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**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME
(NICNAS)**

FULL PUBLIC REPORT

Polymer in Disparlon NSH-8430HF

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**Director
NICNAS**

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FULL PUBLIC REPORT**Polymer in Disparlon NSH-8430HF****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

PPG Industries Pty Ltd (ABN: 82 055-500-939) of McNaughton Rd, CLAYTON VIC 3168

and

Chemiplas Australia Pty Ltd (ABN: 29 003 056 808) of 3/112 Wellington Pde, EAST MELBOURNE VIC 8002

NOTIFICATION CATEGORY

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, Functional Group Equivalent Weight, Means of Identification (IR, GC, GPC), Polymer Constituents and Their Percentages, Impurities, Purities, Additive and Adjuvants, Use Details, Information of Customers, Concentration of the Notified Polymer in the Imported Product, and 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)

No

NOTIFICATION IN OTHER COUNTRIES

No

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

Polymer in Disparlon NSH-8430HF

3. PLC CRITERIA JUSTIFICATION*Criterion**Criterion met
(yes/no/not applicable)*

Molecular Weight Requirements
Functional Group Equivalent Weight (FGEW) Requirements
Low Charge Density
Approved Elements Only
Stable Under Normal Conditions of Use
Not Water Absorbing
Not a Hazard Substance or Dangerous Good

Yes
Yes
Yes
Yes
Yes
Yes
Yes

The notified polymer meets the PLC criteria.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Clear to light yellow fluid with solvent odour (for the polymer solution)
Melting Point/Glass Transition Temp	Not determined as during its lifetime the polymer is not separated from solution.
Density	Not separated from solution
Water Solubility	Not determined but not expected to be soluble. The polymer constituents either have known insolubility in water, or contain hydrophobic groups.
Dissociation Constant	The notified polymer does not contain any groups that are expected to dissociate.
Reactivity	Stable under normal environmental conditions
Degradation Products	None under normal conditions of use

The polymer does not contain groups that are expected to hydrolyse under ambient environmental conditions in the pH range of 5-9. The notified polymer's low water solubility and its hydrophobic nature is indicative of partitioning into the octanol phase. The notified polymer is expected to be relatively immobile in soil due its low water solubility.

5. INTRODUCTION AND USE INFORMATION

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

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	0-3	0-3	3-10	3-10	3-10

USE AND MODE OF INTRODUCTION AND DISPOSAL

Mode of Introduction

The notified polymer will be imported as a component of polymer solution, Disparlon NSH-8430HF in 200 L steel drums. Disparlon NSH8430HF containing 5-20% notified polymer would be delivered by road to PPG Industries at their formulation site for reformulation of automotive coating.

Reformulation/manufacture processes

Laboratory manufacture

The ingredients required for making the paint, including the polymer solution containing the notified polymer are combined in a container under stirring. Such paint is then sprayed onto panels in a spray booth having appropriate extraction. The panels are baked in an oven and the finished paint film is subjected to various tests.

Bulk manufacture

At the formulation site, the polymer solution is pumped from the 200 L drums into a closed mixer via a lance. After weighing, the polymer solution is transferred into the mixer for mixing with other ingredients. The lance is manually transferred from drum to drum until the required amount of polymer is added to the mixer. After mixing, the final product (paint) is sampled (approximately 500 cc) for testing.

The quality control operator adjusts the viscosity of the paint by adding solvent and then sprays on panels for baking and testing. Several other tests are also performed on the wet paint.

Finished paint containing the notified polymer (< 1% concentration) is filled into 200L drums through dedicated pipework and filling equipment. The filling equipment automatically places a short fill pipe through the bung hole in the top of the drum to fill the drum.

End use

The 200 L drums of paint containing < 1% of the notified polymer are pumped into a circulating mix tank using a dedicated lance, a pipework and a pump. In the tank, solvent is added to adjust the

viscosity of the paint for application using robots.

Operators use hand spray to paint specific areas of the car that are not painted by the robots.

During production breaks, operators use dampened cloths with solvent to clean residual paint from the spray equipment.

