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

FULL PUBLIC REPORT

Substance HPA8B

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**Director
Chemicals Notification and Assessment**

TABLE OF CONTENTS

FULL PUBLIC REPORT	3
1. APPLICANT AND NOTIFICATION DETAILS	3
2. IDENTITY OF CHEMICAL.....	3
3. COMPOSITION.....	3
4. INTRODUCTION AND USE INFORMATION	4
5. PROCESS AND RELEASE INFORMATION	4
5.1. Distribution, Transport and Storage.....	4
5.2. Operation Description.....	4
5.3. Occupational exposure.....	4
5.4. Release.....	5
5.5. Disposal	6
5.6. Public exposure	6
6. PHYSICAL AND CHEMICAL PROPERTIES	6
7. TOXICOLOGICAL INVESTIGATIONS	7
8. ECOTOXICOLOGICAL INVESTIGATIONS.....	7
9. RISK ASSESSMENT.....	8
9.1. Environment	8
9.2. Human health.....	8
10. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS	9
10.1. Hazard classification.....	9
10.2. Environmental risk assessment	9
10.3. Human health risk assessment	9
11. MATERIAL SAFETY DATA SHEET	9
11.1. Material Safety Data Sheet	9
11.2. Label.....	10
12. RECOMMENDATIONS.....	10
12.1. Secondary notification	10
13. BIBLIOGRAPHY	11

FULL PUBLIC REPORT**Substance HPA8B****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Orica Australia Pty Ltd (ABN 004 117 828)
1 Nicholson Street, Melbourne, Victoria 3000

NOTIFICATION CATEGORY

The notified polymer meets the PLC criteria.

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical name

CAS number

Molecular formula

Structural formula

Means of identification

Polymer constituents

Residual monomers and impurities

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

USA (2001) and South Korea (2002)

2. IDENTITY OF CHEMICAL

OTHER NAME(S)

Substance HPA8B

MARKETING NAME(S)

Solsperse 43000

Number average molecular weight <20000

Weight average molecular weight <50000

Weight percentage of polymer species with MW<1000: <1%

Weight percentage of polymer species with MW<500: <1%

3. COMPOSITION

DEGREE OF PURITY

> 99 %

HAZARDOUS IMPURITIES

None

NON HAZARDOUS IMPURITIES (> 1% by weight)

None

ADDITIVES/ADJUVANTS

None

4. INTRODUCTION AND USE INFORMATION

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

Year	1	2	3	4	5
Tonnes	10	10	10	10	10

USE

Substance HPA8B is a polymeric dispersant used in water based decorative (architectural) and industrial tinters and coatings.

5. PROCESS AND RELEASE INFORMATION

5.1. Distribution, Transport and Storage

PORT OF ENTRY

Not provided

TRANSPORTATION AND PACKAGING

The product containing the notified polymer will be imported from the UK. It will be transported and stored in 25 kg blue jerry cans, and the reformulated product will be packaged into 20 litre polylined steel pails or 200 litre polylined steel drums for the automotive/industrial coatings and 1 litre, 4 litre and 10 litre epoxy lined tin plate cans for architectural coatings.

5.2. Operation Description

The notified polymer will be imported as a component of the product, Solsperse 43000, comprising 25% of the product. Coatings will be manufactured by a number of paint companies located throughout Australia. At the manufacturing site, Solsperse 43000 will be reformulated into automotive/industrial and decorative (architectural) tinters and paints. The final concentration of the notified polymer in tinters is 7.5% by weight and in paints is 0.75% by weight. The industrial coatings will be applied mainly by spray and roller. The architectural coatings will be applied by brush, roller and sometimes by spray.

