File No SAPLC/74

22 October 2007

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Acrysol RM-895

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* (Cwlth) (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 Ageing and the Department of the Environment and Water Resources 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 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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1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT
Rohm and Haas Australia Pty. Ltd. (ABN 29 004 513 188)
4th Floor, 969 Burke Road
Camberwell VIC 3124

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, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details, and Import Volume.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
USA (2007)

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Polymer in Acrysol RM-895

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (NAMW) >10000

REACTIVE FUNCTIONAL GROUPS

Functional Group	Category	Equivalent Weight (FGEW)
the notified polymer contains potential cationic groups. However, since the FGEW is > 5000 (by end group analysis), the notified polymer qualifies as a PLC.		

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

Appearance at 20°C and 101.3 kPa	White liquid (polymer solution in water)
Melting Point/Glass Transition Temp	Not determined. The notified polymer is not isolated from the solution.
Density	1030 to 1050 kg/m^3 at 25°C as the polymer solution in water.
Water Solubility	Completely soluble
Dissociation Constant	The notified polymer contains potentially cationic groups with an estimated pKa of 7.5, and therefore may be expected to be partially ionised in the aquatic environment.
Reactivity	Stable under normal environmental conditions. The notified polymer contains potentially hydrolysable groups but hydrolysis is not expected to occur 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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	10-30	30-100	100-300	100-300	100-300

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will not be manufactured in Australia. It will be imported by sea in 200kg steel drums as a component (20-25% w/w) of the product Acrysol RM-895. Upon arrival at ports in Sydney and/or Melbourne the notified polymer will be transported by road to the notifier's warehouse where it will be stored under cover until such time that it is transported to up to 10 companies throughout Australia for reformulation.

Reformulation/manufacture processes

At the paint manufacturer, the product will be formulated into interior and exterior aqueous house paints. These paints will contain approximately 0.4% w/w of the notified polymer.

Typically during reformulation, the notified polymer will be manually weighed and then poured directly into a high-speed disperser mixing tank with the aid of a drum lifting machine. Once blended with other ingredients and converted into the finished paint product, it will be decanted into 1, 4, 15 and 20 litre steel and/or plastic containers for sale to both do-it-yourself (DIY) and contract painters.

The paint products containing the notified polymer will typically be applied by brush or roller.

Use

The product Acrysol RM-895, containing 20-25% w/w of the notified polymer will be used as an additive in exterior and interior aqueous house paints.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Transport and warehousing workers may come into dermal and ocular contact with the notified polymer through accidental leaks and spillages of the drums and containers.

During formulation, workers will manually weigh and transfer the polymer solution to the mixing vessels. Workers will wear impermeable gloves, eye protection and coveralls. Exposure from the notified polymer to these workers can occur by either dermal or ocular routes; however significant exposure will be limited due to the workplace practices and personal protective equipment used.

Throughout end use, painters may come into contact with the notified polymer through dermal and ocular routes. After application and once dried, the notified polymer will be bound within the coating film and unavailable for exposure.

PUBLIC EXPOSURE

The Acrysol RM-895 product will not be sold directly to the public. The public may have dermal or ocular contact with the notified polymer when applying paints containing it, and when coming into contact with painted surfaces. However, after application and once dried, the notified polymer will be bound within the coating film and unavailable for exposure.

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.

6.3. Human Health Risk Assessment

OCCUPATIONAL HEALTH AND SAFETY

The OHS risk presented by the notified polymer is expected to be low, based on low hazard and low exposure as well as the engineering controls and personal protective equipment used by workers.

PUBLIC HEALTH

The Acrysol RM-895 product will not be sold directly to the public. The public may come into contact with the notified polymer when applying paints containing it, and when coming into contact with painted surfaces. However, after application and once dried, the notified polymer will be bound within the coating film and not be bioavailable. Risk to the public is considered low, based on low hazard and low exposure.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

Release to the environment during shipping, transport and warehousing will only occur through accidental spills or leaks.

It is estimated that up to 1% of the notified polymer will remain as residues in “empty” drums and paint containers that will be disposed of to licensed waste landfill sites. Up to 3% will be lost to wash water during cleaning of formulation equipment. 50% of this cleaning water will be re-used in subsequent batches and the remainder treated in on-site water treatment facilities where the polymer solids will be precipitated and disposed of to licensed waste landfill sites.

ENVIRONMENTAL FATE

The majority of the imported polymer (> 90%) will be contained in dry paint films where it will be bound into the coating film. The notified polymer will share the fate of the substrate to which it has been applied and will be incinerated or go to landfill. The notified polymer contained dry paint films that reaches landfill will be mostly immobile due to it being bound in the insoluble dry paint film.

Up to a further 5% of the notified polymer will be lost to wash water when cleaning paint brushes and rollers. Approximately 50% of this wash water will be applied to household gardens when hosing equipment and the remainder will be lost to the sewer.

The notified polymer is readily soluble in water and will disperse in the sewer system. Based on Australia wide distribution PEC will be a maximum of 10 µg/L.

Paints will contain a low percentage (0.4%) of the notified polymer and will be manufactured and used throughout Australia. Release to the environment will be disperse.

Eventual degradation by biotic and abiotic processes would be expected to yield oxides of carbon and nitrogen.

7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. The notified polymer contains potential cationic groups. However, since the FGEW > 5000, it is not considered to be of concern.

7.3. Environmental Risk Assessment

The majority of the imported polymer (> 90%) will share the fate of the substrate to which it has been applied and will be incinerated or more likely to go to landfill. The notified polymer contained dry paint films that reaches landfill will be mostly immobile due to it being bound in the insoluble dry paint film.

Approximately 3% of the notified polymer is expected to reach the sewer via washing of application equipment. However, the concentration of the notified polymer in paints is low (0.4%) and use will be diverse throughout Australia. Therefore the concentration of the notified polymer in waters reaching sewage treatment plants would be low and well below any likely toxic levels.

Based on the above, and the polymer's expected low hazard characterisation, the notified polymer is not expected to pose a significant risk to the environment.

8. CONCLUSIONS

8.1. Level of Concern for Occupational Health and Safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

8.2. Level of Concern for Public Health

There is No Significant Concern to public health when used in the proposed manner.

8.3. Level of Concern for the Environment

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

9. MATERIAL SAFETY DATA SHEET

9.1. Material Safety Data Sheet

The notifier has provided MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

10. 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 or incinerated.
- Empty containers should be sent to local recycling or waste disposal facilities.

Emergency procedures

- Spills and/or accidental release of the imported product containing the notified polymer should not be allowed into drains or waterways. Spills should be handled by absorbing with sand or other inert absorbent material and put into suitable container for disposal.

11. 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 chemical has changed from use as an additive in exterior and interior aqueous house paints, or is likely to change significantly;
  – the amount of chemical being introduced has increased from 300 tonnes per annum, or is likely to increase, significantly;
  – if the chemical 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.