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

**PUBLIC REPORT**

**Polyalkylene glycol methyl ethyl ether**

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Department of Health and Ageing, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Department of Sustainability, Environment, Water, Population and Communities.

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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## 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
STD/1455	Roland Digital Group Australia Pty Ltd	Polyalkylene glycol methyl ethyl ether	Yes	≤ 15 tonnes per annum	Component of commercial and industrial printing ink

## CONCLUSIONS AND REGULATORY OBLIGATIONS

### Hazard classification

Based on the available physico-chemical information, the notified chemical is 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. The recommended hazard classification is presented in the table below.

<i>Hazard classification</i>	<i>Hazard statement</i>
Flammable Liquids (Category 4)	H227: Combustible liquid

As only limited toxicity data were provided on the notified chemical, the notified chemical 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). However, it is noted that a close analogue chemical is classified as a reproductive and developmental toxicant (category 1B).

### Human health risk assessment

Provided that control measures are in place to minimise worker exposure (including the use of automated processes, where possible, adequate ventilation and appropriate personal protective equipment), the notified chemical is not considered to pose an unreasonable risk to the health of workers.

When used in the proposed manner, the notified chemical is not considered to pose an unreasonable risk to public health.

### Environmental risk assessment

On the basis of the PEC/PNEC ratio and the assessed use pattern, the notified chemical is not considered to pose an unreasonable risk to the environment.

### Recommendations

#### REGULATORY CONTROLS

#### (Material) Safety Data Sheet

- The (M)SDS for the notified chemical and products containing the notified chemical should reflect the concerns associated with repeated exposure to the notified chemical (in-particular, the potential for harm to the unborn child and the risk of impaired fertility following repeated exposure).

#### 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 chemical in inks:
  - Local exhaust extraction in printing area

- General ventilation in storage areas for printed materials
- Enclosed, automated processes, where possible
- A person conducting a business or undertaking at a workplace should implement the following safe work practices to minimise occupational exposure during handling of the notified chemical in inks:
  - Avoid contact with skin and eyes
  - Avoid inhalation
- 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 chemical in inks:
  - Impervious gloves
  - Coveralls
  - Eye protection
  - Respiratory protection, if exposure to vapours from ink is expected

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

- A copy of the (M)SDS should be easily accessible to employees.
- If products and mixtures containing the notified chemical 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 chemical should be disposed of to landfill.

#### Storage

- The handling and storage of the notified chemical should be in accordance with the Safe Work Australia Code of Practice for *Managing Risks of Hazardous Chemicals in the Workplace* (SWA, 2012) or relevant State or Territory Code of Practice.

#### Emergency procedures

- Spills or accidental release of the notified chemical 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 chemical, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified chemical 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
  - the notified chemical is imported in any form other than as a component of printing ink at up to 30% concentration in sealed cartridges;

- the ink containing the notified chemical is used for printing in facilities other than industrial/commercial
- the notified chemical is proposed be used in consumer products
- any new data becomes available on the reproductive/developmental toxicity potential of the notified chemical;

or

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

*(Material) Safety Data Sheet*

The (M)SDS of a product containing the notified chemical provided by the notifier was reviewed by NICNAS. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

## **ASSESSMENT DETAILS**

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

#### APPLICANT(S)

Roland Digital Group Australia Pty Ltd (ABN: 13 007 023 690)  
Allambie Grove Business Park  
Unit 14, 25 Frenchs Forest Rd  
Frenchs Forest NSW 2086

#### NOTIFICATION CATEGORY

Standard: Chemical other than polymer (more 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 and structural formulae, molecular weight, analytical data, degree of purity, impurities, additives/adjuvants, introduction volume, use details and identity of analogue chemical.

#### VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

Variation to the schedule of data requirements is claimed as follows: All physicochemical and human health endpoints

#### PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

Limited notification

#### NOTIFICATION IN OTHER COUNTRIES

None

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

#### MARKETING NAME(S)

Polyalkylene glycol methyl ethyl ether  
Polyalkylene glycol ethylmethylether  
ECO-SOL MAX2 (product containing the notified chemical)

#### MOLECULAR WEIGHT

< 500 Da

#### ANALYTICAL DATA

Reference NMR and GC-MS spectra were provided.

