

File No PLC/586

18 August 2005

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

FULL PUBLIC REPORT

Polymer in RCP-47100

This Self 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 and Heritage. The data supporting this assessment will be subject to audit by NICNAS.

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**Director
NICNAS**

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FULL PUBLIC REPORT

Polymer in RCP-47100

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)

DuPont (Australia) Ltd (ABN: 59 000 716 469)
168 Walker Street
NORTH SYDNEY NSW 2060

NOTIFICATION CATEGORY

Self Assessment: Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical Name

Other Names

Molecular Formula

Structural Formula

CAS Number

Polymer Constituents

Import Volume

Molecular weight

Details of use

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)

Not notified

NOTIFICATION IN OTHER COUNTRIES

USA (2005)

Canada (2005)

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

RCP-47100

CAS NUMBER

None allocated

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn)

>1000

3. COMPOSITION

POLYMER CONSTITUENTS

The notified polymer does not contain any moderate or high concern reactive functional groups.

<i>Criterion</i>	<i>Criterion met (yes/no/not applicable)</i>
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. INTRODUCTION AND USE INFORMATION

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

The notified polymer will be manufactured in Europe and imported into Australia as a <30% polymer component in DuPont Multi-mix product in 1L mild steel cans with friction fit lid.

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>
<i>Tonnes</i>	1-3	3-10	3-10	3-10	3-10

USE

The notified polymer will be used as a component of automotive refinish paints at a concentration of <30%.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

Formulation

The polymer RCP 47100 will be imported as <30% component of finished paint product in 1Litre mild steel cans with friction fit lids. The Multimix product will be stored in a Dangerous Goods approved warehouse. Cans may be sold singly or packed in cardboard cartons, each carton holding four 1L units.

At the warehouse, the paint is re-aggregated into cartons with other paint types to be transported to the individual distributor's stores, then re-aggregated for final journey by DG approved courier to the spray painter/smash repairer.

All storage warehouses are approved for storage of bulk Class 3 flammable goods, in bunded areas with layout and storage according to AS1940.

End Use

Cans may be sold singly or packed in cardboard cartons, each carton holding four 1L.

Spray-painters mix the Multimix containing RCP-47100 with part A, DuPont basecoat then with isocyanate catalyst, part B, according to the product recipe using a universal measuring cylinder and mixing jar device or use a scale.

After mixing, the paint is loaded into a spray gun and sprayed out onto the vehicle placed in a spray booth constructed and used according to AS4114

When the refinishing is complete the spray gun and lines are emptied and any residual paint placed into a "paint waste" drum for recycling. The spray gun is then cleaned at an earthed recycled solvent wash

station. The spray equipment is then cleaned and ready for the next job.

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

Transport and warehousing workers may come into dermal and ocular contact with the notified polymer through accidental leaks and spillages of the drums and containers.

End-users of the product may be exposed to the <30% solution of notified polymer when opening containers, and during weighing and measuring of volumes prior to use. Dermal exposure is expected to be the major route of exposure, however ocular exposure may occur from accidental splashing and secondary transfer from gloved hands. Workers may also be exposed to solution of the notified polymer via the dermal, ocular and inhalation routes during spraying. PPE used will be impermeable gloves (butyl rubber) in accordance with ANZS2161, eye/face protection goggles in accordance with ANZS1336 and ANZS1337, supplied air respiratory protection in accordance with ANZS1716 and ANZS1715 and clothing in accordance with AS2919

Workers may be exposed to a dilute solution of the polymer via the dermal and ocular routes while cleaning and rinsing spray equipment using recirculated solvent.

Once dried, the paint containing the notified polymer is cured into a integrated part of an inert matrix and is therefore unavailable for exposure.

6.2. Summary of Public Exposure

The notified polymer will not be available to the public and will be sold to smash repair businesses for use by technically qualified spray painters. Members of the public will not come into contact with the notified polymer until it has completely reacted, cross-linked and transformed into a fully integrated constituent of a non-reactive paint film of infinite molecular size covering the surface of the vehicle.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

Local Spray painting

- Waste attached to disposed container

Approximately 5% of the notified polymer will be wasted annually in the residual paint in end-user containers. Traditionally, used paint cans have been crushed and sent to landfill.

However due to a Coating Care and the Packaging Covenant steel cans used by industry may be recycled and residues incinerated in a steel furnace.

- Residues from paint as sprayed

Over spray will be between 20% and 50%. A water curtain will capture it or spray booth/room filters and sent to landfill as dried polymer. Thus, in a worst case situation up to 50% of the notified polymer will be lost due to over spray. Note: 50% over spray is a maximum amount; normally it would be 20% for an experienced tradesman.

- Residues from paint in mixing container

Residual paint remaining in the mixing container is washed out with a solvent wash. This accounts for approximately 5% of the imported polymer.

- Residues from Cleaning Spray Equipment

After refinishing is complete the spray gun and lines will be emptied and any residual paint will be placed into a waste paint drum for recycling. The spray gun and lines are then washed with recycled solvent with the resultant effluent going to solvent recovery. Approximately 5% of the imported notified polymer would be lost in this way.

Hence the Maximum total amount of RCP47100 resin released during use is:

$5\%_{\text{container}} + 50\%_{\text{over spray}} + 5\%_{\text{mixing}} + 5\%_{\text{cleaning}} = 65\%$ used in Australian consumed products.

Release to the environment during shipping, transport and warehousing will only occur through accidental spills or leaks of the drums or steel packaged containers.

