

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

### POLYMER OF LOW CONCERN PUBLIC REPORT

#### Polymer in G0Z04 Series Ink

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 and Energy.

This Public Report is 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**

March 2017

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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/1403	HP PPS Australia Pty Ltd	Polymer in G0Z04 Series Ink	No	≤ 30 tonnes per annum	Component of inkjet printing ink

## 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 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.

### Disposal

- Where reuse or recycling are not appropriate, dispose of the notified polymer in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

### 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 inkjet printing ink 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**

HP PPS Australia Pty Ltd (ABN 16 603 480 628)  
Level 5, 1 Homebush Bay Drive  
RHODES NSW 2138

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

### 2. IDENTITY OF POLYMER

**Marketing Name(s)**

Polymer in G0Z04 Series Ink

**Other Name(s)**

HP 1437 MI Polymer

**Molecular Weight**

Number Average Molecular Weight (Mn) is > 10,000 Da

### 3. PLC CRITERIA JUSTIFICATION

*Criterion*

Molecular Weight Requirements  
Functional Group Equivalent Weight (FGEW) Requirements  
Low Charge Density  
Approved Elements Only  
Stable Under Normal Conditions of Use  
Not Water Absorbing  
Not a Hazard Substance or Dangerous Good

*Criterion met*

Yes  
Yes  
Yes  
Yes  
Yes  
Yes  
Yes

The notified polymer meets the PLC criteria.

### 4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20 °C and 101.3 kPa	Clear slightly yellow solution (polymer solution)
Melting Point/Glass Transition Temp	Not determined
Density	Not determined
Water Solubility	Expected to be water soluble based on the presence of hydrophilic moieties in the chemical structure.
Dissociation Constant	The notified polymer is a salt and is expected to be ionised in the environmental pH range (4-9).
Particle Size	Synthesised in solution
Reactivity	Stable under normal use conditions
Degradation Products	Not known

## 5. INTRODUCTION AND USE INFORMATION

### Maximum Introduction Volume of Notified Chemical (100%) Over Next 5 Years

Year	1	2	3	4	5
Tonnes	1-5	1-5	5-10	10-20	20-30

#### Use

The notified chemical will not be manufactured, reformulated or repackaged in Australia. The notified chemical will be imported as a component of ink at a concentration of up to 15%, in a 1.5 or 3L foil bag inside a cardboard box. The ink containing the notified chemical will only be used at a commercial printing site in a fully automated inkjet printing process.

## 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.

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.

## 7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. Anionic polymers are generally of low toxicity to fish and daphnia, however they are known to be moderately toxic to algae. The mode of toxic action is over-chelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. However, this is unlikely to apply to the notified polymer and it is therefore not considered to be an over-chelation hazard to algae.

The notified polymer will be imported into Australia as a component of printing ink and will not be reformulated or repackaged. The ink containing the notified chemical will only be used at a commercial printing site in fully automated inkjet printing processes. Accidental spills are expected to be contained and disposed of to landfill.

The ink will be used on various substrates and the notified polymer, bound within the dried ink matrix, will share the fate of the article. It is assumed by the notifier that up to 20% of the notified polymer will be printed on substrates which could be recycled, and approximately 10% of the import volume may enter the recycling stream. During recycling processes, waste paper is repulped using a variety of chemical agents, which, amongst other things, enhance detachment of inks from the fibres. Aqueous wastes containing these agents are expected to be sent to the sewage treatment plant (STP) for processing. The notified polymer released from paper recycling processes is expected to be removed in the STPs through partitioning of high molecular weight anionic polymer to sludge.

With 10% release of the notified polymer into the sewer systems and no removal within STPs, the predicted environmental concentration in sewage effluent on a nationwide basis over 260 working days per year is calculated to be 2.55 µg/L, which is well below the known EC50 for algae of the most toxic anionic polymers (EC50 > 1 mg/L). Therefore, the release of the notified polymer during the recycling and deinking processes will not lead to ecotoxicologically significant concentrations in the aquatic environment.

The majority of the notified polymer will reach landfill as a result of disposal of used articles, sludge waste from recycling and residue in empty containers containing the notified polymer. The notified polymer is not expected to cross biological membranes due to high molecular weight and is therefore not expected to bioaccumulate. In landfill the notified polymer is expected to slowly degrade to water and oxides of carbon, and sulphur. 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.