

File No: LTD/1686

October 2013

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

**PUBLIC REPORT**

**Polymer in EXP-4560 Emulsion**

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 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.

For the purposes of subsection 78(1) of the Act, this Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This Public Report is also 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  
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## **TABLE OF CONTENTS**

SUMMARY .....	3
CONCLUSIONS AND REGULATORY OBLIGATIONS .....	3
ASSESSMENT DETAILS.....	5
1.    APPLICANT AND NOTIFICATION DETAILS.....	5
2.    IDENTITY OF CHEMICAL.....	5
3.    COMPOSITION.....	5
4.    PHYSICAL AND CHEMICAL PROPERTIES .....	6
5.    INTRODUCTION AND USE INFORMATION.....	6
6.    HUMAN HEALTH IMPLICATIONS .....	7
6.1.    Exposure Assessment.....	7
6.1.1.    Occupational Exposure.....	7
6.1.2.    Public Exposure.....	8
6.2.    Human Health Effects Assessment .....	8
6.3.    Human Health Risk Characterisation .....	9
6.3.1.    Occupational Health and Safety.....	9
6.3.2.    Public Health.....	9
7.    ENVIRONMENTAL IMPLICATIONS.....	10
7.1.    Environmental Exposure & Fate Assessment .....	10
7.1.1.    Environmental Exposure.....	10
7.1.2.    Environmental Fate .....	10
7.1.3.    Predicted Environmental Concentration (PEC).....	11
7.2.    Environmental Effects Assessment.....	11
7.2.1.    Predicted No-Effect Concentration.....	11
7.3.    Environmental Risk Assessment.....	11
BIBLIOGRAPHY .....	13

## SUMMARY

The following details will be published in the NICNAS *Chemical Gazette*:

ASSESSMENT REFERENCE	APPLICANT(S)	CHEMICAL OR TRADE NAME	HAZARDOUS CHEMICAL	INTRODUCTION VOLUME	USE
LTD/1686	Dow Chemical Australia Ltd  Rohm & Haas Australia Pty Ltd	Polymer in EXP-4560 Emulsion	ND*	≤ 50 tonne/s per annum	Component of paints

\*ND = not determined

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### **Hazard classification**

As no toxicity data were provided, the notified polymer cannot be classified according to the *Globally Harmonised System for the Classification and Labelling of Chemicals* (GHS), as adopted for industrial chemicals in Australia, or the *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 2004).

### **Human health risk assessment**

Provided that control measures are in place to minimise worker exposure (including the use of respiratory protection by workers during reformulation activities, if ventilation is inadequate, and use of non-aerosol spray during spray painting), the notified polymer is not considered to pose an unreasonable risk to the health of workers.

Provided that aerosol spray is not used for painting, when used in the proposed manner the notified polymer is not considered to pose an unreasonable risk to public health.

### **Environmental risk assessment**

On the basis of the assessed use pattern and the assumed low hazard, the notified polymer is not expected to pose an unreasonable risk to the environment.

### **Recommendations**

#### REGULATORY CONTROLS

- Spray products containing the notified polymer should carry the following safety directions on the label:
  - Avoid breathing of vapours, mists and sprays
  - Use in well-ventilated areas, where possible
  - In case of insufficient ventilation, wear suitable respiratory equipment
  - Use only non-aerosol spray methods

#### CONTROL MEASURES

##### Occupational Health and Safety

- A person conducting a business or undertaking at a workplace should implement the following isolation and engineering controls to minimise occupational exposure to the notified polymer:
  - Enclosed, automated processes during reformulation, where possible
  - Adequate ventilation during reformulation processes and spray applications of products containing the notified polymer
  - Non-aerosol spray should be utilised during spray application
- A person conducting a business or undertaking at a workplace should implement the following safe work practices to minimise occupational exposure to the notified polymer:

- Avoid inhalation of aerosols
- Avoid prolonged spraying
- A person conducting a business or undertaking at a workplace should ensure that the following personal protective equipment is used by workers to minimise occupational exposure to the notified polymer as introduced and during reformulation of coatings (at < 50% concentration):
  - Respiratory protection, if ventilation is inadequate

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

- Spray applications should be carried out in accordance with the Safe Work Australia Code of Practice for *Spray Painting and Powder Coating* (SWA, 2012) or relevant State or Territory Code of Practice.
- A copy of the (M)SDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System for the 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

- The notified polymer should be disposed of to landfill.

