File No PLC/1355,56,57

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

PLC/1355: Polymer in E61YC702
PLC/1356: Polymer in F75BC20
PLC/1357: Polymer in F75BC22

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.

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

May 2016

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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/1355: PLC/1356: and PLC/1357:	Caterpillar SARL – Melbourne Distribution Centre and Sherwin-Williams Diversified Brands (Australia) Pty Ltd	Polymer in E61YC702, Polymer in F75BC20 and Polymer in F75BC22	No	410 tonnes per annum	Component of industrial coatings

CONCLUSIONS AND REGULATORY OBLIGATIONS

Human Health Risk Assessment
Based on the assumed low hazard and the assessed use pattern, the notified polymers are 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 polymers are not considered to pose an unreasonable risk to the environment.

Health and Safety Recommendations

- No specific engineering controls, work practices or personal protective equipment are required for the safe use of the notified polymers themself. 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.

- If aerosols are formed during the use of the notified polymers, engineering controls and respiratory protection should be used to prevent inhalation exposure.

- A copy of the (M)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 polymers 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 polymers 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 polymers should be handled by containment, physical 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 polymers, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified polymers are 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 polymers are 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 polymers has changed from a component of industrial coatings, or is likely to change significantly;
- the amount of notified polymers being introduced has increased, or is likely to increase, significantly;
- the notified polymers have begun to be manufactured in Australia;
- additional information has become available to the person as to an adverse effect of the notified polymers 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 the products containing the notified polymers were provided by the applicant. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants
Caterpillar SARL (ABN: 99 539 336 318)
1 Caterpillar Drive, Building K
TULLAMARINE VIC 3043

Sherwin-Williams Diversified Brands (Australia) Pty Ltd (ABN: 31 604 851 658)
Level 10, 1 City View Road
PENNANT HILLS NSW 2120

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, and residual monomers/impurities.

2. IDENTITY OF POLYMER

Marketing Name(s)
PLC/1355: Polymer in E61YC702
PLC/1356: Polymer in F75BC20
PLC/1357: Polymer in F75BC22

Molecular Weight
Number Average Molecular Weight (Mn) is > 1,000 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	Amber liquids
Melting Point/Glass Transition Temp	Imported in solution
Density	1,150 kg/m^3 (PLC/1355) 1,043 kg/m^3 (PLC/1356) 1,066 kg/m^3 (PLC/1357)
Water Solubility	Expected to have low water solubility based on the high molecular weight and hydrophobic chemical structure
Dissociation Constant	Contains no dissociable functionalities (PLC/1355, PLC/1356) Expected to be ionised under environmental conditions (pH 4-9) (PLC/1357)
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

PLC/1355

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	100	100	100	100	100

PLC/1356

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	250	250	250	250	250

PLC/1357

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	60	60	60	60	60

Use
The notified polymers will not be reformulated or manufactured in Australia. The imported formulations containing the notified polymers (at < 20%, < 50%, and < 15%, for PLC/1355, PLC/1356, and PLC/1357 respectively) will be applied as touch up coatings to industrial vehicles. They will be applied *via* spray (from aerosol cans or spray equipment), but brushes or rollers may also be used.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymers meet the PLC criteria and are therefore assumed to be of low hazard.

Although not considered in this risk assessment, NICNAS notes that the notified polymers contain residual monomers that are classified as hazardous according to the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS),* as adopted for industrial chemicals in Australia. These are not present in the notified polymers as introduced above the cut off concentrations for classification.

The risk of the notified polymers to occupational and public health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. (For PLC/1355 and PLC/1356) Polymers without significant ionic functionality are generally of low concern to the environment. Anionic polymers (For PLC/1357) are generally of low toxicity to fish and daphnia, however they are known to be moderately toxic to algae. The mode of toxic action is over-chelation of nutrient elements needed by algae for growth. The highest toxicity is when the acid is on alternating carbons of the polymer backbone. The toxicity to algae is also likely to be reduced due to the presence of calcium ions in environmental waters, which will bind to the functional groups.

The notified polymers will be imported into Australia as components of finished coating formulations in sealed spray cans or pails; no reformulation or repackaging will occur in Australia. Products containing the notified polymers will be used as touch up coatings for industrial vehicles in professional settings. During use, the majority of coatings containing the notified polymers will be applied to metal substrates by spray techniques. A small proportion of coatings containing the notified polymers may also be applied by brush or roller. The main release of the notified polymers during use is expected to be in the form of overspray, and will typically entail collection on drop sheets and

disposal to landfill in accordance with local government regulations. Residues containing the notified polymers on brushes and rollers are expected to be rinsed into containers, and then allowed to cure before disposal as solid wastes to landfill. During use the notified polymers may also be released to the environment as accidental spills and container residues. These releases are also expected to be collected and disposed of to landfill.

Based on their use in touch up coatings for industrial vehicles, it is expected that the majority of the notified polymers will be cured during use. The notified polymers cured on substrates will share the fate of the coated articles. These are expected to be disposed of to landfill, or undergo thermal decomposition during substrate recycling processes. Therefore, the notified polymers are not expected to be bioavailable. Based on their high molecular weights and expected low water solubility, the notified polymers are not expected to cross biological membranes. Therefore, the notified polymers are unlikely to bioaccumulate. In landfill and during recycling processes, the notified polymers are expected to eventually degrade via biotic and abiotic processes to form water and oxides of carbon.

Therefore, based on their assumed low hazard and assessed use pattern, the notified polymers are not considered to pose an unreasonable risk to the environment.