### 3. COMPOSITION

DEGREE OF PURITY > 95%

### 4. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AT 20 °C AND 101.3 kPa: Colourless liquid

Property	Value	Data Source/Justification
Freezing Point	-72 °C	Technical data sheet. Full study report not provided.
Density	923 kg/m <sup>3</sup> at 20 °C	Technical data sheet. Full study report not provided.
Vapour Pressure	0.212 kPa at 20 °C	Estimated – mean VP of Antoine & Grain methods (US EPA, 2011)
Water Solubility	75.86 g/L at 20 °C	Calculated (WSKOW v1.42; US EPA, 2011)
Hydrolysis as a Function of pH	Not determined	Not expected to hydrolyse under environmental conditions (pH 4-9) given absence of hydrolysable functional groups.
Partition Coefficient (n-octanol/water)	log Pow = 0.009 at 20 °C	Calculated (KOWWIN v1.68; US EPA, 2011)
Adsorption/Desorption	log K <sub>oc</sub> = 0.55 at 25 °C	Calculated (KOCWIN v2.00; US EPA, 2011)
Dissociation Constant	Not determined	Not expected to dissociate under environmental conditions (pH 4-9), given the absence of dissociable functional groups.
Flash Point	63 °C (closed cup)	Technical data sheet. Full study report not provided.
Autoignition Temperature	Not determined	Imported in formulated products. 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 oxidative properties.

#### DISCUSSION OF PROPERTIES

For full details of tests on physical and chemical properties, refer to Appendix A.

#### Reactivity

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

#### Physical hazard classification

Based on the submitted physico-chemical data depicted in the above table, the notified chemical is 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. The recommended hazard classification is presented in the following table.

Hazard classification	Hazard statement
Flammable Liquids (Category 4)	H227: Combustible liquid

### 5. INTRODUCTION AND USE INFORMATION

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

The notified chemical will be imported into Australia as a component of commercial and industrial printing inks at  $\leq 30\%$  concentration.

#### 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>	$\leq 15$	$\leq 15$	$\leq 15$	$\leq 15$	$\leq 15$

PORT OF ENTRY  
Sydney and Melbourne

IDENTITY OF MANUFACTURER/RECIPIENTS  
Roland DG Australia Pty Ltd

#### TRANSPORTATION AND PACKAGING

The ink products containing the notified chemical (at  $\leq 30\%$  concentration) will be imported in 220 and 440 mL sealed inkjet cartridges. The inkjet cartridges will be transported in cardboard boxes by road to the notifier's storage warehouse, before being distributed to end user sites.

#### USE

The notified chemical will be used as a component of commercial and industrial printing ink (at  $\leq 30\%$  concentration). The inks containing the notified chemical may be applied to various substrates, such as vinyl, canvas, paper and shade cloth.

#### OPERATION DESCRIPTION

The notified chemical will not be manufactured, reformulated or repackaged in Australia.

At end users sites, the imported ink products (containing the notified chemical at  $\leq 30\%$  concentration) will be transferred directly from the cartridges to the printing heads via automated lines. The printing processes are expected to be fully automated, with the printers equipped with heaters that will cure the ink immediately after printing.

The notified chemical will be evaporated or trapped in the ink matrix after printing. Residual ink within printing equipment will be wiped clean using rags and solvents. These rags and dirty solvents will be disposed of by end users through licensed waste disposal contractors.

## 6. HUMAN HEALTH IMPLICATIONS

### 6.1. Exposure Assessment

#### 6.1.1. Occupational Exposure

##### CATEGORY OF WORKERS

<i>Category of Worker</i>	<i>Exposure Duration (hours/day)</i>	<i>Exposure Frequency (days/year)</i>
Storage & transport personnel	4	50
Printer operators	6	200
Service technicians	1	50

#### EXPOSURE DETAILS

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

Under the proposed use scenario, printer operators and service technicians may be exposed to ink containing the notified chemical (at  $\leq 30\%$  concentration). Exposure is expected to occur predominantly via the dermal route, but inhalation and ocular exposure is also possible. However, exposure to workers is expected to be limited by the use of automated printing processes, local exhaust ventilation and the use of appropriate personal protective equipment (PPE), including protective clothing, impervious gloves and eye/respiratory protection, if appropriate.