#### Emergency procedures

- Spills or accidental release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.

### Regulatory Obligations

#### *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 chemical 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 polymer, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified polymer is 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
  - information on the inhalation toxicity or potential for lung overloading effects of the notified polymer becomes available;
  - the final product containing the notified polymer at < 5% is intended for use in aerosol sprays;
  - the polymer has a number-average molecular weight of less than 1000;

or

- (2) Under Section 64(2) of the Act; if
  - the function or use of the polymer has changed from component of paints, or is likely to change significantly;
  - the amount of polymer being introduced has increased, or is likely to increase, significantly;
  - the polymer has begun to be manufactured in Australia;
  - additional information has become available to the person as to an adverse effect of the polymer 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.

No additional secondary notification conditions are stipulated.

*Material Safety Data Sheet*

The MSDS of the product containing the notified polymer provided by the notifier was reviewed by NICNAS. The accuracy of the information on the MSDS remains the responsibility of the applicant.

## **ASSESSMENT DETAILS**

### **1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Dow Chemical Australia Limited (ABN: 72 000 264 979)  
541-583 Kororoit Creek Road, ALTONA VIC 3018

Rohm & Haas Australia Pty Ltd (ABN: 29 004 513 188)  
4<sup>th</sup> Floor, 969 Burke Road, CAMBERWELL VIC 3124

NOTIFICATION CATEGORY

Limited: Synthetic polymer with  $M_n \geq 1000$  Da.

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, degree of purity, polymer constituents, residual monomers, impurities, additives/adjuvants, use details and import volume

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

Variation to the schedule of data requirements is claimed as follows: all physico-chemical endpoints

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

NOTIFICATION IN OTHER COUNTRIES

None

### **2. IDENTITY OF CHEMICAL**

MARKETING NAME(S)

Polymer in EXP-4560 Emulsion

MOLECULAR WEIGHT

> 10,000 Da

ANALYTICAL DATA

Reference GPC spectra were provided.

### **3. COMPOSITION**

DEGREE OF PURITY

> 90%

LOSS OF MONOMERS, OTHER REACTANTS, ADDITIVES, IMPURITIES

The notified polymer will be imported in an aqueous dispersion. All the residual monomer content will be available for release into the dispersion.

DEGRADATION PRODUCTS

The notified polymer is stable under normal use conditions.

#### 4. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AT 20 °C AND 101.3 kPa: white to bluish liquid\*

Property	Value	Data Source/Justification
Melting Point/Freezing Point	Not determined	The notified polymer is not isolated from an aqueous dispersion.
Density	1000-1200 kg/m <sup>3</sup> at 25 °C	MSDS*
Vapour Pressure	Not determined	Expected to be low based on the high molecular weight.
Water Solubility	Not determined	The notified polymer is expected to be at least water dispersible based on its hydrophilic functionalities, data in the MSDS and its use pattern in aqueous products.
Hydrolysis as a Function of pH	Not determined	The notified polymer contains hydrolysable functionalities. However, hydrolysis is not expected to be significant in the environmental pH range of 4-9.
Partition Coefficient (n-octanol/water)	Not determined	The notified polymer is expected to have a low log Pow as it is dispersible in water.
Adsorption/Desorption	Not determined	The notified polymer is expected to partition from water to soil, sediment and sludge based on its high molecular weight and anionic properties.
Dissociation Constant	Not determined	The notified polymer contains anionic functionalities that have potential to be ionised at the environmental pH range of 4 – 9.
Particle Size	Not determined	The notified polymer is not isolated from an aqueous dispersion.
Flash Point	Not determined	Expected to be high based on the low vapour pressure.
Flammability	Not determined	Imported in an aqueous dispersion. Not expected to be flammable under normal conditions of use.
Autoignition Temperature	Not determined	Imported in an aqueous dispersion. Not expected to autoignite under normal conditions of use.
Explosive Properties	Not determined	Contains no functional groups that would imply explosive properties.
Oxidising Properties	Not determined	Contains no functional groups that would imply oxidising properties.

