

File No PLC/738

26 November 2007

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

FULL PUBLIC REPORT

Polymer in Gelva® Multipolymer Emulsion 3144, 2397, 2828, 3018 and 3142U adhesive

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 and Water Resources.

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 Gelva® Multipolymer Emulsion 3144, 2397, 2828, 3018 and 3142U adhesive****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Cytec Australia Holdings Pty Ltd (ABN: 45 081 148 629)
Suite 1, Level 1 Norwest Quay
21 Solent Circuit, Norwest Business Park
BAULKHAM HILLS NSW 2153

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, Use Details, Manufacture/Import Volume, and Site of Manufacture/Reformulation.

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

No variation to the schedule of data requirements is claimed.

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Polymer in GELVA® MULTIPOLYMER EMULSION 3144,
Polymer in GELVA® MULTIPOLYMER EMULSION 2397,
Polymer in GELVA® MULTIPOLYMER EMULSION 2828,
Polymer in GELVA® MULTIPOLYMER EMULSION 3018,
Polymer in GELVA® MULTIPOLYMER EMULSION 3142U adhesive

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn) >1000 Da

3. PLC CRITERIA JUSTIFICATION

Criterion	Criterion met
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

The notified polymer is only introduced in solution. The following physical and chemical properties are therefore for the imported polymer solution.

Appearance at 20°C and 101.3 kPa: White viscous liquid

Melting Point/Glass Transition Temp	Not determined. The notified polymer is only introduced in solution.
Density	1155 kg/m ³ at 20°C.
Water Solubility	Claimed by the notifier to be < 6ppm. This is consistent with the polyacrylate structure.
Dissociation Constant	The notified polymer contains a very small amount of carboxylic functionality expected to exhibit typical acidity.
Reactivity	While the notified polymer contains hydrolysable functionality, it is expected to be stable under normal environmental conditions (pH 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

Year	1	2	3	4	5
Tonnes	<100	100-150	200-250	200-250	<250

Use

The notified polymer acts as an adhesive for pressure sensitive labels for industrial labelling of consumer products.

Pressure sensitive labels are constructed of 3 components: face material, pressure sensitive adhesives, and release liner. In the manufacture of label stock, the adhesive is generally applied to a silicone-coated release liner and dried. The coated release liner is then laminated under light pressure to the face material. This process is referred to as "transfer coating". The adhesive transfers to the face material when the release liner is removed.

The emulsion containing the notified polymer will be pumped into storage tanks at the customer's site and then applied to paper via a largely automated process. Adhesive will be pumped from a small holding tank to a coating/laminating machine tray where it will be picked up in the reverse gravure coating process by a roller which will transfer it to an etched gravure roller, which will in turn transfer the adhesive to paper label stock. The labels will be heated and dried, and a non-stick backing sheet will be applied, and the label stock will be wound onto rolls or stacked in sheets for subsequent printing and die cutting into individual labels.

Mode of Introduction and Disposal

Products containing the notified polymer (at ≤90%) will be imported in a ready-to-use form, in 1000 L Intermediate Bulk Containers and 205 L drums. The notified polymer will not be manufactured in Australia.

The notified polymer will be transported from the dockside by road to the customer's facilities in Victoria. It will be warehoused until required for label stock production.

6. HUMAN HEALTH IMPLICATIONS

Hazard Characterisation

No toxicological data were submitted. The notified polymer meets the PLC criteria and therefore is assumed to be of low hazard.

Occupational Health and Safety Risk Assessment

The use of the notified polymer in label manufacturing is highly automated, however, dermal and ocular exposure may occur during certain processes involving the notified polymer, including: connecting and disconnecting hoses, maintenance and cleaning of equipment. Exposure to significant amounts of the notified polymer will be limited because of the engineering controls and PPE worn by workers.

Therefore the risk to workers is considered to be acceptable due to the intrinsic low hazard of the notified polymer, and the limited exposure.

Public Health Risk Assessment

The notified polymer is intended only for use in industry and as such public exposure to the notified chemical is not expected to be significant. Members of the public are likely to be exposed to very small quantities of the

notified polymer in dry form, as it occurs in used labels coated with the formulation. In dry form, it is not expected that significant amounts of the notified polymer will be released from the label.

Therefore the risk to public health will be acceptable because the notified polymer is of low hazard, and the public exposure is expected to be negligible.

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 overchelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. This is unlikely to apply to the notified polymer. Any possible 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

During the adhesive application process, there is potential for spillage of the product containing the notified polymer to occur. It is expected that <<1% of the total volume imported per year will be lost in this manner. This spill will be taken up by absorbent material and be disposed through industrial solid waste to a licensed waste landfill site.

It is expected that <1% of the total volume imported per year will be released to the sewer from the washing of spilt notified polymer, from equipment cleaning, and from residual in the imported IBC containers. The majority of the notified polymer (approximately 95%) will be precipitated at the sewer treatment plants. This quantity in the treated sludge will be taken to licensed waste landfill sites. The balance of the notified chemical <1% of the total volume imported per year will be released into the environment. If released into the aquatic environment, the notified polymer is expected to partition to particulate matter and accumulate in sediments.

The fate of bulk of the polymer will be tied to the fate of the adhesive labels. When the useful life of the materials carrying the label has ended it is either recycled or sent to landfill. When the materials are recycled labels are removed before the actual recycling process and sent to landfill.

Considerable amount of the polymer therefore will end up in landfill through used labels and waste from label manufacture. At landfill sites there is little potential for the polymer to leach due to its low solubility. Further, the high molecular weight of the polymer would prevent mobility of the notified polymer and is expected to associate with soil and sediment, and due to notified polymer being insoluble in water it will not be mobile. Over time, the notified polymer should degrade by abiotic processes to form simple carbon containing compounds. Incineration of waste, if employed, will destroy the polymer.

Based on the reported exposure levels and use pattern, the notified polymer is not considered to pose a risk to the environment when it is stored, transported and used in the proposed manner.

8. CONCLUSIONS AND RECOMMENDATIONS

Human health risk assessment

Under the conditions of the occupational settings described, the risk to workers is considered to be acceptable.

When used in the proposed manner the risk to the public is considered to be acceptable.

Environmental risk assessment

The notified polymer is not considered to pose a risk to the environment based on its reported use pattern.

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 sites.

Storage

- The notified polymer should be kept from freezing, or material may coagulate. The minimum and maximum temperatures for storage are 1 and 40°C, respectively.

Emergency procedures

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

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 chemical 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 chemical, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified chemical 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 polymer has changed from an adhesive for pressure sensitive labels for industrial labelling of consumer products or is likely to change significantly;
 - the amount of polymer being introduced has increased from 250 tonnes, or is likely to increase, significantly;
 - if the polymer has begun to be manufactured in Australia;
 - additional information has become available to the person as to an adverse effect of the 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.

No additional secondary notification conditions are stipulated.

Material Safety Data Sheet

The MSDS of the notified chemical (and products 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.

