File No PLC/1432

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

NP024

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government Department of Health, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Australian Government Department of the Environment and Energy.

This 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:

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Director
NICNAS

November 2017

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SUMMARY

The following details will be published in the NICNAS *Chemical Gazette:*

ASSESSMENT REFERENCE	APPLICANT(S)	CHEMICAL OR TRADE NAME	HAZARDOUS SUBSTANCE	INTRODUCTION VOLUME	USE
PLC/1432	AHG Coatings Pty Ltd Nippon Paint (India) Pvt Ltd	NP024	No	< 3 tonnes per annum	Component of automotive coatings

CONCLUSIONS AND REGULATORY OBLIGATIONS

Human Health Risk Assessment
Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the health of workers and the public.

Environmental Risk Assessment
Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

Health and Safety Recommendations

- Water insoluble high molecular weight polymers used in the respirable size range (< 10µm) have the potential to cause lung overloading. Respiratory protection and local exhaust ventilation should be used to prevent inhalation exposure.

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

- A copy of the SDS should be easily accessible to employees.

- Spray applications should be carried out in accordance with the Safe Work Australia Code of Practice for *Spray Painting and Powder Coating* (Safe Work Australia, 2015) or relevant State or Territory Code of Practice.

- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS),* as adopted for industrial chemicals in Australia, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation should be in operation.

Disposal

- Where reuse or recycling are not appropriate, dispose of the notified polymer in an environmentally sound manner in accordance with relevant Commonwealth, state, territory and local government legislation.

Emergency Procedures

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

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 a component of automotive coatings, or is likely to change significantly;
- the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
- 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 notified polymer 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.

Safety Data Sheet
The SDS of the product containing the notified polymer was provided by the applicant. The accuracy of the information on the SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants
AHG Coatings Pty Ltd (ABN: 33 609 750 558)
21 Old Aberdeen Place
WEST PERTH WA 6005

Nippon Paint (India) Pvt Ltd (ARBN: 619 138 868)
C/o Thomson Geer
Level 25, 1 O'Connell Street
SYDNEY NSW 2000

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 and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)
NP024

Molecular Weight
Number Average Molecular Weight (Mn) is > 10,000 Da

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	Colourless liquid (product)
Melting Point/Glass Transition Temp	< 0 ºC
Density	1,050 kg/m^3 at 25 °C
Water Solubility	Not determined. Expected to be low based on the predominantly hydrophobic structure and high molecular weight.
Dissociation Constant	The notified polymer contains functionalities that are expected to ionise under environmental pH of 4-9.
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

5. INTRODUCTION AND USE INFORMATION

Maximum Introduction Volume of Notified Chemical (100%) Over Next 5 Years

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	< 2	< 2	< 2	< 2	< 3

Use
The notified polymer will be imported as a component of automotive refinish coatings at ≤ 10% concentration. The notified polymer will not be reformulated or repackaged in Australia and will not be available to the general public. Products containing the notified chemical will be applied by spray.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. Inhalation of respirable particles of water insoluble polymers with MW > 70,000 Da has been linked with irreversible lung damage due to lung overloading and impaired clearance of particles from the lung, particularly following repeated exposure (US EPA). The notified polymer has a high molecular weight with some species > 70,000 Da and is expected to have low water solubility, therefore lung overloading may occur if respirable particles are inhaled during spray painting. Provided that proper control measures are employed to reduce the inhalation exposure during

this process, the risk to workers posed by exposure to the notified polymer is not considered unreasonable. Overall the risk of the notified polymer to workers and the public is not considered to be unreasonable.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. The notified polymer contains potentially cationic functional groups, however, the calculated cationic group equivalent weight based on an end group analysis for simple branched condensation polymers was greater than 5,000. The notified polymer contains an anionic functional group. Anionic polymers are known to be moderately toxic to algae when there are acid groups on alternating carbons of the polymer backbone, however, this does not apply to the notified polymer. Therefore, the notified polymer is not expected to pose a significant hazard to aquatic organisms.

The notified polymer will be imported to Australia as a component of automotive refinish coatings. The imported products containing the notified polymer may be blended with other additives at end-user sites.

Release of the notified polymer during mixing and transfer is expected to be limited to accidental spills or leaks and residue in import packaging. It is estimated by the notifier that < 2% of the total annual import volume of the notified polymer may remain as residues in the empty containers. Wastes from container residues and accidental spills are expected to be disposed of according to local regulation or be disposed of to landfill.

The notified polymer is expected to be used in industrial sites and automotive refinish facilities by professional spray painters. Therefore, the main release of the notified polymer is likely from overspray during use, and is estimated to account for up to 20% of the import volume. The overspray will be collected and trapped onto filters and allowed to cure prior to landfill disposal. The spray equipment will be cleaned using solvents. These wastes will be collected and disposed of via a licensed waste contractor.

Most of the notified polymer will be irreversibly incorporated within the coating matrix of the exterior of the metal products. Coated articles will be either sent to landfill or subjected to metal recycling at the end of their useful lives. The notified polymer is expected to be thermally decomposed during the recycling of the metal substrates. In landfill, the notified polymer will be present as cured solids that will be neither bioavailable nor mobile. Based on its high molecular weight, the notified polymer is not expected to cross biological membranes, and is therefore unlikely to bioaccumulate. The notified polymer is expected to eventually degrade to form oxides of carbon and nitrogen, and water vapour by abiotic and biotic processes.

Therefore, based on the low assumed hazard to aquatic organisms and low potential for aquatic exposure, the notified polymer is not expected to pose an unreasonable risk to the environment when used as proposed.

BIBLIOGRAPHY

Safe Work Australia (2015) Code of Practice: Spray Painting and Powder Coating, Safe Work Australia, https://www.safeworkaustralia.gov.au/doc/model-code-practice-spray-painting-and-powder-coating

US EPA (United States Environmental Protection Agency). High Molecular Weight Polymers in the New Chemicals Program: https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/high-molecular-weight-polymers-new (Accessed 7/9/17)