\*Product containing the notified polymer at < 50% in an aqueous dispersion

#### DISCUSSION OF PROPERTIES

##### Reactivity

The notified polymer is expected to be stable under normal conditions of use.

##### Physical hazard classification

Based on the limited submitted physico-chemical data depicted in the above table, the notified polymer is not recommended for hazard classification according to the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia.

#### 5. INTRODUCTION AND USE INFORMATION

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

The notified polymer will be imported in a product dispersion at a concentration of < 50%.

#### 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>	10-50	10-50	10-50	10-50	10-50

PORT OF ENTRY  
Melbourne

IDENTITY OF RECIPIENTS  
Dow Chemical Australia Ltd  
Rohm & Haas Australia Pty Ltd

#### TRANSPORTATION AND PACKAGING

The notified polymer will be imported in 205 L lined steel drums or 1000 L intermediate bulk containers and transported to end use sites by road.

#### USE

The notified polymer will be used a component of water-based architectural paints at a concentration of < 5%.

#### OPERATION DESCRIPTION

##### *Formulation of latex emulsion*

The imported product containing the notified polymer at < 50% will be formulated into latex emulsion (containing < 15% notified polymer). Formulation will be mostly an automated process. The notified polymer will be transferred from the drum by metered dosing into a closed mixing vessel. Following mixing, samples will be taken for quality analysis purposes. Filling containers such as 205 L drums or 1000 L intermediate bulk containers with the final latex emulsion product (containing < 15% notified polymer) will be an automated process.

##### *Paint formulation*

The latex emulsion containing the notified polymer at < 15% will be transferred from the drum using drum lifts into open stainless steel blending tanks, which are under local exhaust ventilation, to be blended with other coating components with high speed dispersion and mixing. During dispersion the tanks will be covered. The blend will be diluted with solvent and binders to form the finished coatings containing the notified polymer at < 5%. Samples will be taken for quality analysis purposes. The finished coatings will be filled from the tanks via hoppers in to 1, 4, 10 and 20 L steel cans by gravity feed under a ventilation extraction system.

##### *Retail*

Retail workers may be involved in paint tinting. After addition of the tint into the can, it will be resealed and placed in a vibrating agitator for mixing.

##### *End use - Professionals*

The formulated coating products (containing < 5% notified polymer) will be applied to substrates such as walls by brush, roller or airless spray.

##### *End use - Public*

Members of the public may use products containing the notified polymer at concentrations of < 5% for architectural coatings. These coatings will typically be applied with roller or brush, though a small portion may be applied using non-aerosol spray.

## 6. HUMAN HEALTH IMPLICATIONS

### 6.1. Exposure Assessment

#### 6.1.1. Occupational Exposure

##### CATEGORY OF WORKERS

<i>Category of Worker</i>	<i>Exposure Duration</i>	<i>Exposure Frequency</i>
---------------------------	--------------------------	---------------------------

	(hours/day)	(days/year)
Transport and warehousing	2	12-24
Latex emulsion formulation		
Line operators/fillers	4	12
Quality analysis	1	12
Paint formulation		
Line operators/fillers	4-8	200
Quality analysis	1	200
Retail	4-8	200
Painters	4-8	200

#### EXPOSURE DETAILS

##### *Transport and warehousing*

Storage and warehousing workers are not expected to be exposed to the notified polymer, except in the unlikely event of an accidental container rupture.

##### *Latex emulsion and paint*

Dermal, ocular and possibly inhalation exposure of workers to the notified polymer (at < 50% concentration) may occur during transfer processes, blending, cleaning, maintenance and quality analysis tasks. However, exposure is expected to be minimised by the use of mostly automated and often enclosed processes, local exhaust ventilation and appropriate personal protective equipment (PPE), including protective clothing, impervious gloves, goggles and respirators if ventilation is inadequate.

##### *Retail*

During paint tinting processes, retail workers may be exposed to coatings containing the notified polymer at < 5%, mainly via the dermal route. Exposure will be minimised if PPE is used by workers.

