File No SAPLC/37

20 April 2006

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in 71 Additive

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 Heritage 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:

Library
Australian Safety and Compensation Council
25 Constitution Avenue
CANBERRA ACT 2600
AUSTRALIA

To arrange an appointment contact the Librarian on TEL + 61 2 6279 1162 or email ascc.library@dewr.gov.au

This Full Public Report is 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:

Street Address:	334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888.
Website:	www.nicnas.gov.au

Director
NICNAS

TABLE OF CONTENTS

FULL PUBLIC REPORT

Polymer in 71 Additive

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Dow Corning Australia Pty Ltd (ABN 36 008 444 166)
3 Innovation Road, Macquarie University Research Park, North Ryde, NSW 2113

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 Formula, Molecular Weight, Polymer Constituents, Residual Monomers/Impurities, and Import Volume.

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
None

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Dow Corning® 71 Additive (> 60% of notified polymer)

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

REACTIVE FUNCTIONAL GROUPS

The notified polymer contains only low concern functional groups.

3. PLC CRITERIA JUSTIFICATION

Criterion	*Criterion met (yes/no/not applicable)*
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	The product is an amber liquid
Melting Point/Glass Transition Temp	Not available.
Density	1000 kg/m^3 at 25°C (The value is obtained for the product which contains the polymer).
Water Solubility	Not available.
Reactivity	Stable under normal environmental conditions.
Degradation Products	None under normal conditions of use

Comments

The notified polymer is not isolated from the solution. The values reported are obtained for the product which contains the polymer. The notified polymer is chemically stable and will not be hydrolysed in water. The water solubility is likely to be very low based on publicly available information on siloxanes and the absence of hydrophilic functionalities.

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	30-100	30-100	30-100

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will be imported as >60% solution, contained in 200-kg steel drum, for use directly in the preparation of industrial paints and coatings. It is imported via Sydney harbour and stored at the notifier's warehouse before being transported by truck to customers for use.

Reformulation/manufacture processes

This does not occur in Australia.

Use

The notified polymer will be used as a binder in industrial paints and coatings at a concentration of <10%, which can be used for a variety of applications, for example, coating of metallic objects and furniture. The notified polymer will not be available to the general public.

In a typical spray painting workshop, the notified polymer will be transferred to an automatic mixer where it will be combined with other ingredients to form the final industrial paint or coating formulation. Following the mixing process, the liquid (containing <10% of the notified polymer) will be fed through an enclosed system to a spray gun. The paint or coating containing the notified polymer will be applied by standard spray painting methods in a spray booth meeting applicable Australian Standards. Coated articles are then carried by conveyor to an oven where the coating will be cured at a temperature of about 120°C.

The workroom involved is provided with good mechanical dilution ventilation, while the mixer is fitted with locally exhausted side hoods. The work-floor is bunded to control any surface runoff that may occur. Operators wear overalls and protective gloves to prevent skin contact, and wear chemical goggles to prevent eye contact.

The cured polymer will adhere strongly to the treated articles and provide a durable protective coating. Degradation of the polymer will not occur under normal use condition

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

During transport and storage, workers are unlikely to be exposed to the notified polymer except when the drum container is accidentally broken.

Dermal and ocular exposure can occur during the mixing process. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls, automation of the process, and personal protective equipment worn by workers.

Spray painters will come into contact with the notified polymer through dermal, inhalation and ocular routes. The risk of exposure, however, will be minimal as application is done in a ventilated spray booth with workers using protective equipment. After application and once dried, the coating containing the notified polymer is cured into an inert matrix and is hence unavailable to exposure.

PUBLIC EXPOSURE

The notified polymer will not be available to the public. Members of the public will come into contact with the notified polymer once it is dried and cured, and not available 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 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 by professional spray painters. Once the polymer is applied and cured it will be contained in 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 of the drum containers.

During mixing and formulation, 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.

The mixing equipment will be cleaned by washing with water and an industrial detergent. The liquid waste will be treated as site industrial waste and dealt with by licensed disposal contractor. A very small amount of the notified polymer (<1%) is expected to be released into the sewer from the cleaning of process equipment. Empty drums containing very small amount of residual polymer (<1%) will be sent to drum re-conditioners.

The major environmental release will be through over spray. This could be up to 30% of the imported amount from use as liquid paints in an industrial situation. This would be captured by conventional engineering techniques and disposed of to landfill.

ENVIRONMENTAL FATE

Residual polymer disposed of to landfill in empty containers is expected to be adsorbed to soil particles and will eventually be degraded through biological and abiotic processes. When released into the sewer, the polymer will eventually adsorb onto sediments/sludge due to its low water solubility. Although not readily biodegradable, any notified polymer adsorbed onto sewage sludge or sediment is likely to be gradually degraded to natural components. In dry soils, silicone polymers are expected to be rapidly hydrolysed due to abiotic processes.

The low water solubility of the notified polymer may indicate a potential for bioaccumulation. However, the high molecular weight will limit bioaccumulation.

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 less than 2% waste would be generated from the processes. Most of these wastes would be collected by licensed waste contractors and disposed of to land-fill or by incineration to release water and oxides of carbon and silicon.

The major environmental release will be through over spray. This is envisaged to account up to 30% of the imported quantity of notified polymer. This is expected to be collected and subsequently disposed of to landfill.

The notified polymer, once cured to form a water-resistant coating on industrial products, is highly stable to temperature and other environmental conditions. Waste articles may be disposed of via incineration or to landfill. Empty containers of the notified polymer may also be disposed of to landfill.

In the event of an accidental spill of the notified polymer into waterways, the polymer is not expected to disperse in water but settle out onto sediments. If the polymer is spilled on land, it is expected that the polymer would become immobilised in the soil layer. Contaminated soil can then be collected and disposed of to landfill.

Due to its low water solubility, the notified polymer, if released in landfill, is not expected to leach into the aquatic compartment. In soil, siloxanes will slowly degrade by biotic and abiotic processes to simple organic and silicon based compounds.

The notified polymer is not expected to be toxic to aquatic or terrestrial life. The notified polymer is not cationic, nor is it expected to become cationic in the aquatic compartment. Despite the very low water solubility, due to the high molecular weight, no bio-concentration of this polymer is expected. The notified polymer will remain in the soil or sink and remain in the sediment of an aquatic environment.

Given the above, environmental exposure and the overall environmental risk are expected to be low.

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

- 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 NOHSC *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.

Environment

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

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

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/release of the notified polymer should be handled by absorbing with sand and put into suitable container for disposal. Contaminated containers can be re-used after cleaning.

10.1. Secondary Notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

(1) Under subsection 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 subsection 64(2) of the Act:
  - if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.