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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

SOLSPERSE 30000

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Director
Chemicals Notification and Assessment

TABLE OF CONTENTS

FULL PUBLIC REPORT

Solsperse 30000

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Orica Australia Pty Ltd (ABN 004 117 828)
1 Nicholson Street
Melbourne VIC 3000

NOTIFICATION CATEGORY
Limited: Polymer with NAMW ≥ 1000 (greater than 1 tonne per year).

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;
Purity;
Identity of toxic or hazardous impurities;
% Weight of toxic or hazardous impurities;
Non-hazardous impurities;
Identity of additives/adjuvants;
% Weight of additives/adjuvants;
Weight percentage and ingredient;
Number average molecular weight;
Residual monomers/other reactants; and
Low molecular weight polymer.

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)
Variation to the schedule of data requirements is claimed as follows:
Hydrolysis as a function of pH
Absorption/desorption
Dissociation constant
Flammability limits

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
None

NOTIFICATION IN OTHER COUNTRIES
None known

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Solsperse 30000

METHODS OF DETECTION AND DETERMINATION

METHOD Infrared spectroscopy, and ^{1}H and ^{13}C NMR spectroscopy
Remarks Reference spectra were provided.

3. COMPOSITION

DEGREE OF PURITY
>95%

DEGRADATION PRODUCTS
The polymer is expected to be stable under normal conditions of use. Under extreme heat conditions, e.g. fire, the inks containing the notified polymer will burn emitting noxious fumes including oxides of carbon and nitrogen.

LOSS OF MONOMERS, OTHER REACTANTS, ADDITIVES, IMPURITIES
The polymer is stable under normal conditions of use therefore the loss of monomer, other reactants, additives, and impurities is not expected.

4. INTRODUCTION AND USE INFORMATION

MODE OF INTRODUCTION OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS
The notified polymer will not be manufactured in Australia. It will be imported as 100% active liquid and reformulated in Australia to produce paints, pigment dispersions, and inks.

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

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

USE
Solsperse 30000 is a polymeric dispersant used at up to 2% by weight in solvent-based inks applied to paper (newspaper, magazine, catalogues, brochures, etc.) and solvent-based paints (marine and architectural). It is also used at up to 5% weight as a pigment dispersant in plasticiser dispersions used for PVC plastisol colouration. The plastisol is coated onto flexible substrates (textiles, normally) in the production of upholstery seating, imitation leather cloth, tarpaulins etc.

5. PROCESS AND RELEASE INFORMATION

5.1. Distribution, transport and storage

PORT OF ENTRY
Melbourne

IDENTITY OF MANUFACTURER/RECIPIENTS
The imported polymer will be stored in United Transport warehouse Laverton, Victoria, for distribution to customers. The various products will be manufactured by a number of different companies located throughout Australia.

TRANSPORTATION AND PACKAGING
Solsperse 30000 will be stored and transported in 20 kg and 150 kg open head steel pails and drums. Transport will be by road or rail. The reformulated inks will be stored and transported in HDPE 20 L pails or 200 L drums. The paints will be stored and transported in 1 L, 4 L, 10 L and 20 L steel cans and pails. Pigment dispersion and plastisol products will be stored in 20 L and 200 L steel pails and drums.

5.2. Operation description

Coating Manufacture (paint/ink)
It is estimated that, the notified polymer will be used at 5-10 reformulation sites at which up to 100 batches of coating will be manufactured annually. The notified polymer will be used at levels up to 2% (typically 0.5-2%) in the coatings. There are a number of discrete steps involved the manufacture process.

Pigment Dispersion Stage
The pigment, resin, and notified polymer are weighed into a mixer and are subjected to high-speed sheer to produce a mill base. The ingredients are metered directly into the mixer or manually added from drums, or pails.

Makeup Stage
The mill base is pumped into large mixing vessel and the remaining resin and additives are added under constant stirring at low speed. Samples are removed at this stage for quality control testing in the laboratory, after which the batch is adjusted for viscosity etc.