##### *End use - Professionals*

Under the proposed use scenario, professionals (e.g. painters) may be exposed to coatings containing the notified polymer (at < 5% concentration). Exposure is expected to occur predominantly via the dermal route, with ocular and inhalation exposure also possible, particularly when products are applied by airless spray. The potential for exposure should be minimised through the use of safe work practices and PPE by workers (goggles, impervious gloves, appropriate clothing and respiratory protection during spray application). The products are expected to be used in well ventilated areas.

#### **6.1.2. Public Exposure**

Finished coatings containing the notified polymer at < 5% concentration will be available for use by the general public.

Dermal and ocular exposure of the public to the notified polymer may occur during applications using brush and roller, particularly during the manual decanting and the manual applications, and cleaning of equipment. Inhalation exposure is also possible when products are applied by non-aerosol spray. Exposure is expected to be lowered by use in well ventilated areas where possible and if members of the public wear PPE during coating application, exposure will be further minimised.

The general public may come in contact with articles or surfaces coated with products containing the notified polymer; however the notified polymer will be cured into the inert matrix and will not be bioavailable.

#### **6.2. Human Health Effects Assessment**

No toxicity data were submitted.

##### *Toxicokinetics, metabolism and distribution*

The notified polymer is a very high molecular weight polymer (> 1,000,000 Da) with a low proportion of low molecular weight species (species with molecular weight < 1,000 Da were not detected) and expected limited water solubility. These characteristics are expected to limit absorption via the gastrointestinal tract, or following dermal or inhalation exposure.

The notified polymer is expected to have relatively low water solubility based on the nature and proportion of the monomers present. As such, aqueous dispersions of the notified polymer may not be formed intrinsically, but



may be due to the presence of other components in the product, such as surfactants. In addition, the particle size of the notified polymer or the final product containing the notified polymer at < 5% is not unknown. The default initial median particle size for paint aerosol spray cans is 30 µm with < 10% below 10 µm. When using a pneumatic or pump sprayer for spraying paints the median particle size is 50 µm with a minimal proportion < 10 µm (assumed to be similar to an airless spraying method) (RIVM 2007). Inhalation of respirable particles of polymers with molecular weights > 70,000 Da has been linked with irreversible lung damage due to lung overloading and impaired clearance of particles from the lung, particularly following repeated exposure (US EPA, 2013). Therefore, the potential for lung overloading effects associated with the notified polymer remains uncertain. If the notified polymer is inhaled at low levels and/or infrequently, it may be cleared from the lungs. However, high levels and/or frequent exposure may result in lung overloading effects, though the level of exposure in humans that would result in such effects, as well as the severity, is uncertain.

### **Health hazard classification**

As no toxicity data were provided, the notified polymer cannot be classified according to the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia, or the *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 2004).

## **6.3. Human Health Risk Characterisation**

### **6.3.1. Occupational Health and Safety**

No toxicological data was provided for the notified polymer. The primary risk to human health associated with use of products containing the notified polymer is the potential for lung overloading effects following repeated inhalation exposure (particularly in aerosol form).

Workers may be exposed to the notified polymer at concentrations up to 50% during formulation processes. Some workers may be exposed to products containing the notified polymer (at < 5% concentration). Exposure is most likely to occur via the dermal route, although ocular and inhalation exposure to the notified polymer may also occur. Dermal and ocular exposure of workers to the notified polymer would be minimised through the use of automated and enclosed processes, local exhaust ventilation, safe work practices and the use of PPE such as overalls, impervious gloves and goggles. Inhalation exposure may occur during spray painting but would be minimised through the use of PPE such as respirators.

Regarding use in spray coating products, based on the very high molecular weight and low water solubility of the notified polymer, the potential for lung overloading effects from repeated inhalation exposure to the notified polymer cannot be ruled out, particularly where there is high and/or frequent exposure. Thus the potential for lung overloading effects may be of specific concern to workers who regularly use spray coating products containing the notified polymer, although the degree of exposure is likely to vary greatly depending on the amount and frequency of application and the spray environment.