5.3. Occupational exposure

Number and Category of Workers

Category of Worker	Number of workers	Exposure Duration (hours per day)	Exposure Frequency (days per year)
Dock, transport and warehousing	10	Nil	200
Coating manufacture			
- high speed dispersing	40	4	30
- makeup	40	2	30
- QC test	10	8	30
- filling into containers	40	8	30
Automotive/Industrial coating application			
- addition to coater trays	10	8	200
- spray painting	20	8	200
- cleaning of equipment	30	2	200
Architectural coating application			
- coating application	100's	8	20
- cleaning of equipment	100's	0.5	20

Exposure Details

There are three main groups of workers who will potentially be exposed to the notified polymer.

(1) Dock, warehousing and transport personnel.

The exposure of transport and storage workers is only possible in the event of accidental spillage.

(2) Those involved in coating manufacture.

The basic process for coatings manufacture:

Substance HPA8B and other ingredients → High speed dispersing and blending in mixer → Batch adjust and testing → Filtration and filling → Warehouse for distribution

During the stages of adding notified polymer from drums or pails to the mixer and adjusting and testing the batch, there will be some manual handling involved, therefore there is a potential for spillage of polymer solution to occur. Dermal and ocular exposures are possible.

Controls indicated by the notifier:

- Workers involved in this process will wear overalls, gloves and chemical goggles.
- The exhaust ventilation system is fitted to capture volatiles at source.
- Quality control testing of paint involving spray painting is performed in an approved booth.

(3) Those involved in coating application.

There will be two types of coating application.

(3a) Industrial coating application.

The basic process for industrial coating application:

Stir → Pump into trays → Coating sprayed/roller coated/dipped → Coating heat cured → Finished article.

During the stages of stirring, pumping into trays and coating application, there will be manual handling involved therefore there is a potential for spillage of coatings containing the polymer to occur. Dermal and ocular exposures are possible.

Controls indicated by the notifier:

- Workers involved will wear overalls, gloves and chemical goggles.
- A filtered exhaust system is fitted.
- Cartridge type respirators may be worn.

(3b) Architectural coating application.

In the process of architectural coatings application, the coatings are used by professional applicators and the home handymen and applied by brush, roller and sometimes by spray. There will be manual handling involved in this application. Dermal and ocular exposures are possible.

Controls indicated by the notifier:

- Recommend wearing impervious gloves, coveralls and goggles.
- Open windows and wear a respirator if spraying.

5.4. Release

RELEASE OF CHEMICAL AT SITE

At paint manufacturing sites (5-10), the notifier estimates about 200 kg of the notified polymer may be generated as waste as a result of minor spills (50 kg) and equipment cleaning (150 kg). Aqueous waste from cleaning the equipment may be stored and re-used in future paint batches or may be disposed of through a licensed waste disposal contractor for treatment with flocculants. The solid flocculant is

buried in landfill. From our experience with similar assessments, some wastes could also be generated from rejected product, although this would be a small amount.

RELEASE OF CHEMICAL FROM USE

The paints containing the notified polymer will be used in industrial (80%) and architectural (20%) applications.

Industrial Applications

The notifier expects the paint containing the notified polymer will be used at up to 100 industrial sites for coating drums and other metal surfaces, motor vehicles, and in coil and packaging coating. About 80% of industrial application will be applied by spray equipment, and 20% by roller coating. During spray application, it is estimated that wastes from overspray will be about 40% of the paints used in spray application or 2.6 tonnes per annum. During roller coating application, it is estimated that losses will be about 3% or 50 kg per annum from equipment cleanup (20 kg), spills (10 kg) and residues in containers (20 kg). It is anticipated that all of the waste paint containing the notified polymer released at industrial sites will be trapped for disposal using standard engineering controls such as filter systems in spray booths.

Architectural Applications

Some of the paint containing the notified polymer will be used as a decorative paint in architectural applications. Professional painters and home handymen may apply the paint with brushes or rollers and occasionally spray equipment. During these applications, it is estimated that about 250 kg of notified polymer may be wasted as a result of container residues and equipment cleaning. While the fate of the wastes generated by individual DIY users in architectural situations is uncertain, it is expected that painting equipment will be cleaned with water or solvents such as turpentine, and wastes resulting from these applications will be discarded through domestic garbage collection, waste-paint collection facilities, or tipped onto the ground. Paint manufacturers recommend that wastes be taken to a municipal chemical waste collection site for disposal.

