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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in PACLAC Mix Coatings

This Self Assessment has been compiled 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) is administered by the Department of Health and Ageing, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Department of the Environment, Water, Heritage and the Arts.

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

Part 2 –PLC Self Assessment

Polymer in PACLAC Mix Coatings

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT
Flint Group Lindgens Pty Ltd, 53 Westpool Drive, Hallam, Victoria, 3803 (ABN 66 134 316 297)

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, Import Volume

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
None

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
PACLAC MIX (20-40% notified polymer)
Arrowpol Polyester L-3049 (55% notified polymer)

MOLECULAR WEIGHT (MW)
Number Average Molecular Weight (NAMW) >1000

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

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	
Melting Point/Glass Transition Temp	Not determined. The polymer is not isolated from solution
Density	1070 kg/m^3 at 23°C (for 55% solution)

Water Solubility	Not determined. The notified polymer is expected to have low water solubility as it is a polyester with limited hydrophilic functionality
Dissociation Constant	Not determined
Reactivity	Stable under normal environmental conditions. The notified polymer contains hydrolysable functional groups. However, hydrolysis is unlikely to occur in the environmental pH range of 4-9
Degradation Products	None under normal conditions of use

Comments
The notified polymer is not ionic and is therefore not expected to dissociate, although it may contain a small amount of free carboxylic acid functionalities expected to have typical acidity

5. INTRODUCTION AND USE INFORMATION

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	40-70	40-70	40-70	40-70	40-70

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction
The notified polymer will be imported as a component of coating bases (20-40% notified polymer). The coating bases will be packed in 20-200 kg barrels. After arriving by boat packed in a sea container, they will be transported by road for storage and colour mixing at the notifier's site.

Reformulation processes
The coating bases will be used to mix customer specific colours. The bases will be manually weighed into a small mixing barrel and stirred with an automated mixer. After quality control, the colour will be filled in 5-50 kg barrels and distributed by road to the customers.

Use
The notified polymer will be used as a binder in the coating bases (containing 20-40% notified polymer). The coating is used for metal packaging, mainly wine closures. The coatings will be applied using rolling coat sheet application and subsequently heat cured.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

Mixing of coating colours

Dermal and ocular exposure can occur during weighing out prior to reformulation and filling of finished coating colour in packaging, however exposure to significant amounts of the notified polymer will be limited because personal protective equipment, including overalls, gloves and protective footwear, will be worn while weighing of the coating bases is performed.

Use at customer site (automated processes)

Dermal and ocular exposure may potentially occur during certain processes involving the notified polymer. However, exposure to significant amounts of the notified polymer will be limited because of the fully automated processes, and the engineering controls and personal protective equipment worn by workers.

PUBLIC EXPOSURE

The notified polymer is intended only for use in industry. The public may come into contact with

finished products that have been coated with the notified polymer, however, in this form, the notified polymer will be cured and bound within an inert matrix 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 the minimal exposure to workers and the expected low hazard of the polymer.

PUBLIC HEALTH

The notified polymer will not be available to the public. Members of the public may make dermal contact with products coated with the notified polymer. However, the risk to public health will be low because the notified polymer is expected to be of low hazard, and is bound within a matrix (cured film).

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

The notified polymer will be imported in formulated coating bases. A small amount (<1%) of the notified polymer could be washed off from the mixing equipment (used to mix colours) during the normal cleaning process using an organic solvent mix. A licensed disposal contractor for off-site solvent regeneration will deal with this, with the notified polymer being disposed of to landfill.

Residues remaining in the import containers (1-2%) will be disposed of either through metal recycling companies or the controlled waste system (plastic cans) and be disposed of by incineration or washed and sent to landfill.

The majority of the notified polymer will be bound within the cured coating matrix. Once the polymer is within a cured coating it is likely to share the fate of the substrate, which might involve recycling or landfill.

ENVIRONMENTAL FATE

The notified polymer contains groups that might hydrolyse under severe conditions, but is expected to be stable under normal environmental conditions. Due to its low water solubility, the notified polymer in solid wastes is expected to remain immobile in landfills and eventually degrade through biotic and abiotic processes. If spilt on land, the notified polymer is expected to bind to soil and become immobilised in the soil layer. If spilt to water, it is not expected to dissolve but rather disperse or settle to sediment. It is not expected to be readily biodegradable, but will slowly degrade in the environment through biotic and abiotic processes. Significant bioaccumulation is not expected because of the low potential for aquatic exposure from the proposed use pattern. Incineration of the notified polymer will result in the formation of water vapour 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

The notified polymer will be used as a component of heat curable coatings. Once these coatings have been cured the notified polymer is expected to remain within the ink matrices. Hence, the majority of the notified polymer will share the fate of the articles (metal packaging) into which it is incorporated. It is anticipated that these will be disposed of to landfill, incinerated or recycled as metal waste at the end of their useful lifetime. In landfill it is expected that the notified polymer will remain immobile within the soil. Incineration of the notified polymer will result in the formation of water vapour and oxides of carbon.

The above considerations indicate minimal risk to the environment when the notified chemical is used in the manner and levels indicated by the notifier.

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

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 to minimise environmental exposure during mixing and use of the notified polymer:
  - *Spills should be collected with absorbing material and sent away as waste*

Disposal

- The notified polymer should be disposed of to landfill.

Storage

- The following precautions should be taken regarding storage of the notified polymer:
  - *Storage in areas without drains*

Emergency procedures

- Spills/release of the notified polymer should be handled by containment, collection and subsequent safe disposal.

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 polymer 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 polymer, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified polymer 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 as a component of engine bay automotive repair coatings, or is likely to change significantly;
- the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
- if the notified 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.