Filling stage
The finished product containing of the notified polymer is fed by gravity from the bottom of the mixing vessel through a filter into containers. The closed containers are usually manually placed on pallets, and taken by forklift to the warehouse for storage and distribution.

Architectural and Marine Paint Application
These solvent-based coatings are used by professional applicators and the home handyperson. They will be applied by brush, roller, and sometimes by spray.

Ink Application
The inks will be applied to paper substrates, such as magazines, newspapers, catalogues, and brochures. The containers are opened, and the print machines are charged either manually or by pumps. The print is then run. The final paper products are then distributed to consumers.

Manufacture and Application of PVC Plastisol
The notified polymer (at 2-10 % w/w), pigments, and plasticiser such as dioctyl phthalates are dispersed in a Dispermat mill to form a premix. The notified polymer improves dispersion, reduces viscosity, and increases pigment loading. The premix is then milled by three roll milling to produce a paste dispersion or milled by bead milling to produce a liquid dispersion.

The pigment dispersions are blended with premixed PVC plastisol base (mix of PVC polymer, plasticiser, stabiliser, filler) and then applied to substrate by passing through heated rollers. The temperature of application is dependent in the formulation and final desired properties of the coating. The typical application temperature is 120ºC.

5.3. Occupational exposure

Number and Category of Workers

Category of Worker	*Number*	*Exposure Duration*	*Exposure Frequency*
Transport and Warehouse Personnel	10	-	200
Coating/Pigment dispersion manufacture			
Milling	40	4	100
Filling of containers	40	8	100
Ink application			
Addition to print machine	50	8	300
Cleaning of equipment	10	8	10
Paint Application			
Application by brush and roller etc.	100	8	20
Cleaning of equipment	100	0.5	20

Plastisol application	50	8	300

Exposure Details

Transport and warehousing

Workers are not expected to be exposed to the notified polymer, as they will be handling closed containers. Exposure is possible in the event of an accidental spillage.

Coating Manufacture (paint/ink)

It expected the use of automated and semi automated systems, in coating manufacture will reduce exposure.

Pigment dispersion stage: In this stage, blending of the notified polymer and other ingredients occur. This process is performed under local exhaust ventilation. The notified polymer may be manually added from drums or pails. Dermal and accidental ocular exposure to the notified polymer (100%) is possible as result of drips and spills. Workers involved in the process are expected to wear overalls, impervious gloves, and eye protection.

Make up stage

The millbase produced in the pigment dispersion stage is mixed with resin and additives. QC samples are taken at this stage. The same handling and control measures that are used in the pigment dispersion stage are to be used at this stage. Dermal and accidental ocular exposure to the notified polymer is likely as result of drips and spills. All QC testing of paint involving spray painting is performed in an approved booth subject to regular maintenance.

Filling stage

Filling of the finished coatings into cans, pails, and drums is carried out under local exhaust ventilation with workers wearing overalls, impervious gloves and eye protection. Dermal and accidental ocular exposure to the notified polymer at <2% is possible as result of drips and spills.

In coating manufacture a regular maintenance program is pursued which included measurement of air flows at determined intervals. Respirators and local ventilation will be used during the cleaning of equipment.

Industrial paint application

Exposure during industrial paint application may occur when the paints are mixed and sprayed and during the cleaning of the equipment.

The industrial paints will be applied mostly by spray, mostly in booths, but some paints will be applied outdoors. In these instances, respirators will be worn.

Dermal and accidental ocular exposure to the notified polymer at <2% is likely as result of drips and spills. Paint users will wear gloves, coveralls, and goggles (or safety glasses) and, when a spray booth is used, efficient down draft ventilation and an effective filtered exhaust system will be used.

Architectural paint application

Exposure may occur when the architectural paint is applied and during the cleaning of equipment. Professional applicators will apply the coating by brush, roller, and sometimes by spray. Dermal and accidental ocular exposure to the notified polymer at <2% is likely as result of drips and spills. Applications occur in largely uncontrolled conditions; controls may involve opening windows and wearing a respirator when spraying.

