

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

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in HIPROLON® 200

This Self Assessment has been compiled by the applicant and adopted by NICNAS in accordance with the provisions of the Industrial Chemicals (Notification and Assessment) Act 1989 (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS), administered by the Department of Health and the Department of the Environment, has screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

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**

June 2014

Part 2 – PLC Self Assessment Public Report

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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
SAPLC/164	Arkema Pty Ltd	Polymer in HIPROLON ® 200	No	< 200 tonnes per annum	Component of plastic articles

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

Health and Safety Recommendations

- 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 (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.

Disposal

- The notified polymer should be disposed of to landfill.

Emergency Procedures

- Spills/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 plastic articles, or is likely to change significantly;
 - the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
 - 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 product containing 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

APPLICANT

ARKEMA Pty Ltd (ABN 44 000 330 772)
313 Canterbury Rd
CANTERBURY VIC 3126

NOTIFICATION CATEGORY

Self Assessment: Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical name, CAS number, Molecular and Structural formula, Molecular Weight, Use Details and Site of Manufacture/Reformulation

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

NOTIFICATION IN OTHER COUNTRIES

Korea 2012 – US under PE 2012 – China 2012 – Japan 2012

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

HIPROLON® 200

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (NAMW) >10,000

REACTIVE FUNCTIONAL GROUPS

Functional Group	Category	Equivalent Weight
Amines NH ₂	High Concern	0.095 meq/g
Carboxylic acid	Low Concern	0.029 meq/g

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	Solid, translucent pellets
Melting Point/Glass Transition Temp	202 °C
Density	1,040 kg/m ³ at 20 °C
Water Solubility	Insoluble at 20 °C
Dissociation constant	The notified polymer contains end groups with potentially cationic and anionic functionality, and these groups may ionise in the environmental pH range (4–9). However, the notified polymer is not expected to be significantly ionised due to its limited water solubility.
Particle Size	~ 5mm
Reactivity	Stable under normal environmental 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>	100	100	150	200	200

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will be imported in pellet form, packaged in 25 kg waterproof poly-lined bags. It will be imported by sea through the capital cities of VIC, NSW, SA, QLD and WA.

Reformulation/manufacture processes

The notified polymer will not be manufactured in Australia. The polymer will be extruded into tubes, cover cable, or will be moulded into fittings, housings or mechanical components.

Tube extrusion

Pellets containing the notifying polymer are manually or using vacuum transfer loaded by workers into a hopper. The hopper gravity feeds the pellets into an extruder that heat and melts the polymer at about 240 °C. The polymer is then forced through a die, forming a tube which is cooled down going through a water bath.

Cable sheathing

Process is similar to tube extrusion, except the polymer is deposited on a cable, forming a jacket around the cable.

Moulding

The process is similar to tube extrusion except that the molten polymer is deposited into and takes the internal form of a die.

Use

Tubes are developed for air brake applications in the automotive industry. They are also used as pressure tubes by industrial users in a wide range of applications.

Cables (for example telephone cables or local area network cables) are covered by the notified polymer in order to have long term resistance to weather and chemical substances. Cables covered by this polymer are also particularly resistant to termites.

Moulded items can be used as pipe or tube fittings, and housings or parts for machinery.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Extruder or moulding machine operators are expected to experience the highest exposure to the notified polymer, which is expected to be primarily dermal although ocular exposure is possible. The notified polymer, which is imported in pellet-form, will be poured from bags into hoppers and extruded with little or no contact with the operators' skin.

The notified polymer is formulated in pellets, which do not generate dust upon handling and transportation. The notified polymer within these solid, plastic pellets will be unavailable to cause significant exposure.

Extrusion or moulding of the notified polymer requires the heating of pellets to 240 °C, and the notifier states workers will wear personal protective equipment including heat resistant gloves, eye protection and heat resistant industrial clothing which will minimise exposure to the notified polymer. An exhaust/fire system will be situated above the extrusion machine inlet and outlet to capture any gases generated by the thermal degradation of the notified polymer in the equipment prior to extrusion. The normal extrusion temperature is well below the decomposition temperature of > 400 °C.

Transport and warehouse workers would only be exposed in the unlikely event of accidental breakage of the waterproof bags or rigid containers. Under this circumstance, dermal or ocular exposure to the imported notified polymer pellets is possible.

PUBLIC EXPOSURE

The notified polymer is intended only for use in industry and as such direct public exposure to the notified polymer pellets is unlikely.

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.

The notified polymer contains carboxylic acid and NH₂ reactive functional groups. Although the notified polymer contains groups indicative of high concern (NH₂) the polymer does meet the PLC criteria as it has a Mn > 10,000 Da and can therefore be considered to be of low hazard.

6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

The risk to workers exposed to the notified polymer is expected to be low, based on its presumed low hazard and the expected PPE in such workplaces. The risk of the notified polymer to occupational health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

PUBLIC HEALTH

The notified polymer is intended for industrial use and will not be sold to the public. Hence, public exposure to the notified polymer is not expected, and the risk to health of the public is not considered to be unreasonable.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

The polymer will be extruded or injection moulded in Australia to form final products.

Cleaning of the die will lead to a small amount of waste but this is expected to be re-pelletised and re-used.

ENVIRONMENTAL FATE

It is expected that most of the notified polymer will be landfilled at the end of its useful life. The polymer in landfill is expected to undergo in-situ degradation by biotic and abiotic process to form landfill gases, including methane, oxides of carbon and nitrogen, and water vapour.

7.2. Environmental Hazard Characterisation

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

7.3. Environmental Risk Assessment

It is expected that most of the notified polymer will be landfilled at the end of its useful life. However the polymer lacks significant ionic functionality and is considered to be of low concern to the aquatic environment. The polymer is likely to eventually undergo in-situ decomposition by abiotic and biotic processes to form methane, oxides of carbon and nitrogen, and water vapour. Therefore, based on the assessed use pattern the polymer is not expected to pose an unreasonable risk to the environment.