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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in AMS-C30 Wax

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Director
Chemicals Notification and Assessment

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SELF ASSESSMENT REPORT

Polymer in AMS-C30 Wax

1. APPLICANT AND NOTIFICATION DETAILS

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

1.2 NOTIFICATION CATEGORY
LRCC: Synthetic Polymer of Low Concern

1.3 EXEMPT INFORMATION (SECTION 75 OF THE ACT)
Data items and details claimed exempt from publication:

- CHEMICAL NAME
- OTHER NAME
- CAS NUMBER
- MOLECULAR FORMULA
- STRUCTURAL FORMULA
- MOLECUALR WEIGHT
- POLYMER CONSTITUENTS
- MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS.

1.5 PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

1.6 NOTIFICATION IN OTHER COUNTRIES
US EPA: PMN#971087, 1997
Korea Ministry of Environment, 1998

2. IDENTITY OF CHEMICAL

2.3 MARKETING NAME(S)
Polymer in AMS-C30 Wax

3. COMPOSITION

3.6 PLC CRITERIA JUSTIFICATION

Criterion	*Criterion met (yes/no/not applicable)*
Meets Molecular Weight Requirements	Yes
Meets Functional Group Equivalent Weight (FGEW) Requirements	Yes
Low Charge Density	Yes
Approved Elements Only	Yes
No Substantial Degradability	Yes
Not Water Absorbing	Yes
Low Concentrations of Residual Monomers	Yes
Not a Hazardous Substance or Dangerous Good	Yes

The notified polymer meets the PLC criteria.

4. INTRODUCTION AND USE INFORMATION

4.1 MODE OF INTRODUCTION OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS
The notified polymer will be imported into Australia over the next 5 years.

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

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

4.3b USE
The notified polymer will be used as a component in a wide range of cosmetic products.

5. PROCESS AND RELEASE INFORMATION

5.2. Operation Description

Manufacturing

The notified polymer will be manufactured in Dow Corning Corporation's overseas facilities and imported into Australia.

Reformulation

The notified polymer will be imported as AMS-C30 Cosmetic Wax in 20-kg pails. It will be reformulated in Australia by manufacturers of cosmetics and skin care products. At a reformulation plant, it will be poured into either an open or closed mixer. The blend will be mixed using a paddle mixer, and the formulation containing <10% of the notified polymer will be packaged for consumer use.

The reformulation 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 small amount of the notified polymer (approximately 0.5%) is expected to be released into the sewer from the cleaning of process equipment.

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.

End-use

The final products will be transported to retail outlets for consumer use.

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

During transport and storage, workers are unlikely to be exposed to the notified polymer except when the pails are accidentally broken. Dermal and ocular exposure can occur during the reformulation/packaging processes. However, exposure to significant amounts of the notified polymer will be limited because of the engineering controls, and personal protective equipment worn by workers. Intermittent, wide-dispersive use with direct handling is expected to occur among cosmeticians and beauticians. According to EASE (1997) modelling of this work environment, exposure in the range of 0.5-2 mg/cm^2 of products containing <10% of the notified polymer could result.

6.2. Summary of Public Exposure

Cosmetic products containing <10% of the notified polymer are for sale to the general public. Members of the public will make dermal contact and possibly accidental ocular contact with products containing the notified polymer. However, exposure will be low because the notified polymer is present at low concentrations.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

Empty pails containing very small amount of residual polymer (<1%) will be disposed of to landfill. Some liquid wastes (<1%) generated from the cleaning of process equipment may be released into the sewer.

6.3.2. Environmental Fate

Any polymer released in landfill will not leach into the aquatic compartment due to its expected low water solubility. If it is released into the sewer, it will eventually adsorb onto sediments due to its low water solubility.

7. ESTABLISHMENT OF LOW PHYSICAL AND CHEMICAL HAZARD

7.1	**Appearance at 20°C and 101.3 kPa**	White, wax form
7.2	**Melting Point/Glass Transition Temp**	Not determined
7.3	**Density**	800 kg/m^3 at 25°C
7.4	**Water Solubility**	<0.001 g/L at 20°C
7.7	**Reactivity**	It is a stable polymer under normal environmental conditions.
7.8	**Degradation Products**	In the event of fire, carbon oxides and silicon dioxide may be formed.

7.1. Comments

The notified polymer is chemically stable and will not be hydrolysed in water. It has very low water solubility in line with known properties of siloxanes.

8. ESTABLISHMENT OF LOW HUMAN HAZARD

8.1. Toxicology

No toxicological data were submitted.

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

No ecotoxicological data were submitted.

9.2. Environmental Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard. Nonionic polymers which have NAMW > 1000 are of low concern

10. RISK ASSESSMENT

10.1. Environment

Since most of the polymer will be washed into the sewer, under a worst case scenario with no removal

of the notified polymer in the sewage treatment plant, the resultant predicted environmental concentration (PEC) in sewage effluent on a nationwide basis is estimated to be 0.68 µg/L.

Amount entering sewer annually	10,000 kg
Population of Australia	20 million
Amount of water used per person per day	200 L
Number of days in a year	365

Based on dilution factors of 1 and 10 for inland and ocean discharges of STP-treated effluents, the PECs of the notified polymer in freshwater and marine water may approximate 0.68 or 0.068 µg/L, respectively.

10.2. Occupational health and safety

The OHS risk presented by the notified polymer is expected to be low. The notified polymer may be present in formulations containing hazardous ingredients. If these formulations 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.

10.3. Public health

11. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

11.1. Environmental risk assessment

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

11.2. Human health risk assessment

11.2.1. Occupational health and safety

There is no concern to occupational health and safety under the conditions of the occupational settings described.

11.2.2. Public health

There is low concern to public health when used in the proposed manner.

12. MATERIAL SAFETY DATA SHEET

11.1. Material Safety Data Sheet

The notifier has provided MSDS in accordance with the schedule item B 12 of the *ICNA Act*. The accuracy of the information on the MSDS remains the responsibility of the applicant.

12. 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 the reformulating plant to minimise environmental exposure during reformulation of the notified polymer:

  – Regular maintenance of bunding, drains, intercept pits and effluent treatment plants.

Disposal

- The notified polymer should be disposed of to landfill.

Emergency procedures

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