

File No PLC/909

September 2010

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

**FULL PUBLIC REPORT**

**Polymer in Flint Group Heatset Web 340 Colour Range**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the 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 Department of the Environment, Water, Heritage and the Arts.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at our NICNAS office by appointment only at 334-336 Illawarra Road, Marrickville NSW 2204.

This Full 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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**FULL PUBLIC REPORT****Polymer in Flint Group Heatset Web 340 Colour Range****1. APPLICANT AND NOTIFICATION DETAILS**

## APPLICANT(S)

Flint Group Australia Pty Ltd (ABN 79 006 659 178)  
25-51 Berends Drive, DANDENONG SOUTH VIC 3175

## NOTIFICATION CATEGORY

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 and Structural Formulae, Molecular Weight, Polymer Constituents and Residual Monomers/Impurities

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

No variation to the schedule of data requirements is claimed.

## PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

## NOTIFICATION IN OTHER COUNTRIES

USA (1999)

**2. IDENTITY OF CHEMICAL**

## MARKETING NAME(S)

Flint Group Heatset Web 340 Colour Range

## MOLECULAR WEIGHT (MW)

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

## REACTIVE FUNCTIONAL GROUPS

The notified polymer contains a high concern functional group, however as the molecular weight is > 10,000 Da the FGEW requirements for a PLC are considered to be met.

**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 amber flakes with mild odour
Melting Point	159°C
Density	1070 kg/m <sup>3</sup> at 25°C
Water Solubility	Not determined. The notified polymer is stated to be insoluble in water, which is consistent with the mainly hydrophobic structure of the polymer and its solubility in hydrocarbon solvents.
Dissociation Constant	The notified polymer contains functional groups having typical pK <sub>a</sub> values of about 4.5 and 10.
Particle Size	Imported in solution
Reactivity	Stable under normal environmental conditions. The notified polymer contains groups which are susceptible to hydrolysis. However, hydrolysis is expected to be slow in the environmental pH range of 4-9.
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	1.5	1.5	1.5	1.5	1.5

##### Use

The notified polymer functions as part of the vehicle in commercial printing inks. The vehicle functions to carry and bind pigment particles in the printing process.

Then inks will be used in various applications which would include printing for packaging, toy products and publications.

##### Mode of Introduction and Disposal

The notified polymer will be imported as a component of ink for commercial printing at approximately 6% in various containers.

#### 6. HUMAN HEALTH IMPLICATIONS

##### 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 hazardous residual monomers, including skin sensitisers. However, these residual monomers are present at very low concentrations, well below the cut-off concentrations for classification.

##### Occupational Health and Safety Risk Assessment

Dermal exposure of office workers and maintenance engineers to the notified polymer could potentially occur when replacing spent containers and clearing jams from the printer. However, during normal use, pre-packaged ink containers will be sealed and worker exposure to the ink is minimised by following replacement procedures recommended by the supplier, including use of personal protective equipment in the MSDS. Once the ink dries, the notified polymer will be trapped in an ink matrix on the printed articles, and therefore dermal exposure to the notified polymer from contact with the dried ink is not expected.

Overall, the notified polymer is not expected to pose an unacceptable risk to the health of workers, based on the minimal exposure and the assumed low hazard of the polymer. As residual monomers are present at very low levels, the notified polymer is not expected to pose a risk to workers.

**Public Health Risk Assessment**

The public will only have dermal exposure to dried inks containing the notified polymer, from which it is not expected to be bioavailable.

The risk to public health presented by the notified polymer is not considered to be unacceptable due to its assumed low toxicity and the low potential for exposure.

**7. ENVIRONMENTAL IMPLICATIONS****Hazard Characterisation**

No ecotoxicological data were submitted. Anionic polymers 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, which does not apply to the notified polymer. In addition, the toxicity to algae is likely to be further reduced due to the presence of calcium ions, which will bind to the functional groups.

**Environmental Risk Assessment**

The notified polymer will be imported into Australia as a component of formulated ink products only for use in industrial paper printing. Most of the imported quantity of notified polymer will be trapped in an ink matrix on the surface of printed paper. The printing blankets used to apply inks will be automatically or manually cleaned by using wash cloths. Any waste solvent from the blanket washing process would be expected to be of low volume, and disposal would be through a specialist waste disposal company. No significant release of the polymer to the aquatic environment is expected from the printing process. Approximately 50% of the paper on which the ink will be printed will be recycled. Most of the notified polymer will reach landfill as a result of disposal of used paper or sludge waste from paper recycling. In landfill the notified polymer will be immobile and will be slowly degraded, eventually forming water, oxides of carbon and inorganic salts. The notified polymer is expected to have a low potential to bioaccumulate due to its high molecular weight. The notified polymer is therefore not likely to pose a risk to the environment based on the reported use pattern.

**8. CONCLUSIONS AND RECOMMENDATIONS****Human health risk assessment**

Under the conditions of the occupational settings described, the notified polymer is not considered to pose an unacceptable risk to the health of workers.

When used in the proposed manner, the notified polymer is not considered to pose an unacceptable risk to public health.

**Environmental risk assessment**

Based on the reported use pattern, the notified polymer is not expected to pose a risk to the environment.

**Recommendations****CONTROL MEASURES****Occupational Health and Safety**

- 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 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 *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(2004)],

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 to landfill.

#### Emergency procedures

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

### Regulatory Obligations

#### *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 ink for commercial printing, 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 chemical 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 MSDS of the product containing the notified polymer provided by the notifier was reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.