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

FULL PUBLIC REPORT

RCZ 98925

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**Director
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FULL PUBLIC REPORT**RCZ 98925****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT

DuPont (Australia) Ltd of 45-59 Newton Road, Wetherill Park, NSW 2164 (ABN 59 000 716 469)

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 and other names, CAS number, molecular and structural formula, means of identification, molecular weight and low molecular weight species, polymer constituents and residual monomers, charge density, reactive functional groups, import volume, purity and impurities.

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

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

RCZ 98925

LE2001 White Low Emission Primer Plus

3. COMPOSITION

POLYMER CONSTITUENTS

The notified polymer is composed of monomers listed on AICS

RESIDUAL MONOMERS

All residual monomers are below the relevant cut-offs for classification of the notified polymer as a hazardous substance.

4. INTRODUCTION AND USE INFORMATION

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED POLYMER (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>	<30	<30	<30	<30	<30

USE

The polymer is an automotive undercoat resin for use in the refinish industry. The notified polymer is <30% of the net weight of the product LE2001 (part A).

5. PROCESS AND RELEASE INFORMATION

5.1. Distribution, Transport and Storage

TRANSPORTATION AND PACKAGING

The notified polymer will be imported in 1 and 4 litre UN/DG containers.

5.2. Operation Description

The notified polymer is not manufactured or reformulated in Australia. It will be imported as a component of finished paint formulation.

5.3. Occupational exposure

Number and Category of Workers

<i>Category of Worker</i>	<i>Number</i>	<i>Exposure Duration</i>	<i>Exposure Frequency</i>
Warehouse - delivery	1	0.5 hours	Per shipment
Warehouse – despatch		5 minutes per 4 L	Total 52 mandays/year
Spray Painters	5-6000		

Exposure Details

No exposure is expected during transport and warehousing of the coating.

Spray painting will be carried out in spray painting booths subject to design specification AS/NZ 4114:1995. While the potential exists for dermal and inhalation exposure to the notified polymer, engineering controls and personal protective equipment worn by the spray painters as protection against solvents will minimise exposure.

5.4. Release

RELEASE OF CHEMICAL AT SITE

The polymer is imported as part of a paint in 1L and 4L cans. It is stored and transported by licensed contractors. No release is expected to occur during transport or storage of the paints containing the notified polymer except on the event of a transport accident. The small size of the containers would limit the amount of notified polymer released should an accident occur.

RELEASE OF POLYMER FROM USE

The following releases have been provided:

Paint residues in can: <5% by weight. Empty cans will be disposed of in secure landfill. Residues will dry out and harden in the can.

Overspray: Overspray of paint will constitute 20-50% of total sprayed. The product will be mixed with Part B containing isocyanate before its spray application. Therefore, overspray will become crosslinked and insoluble due to high molecular weight. Overspray will be caught and harden in screens which are disposed of in secure landfill.

Residues in spray equipment: < 5% of total product. These will be catalysed and crosslinked. Guns are washed with solvent that is collected and sent to solvent recycling. Dried solid residues are disposed of in landfill.

5.5. Disposal

Waste polymer will generally be in the form of dried paint, which will be disposed of in landfill. A small portion may be found in wash solvents that are sent to solvent recyclers.

5.6. Public exposure

The paint is supplied only to licensed professional spray painters and will not be available to the general public.

6. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Clear, viscous solution (polymer solution)
Melting Point/Freezing Point	Not available
Remarks	Polymer is never isolated from solution.
Density	$\approx 1070 \pm 20 \text{ kg/m}^3$ (polymer solution)
Water Solubility	Not determined
Remarks	It is expected the polymer will have very limited water solubility due to its predominantly hydrophobic nature.
Hydrolysis as a Function of pH	Not determined.
Remarks	Despite containing esters, the polymer is not expected to hydrolyse under normal environmental conditions due to the probable low water solubility.
Partition Coefficient (n-octanol/water)	Not determined.
Remarks	The hydrophobic nature of the polymer indicates it would partition to the organic component of soils and sediments.
Adsorption/Desorption	Not determined
Remarks	The notified polymer is expected to adsorb onto organic matter and be immobile in soils.
Particle Size	Not applicable
Flammability	Not provided.
Remarks	The polymer is a combustible solid at normal temperatures. The polymer solution is flammable due to its solvent content.
Explosive Properties	Not provided.
Remarks	Explosive properties are primarily related to the solvents of the paint when the product is being sprayed. If the dried paint is sanded, appropriate precautions should be taken to avoid possible organic dust explosions.

7. TOXICOLOGICAL INVESTIGATIONS

No Toxicological data were submitted.

8. ECOTOXICOLOGICAL INVESTIGATION

No ecotoxicological data were submitted.

