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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

PUBLIC REPORT

Polymer 2 in Synocure 238 BA 65

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (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 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.

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

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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 CHEMICAL	INTRODUCTION VOLUME	USE
LTD/1796	PPG Industries Australia Pty Ltd	Polymer 2 in Synocure 238 BA 65	ND	< 0.5 tonne per annum	Component of industrial paints

CONCLUSIONS AND REGULATORY OBLIGATIONS

Hazard classification
As no toxicity data were provided, the notified polymer cannot be classified according to the *Globally Harmonised System of Classification and Labelling of Chemicals* (GHS), as adopted for industrial chemicals in Australia, or the *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 2004).

Human health risk assessment
Under the conditions of the occupational settings described, the notified polymer is considered not considered to pose an unreasonable risk to the health of workers.

Environmental risk assessment
On the basis of the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

Recommendations

REGULATORY CONTROLS

CONTROL MEASURES

Occupational Health and Safety

- A person conducting a business or undertaking at a workplace should implement the following engineering controls to minimise occupational exposure to the notified polymer as introduced in the product:
  - Enclosed processes where possible
  - Exhaust ventilation if inhalation exposure may occur
  - Use of spray booths during spray application of paint

- A person conducting a business or undertaking at a workplace should implement the following safe work practices to minimise occupational exposure during handling of the notified polymer as introduced in the product:
  - Avoid contact with skin and eyes
  - Avoid breathing aerosols and mists

- A person conducting a business or undertaking at a workplace should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer as introduced in the product:
  - Protective clothing/coveralls
  - Impervious gloves
  - Eye protection
  - Respiratory protection if inhalation exposure may occur

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

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

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

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

Regulatory Obligations

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 chemical 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 chemical, 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 polymer has a number-average molecular weight of less than 1000;

or

(2) Under Section 64(2) of the Act; if
  - the function or use of the polymer has changed from component of paints for use in industrial settings , or is likely to change significantly;
  - the amount of polymer being introduced has increased, or is likely to increase, significantly;
  - the polymer has begun to be manufactured in Australia;
  - additional information has become available to the person as to an adverse effect of the 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.

(Material) Safety Data Sheet
The (M)SDS of products containing the notified polymer provided by the notifier were reviewed by NICNAS. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT
PPG Industries Australia Pty Ltd (ABN: 82 055 500 939)
14-20 McNaughton Road
CLAYTON VIC 3168

NOTIFICATION CATEGORY
Limited: Synthetic polymer with Mn ≥ 1,000 Da.

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, spectral data, purity, use details, polymer constituents, residual monomers/impurities and import volume

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)
Variation to the schedule of data requirements is claimed for all physico-chemical properties.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
China (2014)

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Synocure 238 BA 65 (product containing the notified polymer)

MOLECULAR WEIGHT
Number Average Molecular Weight (Mn) is > 1,000 Da

3. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AT 20 °C AND 101.3 kPa: Solid

Property	Value	Data Source/Justification
Melting Point/Freezing Point	Not determined	The notified polymer will be sold and used in liquid formulations.
Boiling Point	Not determined	Expected to be high based on structure of the notified polymer
Density	1,010 kg/m^3 at 20 °C*	Pycnometer method. Study not provided.
Vapour Pressure	Not determined	Expected to be low based on structure of the notified polymer
Water Solubility	Not determined	Expected to be low due to the predominantly hydrophobic structure and the high molecular weight of the notified polymer.
Hydrolysis as a Function of pH	Not determined	The notified polymer contains hydrolysable functionality. However, it is not expected to significantly hydrolyse under environmental conditions (pH 4 - 9).
Partition Coefficient (n-octanol/water)	Not determined	The notified polymer is expected to partition from water to n-octanol on the basis of its low water solubility.
Adsorption/Desorption	Not determined	Expected to adsorb to soil, sediment and sludge due to its expected low water

		solubility and high molecular weight.
Dissociation Constant	Not determined	Contains ionisable functionalities. Therefore, the notified polymer is expected to be ionised at the environmental pH range of 4 – 9.
Particle Size	Not determined	The notified polymer will be sold and used in liquid formulations.
Flash Point	Not determined	Polymer is in solid form
Flammability	No data available	--
Autoignition Temperature	370 °C*	Notified data
Explosive Properties	Not determined	Contains no functional groups that imply explosive properties.
Oxidising Properties	Not determined	Contains no functional groups that imply oxidative properties.