As there is the potential for lung overloading effects, with uncertainty regarding the level of exposure that would lead to any potential effects, it is recommended that workers avoid inhalation of aerosols and use respirators to minimise exposure. In addition, the notifier indicated that only airless spray (ie. non-aerosol spray) would be used to apply the product containing the notified polymer at < 5% (expected to contain only a minimal proportion of particles size < 10 µm). Therefore, provided exposure of workers to coating sprays is limited through the use of control measures (e.g. respirator and/or spray booths) and aerosol spray is not used to apply the final product containing the notified polymer at <5%, the risk to the health of workers is not considered to be unreasonable.

Once the substrates, such as walls, are coated and dried, the polymer will be bound in the paint matrix and is not expected to be bioavailable.

### **6.3.2. Public Health**

DIY users may be exposed to the notified polymer at concentrations < 5% via the dermal or ocular routes. However, given the infrequent and short duration of exposure and the relatively low concentration of the notified polymer in coating products, the risk to the public from use of the notified polymer is not considered to be unreasonable.

However, as noted above, the greatest concern associated with use of products containing the notified polymer (at < 5%), is the potential for lung overloading effects following inhalation exposure. Regarding use in spray coating products, the frequency of exposure of members of the public to the notified polymer is expected to be

less than that of workers. If only non-aerosol sprays are used, this is expected to further lower the potential for lung overloading effects. Overall, it is assumed that if the notified polymer is inhaled at low levels and/or infrequently, that it will be cleared from the lungs.

The general public may also be exposed to substrates coated with the notified polymer (< 5%). However, the notified polymer will be dried and cured and is not expected to be significantly bioavailable.

In conclusion, the risk to public health associated with exposure to the notified polymer is not considered to be unacceptable.

## **7. ENVIRONMENTAL IMPLICATIONS**

### **7.1. Environmental Exposure & Fate Assessment**

#### **7.1.1. Environmental Exposure**

##### **RELEASE OF CHEMICAL AT SITE**

The notified polymer will be imported into Australia and be used in the local manufacture of water-based architectural paints. The products containing the notified polymer will be formulated into latex emulsion in an enclosed and automatic system. Then, the latex emulsion will be transferred from the drum into steel blending tanks and blended with other coating components to produce the finished paints. The potential release from reformulation process may occur as a result of residues in empty containers, from spills and leaks and from the cleaning of equipment.

During the processes of manufacturing latex emulsion, it is estimated that up to 5% (2% as residues, 1% as spills and leaks and 2% from the cleaning of equipment) of the total import volume of the notified polymer may be released to the environment. Wastes from residues, leaks and spills are expected to be collected and disposed of to landfill. Washings for the cleaning of equipment are expected to be reused as far as possible. It is estimated by the notifier that approximately 0.5% of the total import volume of the notified polymer may be released to the on-site water treatment facility, where the majority of the notified polymer is expected to be removed from waste water by adsorption to sludge. Therefore, the amount of the notified polymer discharged to sewers in treated waste water is expected to be negligible.

##### **RELEASE OF CHEMICAL FROM USE**

The notified polymer will be used as a component of water-based architectural paints. The formulated products containing the notified polymer will be applied to substrate such as interior walls using brush (45%), roller (45%) or spray equipment (10%) by professional or Do-It-Yourself (DIY) users. The products are expected to be efficiently transferred to the substrate's surface by using brushes and rollers. The release of the notified polymer from overspray is estimated to be  $\leq 20\%$ . Any overspray is expected to be collected on newspaper or drop-sheets and be subsequently disposed of to landfill as solid waste.

The major release of the notified polymer to the aquatic environment may come from the cleaning of application equipment, especially the brushes or rollers used by DIY users. It is expected that up to 5% of the imported quantity of notified polymer may be disposed of to sewers during the clean-up of paint application equipment. Notified polymer released to sewers is expected to be treated at the wastewater treatment facility during the waste water treatment processes.

##### **RELEASE OF CHEMICAL FROM DISPOSAL**

The disposal of the major fraction of the imported quantity of notified polymer will be linked to the ultimate disposal of the dried paint on building structures. As large portions of architectural paints are removed before repainting, it is expected that the majority of the notified polymer will ultimately be disposed of to landfill in the form of discarded paint chips or as coated articles.