9. RISK ASSESSMENT

9.1. Environment

9.1.1. Environment – exposure assessment

Releases of the polymer during application have been described above in Section 5.4. Given the very high expected use of this compound, release during processing may be quite significant with > 600 kg per annum released based on estimates given above. However, the main form of this release would be in polymerised, inert form where disposal is in landfill. There are several thousand spray-painting business in Australia, and this release will therefore be in a diffuse manner.

This polymer is not likely to be used in the DIY market and as such, exposure to the aquatic compartment is expected to be negligible except in the event of accidental spillage. Even in such an event, the small container sizes should preclude significant aquatic contamination. Some of the paint containing the notified polymer could conceivably be released to the freshwater and marine environment in the form of chips or flakes of cured paint, once the coating ages. However, this would most likely occur in an extremely diffuse manner and very slowly. The slow rate of release, coupled with the large volume of sea or fresh water, will result in a very low environmental concentration. The solid flakes are expected to be inert. No meaningful Predicted Environmental Concentration (PEC) for the aquatic compartment can be derived.

Exposure to the terrestrial compartment expected to be minimal. The use pattern precludes direct application to soil, and as negligible quantities are likely to go to sewer, application to soil through sewage sludge is not likely. Where disposed of in landfill, the polymer would remain in its polymer matrix and be immobile.

If in its isolated form, the hydrophobic nature of the polymer suggests it will prefer to partition to biota and organic components of soils and sediments. There are no data on biodegradation but the polymer would be expected to slowly degrade through both biotic and abiotic processes.

The limited water solubility and high molecular weight should preclude bioaccumulation of the substance.

9.1.2. Environment – effects assessment

No ecotoxicological data were provided.

9.1.3. Environment – risk characterisation

While no data were provided on environmental effects, the use and properties of this polymer indicate very limited exposure to the aquatic environment. Therefore, based on exposure arguments, the environmental risk from the notified polymer is expected to be low.

9.2. Human health

9.2.1. Occupational health and safety – exposure assessment

The notified polymer must be assessed for the contribution it makes to the hazards associated with spray application of the paint. The presence of many potential and actual hazardous substances in paint formulations requires the use of stringent engineering controls, such as a correctly constructed and maintained spray booth, and a high level of personal protective equipment, such as impermeable overalls and gloves and a full face shield and respirator. The use of the paint containing the polymer should be in accordance with the NOHSC *National Guidance Material for Spray Painting* (NOHSC, 1999). The level of protection from exposure afforded by the standard protective measures will provide adequate protection from the polymer, which is likely to be less intrinsically toxic than most of the solvents and pigments, and some other paint resins.

9.2.2. Public health – exposure assessment

As the coating containing the notified polymer is used as an undecoat, the public is unlikely to be exposed to the dried paint film on the finished vehicle. The paint film is crosslinked to a very high molecular weight and is unlikely to be bioavailable.

9.2.3. Human health - effects assessment

The notified polymer meets the PLC criteria and therefore low hazard is expected due to the lack of reactive groups and the inability of the polymer to penetrate biological membranes.

9.2.4. Occupational health and safety – risk characterisation

The OHS risk presented by the notified polymer is expected to be low. The notified polymer may be present in formulations containing hazardous ingredients. If these formulations 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.

9.2.5. Public health – risk characterisation

The notified polymer is intended for use by professional spray painters in auto repair workshops 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.

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

10.1. Hazard classification

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

10.2. Environmental risk assessment

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

10.3. Human health risk assessment

10.3.1. Occupational health and safety

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

10.3.2. Public health

There is Negligible Concern to public health when used in the manner outlined in this report.

11. MATERIAL SAFETY DATA SHEET

11.1. Material Safety Data Sheet

The MSDS of the product containing the polymer 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.

11.2. Label

The label for the paint products containing the 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.

12. 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.
 - For spray painting, engineering controls and personal protective equipment should be in accordance with the National Guidance Material for Spray Painting (NOHSC, 1999).

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 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 applicators to minimise environmental exposure during use of the notified polymer:
 - Avoid release of the notified polymer to sewer.

Disposal

- Solid wastes of the notified polymer from residues should be disposed of in landfill.
- Contaminated packaging should be emptied as far as possible. If recycling is not an option, packaging should be disposed of in landfill.

Emergency procedures

- Spills/release of the notified polymer should be handled as follows; do not allow the product to enter drains, soak up with inert absorbent material, clean with detergents and avoid the use of solvents.

12.1. 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 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 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.

13. BIBLIOGRAPHY

National Occupational Health and Safety Commission (1994a) National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC:2011(1994)]. Australian Government Publishing Service, Canberra.

National Occupational Health and Safety Commission (1994b) National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012(1994)]. Australian Government Publishing Service, Canberra.

National Occupational Health and Safety Commission (1999) National Guidance Material for Spray Painting. Australian Government Publishing Service, Canberra.