Ink Application

Exposure may occur when ink is manually added or pumped into ink-wells, the result of “ink fly” from high speed printing rollers and during the cleaning of equipment. This may be performed manually or by pumping from drums. Dermal and accidental ocular exposure to the notified polymer at <2% is likely as result of drips and spills. Print workers will wear gloves, coveralls, and goggles (or safety glasses) and an effective filtered exhaust system will be used

Manufacture and Application of PVC Plastisol

Dermal and accidental ocular exposure to the notified polymer (at 5% or <100%), as a result of drips

and spills, is possible during the charging of the premix and plastisol mixing vessels. Workers will use safety goggles, gloves, overalls, and safety shoes. No solvents are used in plastisol manufacture and hence local exhaust ventilation may not be necessary.

5.4. Release

RELEASE OF CHEMICAL AT SITE

Environmental release of the notified polymer (100%) is unlikely during importation, storage and transportation, and accidental spills, leaks and catastrophic mechanical failure during a transport accident is the most likely reason for environmental release. Engineering controls (eg. container specifications) and emergency clean-up procedures (ie. spill response instructions on Material Safety Data Sheet and label) will limit the impact on the environment of such incidents. Spillages of the notified polymer during paint, ink or pigment dispersion manufacturing operations are unlikely to be released to the environment, but will be contained to the plant within bunding.

RELEASE OF CHEMICAL FROM USE

Use of paints containing the notified polymer would be widespread and diffuse throughout Australia, with concentrations at urban areas/cities. Application of paints to surfaces is estimated to produce up to 6% losses in overspray, some of which may potentially fall to land or water, where applied to boats. However, paints contain <2% notified polymer and the notifier indicates that the proposed marine paint application is a development area and consequently a minor use pattern for the notified polymer (~50 kg/y). The notified polymer will be an integral component of a hard and durable coating (paint or ink) or article of low potential environmental release. Use of the notified polymer in marine paints may potentially provide a means for migration of the polymer to surface waters. In the long term, coated products and articles are likely to be sent to landfill for disposal or to a material recycling facility at the end of their useful life.

5.5. Disposal

Manufacturing facility waste

Polymer wastes generated during manufacture of coatings and polymer dispersion will be trapped by standard engineering controls in place in the factories concerned. The notifier estimates that up to 200 kg/y (50 kg/y spills, 150 kg/y cleaning) of solvent-based waste may potentially be generated by cleaning up minor spills and solvent cleaning of manufacturing equipment. Waste polymer from paint manufacturing operations is collected by licensed waste contractor for disposal by incineration due to the presence of flammable solvents. The notifier indicates that during coating manufacture, no water is used in these processes or applications which could lead to discharges to the aquatic environment. Waste polymer and plastisol from plastic manufacture is likely to be consigned to landfills. The notifier estimates that ~50 kg/y of the notified polymer may potentially occur in residues in emptied imported drums. These drums will be disposed of through drum recycling facilities, with drum washings disposed of by incineration or potentially to wastewater treatment plant and/or sewer.

Architectural and Marine Paint application waste

For architectural paints, the notifier recommends that as much paint as possible from brushes, rollers and trays be returned to the container for future use. Excess paint from brushes and rollers should be absorbed onto absorbent material such as old newspapers and allowed to dry and then disposed of with household waste to landfill. Unwanted paint should be kept and disposed of at municipal chemical waste collection days. Residual paint in emptied containers (estimated at 100 kg/y) should be allowed to dry out by leaving lids off and disposed of to landfill. Brushes and rollers are typically cleaned using mineral turpentine, and the notifier estimates wastes of 200 kg/y from this source. These wastes have several potential disposal routes; dried and disposed of to land, to municipal chemical waste collection, to landfill, incinerated, and a fraction may be inappropriately disposed of to sewer. Stripping of marine paints from boats at marine repair facilities may potentially result in the release of hardened paint fragments into the aquatic environment unless engineering controls and appropriate waste management practices are employed to contain and collect paint residues for appropriate disposal.