After ink application, the notified chemical is expected to either evaporate during drying, or to become trapped in the ink matrix once cured, and therefore will be unavailable for exposure via contact with the printed substrates.

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

The ink products containing the notified chemical will only be used for commercial/industrial purposes.

The general public is expected to have widespread and frequent exposure to substrates containing the cured ink products. However, the notified chemical will either have evaporated during drying, or have become trapped in the ink matrix, and therefore will not be available for public exposure.

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

No toxicity data were submitted for the notified chemical. However, data on the skin irritation and mutagenicity potential of the notified chemical had been submitted previously (Limited notification) and information is available on the health effects of the class of glycol ethers, and on an acceptable analogue chemical.

In general, the acute effects of glycol ethers are limited to the central nervous system and are similar to acute solvent toxicity. These effects include dizziness, headache, confusion, fatigue, disorientation, slurred speech and (if severe enough) respiratory depression and loss of consciousness. The effects of long-term exposure include skin irritation, anaemia and bone marrow suppression, encephalopathy and reproductive toxicity (ILO, 2007).

Some glycol ethers are considered of concern for a range of adverse health effects, including repeated dose effects and developmental and reproductive toxicity (US EPA, 2010).

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

The notified chemical is expected to be readily absorbed via the skin, GI tract and inhalation routes based on its low molecular weight (< 500) and relative hydrophilicity.

#### *Acute toxicity.*

No acute toxicity studies were provided for the notified chemical. Published data on the notified chemical indicates that the acute oral LD50 (rat) is ~6500 mg/kg bw and the acute dermal LD50 (rabbit) is ~7070 mg/kg bw (AIHA, 1962). In addition, a suitable analogue chemical was found to be of low acute inhalation toxicity in rats (US EPA, 2008). These results indicate that the notified chemical is likely to be of low acute toxicity via the oral, dermal and inhalation routes.

#### *Irritation and sensitisation.*

No irritation or sensitisation studies were provided on the notified chemical. Based on the skin irritation data that was submitted previously, the notified chemical was found to be slightly irritating to the skin of rabbits, however, the scores were insufficient to warrant classification of the chemical as a skin irritant. In addition, slight to moderate eye irritation effects and the absence of skin sensitisation have been reported following exposure to glycol ether chemicals (e.g. in OECD, 2004). Based on the available information, the notified chemical may have skin and eye irritant properties, but is not expected to be a skin sensitizer.

#### *Repeated Dose and Reproductive/Developmental Toxicity.*

No repeated dose toxicity studies were provided for the notified chemical. In studies reported in multiple documents (e.g. US EPA, 2008; ECHA, 2011) on a suitable analogue of the notified chemical, repeated exposure (studies conducted via the inhalation and oral routes) of rats to the analogue chemical caused testicular atrophy and reduced sperm count, adverse effects on the blood and blood forming organs including bone marrow hypoplasia and anaemia (reduced erythrocytes, haemoglobin, haematocrit and platelet count). Lymphoid tissue atrophy of the spleen and thymus was also noted in both sexes. In addition, it is noted that the analogue chemical is classified as a reproductive toxin (HSIS; R60 – May impair fertility, R61 – May cause harm to the unborn child). These effects are consistent with the general concerns noted above for glycol ethers.

The reproductive toxicity of the analogue chemical has been attributed to a minor metabolite (ECHA, 2011), which is also classified as a reproductive toxicant (HSIS). Hematopoietic toxicity is also considered to be due to the metabolite. The notified chemical has the potential to produce the same metabolite, although, based on the structure of the notified chemical, it may be produced to a lesser degree than in the metabolism of the analogue chemical. Given that the notified chemical has the potential to produce this metabolite, and given the significant



reproductive and developmental toxicity effects seen from exposure to the analogue chemical, the potential for similar adverse systemic and reproductive/developmental effects may also be expected from repeated exposure to the notified chemical.

#### *Genotoxicity.*

The notified chemical was not mutagenic to bacteria in vitro, with and without metabolic activation (data submitted previously). Additional in vitro and in vivo studies on the analogue chemical (e.g. US EPA, 2008) indicate that it is not genotoxic. Based on the available information, the notified chemical is not expected to be genotoxic.

