

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

### POLYMER OF LOW CONCERN PUBLIC REPORT

#### Lexan CFR

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government 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 Australian Government Department of Sustainability, Environment, Water, Population and Communities.

For the purposes of subsection 78(1) of the Act, this Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This 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**

January 2013

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## SUMMARY

The following details will be published in the NICNAS *Chemical Gazette*:

ASSESSMENT REFERENCE	APPLICANT(S)	CHEMICAL OR TRADE NAME	HAZARDOUS SUBSTANCE	INTRODUCTION VOLUME	USE
PLC/1102	SABIC Australia	Lexan CFR	No	≤200 tonnes per annum	Component of plastics

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### **Human Health Risk Assessment**

Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the health of workers and the public.

### **Environmental Risk Assessment**

Based on its assumed low hazard and assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

### **Health and Safety Recommendations**

- A person conducting a business or undertaking at a workplace should implement the following engineering controls and safe work practices to minimise occupational exposure during handling of the notified polymer:
  - Low dust handling techniques
  - Exhaust ventilation, if dusts and/or fumes are generated during moulding

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

- A copy of the (M)SDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS)* as adopted for industrial chemicals in Australia, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation should be in operation.

### **Environmental Recommendations**

- No specific control measures are required to minimise release of the notified polymer to the environment.

### **Disposal**

- The notified polymer should be disposed to landfill.

**Storage**

- The following precautions should be taken by workers regarding storage of the notified polymer:
  - Store in a segregated and approved area.
  - Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (oxidising substances, strong acids, strong bases).

**Emergency Procedures**

- Spills and/or accidental release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.

**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 component of plastics, 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 notified polymer 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 (M)SDS of the notified polymer was provided by the applicant. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

## ASSESSMENT DETAILS

### 1. APPLICANT AND NOTIFICATION DETAILS

#### Applicants

SABIC Australia (ABN: 92 005 837 454)  
Suite 14, Building 3  
Unipark 195, Wellington Road  
CLAYTON VIC 3168

#### Exempt Information (Section 75 of the Act)

Data items and details claimed exempt from publication: chemical name, CAS number, molecular and structural formulae, molecular weight, reactive functional groups polymer constituents, residual monomers/impurities, use details and manufacture/import volume.

### 2. IDENTITY OF POLYMER

#### Marketing Name(s)

Lexan CFR

#### Other Name(s)

Carbopolycyclic diol polymer with carbonic dichloride and substituted phenol ester

### 3. PLC CRITERIA JUSTIFICATION

<i>Criterion</i>	<i>Criterion met</i>
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	Colourless transparent powder in raw form. When imported as resin pellets or articles, colorant may be added to the finished resin.
Glass Transition Temp	148 °C
Density	1220 kg/m <sup>3</sup> at 20 °C
Water extractability	<0.15% at 25 °C. Water extractability was determined in accordance with METI test methodologies with gravimetric analysis.
Particle Size	0.25 to 2.0 mm, 95% approx. normal distribution
Reactivity	The notified polymer is hydrolytically stable under normal environment conditions. The pH stability of the notified polymer was determined in accordance METI test methodologies with gravimetric analysis.
Degradation Products	Stable under normal environmental conditions.

## 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>
Tonnes	20-200	20-200	20-200	20-200	20-200

#### Use

The notified polymer will not be manufactured in Australia. The notified polymer will be imported into Australia at a concentration of up to 100% and will be used to produce moulded or extruded plastic articles. Products containing the notified polymer will not be reformulated in Australia.

## 6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. The risk of the notified polymer to occupational and public health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

## 7. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The (M)SDS for the notified polymer reports on the following toxicological endpoints.

<i>Endpoint</i>	<i>Result</i>	<i>Effects Observed?</i>	<i>Test Guideline</i>
1. Rat, acute oral	LD50 > 5000 mg/kg bw	no	OECD TG 401 OECD TG 423
2. Rat, acute dermal	LD50 > 2000 mg/kg bw	no	OECD TG 402

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

Although not considered in this risk assessment, NICNAS notes that the notified polymer contains residual monomers that are classified as hazardous according to the *Approved Criteria for Classifying Hazardous Substances* [NOHSC: 1008 (2004)]. These are not present in the notified polymer as introduced above the cut off concentrations for classification.

### Occupational Health and Safety Risk Assessment

The greatest exposure to the notified polymer is expected to occur in the event of an accident and is likely to involve dermal and ocular exposure, although inhalation exposure may also occur.

The notified polymer is to be imported as resin pellets for the production of moulded and extruded articles. Volatiles produced on extrusion or during moulding will not consist of the notified polymer, and are likewise not expected to be significant. Although imported as pellets, manufacture processes may cause the production of dusts containing the notified polymer. To minimise inhalation exposure, it is recommended that respiratory protection is employed and local exhaust ventilation around machinery is implemented.

Given the assumed low hazard, the risk to workers due to exposure to the notified polymer is not considered to be unreasonable.

### Public Health and Safety Risk Assessment

The public may be exposed during use of articles and finished goods containing the notified polymer at up to 100%. However, given the assumed low hazard, the risk to the public due to exposure to the notified polymer is not considered unreasonable.

## **8. ENVIRONMENTAL RISK ASSESSMENT**

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

The majority of the notified polymer will be physically bound within the inert matrix of moulded or extruded articles. Most of the notified polymer is expected to share the fate of articles and be disposed of to landfill or recycled. Industrial scrap produced during moulding and extrusion is expected to be collected and disposed of to landfill. Release of the notified polymer to the aquatic environment is not expected. In landfill, the notified polymer is not expected to be bioavailable or mobile due to its high molecular weight and limited water solubility. The notified polymer is not expected to be readily biodegradable; however, due to its high molecular weight it is not expected to bioaccumulate. It is expected that the notified polymer will eventually degrade by biotic and abiotic processes in landfill to form water and oxides of carbon and nitrogen. Therefore, based on its assumed low hazard and assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.