

Spray painters may also come into contact with the notified polymer through inhalation. The risk of exposure, however, will be minimal as the spray paint is applied in a ventilated spray booth by workers using protective equipment. 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.

Overall, 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 Risk Assessment

The notified polymer is intended for use by professional spray painters in automotive manufacturing plants only and will not be sold to the public. Following application, the notified polymer will become trapped within a film and will not be bioavailable. Therefore, based on low hazard and very low exposure to the notified chemical, the risk to public from exposure to the notified polymer is considered low.

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 over-chelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone, which does not apply to the notified polymer. 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

No release of the notified polymer to aquatic environment is expected based on the reported use pattern. All the wastes will be either sent to landfill or be incinerated during the container recycling process. Also, the notified polymer applied to automotive bodies will either go to landfill with the substrates or be incinerated into small molecules during the recycling process of the substrates.

In landfill, the notified polymer is not expected to leach and is likely to undergo biotic and abiotic degradation processes into small molecules of water and oxides of carbon.

Therefore, the risk of an adverse effect on the environment from the intended use of the notified polymer is acceptably low based on the reported use pattern.

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.

Environment

Disposal

- The notified chemical should be disposed of to landfill or incinerated during container recycling processes.

Storage

- Store in a cool, dry, well-ventilated area, away from heat, sources of ignition, oxidising agents, foodstuffs, clothing and out of direct sunlight.

Emergency procedures

- Spills or accidental release of the notified chemical should be handled by physical 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.or
- (2) Under Section 64(2) of the Act; if
 - the function or use of the notified polymer has changed from use as an ingredient in automotive OEM paint, 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 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.