#### **Health hazard classification**

As only limited toxicity data were provided on the notified chemical, the notified chemical 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**

The notified chemical may be irritating to the skin and/or eyes. In addition, significant adverse systemic and reproductive and developmental effects seen in animals after repeated exposure to suitable analogue chemicals indicate that the notified chemical may also exhibit similar effects following repeated exposure. Therefore, exposure to the notified chemical should be avoided.

The ink containing the notified polymer at  $\leq 30\%$  will be imported into Australia in sealed cartridges and no reformulation or packaging will take place in Australia. Due to the enclosed nature of the packaging containing the notified chemical, exposure during transport and storage is likely to only occur in the unlikely event of an accident.

Printer operators and service technicians may have exposure to the notified chemical at  $\leq 30\%$  concentration in ink products during printer operations. The primary route of exposure would be dermal, with (ocular and) inhalation exposure also possible, particularly as the notified chemical may volatilise while drying. However, exposure is expected to be minimised by the use of automated printing processes, exhaust ventilation and use of appropriate PPE, including coveralls, impervious gloves, eye protection and respiratory protection, if ventilation is inadequate. Workers may also be exposed to the dried ink on printed substrates, but the notified chemical will have volatilised or be trapped in the ink matrix and will be unavailable for exposure.

Therefore, given the proposed use scenario and providing that control measures are in place to minimise worker exposure (including the use of automated processes, where possible, adequate ventilation and appropriate PPE), the risk to the health of workers is not considered to be unreasonable.

#### **6.3.2. Public Health**

The notified chemical will be used for printing in commercial/industrial environments only. The public may be exposed to printed paper or other media, however, the ink on the media will be dried and not available for public exposure. Therefore, given the proposed use scenario, the risk to the public from the use of the notified chemical is not considered to be unreasonable.

## **7. ENVIRONMENTAL IMPLICATIONS**

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

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

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

The notified chemical will not be manufactured or reformulated within Australia. Products containing the notified chemical ( $\leq 30\%$ ) will be imported into Australia in sealed cartridges. Accidental spills during transport and handling of products containing the notified chemical are expected to be collected with inert material and disposed of to landfill.

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

The notified chemical is to be applied to a variety of substrates, such as vinyl (60%), canvas (15%), paper (15%), shade cloth (5%) and other substrates which are capable of holding images (5%), using industrial inkjet printers. After application, the notified chemical is expected to evaporate from the ink matrix to the atmosphere. This is to occur via a heat-drying process before the substrate leaves the printer. A small proportion of the notified chemical may remain in the ink matrix. A small amount of the notified chemical may be released via cleaning and maintenance operations, as well as small spills. It is expected these residues will be collected with inert material and disposed of to landfill.

#### RELEASE OF CHEMICAL FROM DISPOSAL

The majority of the notified chemical is expected to be released to the atmosphere during use. However, a small proportion of the notified chemical is expected to remain in the ink matrix on the substrate to which it has been applied. It is expected that these articles will be disposed of to landfill at the end of their life, and that the notified chemical will share this fate. Of the notified chemical applied to paper, 50% is expected to be recycled. During recycling processes, waste paper is repulped using a variety of chemical agents which, amongst other things, enhance the detachment of ink from fibres. Therefore, notified chemical present on paper during recycling processes is expected to be removed from the paper and disposed of to the sewer.

#### 7.1.2. Environmental Fate

As the majority of the notified chemical is to be released to the atmosphere, the potential for the notified chemical to persist and experience long range transport was assessed (AOP Program v1.92; US EPA, 2011). The notified chemical is predicted to experience a half life of 3.7 hours (assuming a 12 hour day). As such, it is expected that the notified chemical will undergo rapid degradation via reactions with OH-radicals, and will not experience long-range transport.

Notified chemical that does not evaporate during use is expected to be disposed of to landfill with the substrate to which the product containing the notified chemical is applied. Given the high predicted water solubility and low log K<sub>oc</sub>, the notified chemical is likely to leach from landfill and enter surface waters. A small proportion of the notified chemical may be released to sewer during paper recycling. Given the high predicted water solubility and low log K<sub>oc</sub>, the notified chemical is not expected to partition to sludge during waste water treatment processes in sewage treatment plants (STPs). Therefore, the notified chemical will remain in waste water and be released to aquatic environments.

