File No SAPLC/73

07 November 2007

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in UCAR 6430

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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Polymer in UCAR 6430

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT
Dow Chemical (Australia) Ltd (ABN 72 000 264 979)
541-583 Kororoit Creek Road
Altona Victoria 3018

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)
None

NOTIFICATION IN OTHER COUNTRIES
US EPA: Exemption from PMN filing and TSCA registration. 1998.

2. IDENTITY OF CHEMICAL

CAS NUMBER
Not assigned

MARKETING NAME(S)
UCAR™ 6430 (contains 40-50% notified polymer)

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (NAMW) >10,000

REACTIVE FUNCTIONAL GROUPS
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	Milky-white solution (polymer dispersed in water).
Melting Point/Glass Transition Temp	50 °C (polymer, literature).
Density	950 – 1100 kg/m^3 (solution, estimated).
Water Solubility	Visually miscible with water in all proportions but not likely to reflect true solubility which is expected to be low due to the presence of hydrophobic groups.
Reactivity	Hazardous polymerisation will not occur.
Degradation Products	The polymeric component is not expected to biodegrade. The notified polymer contains potentially hydrolysable groups but that is unlikely to occur under abiotic ambient environmental condition (pH 4-9).

Comments
The notified polymer is supplied dispersed in water. The Number Average Molecular Weight of the polymer is greater than 10,000 with a low proportion below 1000 MW. The polymer is not expected to degrade or decompose under normal environmental conditions and is not cationic. Water absorption of a dried film immersed in water is less than 20% (72 hours).

Other properties: pH: 8-9.

5. INTRODUCTION AND USE INFORMATION

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	5-50	5-50	5-50	10-100	10-100

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction
The notified polymer will be imported as an imported as 40-50% dispersion in water, contained in closed head 200 litre steel drums. It is imported via the port of Melbourne, Victoria, and stored at the notifier's warehouse before being transported by road to end-users for reformulation and use.

The polymer itself will not be manufactured in Australia.

Reformulation/manufacture processes
Reformulation is a batch process involving manual weighing of the product, followed by automated mixing with inert fillers. The resulting compound is applied to a woven fabric, which forms the substrate of a synthetic grass product. The polymer is cured to a solid state by passing the composite through a moderately heated oven. The flexible compound bonds the synthetic grass tufts and imparts dimensional stability to the woven substrate.

Use
Component of synthetic grass.
The notified polymer will be a component of a resin that is applied to a woven fabric that forms the substrate of synthetic grass. This synthetic grass will be installed by professional contractors at sporting stadiums e.g. as a surface for soccer and hockey fields.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Transport and warehousing workers may come into dermal and ocular contact with the solution containing 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. Thereafter, the notified polymer is contained within the process equipment. Workers will wear impermeable gloves, eye protection and protective overalls. Exposure of these workers to the notified polymer can occur by either dermal or ocular routes; however significant exposure will be limited due to established, good OHS practices and use of appropriate personal protective equipment.

After application and once dried, the notified polymer is cured into an inert matrix. In this form the polymer is unavailable for exposure. Only commercial contractors installing the synthetic grass product will come into contact with the resin containing the notified polymer once it has been cured. Grounds maintenance workers will not come into contact with the cured resin.

PUBLIC EXPOSURE

The notified polymer will not be sold to the public. Exposure to the cured resin by the public e.g. sporting teams is limited because the synthetic grass affixed to it will shield the resin containing the notified polymer. The notified polymer is bound in the inert matrix and is unavailable for exposure.

Members of sporting teams will not come into contact with the cured resin.

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. This is supported by toxicological endpoints observed in testing conducted on analogue chemicals.

The acute oral and dermal toxicity in the analogue chemical were >2000 mg/kg, Guinea pig skin sensitisation tests were negative. The analogue was not irritating and slightly irritating via the dermal and ocular routes respectively. A summary of results is presented section 11 of the material safety data sheet.

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 low hazard of the notified polymer translates to a low risk to the public. In addition, the notified polymer will not be sold to the public, only being used in finished synthetic grass products installed by professional contractors. Once the polymer is applied to the substrate and cured it will be contained in an inert matrix, and hence will 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 of the drum containers. Losses during the formulation process are expected to be minimal. Latex dispersions will colour water a milky white. If spills occur, they will be contained, collected with absorbent material and sent to a licensed off site waste disposal centre.

Under normal process conditions losses of the notified polymer during mixing of chemicals, production runs, and cleaning of equipment may amount to 0.5% of total import quantity.

Residues in containers have been estimated to be a maximum of 1% of import volume. Liquid wastes will be allowed to solidify and disposed to landfill, together with other scrap production material.

Empty drums will be sent to a drum reconditioner.

The total quantity of polymer released to the environment will not exceed 2%.

The remainder of the notified polymer will be bound in the synthetic grass matrix and not be available for direct release to the environment. Disposal of finished product at the end of its useful life may be through landfill or recycling.

ENVIRONMENTAL FATE

No bioconcentration of the polymeric component is expected because of its high molecular weight.. The notified polymer is not expected to biodegrade and is unlikely to hydrolyse under normal environmental conditions. It is expected to slowly degrade under abiotic and biotic conditions in landfill.

7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted.

Based on information available for similar material(s) the notified polymer is classified as non-toxic to aquatic organisms (LC50/EC50/IC50 is greater than 100 mg/L in most sensitive species). Further, PLCs without significant ionic functionality are of low concern to the aquatic environment.

7.3. Environmental Risk Assessment

It is envisaged that 2% waste would be generated from the manufacturing process. No aquatic exposure is anticipated during manufacture and end use of the notified polymer. Liquid wastes are allowed to solidify and are collected by a licensed contractor for disposal in an approved landfill. Practically all of the waste generated from end users will be disposed of as inert solid waste in an approved landfill. In landfill, the solid wastes will not be mobile, will degrade very slowly under abiotic and biotic conditions and not pose a significant risk to the environment.

At the end of its useful life, the synthetic grass product containing the notified polymer will be disposed of in an approved landfill.

The notified polymer is not likely to present a risk to the environment when it is stored, transported, used, and disposed of in the proposed manner.

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 Negligible 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

Personal Protection and Safe Work Practises

Appropriate safety equipment is indicated below.

- Eye/Face Protection: Use safety glasses.
- Skin Protection: Wear clean, body-covering clothing.
- Hand protection: Use chemical resistant gloves.
- Respiratory Protection: For most conditions no respiratory protection should be needed.

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

- Ingestion: Practice good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

- A copy of the MSDS should be easily accessible to employees.
- The notified polymer may be present in formulations containing hazardous ingredients. If these formulations 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.

Engineering Controls

- Ventilation: Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

Environment

Disposal

- Do not dump into any sewers, on the ground, or into any body of water. Any disposal practice must be in compliance with all local and national laws and regulations.

Emergency procedures

- Recover any spilled material if possible. If unable to recover, absorb with materials such as clay, sand, sawdust or vermiculite. Collect in suitable and properly labelled containers. Water

may be used for final cleaning of affected area. Wash water should be disposed of in accordance with local regulations.

- Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.

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 notified polymer has changed from a component of a resin that is applied to a woven fabric that forms the substrate of synthetic grass, or is likely to change significantly;
- the amount of chemical being introduced has increased from 100 tonnes, 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.