

File No: PLC/342

21/2/2003

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

FULL PUBLIC REPORT

RCP24056

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 and Heritage.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at:

Library
National Occupational Health and Safety Commission
25 Constitution Avenue
CANBERRA ACT 2600
AUSTRALIA

To arrange an appointment contact the Librarian on TEL + 61 2 6279 1161 or + 61 2 6279 1163.

This Full Public Report is 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:

Street Address: 334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.
Postal Address: GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL: + 61 2 8577 8800
FAX + 61 2 8577 8888.
Website: www.nicnas.gov.au

**Director
Chemicals Notification and Assessment**

TABLE OF CONTENTS

FULL PUBLIC REPORT	3
1. APPLICANT AND NOTIFICATION DETAILS	3
2. IDENTITY OF CHEMICAL.....	3
3. COMPOSITION.....	3
4. INTRODUCTION AND USE INFORMATION	3
5. PROCESS AND RELEASE INFORMATION	4
5.1. Distribution, Transport and Storage	4
5.2. Operation Description	4
5.3. Release	4
5.4. Disposal.....	4
5.5. Public exposure	4
6. PHYSICAL AND CHEMICAL PROPERTIES	5
7. RISK ASSESSMENT.....	5
7.1. Environment.....	5
7.1.1. Environment – exposure assessment	5
7.1.2. Environment – hazard assessment	6
7.1.3. Environment – risk characterisation	6
7.2. Human health	6
7.2.1. Occupational health and safety – exposure assessment.....	6
7.2.2. Public health – exposure assessment	7
7.2.3. Human health - effects assessment	7
7.2.4. Occupational health and safety – risk characterisation.....	7
7.2.5. Public health – risk characterisation	7
8. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS	7
8.1. Hazard classification	7
8.2. Environmental risk assessment	7
8.3. Human health risk assessment.....	7
8.3.1. Occupational health and safety	7
8.3.2. Public health.....	8
9. MATERIAL SAFETY DATA SHEET	8
9.1. Material Safety Data Sheet.....	8
9.2. Label.....	8
10. RECOMMENDATIONS.....	8
10.1. Secondary notification.....	8
11. BIBLIOGRAPHY	9

FULL PUBLIC REPORT**RCP24056****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

DuPont (Australia) Ltd of Level 16, 168 Walker Street, North Sydney NSW 2060

NOTIFICATION CATEGORY

The notified polymer meets the PLC criteria.

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical name(s), other name(s), CAS number, molecular formula, structural formula, means of identification, number average molecular weight, weight average molecular weight, weight percentage of polymer species with MW < 1000 and MW < 500, charge density, polymer constituents, residual monomers and impurities, reactive functional groups – including FGEW, manufacture of import volume, site of manufacture or reformulation, and purity.

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)

EIP/234

NOTIFICATION IN OTHER COUNTRIES

Canada

2. IDENTITY OF CHEMICAL

MARKETING NAME RCP24056

SPECTRAL DATA

ANALYTICAL METHOD IR spectroscopy

3. COMPOSITION

DEGREE OF PURITY

HIGH

4. INTRODUCTION AND USE INFORMATION

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

Imported in solution at 10-40%

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

Year	1	2	3	4	5
------	---	---	---	---	---

<i>Tonnes</i>	3-10	3-10	10-30	10-30	> 100
---------------	------	------	-------	-------	-------

USE

Component in automotive refinish paint

5. PROCESS AND RELEASE INFORMATION

5.1. Distribution, Transport and Storage

IDENTITY OF RECIPIENTS

DuPont (Australia) Ltd

TRANSPORTATION AND PACKAGING

The notified polymer will be imported in 1 gallon approved dangerous goods cans at 10-40%. The containers will be transported from wharf to warehouse thence from warehouse to customer.

5.2. Operation Description

The imported notified polymer (Part A) will be mixed with another component (Part B) using a specified amount. Mixing occurs in a jar device. After mixing, the two parts are loaded into a spray gun and sprayed onto the vehicle in spray booths.

5.3. Release

RELEASE OF CHEMICAL AT SITE

Pre-prepared paints containing 10-40% the notified polymer will be imported and there will be no release to the environment due to reformulation or repackaging.

RELEASE OF CHEMICAL FROM USE

The product is to be used as a clear topcoat on motor vehicles. It will be used by professional spray painters to refinish motor vehicles. Prior to application, the paint is mixed in a universal cylinder and mixing jar device with other components, including a catalyst, then loaded into a spray gun for application. The paint is applied to automotive surfaces in spray booths with control measures in place, such as a filtering system and masking materials.