5.5. Disposal

The MSDS recommends that waste material be disposed of through a licensed waste contractor, and to avoid contaminating waterways. The draft label makes no disposal recommendations, but refers the user to the MSDS. As such, it is expected that the majority of wastes generated during manufacture and industrial application will be disposed of through licensed waste contractors.

5.6. Public exposure

Automotive/ Industrial coatings are applied under controlled conditions by professional applicators. The polymer forms an inert film on the coated article and the public exposure is considered low.

Architectural coatings are readily available to both professional applicators and to the DIY market. Whilst there is potential for dermal contact during use of these coatings, the public exposure is expected to be low due to the low levels of notified polymer (0.75%) used in the coatings.

The other potential public exposure would arise from a spill during the transport of the polymer or coatings containing it. This would be dealt with by the containment and clean-up procedures recommended in Material Safety Data Sheets and should occur rarely.

6. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Substance HPA8B is a yellow viscous liquid
Melting Point/Freezing Point	N/A
Remarks	Not applicable as the polymer has never been isolated from aqueous solution
Density	1070 kg/m ³ at 20°C

Water Solubility	Miscible in water
Remarks	The product is manufactured as a 50% solution in water.
Particle Size	N/A
Remarks	Not applicable as manufactured as a solution in water.
Flammability	N/A
Remarks	Not applicable as the imported product is an aqueous solution.
Explosive Properties	
Remarks	Not available for this polymer but it is expected to be stable under normal use conditions.
Degradation Products	
Remarks	Substance HPA8B will be encapsulated in the coatings in which it is used. These coatings will deteriorate under the action of UV radiation from sunlight but this is expected to be minimal over the average life of the coated article. Under extreme heat conditions e.g. fire, the coating containing the notified chemical will burn emitting noxious fumes including oxides of carbon and nitrogen.
Loss of monomers, other reactants, additives impurities	
Remarks	The polymer is stable under normal conditions of use and is not expected to depolymerise.
Partition Coefficient (n-octanol/water)	Not determined
Remarks	Due to its high water solubility, the notified chemical is expected to partition into the aqueous phase.
Adsorption/Desorption	Not determined
Remarks	Due to its high water solubility, the notified chemical is expected to be mobile in soils.
Dissociation Constant	Not determined
Remarks	The notified chemical is a polymeric salt and is expected to dissociate in water.

7. TOXICOLOGICAL INVESTIGATIONS

No toxicological data were submitted.

8. ECOTOXICOLOGICAL INVESTIGATIONS

No toxicological data were submitted.

9. RISK ASSESSMENT

9.1. Environment

9.1.1. Environment – exposure assessment

Up to 80% of the coatings containing the notified polymer will be applied to metal surfaces in industrial applications and the remaining 20% will be used as decorative paint in architectural applications. No environmental exposure is expected at end use once the paint has dried to form a hard and durable paint matrix. However, up to 3 tonnes of waste may be generated during manufacturing and coating applications each year as a result of overspray, incidental spills, equipment cleaning (brushes, rollers, spray equipment), and residues in containers.

The majority of the waste will be generated through overspray during industrial applications, where up to 40% of paint could be lost, depending on the type of spray equipment used. However, in most industrial situations, it is expected that spray application will occur in spray booths, in which engineering controls, such as filter systems, are used to trap the overspray. The cured trapped wastes arising from industrial application are expected to be periodically removed and disposed of into landfill through a licensed waste contractor.

In landfill, the solid wastes are expected to be immobile, and eventually degrade through biotic and abiotic processes, and consequently, should not pose a significant exposure hazard to the environment.

