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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Polymer in Setal 6306 SS-60

This 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 and Heritage.

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Director
Chemicals Notification and Assessment

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1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
PPG Industries Australia Pty Ltd
McNaughton Road
CLAYTON VIC 3168

Amtrade International Pty Ltd
Level 2/570 St Kilda Rd
MELBOURNE VIC 3004

NOTIFICATION CATEGORY
Synthetic 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 formula
- Structural formula
- Polymer constituents
- Import volume

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)
No variation to the schedule of data requirements is claimed.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
TSCA (US) 1994

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Polymer in Setal 6306 SS-60

3. COMPOSITION

PLC CRITERIA JUSTIFICATION

Functional Group	Category	Equivalent Weight (FGEW)
Carboxylic acid	Low	Not required

Criterion	*Criterion met (yes/no/not applicable)*

Meets Molecular Weight Requirements	Yes
Meets Functional Group Equivalent Weight (FGEW) Requirements	Yes
Low Charge Density	Yes
Approved Elements Only	Yes
No Substantial Degradability	Yes
Water Absorbing	Yes
Low Concentrations of Residual Monomers	Yes
Not a Hazard Substance or Dangerous Good	Yes

The notified polymer meets the PLC criteria.

4. INTRODUCTION AND USE INFORMATION

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

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

USE

The notified polymer is a component of a waterborne base coat system to be used in the automotive industry. The function of the resin is to act as a vehicle for the pigments and also to act as an adhesive interface between the primer and the topcoat. Initially the finished paints will be imported, however, Setal 6306 SS-60 itself may be imported later.

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

In the short to medium term, the notified polymer will be imported as a component (<10%) of the 480-Line Envirobase tinters in 0.5 and 1.0 litre plastic containers. Following importation, the product will be stored in a bunded warehouse or yard facility to await distribution to customers.

The notifier may, in the future, undertake to manufacture the 480-Line Envirobase tinters in Australia. In this case the polymer solution 'Setal 6306 SS-60', containing the notified polymer at a concentration of 60%, is imported in 1L and 3.5L containers.

The resin solutions are blended in a high speed blender with other raw materials (resins, pigments, additives, solvents, and diluents). Following quality control, the batch of reformulated paint product is filtered and filled into plastic containers. The finished product is then stored in a bunded warehouse to await distribution to customers.

Prior to application, the product containing the notified polymer is blended with other products to form the basecoat of car collision repair coating. The prepared mixture containing the notified polymer is then applied by spray painters in spray booths.

6. EXPOSURE INFORMATION

6.1. Summary of Environmental Exposure

The manufacture process is typically undertaken in a closed system and spills are controlled by bunding within the plants. Mixers are fitted with exhaust ventilation to capture volatiles at source and a regular maintenance program is pursued. Paint manufacture is carried out in a well-ventilated spraybooth with an effective fume extraction system. It is envisaged that 2% waste would be generated from the manufacturing process. These wastes would be collected by licenced waste contractors and be incinerated.

The notified polymer is used as the principal binders in 480-Line Envirobase tinters. These waterborne tinters are blended together to form the basecoat component of a car collision repair coating. The

process used by paint end users at car collision repair centre would result in waste generated from overspray from the application process, cleaning of the application equipment and empty paint containers.

The notified polymer does not represent an emission hazard to the atmosphere as all paint overspray is trapped in the spraybooth or on masking materials. The transfer efficiency as a result of spray application is approximately 30%. Of the paint mixed for actual application, 70% will be captured as overspray and collected within the spraybooth throughout its filtering system or on masking materials such as kraft and newspaper.

Cleaning of the application equipment will generate waste which will be collected and disposed of in the same manner as waste-water from spraybooth involving licensed waste disposal contractors. The waste is then treated and sent to trade waste landfill. The notified polymer is expected to bind to sediments and be retained in sewage sludge after sewage treatment. Further the notified polymer is not expected to cross biological membranes due to its high molecular weight.

Waste generated as a result of a small amount of coating remaining in the containers after use represent about 2% of the container contents. This will dry to form a non-leachable solid and will be disposed of as solid landfill.

6.2. Summary of Occupational Exposure

Exposure to the notified polymer will, in the short to medium term will be via exposure to the imported final product, 480-Line Envirobase tinters. Exposure to the notified polymer is not expected during the importation, warehousing or transportation of the product except in cases where the packaging is accidentally breached

Exposure to the notified polymer as the 60% resin solution may also occur during reformulation should the importer decide to manufacture the final product in the future. Workers involved in the reformulation of 'Setal 6306 SS-60' into the final products may be exposed to the notified polymer at up to 60% during blending, however engineering controls and personal protective equipment worn by workers should minimise any exposure risk.