*Data for the notified polymer in solvent

DISCUSSION OF PROPERTIES

Reactivity
The notified polymer is expected to be stable under normal conditions of use.

Physical hazard classification
Based on the physico-chemical data depicted in the above table, the notified polymer is not recommended for hazard classification according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS),* as adopted for industrial chemicals in Australia.

4. INTRODUCTION AND USE INFORMATION

MODE OF INTRODUCTION OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS
The notified polymer will not be manufactured or reformulated in Australia. The notified polymer will be imported into Australia as a component of finished paints at < 25% concentration.

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

PORT OF ENTRY
Melbourne

IDENTITY OF MANUFACTURER/RECIPIENTS
PPG Industries Australia Pty Ltd

TRANSPORTATION AND PACKAGING
Finished paints containing the notified polymer at < 25% concentration will be imported in 5 L cans (may be repacked into smaller containers in Australia) and transported primarily by road within Australia.

USE
The notified polymer will be imported as a component of finished paints at < 25% concentration.

OPERATION DESCRIPTION
The notified polymer will not be manufactured or reformulated in Australia. The notified polymer will be imported into Australia as a component of finished paints at < 25% concentration.

Repackaging may occur, either in an automated and enclosed process or in a semi-manual process. Finished paints containing the notified polymer (primer or topcoat) will be used in industrial applications and applied onto metal substrates. Application is expected to occur primarily by spray applicator within a spray booth, and also possibly by brush and roller.

5. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

6.1.1. Occupational Exposure

CATEGORY OF WORKERS

Category of Worker	*Exposure Duration (hours/day)*	*Exposure Frequency (days/year)*
Stevedores	1	5
Transport and warehousing/ storage workers	1	5
Paint applicators	4	260
Maintenance, shift workers and cleaners at painting site	1	260

EXPOSURE DETAILS

Transport and storage
Transport and storage workers may come in contact with the notified chemical as a component of paints at < 25% concentration only in the event of an unlikely accidental rupture of containers.

Repackaging
Dermal and ocular exposure may occur during connection and disconnection of the drum to the packaging equipment, and from accidental splashes or spills. Similar exposure may occur during cleaning of the equipment. Exposure during these processes should be limited by the enclosed nature of the packaging equipment and/or the use of personal protective equipment (PPE) such as coveralls, goggles and gloves. Inhalation exposure is not expected given the estimated low vapour pressure of the notified polymer.

End-use
Workers may be exposed (dermal, ocular and inhalation) to the notified polymer (at < 25% concentration) during applications of finished paints by brush, roller or spray. Exposure should be minimised through the recommended use of PPE including coveralls, gloves, goggles and respiratory protection (during spray applications) and the use of engineering controls including spray booth, robotics and semi-automatic spray guns.

Once the paints are cured and dried after application, the notified polymer will be bound into a solid matrix and will not be available for exposure.

6.1.2. Public Exposure
The finished paints containing the notified polymer are only for use in industrial settings and will not be sold to the public. The public may come into contact with substrates covered by dried paints containing the notified polymer. However, once dried and cured, the notified polymer will be bound within a solid matrix and will not be available for exposure.

6.2. Human Health Effects Assessment

No toxicity data were submitted. Based on its high molecular weight (> 1000 Da), the potential of the notified polymer to cross the gastrointestinal (GI) tract or to be dermally absorbed after exposure is expected to be limited. However, the polymer contains a significant proportion of low molecular weight species (< 1000 Da) that may be absorbed.

The notified polymer contains a structural alert for irritation and sensitisation effects. Therefore, the potential for these effects cannot be ruled out.

Health hazard classification
As no toxicity data were provided, the notified polymer cannot be classified according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS),* as adopted for industrial chemicals in Australia, or the *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 2004).

6.3. Human Health Risk Characterisation

6.3.1. Occupational Health and Safety

The notified polymer may have potential for irritation and sensitisation. Workers may experience dermal and accidental ocular exposure to the notified polymer during the transfer of the product, application process and equipment cleaning and maintenance. However the use of engineering controls such as spray booths will help mitigate potential inhalation exposure during spray application. The use of PPE such as appropriate certified respirators, safety glasses with side shields, chemical resistant impervious gloves, chemical-resistant protective clothing and work boots will help mitigate dermal and ocular exposure and further mitigate any inhalation exposure.

