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

**FULL PUBLIC REPORT**

**ABS Copolymer Resin**

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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:	<a href="http://www.nicnas.gov.au">www.nicnas.gov.au</a>

**Director  
Chemicals Notification and Assessment**

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**FULL PUBLIC REPORT****ABS Copolymer Resin****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

Dow Chemical (Australia) Ltd (ABN 72 000 264 979)  
541-583 Kororoit Creek Road  
Altona Vic 3018

## NOTIFICATION CATEGORY

Synthetic 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 formula
- Structural formula
- Polymer constituents
- Other Reactants
- Impurities
- Import volume
- Details of use

## VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

*[Delete as appropriate]*

No variation to the schedule of data requirements is claimed.

## PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

## NOTIFICATION IN OTHER COUNTRIES

United States (1990)

**2. IDENTITY OF CHEMICAL**

## MARKETING NAME(S)

MAGNUM\* 8391 ABS Resin

MOLECULAR WEIGHT *(delete if confidential)*

Number Average Molecular Weight (Mn)	Mn: 51,260
Weight Average Molecular Weight (Mw)	Mw: 154,000
Polydispersity Index (Mw/Mn)	Mw/Mn: 3.0
% of Low MW Species < 1000	1.0% max
% of Low MW Species < 500	0.8% max

Molecular weight obtained by GPC using polystyrene standard.

**3. COMPOSITION**

PURITY  
High

**PLC CRITERIA JUSTIFICATION**

*Insert more rows for FGs if required*

<i>Criterion</i>	<i>Criterion met (yes/no/not applicable)</i>
Meets Molecular Weight Requirements	Yes
Meets Functional Group Equivalent Weight (FGEW) Requirements	Not applicable
Low Charge Density	Yes
Approved Elements Only	Yes
No Substantial Degradability	Yes
Not Water Absorbing	Yes
Low Concentrations of Residual Monomers	Yes
Not a Hazard Substance or Dangerous Good	Yes
<i>Delete if table below (Low MW polyester) is used.</i>	

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>	0-100	100-500	100-500	100-500	100-500

USE      The polymer will be used neat or compounded/ mixed with various concentrations of other polymers, colourants, lubricants, etc. and moulded or extruded into automotive components, or articles for consumer goods and household appliances.

**5. PROCESS AND RELEASE INFORMATION****5.1. Operation Description** *[Discuss in turn: manufacturing, processing, (re)formulation, and/or end use, as applicable]*

The notified polymer will not be manufactured in Australia. Product will be imported in container loads, packed in 25 kg bags. On delivery to the wharf, product is transferred to customer warehouses in all main capital cities where bags are removed from containers and stored awaiting use.

**6. EXPOSURE INFORMATION****6.1. Summary of Environmental Exposure**

No environmental exposure is anticipated. Scrap material and solid waste pellets will be stored in bins by manufacturers, collected by licensed waste contractors and disposed of in approved landfill. It is estimated that 99.5% of raw material will be converted to useful product. Articles will also be disposed in landfill at the end of their useful life (5 to 10 years). A small percentage of product may be recycled (5%).

**6.2. Summary of Occupational Exposure**

Plastic pellets are transferred from storage bins to moulding or extrusion machines using an automated process e.g. air conveyor. There is limited opportunity for human contact. Exposure to dusts is controlled by ventilation and good housekeeping. Safety glasses, body-covering clothing and gloves are standard protective equipment. Operators are trained in the operation of machines, and aware of high temperature hazards. Fumes produced during moulding or released when machinery is cleaned are trapped and removed by ventilation hoods. Finished products pose no significant exposure to workers.

Dermal and ocular exposure can occur during certain formulation processes. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls and personal protective equipment worn by workers.

Workers may be exposed to dust particles generated from the compounding of the resin. Dermal exposure to the pellets/powder may also occur. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls and personal protective equipment worn by workers.

