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

FULL PUBLIC REPORT

C821222 Resin

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**Director
Chemicals Notification and Assessment**

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FULL PUBLIC REPORT**C821222 Resin****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

General Electric Plastics (Aust) Pty Ltd (ABN 92 005 837 454)
175 Hammond Road
Dandenong VIC 3175

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Identity and nature of the notified chemical:

Chemical name;

Other name;

CAS number;

Molecular formula;

Structural formula;

Molecular weight.

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

Listed in Japan, China, Canada on DSL and US on TSCA; Compliant in the EU as a polymer;
Preparation of notification in progress for Korea.

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

C821222 Resin

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

Functional Group	Category	Equivalent Weight (FGEW)
No highly reactive functional groups present	Low	N/A

Charge Density	The notified polymer has low charge density.
Elemental Criteria	The notified polymer contains only approved elements.
Degradability	The notified polymer is not biodegradable.
Water Absorbing	The notified polymer is not a water-absorbing polymer.
Residual Monomers	All residual monomers are below the relevant cut-off.
Hazard Category	The notified polymer is not classified as a hazardous substance.

The notified polymer meets the PLC criteria.

4. 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>	<1	<5	<15	<50	<100

USE

The notified chemical will be used as a component of moulded plastic in automotive parts, electrical housings, transformer parts and leisure articles.

5. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	solid pellets
Melting Point/Glass Transition Temperature	96°C
Density	>1000 kg/m ³ at 25°C
Water Solubility	16 mg/L at 50°C
Particle Size	A flask to which the ground notified polymer (~300 mg) and demineralised water (300 mL) had been added was heated and maintained at 50°C for 24 h. The suspension was filtered and evaporated to dryness and the resulting residue weighed. 3/16 inch pellets
Degradation Products	Not provided
Loss of monomers, other reactants, additives impurities	Not applicable
Hydrolysis as a Function of pH	$t_{1/2} > 1$ year. A preliminary hydrolysis test conducted on a ground sample according to the test procedure outlined in OECD TG 111 at pH 4, 7, and 9 found that degradation was <10% after 5 days at 50°C. Consequently, the notified polymer is considered to be hydrolytically stable (GE Plastics, 2003).
Adsorption/desorption	Not determined. The notified polymer is expected to have a high affinity for soil and sediment and be immobile in the environment due to its low water solubility.
Partition Coefficient	The low water solubility and likely hydrophobic nature of the notified polymers are indicative of partitioning into the octanol phase.

6. TOXICOLOGICAL INVESTIGATIONS

No toxicological data were submitted.

7. ENVIRONMENTAL INVESTIGATIONS

No ecotoxicological data were submitted.

8. RISK ASSESSMENT

8.1 Environment

8.1.1 Environment – exposure assessment

Exposure

The majority of the imported polymer pellets will be incorporated into moulded products. In the form of solid articles, it poses little risk to the environment. The notified polymer in wastes (approximately 1000 kg per annum) from spills will be recycled with a small proportion disposed of to landfill. Empty containers will also be disposed of to landfill. At the end of their useful lives, moulded items containing the notified polymer will also be disposed of to landfill.

Fate

The notified polymer is expected to be insoluble in water and as such should not be mobile in either aquatic or terrestrial compartments. Because of the low water solubility, the notified polymer will associate with soil and sediment. It is slowly degraded through biological and abiotic processes into water and oxides of carbon and nitrogen.

The notified polymer has a very high molecular weight and its release to the aquatic compartment is limited suggesting that the potential for bioaccumulation is low.

8.1.2 Environment – hazard assessment

No ecotoxicological data were submitted.

8.1.3 Environment – risk characterisation

While toxicity data are available, based on limited environmental exposure resulting from its use pattern, the likely risk to the environment is expected to be low.

8.2 Human health

8.2.1 Occupational health and safety – exposure assessment

TRANSPORT AND STORAGE

The polymer will be distributed as imported, or blended into compounded polymer granules prior to distribution to the end user sites throughout Australia. The notified polymer will be imported in 20 kg polythene bags, 500 kg bulk sacs or 1 tonne octabins or in ready to sell packages of 20 kg polythene bags or 500 kg bulk sacs. The concentration of the notified polymer in the final products will be between 20% and 90%. Worker exposure may occur when forming the compounded polymer granules, during end use and transport and storage.

COMPOUNDING

Prior to compounding, the polymer granules/pellets will be weighted and transferred to a blending vessel. This is accomplished manually or with a variety of transfer aids. Extrusion of the pellets and packaging will be automated and enclosed. Exposure may occur when weighing the pellets and blending in a mixing vessel.

The pellets (0.5-1 mm diameter) will be associated with polymer dust. Therefore, local exhaust ventilation is in place at points where exposure to dust from blended ingredients or final product is possible or fumes from heating of the blend are generated.

ARTICLE FORMING

Plastic pellets containing the notified polymer are transferred into a moulding machine. Transfer to the hopper of the moulding machine can be manual or via some form of vacuum device. Local exhaust ventilation is used to control exposure to dust or fumes from heating the plastic. The moulding process is enclosed and worker exposure is unlikely.

8.2.2 Public health – exposure assessment

The public is unlikely to be exposed to the notified polymer in the form of imported pellets, contained in plastic pellets or in finished articles unless in a transport accident.

When the polymer is incorporated into finished articles, public exposure can be widespread. After disposal of the polymer or finished products to landfill, the public exposure is unlikely.

8.2.3 Human health – hazard assessment

The notified polymer meets the PLC criteria and can therefore be of low hazard.

8.2.4 Occupational health and safety – risk characterisation

During transport and storage, workers are unlikely to be exposed to the notified polymer except when packaging is accidentally breached.

Workers may be exposed to dust particles generated from the chopping of the strands into small pellets and transferring operations. Dermal exposure to the pellets and finished articles may also occur. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls (local exhaust ventilation) and personal protective equipment (impervious gloves, eye protection and protective clothing) worn by workers.

The polymer is not expected to be hazardous by dermal exposure as the high molecular weight will preclude the absorption through the skin.

8.2.5 Public health – risk characterisation

The notified polymer will not be sold to the public except in the form of finished articles. There is potential for extensive public exposure to articles comprised wholly or partly of the notified polymer. However, exposure will be low because the notified polymer contained therein should not be bioavailable.

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

9.2. Environmental risk assessment

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

9.3. Human health risk assessment

9.3.1. Occupational health and safety

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

9.3.2. Public health

There is Negligible Concern to public health when used as component of moulded products.

10. MATERIAL SAFETY DATA SHEET AND LABEL

10.1 Material Safety Data Sheet

The MSDS of the notified 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.

10.2. Label

The label for 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.

11. 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.
- Atmospheric monitoring should be conducted to measure workplace concentrations of nuisance dust when handling the polymer pellets.
- 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.

Disposal

- The notified polymer should be disposed of in landfill.

Emergency procedures

- Spills/release of the notified polymer should be swept up and placed into a container prior to disposal by landfill. Molten material should be allowed to solidify prior to disposal as described above.

11.1. 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.

12. 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.

GE Plastics (2003), Hydrolysis as a Function of pH of MMASAN Copolymer, Washington, West Virginia, USA (unpublished report submitted by General Electrics Plastics Australia).

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