File No PLC/908

June 2010

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

URACROSS XP 755

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)
IMCD Australia Limited (ABN 44 000 005 578)
Level 1
372 Wellington Road
Mulgrave, VIC 3017

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 and Use Details.

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)
URACROSS XP 755

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (Mn) > 1,000 Da

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

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 meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Colourless to light yellow solid
Melting Point/Glass Transition Temp	> 66°C
Density	1200 kg/m^3 at 23°C
Water Solubility	Not determined. Expected to be low based on the predominantly hydrophobic chemical structure of the notified polymer.
Dissociation Constant	Not determined. The notified polymer contains functional groups that are expected to be ionised in the environmental pH range (4–9).
Particle Size	1-3 mm (introduced form)
Reactivity	Stable under normal environmental conditions. The notified polymer contains hydrolysable functional groups, however, due to its limited solubility, hydrolysis is expected to be low under normal environmental conditions.
Degradation Products	None under normal conditions of use

5. INTRODUCTION AND USE INFORMATION

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	20 - 100	20 - 100	20 - 100	20 - 100	20 - 100

Use
The notified polymer will be used as a component of UV or peroxide curable powder coatings at concentrations up to 70%. The notified polymer will be used by industry and reformulation of the imported neat notified polymer is expected to be conducted via semi-automated processes. The powder coating will be sprayed onto earthed metal objects using an electrostatic process.

Mode of Introduction and Disposal
The notified polymer will not be manufactured within Australia. It will be imported as a neat material (granules of 1-3 mm) in 25 or 200 kg 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
The neat notified polymer will be transferred manually into a hopper which feeds into a mixing tank. The notified polymer will then be blended with other ingredients before being extruded and then ground into a fine powder coating containing the notified polymer at concentrations up to 70%. Dermal exposure is expected to be minimised by the use of personal protective equipment including gloves and coveralls.

Inhalation exposure to the notified polymer will be minimal while it is still present in the imported form of 1-3 mm particles. However, once the notified polymer has been ground into a fine powder the potential for significant inhalation exposure increases. The proportion of inhalable and respirable particles in the notified polymer is unknown and will vary depending on the processes used to manufacture the powder coatings. Therefore the finished powder coatings may contain some particles in the respirable range. This may lead to lung overloading at higher exposure levels. Normal lung clearance mechanisms are expected to tolerate low exposures to the notified polymer. Inhalation exposure to the notified polymer at concentrations up to 70% during reformulation and use of the powder coatings is expected to be reduced through the use of local exhaust ventilation or spray booths and respiratory protection. Ocular exposure to dust will be minimised by exhaust ventilation and the use of safety glasses where necessary.

The Australian recommended exposure standard for dust is 10 mg/m^3 [NOHSC 3008:(1995)], but a recommended exposure limit of 3 mg/m^3 has been suggested by the American Conference of Governmental Industrial Hygienists (ACGIH) for “respirable (insoluble) particulates (not otherwise regulated)”.

Appropriate control measures (e.g. local exhaust ventilation, dusk masks) to mitigate inhalation exposure to respirable particles of the notified polymer should be implemented when the level of atmospheric dust is above the NOHSC exposure standard of 10 mg/m^3.

Overall, the OHS risk presented by the notified polymer is expected to be low, based on the anticipated low hazard of the polymer.

Public Health Risk Assessment
The notified polymer is intended only for use by industry and as such public exposure to the powder coatings containing the notified polymer at concentrations up to 70% are not expected. The public may come into contact with articles coated with the notified polymer, however, in this state the notified polymer will be bound within a matrix and will not be bioavailable.

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. As this does not apply to the notified polymer it is expected to be of low concern to the aquatic environment.

Environmental Risk Assessment
The imported notified polymer is a component in UV or peroxide curable powder coatings. Solid wastes (<5% of the annual import volume of notified polymer) from residues in containers and spills during reformulation and use are expected to be collected and disposed of to landfill. Water washings of the formulation equipment and factory floors, containing up to 1% of the annual import volume of notified polymer, are drained to a holding tank where the powdered solids settle prior to discharge of the waste water. The settled sludge is disposed of to landfill. During application of the powder coating, notified polymer lost to overspray (up to 50% depending on the type of article sprayed) is captured by engineering controls and is disposed of to landfill. Cured coatings, which are part of an inert matrix, may be sent to landfill or thermally decomposed during metal reclamation when coated metallic articles are disposed of at the end of their useful lives. The notified polymer is expected to be immobile in landfill. It is likely to degrade in landfill or by thermal decomposition to form water and oxides of carbon. Bioaccumulation is unlikely based on the notified polymer's high molecular weight, limited water solubility and its low potential for release to the aquatic environment when used as proposed.

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 expected to pose a risk to the environment.

Recommendations

CONTROL MEASURES

Occupational Health and Safety

- Employers should implement the following safe work practices to minimise occupational exposure during formulation and application of coatings containing the notified polymer:
  - Avoid the formation of airborne dusts

- Employers should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer during the application where dust may be generated:
  - Use of a dust mask (adequate for respirable particle sizes) as needed.

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

- In the interest of occupational health and safety, the following guidelines and precautions should be observed for use of the notified polymer in powder form:
  - The level of atmospheric dust should be maintained as low as possible. The Australian recommended exposure standard for dust is 10 mg/m3 [NOHSC 3008:(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 to landfill.

Emergency procedures

- Spills and/or accidental release of the notified polymer 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 a component of powder coatings for industrial use, 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.