There is potential for release of the notified polymer during paint mixing and loading through equipment cleaning, container residues and in the event of an accidental spill. An estimated 1.14% of polymer will remain as residues in containers, and 0.85% of waste polymer will be generated from cleaning the mixing equipment. Overspray paint may generate up to 50% of total paint as waste. Cleaning of spray equipment may generate a further 0.85% of waste polymer. Total waste polymer could amount to about 53% of the import volume of polymer (approximately 95 tonnes) at market maturity.

5.4. Disposal

Overspray wastes are captured by a water curtain in the spray booth filters and will be sent to landfill as dried polymer. Waste generated through container residues are disposed of directly to landfill as solid waste with the container. The waste resulting from cleaning the mixing and spray equipment will be washed with solvent and sent to solvent recycling. The resultant dried solid residues will be disposed to landfill or combined with asphalt to be used as road base tackifier.

The material safety data sheet (MSDS) recommends that spills of the paint containing the notified polymer should be contained by soaking up with inert absorbent material and disposed of as special waste in compliance with local and State regulations. Detergents are to be used in cleaning up. It is expected that the product should be prevented from entering drains.

5.5. Public exposure

Formulations produced are designed for use in automotive paint refinish. These coatings are not expected to be sold to the general public. The public will only be exposed to the notified polymer via the dried topcoat where it will be bound in an inert matrix and as such is biologically unavailable.

6. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Clear firm forming automotive paint
Autoignition temperature	340°C
Flash Point:	73-100°C
Density	1.190 kg/L Density of paint is 0.96 kg/L
Water Solubility	Not determined.
Remarks	The notified polymer is inherently insoluble in water. The monomers comprising the polymer are hydrophobic and the insolubility increases as the molecular size increases. The water solubility is expected to be <1 mg/L.
Particle Size	Not relevant. The polymer is a solution
Flammability	Combustible
Explosive Properties	The solid resin RCO24056 is not explosive. The solution polymer and paint containing the polymer may be explosive in confined spaces due to the flammable solvent vapour. Care need to be taken when sanding to prevent an organic dust explosion. LEL: approximately 0.6% UEL: approximately 8.5% (sourced from MSDS for product)
Partition coefficient	Not determined.
Remarks	The determination of partition coefficient would be difficult. Due to its low water solubility, the polymer is expected to become associated with the octanol phase.
Adsorption/desorption	Not determined.
Remarks	The notified polymer is expected to be immobile in soil due to its low water solubility and to become associated with the organic component of soils and sediments.
Dissociation constant	Not determined.
Remarks	The polymer's hydrophobic properties and low solubility would prevent any dissociable molecules becoming charged.

7. RISK ASSESSMENT

7.1. Environment

7.1.1. Environment – exposure assessment

The notified polymer is imported into Australia as a component in a coating product for motor vehicles. No repackaging of the notified polymer occurs. The coating is formulated on-site by professional spray painters prior to use. The automotive coating is also highly stable to light and temperature.

No direct release of the polymer to the environment is anticipated during application or end use. The coating is applied by spray guns in spray booths with engineering controls in place to capture the overspray. Once applied to the motor vehicles, the notified polymer, will be incorporated into a very high molecular weight and water resistant film and will be inert. Any fragments, chips and flakes of the coating will be of little concern as they are also expected to be inert. Metal panels, coated with the paint, are likely to be either recycled for steel reclamation or placed into landfill when the automobile is discarded.

Up to 95 tonnes of polymer wastes could be generated on a nationwide basis from use of the refinish paint each year. Wastes from overspray and container residues will dry out to form a solid, and will be disposed of to landfill. Mixing containers and spray equipment will be washed with solvent, and the washings collected and sent to solvent recycling. The resulting dried solid residues will be disposed to landfill, or otherwise combined with asphalt to be used as road base tackifier.

Leaching of the notified polymer from landfill sites is unlikely, given its solid form, in addition to the low water solubility of the substance, and the very high molecular weight. In solid form, the notified polymer waste would be expected to undergo very slow degradation through abiotic and microbial processes.

The notified polymer in cured (or uncured) form is not expected to cross biological membranes, due to the expected low solubility (water repellent properties) and high molecular weight, and as such should not bioaccumulate (Connell 1989).

7.1.2. Environment – hazard assessment

No ecotoxicological data were submitted.

7.1.3. Environment – risk characterisation

At end use, the notified polymer crosslinks with other coating components to form a very high molecular weight water resistant film on motor vehicles that is highly stable to light and temperature, and hence no release will occur.

In the unlikely event of accidental spillage of the polymer into waterways, it is not expected to disperse into the water, but to settle out onto sediments. If the polymer is spilt on land, it is expected that the polymer would become immobilised in the soil layer. Contaminated soil can then be collected and disposed of to landfill.

