File No PLC/610

August 2006

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

RC-9528

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.

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Director
NICNAS

TABLE OF CONTENTS

FULL PUBLIC REPORT

RC-9528

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
DuPont (Australia) Ltd (ABN: 59 000 716 469) of 168 Walker Street, North Sydney NSW 2060.

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, CAS Number, Molecular and Structural Formulae, Means of Identification including FTIR, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Reactive Functional Groups including FGEW, Charge Density, Use Details, Manufacture/Import Volume, and Concentration of the Notified Polymer in the Products and Incidental Constituents of Those Products.

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)
No

NOTIFICATION IN OTHER COUNTRIES
Canada

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
RC-9528
Teflon Advanced

MOLECULAR WEIGHT
> 10, 000

3. PLC CRITERIA JUSTIFICATION

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
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. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Milky emulsion (polymer solution)
Melting Point/Glass Transition Temp	Not applicable (the notified polymer has never been isolated from the emulsion)
Density	1030-1040 kg/m^3 at 20°C
Water Solubility	39.1 mg/L In-house method: The notified polymer was initially isolated from the product, then 3 g of the powdered polymer was mixed with 300 g of deionised water. The Mixture was stirred for 71.5 hours then filtered through a coarse glass filter and then refiltered through a medium filter. A sample of the filtrate was then analysed via dissolved organic carbon (DOC) method.
Dissociation Constant	The polymer has no ionisable groups
Particle Size	Not applicable
Reactivity	Stable under normal environmental conditions
Degradation Products	In landfill, the polymer will undergo biotic and abiotic processes to produce end products of CO, CO_2 and H_2O.

5. INTRODUCTION AND USE INFORMATION

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

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

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer RC-9528 will be imported (container size 3.78 L) as a component of Teflon Advanced fabric and upholstery protector in < 6% concentration.

Reformulation/manufacture processes

No manufacture and reformulation of the product Teflon Advanced containing the notified polymer will occur in Australia.

Use

Teflon Advanced is used by professional applicators and is applied to carpet and upholstery after steam, vacuum or chemical cleaning. Prior to application, Teflon advanced is emptied into a tank and mixed with water. The diluted Teflon Advanced (containing < 1% of the notified polymer) is sprayed onto carpet and upholstery using low-pressure non-atomising spray. After application, the treated fabric is allowed to dry by ventilation through natural evaporation process.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Transport and Storage

ıe notified polymer during transport and storage except in the event of an accidental spillage.

End Use

ible during opening and handling of Teflon Advanced cans, mixing with water and during spray. The possible routes of exposure are via dermal, inhalation and accidental ocular contact. PPE recommended by the notifier are: coveralls, chemical gloves, safety boots, respirators and safety goggles conforming to Australian Standards. The notifier states that Teflon Advanced will be applied under adequate ventilation and all applicator would read the MSDS prior to use.

PUBLIC EXPOSURE

Teflon Advanced containing the notified polymer is used by professionals only and not sold to the public. The public may be exposed to the notified polymer when it is adhered to the fibres of carpet and upholstery fabric, after treatment.

6.2. Toxicological Hazard Characterisation

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

6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

notified polymer is not expected to pose any significant OHS risk. The notified polymer has molecular weight greater than 10, 000 and contains low levels of low molecular weight species, therefore it is expected to be poorly absorbed across biological membranes. Thus, dermal absorption is expected to be low. The imported product Teflon Advanced (containing the notified polymer) contains risk phrase "harmful by inhalation" (R20) due to the presence of other ingredients in the polymer solution. 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.

Overall, the OHS risk presented by the notified polymer is expected to be low, based on low hazard as well as the engineering controls and personal protective equipment used by workers.

PUBLIC HEALTH

The notifier states that application of Teflon Advanced occurs in people's homes when specially vacated for cleaning and people do not return home until the textile is dried. Once treated textiles are dried, the notified polymer is fixed on the textiles and is unlikely to be bioavailable. However, limited exposure may occur when cleaning products are used to clean carpet in domestic premises. The water solubility of the notified polymer is very low. In addition, the notified polymer present in the treated textile at a low concentration (< 1%). Based on low exposure and the expected low hazard of the notified polymer, the public health risk from the notified polymer is expected to be negligible.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

The notified polymer will not be manufactured or reformulated in Australia. The imported product, containing the notified polymer, will be applied by professionals to carpets and upholstery in-situ. The spray generated will be targeted and localised. As the product will be applied indoors it is unlikely there will be any significant movement of spray. Less than 2% of the notified polymer will be lost through application, transport and storage due to spills, spray drift or washing of applier's clothing.

The product containers will be rinsed with water and the resultant rinsate will be added to the make-up water used in the mixing tank and the empty container will go to plastic recycling with less than 0.25% of the notified polymer, (ie less than 2.5 kg annually). If there is any mixture left then it will be kept for the next application.

The notified polymer will be removed due to wear and tear, and washing of the carpet/upholstery. This is estimated to account for approximately 49% of the imported polymer. The remainder (approximately 49%) will suffer the same fate as the carpet/upholstery at the end of its useful life, generally this will be disposal to landfill.

ENVIRONMENTAL FATE

The notified polymer does not contain any functional groups that will hydrolyse or dissociate. In landfill it is not expected to be mobile but will become associated with the soil/organic material and slowly degrade by abiotic and biotic processes to water and oxides of carbon. While it is not expected to be released to the aquatic compartment, if it is release there it will become associated the sediment.

If the carpet/upholstery is incinerated the notified polymer will be destroyed with the generation of water and oxides of carbon.

7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. Polymers without significant ionic functionality are of low concern to the aquatic environment. No aquatic exposure is expected, except through accidental spills. It is expected if any of the notifier polymer did enter the aquatic compartment it would adsorb onto particles of sediment and sludge, and would therefore not remain in the water compartment. The product will be used across Australia, therefore any releases of the notified polymer will be diffuse and at very low concentrations. Due to its large molecular weight and water solubility it is not expected to bioaccumulate..

7.3. Environmental Risk Assessment

The environmental risk presented by the notified polymer is expected to be low based on limited likely exposure to the environment.

8. CONCLUSIONS

8.1. Level of Concern for Occupational Health and Safety

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

8.2. Level of Concern for Public Health

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

8.3. Level of Concern for the Environment

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

9. MATERIAL SAFETY DATA SHEET

9.1. Material Safety Data Sheet

The notifier has provided MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

10. RECOMMENDATIONS

CONTROL MEASURES

Occupational Health and Safety

- The following personal protective equipment is recommended in accordance with good occupational health and safety practice
  - Chemical goggles, coverall, safety boot and chemical gloves.
  - If inhalation exposure occurs, use appropriate respiratory protection.

- 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 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 conducted by users to minimise environmental release during use of the coating containing the notified polymer:
  - Avoidance of the notified polymer entering the waterway during transport or accidental spill.
  - Containment of the notified polymer through bunding during coating application

Disposal

- The notified polymer should be disposed of by landfill or be incinerated.
- Any cleaning effluent should be disposed of via a licensed liquid waste contractor.

Emergency procedures

- Contain the spill and place inert, non-combustible absorbent (such as diatomaceous earth), onto material. Collect material and place into a suitable labelled container for subsequent disposal. Do not allow spill to enter drains, sewers or watercourses-inform local authorities if this occurs.

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.