Exposure to the notified polymer at concentrations <10% may occur during quality assurance testing and adjustment and during the filtering and filling of the product into plastic containers. Workers involved in these procedures wear personal protective equipment and filling is performed under exhaust ventilation to capture any vapour generated at source.

End-users of the product may be exposed to the notified polymer at <10% when opening containers, and during weighing and measuring of volumes prior to mixing. Dermal exposure is expected to be the major route of exposure however ocular exposure may occur during accidental splashing.

Workers may be exposed to < 1% solution of the notified polymer via the dermal, ocular and inhalation routes during spraying of the diluted basecoat mixture. The product is sprayed in a booth with an exhaust/filter system, and workers wear supplied air respirator or mask fitted with organic vapour cartridge, faceshield, gloves and protective suit.

Workers may be exposed to a dilute solution of the polymer via the dermal and ocular routes while cleaning and rinsing spray equipment using recirculated solvent.

6.3. Summary of Public Exposure

The 480-Line Envirobase tinters are only sold to professional spray painters; therefore, the wet paint is not expected to come into contact with members of the public. The public may come into contact with the finished dried product on refinished automobiles however in this form the notified polymer will bound in an inert matrix and as such will not be biologically available.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Yellow brown clear viscous liquid
Melting Point	-171°C (derived from solvent butyl glycol)

Density	1040 kg/m^3 (temperature not specified)
Water Solubility	The notifier indicates that the notified polymer is not soluble in water. The raw materials used both in the polyester intermediate and the acrylated end product are very insoluble. By increasing the molecular weight by polymerisation the water solubility will decrease further. If small amounts of the notified polymer were added to water, only the residual neopentyl glycol and trimethylol propane will partially go into the water. Since there is less than 15% of free carboxylic acid, it is likely that the notified polymer is dispersible rather than truly soluble considering it is otherwise generally hydrophobic.
Dissociation Constant	The polymer contains carboxylate groups which would have an estimated dissociation constant of pK_a = 3.0–5.0.
Reactivity	Stable under normal environmental conditions
Degradation Products	None expected

Considering the likely low solubility, the polymer is unlikely to hydrolyse in the environmental pH range of 4-9. (despite the presence of ester groups), and should associate with the octanol or soil/sediment phases.

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology
No toxicological data 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

9.2. Environmental Hazard Assessment
No ecotoxicological data were provided.

10. RISK ASSESSMENT

10.1. Environment
No aquatic exposure is anticipated during manufacture and end use of the notified polymer. It is envisaged that 2% waste would be generated from the manufacturing process. These wastes would be collected by licenced waste contractors and be incinerated. It is expected that practically all of the waste generated from end users (70% as overspray) will be disposed of in approved landfills as inert solid waste. In landfill, the solid wastes should be contained in the paint matrix and not pose a significant risk to the environment.

10.2. Occupational health and safety
The OHS risk presented by the notified polymer is expected to be low given the low hazard associated with the notified polymer, its presence only in dilute solutions during use, and the small amount of paint used during application. Local ventilation is used during application and the product will be handled by professional spray painters.

10.3. Public health
The notified polymer is intended for use by professional spray painters in auto repair workshops only, and will not be sold to the public. Following application, the notified will become trapped within a film and will not be bioavailable. Therefore, the risk to public health from exposure to the notified polymer is considered low.

10. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

10.2. Environmental risk assessment

The polymer is not considered to pose a risk to the environment based on its reported use pattern.

10.3. Human health risk assessment

10.3.1. Occupational health and safety

There is low concern to occupational health and safety under the conditions of the occupational settings described.

10.3.2. Public health

There is negligible concern to public health when used in the intended manner.

11. 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.
- The use of the product containing the polymer should be in accordance with the NOHSC *National Guidance Material for Spray Painting* (NOHSC, 1999b) where appropriate.
- 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 material to enter sewers, soil, surface water and ground water.

Disposal

- The notified polymer should be disposed of by landfill or be incinerated.

Emergency procedures

- Spills/release of the notified polymer should be handled by absorbing with sand and put into suitable container for disposal. Contaminated containers can be re-used after cleaning.

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.

No additional secondary notification conditions are stipulated.