

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

Polymer in Corona Magenta Pigment

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

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**

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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/1284	PC Australasia Pty Ltd	Polymer in Corona Magenta Pigment	No	≤ 80 tonnes per annum	Additive in fire retardants

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.

- In the interest of occupational health and safety, the following precautions should be observed for use of the notified polymer as introduced in powder form:
 - The level of atmospheric nuisance dust should be maintained as low as possible. The Safe Work Australia exposure standard for atmospheric dust is 10 mg/m³.
- 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 of 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.

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 additive in fire retardants, 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 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

Applicants

PC Australasia Pty Ltd (ABN: 79 139 051 184)
46 Hudson Crescent,
Lavington NSW 2641

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, spectral data, purity, molecular weight, polymer constituents, residual monomers/impurities and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

Polymer in Corona Magenta Pigment

Molecular Weight

Number Average Molecular Weight (Mn) is > 1,000 Da

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	Magenta coloured powder (product)
Melting Point/Glass Transition Temp	145-150 °C/120 °C
Density	1200 kg/m ³
Water Solubility	Expected to be insoluble.
Dissociation Constant	The notified polymer contains anionic functionalities which are expected to be ionised in the environmental pH range (4 - 9). However, this is not considered to be a concern due to its expected water insolubility.
Particle Size	< 10 µm 4.5 µm (mean)
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>
Tonnes	10-80	10-80	10-80	10-80	10-80

Use

The notified polymer will be used as an additive in fire retardant formulations. It will be used as a pigment carrier in products used in aerial forest fire fighting. The imported product containing the notified polymer at 95% will be further reformulated in Australia into liquid or powder products, and further diluted before use.

6. HUMAN HEALTH RISK ASSESSMENT

The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. This is supported by a test submitted on a product containing the notifier polymer at > 80% for the following toxicological endpoint.

<i>Endpoint</i>	<i>Result</i>	<i>Effects Observed?</i>	<i>Test Guideline</i>
Rat, acute oral	LD50 > 2000 mg/kg bw	No	OECD TG 425

This result was indicative of low hazard.

The particle size of the notified polymer indicates that the major portion will be respirable (< 10 µm) and it is expected to be water insoluble. However the molecular weight is not in the range considered of concern for lung overloading (NAMW > 10,000). When high concentrations of the notified polymer are inhaled, it is likely to be cleared from the lungs, but this may be slow and temporary respiratory impairment is possible. The expected use of dust masks and local exhaust ventilation by reformulation workers when handling the notified polymer in powder form should reduce inhalation exposure levels and hence lower the risk of temporary lung overloading.

Although not considered in this risk assessment, NICNAS notes that the notified polymer contains residual monomers that are classified as hazardous according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia. These are not present in the notified polymer as introduced above the cut off concentrations for classification.

7. ENVIRONMENTAL RISK ASSESSMENT

Release of Chemical from Use

Almost all of the imported volume is expected to be released to soil in forests during use as a fire retardant. The retardant containing the notified polymer at a concentration of up to 1% will be applied to soil at an approximate rate of 0.5 L/m² or 5000 L per hectare. This corresponds to 5 g of polymer per m². The notified chemical in this volume is assumed to infiltrate and accumulate in the top 10 cm of soil (density 1500 kg/m³). Thus, the concentration of the polymer in the soil immediately after treatment would be 33.3 mg/kg. Since repeated application is unlikely to occur in the same area, accumulation in the soil is not expected.

Predicted Environmental Concentration

A Predicted No-Effect Concentration (PNEC) has not been calculated for the notified polymer as, based on its reported use pattern, ecotoxicologically significant quantities are not expected to be released to the aquatic environment.

Environmental Effects Assessment

The result from an ecotoxicological investigation conducted on the notified polymer at 95% is summarised in the table below.

<i>Endpoint</i>	<i>Result</i>	<i>Assessment Conclusion</i>
Daphnia Toxicity	EC50 \geq 100 mg/L	Not harmful to aquatic invertebrates

Predicted No-Effect Concentration

Calculation of the Risk Quotient is not possible since neither the PEC nor the PNEC is available.

Environmental Risk Assessment

The use pattern of the notified polymer indicates that it is unlikely to reach ecotoxicologically significant concentrations based on its annual introduction volume. In soil, 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 soil to form water and oxides of carbon and nitrogen. Therefore, on the basis of the assessed use pattern the notified polymer is not expected to pose an unreasonable risk to the environment.