Therefore, given the use of PPE and engineering controls in place, the risk to workers from use of the notified polymer is not considered to be unreasonable.

6.3.2. Public Health

The finished paint products containing the notified polymer are only for use in industrial settings and will not be sold to the public. The public may come into contact with the finished paints as part of the metal substrates. It should however be noted that once the finished paints are cured and dried, the notified polymer will be reacted and bound within a polymer matrix and is unlikely to be bioavailable. Based on very low exposure, the risk to the public from the notified polymer is not considered to be unreasonable.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Environmental Exposure & Fate Assessment

7.1.1. Environmental Exposure

RELEASE OF CHEMICAL AT SITE

The notified polymer will not be manufactured or reformulated in Australia. Therefore, no release of the notified polymer to the environment is expected from these activities. Environmental release during importation, transport, repacking and distribution may occur as a result of accidental spills. In the event of a spill, the notified polymer is expected to be contained and collected with an inert absorbent material and disposed of in accordance with local regulations.

RELEASE OF CHEMICAL FROM USE

The notified polymer is expected to be used in industrial settings and will not be sold to the public. During industrial spray application of the paint containing the notified polymer, the losses from overspray are predicted to be approximately 20% of the applied product. Spray application using robotics is expected to result in lower levels of overspray. Overspray is expected be captured and disposed of to landfill through authorised facilities.

Approximately 0.1% per annum of the imported volume of the notified polymer may be lost in washings from cleaning of industrial application equipment. These releases are likely to be recycled internally or disposed of to landfill.

RELEASE OF CHEMICAL FROM DISPOSAL

The majority of the notified polymer will be cured into an inert matrix with other chemical substances as part of the coating process and hence will be immobilised within a polymeric film on coated articles. The polymer incorporated in the coating will be disposed of along with the coated articles, at the end of their useful life, and will either go to metal recyclers or be disposed of to landfill.

7.1.2. Environmental Fate

No environmental fate data were submitted. The captured overspray and the articles to which the notified polymer is applied will be disposed of to landfill. The majority of the notified polymer is expected to be cured within an inert polymer matrix adhering to articles following its use in coating applications. In its cured form it is not expected to be mobile, bioavailable or biodegradable. Ultimately, the notified polymer is expected to eventually degrade via biotic and abiotic processes in landfill, or by thermal decomposition during metal reclamation processes, to form water and oxides of carbon. The notified polymer is not expected to bioaccumulate based on its high molecular weight.

7.1.3. Predicted Environmental Concentration (PEC)

The predicted environmental concentration (PEC) has not been calculated as release of the notified polymer to the aquatic environment is expected to be very limited based on its reported use pattern.

7.2. Environmental Effects Assessment

No ecotoxicity data were submitted. The notified polymer contains anionic groups and therefore may be toxic to algae. However, the notified polymer is expected to have low water solubility and very limited aquatic exposure is expected due to its use pattern.

7.2.1. Predicted No-Effect Concentration

A predicted no-effect concentration (PNEC) has been not calculated for the notified polymer as no ecotoxicity data were submitted. The release of the notified polymer to the aquatic environment will be very limited based on its reported use pattern.

7.3. Environmental Risk Assessment

A risk quotient (PEC/PNEC) for the notified polymer was not calculated, as neither a PEC nor PNEC was derived. Release of the notified polymer to the aquatic environment in ecotoxicologically significant quantities is not expected based on its reported use pattern. The notified polymer is not expected to be bioaccumulative and is expected to slowly degrade in the environment. Based on the assessed use pattern of the notified polymer, it is not expected to pose an unreasonable risk to the environment.

BIBLIOGRAPHY

NOHSC (2004) Approved Criteria for Classifying Hazardous Substances, 3rd edition [NOHSC:1008(2004)]. National Occupational Health and Safety Commission, Canberra, AusInfo.

SWA (2015) Code of Practice: Spray Painting and Powder Coating, Safe Work Australia, http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/spray-painting-and-powder-coating.

United Nations (2009) Globally Harmonised System of Classification and Labelling of Chemicals (GHS), 3rd revised edition. United Nations Economic Commission for Europe (UN/ECE), <http://www.unece.org/trans/danger/publi/ghs/ghs_rev03/03files_e.html >.