Given these considerations, the environmental exposure and the overall environmental hazard are expected to be low. Hence the risk is considered low.

7.2. Human health

7.2.1. Occupational health and safety – exposure assessment

Workers exposure to the notified chemical in the spray booth is possible when opening and closing the can, weighing, mixing the product with other components of i.e. pigments, binder, thinner, curing and sanding etc., cleaning the equipment (washing the spray gun), cleaning spray booth filters and paint traps, and during spray painting.

Inhalation exposure to the notified polymer will be low due to the low volatility of the notified polymer. Worker exposure to isocyanate (used in part B of the paint) is possible while mixing and using the paint mix.

Spray painters are expected to use: safety goggles, gloves and overalls and air respirator. Also workers will spray in spray booths. A worker spends 2 hours per 4 L paint to spray 2 cars.

Transport and storage personnel are unlikely to be exposed to the notified polymer except in the case of accidental spill.

Workers may become exposed when cleaning spray equipment at a car wash station which has exhaust ventilation. Those workers will wear gloves and protective eyewear. It takes about 0.25 hour per 4 L paint to respray a car.

7.2.2. Public health – exposure assessment

The notified polymer will not be available to the public. Members of the public may make dermal contact with the clear top coat on motor vehicles. However, at this stage the notified polymer is bound within a matrix and unlikely to be bioavailable.

7.2.3. Human health - effects assessment

No toxicological data were provided, however, the notified polymer meets the PLC criteria and can therefore be considered of low hazard.

7.2.4. Occupational health and safety – risk characterisation

The OHS risk presented by the notified polymer is expected to be much lower than the paint itself. The notified polymer will be present in formulations containing hazardous ingredients, and protective measures such as the use of personal protective equipment is in place to mitigate those risks.

The notified polymer will be mixed with a component containing isocyanate and other solvents. These hazards will require a correctly constructed and maintained spray booth, and of a high level of personal protective equipment, such as impermeable overalls and gloves and a full face shield and respirator.

The high MW of the notified polymer indicate that it will not cross biological membranes. The risk to health from exposure to the notified polymer is low.

The use of the coating containing the polymer should be in accordance with the NOHSC *National Guidance Material for Spray Painting* (NOHSC, 1999b).

7.2.5. Public health – risk characterisation

The notified polymer is intended for use by professional spray painters in auto repair workshops/automotive manufacturing plants only, and will not be sold to the public. Following application, the notified will become trapped within a film and will not be bioavailable. Therefore, the risk to public from exposure to the notified polymer is considered low.

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

8.1. Hazard classification

Based on the available data the notified polymer is not classified as hazardous under the NOHSC *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 1999b).

8.2. Environmental risk assessment

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

8.3. Human health risk assessment

8.3.1. Occupational health and safety

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

occupational settings described.

8.3.2. Public health

There is Negligible Concern to public health when used the product containing the notified polymer.

9. MATERIAL SAFETY DATA SHEET

9.1. Material Safety Data Sheet

The MSDS of “Ultra Productive Clear” containing the notified polymer is provided by the notifier was in accordance with the NOHSC *National Code of Practice for the Preparation of Material Safety Data Sheets* (NOHSC, 1994a). It is published here as a matter of public record. The accuracy of the information on the MSDS remains the responsibility of the applicant.

9.2. Label

The label of “Ultra Productive Clear” containing the notified polymer provided by the notifier was in accordance with the NOHSC *National Code of Practice for the Labelling of Workplace Substances* (NOHSC, 1994b). The accuracy of the information on the label remains the responsibility of the applicant.

10. 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.
- The use of the product containing the polymer should be in accordance with the NOHSC *National Guidance Material for Spray Painting* (NOHSC, 1999b) where appropriate.
- A copy of the MSDS should be easily accessible to employees.
- If products and mixtures containing RCP24056 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.

10.1. 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.

No additional secondary notification conditions are stipulated.

11. BIBLIOGRAPHY

- Connell DW (1989) General characteristics of organic compounds which exhibit bioaccumulation. In: Connell DW ed. Bioaccumulation of xenobiotic compounds. Boca Raton, USA, CRC Press, pp 47-57.
- NOHSC (1994a) National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC:2011(1994)]. National Occupational Health and Safety Commission, Canberra, Australian Government Publishing Service.
- NOHSC (1994b) National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012(1994)]. National Occupational Health and Safety Commission, Canberra, Australian Government Publishing Service.
- NOHSC (1999b) Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(1999)]. National Occupational Health and Safety Commission, Canberra, AusInfo.
- NOHSC (1999) National Guidance Material for Spray Painting. National Occupational Health and Safety Commission, Canberra, AusInfo.