

File No PLC/905

February 2010

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

FULL PUBLIC REPORT

Polymer 1 in Electroshield 21 resin

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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FULL PUBLIC REPORT**Polymer 1 in Electroshield 21 resin****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

DuPont (Australia) Ltd (ABN 59 000 716 469)
7 Eden Park Drive
Macquarie Park NSW 2113

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, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers, Use Details, Import Volume, and Site of End 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)

None

NOTIFICATION IN OTHER COUNTRIES

USA, Canada

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Electroshield 21 resin (contains < 15% concentration of notified polymer)

CAS NUMBER

None assigned

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*

Molecular Weight Requirements
Functional Group Equivalent Weight (FGEW) Requirements
Low Charge Density
Approved Elements Only
Stable Under Normal Conditions of Use
Not Water Absorbing
Not a Hazard Substance or Dangerous Good

Criterion met

Yes
Yes
Yes
Yes
Yes
Yes
Yes

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa:	Clear to slight transparent yellow solid. Imported as a white coloured solution.
Melting Point/Glass Transition Temp	Estimated to be 100-200°C.
Density	1115 kg/m ³ at 20°C.
Water Solubility	Measured. Found to be 8.7-52 mg/L at pH 2, 8.7-27 mg/L at pH 9, 20°C; 8-44 mg/L at pH 7, 37°C. The test results indicate that the notified polymer is not readily soluble or dispersible in water in the pH range of 4-9, which is consistent with its mainly hydrophobic structure.
Dissociation Constant	Not determined. The notified polymer does not contain any dissociable functional groups.
Particle Size	Notified polymer is not isolated from solution.
Reactivity	Stable under normal environmental and usage conditions.
Degradation Products	None under normal conditions of use.

5. INTRODUCTION AND USE INFORMATION

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>	< 80	< 80	< 80	< 80	< 80

Mode of Introduction

The notified polymer will be imported by sea into Adelaide, Melbourne or Sydney in 1040 L bulk containers as a finished product in solution at a concentration of < 15%. The solution will then be pumped to a 20 tonne steel road tanker and transported to the end user site.

Use

Component of automotive vehicle undercoats.

After arriving at the end user site, the product containing < 15% notified polymer will be transferred to a holding tank and pumped into an electrodeposition coating (e-coat) bath along with other components. The final concentration of the notified polymer in the e-coat bath will be < 10%. Automotive vehicle bodies will be dipped into the e-coat bath, rinsed and placed into a drying oven. After drying, the vehicle bodies will subsequently be covered with several layers of pigment coating.

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation

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

Occupational Health and Safety Risk Assessment

Dermal and ocular exposure may potentially occur during the e-coating, cleaning and quality control processes involving the notified polymer. However, exposure to significant amounts of the notified polymer is limited because of the fully automated processes, and the engineering controls and personal protective equipment worn by workers.

Although some exposure to the notified polymer could occur to workers, the notified polymer is not considered to pose an unacceptable risk to the health of workers due to the assumed low hazard of the notified polymer.

Public Health Risk Assessment

The notified polymer is intended only for use in industry and will not be available to the public; therefore direct public exposure to the notified chemical is not expected.

Members of the public may make dermal contact with finished car surfaces coated with the notified polymer. However, the notified polymer is assumed to be of low hazard and is bound within a matrix and unavailable for exposure, therefore the notified polymer is not considered to pose an unacceptable risk to public health.

7. ENVIRONMENTAL IMPLICATIONS

Hazard Characterisation

No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

Environmental Risk Assessment

A small amount of the notified polymer will be disposed to sewage. In the water compartment, the notified polymer is expected to associate with the sludge as it is not readily soluble or dispersible in water and will be collected for disposal to landfill. Most of the notified polymer will be cured into an inert, cross-linked polymer network with another polymer component, when the electrocoated automotive parts are autoclaved after e-coating. The notified polymer will share the fate of the automotive parts, which will involve eventual disposal to landfill or thermal decomposition during metal recycling. In landfill, the notified polymer is not expected to leach due to its high molecular weight and cross-linked structure, and will undergo slow biotic or abiotic degradation processes. In both cases (landfill and thermal decomposition), the notified polymer is expected to degrade to water and oxides of carbon and nitrogen. Based on the high molecular weight and/or cross-linked structure after the curing stage, the notified polymer is not expected to be bioavailable or bioaccumulative to aquatic organisms.

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.

Disposal

- The notified polymer should be disposed of to landfill.

Emergency procedures

- Spills 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 component of automotive vehicle coating, 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 and product containing the notified polymer provided by the notifier were reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.