Ink application waste

The notifier estimates that up to 100 kg/y of waste may potentially be generated during ink application operations. This solvent-based waste is either recycled or collected by licensed waste disposal contractors for incineration.

Paper waste containing a small proportion of the notified polymer will be disposed of to landfill, incinerated or recycled into other paper products. During the paper recycling process, the paper will be repulped in water, cleansed of contaminants, de-inked with alkali, washed, cooked, bleached, screened and then used in the normal process as in other pulp materials. The alkali mixture resulting from the de-inking stage is most likely recycled or neutralised and disposed of to a wastewater treatment plants (WWTP) by a licensed waste contractor. It is expected that the notified polymer removed from the paper/pulp will mostly (eg. >90%) partition to sludge due to its low solubility during the floatation and primary sedimentation processes. The remaining polymer in effluent is discharged to sewer for further treatment, with significant removal through partitioning to sludge expected to occur.

PVC Plastisol waste
Waste PVC plastic articles will be consigned predominantly to landfills, and after use most of these articles will be sent to landfill for disposal.

5.6. Public exposure

The public is unlikely to be exposed to the notified polymer during transport, storage, manufacture and industrial and professional applications, except in the event of an accidental spill.

The notified polymer will be used in surface coating and the printing industries. In the final products, the notified polymer will be held firmly within a matrix. Therefore public exposure is expected to be low.

Home handypersons who use the final architectural paints will be exposed. The likely routes of exposure would be dermal with possible accidental oral or ocular exposure. Inhalation exposure may occur if the paint is applied by spray. Due to the wide range of applications of the coatings in the domestic and industrial environments, public exposure via dermal contact with dried surfaces coated with paints and inks is also likely.

6. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa Amber viscous liquid.

Boiling Point Not determined.

METHOD	EC Directive 92/69/EEC A.2 Boiling Temperature.
Remarks	The test substance was examined by differential scanning calorimetry (DSC). The test substance decomposes without boiling at temperatures greater than 280°C.
TEST FACILITY	Syngenta (2004a)

Density 960 kg/m^3 at 20°C

METHOD	Pycnometer method
Remarks	Gas displacement pycnometer. Reference gas - helium
TEST FACILITY	Intertek (2004)

Vapour Pressure $1.1X10^{-7}$ kPa at 25°C

METHOD	EC Directive 92/69/EEC A.4 Vapour Pressure.
Remarks	The vapour pressure was determined using effusion manometry. The vapour pressure measured may be due to volatile impurities in the test sample. The measurements are thought to be conservative values for the vapour pressure
TEST FACILITY	Syngenta (2004a)

Water Solubility 0.00034 g/L at 23°C (±0.5°C)

METHOD	Turbidimetric method
Remarks	The water solubility was determined by turbidity measurement (mean of 2 results) using a HACH 2100N turbidimeter LIMS 1198. Light scattering measurements

were performed on sequentially diluted samples of notified polymer (0.3-0.7 g) in 100 mL water (pH range 6.2-8.1). Solubility was indicated by turbidity independent of concentration, while an increase in scattering with concentration is seen above the solubility limit. The solubility was determined from the intercept of the two linear portions of the graph. Solubilities determined were 0.3999 mg/L and 0.2830 mg/L is duplicated tests.

TEST FACILITY Intertek ASG (2003)

Hydrolysis as a Function of pH Not determined

Remarks Due to the very low water solubility, the notified polymer is unlikely to hydrolyse despite the presence of potentially hydrolysable groups.

Partition Coefficient (n-octanol/water) log Pow = >5.5 at 20°C

Remarks Due to analytical difficulties in determining the test material S174295 in octanol and water, data on the relative solubilities was used to estimate log Pow. The test material is miscible in all proportions in octanol (assumed to be 10% or 100000 for this purpose), and the water solubility is 0.34 mg/L.

