File No PLC/858

March 2010

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Solplus DP700

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)
Orica Australia Pty Ltd (ABN 99 004 117 828)
1 Nicholson St
MELBOURNE VIC 3000

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, 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)
Nil

NOTIFICATION IN OTHER COUNTRIES
USA

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Solplus DP700 (containing 100% notified polymer)

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:	Yellow-pale brown viscous liquid/paste
Melting Point/Glass Transition Temp	Not determined (as the material decomposes at >180°C).
Density	1000 kg/m^3 at 15.6°C
Water Solubility	0.0–0.2 ±0.1 g/L at 20°C Water solubility was determined by following OECD TG 120 (pH 7, test samples in triplicate). The water soluble phase was separated from the insoluble phase by centrifugation followed by filtration. The analytical method was not reported.
Dissociation Constant	Contains a functional group that is expected to be ionised in the environmental pH range (4–9)
Reactivity	Stable under normal environmental conditions. The notified polymer contains hydrolysable functionality, but hydrolysis is expected to be slow in the environmental pH range 4–9.
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	10-30	10-30	10-30	10-30	10-30

Use
The notified polymer will be used as a dispersant for inorganic pigments and fillers for industrial coatings at <0.5%.

The notified polymer will be imported as a raw material at 100% concentration. The notified polymer will be weighed and added to a mixing vessel via a hopper with other ingredients where it will be mixed under high speed to form a dispersion containing <10% notified polymer. The dispersion containing the notified polymer at <10% will be passed through a horizontal bead mill to form a homogenous dispersion. This will be quality control tested before being blended with bases in the production of surface coatings containing <0.5% notified polymer. Once the coatings have been quality control tested, filtered and filled into 200 L or 20 L drums, they will be transported to customer sites for application in industrial maintenance. The coating product containing the notified polymer at <0.5% concentration will be applied to metal substrates by either spray, dip rolling or brush.

Mode of Introduction and Disposal
The notified polymer will be imported by sea as a raw material at 100% concentration in 200 L drums.

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation
No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore considered to be of low hazard.

Occupational Health and Safety Risk Assessment
Workers may be exposed to the notified polymer at up to 100% concentration during certain processes involved with reformulation. However, appropriate engineering controls such as local exhaust ventilation during reformulation are expected to be in place to minimise exposure. Workers are also expected to wear personal protective equipment (PPE) such as overalls, safety glasses, and gloves to further lower exposure.

Workers may be exposed by the dermal, ocular and inhalation routes during application of coatings products containing the notified polymer at <0.5% concentration. The majority of applications are expected to occur in a ventilated spray booth. However, application by brush/roller or dip coating is also intended. Exposure may occur during application of the coating products containing the notified polymer at <0.5% concentration while mixing, connecting and disconnecting paint lines to equipment, filling equipment with coating product and during cleaning and maintenance of equipment. However, exposure is expected to be minimised by the use of a ventilated spray booth, coveralls, eye protection, impermeable gloves and respiratory protection if necessary.

Overall, the OHS risk presented by the notified polymer is not considered to be unacceptable, based on the predicted low exposure to workers and its assumed low hazard.

Public Health Risk Assessment
The notified polymer is intended for industrial use only and will not be available to the public. Members of the public may make dermal contact with products containing the notified polymer. However, considering that the notified polymer is considered to be of low hazard, will become trapped within an inert matrix following application and is not expected to be bioavailable, the risk to the public is not considered to be unacceptable.

7. ENVIRONMENTAL IMPLICATIONS

Hazard Characterisation
No ecotoxicological data were submitted. Some classes of 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. This does not apply to the notified polymer.

Environmental Risk Assessment
The imported notified polymer will be reformulated in Australia. Release from reformulation, accidental spills, and cleaning of reformulation equipment and import containers is expected to be minimal. The waste (estimated to be <3% total import volume) is expected to be collected and disposed of to landfill. Waste from painting (commercial only) will be from accidental drips and spills, cleaning application equipment (~1%), dragout from coil and dip coating (<1%) and overspray from automated spray paint application techniques (<1%). Overspray is captured by filters and water scrubbers, and the notified polymer captured in the aqueous waste is flocculated. The flocculated waste is disposed of to landfill, as are exhausted filters, residues collected from cleaning spray equipment (<5%) and used paint cans containing residue of the notified polymer (<2%). Painted metal articles are expected to be disposed of to landfill or recycled at the end of their useful life. In landfill, the notified polymer will be adsorbed to soil, due to its limited water solubility, or bound in the inert paint matrix and will not be bioavailable. It will slowly degrade by biotic and abiotic processes to form water and oxides of carbon. During metal recycling, the notified polymer is expected to be thermally decomposed to water and oxides of carbon. The notified polymer is not likely to bioaccumulate due to its relatively high molecular weight and limited potential for exposure to the aquatic 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

- 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.

- Spray application should be carried out in accordance with the Safe Work Australia *National Guidance Material for Spray Painting* [NOHSC (1999)].

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 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 dispersant in surface coatings, 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.