The residual paint remaining in empty containers is expected to be up to 1% of the initial volume, which will be consigned to landfill with the discarded containers.

#### **7.1.2. Environmental Fate**

The majority of the imported quantity of notified polymer is expected to share the fate of solid paint chips or wasted articles at the end of their useful life and be disposed of to landfill. The notified polymer is expected to be strongly bound to the other components of the inert matrix of the paint and is not expected to be bioavailable nor

bioaccumulative in this form. Formulated notified polymer that is disposed of directly to landfill, as wastes produced during its application or as residues in empty containers, is expected to be entrapped within a stable coating matrix and be immobile in landfill. The notified polymer disposed of to sewers will be treated at sewage treatment plants (STPs). In STPs the notified polymer is expected to adsorb to the sludge based on its high molecular weight and anionic properties. Limit amounts of notified polymer remaining in the water phase will disperse and eventually degrade in the case of release to surface waters.

The notified polymer is not expected to bioaccumulate based on its high molecular weight. In landfill, soil and water, the notified polymer is expected to eventually degrade via abiotic and biotic pathways to form water and oxides of carbon and phosphorus.

### 7.1.3. Predicted Environmental Concentration (PEC)

The notified polymer may be released to sewers during its use in paint by DIY users. Therefore, under a worst case scenario, it is assumed that 5% of the entire volume will be discharged into sewers over 365 days per year. Assuming no removal of the notified polymer in STPs, the resultant Predicted Environmental Concentration (PEC) in sewage effluent on a nationwide basis is estimated as follows:

<i>Predicted Environmental Concentration (PEC) for the Aquatic Compartment</i>		
Total Annual Import/Manufactured Volume	50,000	kg/year
Proportion expected to be released to sewer	5 %	
Annual quantity of chemical released to sewer	2,500	kg/year
Days per year where release occurs	365	days/year
Daily chemical release:	6.85	kg/day
Water use	200	L/person/day
Population of Australia (Millions)	22.613	million
Removal within STP	0%	
Daily effluent production:	4,523	ML
Dilution Factor - River	1	
Dilution Factor - Ocean	10	
PEC - River:	1.51	µg/L
PEC - Ocean:	0.15	µg/L

STP effluent re-use for irrigation occurs throughout Australia. The agricultural irrigation application rate is assumed to be 1000 L/m<sup>2</sup>/year (10 ML/ha/year). The notified polymer in this volume is assumed to infiltrate and accumulate in the top 10 cm of soil (density 1500 kg/m<sup>3</sup>). Using these assumptions, irrigation with a concentration of 1.51 µg/L may potentially result in a soil concentration of approximately 10.1 µg/kg. Assuming accumulation of the notified polymer in soil for 5 and 10 years under repeated irrigation, the concentration of notified polymer in the applied soil in 5 and 10 years may be approximately 50.5 µg/kg and 101 µg/kg, respectively.

## 7.2. Environmental Effects Assessment

No ecotoxicity data were submitted for the notified polymer. Anionic polymers are known to be moderately toxic to algae and show low toxicity to fish and daphnids. 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. This is unlikely to apply to the anionic component of the notified polymer and, therefore, it is not considered to be an over-chelation hazard to algae. Furthermore, the notified polymer is not expected to bioaccumulate based on its high molecular weight.

### 7.2.1. Predicted No-Effect Concentration

The Predicted No-Effect Concentration (PNEC) has not been calculated since no ecotoxicity data for the notified polymer was submitted.

## 7.3. Environmental Risk Assessment

The Risk Quotient (PEC/PNEC) is unable to be quantified as the PNEC has not been calculated. The notified polymer is an anionic polymer and is assumed to be of low hazard to aquatic organisms although small amounts of the notified polymer may be released to aquatic compartment during its use. The majority of the imported quantity of the notified polymer will be incorporated into an inert paint matrix and is not expected to be mobile,

bioavailable nor bioaccumulative. Therefore, on the basis of the assessed use pattern and the assumed low hazard, the notified polymer is not expected to pose an unreasonable risk to the environment.

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