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

### 6.3. Summary of Public Exposure

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.

## 7. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance at 20°C and 101.3 kPa</b>	Milky white solid
<b>Melting Point/Glass Transition Temp</b>	Vicat Softening Temperature 49N, 50°C/h = 95°C
<b>Density</b>	1050 kg/m <sup>3</sup> at 20 °C
<b>Water Solubility</b>	Not tested but expected to be insoluble.
<b>Dissociation Constant</b>	<i>(delete if no acid or base groups are present)</i> Polymer not expected to dissociate.
<b>Particle Size</b>	<i>(delete if liquid or solution)</i> Beads approx. 1mm x 3mm
<b>Reactivity</b>	Stable under normal environmental conditions
<b>Degradation Products</b>	Thermal degradation during processing will result in polymer fragments. Not expected to degrade under normal conditions of use, or in landfill.

## 8. HUMAN HEALTH IMPLICATIONS

### 8.1. Toxicology

No toxicological data were submitted.

### 8.2. Human Health Hazard Assessment

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

Comparison of the structure of the notified polymer with other similar ABS polymers indicates that single dose oral toxicity of this polymer is probably very low. Mechanical injury to skin and eyes is possible but unlikely. Dust may cause irritation to upper respiratory tract. No adverse human health effects have been reported.

## 9. ENVIRONMENTAL HAZARDS

### 9.1. Ecotoxicology

No toxicological data were submitted.

### 9.2. Environmental Hazard Assessment

The notified polymer is not expected to be hazardous to aquatic or terrestrial organisms. Because of the high molecular weight, no bioconcentration of this polymer is expected. The polymer will remain in the soil or sink and remain in the sediment of an aquatic environment. The polymer is water insoluble, inert and not expected to biodegrade. No adverse environmental effects have been reported.

## 10. RISK ASSESSMENT

### 10.1. Environment

Accidental spills aside, the polymer will not be released to the environment. Components and articles manufactured from the polymer will ultimately be disposed of in landfill where they are not expected to degrade or become mobile. The risk to the environment presented by the notified polymer is considered low.

### 10.2. Occupational health and safety

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.

The level of atmospheric nuisance dust should be maintained as low as possible. The NOHSC exposure standard for atmospheric dust is 10 mg/m<sup>3</sup>.

### 10.3. Public health

The notified polymer will not be available to the public. Members of the public may make dermal contact with products containing the notified polymer. However, the risk to public health will be negligible because the notified polymer is bound within a matrix, chemically stable and resistant to degradation and unlikely to be bioavailable.

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

### 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 to produce the components and articles described.

## 11. MATERIAL SAFETY DATA SHEET

### 11.1. Material Safety Data Sheet

The notifier has provided MSDS in accordance with the schedule item B 12 of the *ICNA Act*. The accuracy of the information on the MSDS remains the responsibility of the applicant.

## 12. RECOMMENDATIONS

### CONTROL MEASURES

#### Occupational Health and Safety

*Some examples of occupational health and safety recommendations listed here. If alternative recommendations are required, amend or replace these recommendations.*

- The following personal protective equipment is recommended in accordance with good occupational health and safety practice
  - Protective glasses and clean, body-covering clothing
  - In dusty or misty atmospheres, use an approved particulate respirator

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

- It is recommended that management conducts a workplace risk assessment to confirm that concentrations of nuisance dust/ decomposition products are adequately controlled during formulation and moulding/ extrusion of the notified polymer.
- 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 by licenced waste contractor in an approved landfill

#### Storage

- The following precautions should be taken by distributors and product end-users regarding storage of the notified polymer:
  - Store in a dry area at ambient temperature
  - Electrically ground storage silos to prevent buildup of static charges (dust explosion risk)

#### Emergency procedures

- Spills/release of the notified polymer should be handled by
  - containing the spilled material (pellets or beads may present a slipping hazard)
  - collecting material in a container for reuse or disposal

### 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 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.