While no aquatic exposure is anticipated during normal usage of the coatings, given the paint is water based, there is a potential for aquatic exposure during architectural applications should individual home handymen improperly dispose of unwanted paint waste down the sewer. The amount entering the aquatic environment in this manner cannot be determined, however, it is expected to be small owing to the low concentration in the paint products. Paint manufacturers recommend that wastes generated during architectural applications should be taken to a municipal chemical waste collection facility for disposal.

9.1.2. Environment – hazard assessment

No ecotoxicity data were submitted. However, aquatic exposure is not anticipated during normal usage of the coatings.

9.1.3. Environment – risk characterisation

No aquatic exposure is anticipated during manufacture and normal use of the polymer. However, up to 3 tonnes of polymer wastes could be generated during manufacturing and coating application. It is expected that most of this waste will be disposed of in approved landfill as inert solid waste. In landfill, the solid wastes should not pose a significant hazard to the environment.

9.2. Human health

9.2.1. Occupational health and safety – exposure assessment

Dermal and ocular exposure can occur during certain formulation and application processes. However, exposure to significant amounts of the notified polymer is limited because of the engineering controls and personal protective equipment worn by workers.

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

During transport and storage, workers are unlikely to be exposed to the notified polymer except in the event of an accident.

Inhalation exposure to the notified chemical is possible during routine maintenance and

application but is expected to be low due to the low vapour pressure of the polymer and the engineering controls and personal protective equipment worn by workers.

9.2.2. Public health – exposure assessment

Members of the public will make dermal contact and possibly accidental ocular contact with products containing the notified polymer in decorative (architectural) paints. However, exposure will be low because the notified polymer is present at low concentrations. After it has been applied to articles it becomes an integral part of a hard durable coating and is not considered to be a hazard to the general public.

9.2.3. Human health - effects assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

9.2.4. Occupational health and safety – risk characterisation

Based on the low hazard of the notified polymer, the OHS risk presented by the notified polymer is expected to be low.

9.2.5. Public health – risk characterisation

Members of the public may make dermal contact and possibly accidental ocular contact with products containing the notified polymer. However, the risk to public health will be negligible because the notified polymer is present at low concentrations. Following application, the notified chemical will become trapped within a film and will unlikely be bioavailable. Therefore, the risk to public from exposure to the notified polymer is considered low.

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

10.1. Hazard classification

Based on the available data the notified polymer is not classified as hazardous under the NOHSC *Approved Criteria for Classifying Hazardous Substances*.

10.2. Environmental risk assessment

Due to the limited exposure, the notified 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 low concern to public health when used in the manner described.

11. MATERIAL SAFETY DATA SHEET

11.1. Material Safety Data Sheet

The MSDS of the product containing the notified polymer provided by the notifier was in accordance with the NOHSC *National Code of Practice for the Preparation of Material Safety Data Sheets* (NOHSC, 1994a). It is published here as a matter of public record. The accuracy of the information on the MSDS remains the responsibility of the applicant.

11.2. Label

The label for the product containing the notified polymer provided by the notifier was in accordance with the NOHSC *National Code of Practice for the Labelling of Workplace Substances* (NOHSC, 1994b). The accuracy of the information on the label remains the responsibility of the applicant.

12. 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.
- Service personnel should wear impervious gloves, coveralls and goggles and ensure adequate ventilation is present during routine manufacture and applications. Where the coating is to be sprayed, cartridge type respirators may also be worn.
- 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

Disposal

- The notified polymer should be disposed of in accordance with the methods described in the Material Safety Data Sheet, including by licensed waste contractor and in accordance with local jurisdiction waste management guidance.

Emergency procedures

- Spills/release of the notified polymer should be handled by containing and absorbing with sand and soil. The waste can then be collected and sealed in appropriately labelled drums for disposal. Personnel involved in the clean up procedure should wear protective clothing to avoid skin and eye contact.

12.1. 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 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 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.

13. BIBLIOGRAPHY

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