

File No PLC/816

March 2009

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

FULL PUBLIC REPORT

Polymer in Powder 661

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 Powder 661****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

PPG Industries Australia Pty Ltd (ABN 82 055 500 939)
McNaughton Rd
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, other names, molecular and structural formulae, molecular weight, polymer constituents, residual monomers 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 and melting point.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

No

NOTIFICATION IN OTHER COUNTRIES

USA 2004

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Powder 661
AB-73-6882

CAS NUMBER

Not assigned

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) > 1000 Da

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

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

Yes
Yes
Yes
Yes
Yes
Yes
Yes

Although the notified polymer contains high concern functional groups (pendent acrylates), the FGEW is > 5000 and therefore the polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa:	White powder
Melting Point/Glass Transition Temp	Not conducted
Density	1050 kg/m ³ at 25°C
Water Solubility	The notifier obtained a value of 0.337 g/L at 20°C by a simple gravimetric method involving stirring with water, settling, sampling of the aqueous fraction and drying at 130°C for 1 hour. This appears to be a considerable overestimate, and probably reflects solubilisation of low molecular weight material.
Dissociation Constant	The notified polymer contains a small amount of sulfonate functionality which is expected to be ionised in the environmental pH range of 4–9.
Particle Size	5 µm to 50 µm
Flammability	Combustible powder (MSDS)
Reactivity	Stable under normal environmental conditions, but will degrade above 200°C and is incompatible with strong acids, bases and oxidisers.
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	0.5-2	1-3	1-3	1-3	1-3

Use

A component of automotive spray paint for use in original equipment manufacture.

The notified polymer will be imported into Australia in 10 kg bags. The notified polymer will be manually transferred from the bags into a closed mixing vessel. The notified polymer will be reformulated into paint at PPG Industries Australia Pty Ltd in a closed mixing vessel with other ingredients. The paint containing the notified polymer will undergo quality control testing before being pumped into 200 L drums for delivery to customers. At the customer sites the paint will be pumped from the drums into a mixing tank and diluted with solvent to the required viscosity for application. The finished paint will be then pumped around a circulation system from which it will be sprayed onto automotive parts by robots and workers. The painted automotive parts will then travel through an oven where the notified polymer will undergo a heat activated chemical reaction with other polymers in the paint, thereby forming the final paint film on the car.

Mode of Introduction and Disposal

The notified polymer will not be manufactured within Australia. The notified polymer will be imported in 10 kg bags.

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.

The notified polymer is introduced in the powdered form, with the particle size ranging from 5 µm to 50 µm. However, given the NAMW is < 10,000 Da, lung overloading is not expected. However, there may be potential for irritation of the respiratory tract given a small amount of pendent acrylate groups may be present.

The polymer is a combustible powder and if dispersed in air may form an explosive mixture when ignited.

Occupational Health and Safety Risk Assessment

Dermal, ocular and inhalation exposure to the notified polymer may occur during processes such as transfer of the polymer to the mixing tanks, taking and testing quality control samples, connecting filling lines and maintenance and cleaning of equipment. However, exposure will be minimised by engineering controls such as the use of local exhaust ventilation and the use of personal protective equipment such as gloves and protective clothing.

Spray painters may come into contact with the notified polymer through dermal, inhalation and ocular routes. However, exposure will be limited as the spray paint will be applied in a spray booth with a down draft by robots and workers using protective equipment including vapour masks and full protective clothing. After application the paint containing the notified polymer will be cured into an inert matrix and the notified polymer will not be bioavailable.

The notified polymer is introduced in a powdered form of small particle size and may be a slight respiratory irritant. However, given the minimal exposure expected if appropriate ventilation and PPE are used the risk to workers is not expected to be unacceptable.

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 automobiles that contain the notified polymer. The notified polymer in the surface coatings will be cured into an inert matrix and will not be bioavailable. Therefore, the risk to public health is 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

Environmental exposure from the use of the notified polymer in automotive paints will be limited by the engineering controls in place. Residues in drums will be destroyed by incineration, while wastes from spray painting will be collected and processed before disposal in secure landfill as inert solids. The notified polymer will no longer exist in finished coatings as it will be cured into an inert, cross-linked polymer network when coated automotive parts are baked after spray painting. Therefore, 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, the notified polymer is not considered to pose a risk to the environment.

Recommendations

CONTROL MEASURES

Occupational Health and Safety

- Employers should implement the following engineering controls to minimise occupational exposure to the notified polymer at the reformulation sites during transfer of the notified polymer as introduced.
 - Local exhaust ventilation
- Employers should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer at the reformulation sites during transfer of the notified polymer as introduced.
 - Dust mask or respirators capable of removing all product particles

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

- At the reformulation sites, atmospheric monitoring should be conducted to measure workplace concentrations of airborne particulates during handling of the notified polymer. Airborne concentrations of the notified polymer should not exceed the exposure standard of 10 mg/m³ TWA for airborne particulates not otherwise classified [NOHSC:1003(1995)].
- 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 by 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 pendent acrylates 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 automotive spray 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.