6. HUMAN HEALTH IMPLICATIONS

6.1. Exposure Assessment

OCCUPATIONAL EXPOSURE

The worker exposure summary during reformulation and end use is as follows:

<i>Number and Category of Workers</i>			
<i>Category of Worker</i>	<i>Number</i>	<i>Exposure Duration Hours/Day</i>	<i>Exposure Frequency Days/Year</i>
CLAYTON SITE			
Laboratory			
Paint manufacture and testing	3	8 hours/day	80 days/year
Paint manufacture			
Paint make-up	18	4 hours/day	200 days/year
QC testing	3	4 hours/day	200 days/year
Filling into drums	3	4 hours/day	200 days/year
CUSTOMER SITE			
Paint application			
Adding paint to circulation tank	18	2 hours/day	200 days/year
Hand spray pick-up	30	8 hours/day	200 days/year
Cleaning of spray equipment	18	2 hours/day	200 days/year

Transport and Storage

Workers are unlikely to be exposed to the notified polymer during transport and storage of the imported polymer solution and formulated paint except when it is accidentally breached

Paint Formulation

Laboratory Scale

There is potential for dermal, ocular and inhalation exposure to the notified polymer at a concentration of 5-20%, from manually opening and closing of drums, and drips and spills during transfer of the intermediates containing the notified polymer solution to the mixing container. Following formulation of the paint, dermal, ocular and inhalation exposure to the notified polymer at a concentration of < 1% could occur during transfer and spray application, testing, and through contact with the wet paint surface. Workers will be provided with the appropriate PPE. Spray testing will be carried out within a ventilated spray booth.

Bulk Manufacture

There is potential for dermal, ocular and inhalation exposure to the notified polymer at a concentration of 5-20%, from manually opening and closing of drums, and from drips and spills during transfer of the intermediates containing the notified polymer solution to the mixing container. Following formulation of the paint, exposure to the notified polymer at a concentration of < 1% would be mainly due to skin contact with residues dripping off the fill pipe, and during the manual cleaning of the pipe. Workers will be provided with the appropriate PPE.

There is potential for dermal exposure to the notified polymer at a concentration of < 1% during the sampling and testing of the paint formulation. There is also potential for inhalation exposure to paint droplets during spray application. However, QC workers are to be provided with appropriate PPE, and all spraying will be carried out within a ventilated spray booth.

End use

During transfer of the paint to the circulating mix tank, the potential for worker exposure to the notified polymer comes mainly from possible dermal exposure to paint residues on the exterior of the lance (containing < 1% notified polymer). Dermal, ocular and inhalation exposure to the notified polymer could occur during automatic and manual spray application of the paint. Workers wear full protective clothing and hoods fed with breathing air.

There is also potential for predominantly dermal exposure to paint residues (at concentrations < 1% notified polymer) during the cleaning of the spray apparatus.

After application, once dried, the paint containing the notified polymer is cured into an inert matrix and the polymer is hence unavailable for exposure.

PUBLIC EXPOSURE

The notified polymer will not be available to the public. Members of the public will have minimal exposure as the notified polymer will not be available for exposure once it is dried and cured.

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. The notified polymer may be present in formulations containing hazardous ingredients. If these formulations 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.

PUBLIC HEALTH

The solutions of the notified polymer (paints and intermediates) will not be available to the public. Members of the public will come into contact with the notified polymer once it is dried and cured, on automotive panels. In this state, it is cross-linked into an inert matrix and will not be bioavailable.

7. ENVIRONMENTAL IMPLICATIONS

7.1. Exposure Assessment

ENVIRONMENTAL RELEASE

The notified polymer will not be manufactured in Australia. Local operations will include transport and storage, formulation, filling and packaging and application by robots using spray guns at the end-users site.

Paint Formulation

During storage and paint manufacture the notified polymer will be released in the following ways:

- | | |
|--|---|
| Spills | - less than 1%, up to 100 kg annually to landfill |
| Import container residue | - less than 1%, up to 100 kg annually to waste contractor |
| During paint formulation
(including cleaning) | - less than 3%, up to 300 kg annually to landfill |

Any spills will be within bunded areas and collected with inert absorbent material (eg sand) and placed in a sealable container ready for disposal to landfill. The process equipment (including transfer lines, blending tanks and mixers) will be cleaned with suitable solvent which is collected, reused and eventually recovered on-site with the resultant sludge (containing the notified polymer) going to landfill via a licensed waste contractor.

