File No: SAPLC/81

15 February 2008

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Beckolite M-6019-75

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, Water, Heritage and the Arts has screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

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Director
NICNAS

Polymer in Beckolite M-6019-75

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT
DIC Australia Pty. Ltd. (ABN 12 000 079 550)
323 Chisholm Rd., Auburn, NSW 2144

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, Other Names, CAS Number, Molecular and Structural Formulae, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, Use Details, Manufacture/Import Volume

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
Unknown

NOTIFICATION IN OTHER COUNTRIES
Unknown

2. IDENTITY OF CHEMICAL

The notified polymer contains only low concern functional groups.

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	Pale yellow viscous liquid (polymer solution.)
Melting Point/Glass Transition Temp	Not applicable. The notified polymer is not isolated from solution.
Density	1,000 – 1,100 kg/m^3 at 25°C (polymer solution.)
Water Solubility	Expected to have low water solubility due

	to the predominance of hydrophobic groups.
Reactivity	Contains hydrolysable groups, but is expected to be stable under normal environmental conditions.
Degradation Products	None expected 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	10-30	10-30	10-30	10-30

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will not be manufactured in Australia. The notified polymer solution (75% w/w in solvent) will be imported by sea in 200 L closed head steel drums. Upon arrival at ports in Melbourne, it 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 the paint manufacturer's site for reformulation.

Reformulation/manufacture processes

At the paint manufacturer's site, the notified polymer solution will be formulated into a pigmented paint for OEM automotive chassis primer application (30% notified polymer.)
During formulation, 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, the finished paint product will be decanted into 200 L steel drums for sale to automotive manufacturers.

Use

The notified polymer will be used as a component of OEM automotive chassis primers. Paints containing the notified will be applied by robotic spray techniques.

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 and other ingredients to a mixing vessel. Blending will be carried out in a closed mixing vessel with adjacent exhaust ventilation. Once blending is complete, the finished paint will be transferred under gravity to 200 L steel drums. Exhaust ventilation is also present adjacent to the packing-off area.
Workers involved in the blending and packing-off processes will wear impermeable gloves, eye protection and overalls. Exposure to the notified polymer through inhalation will be negligible due to the polymer having low volatility and the use of local exhaust ventilation. Exposure can occur by either dermal or ocular routes, however significant exposure will be limited due to the workplace practices and personal protective equipment used.

Paints containing the notified polymer will be applied by robotic spray painting methods inside large, fully enclosed spray booths meeting applicable Australian Standards.
Spray painting operators will not be present in the paint booth during spraying processes.
Exhaust ventilation present in the spray booth will remove airborne overspray prior to workers entering the booth for cleaning and maintenance purposes.
During cleaning and maintenance processes, operators may come into contact with the notified polymer through dermal and ocular routes. Workers will wear impermeable gloves, eye protection and overalls to minimise exposure.
After application and once dried, the paint containing the notified polymer will be cured into an inert matrix and the polymer will thus be unavailable for exposure.

PUBLIC EXPOSURE

Neither the notified polymer, nor paints containing it, will be sold to the public. The public may come into contact with automotive components coated with the notified polymer. However, after application and once dried, the paint containing the notified polymer will be cured into an inert matrix and the polymer will thus be unavailable for exposure.

6.2. Toxicological Hazard Characterisation

No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed 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 notified polymer will not be sold to the public and will only being used by industrial painters. Once the polymer is applied and cured it will form an inert matrix, and hence will not be bioavailable. Risk to the public is considered low.

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 from drums or steel packaged containers.

During formulation and packaging, spills are expected to be minimal. When spills occur, they will be contained by bunding, collected with absorbent material and sent to a licensed off site waste disposal centre. Empty drums from import will be sent to drum reconditioners.

