File No PLC/511

21 December 2004

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

RCP 29406

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Director
Chemicals Notification and Assessment

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1. APPLICANT AND NOTIFICATION DETAILS

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

NOTIFICATION CATEGORY
Synthetic Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)
Data items and details claimed exempt from publication include the following or any inference of the following:
Chemical Name
Other Names
Molecular Formula
Structural Formula
CAS Number
Polymer Constituents
Use
Volume of import
Molecular weight
Quantity of finished product using notified chemical
Detailed technical function of notified chemical

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
TSCA USA Feb 2000
CEPA May 2002 DOC797 Schedule 6 polymer NSN11666 No suspicion of toxic

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
DuPont IMRON® 3460S

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

Functional Group	Category	Equivalent Weight (FGEW)
Nil	Moderate/High Concern	

Criterion	*Criterion met*

	(yes/no/not applicable)
Molecular Weight Requirements	Yes
Functional Group Equivalent Weight (FGEW) Requirements	Yes
Low Charge Density	Yes
Approved Elements Only	Yes
No Substantial Degradability	Yes
Not Water Absorbing	Yes
Low Concentrations of Residual Monomers	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 imported into Australia as either a <10% component in DuPont IMRON® 3460S paint in 3.785 L, 4 L, or 5 L mild steel cans, or as a 20-30% component of the resin solution KW-36566, used for local paint manufacture, in 200 L drums.

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	<20	<20	<20	<20	<20

USE
The notified polymer will be used as a component of automotive refinish paints at a concentration of <10%.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

Formulation

The majority of the notified polymer will be imported as a component of KW-36566, which is used in the manufacturing of spray paint at the DPC factory at 15-23 Melbourne Rd Riverstone NSW 2765.

KW-36566 is imported in 200 L steel drums, which are transported in the importation container to the manufacturing site for storage, mixing and transformation into finished paint. All storage warehouses are approved for storage of bulk class 3 flammable goods, in bunded areas with layout and storage according to AS1940.

When formulating the final product, 108 L of KW-36566 is emptied using a trolley jack with tilt facility into a closed and exhausted 5000 L gravity fed tank mixer. Bulk solvents are added to the batch slowly via piped supply directly into the mixer and stirred without human contact.

Once tested and approved by QA, the paint is gravity fed and filled into 4 L and 5 L open head mild steel approved cans and labelled. The finished paint is transported to the contract warehouse, or immediately containerised for distribution to Asia. Imported finished paint product, which has been manufactured overseas, is also stored in the contract warehouse. 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.

End Use

Cans may be sold singly or packed in cardboard cartons, each carton holding four 3.785 L, 4 L or 5 L

cans.

Spray-painters mix the RCP 29406 as a component (part A DuPont IMRON® 3460S) with isocyanate catalyst (part B) according to the product recipe using a universal measuring cylinder and mixing jar device. After mixing, the paint is loaded into a spray gun and sprayed out onto the vehicle placed in a spray booth.

After 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.

During formulation, workers will manually weigh and transfer the polymer solution to the mixing vats. Workers will wear impermeable gloves, eye protection and coats. Exposure from the notified polymer to these workers can occur by either dermal or ocular routes, however significant exposure will be limited due to the workplace practices and personal protective equipment used.

End-users of the product may be exposed to the <10% 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. The product is sprayed in a booth with an exhaust/filter system, and workers wear a supplied air respirator or mask fitted with an organic vapour cartridge, faceshield, gloves and protective suit conforming to AS and NZ standards as specified by the MSDS. 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.

After application and once dried, the paint containing the notified polymer is cured into 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 Manufacturing Process;

During paint manufacture, there is potential for small releases through spills, which will be contained within bunded areas and collected for disposal. In the event of a wash out of the mixer, the maximum loss will be 0.2% (up to 40 kg per annum) of the notified polymer in wash out solvent which will be disposed of by the solvent recycling company. It is assumed that 2.5% of the notified polymer remains in each 200 L imported drum. This is removed during drum recycling by incineration.

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 program being extended by the Packaging Covenant to steel cans used by industry this residue may also be incinerated in a steel furnace.

- Residues from paint as sprayed

  Overspray will be between 20% and 50%. It will be captured by a water curtain 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 overspray. Note: 50% overspray 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 will be lost in this way.

Hence the Maximum total amount of RCP 29406 resin released during use is:
$5\%_{container} + 50\%_{over\ spray} + 5\%_{mixing} + 5\%_{cleaning} = 65\%$ used in Australian consumed products. This amounts to 0.65 x 5 tonnes = 3.25 tonnes of the notified polymer per annum assuming 75% is exported.

6.3.2. Environmental Fate

The notified polymer is intended for use only as an automotive refinish and will not be available to DIY users. As such, the polymer is unlikely to be released into the aquatic environment during the normal course of use. The polymer is not water soluble, and if released to water, would partition to sediments. The high molecular weight indicates a low potential to bioaccumulate.

A licensed waste contractor will dispose of the waste in landfill in a dispersed manner and in solid form following treatment. Waste solvent containing the notified polymer from cleaning of the application/manufacture equipment is recycled or incinerated.

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.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20ºC 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	1.903 kg/m^3
Water Solubility	<1mg/L at 20ºC estimated from hydrophobic nature due to low concentration of polar and ionic groups.
Reactivity	Not an oxidiser. Not expected to be reactive under normal environmental conditions.
Degradation Products	CO, CO_2, acrolein and other acrylic fragments when burnt. Typically acrylics do not degrade until the temperature is considerably 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. Polynonionic polymers that have MW > 1000 are generally of low concern.

10. RISK ASSESSMENT

10.1. Environment

The environmental risk posed by use of the notified polymer is expected to be low. The majority of the notified polymer will be incorporated into a stable coating on motor vehicles and hence will be unavailable for exposure. Wastes generated during paint manufacture and application are expected to be treated by licensed waste contractors and disposed of in solid form.

Most of the waste (up to 3.25 tonnes per annum) will be disposed of in landfill in a dispersed manner and in solid form thereby minimising the environmental risk. Waste solvents containing the notified polymer are recycled or incinerated.

In landfill, solid wastes containing the polymer should slowly degrade and become associated with the soil matrix. The majority of the 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.

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 as well as the engineering controls and personal protective equipment used by workers.

10.3. Public Health

The paint containing RCP 29406 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 diffuse use pattern, molecular weight and tight controls in manufacturing and end use, limiting escape to the environment.

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 as a component in an automotive spray paint.

12. MATERIAL SAFETY DATA SHEET

12.1. Material Safety Data Sheet

The notifier has provided MSDS 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 the paint manufacturer to minimise environmental exposure during paint manufacture of the notified chemical:

  - Undertake work in bunded areas only
  - Collect all wastes and recycle where possible, otherwise contain in open drums and allow material to dry and then dispose of to landfill.

- 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.