File No PLC/810

February 2009

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in KZX-123

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)
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, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities 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 and melting point.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
No

NOTIFICATION IN OTHER COUNTRIES
USA 2007

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
KZX-123
XC-11-2002 (contains the notified polymer at 55%)

CAS NUMBER
Not Assigned

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

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 contains high concern functional groups, 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:	Clear viscous liquid
Melting Point/Glass Transition Temp	Not conducted
Density	1154 kg/m^3 at 25°C
Water Solubility	0.123 g/L at 20°C The solubility of the notified polymer in water was determined by analysing the solids of the supernatant from a mixture of 10 grams of the notified polymer and 50 grams of water that was shaken for one minute followed by 48 hours of standing before the analysis. The polymer is predicted to be moderately water soluble based on its mainly hydrophobic molecular structure containing significant fraction of hydrophilic moieties.
Dissociation Constant	Not tested. The notified polymer contains dissociable functionalities expected to have a pK_a value of ~4.5 and will be ionised throughout the environmental pH of 4 – 9.
Reactivity	Stable under normal environmental conditions. Will degrade above 200°C and is incompatible with strong acids, bases and oxidisers.
Degradation Products	None under normal conditions of use. The notified polymer contains some hydrolysable functional groups, however, hydrolysis is unlikely to occur at 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	10-20	15-25	15-25	15-25	15-25

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

The notified polymer solution (55%) will be imported into Australia in 200 L drums, and reformulated into paint at PPG Industries Australia Pty Ltd, where it will be pumped from the drums into a closed mixing vessel and combined 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 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 as a solvent solution in the product XC-11-2002 (contains the notified polymer at 55%) in 200 L drums.

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 to the notified polymer may occur due to drips, spills and splashes during processes such as transfer of the solution containing the notified polymer to and from 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 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.

Although exposure to the notified polymer could occur, the risk to workers is considered to be low due to the intrinsic low hazard of the notified polymer.

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. 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 appear applies to the notified polymer. However, 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 forming 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.

Disposal

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

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;
- the Functional Group Equivalent Weight of anhydride 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 products containing the notified polymer provided by the notifier were reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.