Cleaning of paint manufacturing equipment will be performed by flushing with cleaning solvent. Cleaning solvent and paint residues will be stored on site until being transferred to an outside waste treatment facility where solids will be separated and later disposed of to a licensed waste landfill site.
The total amount of polymer lost to waste during paint formulation due to spills, drum residues and cleaning is expected to be approximately 2% (<600 kg per annum) of the import volume.

Paint containing the notified polymer will be applied by automated spray techniques. It is estimated that up to 25% (<7.5 tonnes per annum) of paint may be lost to overspray. Overspray will be collected in baffles and filters and allowed to dry and cure. Solids paint residues will be collected and disposed of to a licensed waste landfill site. Cleaning solvent and liquid paint residues resulting from paint application will be stored on site until being transferred to an outside waste treatment facility where solids will be separated and later disposed of to a licensed waste landfill site.

Under normal use procedures, losses of the notified polymer through overspray, and cleaning of plant equipment as well as losses from residues in containers have been estimated to be a maximum of 30%, (10 tonnes per annum).

The remainder of the notified polymer will be bound in the paint matrix coating automobile bodies and not be available for direct release to the environment.

ENVIRONMENTAL FATE

The notified polymer is expected to be hydrolytically stable and to not be readily

biodegradable.
The notified polymer will crosslink further with other components in the paint and render the polymer insoluble in water. Therefore, once fully cured, it is expected that the notified polymer in landfill will associate with sediments and organic phases of soil and sediments, and slowly degrade to simple carbon compounds. During metal recycling, the polymer will be destroyed, releasing water and oxides of carbon.

7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. PLCs without significant ionic functionality are of low concern to the aquatic environment.

7.3. Environmental Risk Assessment

No aquatic exposure is anticipated during reformulation and end use of the notified polymer. It is envisaged that 2% (<600 kg per annum) waste would be generated from the reformulation process. These wastes would cured and solidified before being disposed of to landfill or incinerated. It is expected that practically all of the waste generated from end use (25% as overspray) will be disposed of in approved landfills as inert solid waste. In landfill and once cured, the solid wastes will not be mobile and will degrade slowly by biotic and abiotic processes to landfill gases (including oxides of carbon, methane, and water vapour).

8. CONCLUSIONS

8.1. Level of Concern for Occupational Health and Safety

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

8.2. Level of Concern for Public Health

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

8.3. Level of Concern for the Environment

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

9. MATERIAL SAFETY DATA SHEET

9.1. Material Safety Data Sheet

The notifier has provided an 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*, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

- Spray painting applications should be in accordance with the *National Guidance Material for Spray Painting* [NOHSC (1999)].

Environment

- The following control measures should be implemented by the notifier to minimise environmental exposure during formulation of the notified polymer:
  - Bunding

- The following control measures should be implemented by end users (spray painters) to minimise environmental exposure during use of the notified polymer:
  - Exhaust ventilation with filter

Disposal

- The notified polymer should be solidified and disposed of to landfill; or incinerated, if permitted under state and local regulations..
- Empty containers should be sent to local recycling or waste disposal facilities.

Storage

- The imported product, Beckolite M-6019-75, is a Dangerous Good and classified as Class 3, flammable. The product should be stored in accordance with Dangerous Goods storage requirements.

Emergency procedures

- The imported product, Beckolite M-6019-75, is a Dangerous Good and classified as Class 3, flammable. In case of a spill all sources of ignition should be eliminated. Due care should be taken to avoid ignition and possible explosion.
- Spills/release of the notified polymer should be handled by absorbing with sand or other inert absorbent material and put into suitable container for disposal. Contaminated containers can be re-used after cleaning.

Transport and Packaging

- The imported product, Beckolite M-6019-75, is a Dangerous Good and classified as Class 3, flammable. The product should be packaged and transported in accordance with Dangerous Goods transport requirements.

10.1. 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 a component of a spray applied automotive refinish coating or is likely to change significantly;
- the amount of polymer being introduced has increased from 30 tonnes per annum, 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 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.