TEST FACILITY Avecia Research Centre (2004).

Adsorption/Desorption Not determined

Remarks The notified polymer is expected to associate with soil and sediment due to its low water solubility and conversely high solubility in n-octanol.

Dissociation Constant Progressive ionisation occurs throughout the pH range.

METHOD Estimated using computer software ACD/pKa Suite (Version 7.05).

Remarks The notified polymer contains primary, secondary and tertiary amines and carboxylate functionalities. pKa was estimated for Solsperse 30000 and in more detail for a smaller oligomer fragment. Nine values were estimated in the pKa range –0.8 to 9.77.

TEST FACILITY Intertek ASG (2004).

Particle Size Not applicable

Remarks The polymer is a liquid under normal conditions of use.

Flash Point >300°C at 98.79 kPa

METHOD EC Directive 92/69/EEC A.9 Flash Point.

Remarks No flashpoint was detected below 300°C. The test substance is not classified as flammable in terms of its flash point.

TEST FACILITY Syngenta (2004b)

Flammability Limits Not determined

METHOD EC Directive 92/69/EEC A.12 Flammability (Contact with Water).

Remarks The test substance does not evolve highly flammable gases on contact with water. The test substance is not classified as high flammable in terms of its reactivity with water.

TEST FACILITY Syngenta (2004b)

Autoignition Temperature 420 ± 5°C

METHOD 92/69/EEC A.15 Auto-Ignition Temperature (Liquids and Gases).

Remarks The test was carried out in accordance with the test guideline however 5°C increments were used rather than 2°C increments.

TEST FACILITY Syngenta (2004b)

Explosive Properties Not explosive

Remarks By comparing the bond grouping in the polymer structure with those known to confer explosivity, it was found that the test substance is not an explosive.
TEST FACILITY Avecia (2003)

Pyrophoric Properties Does not spontaneously ignite on contact with air at ambient temperature

METHOD EC Directive 92/69/EEC A.13 Pyrophoric Properties of Solids and Liquids.
Remarks The test substance does not spontaneously ignite on contact with air at ambient temperatures. The test substance is not classified as highly flammable in terms of its pyrophoric properties.
TEST FACILITY Syngenta (2004b)

Reactivity

Remarks The polymer is stable but being an organic compound should be segregated from reactive material such as oxidising agents.

7. TOXICOLOGICAL INVESTIGATIONS

No toxicity data were submitted

8. ENVIRONMENT

8.1. Environmental fate

No environmental fate data were submitted. The notifier indicates that the notified polymer is stable in environment. The notified polymer has a low water solubility and is likely to partition to sediments and soils if released into the environment. The notified polymer has a very low vapour pressure and the rate of migration to the atmosphere is expected to be very slow.

8.1.2. Bioaccumulation

Remarks With an estimated log Pow of >5.5 and complete miscibility on octanol, the notified polymer has an affinity to lipids. However, it is not expected to cross biological membranes due to its high molecular weight, and its very low water solubility will limit its occurrence in the aquatic environment.

8.2. Ecotoxicological investigations

No ecotoxicity data were submitted.

9. RISK ASSESSMENT

9.1. Environment

9.1.1. Environment – exposure assessment

The use pattern for the notified polymer indicates a very low potential for release to the aquatic environment and no accurate prediction of environmental concentration (PEC) could be derived. Use of the notified polymer in marine paints may potentially provide a means for

exposure and release of the polymer from painted surfaces to surface waters; however, a slow leaching rate and high dilution is expected. Being solvent-based paints and inks, cleaning solutions and wastewaters are unlikely to be disposed of to sewer. Within a landfill environment, the notified polymer is not expected to be mobile, but will degrade over time. During incineration, the notified polymer will be destroyed, emitting oxides of nitrogen and carbon.