Based on analogue data (US EPA, 2008), the notified chemical is not expected to be readily biodegradable in aqueous solution. Given the high predicted water solubility and low log K<sub>ow</sub>, the notified chemical is not expected to bioaccumulate. Ultimately, the notified chemical is expected to degrade via biotic and abiotic processes in the atmosphere and surface waters to form water and oxides of carbon.

#### 7.1.3. Predicted Environmental Concentration (PEC)

The calculation for the predicted environmental concentration (PEC) is summarised in the table below. Given 15% of the notified chemical is to be applied to a paper substrate, the proportion to be released to sewer is based on a worst-case scenario where the notified chemical does not evaporate during use and 50% of the paper is recycled. It is further assumed that release will occur over 260 working days per year and that there will be no removal of the notified chemical during STP processes.

Predicted Environmental Concentration (PEC) for the Aquatic Compartment		
Total Annual Import/Manufactured Volume	15,000	kg/year
Proportion expected to be released to sewer	7.5%	
Annual quantity of chemical released to sewer	1,125	kg/year
Days per year where release occurs	260	days/year
Daily chemical release:	28.85	kg/day
Water use	200.0	L/person/day
Population of Australia (Millions)	22.613	million
Removal within STP	0%	
Daily effluent production:	4,523	ML
Dilution Factor - River	1.0	
Dilution Factor - Ocean	10.0	
PEC - River:	0.96	µg/L
PEC - Ocean:	0.10	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 chemical 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 0.96 µg/L may potentially result in a soil concentration of approximately 6.38 µg/kg. Assuming accumulation of the notified chemical in soil for 5 and 10 years under repeated irrigation, the concentration of notified chemical in the applied soil in 5 and 10 years may be approximately 0.032 mg/kg and 0.064 mg/kg, respectively.

## 7.2. Environmental Effects Assessment

No ecotoxicity data were provided for the notified chemical. The results from ecotoxicological investigations conducted on an analogue of the notified chemical were available in a reliable international peer reviewed document (US EPA, 2008) and are summarised below. Limited details of these studies were published. The analogue and the notified chemical are considered to be similar in structure and therefore the endpoints presented below are likely to reflect that of the notified chemical.

<i>Endpoint</i>	<i>Result</i>	<i>Assessment Conclusion</i>
Fish Toxicity (96 h)	LC50 > 2000 mg/L	Not harmful to fish
Daphnia Toxicity (48 h)	EC50 > 1000 mg/L	Not harmful to aquatic invertebrates
Algal Toxicity (72 h)	E <sub>r</sub> C50 > 1000 mg/L	Not harmful to algae
Inhibition of Bacterial Respiration (72 h)	EC10 > 1000 mg/L	Not harmful to bacteria

The notified chemical is not formally classified under the Globally Harmonised System of Classification of Chemicals (GHS; United Nations, 2009) due to a lack of expected aquatic toxicity.

### 7.2.1. Predicted No-Effect Concentration

The lower limit of the analogue endpoints was used to calculate the predicted no-effect concentration (PNEC) for the notified chemical. An assessment factor of 1000 was used as ecotoxicological endpoints were not available for the notified chemical.

Predicted No-Effect Concentration (PNEC) for the Aquatic Compartment		
Endpoint (Lower Limit)	> 1000	mg/L
Assessment Factor	1000	
PNEC:	> 1000	µg/L

## 7.3. Environmental Risk Assessment

Risk Assessment	PEC µg/L	PNEC µg/L	Q
Q - River	0.96	> 1000	< 0.001
Q - Ocean	0.10	> 1000	< 0.001

The Risk Quotients (Q = PEC/PNEC) for a conservative discharge scenario have been calculated to be << 1 for the river and ocean compartments. The notified chemical is not expected to be readily biodegradable, however it is not expected to bioaccumulate, based on the high water solubility and low log K<sub>ow</sub>. Further, the notified chemical is not expected to be harmful to aquatic ecosystems, based on analogue data.

Therefore, the notified chemical is not expected to pose an unreasonable risk to the aquatic environment based on its assessed use pattern. Additionally, based on the short half-life of the notified chemical in air, it is not expected that the notified chemical will pose an unreasonable risk to the atmospheric environmental compartment.

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