File No PLC/614

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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Neorez U-7105

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Director
NICNAS

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1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Henkel Australia Pty. Ltd (ABN 82 001 302 996)
135 Canterbury Rd,
Kilsyth, VIC, 3137
and
Orica Australia (ABN 004 117 828)
1 Nicholson St
Melbourne, VIC, 3000

NOTIFICATION CATEGORY
Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)
Data items and details claimed exempt from publication:
Chemical Name
Other Names
CAS No.
Molecular and Structural Formulae
Means of Identification
Molecular Weight
Polymer Constituents
Residual Monomers/Impurities
Use Details
Import Volume
Site of Manufacture/Reformulation

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)
Variation to the schedule of data requirements is claimed as follows:
Density
Water solubility
Particle size

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
TCSA US PMN Notification, 1986

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Polymer in Neorez U-7105

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

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

The notified polymer does not contain any moderate or high concern functional groups.

Criterion	*Criterion met (yes/no/not applicable)*
Molecular Weight Requirements	Yes
Functional Group Equivalent Weight (FGEW) Requirements	Not Applicable
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. INTRODUCTION AND USE INFORMATION

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

The notified polymer will be not be manufactured in Australia. The notified polymer (5-30%) will be imported as a liquid formulation in 200 L steel drums. The imported product will be reformulated and used as an additive in automotive coatings. The reformulated product will be distributed to end-users in Victoria and South Australia.

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	3–10	3–10	3–10	3–10	3–10

USE

A component of automotive PVC coatings.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

Reformulation

At the customers' sites, the imported liquid product Polymer in Neorez U-7105 (<30% notified polymer) is pumped from its packaging container (200 L steel drum containers) by manual attachment of a line to the drum into closed mixing tanks where it is reformulated with other polymers, organic solvents, pigments and additives to produce a coating. The coating contains less than 1% of the notified polymer and is used for application to specific automotive components.

End-Use

The reformulated coating is transferred to customers' sites in bulk tanks (1500 L intermediate bulk tanks). The bulk tanks are moved by forklift from the storage facility to the production area as required. A fixed line is attached to the bulk tank and pumps the coating to the application point. The coating is applied by spraying, in a semi-manual process. Where possible robotics in specifically designed spray booths under local exhaust ventilation (LVE) are to be used, however some manual application may be required.

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

Transport and Storage

During transport and storage, workers are unlikely to be exposed to the notified polymer except when packaging is accidentally breached.

Reformulation
Dermal and ocular exposure can occur during certain formulation processes. The main routes of exposure can occur when attaching the pumping line to the drum containing the imported liquid product containing the notified polymer. Dermal and ocular exposure during cleaning and quality control sampling is also possible. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls such as LVE and regular air-flow monitoring and personal protective equipment (PPE) worn by workers such as gloves, coveralls and safety glasses.

End-Use
Dermal and ocular exposure could occur when manual application of the coating is required. However, exposure to significant amounts of the notified polymer is limited because of the low concentration of notified polymer in the coating, engineering controls such as LVE and PPE worn by workers such as gloves, coveralls and safety glasses. Inhalation exposure to the notified polymer could also occur during spray applications. However, inhalation exposure is limited by the use of robotics in specifically designed spray booths under LVE.

After application and once dried, the coating containing the notified polymer is cured into an inert matrix and is hence unavailable for exposure.

Workers are provided with appropriate PPE, i.e., safety glasses, impervious gloves, protective clothing, as needed. Workers have access to the Material Safety Data Sheet (MSDS). Workers also attend internal training courses on how to handle chemicals and coating preparations.

6.2. Summary of Public Exposure

The notified polymer will not be available to the public. Members of the public may come into contact with products coated with the notified polymer. However, this would be extremely infrequent given the intended use of the final product is for application to automotive components which are characteristically inaccessible to the public.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

Product containing the notified polymer (<30% notified polymer) will be imported in 200 L steel drums. This will be reformulated and the final product will be dispensed to 1500 L bulk containers for use at automotive sites in Victoria and South Australia. Environmental exposure may occur if import containers are accidentally breached, or there may be minor release from cleaning and maintenance of mixing equipment. The former scenario is considered unlikely.

Standard scenarios used by the Department of Environment and Heritage indicate that up to 1% would remain in empty drums, which may be cleaned using solvents and re-used. The notifier claims that the solvent would go to solvent recovery, allowing polymer residues to be disposed of to landfill or to be incinerated.

The notifier indicated that up to 2.5 tonnes of waste per annum may result from overspray, equipment cleaning, spills and residues in containers, with the majority sent to landfill. Some waste may be incinerated.

6.3.2. Environmental Fate

The notified polymer is not highly water soluble (expected water solubility <1mg/L), and is likely to preferably partition to sediments and the organic fraction of soils. The high molecular weight indicates a low potential to bioaccumulate.

Notified polymer that is disposed of to landfill is expected to associate with sediments and organic phases of the soil matrix and, therefore, be immobile. Over time, the notified polymer should degrade by abiotic processes to form simple carbon, nitrogen and oxygen containing compounds.

The fate of notified polymer applied to automobiles is dependent on the fate of the automobiles. It is expected that the fate of the notified polymer will be thermal decomposition during metal reclamation.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20ºC and 101.3 kPa	Brown liquid (amine like odour).
Melting Point/Glass Transition Temp	Not available. The polymer is not isolated.
Density	1000 kg/m^3 at 20ºC (refers to the density of the notified polymer as introduced)
Water Solubility	The polymer is expected to be insoluble based on its largely hydrophobic structure.
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use. During burning may emit oxides of carbon and nitrogen.

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

No toxicological end-points 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 toxicological data were submitted.

9.2. Environmental Hazard Assessment

Non-ionic polymers of NAMW > 1000 are of low concern to the aquatic compartment.

10. RISK ASSESSMENT

10.1. Environment

The notified chemical will be imported in 200 L steel drums. Reformulation will occur in bunded areas. Any spills will be collected onto filters or absorbent material, which will then be either disposed of to landfill or incinerated. Similarly, 25% of the notified chemical is expected to be lost through overspray, equipment cleaning and residues in containers, which again is expected to be collected and either incinerated or disposed of to landfill.

Given that the notified chemical is largely insoluble, potential rinsings from containers that are processed through waste water treatment systems are likely to flocculate during the treatment process. Consequently, the notified polymer will not be released to the aquatic environment in any significant quantities. If released into the aquatic environment, the notified polymer is expected to partition to particulate matter and accumulate in sediments.

In the longer term, most of the notified polymer used in automotive coatings will eventually be incorporated in metal recycling programs or sent to landfill for disposal following its lifecycle. During metal reclamation, the notified polymer would be destroyed in furnaces.

Overall, the environmental risk from the proposed blending and use of the notified polymer is expected to be acceptable.

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

The notified polymer will not be available to the public. Members of the public may make infrequent dermal contact with products containing the notified polymer. However, the risk to public health will be negligible because the notified polymer is present at low concentrations and bound within a matrix and unlikely to be bioavailable.

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

11.2.2. Public health

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

12. MATERIAL SAFETY DATA SHEET

12.1. 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.

13. 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

- Do not allow the notified chemical to contaminate streams, sewers or natural waterbodies.

Disposal

- The notified polymer should be sealed in properly labelled containers or drums for disposal in landfill or by incineration.

Emergency procedures

- Spills/release of the notified polymer should soaked up using absorbent material (soil, sand or other inert material), and then disposed of to landfill or by incineration.

13.1. 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.