9.1.2. Environment – effects assessment

No ecotoxicity data were submitted. The notified polymer contains primary, secondary and tertiary aliphatic amine groups and is potentially cationic and consequently it may potentially possess toxic properties. Water-based dispersion polymers in general are of low toxicity to sewage sludge organisms and unlikely to inhibit aerobic sludge processes in wastewater treatment systems. Polymers with reactive cationic nitrogen-containing functional groups may be toxic to aquatic organisms (eg. LC50 ~ ≥5 mg/L; Guiney *et al*., 1996).

9.1.3. Environment – risk characterisation

The use pattern for the notified polymer indicates a very low potential for release to the aquatic environment. No PEC/PNEC ratio can be calculated but considering the low expected toxicity and likely very low environmental levels, the notified polymer in unlikely to pose an unacceptable risk to the environment.

9.2. Human health

9.2.1. Occupational health and safety – exposure assessment

Workers likely to be exposed to notified polymer are those involved in the transport, warehousing, and ink and paint and plastisol manufacture and application. The most likely route of exposure is dermal. Inhalation may occur during spray painting. Ocular exposure may occur as a result of accidental spillage. Potential exposure may occur in the following activities:

- Weighing and mixing of the notified polymer with other ingredients;
- Batch adjustment and QC testing
- Filling of containers
- Preparation and application of inks, paints and plastisol
- Cleaning of equipment.

Worker exposure to notified polymer during coating and plastisol manufacture will be greater than for workers handling the notified polymer in the finished coatings and plastisol and during coatings application. It is expected that the use of automated and semi automated systems will reduce exposure during the coating manufacture process. Coating and plastisol manufacture workers will handle the concentrated (100%) notified polymer, while workers handling the finished ink and paints will be exposed to the notified polymer at levels up to 2% by weight. Workers handling the plastisol will be exposed to notified polymer at levels up 5% by weight

The coating manufacturing plant will employ local exhaust ventilation and workers are expected to use personal protective equipment. During cleaning activities, gloves, overalls, and eye protection will be used together with the use of local exhaust ventilation and or respiratory protection.

Industrial coating application involves the use of spray or roller coating equipment in an environment with effective filtered exhaust system and personal protective equipment. The industrial paints are expected to be mostly applied by spray. Much of this expected to occur in booths but it is likely that some will be applied outdoors. In such instances, the workers will use respirators.

During architectural paint application there is potential for worker exposure as these situations are uncontrolled other than by outdoor use or by opening windows. During spraying workers may wear a respirator.

It expected that during PVC Plastisol manufacture and application workers will use personal protective equipment to minimise exposure.

9.2.2. Public health – exposure assessment

Public exposure will be limited to home handypersons using the architectural paints. The main route of exposure will be dermal, with possible accidental oral and ocular exposure. Inhalation exposure may occur if the if architectural paints are sprayed.

The public may make dermal contact with surfaces containing the dried coatings and printed surfaces, however, the polymer is firmly attached to the surface and not available.

9.2.3. Human health – effects assessment

No toxicological data were provided.

The notified polymer has a high molecular weight and is therefore unlikely to cross biological membranes.

The MSDS states that the notified polymer may be an eye irritant and contact with skin may result in irritation. Breathing mists or aerosols of the notified polymer may produce respiratory irritation. The irritation is most likely to be mechanical in nature.

Based on the available data, the notified polymer can not be classified in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances* (NOHSC 2002).

9.2.4. Occupational health and safety – risk characterisation

Workers involved in coating and plastisol manufacture will handle the concentrated form of the notified polymer. Dermal and accidental ocular exposure will be main route of exposure. The notified polymer may be cause skin irritation. Therefore, workers should avoid dermal contact by wearing chemical resistant gloves and coveralls. The notified polymer is irritating to the eye; workers should avoid ocular exposure by wearing safety eyewear. The notified polymer may cause respiratory irritation; therefore, local exhaust ventilation and or respirators should be used, if the notified polymer may be inhaled.