Waste from solvent reclaim and spray booth filter and water curtain capture is treated by a N.S.W .EPA protocol that eliminates any water-soluble fraction. Total waste form all sources is expected to be less than 65% of the import volume. Of the 65% Only the 5% attached to the can when land filled has escaped to the environment. The remaining waste polymer has been captured and transformed to an environmentally inactive form meeting NSW EPA specifications

6.3.2. Environmental Fate

The notified polymer is intended for use only as an automotive refinish and will not be available to the public. Consequently the polymer is unlikely to be released into the aquatic environment during the normal course of use as spray painting businesses send used paint and wash solvent containing RCP-47100 to solvent recycling. The polymer and its monomers are not water soluble, and if released to water, would preferably partition to sediments and organic fraction of soils. The high molecular weight indicates a low potential to bioaccumulate.

A licensed waste contractor will dispose of the residual polymer waste from solvent recycling and paint waste in landfill or as a tackifier to road base following treatment to NSW EPA protocol.

In landfill, solid wastes containing the polymer will be immobile and will not leach into the aquatic compartment, but should slowly degrade and become associated with the soil matrix. Although the notified polymer contains hydrolysable groups, hydrolysis will not occur in the environmental pH range due to low water solubility and will be stable in landfill and if released will associate with sediments and organic phases of soil and sediments, and slowly degrade to simple carbon compounds.

During automobile recycling, the polymer will be destroyed in the steel furnace.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Clear to light yellow (polymer solution).
Melting Point/Glass Transition Temp	Not measured as solution polymer. Tg expected to have a wide range.
Density	1060 kg/m ³ at 20°C
Water Solubility	<1mg/L at 20°C estimated from hydrophobic nature due to low concentration of polar and ionic groups.
Dissociation Constant	N/A
Particle Size	N/A
Reactivity	Not an oxidiser. Not expected to be reactive under normal environmental conditions.
Degradation Products	CO, CO ₂ fragments when burnt. This material will not degrade until the temperature is greater than 200°C.

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

No toxicological data were submitted.

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

No toxicological data were submitted.

9.2. Environmental Hazard Assessment

The notified polymer is unlikely to be released into the aquatic environment under the proposed use pattern. Polyanionic polymers that have MW >1000 are generally of low concern.

10. RISK ASSESSMENT

10.1. Environment

The polymer is highly hydrophobic with NAMW >1,000 and if released would be expected to associate with sediments and the organic fraction of the soil partition. The use pattern is highly diffuse within cities and towns.

No aquatic exposure is anticipated during end use of the notified polymer. Wastes would be collected by licensed waste contractors and be either incinerated or reduced to an insoluble polymer mass meeting state EPA criteria ie <1mg/L water extractable then it may be used as a rubberiser and tackifier in road base.

It is expected that practically all of the waste generated from end users (50% as over spray) will be solidified and disposed of in approved landfills as inert solid waste by solvent recyclers to state EPA specifications. In landfill, the solid wastes will not be mobile and will degrade slowly and not pose a significant risk to the environment.

The majority of the residual notified polymer will remain attached to the vehicle steel shell and will be destroyed at the end of the automobile's life when recycled in a steel furnace.

The environmental risk presented by the notified polymer is expected to be low based on low hazard and aquatic exposure.

10.2. Occupational Health and Safety

The OHS risk presented by the notified polymer is expected to be low, based on low hazard and low exposure. Additionally the spray-painting industry has high levels of engineering controls to control over spray and the personal protective equipment used by workers is designed to protect workers against more hazardous isocyanates and solvents of spray paints.

10.3. Public Health

The paint containing RCP-47100 will be used by professional spray painters and will not be available to the public. The public will only come in contact with the polymer as part of a fully cured coat of paint on a vehicle and offers no foreseeable risk to the public.

11. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

11.1. Environmental Risk Assessment

The polymer is not considered to pose a risk to the environment based on its reported use pattern.

11.2. Human Health Risk Assessment

11.2.1. Occupational health and safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

11.2.2. Public health

There is Negligible Concern to public health when used in the proposed manner.

12. MATERIAL SAFETY DATA SHEET

12.1. Material Safety Data Sheet

The notifier has provided an MSDS of the product containing the notified polymer in accordance with the schedule item B 12 of the *ICNA Act*. The accuracy of the information on the MSDS remains the responsibility of the applicant.

13. 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.

- Personal protective equipment required during formulation are
 - Eye protection (safety glasses or goggles)
 - Impermeable gloves
 - Industrial clothing and footwear
- The use of the product containing the polymer should be in accordance with the NOHSC *National Guidance Material for Spray Painting* where appropriate.
- 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 NOHSC *Approved Criteria for Classifying Hazardous Substances*, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

Environment

- The following control measures should be implemented by end users to minimise environmental exposure during use of the notified polymer:
 - Exhaust ventilation of all spray booth facilities
 - Do not empty paint waste down the sewer
 - Ensure the maximum amount of paint is emptied from each paint can/container before disposal.

Disposal

- Spill clean-up with inert absorbent material
- Empty paint cans/containers should be sent to local steel recycling or waste disposal facilities.
- The notified polymer should be incinerated or disposed of to landfill. Use only approved waste management contractors.
- Empty spill containment containers should be sent to local recycling or waste disposal facilities.

Emergency procedures

- Spills/release of the notified polymer should be absorbed with sand, vermiculite or paper and put into suitable container for disposal. Large volumes of spilt paint require dyking.

- Do not allow spills to enter watercourses or drains.
- Organize emergency training on an annual basis

13.1. Secondary Notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under subsection 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 subsection 64(2) of the Act:
 - if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.