Import containers will be disposed of via licensed recyclers who will dispose of any residues (including the notified polymer) via incineration.

Paint Application

Release of the notified polymer to the environment as a result of its use in the automotive industry is expected to be minimal, unless an accidental spillage occurs, and include:

- | | |
|---|---|
| Container residue | - up to 2 %, up to 200 kg annually to landfill |
| Overspray, spills and
Equipment cleaning | - up to 40%, up to 4000 kg annually to waste contractor |

All spills will be contained, collected with inert absorbent material (eg sand) and placed in a sealable container ready for disposal. The modern HVLP spray guns have a 70% spray, thus the overspray will be approximately 30%. As the paint will be applied within a specialised spray booth, all overspray will be contained within filters which will be disposed of to landfill. The application equipment will generally be cleaned with solvent. This effluent will be collected and reused if possible otherwise it will be disposed of off-site to a licensed solvent recovery contractor with any generated solids going to landfill.

Empty paint containers will be disposed of via licensed waste contractors who will dispose of any residues (including the notified polymer) via incineration or allow the paint to dry and then dispose of the container to landfill.

ENVIRONMENTAL FATE

There will be no release to sewer.

Disposal of the notified polymer to landfill is unlikely to present a hazard to the environment, as it is not water soluble and thus will not be mobile in either terrestrial or aquatic environment. The notified polymer is likely to slowly degrade and become associated with the soil matrix and sediments. Container residues (including the notified polymer) may be disposed of by incineration generating water and oxides of carbon and silicon. Due to its high molecular weight and low water solubility, the polymer is not expected to bioaccumulate.

7.2. Environmental Hazard Characterisation

No ecotoxicological data were submitted. No aquatic exposure is expected, except through accidental spills.

The hydrophobic nature of the notified polymer indicates that most would adsorb onto particles of sediment and sludge, and would therefore not remain in the water compartment nor be available for assimilation by aquatic organisms.

PLCs without significant ionic functionality are of low concern to the aquatic environment.

7.3. Environmental Risk Assessment

The environmental risk presented by the notified polymer is expected to be low based on limited likely exposure to the environment.

8. CONCLUSIONS**8.1. Level of Concern for Occupational Health and Safety**

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

8.2. Level of Concern for Public Health

There is Negligible Concern to public health when used in the proposed manner.

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**

- Employer should implement the following workplace controls to minimise occupational exposure during handling of the product containing the notified polymer:

Engineering controls

- Closed tanks and lines for formulation and filling of paint containing the notified polymer;
- Use of engineering controls in spray painting to minimise exposure of workers.

Safe work practices

Employers should implement the following safe work practices to minimise occupational exposure during handling of the imported notified polymer and the paint;

- Avoid splashing, spills and generation of aerosols during formulation and filling processes;
- Spray application of paint containing the notified polymer should be in accordance with the NOHSC National Guidance Material for Spray Painting;
- Workers using spray products containing the notified polymer should be instructed in their proper handling and use, including information about the additional risks posed by spray application.

PPE

Employers should ensure that the following personal protective equipment is used by

- workers to minimise occupational exposure to the imported notified polymer and paint;
 - Protective gloves
 - Safety glasses or goggles
 - Industrial clothing
 - Respiratory protection during spray painting, or if aerosols are formed
 - Full body protection during spray painting
- 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.
- An MSDS prepared in accordance with NOHSC format need to be provided to NICNAS.
- Australian contact details should be included on the product Label.
- 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

- There are no specific controls to prevent environmental exposure to the notified polymer itself. Any spills during paint formulation/application must be contained within bunding and entering the waterways should be avoided.

Disposal

- The notified polymer resulting from overspray coating application should be disposed of by landfill or be incinerated in the case of the waste wash from cleaning of the application/manufacture equipments.

Emergency procedures

- [In case of spills or accidental release of the notified polymer](#), contain the spill and place inert, non-combustible absorbent such as vermiculite, sand or dirt onto material. Collect material and place into a suitable labelled container for subsequent disposal.

10.1. 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.