During the industrial coating and plastisol application dermal, accidental ocular and inhalation (if spraying) exposure to the notified polymer may occur. The concentration of the notified polymer in coatings and plastisols will be up to 2% and 5%, respectively. At these concentrations, the risk of irritation is low; however, to protect against dermal and accidental ocular exposure, gloves, overalls and goggles will need to be used by applicators. In industrial applications, where spray and roller coating methods are used, this will occur in controlled situations, where adequate ventilation will be in place. However, in uncontrolled situations, such as the use of architectural paints, workers should have adequate ventilation or use respirators. During ink and plastisol application, dermal and accidental ocular exposure may occur. Coveralls, gloves and safety eyewear should be used to minimise exposure

After the notified polymer has dried, it will bound in the cured matrix and available for exposure. Thus the risk to workers from exposure to the dried ink and paint is negligible.

9.2.5. Public health – risk characterisation

Home handypersons who use the final architectural paints will be exposed to paints containing up to 2% by weight of the notified polymer. This mostly likely during periods of home decoration.
The health risk to members of the public resulting from this exposure to the notified polymer is low due to its low concentration.

Due to the wide range of applications of the coatings in the domestic and industrial environments, public exposure via dermal and contact with dried surface coated with paints and inks is also likely. However, once applied to article and dried the notified polymer becomes an integral part of the hard durable coating and is not a risk to the public.

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*.

Based on the available data the notified polymer can not be classified using the Globally Harmonised System for the Classification and Labelling of Chemicals (GHS) (United Nations 2003). This system is not mandated in Australia and carries no legal status but is presented for information purposes

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 as specified in the notification.

11. MATERIAL SAFETY DATA SHEET

11.1. Material Safety Data Sheet

The MSDS of 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 2003). 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 notified polymer provided by the notifier was in accordance with the NOHSC *National Code of Practice for the Labelling of Workplace Substances* (NOHSC 1994). The accuracy of the information on the label remains the responsibility of the applicant.

12. RECOMMENDATIONS

REGULATORY CONTROLS

Hazard Classification and Labelling

- The following safety phrases should be used for the notified polymer as introduced:
  S24/25 Avoid contact with skin and eyes
  S36/37/39 Wear suitable protective clothing gloves and eye/face protection
  S23 Do not breathe vapour
  S38 In case of insufficient ventilation, wear suitable respiratory equipment

CONTROL MEASURES

Occupational Health and Safety

- Employers should implement the following engineering controls to minimise occupational exposure to the notified polymer as introduced, as diluted for use, in end use products:
  – Exhaust ventilation and respirators

- Employers should implement the following safe work practices to minimise occupational exposure during handling of the notified polymer as introduced, as diluted for use, and in end use product:
  - NOSHC exposure standards for all components of the final coating and PVC plastisol mix should not be exceeded in the workplace
  - Prevent splashes and spills
  - Use of spray paints containing the notified polymer should be accordance with the NOHSC National Guidance Material for Spray Painting (NOHSC, 1999b)

- Employers should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer as introduced :
  - Chemical resistant gloves, protective clothing which protects the body, arms and legs and goggles or safety glasses

  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.

- 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

Emergency procedures

- Spills/release of the notified polymer should be handled by contained using absorbent material (soil, sand or other inert material). Prevent run-off into drains and waterways. Collect and seal in properly labelled containers or drums for disposal. If contamination of waterways or sewers has occurred, advise local emergency services.

Disposal

- All wastes containing the notified polymer in accordance with waste management authority regulations by licensed waste contractor.
- Solid wastes containing the notified polymer should be disposed of to landfill. Paint residue waste arising from surface maintenance activities (eg. paint stripped/removed from surfaces), particularly in marine areas, should be contained and disposed of to landfill.
- Liquid wastes containing the notified polymer should be recycled in the manufacturing processes or incinerated.

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 importation volume exceeds 10 tonne per annum notified polymer; or
  - the use pattern of the notified polymer changes so that there may be more significant release to water.

In either case, aquatic ecotoxicity testing data should be supplied.

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.

13. BIBLIOGRAPHY

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